City of Poughkeepsie
Planning Board
Meeting Agenda

Common Council Chambers
Wednesday, February 21, 2024
6:00 PM

I. CALL TO ORDER

II. APPROVAL OF MEETING MINUTES

1. Approval of January 17, 2024 meeting minutes

III. PUBLIC HEARINGS FOR SITE PLANS/SPECIAL PERMITS/SUBDIVISIONS

1. LOT#151783 SOUTH HAMILTON AVENUE: SITE PLAN
An application for a three-story building consisting of 29 one-bedroom units and 29 two-bedroom units. Owner/Applicant: O'Neill Group Hamilton LLC.; Consultant: Arico Associates; Grid # 6161-30-151782; Zoning District: Medium High-Density Residential (R-4); File #2023-041

2. 357 HOOKER AVENUE – SITE PLAN
Application for site plan review relative to the proposed renovation of the standard restaurant at 357 Hooker Avenue, including: alteration to the front (north) façade, proposed outdoor seating areas, outdoor cooking area, pavilion, outdoor storage container and dumpster. Owner: Highway Displays Inc; Applicant: Terriciena Brown; Consultant: Ciro Interrante, Architect, P.C.; Grid #6161-66-744353; Zoning District: Neighborhood Commercial (C-1); File #2023-082

3. 120 SOUTH HAMILTON STREET – LOT LINE ADJUSTMENT
Application for subdivision approval relative to the proposed lot line adjustment between the properties at 120 South Hamilton Street and 41 Crescent Road. The adjustment has received a Certificate of

Appropriateness from the Historic District and Landmark Preservation Commission as 120 South Hamilton Street is located in a local historic district. Owners: Brenda Blasini (120 South Hamilton Street) and Masooma Zaidi and Jose Lugay (41 Crescent Road); Applicant: Brenda Blasini; Consultant: Michael A. Dalbo, Land Surveyor, PC; Grid #6161-38-133733 and 139722; Zoning District: Low Density Residence (R-1); File #2023-070

IV. SITE PLANS/SPECIAL PERMITS/SUBDIVISIONS

1. 135 MAIN STREET - EXTENSION REQUEST

Approval extension for subdivision of 135 Main Street into two lots of record and construction of a new building containing 72 dwelling units on the new lot with the original lot containing an existing 119 unit multiple dwelling, including reconfiguration of off-street parking and open space. Owner: Omni New York; Applicant: Tinkleman Architecture; Consultant: Ken Casamento/LRC Group; Grid #6062-76-911183; Zone: Urban Density Residence (R-6) District; File #2021-037 and 2021-038

2. 70 and 72-78 PROSPECT STREET – SITE PLAN

Application for site plan review relative to the proposed conversion of vacant industrial parcels at 70 and 72-78 Prospect Street to an aggregate storage and distribution facility; Owner: Poughkeepsie Landing Corporation; Applicant: Brian K. Dreeland; Consultant: Caesar Engineering, D.P.C.; Grid #6061-51-827327 and 788513; Zoning District: General Industrial (I-2); File #2023-024 and 2023-025

3. 149 NORTH HAMILTON - SITE PLAN

An application for the creation of a parking area for the existing multi-unit building. Owner: RC Home Hamilton Street; Applicant: Roy Campbell; Consultant: Paul Tirums, P.E.; Grid #6062-63-275350; Zoning District: Central Medium Density Residential (R-3A); File #2023-051

4. 110 SOUTH GRAND AVENUE – SITE PLAN

Application for site plan review relative to the construction of an addition to a church and a renovation of a youth center. Owner/Applicant: Faith Apostolic Ministries Inc; Consultant: Michael R. Berta, AIA Architecture & Planning; Grid #6161-49-620556: 2023-067; Zoning District: Medium Low-Density (R2) District; File #PB2023-067.

5. 233-237 MAIN STREET – MIXED USE

Application for site plan review relative to the proposed conversion of the existing office building to a mixed use building with 6200 square feet of retail space on the first floor and twenty two (22) dwelling units. Owner: Elian & Justin Realty LLC: Applicant/Consultant: Jay Diesing, RA AIA,

Mauri Architects PC; Grid #6162-77-014124; Zoning District: PID-CC Civic Corridor; File #PB2023-091.

City of Poughkeepsie Planning Board
DRAFT Minutes
Wednesday, January 17, 2024 6:00 PM

Present	Excused	Staff
Rosaura Andújar- McNeil Nick DeLuccia Chris Pestas Brian Veltre Paul Ackerman	Anne Saylor Marjorie Smith	Richard Distel, City Planner

I. CALL TO ORDER

II. APPROVAL OF MEETING MINUTES

Approval of December 19, 2023 Minutes

Motion: Brian Veltre
Second: Nick DeLuccia
Carried: 4:0:1

III. PUBLIC HEARINGS FOR SITE PLANS/SPECIAL PERMITS/SUBDIVISIONS

1. LOT#151783 SOUTH HAMILTON AVENUE: SITE PLAN

ADJOURNED TO FEBRUARY 21, 2024

2. 357 HOOKER AVENUE - SITE PLAN FILE #2023-082

Application for site plan review relative to the proposed renovation of the standard restaurant at 357 Hooker Avenue, including: alteration to the front (north) façade, proposed outdoor seating areas, outdoor cooking area, pavilion, outdoor storage container and dumpster. Owner: Highway Displays Inc; Applicant: Terriciena Brown; Consultant: Ciro Interrante, Architect, P.C.; Grid #6161-66-744353; Zoning District: Neighborhood Commercial (C-1); File #2023-082

Presenting: Ciro Interante, Architect
Terriciena Brown, applicant

Motion to open the public hearing

Motion: Nick DeLuccia

Second: Brian Veltre
Carried: 5:0:0

Speakers:

Laurie Sandow
Carlos White

Motion to adjourn the public hearing

Motion: Paul Ackerman
Second: Brian Veltre
Carried: 5:0:0

IV. SITE PLANS/SPECIAL PERMITS/SUBDIVISIONS

1. 10 RINALDI BOULEVARD: SITE PLAN -COMMUNITY ROOM

An application for the addition of a 2,350 square foot community room to the existing building. Owner/Applicant: Rip Van Winkle House LLC ; Consultant: Hershberg & Hershberg ; Grid #6062-74-749131; Zoning District: Waterfront Transit-Oriented (WTOD); File #2023-011

Presenting: Nick Daniels, Hershberg & Hershberg

Motion was made to approve with conditions
Motion: Nick DeLuccia
Second: Brian Veltre
Carried: 5:0:0

2. 110 SOUTH GRAND AVENUE: SITE PLAN

Application for site plan review relative to the construction of an addition to a church and a renovation of a youth center. Owner/Applicant: Faith Apostolic Ministries Inc; Consultant: Michael R. Berta, AIA Architecture & Planning; Grid #6161-49-620556: 2023-067; Zoning District: Medium Low- Density (R2) District; File #PB2023-067.

Presenting: Micheal Berta, Architect

Motion to declare Planning Board Lead Agency for matters of SEQRA
Motion: Paul Ackerman
Second: Nick DeLuccia
Carried: 5:0:0

3. 9 DUTCHESS AVENUE - SITE PLAN

Application for grading of site, pursuant to the provisions of Section 19- 4.19(c) of the Zoning Ordinance, which allows a building permit to be issued for grading with specific permission by the Planning Board, pursuant to the site plan review process. Owner/Applicant: 9 Dutchess LLC (Louis Kaufman); Consultant: Day Stokosa Engineering PC; Grid #6062-59- 781388, 777390, 774390 and 768392; Zoning District: Waterfront (W) District; File #PB2023-090

Presenting: Lou Kaufman, applicant

Motion was made for a resolution of approval
Motion: Paul Ackerman
Second: Nick DeLuccia
Carried: 4:0:1

4. **125 MARKET STREET**
Application for Façade Review relative to the proposed alteration of the fac;ade of the building at 125 Market Street, pursuant to the provisions of Section 19-3.23(7) of the Zoning Ordinance, which requires approval by the Planning Board of any change in the façade of an existing building in the C- 2 District. Owner: Market Street Enterprises, LLC/Sam Shamsuddin; Applicant: Deepen Patel; Consultant: Mazzarelli Architecture & Planning PC; Grid #6061-28-986951; Zoning District: Central Commercial (C-2); File #2023-092

Presenting: Carlo Mazzarelli, Mazzarelli Architect and Planning
Deepen, applicant

Motion was made for a resolution of approval with conditions

Motion: Paul Ackerman
Second: Nick DeLuccia
Carried: 5:0:0

A motion was made to adjourn the meeting to February 21th
Motion: Nick DeLuccia
Second: Paul Ackerman
Carried: 5:0:0

For more details regarding the meeting, please visit the Meeting Webcast or the Agendas and Minutes page on the City of Poughkeepsie website.

APPLICATION TO THE PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

Application for Site Plan, Special Permit & Facade Approval

OFFICE USE ONLY

CODE: PLSF

ID #_____

FEE: _____
Total, from:
$500, plus
$_____
($150 per 1000 square feet of floor area), plus
$_____
($35 per number of required parking spaces), plus
$_____
($500 for special permit, if applicable)

I. **PROPERTY ADDRESS:** SOUTH HAMILTON AVENUE

II. **PROPERTY OWNER:** O'NEILL GROUP HAMILTON LLC
ADDRESS: 241 HUDSON STREET
HACKENSACK
NEW JERSEY 07601 (state and zip code)
PHONE NUMBER: 201-488-4455 (include area code)

III. **NAME OF APPLICANT:** O'NEILL GROUP HAMILTON LLC
ADDRESS: 241 HUDSON STREET
HACKENSACK
NEW JERSEY 07601 (state and zip code)
PHONE NUMBER: 201-488-4455 (include area code)
EMAIL ADDRESS: LONEILL@ONEKEYLLC.COM GBRANDT@ONEKEYLLC.COM

(If applicant is NOT the owner, proof of owner's consent to the application MUST be provided.)

IV. **CONSULTANT:** Arico Associates
ADDRESS: 50 Century Hill Drive
Latham, NY 12110
_____ (state and zip code)
PHONE NUMBER: 518-573-6989 (include area code)

V. **PROPOSED USE or FAÇADE CHANGE** (Summarize proposed use or uses): RESIDENTIAL

VI. **ZONING DISTRICT:** MEDIUM HIGH-DENSITY RESIDENTIAL (R-4)

(Proceed to XVII for special permit & façade approval only)

Revised January 2018: Previous Editions Obsolete

PROJECT INFORMATION

New construction: X (yes)_____ (no)

Change of use:_____ (yes) X (no)

Expansion/addition:_____ (yes) X (no)

Alteration:_____ (yes) X (no)

Cost of Construction: $ 6,000,000

LOT AND BULK INFORMATION:

Lot area: 3.378 (acres) 147,145.68 (square feet)

Building Footprint: 22,800 (proposed square feet for new construction)

_____ (existing square feet for change of use/expansion)

_____ (additional proposed square feet for expansion)

_____ (total building footprint, square feet)

Lot Coverage: 15.4 (percentage, building coverage only)

Gross Floor Area: 68,400 (proposed square feet for new construction)

_____ (existing square feet for change of use/expansion)

_____ (additional proposed square feet for expansion)

_____ (total gross floor area, square feet)

Building Height: 3 (stories) 40 (feet)

Floor Area Ratio: .46 (ratio of gross floor area divided by lot area)

VIII. PROJECT PARKING INFORMATION

A) Number of Off-Street Parking Spaces required: 102

B) Number of Off-Street Parking Spaces provided: 109

C) Waiver Requested: _____ (Yes) X (No)

Is municipal parking available within 600 feet? _____ (Yes) X (No)

If yes, name all such municipal facilities: _____

_____

_____

(If a waiver is requested based on proximity to municipal facilities, a written request for such waiver, addressed to the City Planning Staff and the Chairman of the Planning Board, must be submitted with the application.)

If a private parking facility is to be utilized, is such facility within 600 feet?

_____ (Yes) __X__ (No)

If yes, provide the address of the facility, name of the property owner, number of spaces in the lot, number of spaces available for lease, and length of lease. Attach copy of lease. Additional information may be required by the Planning Board):

_____

_____

_____

_____

IX. RESIDENTIAL PROPOSALS

A) Type of Development: LUXURY MULTIPLE FAMILY RENTAL
(Townhouse, condominium, multiple residence rental, etc.)

B) Unit Breakdown:

Number of efficiency or "studio" units: _____

Number of one (1) bedroom units: 29

Number of two (2) bedroom unit's 29

Number with three or more bedrooms: _____

Total number of units: 58

C) Is funding public? ____ Yes __X__ No
If yes, describe funding source: _____

X. OFFICE PROPOSALS (____ Medical/Dental ____ Professional ____ Business)

A) Number of Employees: _____
B) Number of doctors/dentists/medical practitioners: _____
C) Days/Hours of Operation: _____

XI. SERVICE BUSINESS PROPOSALS

A) Specify Business: _____
(e.g., laundromat, drycleaner, beauty parlor, travel agency, banks)

B) Number of Employees: _____

C) Number of Washing Machines (for laundromat): _____

D) Days/Hours of Operation: _____

XII. MERCANTILE PROPOSALS (Retail _____ Wholesale _____)

A) Type of Mercantile (specify): _____

B) Number of Employees: _____

C) Days/Hours of Operation: _____

XIII. STANDARD RESTAURANT/FAST FOOD RESTAURANT/COFFEE SHOP/DONUT SHOP/NIGHTCLUB/DISCOTHEQUE/BAR PROPOSALS

A) Specify Use: _____

B) Number of seats (excluding bar stools and outdoor seating):_____

C) Meals served (i.e., breakfast, lunch, dinner): _____

D) Type of Menu: _____

E) Days/Hours of Operation: _____

F) Entertainment (live and/or recorded):_____

G) Will the restaurant contain a bar/lounge?: _____ Yes _____ No

H) If yes, how many seats at the bar? _____

I) Is a drive-through window proposed? _____

J) Is a walk-up window proposed? _____

K) Is an outdoor seating area proposed? _____

L) If yes, how many seats are proposed? _____

M) If yes, is outdoor cooking proposed? _____

XIV. INDUSTRIAL/COMMERCIAL PROPOSALS (Automobile repair, taxi, motor vehicle sales, warehouse, manufacturing, animal hospital, research facilities, etc.)

A) Specify Use: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

E) Number of work bays (if automobile repair): _____

F) Days/Hours of operation: _____

XV. EDUCATIONAL/INSTITUTIONAL/RECREATIONAL PROPOSALS (e.g., Museums, Theatres, Conference Centers, Hotels, Motels, Hospitals, Nursing Homes, Assisted Living Facilities, Nursery Schools, Private Schools, Day Care Centers, Places of Worship, Marinas, Membership Clubs, etc.)

A) Specify: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

D) Number of beds (hospitals, nursing homes, etc): _____

E) Number of seats in largest assembly space: _____

F) Number of classrooms (schools): _____

G) Number of rental units (hotels, motels, etc.) _____

H) Number of boat slips/courts (e.g., tennis, handball, etc.), alleys: _____

I) Days/Hours of Operation: _____

XVI. PROPOSALS NOT MENTIONED ABOVE (Please be specific):

_____

_____

_____

_____

_____

XVII. APPLICANT CERTIFICATION

I, O'NEILL GROUP HAMILTON LLC, certify that the this application has addressed the objectives outlined in the Zoning Ordinance with consideration given to the public health, safety and welfare; the comfort and convenience of the public in general or the residents or users of the proposed development and of the immediate neighborhood.

The applicant certifies that all information contained herein is accurate and complete as of the date of this application.

_____ 4/21/2023

Signature of Applicant Date

Revised January 2018: Previous Editions Obsolete

The O'Neill Group
A Real Estate Development Company
241 Hudson Street / Hackensack, NJ 07601

~~October 5, 2023~~
Revised October 9, 2023

City of Poughkeepsie Planning Board
62 Civic Center Plaza, 2nd Floor.
Poughkeepsie, NY 12601
Attention: Lori Garcia

Re: S. Hamilton Street (151783) proposed construction of a 58-unit multifamily building.

Dear Ms. Garcia:

Enclosed please find a thumb drive containing the following:

1. Site Plan Set prepared by Arico Associates Engineering revised October 3, 2023. In response to Board comments, a Boundary and Topographic Survey prepared by Vincent Ausfeld, PLS dated September 28, 2023, which highlights existing conditions is added to the plan set. A Landscape Plan prepared by The Michael Boice Collaboration dated September 27, 2023, is included. Two gazebo gathering spaces and four benches have been added to the plan in response to comments from the Board. Landscape and Lighting plans are separate plan sheets at the request of the board. A Lighting and Photometric Plan is added to the plan set in response to comments. In addition, the Grading and Drainage plan is now a separate sheet as is the Water and Sewer Utility plan. An Erosion Control Plan is added to the plan set. Several sheets of construction details and notes are added to the plan set in response to Board comments.
2. Stormwater Pollution Prevention Plan (SWPPP) prepared by Arico. Associates Engineering dated October 3, 2023.

3. Floor Plans & Elevations by Mija Architecture revised October 4, 2023. The entrance lobby is shifted to the center of the two building wings. The stairwells are relocated to the front of the building and the access doors that were previously located in the rear of the building now open to the front. Line of site perspectives are added to the drawing set in response to comments.
4. Color Renderings prepared by Mija Architecture and dated October 4, Stone is proposed in place of brick that was shown on previous rendering. In response to comments balcony partitions and railings are revised and proposed landscaping is depicted in the renderings.
5. Subsurface Investigation Report prepared by Kevin L. Patton; P.E. dated July 6, 2023.
6. Traffic Impact Study prepared by Creighton Manning Engineering LLP Dated July 6, 2023. The study concludes that the Build condition of the study intersections will operate at the same levels of service consistent with the No-Build conditions.
7. Poughkeepsie Natural Resource Inventory Conservation Analysis Prepared by Cleary Consulting dated October 5, 2023. Based on the Analysis, the Action is consistent with the policy objectives of the Natural Resources Inventory for the City of Poughkeepsie

We look forward to our appearance before the Board on November 21st.

Sincerely,

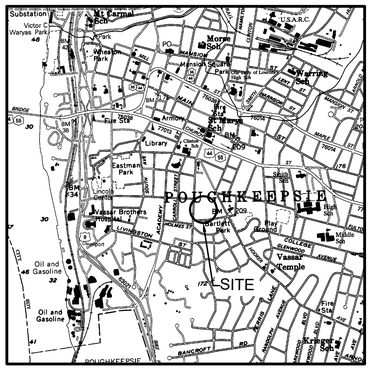
George Brandt
gbrandt@onekeyllc.com
(201) 488-4455 ext. 122

SOUTH HAMILTON

CITY OF POUGHKEEPSIE

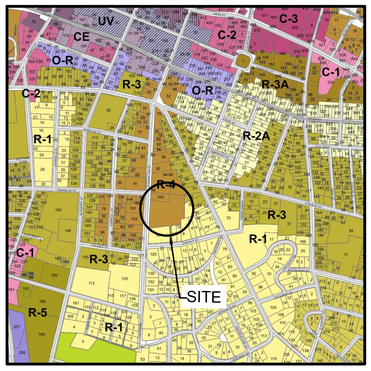
COUNTY OF DUTCHESS STATE OF NEW YORK

OCTOBER 3, 2023



SITE LOCATION MAP

SCALE: 1"=2000'±



ZONING MAP

SCALE: 1"=2000'±

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

CITY OF POUGHKEEPSIE
ZONING DISTRICT INFORMATION

DESCRIPTION	REQUIREMENT	PROPOSED
R4 - MEDIUMHIGH DENSITY RESIDENTIAL		
MINIMUM LOT AREA	145,000 SF* (> 3 BEDROOM UNITS)	147,145.7* SF (58 UNITS)
MINIMUM LOT WIDTH	50 FT	346.3 FT
MINIMUM LOT FRONTAGE	30 FT	346.3 FT
FRONT SETBACK	35 FT	39.0± FT
SIDE SETBACK	20 FT (0.5 MAX HEIGHT OF 40 FT)	20.0 FT (LEFT SIDE) 65.0± FT (RIGHT SIDE)
REAR SETBACK	20 FT (0.5 MAX HEIGHT OF 40 FT)	215.4± FT
USABLE OPEN SPACE	40%	52.2±%
MAX. BUILDING HEIGHT	40 FT	40.0 FT
LOT COVERAGE	40%	15.4%
* - SEE SITE AREA CALCULATIONS TABLE		

SITE STATISTICS

TOTAL PROJECT AREA 147,145.7± SF 3.378± AC	EXISTING			PROPOSED		
	SQUARE FEET	ACRES	COVERAGE	SQUARE FEET	ACRES	COVERAGE
BUILDING AREA	0.00	0.00	0.00%	24,650 SF	0.56±	16.5%
PAVEMENT AREA	2,000.0±	0,050±	1.5%	46,835.0±	1.07±	31.7%
GREEN/OPEN AREA	145,145.7±	3.328±	98.5%	75,660.7±	1.75±	51.8%

PROJECT INFORMATION

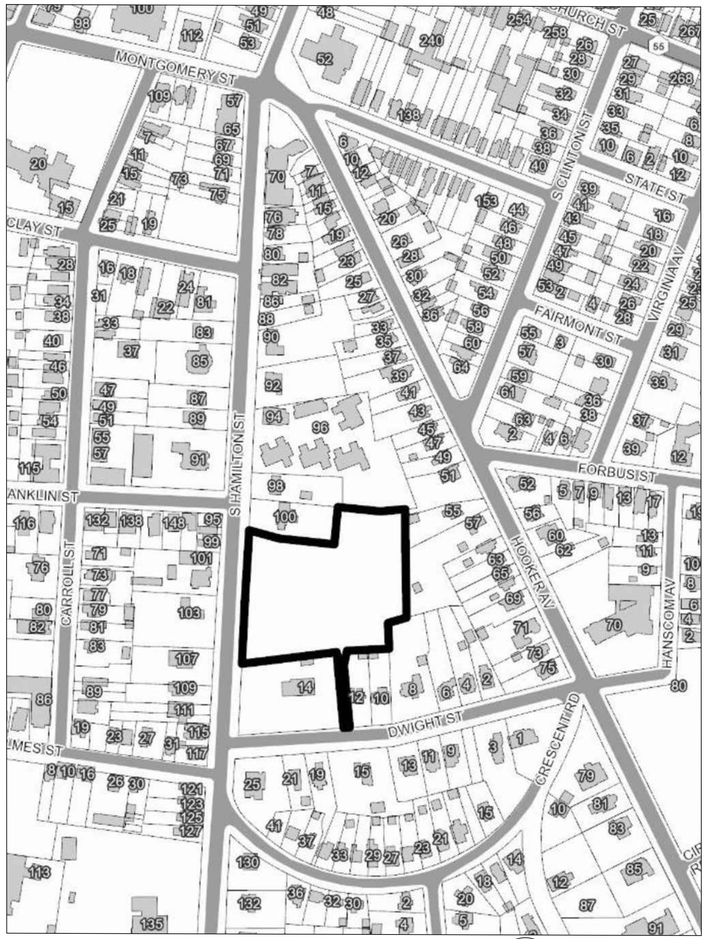
ADDRESS	SOUTH HAMILTON STREET
TAX MAP No.	6161-30-151783
ZONING DISTRICT	R-4 MEDIUM HIGH DENSITY RESIDENTIAL
SITE COORDINATES	N 41°41'42.82" W 73°55'28.39"
TOTAL PROJECT AREA	3.378± ACRES
EXISTING USE	RESIDENTIAL / VACANT
PROPOSED USE	MULTI-FAMILY
PARCEL FRONTAGE	346.3 LF (S. HAMILTON STREET) 17.0 LF (DWIGHT STREET)
WATER SUPPLY	CITY OF POUGHKEEPSIE
SANITARY SERVICE	CITY OF POUGHKEEPSIE
FIRE PROTECTION	CITY OF POUGHKEEPSIE
SCHOOL DISTRICT	CITY OF POUGHKEEPSIE
PROPSED DENSITY	58 UNITS

SITE AREA CALCULATIONS

PARKING REQUIREMENTS
1.5 SPACES PER 1-BEDROOM UNIT @ 29 UNITS = 43.5 SPACES
2.0 SPACES PER 2-BEDROMM UNIT @ 29 UNITS = 58.0 SPACES
TOTAL PARKING REQUIRED = 102 SPACES
TOTAL PARKING PROVIDED = 102 SPACES

MIMIMUM LOT AREA
2,200 SF PER 1-BEDROOM UNIT @ 29 UNITS = 81,200 SF
2,800 SF PER 2-BEDROMM UNIT @ 29 UNITS = 63,800 SF
TOTAL LOT AREA REQUIRED = 145,000 SF
TOTAL LOT AREA PROVIDED = 147,145.7 SF

USUABLE OPEN SPACE
300 SF PER 1-BEDROOM UNIT @ 29 UNITS = 8,700 SF
400 SF PER 2-BEDROMM UNIT @ 29 UNITS = 11,600 SF
TOTAL OPEN SPACE REQUIRED = 20,300 SF
TOTAL OPEN SPACE PROVIDED = 32,850 SF



OVERALL SITE LOCATION

SCALE: 1"= 200'

INDEX TO DRAWINGS

SHEET No.	DWG. NO.	DESCRIPTION
1		BOUNDARY & TOPOGRAPHIC SURVEY
2	S1	SITE LAYOUT PLAN
3	S2	WATER AND SEWER UTILITY PLAN
4	S3	GRADING AND DRAINAGE PLAN
5	S4	EROSION CONTROL PLAN
6	D1	STANDARD DETAILS
7	D2	STANDARD CITY DETAILS
8	D3	STANDARD DETAILS
9	D4	STANDARD DETAILS
10	L1	LANDSCAPING PLAN (BY OTHERS)
11	L1A	LANDSCAPING PLAN (BY OTHERS)
12	L2	LANDSCAPING PLAN (BY OTHERS)
13	TBD	LIGHTING PLAN (TBD)

GENERAL NOTES:

1. THE APPLICANT SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL RULES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE SEQR, FRESHWATER WETLAND PERMIT REGULATIONS, THE TOWN GRADING LAW AND THE TOWN FLOOD PLAIN MANAGEMENT.

2. THE APPLICANT SHALL BEAR THE SOLE RESPONSIBILITY FOR ENSURING THAT ALL IMPROVEMENTS ARE COMPLETED AND MAINTAINED IN ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS AND STANDARDS.

3. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED UNTIL ALL REQUIRED IMPROVEMENTS ARE SATISFACTORILY COMPLETED, AND THE PLANNING BOARD HAS PROVIDED WRITTEN AUTHORIZATION TO THE BUILDING DEPARTMENT.

4. THE APPLICANT SHALL BE RESPONSIBLE FOR KEEPING EXISTING PUBLIC HIGHWAYS AND ADJACENT LANDS FREE OF DEBRIS, SOIL AND OTHER MATTER WHICH MAY ACCUMULATE DUE TO CONSTRUCTION RELATED TO THE SITE.

5. ALL PLANT MATERIALS INSTALLED PURSUANT TO THIS SITE DEVELOPMENT PLAN SHALL CONFORM TO THE AMERICAN STANDARD NURSERY STOCK (ANSI Z60.1–1986) OF THE AMERICAN ASSOCIATION OF NURSERYMEN OR EQUIVALENT RECOGNIZED STANDARD, AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICE.

6. NO PORTION OF THIS SITE SHALL BE USED FOR STORAGE OR DISPLAY OF ANY PRODUCT OR MATERIAL, OR FOR PARKING OF ANY VEHICLES, OR FOR THE CONDUCT OF ANY OTHER BUSINESS OPERATIONS, UNLESS SPECIFICALLY DESIGNATED FOR SUCH USE ON THIS SITE DEVELOPMENT PLAN.

7. ALL REQUIRED EROSION & SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND THE BUILDING DEPARTMENT SHALL BE NOTIFIED PRIOR TO ANY SOIL DISTURBANCE OR ISSUANCE OF ANY GRADING PERMIT.

8. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON–SITE.

9. THE CONTRACTOR AND/OR HIS REPRESENTATIVE(S) ARE ENTIRELY RESONSIBLE FOR EXECUTING THE WORK AND MAINTAINING THE WORK SITE IN ACCORDANCE WITH ALL APPLICABLE SAFETY CODES AND STANDARDS.

10. THE CONTRACTOR SHALL CLEAN–UP AT THE END OF EACH WORK DAY AND LEAVE THE WORK SITE CLEAN, WITH ALL ITEMS ATTENDED TO; NO FASTENERS, TOOLS AND/OR ANY OTHER ITEM MAY NOT BE LEFT UNATTENDED.

11. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION MATERIALS AND DEBRIS FROM THE WORK SITE ON A DAILY BASIS.

12. ON–SITE VERIFICATION OF ALL DIMENSIONS AND CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

13. THE ENGINEER SHALL BE NOTIFIED, IN WRITING, OF ANY ANY DISCREPANCIES OF CONFLICTS THAT MAY ARISE PERTAINING TO THESE DRAWINGS. NO DECISION SHALL BE MADE WITHOUT APPROVAL OR CONSENT FROM THE ENGINEER.

14. ALL CONSTRUCTION SHALL COMPLY WITH NYS FIRE PREVENTION AND BUILDING CODES, LOCAL BUILDING CODES AND REQUIREMENTS, AS WELL AS FEDERAL PLUMBING AND ELECTRICAL CODES.

15. THE CONTRACTOR SHALL PERFORM ALL WORK IN A PROFESSIONAL AND SKILLED MANNER.

16. ANY EXISTING CONDITIONS DAMAGED OR DESTROYED DURING THE COURSE OF WORK SHALL BE RESTORED AT THE CONTRACTORS EXPENSE TO "AS GOOD AS CONDITION" AS DETERMINED BY THE ENGINEER.

17. ACCESS TO ALL PUBLIC UTILITIES INCLUDING FIRE HYDRANTS AND ALARMS, POLICE CALL BOXES, STREET LIGHTS, MANHOLES, ETC. SHALL BE KEPT UNOBSTRUCTED DURING CONSTRUCTION.

18. ALL MATERIALS AND EQUIPMENT USED FOR THIS PROJECT AND/OR KEPT ON–SITE SHALL COMPLY WITH NYS ENERGY CONSERVATION CONSTRUCTION CODE.

19. THESE PLANS ARE CERTIFIED TO BE IN ACCORDANCE WITH NYS BUILDING CODES; THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE FINISHED PRODUCT.

20. THE CONTRACTOR SHALL PROVIDE PROTECTIVE BARRICADES, PROPER SIGNAGE AND LIGHTING TO PREVENT UNAUTHORIZED ENTRY TO THE WORK–SITE.

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA REGULATIONS AND NYS LABOR COMPLIANCE.

22. THE CONTRACTOR SHALL COMPLY WITH ALL DRAWING NOTES.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING HIGHWAY WORK PERMIT BEFORE PERFORMING ANY WORK WITHIN RIGHT–OF–WAY.

24. APPROPRIATE TRAFFIC CONTROL DEVICES & PERSONEL SHALL BE PROVIDED IN ACCORDANCE WITH FEDERAL, STATE OR LOCAL REGULATIONS TO REGULATE, WARN & GUIDE TRAFFIC THROUGH THE WORK SITE.

OWNER / APPLICANT:

O'NEILL GROUP HAMILTON, LLC
241 HUDSON STREET
HACKENSACK, NEW JERSEY 07601

PREPARED BY:

ARICO ASSOCIATES
ENGINEERS
LAND PLANNERS
& CONSULTANTS

NOTE

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLAITON OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

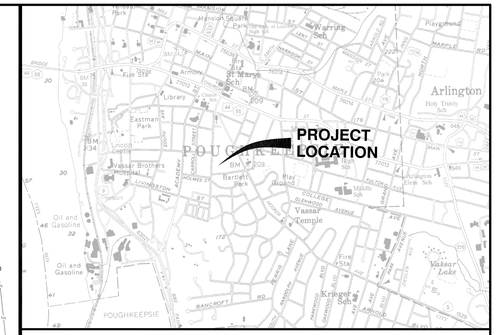
CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

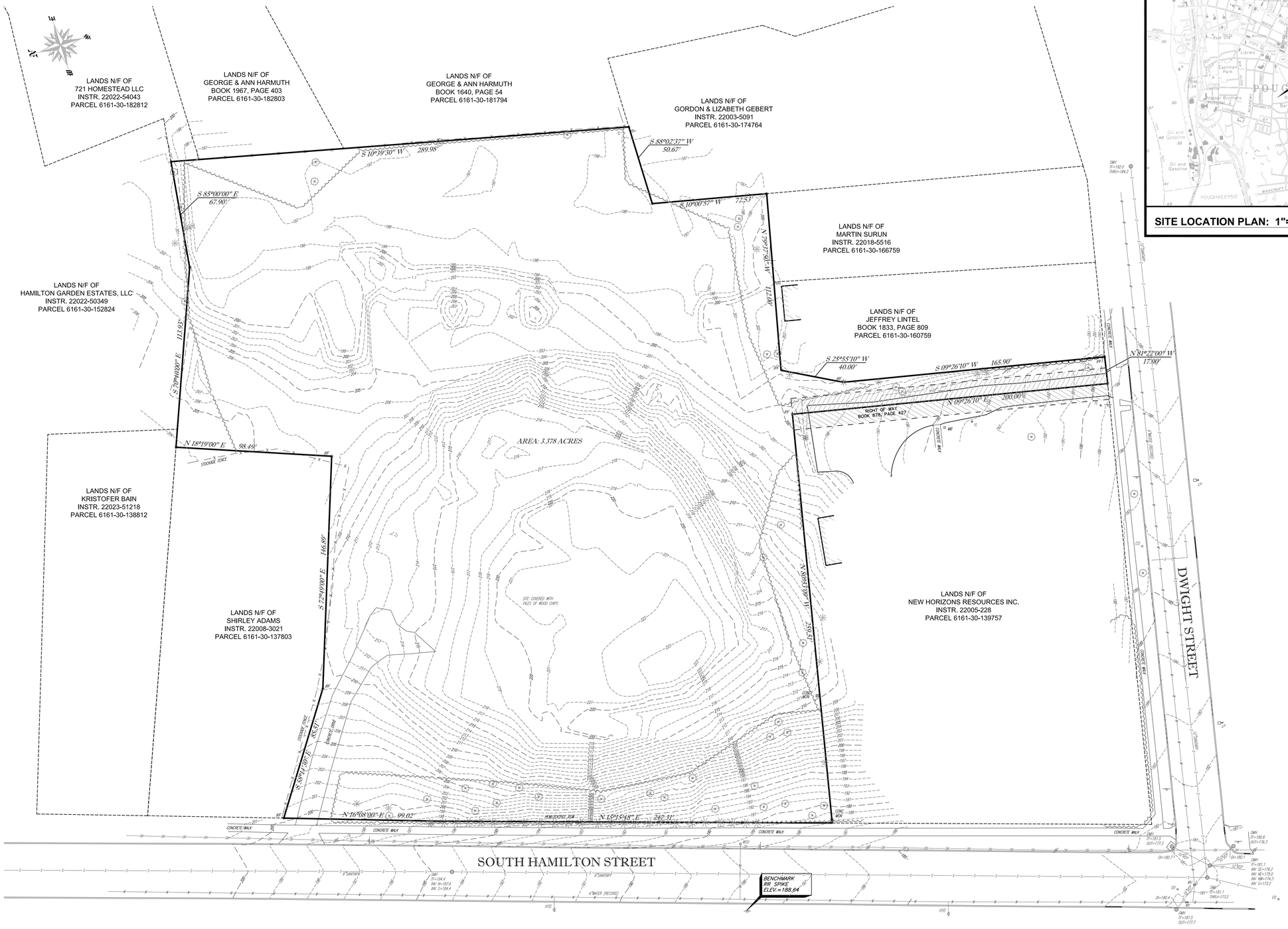
OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

LEGEND:

- CB — CATCH BASIN
- HYD — HYDRANT
- LP — LIGHT POLE
- SMH — SANITARY MANHOLE
- DMH — STORM MANHOLE
- EMH — ELECTRIC MANHOLE
- WV — WATER VALVE
- TEL PED — TELEPHONE PEDESTAL
- EMH — ELECTRIC BOX
- ELEC TRANS — ELECTRIC TRANSFORMER
- UTILITY POLE
- TMH — TELEPHONE MANHOLE
- TCB — TRAFFIC CONTROL BOX
- TSP — TRAFFIC SIGNAL POLE
- G — GAS LINE
- S — SANITARY LINE
- ST — STORM LINE
- W — WATER LINE
- T — TELEPHONE LINE
- OH — OVERHEAD WIRES
- + 357.62 — SPOT ELEVATION
- CMF — CAPPED IRON ROD FOUND
- IRF — IRON ROD FOUND
- IPF — IRON PIPE FOUND
- LA — LANDSCAPED AREA
- RD — ROOF DRAIN
- SB — SOIL BORING
- MW — MONITORING WELL
- GMK — GAS MARKER POST
- EM — ELECTRIC METER
- GM — GAS METER



SITE LOCATION PLAN: 1"=2000'



TAX PARCEL NUMBER:

CITY OF POUGHKEEPSIE, DUTCHESS COUNTY, NEW YORK
TAX PARCEL 6161-30-151783

MAP REFERENCES:

1. "SURVEY OF PROPERTY PREPARED FOR STEPHEN REIFLER." PREPARED BY JOHN MARANO, DATED JUNE 6, 1987.
2. SANITARY SEWER MAP NO. 18 ON FILE AT THE CITY OF POUGHKEEPSIE ENGINEERING DEPARTMENT.
3. STORM SEWER MAP NO. 18 ON FILE AT THE CITY OF POUGHKEEPSIE ENGINEERING DEPARTMENT.
4. WATER MAPS PAGE NOS. 118 AND 176 ON FILE AT THE CITY OF POUGHKEEPSIE ENGINEERING DEPARTMENT.

DEED REFERENCES:

1. STEVEN REIFLER TO ONEILL GROUP HAMILTON LLC, DATED SEPTEMBER 13, 2022 AND RECORDED IN THE DUTCHESS COUNTY CLERKS OFFICE IN DEED INSTR. 22022-53570.

GENERAL NOTES:

NORTH IS ORIENTED TO DEED REFERENCE 1.

VERTICAL DATUM IS ASSUMED. ADD 1.0 FEET TO ALL ELEVATIONS TO NAVD88 DATUM.

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

ONLY COPIES FROM THE ORIGINAL OF THIS SURVEY MARKED WITH AN ORIGINAL OF THE LAND SURVEYOR'S INKED SEAL OR HIS EMBOSSED SEAL SHALL BE CONSIDERED TO BE VALID TRUE COPIES.

SURVEYED FROM RECORD DESCRIPTION AND AS IN POSSESSION.

SUBJECT TO COVENANTS, EASEMENTS, RESTRICTIONS, CONDITIONS AND AGREEMENTS OF RECORD.

SURVEY SUBJECT TO ANY RIGHT, TITLE OR INTEREST THE PUBLIC MAY HAVE FOR HIGHWAY USE.

SURVEY SHOWN IS SUBJECT TO ANY SUBSURFACE CONDITIONS THAT MAY EXIST, IF ANY.

UNDERGROUND FACILITIES AND STRUCTURES SHOWN HEREON WERE TAKEN FROM DATA OBTAINED FROM PREVIOUS MAPS AND RECORD DRAWINGS. ALL ABOVE GROUND STRUCTURES AND SURFACE FEATURES SHOWN HEREON ARE THE RESULT OF A FIELD SURVEY UNLESS OTHERWISE NOTED. THERE MAY BE OTHER UNDERGROUND UTILITIES, THE EXISTENCE OF WHICH ARE NOT KNOWN OR CERTIFIED BY THE UNDERSIGNED. THE SIZE AND LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES. THE UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION MUST BE NOTIFIED PRIOR TO CONDUCTING TEST BORINGS, EXCAVATION AND CONSTRUCTION.

30 0 30
SCALE IN FEET
1"=30'

SHEET 1 OF 13

SOUTH HAMILTON STREET

BOUNDARY & TOPOGRAPHIC SURVEY OF THE LANDS OF ONEILL GROUP HAMILTON LLC

CITY OF POUGHKEEPSIE	DUTCHESS COUNTY, N.Y.
SCALE: 1"=30'	SEPTEMBER 28, 2023
DRAWN BY: KCW	PROJECT NO:

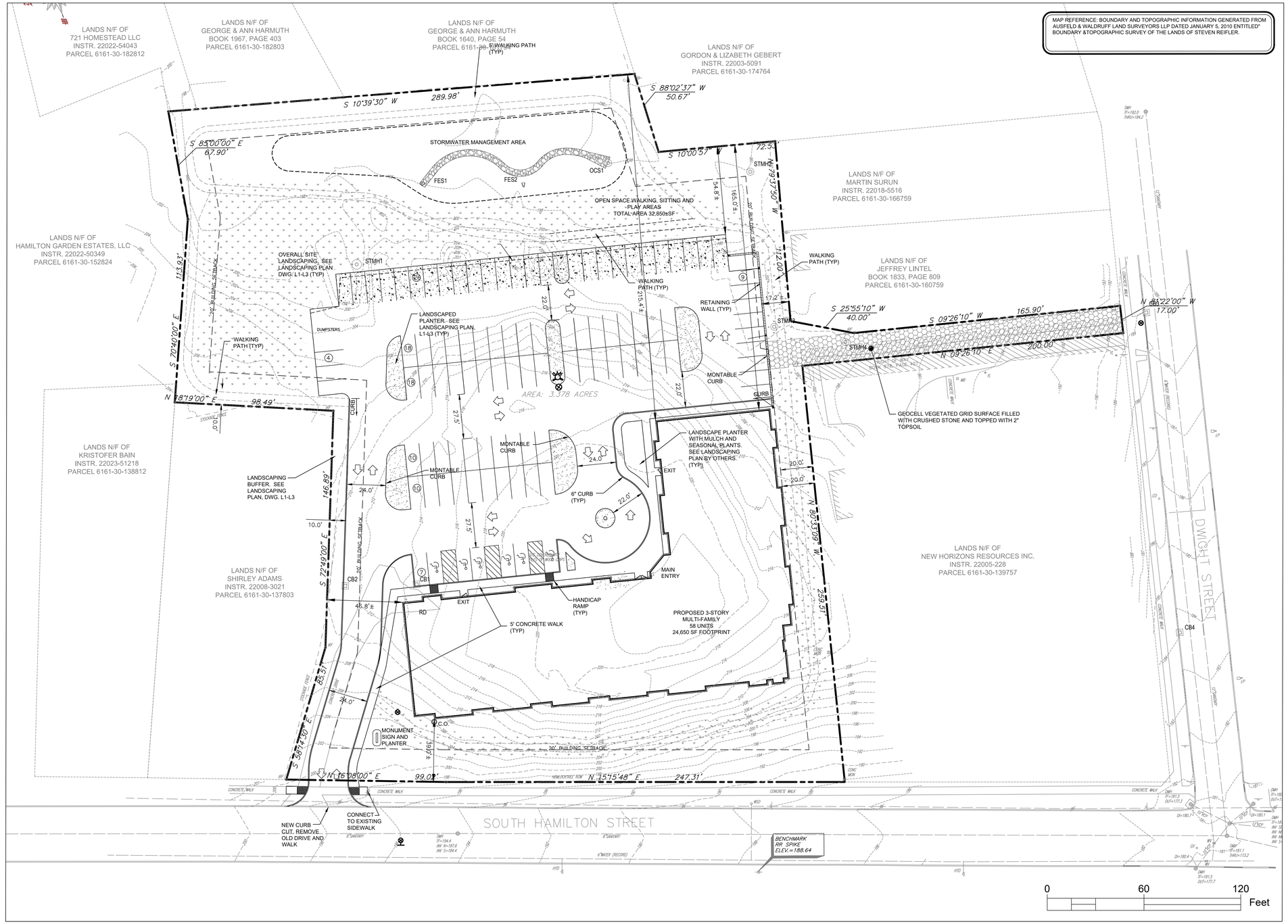
REVISION:
DATE:

Ausfeld & Waldruff Land Surveyors LLP
323 CLINTON STREET, SCHENECTADY NY
Phone: (518) 346-1595 Fax: 518-770-1655

VINCENT P. AUSFELD P.L.S.
LICENSE #049597
www.awlsllp.com

STATE OF NEW YORK · VINCENT P. AUSFELD · 049597 · LICENSED PROFESSIONAL SURVEYOR

Drawing Name: Z:\PROJECTS\2023\23-3540\dwg\23-3540-BM.dwg
Xref's Attached:
Date Printed: Sep 28, 2023, 6:30pm



SITE LAYOUT PLAN

SCALE: 1"= 30'

PRIOR TO START OF CONSTRUCTION OR EXCAVATION, TREES TO BE RETAINED SHALL BE PROTECTED BY SILT FENCE, SNOW FENCE, CONSTRUCTION FENCE, OR EQUAL, WHICH WILL BE PLACED AT THE DRIP LINE OR SEVERAL FEET BEYOND. HOWEVER, THE FENCING SHALL NOT CROSS PUBLIC SIDEWALKS. NO STORAGE OR STOCKPILING OF CONSTRUCTION MATERIALS, DEBRIS OR EQUIPMENT SHALL OCCUR WITHIN THE FENCED AREA.

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	04.04.23
2	REVISED PARKING, LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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ALTERATION OF A SURVEY MAP BY AN ENGINEER, LAND SURVEYOR OR LANDSCAPE ARCHITECT IS A VIOLATION OF NEW YORK STATE EDUCATION LAW, ARTICLE 145, SEC. 7209

DOMINICK F. ARICO, P.E.
LIC. NO. 085937

ARICO ASSOCIATES
ENGINEERS
LAND PLANNERS
& CONSULTANTS
1407 Route 9, Bldg 2 Suite 6, Clifton Park, New York 12065
518.573.6989
aricoassociates@gmail.com

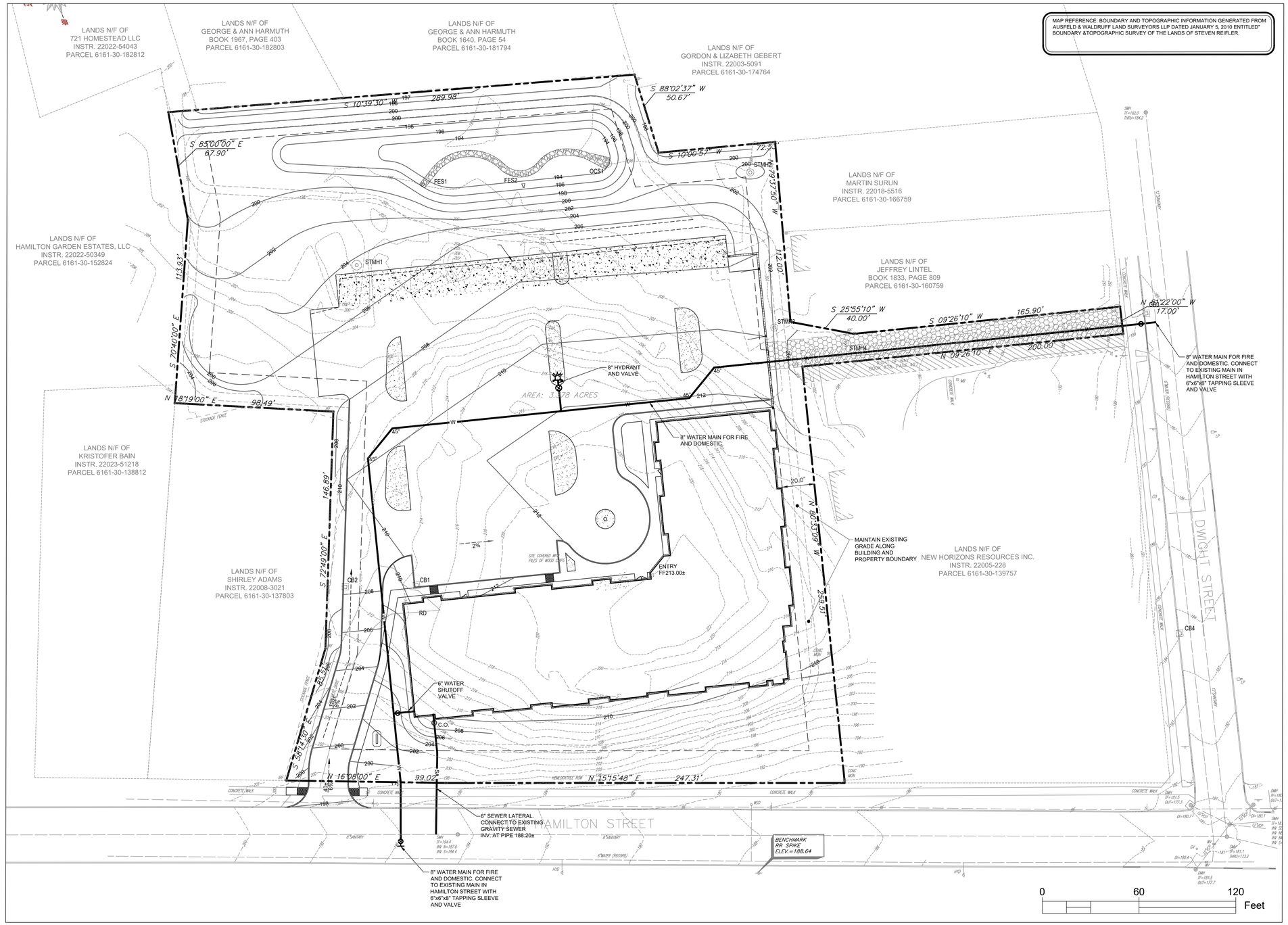
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

LAYOUT PLAN
SOUTH HAMILTON

TAX MAP 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S1
SHEET 1 OF 13



UTILITY PLAN
SCALE: 1"= 30'

Fire Chief
Police Chief
Building Inspector
City Engineer
Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING, LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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I, STEVEN M. DOMANICK, CHOSEN BY, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF NEW YORK, PURSUANT TO EDUCATION LAW, ARTICLE 145 SEC. 7209

DOMINICK F. ARICO, P.E.
LIC. NO. 085937

ENGINEERS LAND PLANNERS & CONSULTANTS
ARICO ASSOCIATES
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518.573.6989
aricoassociates@gmail.com

COUNTY OF DUTCHESS
CITY OF POUGHKEEPSIE

WATER & SEWER UTILITY PLAN
SOUTH HAMILTON

TAX MAP 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S2

SHEET 2 OF 13

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

LANDS N/F OF
721 HOMESTEAD LLC
INSTR. 22022-54043
PARCEL 6161-30-182812

LANDS N/F OF
GEORGE & ANN HARMUTH
BOOK 1967, PAGE 403
PARCEL 6161-30-182803

LANDS N/F OF
GEORGE & ANN HARMUTH
BOOK 1640, PAGE 54
PARCEL 6161-30-182801

LANDS N/F OF
GORDON & LIZABETH GEBERT
INSTR. 22003-5091
PARCEL 6161-30-174764

LANDS N/F OF
HAMILTON GARDEN ESTATES, LLC
INSTR. 22022-50349
PARCEL 6161-30-152824

LANDS N/F OF
KRISTOFER BAIN
INSTR. 22023-51218
PARCEL 6161-30-138812

LANDS N/F OF
SHIRLEY ADAMS
INSTR. 22008-3021
PARCEL 6161-30-137803

LANDS N/F OF
MARTIN SURUN
INSTR. 22018-5516
PARCEL 6161-30-166759

LANDS N/F OF
JEFFREY LINTEL
BOOK 1833, PAGE 809
PARCEL 6161-30-160759

LANDS N/F OF
NEW HORIZONS RESOURCES INC.
INSTR. 22005-228
PARCEL 6161-30-139757

OCS1 CMP RISER
TOP=198.00
3"x18" VERT. ORIFICE, INV. 194.00
8" OUTLET, INV. 194.00

4' STONE SWALE

STORMWATER MANAGEMENT AREA

FES1 INV.196.00

FES2 INV.195.00

STMH1
JELLYFISH FILTER
TF=204.00
I.I.=199.00
I.O.(12")=198.50

STMH2
TF=199.00
I.I.(CB1)=193.19
I.O.(12")=193.19

STMH3
TF=202.00
I.I.(STMH2)=192.24
I.O.(12")=192.24

STMH4
TF=198.00
I.I.STMH3)=191.84
I.O.(12")=191.84

CB1
TF=210.50
I.I.(RD)=205.50
I.O.(12")=205.00

CB2
TF=208.15
I.I.(CB1)=204.15
I.O.(12")=204.00

CB3
TF=188.80
I.I.(STMH4)=185.00
I.O.(12")=185.00

CB4
TF=183.50
I.I.(CB3)=179.50
I.O.(12")=179.50

8"x12" HDPE REDUCER

65±' 12" HDPE S=1.0%

STORMWATER OUTLET, CONNET TO STORM SYSTEM IN DWIGHT STREET.

60±' 12" HDPE S=4.2%

55±' 12" HDPE S=2.5%

95±' 12" HDPE S=1.0%

40±' 12" HDPE S=1.0%

184±' 12" HDPE S=3.7%

195±' 12" HDPE S=2.6%

40±' 12" HDPE S=2.0%

104±' 12" HDPE S=1.4%

195±' 12" HDPE S=2.8%

POROUS PAVEMENT

INTEGRAL GUTTER

12" DRAIN TO BASIN

112±' 6" PERFORATE HDPE UNDERDRAIN FOR POROUS PAVEMENT, S=1.0%

112±' 6" PERFORATE HDPE UNDERDRAIN FOR POROUS PAVEMENT, S=1.0%

AREA: 3.378 ACRES

MAINTAIN EXISTING GRADE ALONG BUILDING AND PROPERTY BOUNDARY

ENTRY FF213.00±

SITE COVERED WITH PILES OF WOOD CHIPS

CONNET TO DRAINAGE MANHOLE. I.I.(CB4)=178.00

BENCHMARK
RR SPIKE
ELEV.=188.64

SOUTH HAMILTON STREET

DWIGHT STREET

S 85°00'00" E 67.90'

S 10°39'30" W 289.98'

S 10°00'57" W 72.57'

S 88°22'37" W 50.67'

S 25°55'10" W 40.00'

S 09°26'10" W 165.90'

N 84°22'00" W 17.00'

N 09°26'10" E 200.00'

N 60°53'09" W 253.51'

S 70°40'00" E 113.91'

N 18°19'00" E 98.49'

S 72°49'00" E 146.89'

S 55°12'30" E 85.34'

N 16°08'00" E 99.02'

N 15°15'48" E 247.31'

20.0'

112.00'

GRADING & STORM PLAN
SCALE: 1"= 30'

0 60 120 Feet

Fire Chief	
Police Chief	
Building Inspector	
City Engineer	
Commissioner of Public Works	

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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I, STEVEN M. REIFLER, ATTEST THAT I AM DULY LICENSED PROFESSIONAL ENGINEER BY THE STATE OF NEW YORK AND THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION IN COMPLIANCE WITH SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, ARTICLE 145.

DOMINICK F. ARICO, P.E.
LIC. NO. 085937

ARICO ASSOCIATES
ENGINEERS
LAND PLANNERS
& CONSULTANTS
1407 Route 9, Bldg 2 Suite 6, Clifton Park, New York 12065
518.573.6989
aricoassociates@gmail.com

CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

GRADING & DRAINAGE PLAN
SOUTH HAMILTON

TAX MAP - 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S3
SHEET 3 OF 13

GENERAL NOTES:

BEFORE UNDERTAKING ANY CONSTRUCTION ACTIVITY, ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH SITE WORK THAT INVOLVES PHYSICAL GROUND DISTURBANCE ON THE PROJECT SITE SHALL SIGN AND DATE A COPY OF THE CERTIFICATION STATEMENT, WHICH IS LOCATED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), PREPARED FOR THIS PROJECT.

1. ALL EROSION & SEDIMENT CONTROL MEASURES SHALL ADHERE TO THE PROJECT'S STORMWATER POLLUTION PREVENTION PLAN (SWPPP). ALL APPROPRIATE STORMWATER CONTROL MEASURES IDENTIFIED IN THE SWPPP SHALL BE IN PLACE BEFORE COMMENCING CONSTRUCTION OF ANY SEGMENT OF THE PROJECT THAT REQUIRES THESE MEASURES.

2. INSPECTIONS: THE OPERATOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION & CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION & SEDIMENT CONTROLS DESCRIBED IN THE SWPPP HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. FOLLOWING THE COMMENCEMENT OF CONSTRUCTION, SITE INSPECTIONS SHALL BE CONDUCTED BY THE QUALIFIED PROFESSIONAL AT LEAST EVERY 7 CALENDAR DAYS. INSPECTIONS SHALL LOOK FOR EVIDENCE OF SOIL EROSION ON THE SITE, POTENTIAL OF POLLUTANTS ENTERING DRAINAGE SYSTEMS, PROBLEMS AT DISCHARGE POINTS, I.E., TURBIDITY IN RECEIVING WATERS, & SIGNS OF SOIL & MUD TRANSPORT FROM THE SITE ONTO PUBLIC ROADWAYS. REPAIRS & CLEANING SHALL BE MADE IMMEDIATELY.

3. SITE LOG/CERTIFICATION: THE OPERATOR MUST MAINTAIN A RECORD OF ALL INSPECTION REPORTS IN A SITE LOG BOOK. THE SITE LOG BOOK MUST BE MAINTAINED ON–SITE & BE MADE AVAILABLE TO THE PERMITTING AUTHORITY UPON REQUEST.

4. STABILIZATION: THE OPERATOR SHALL INITIATE STABILIZATION MEASURES AS SOON AS PRACTICABLE ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.

5. MAINTENANCE: SEDIMENT SHALL BE REMOVED FROM TEMPORARY SEDIMENT TRAPS OR PONDS WHENEVER THEIR CAPACITY HAS BEEN REDUCED BY 50% OF THE DESIGN CAPACITY. INSTALL ADDITIONAL SEDIMENT TRAPS & BARRIERS AS NEEDED DURING CONSTRUCTION.

6. CONTRACTOR SHALL ESTABLISH A TEMPORARY STABILIZED CONSTRUCTION ENTRANCE TO CAPTURE MUD & DEBRIS FROM CONSTRUCTION VEHICLES BEFORE THEY ENTER A PUBLIC ROADWAY, AS DETAILED. SEDIMENT TRACKED ONTO THE ROADWAYS SHALL BE REMOVED OR CLEANED ON A DAILY BASIS. ALL BARE AREAS, E.G., ENTRANCES, CONSTRUCTION ROUTES, & EQUIPMENT PARKING AREAS, SHALL BE STABILIZED IMMEDIATELY AS CONSTRUCTION TAKES PLACE. PLACE GRAVEL ON THESE AREAS OR MAINTAIN THE EXISTING VEGETATIVE COVER.

7. TEMPORARY CONSTRUCTION SILT FENCES, STRAW BALE DIKES, OR TRIANGULAR SILT DIKES SHALL BE PLACED ON OR PARALLEL TO CONTOURS WHERE THERE IS NO CONCENTRATION OF STORMWATER RUNOFF FLOWING TO THEM & WHERE EROSION OCCURS IN THE FORM OF SHEET EROSION, AS DETAILED. THE AREA BELOW THESE TEMPORARY STRUCTURAL MEASURES SHOULD BE UNDISTURBED/UNEXCAVATED EARTH.

TEMPORARY STABILIZATION MEASURES SHALL START AS SOON AS PRACTICAL ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NOT MORE THAN (7) DAYS AFTER WORK HAS CEASED. ACCEPTABLE TEMPORARY STABILIZATION MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO SEEDING MULCH, STRAW, EROSION CONTROL BLANKETS, SOIL STABILIZING EMULSION PRODUCTS, OR SOME FUNCTIONALLY EQUIVALENT MEASURE. TEMPORARY SEEDING SHALL BE ANNUAL RYE GRASS, APPLIED AT A RATE OF 30 LBS./ACRE.

8. DIVERT OFFSITE OR CLEAN STORMWATER RUNOFF FROM DISTURBED AREAS. CONVEY RUNOFF FROM HIGHLY ERODIBLE SOILS & STEEP SLOPES TO MORE SUITABLE STABLE AREAS. INSTALL TRIANGULAR SILT DIKES TO REDUCE THE VELOCITY OF CONCENTRATED RUNOFF.

9. LIMIT ALL CLEARING & EXCAVATION ACTIVITIES TO MAINTAIN EXISTING VEGETATIVE COVER AS MUCH AS PRACTICABLE. TOPSOIL SHALL BE STOCKPILED, PROTECTED, & STABILIZED IN AN AREA LOCATED AWAY FROM DRAINAGE CHANNELS.

10. WHEN ACTIVITIES TEMPORARILY CEASE DURING CONSTRUCTION, SOIL STOCKPILES & EXPOSED SOIL SHALL BE STABILIZED BY SEED, MULCH, OR OTHER APPROPRIATE MEASURES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN 14 DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED. PERMANENT VEGETATION & LANDSCAPING SHALL BE INSTALLED IMMEDIATELY FOLLOWING FINAL GRADING.

11. NO GRADING, FILLING, OR OTHER DISTURBANCE IS ALLOWED WITHIN EXISTING DRAINAGE SWALES, UNLESS INDICATED ON THE GRADING PLANS.

12. BACKFILL & STABILIZE ALL UTILITY TRENCHES DAILY.

13. SEEDING:
A. SOW GRASS SEED BETWEEN APRIL 1 & MAY 15TH OR BETWEEN AUGUST 15TH & OCTOBER 15TH, EXCEPT AS OTHERWISE APPROVED IN WRITING BY THE ENGINEER. NO SEEDING SHALL OCCUR ON FROZEN GROUND, HIGHLY MUDDY SOILS, OR DURING EXTREME HEAT OR DROUGHT CONDITIONS.
B. SEED MIXTURE: 40% FENWAY RED FESCUE, 30% ABBEY KENTUCKY BLUEGRASS BLEND, 20% DEVINE PERENNIAL RYE, & 10% ENCHANTED PERENNIAL RYE. PROVIDE SEED MIXTURE EQUAL TO SCOTT'S PURE PREMIUM SUN & SHADE NORTH GRASS SEED MIXTURE, OR APPROVED EQUIVALENT. VARIETY MAY BE ALTERED DEPENDING ON AVAILABILITY OF SEED FROM MANUFACTURER.

14. TOPSOIL:
A. PROVIDE TOPSOIL FROM EXISTING STOCKPILES STRIPPED FROM THE PROJECT SITE & APPROVED BY THE ENGINEER. IF REQUIRED, PROVIDE ADDITIONAL TOPSOIL CONFORMING TO THE FOLLOWING:
B. ORIGINAL LOAM TOPSOIL, WELL DRAINED HOMOGENEOUS TEXTURE & OF UNIFORM GRADE, WITHOUT THE ADMIXTURE OF SUBSOIL MATERIAL & ENTIRELY FREE OF DENSE MATERIAL, HARDPAN, SOD, OR ANY OTHER OBJECTIONABLE FOREIGN MATERIAL.
C. CONTAINING NOT LESS THAN 4% NOR MORE THAN 20% ORGANIC MATTER IN THAT PORTION OF A SAMPLE PASSING A 1/4 INCH SIEVE WHEN DETERMINED BY THE WET COMBUSTION METHOD ON A SAMPLE DRIED AT 105 DEGREES C.
D. CONTAINING A PH VALUE WITHIN THE RANGE OF 4.5 TO 7 ON THAT PORTION OF THE SAMPLE THAT PASSES A 1/4 INCH SIEVE.

15. FERTILIZER:
A. MIXED COMMERCIAL FERTILIZERS SHALL CONTAIN TOTAL NITROGEN, AVAILABLE PHOSPHORIC ACID & SOLUBLE POTASH IN THE RATIO OF 10–6–4 (50% N/UF). 50% OF TOTAL NITROGEN SHALL BE DERIVED FROM UREAFORM FURNISHING A MINIMUM OF 3.5% WATER INSOLUBLE NITROGEN (3.5% WIN). THE BALANCE OF THE NITROGEN SHALL BE PRESENT AS METHYLENE UREA, WATER–SOLUBLE UREA, NITRATE & AMMONIACAL COMPOUNDS. OTHER FERTILIZERS MEETING NYSDOT SPECIFICATION SECTION 713–03 FERTILIZER CAN BE USED.

16. MULCH:
A. DRY APPLICATION, STRAW: STALKS OF OATS, WHEAT, RYE OR OTHER APPROVED CROPS THAT ARE FREE OF NOXIOUS WEED SEEDS. WEIGHT SHALL BE BASED ON A 15% MOISTURE CONTENT.
B. HYDRO APPLICATION: COLORED WOOD CELLULOSE FIBER PRODUCT SPECIFICALLY DESIGNED FOR USE AS A HYDRO–MECHANICAL APPLIED MULCH, BY CONWED HYDRO MULCH, CONWED FIBERS, OR APPROVED EQUIVALENT.

17. JUTE MESH:
A. HEAVY JUTE EROSION CLOTH WITH 12 INCH LENGTHS OF NO. 11 GAGE WIRE BENT TO FORM A "U" WIRE STAPLE, BY JUTE PRODUCTS, INC., OR APPROVED EQUIVALENT.

18. EROSION CONTROL BLANKETS:
A. FOR USE IN REPLACE OF MULCH ON SLOPES GREATER THAN 5% AS SHOWN ON THE PLANS. CONSISTING OF LIGHTWEIGHT PHOTODEGRADABLE POLYPROPYLENE NETS WITH AN APPROXIMATE WEIGHT OF 1.64 LBS/1,000 SQUARE FEET, DEGRADABLE THREAD, STRAW FIBER WITH AN APPROXIMATE WEIGHT OF 0.5 LBS/SQUARE YARD, WITH MANUFACTURER'S DOT STAPLE SYSTEM & 6 INCH BIOSTAKE'S BIODEGRADABLE BLANKET PIN FASTENERS. USE DEGRADABLE DOUBLE NET STRAW BLANKET, PRODUCT NO. S150 BY NORTH AMERICAN GREEN, OR APPROVED EQUIVALENT.

19. DUST SUPPRESSION MEASURES MAY INCLUDE: 1) USING A DEDICATED ON–SITE WATER TRUCK FOR ROAD AND SOILS WETTING, CAPABLE OF SPRAYING WATER DIRECTLY ONTO OFF–ROAD AREAS, INCLUDING EXCAVATIONS AND STOCKPILES; 2) CLEARING AND GRUBBING OF LARGER SITES WILL BE DONE IN STAGES TO LIMIT THE AREA OF EXPOSED, UNVEGETATED SOILS VULNERABLE TO DUST PRODUCTION; AND 3) GRAVEL WILL BE USED ON ROADWAYS TO PROVIDE A CLEAN AND DUST–FREE ROAD SURFACE.

SILT FENCE NOTES:

1. SILT FENCE SHALL BE PLACED ON THE DOWNSLOPE SIDE OF DISTURBED AREAS AND AROUND THE PERIMETER OF SOIL STOCKPILES.
2. SILT FENCE SHALL BE PLACED AROUND THE BOUNDARY OF WETLANDS ADJACENT TO THE WORK AREA, AND AT THE EDGE OF WETLANDS AFTER CONSTRUCTION IS COMPLETED.
3. SILT FENCE SHALL BE REPAIRED OR REPLACED WHEN THE ENDS ARE FRAYED OR WORN, AND WHEN THE FENCE IS NOT ANCHORED 6" INTO THE GROUND. WHEN THE ACCUMULATED SEDIMENT REACHES 30% OF THE SILT FENCE HEIGHT, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROPRIATE UPLAND AREA.

DUST CONTROL NOTES:

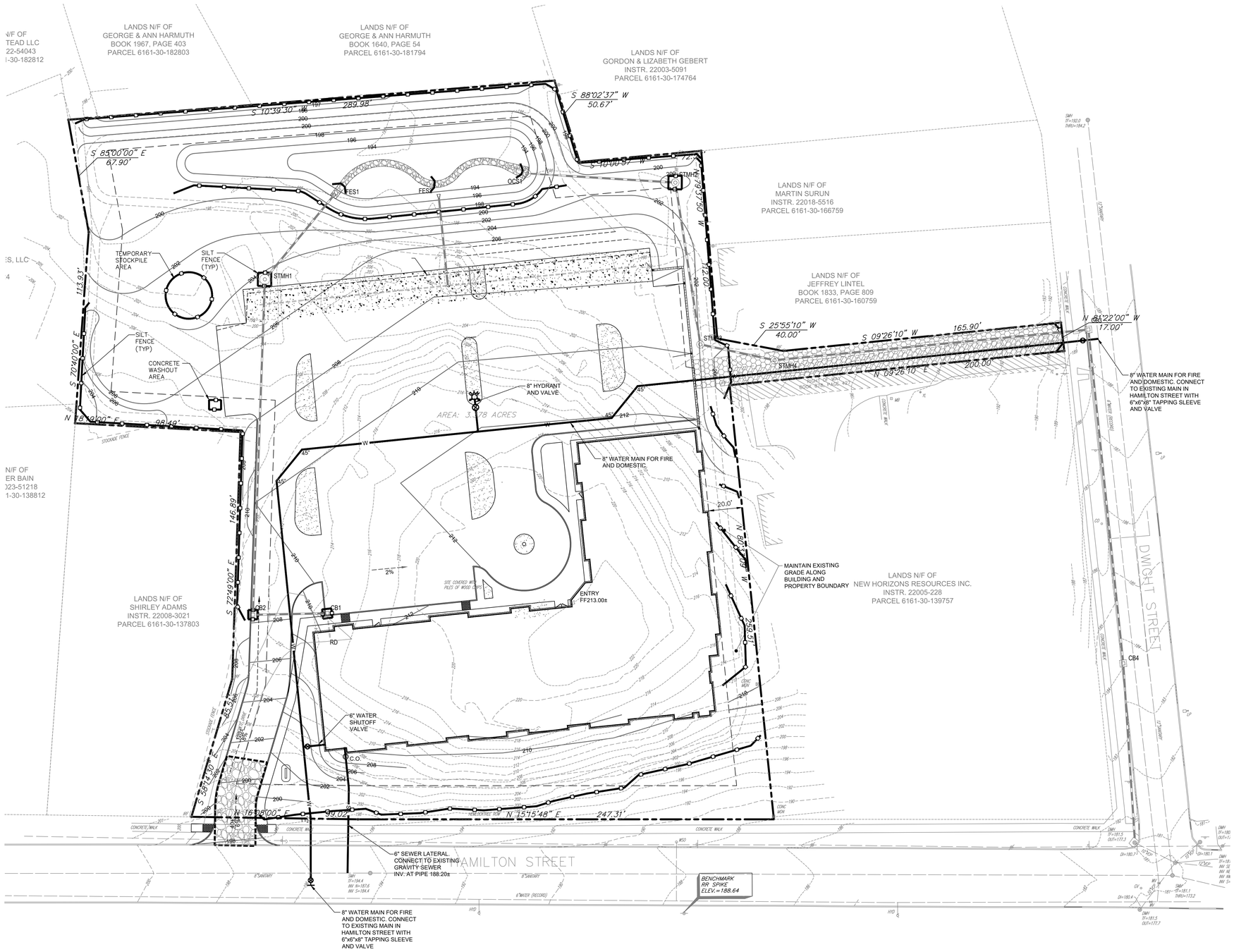
1. DUST SHALL BE CONTROLLED ON THIS PROJECT BY USE OF A WATER TRUCK.
2. THE QUALIFIED INSPECTOR WILL DETERMINE THE FREQUENCY OF WATER APPLICATION IN ORDER TO CONTROL DUST.
3. CHEMICALS OR OTHER METHODS OF DUST CONTROL ARE PROHIBITED TO BE USED ON THIS PROJECT, UNLESS APPROVED BY NYSDEC REGION 3.

STABILIZED CONSTRUCTION ACCESS NOTES:

1. STABILIZED CONSTRUCTION ACCESS SHALL BE INSTALLED WHERE NECESSARY TO PREVENT SEDIMENT FROM BEING TRACKED ONTO ROADWAYS.
2. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. CONSTRUCTION TRAFFIC SHALL NOT CROSS STREAMS OR DITCHES EXCEPT AT SUITABLE CROSSING FACILITIES, AND SHALL NOT OPERATE UNNECESSARILY WITHIN WATERWAYS OR DRAINAGE DITCHES.
3. IF INTERNAL CONSTRUCTION ROADS ARE DETERMINED TO BE A SOURCE OF SEDIMENT–LADEN RUNOFF TO SENSITIVE AREAS, THEY SHALL BE STABILIZED AS SOON AS PRACTICABLE.

TEMPORARY SEEING AND MULCHING NOTES:

1. AREAS TO RECEIVE TEMPORARY SEEDING AND MULCHING SHALL RECEIVE BOTH GRASS SEED AND MULCH.
2. A JUTE MESH SHALL BE PLACED OVER THE MULCH IN AREAS WHERE WIND OR WATER EROSION PREVENTS ESTABLISHMENT OF GRASS COVER.



EROSION CONTROL PLAN

SCALE: 1"= 30'

0 60 120 Feet

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.15.23
2	REVISED PARKING & LANDSCAPING	DFA	08.14.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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& CONSULTANTS
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518.573.6882 aricoassociates@gmail.com

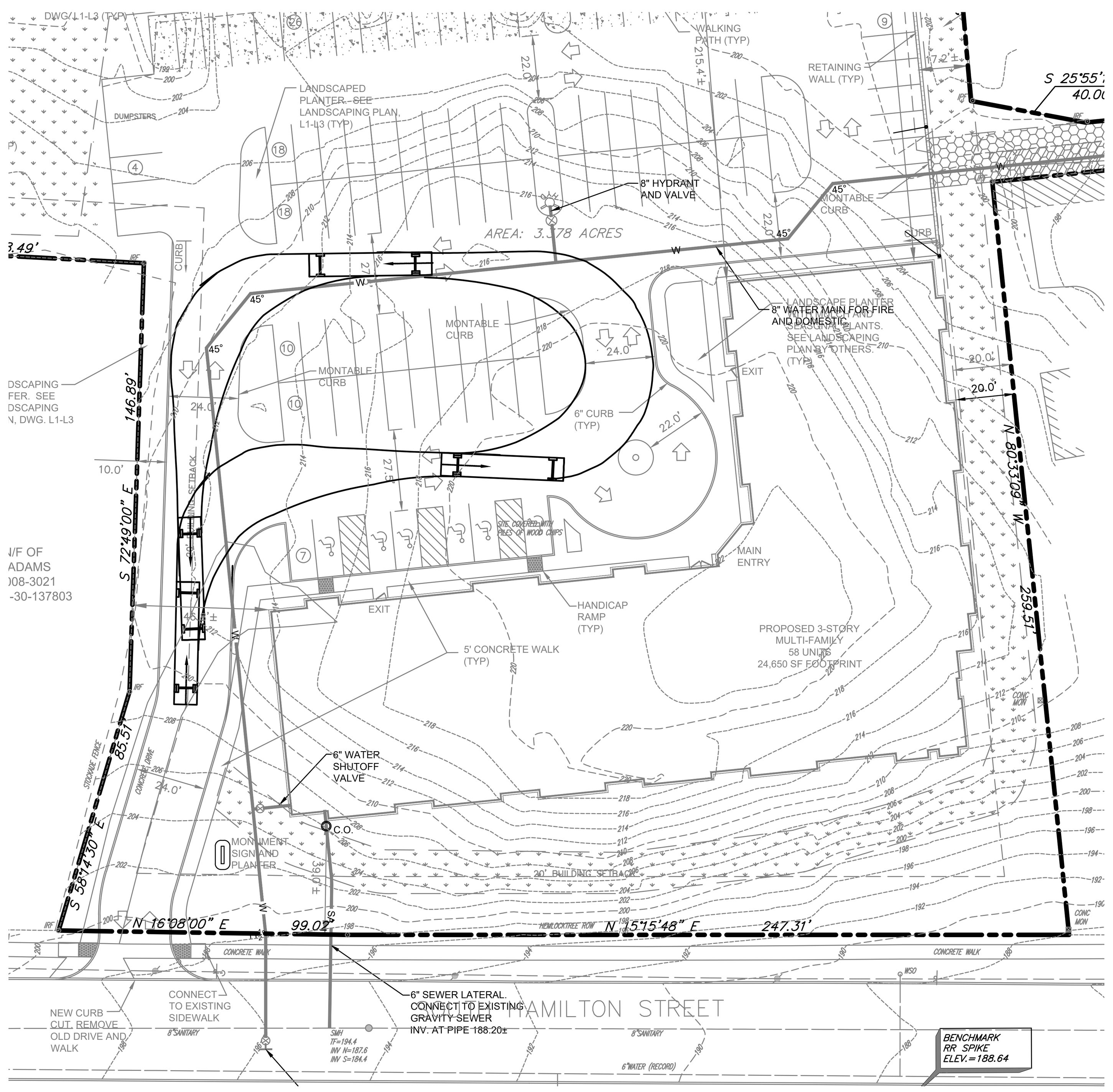
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

EROSION CONTROL PLAN
SOUTH HAMILTON

TAX MAP - 6161-30-151783

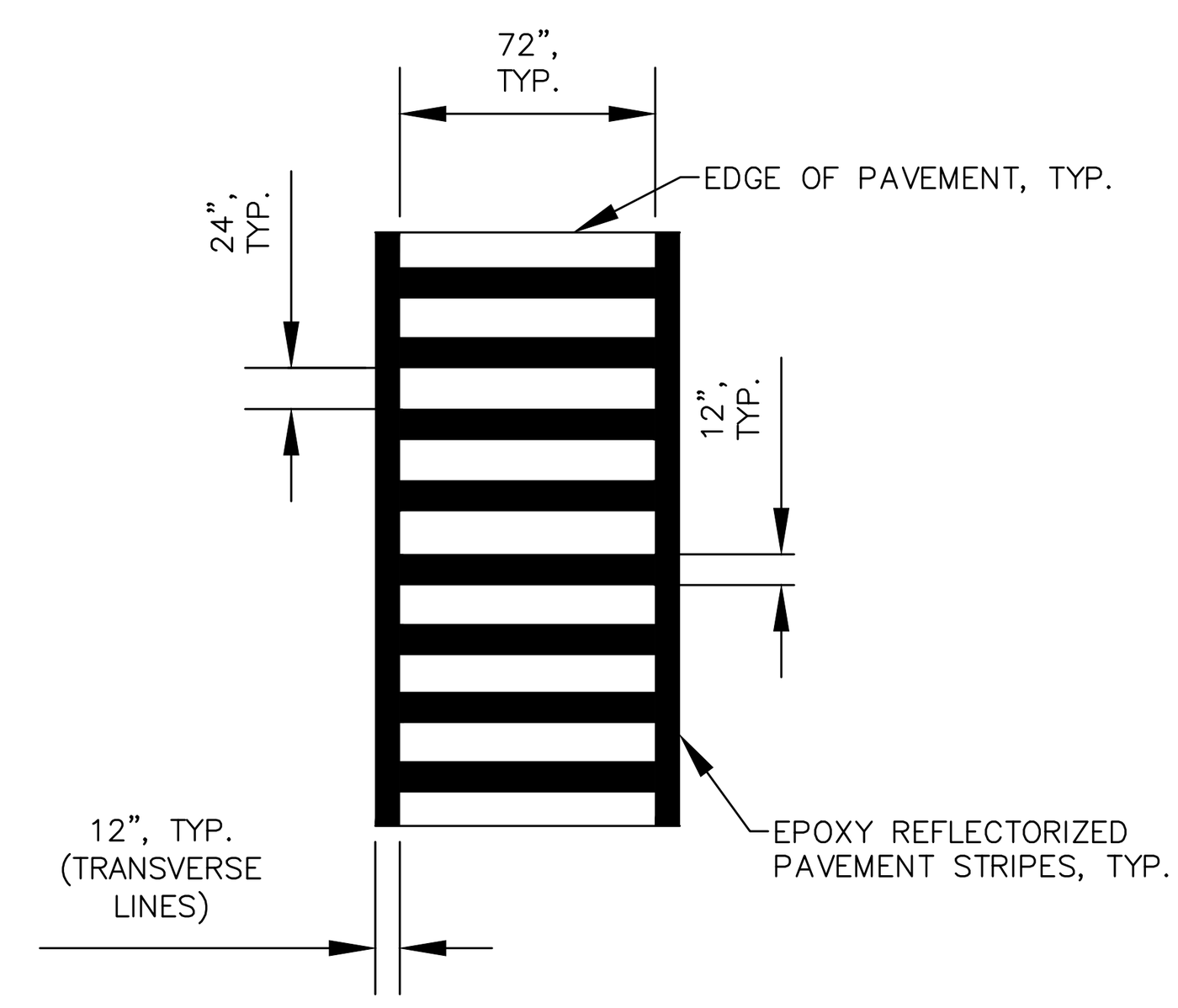
DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S4
SHEET 4 OF 13



EMERGENCY VEHICLE TURNING MOVEMENT

SCALE: 1"= 40'

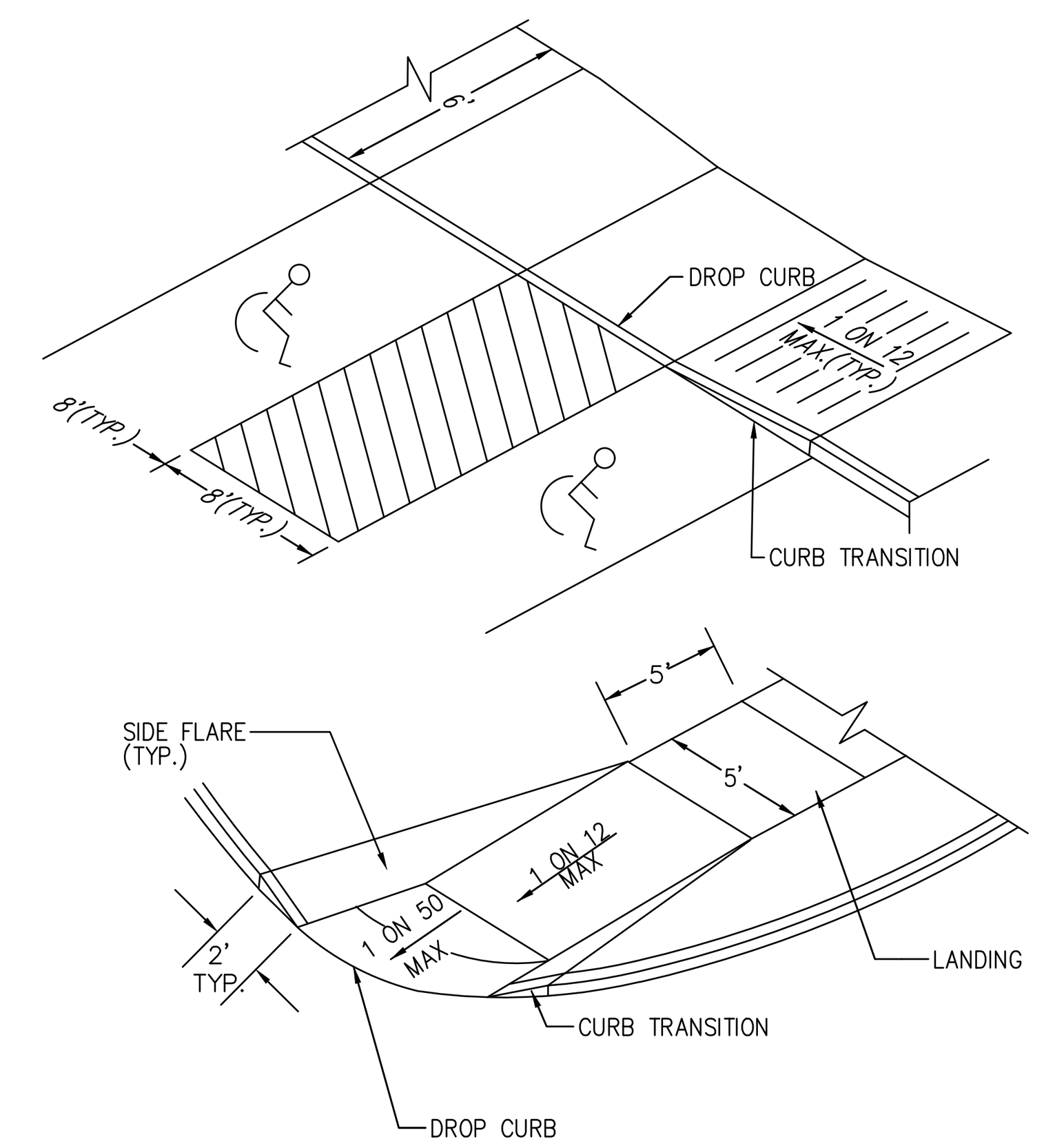


COMBINED TYPE LS CROSSWALK MARKING DETAIL

NOTE:

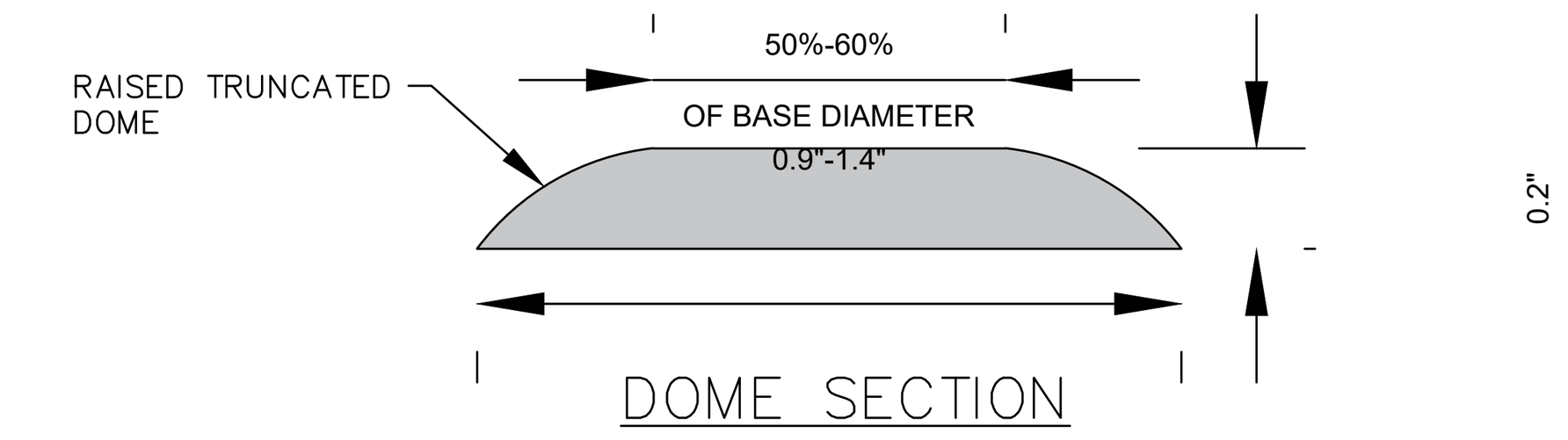
1. ALL CROSSWALK MARKINGS SHALL BE WHITE.

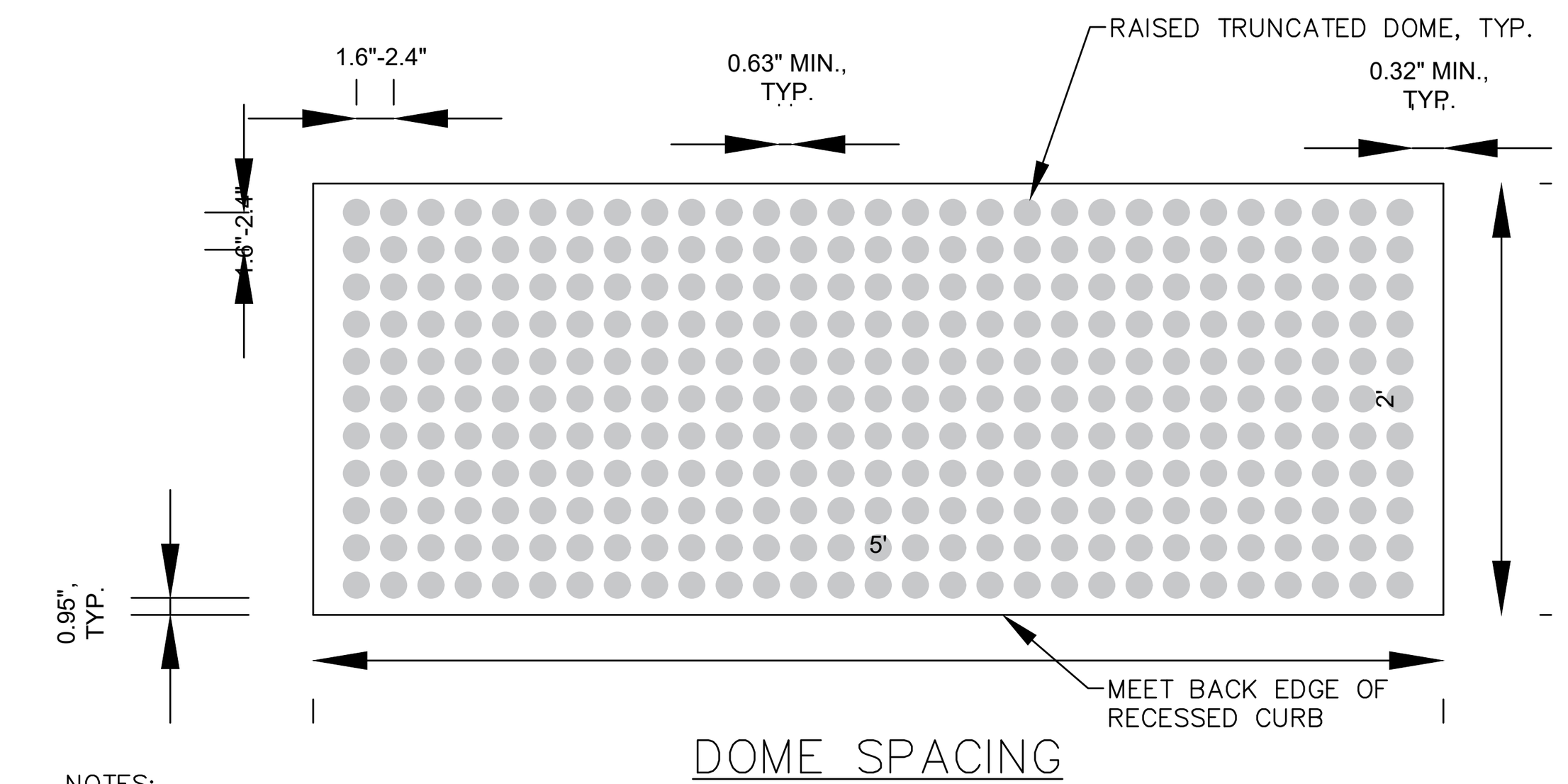
N.T.S.



SIDEWALK RAMP DETAILS

SCALE: NO SCALE





NOTES:

1. SIDEWALK SIDE FLARES ARE NOT REQUIRED FOR RAMPS IN LAWN AREAS, SEE PLANS FOR LOCATIONS. IN THESE AREAS, THE CURB SHALL TRANSITION FROM FLUSH TO FULL REVEAL IN 3 LF.

2. IN ACCORDANCE WITH THE AMERICAN WITH DISABILITY ACT (ADA) REQUIREMENTS, DETECTABLE WARNINGS SHALL BE INSTALLED WHENEVER SIDEWALK CURB RAMPS OR CUT–THROUGHS IN MEDIAN/REFUGE ISLANDS, & IN–STREET OR CROSS–SIDEWALK RAIL CROSSINGS ARE CONSTRUCTED OR ALTERED.

3. SURFACE APPLIED DETECTABLE WARNINGS ARE NOT ALLOWED. BRICK PAVERS, TILES, SHEETS & STAMPED CONCRETE METHODS ARE ALLOWABLE.

4. THE SIZE OF THE DETECTABLE WARNING FIELD SHALL BE 2' IN THE DIRECTION OF TRAVEL & SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, EXCLUSIVE OF SIDE FLARES.

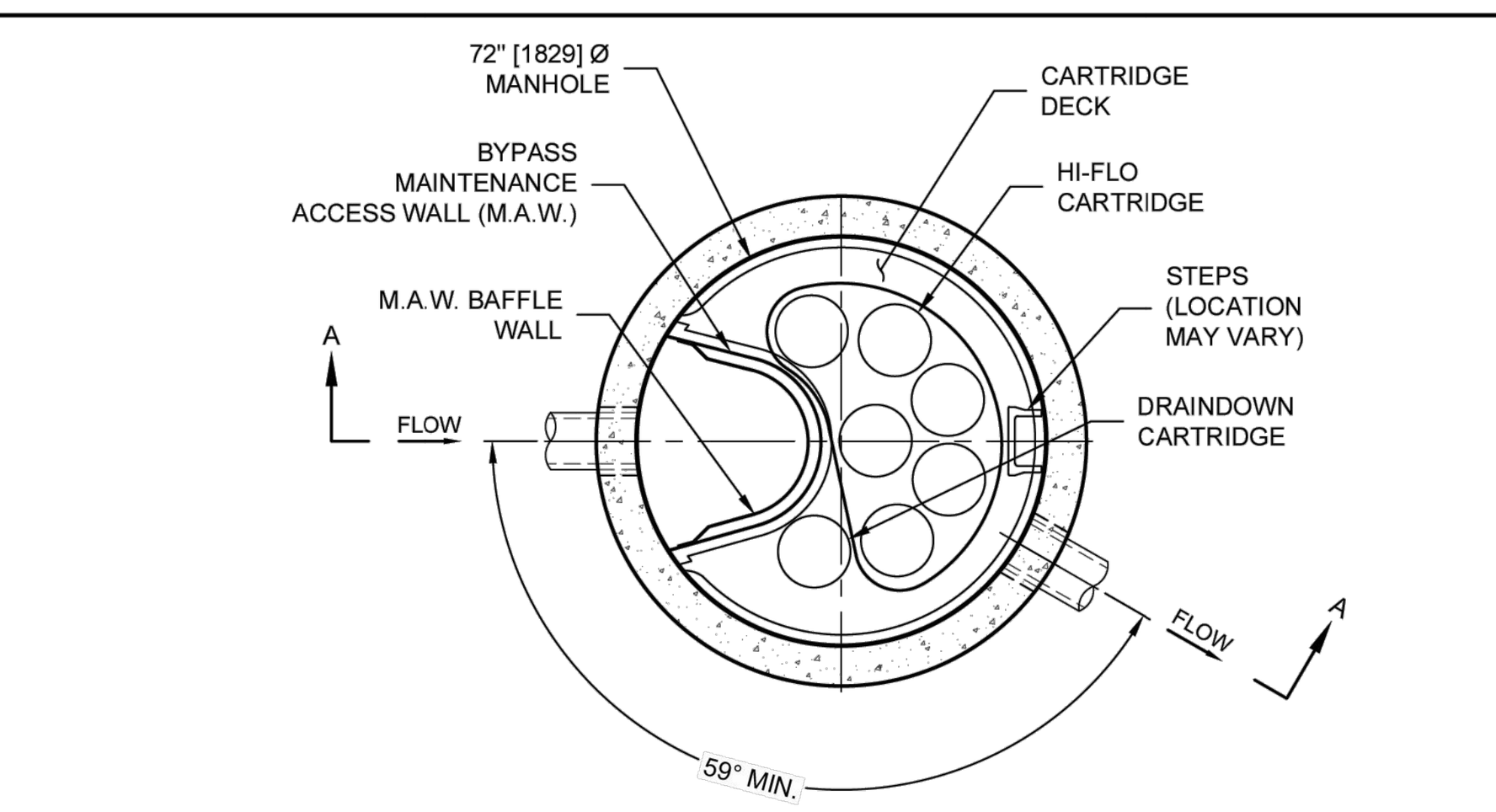
5. DETECTABLE WARNINGS SHALL BE LOCATED SO THAT THE EDGE OF THE WARNING FIELD MEETS THE BACK EDGE OF THE RECESSED CURB.

6. THE COLORS FOR THE DETECTABLE WARNING FIELDS SHALL BE DARK GRAY (MUNSELL BOOK NOTATION BG–PB 3/5), DARK BROWN (MUNSELL BOOK NOTATION 10 YR. 3/2), DARK RED (MUNSELL BOOK NOTATION 10R 3/6), OR DARK GREEN (MUNSELL BOOK NOTATION 2.5G 3/6).

7. DOME SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL.

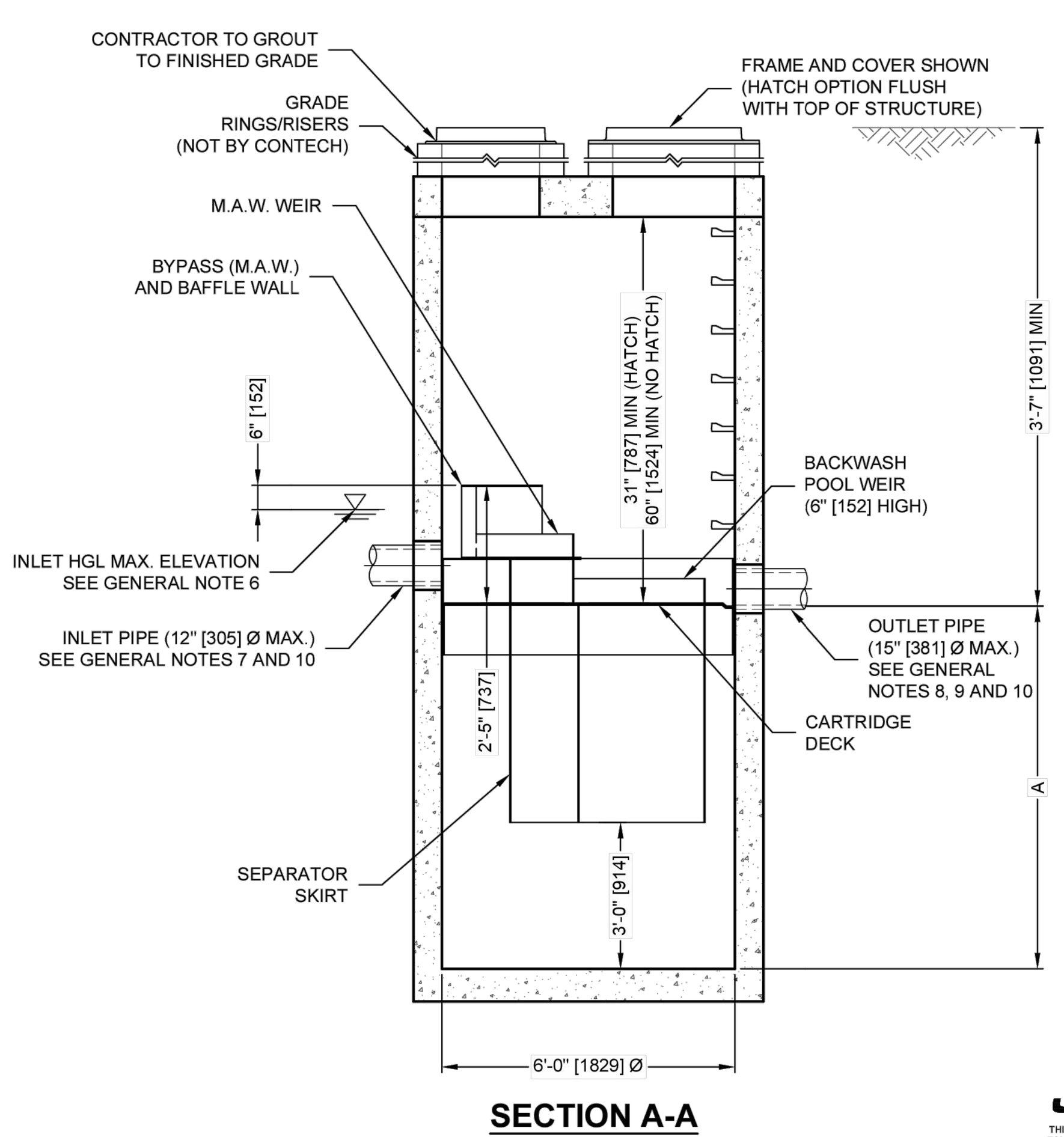
REINFORCED CONCRETE SIDEWALK RAMP DETAILS

SCALE: NO SCALE



PLAN VIEW

TOP SLAB NOT SHOWN



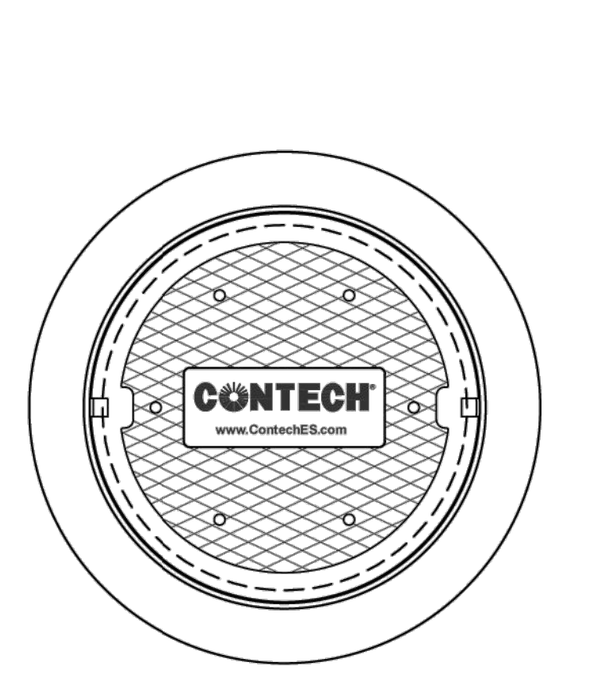
SECTION A-A

I:\COMMON\CAD\TREATMENT\13 JELLYFISH FILTER\40 STANDARD DRAWINGS\JFMH\ONLINE\DWG\IN PROCESS\JF6-ONLINE-DTL.DWG 9/17/2021 9:27 AM

JELLYFISH DESIGN NOTES

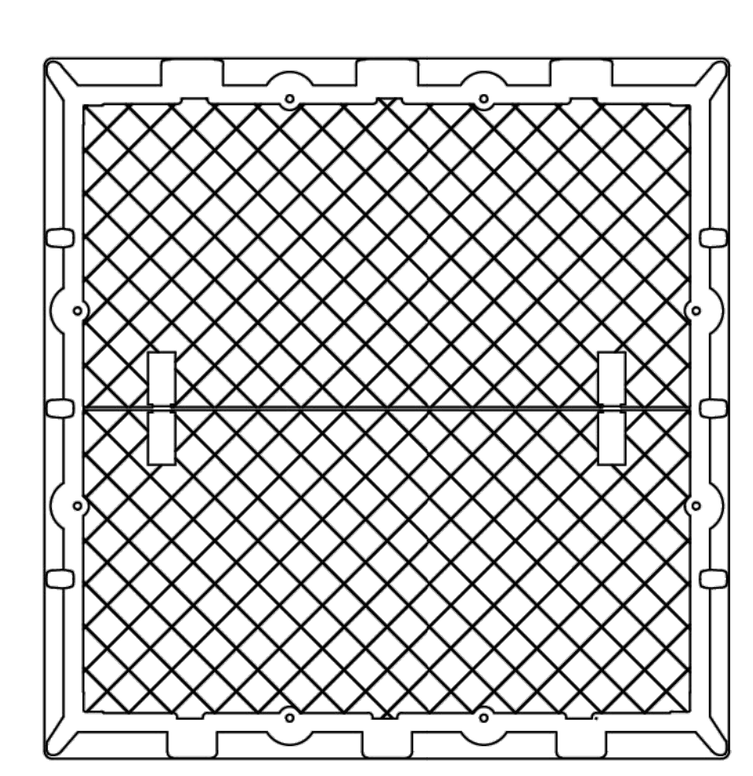
JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SIZE, TYPE AND QUANTITY. THE STANDARD MANHOLE STYLE IS SHOWN. THE 72" [1829 mm] Ø MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 1.16 CFS [32.85 L/s] AND MAXIMUM BYPASS CAPACITY IS 4.0 CFS [113.27 L/s]. IF THE SITE CONDITIONS EXCEED THE BYPASS CAPACITY OF THE SYSTEM, AN UPSTREAM DIVERSION STRUCTURE IS REQUIRED. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SIZE	54	40	27	15
FLOW RATE, HIGH-FLO / DRAINDOWN (cfs [L/s])	0.18 / 0.09 [5.10 / 2.55]	0.13 / 0.065 [3.68 / 1.84]	0.09 / 0.045 [2.55 / 1.28]	0.05 / 0.025 [1.42 / 0.71]
MAXIMUM CARTRIDGE QUANTITY HIGH-FLO / DRAINDOWN	6 / 1			
MAXIMUM TREATMENT	1.16	0.87	0.58	0.32
OUTLET INVERT TO STRUCTURE INVERT (A) (ft. [mm])	7.42 [188]	6.25 [159]	5.17 [131]	4.17 [106]



FRAME AND COVER

(DIAMETER VARIES)
NOT TO SCALE



HATCH

(48" x 48" CAST INTO SLAB)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
BYPASS FLOW RATE (cfs [L/s])	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
NUMBER OF CARTRIDGES REQUIRED (HF / DD)	
CARTRIDGE SIZE (54, 40, 27, 15)	
RIM ELEVATION	

PIPE DATA:	INVERT	MAT'L	DIA	SLOPE %	HGL
INLET PIPE 1					
INLET PIPE 2					
OUTLET PIPE					

SEE GENERAL NOTES 6-10 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.

NOTES / SPECIAL REQUIREMENTS:

GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 3' [305], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. INLET HGL NOT TO EXCEED 6" [152] BELOW THE TOP OF THE M.A.W. DURING THE PEAK DESIGN STORM, OR 10-YEAR STORM (WHICHEVER IS GREATER).
7. INLET PIPE INVERT ELEVATION VARIES FROM 1" TO 6" [25 TO 152] ABOVE THE OUTLET PIPE INVERT.
8. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
9. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
10. THE DIFFERENCE IN THE INLET AND OUTLET PIPE ELEVATIONS FOR RETROFIT INSTALLATIONS TO EXISTING STORM DRAIN PIPES SHALL BE EQUAL TO THE SLOPE OVER THE DIAMETER OF THE MANHOLE; NOT THE EXCEED 6" [152] IN VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET PIPES.
11. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.
12. ALTERNATE UNITS ARE SHOWN IN [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. WHEN ACTIVATED PRIOR TO SITE STABILIZATION, CONTRACTOR TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ACCORDING TO THE PROVISIONS IN THE ACTIVATION CHECKLIST AND THE QUOTED SCOPE OF WORK. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (800) 338-1122.

Jellyfish® Filter

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING: U.S. PATENT NO. 8,287,726; 8,221,618; US 8,123,935; OTHER INTERNATIONAL PATENTS PENDING

CONTECH® ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JF6
ONLINE CONFIGURATION
STANDARD DETAIL

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of __________ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED: PARKING; LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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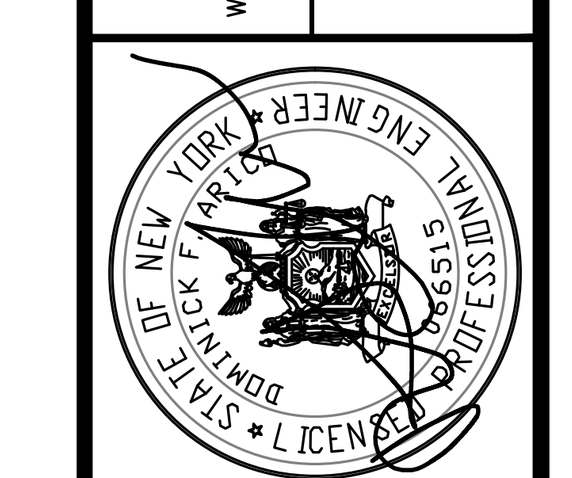
LIC. NO. 066515



ARICO ASSOCIATES
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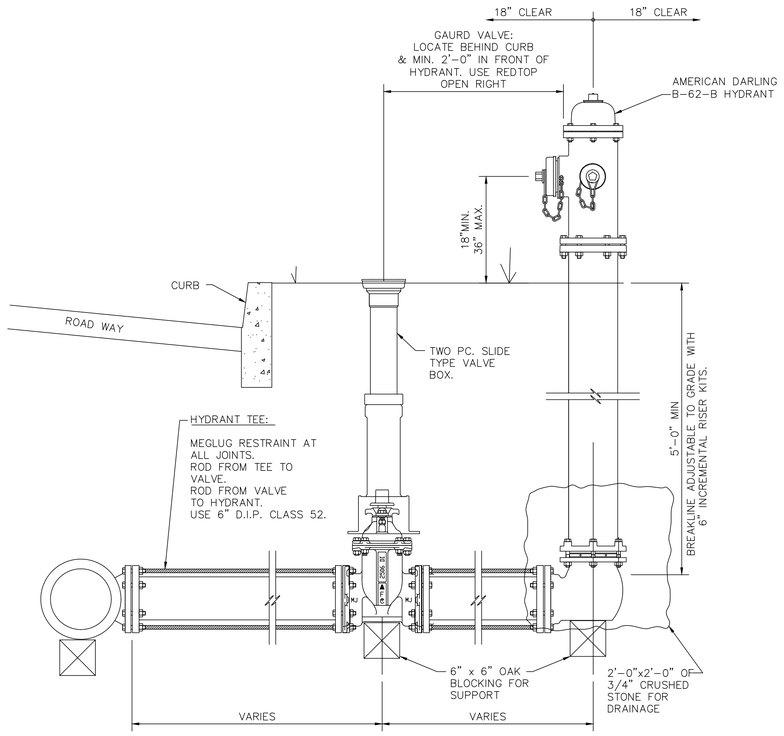
1407 Route 9, Bldg 2 Suite 6, Clifton Park, New York 12065
518.573.6989 aricoassociates@gmail.com

CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS
STANDARD DETAILS
SOUTH HAMILTON

TAX MAP : 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

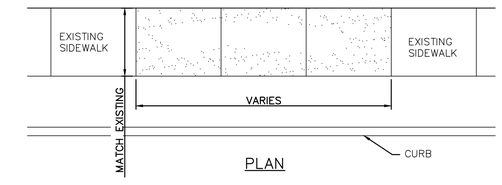
DRAWING NO.
D1
SHEET 5 OF 13



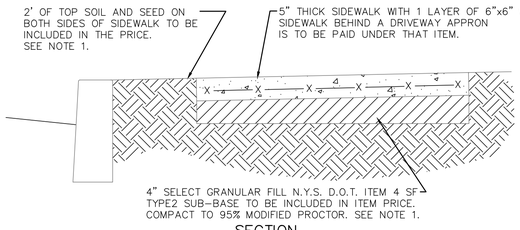
NOTES:
1. PAINT AMERICAN DARLING B-62-B HYDRANT RED
2. ALL MATERIAL TO BE MADE IN USA
3. NEW OR REPLACEMENT HYDRANT ON EXISTING CAST IRON MAIN REQUIRES TRANSITION COUPLINGS & SPOOLS FROM TEE (ROCKWELL 441 OR EQUAL)
4. ALL JOINTS TO BE FULLY RESTRIANTED ROD SUBSTITUIONS TO BE APROVED BY ENGINEER.

CITY OF POUGHKEEPSIE STANDARD HYDRANT DETAIL

SCALE: N.T.S.



PLAN



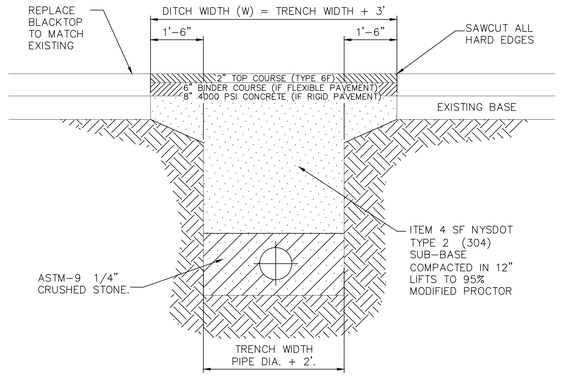
SECTION

NOTES:

1. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI.
2. WHERE MATERIAL IS NOT USED THE CITY OF POUGHDEEPSIE WILL BE CREDITED IN AREAS WHERE MORE THAN THE SPECIFIED AMOUNT OF MATERIAL IS USED. MAJOR GRADE CHANGES WILL BE APROVED BY THE CITY ENGINEERING DEPT. AND WILL BE PAID UNDER APPROPRIATE ITEMS.
3. UPON COMPLETION OF CURING ALL CONCRETE SURFACES SHALL BE COATED WITH SODIUM CHLORIDE INHIBITING SEALER AS REQ'D.

SIDEWALK DETAIL REPLACE & NEW

SCALE: 1"-2'-0"

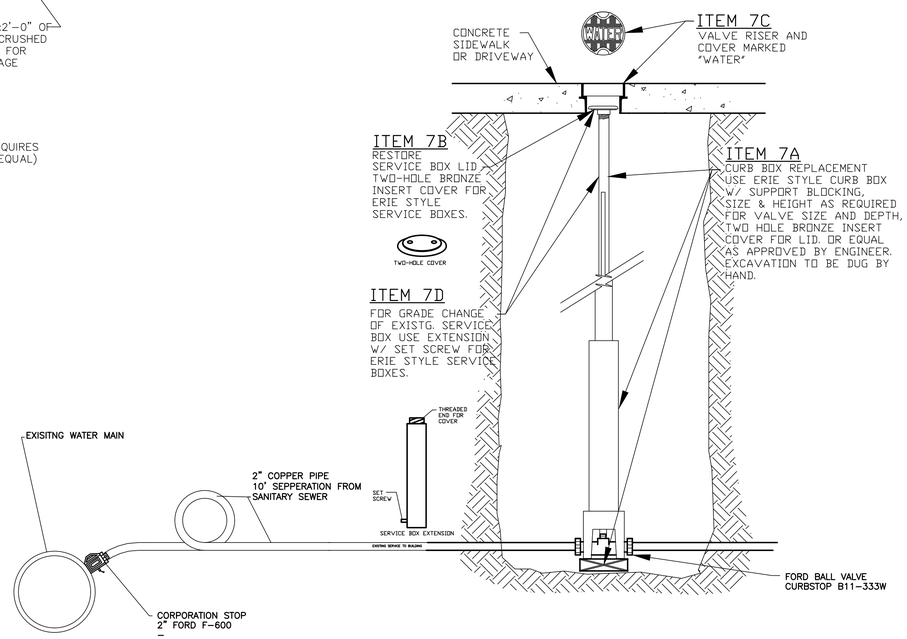


UTILITY TRENCH DETAIL IN PUBLIC R.O.W.

SCALE: 1/4" =1'-0"

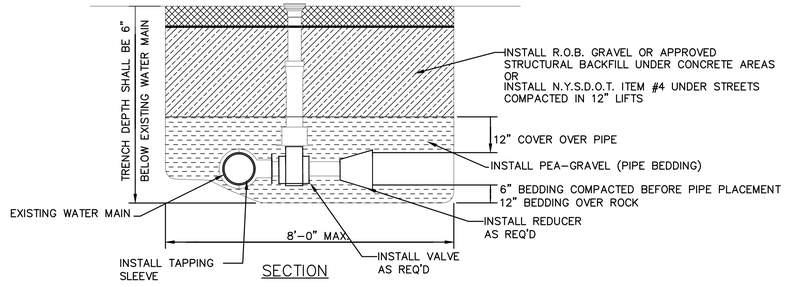
NOTES:

1. DITCH WIDTH SHALL EXTEND A MINIMUM OF ONE AND ONE-HALF FT. FROM THE EDGES OF THE TRENCH.
2. REPLACED BASE MATERIAL OVER TRENCH SHALL BE ITEM 4 COMPACTED IN 12" LIFTS.
3. PIPE BEDDING SHALL BE A MINIMUM OF 6" ABOVE AND BELOW PIPE
4. ALL JOINTS SHALL BE MECHANICALLY SAWED.
5. ALL JOINTS SHALL BE SQUARED TO THE EXISTING EDGE OF CURB AND/OR PAVEMENT, AND TACK COATED PER DETAIL.
6. ROAD SURFACE REPLACEMENT SHALL BE MINIMUM OF SIX INCHES OF ASPHALIC CONCRETE.
7. BINDER COURSE ASPHALT PAVEMENT TO BE PLACED IN TWO LIFTS.

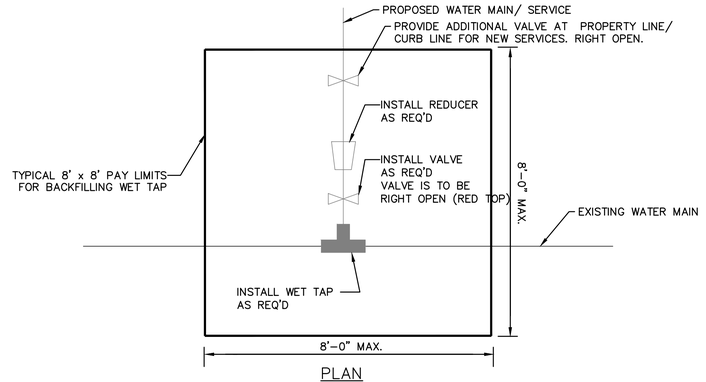


CURB BOX AND SERVICE CONNECTION

SCALE: N.T.S.



SECTION

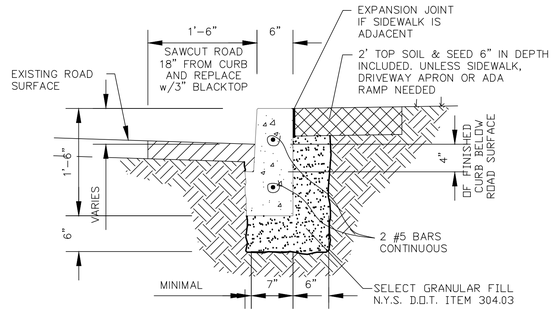


PLAN

NOTE: ALL BACKFILL TO BE PLACED IN 1' LIFTS AND COMPACTED TO 95% OF MODIFIED PROCTOR (ASTM 1557)

TAPPING SLEEVE & VALVE

SCALE: N.T.S.



CLEATED CURB DETAIL

SCALE: 1"-1'-0"

	Fire Chief
	Police Chief
	Building Inspector
	City Engineer
	Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ___ day of _____ 2___
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& CONSULTANTS
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518.573.6999 aricoassociates@gmail.com

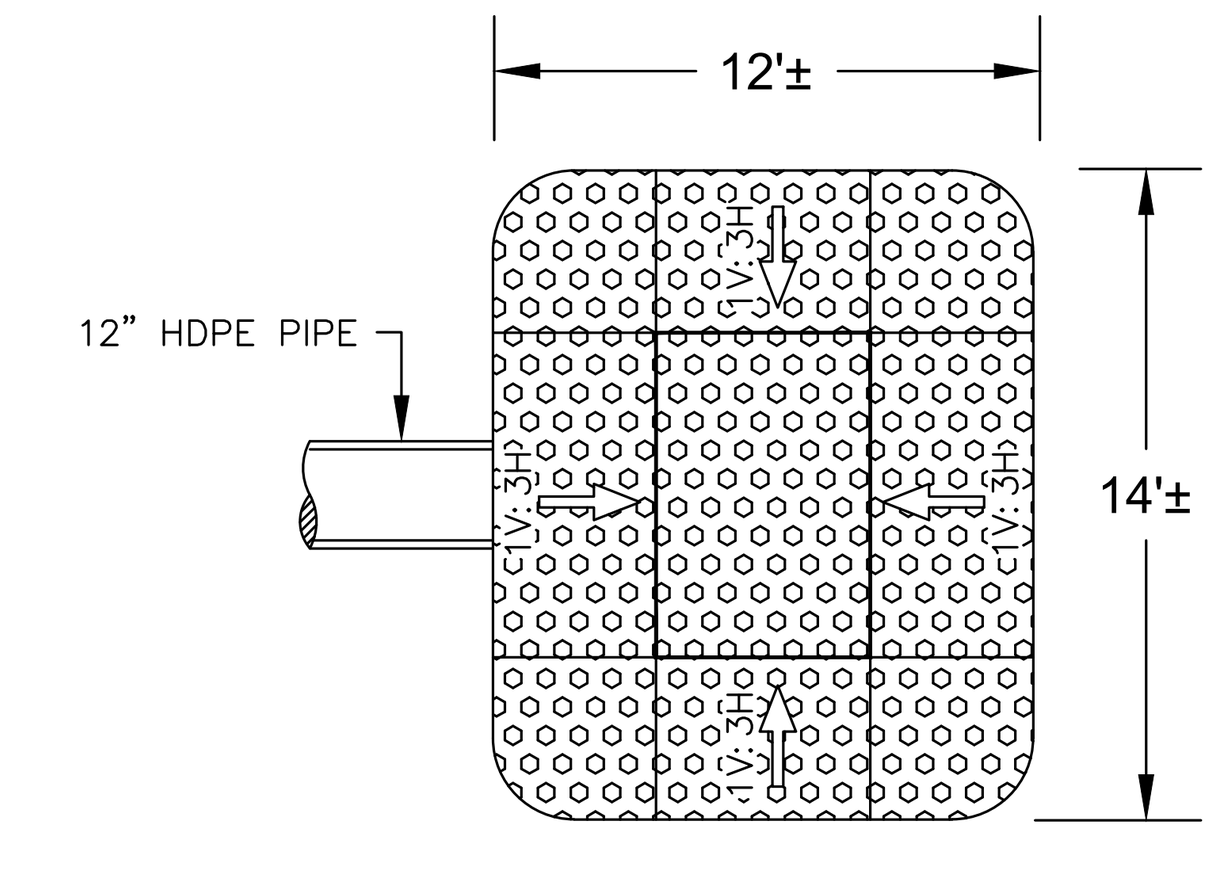
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

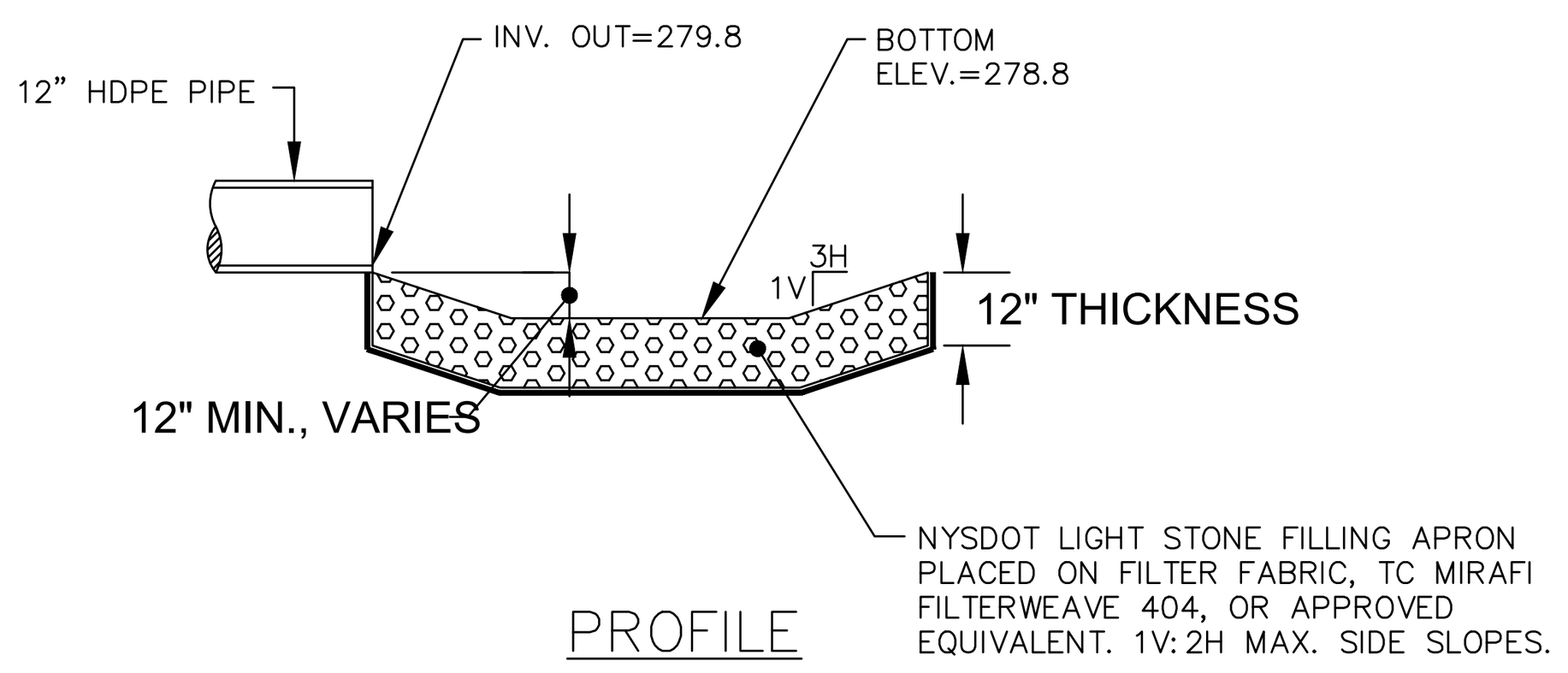
CITY OF POUGHKEEPSIE STANDARD DETAILS SOUTH HAMILTON

TAX MAP - 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

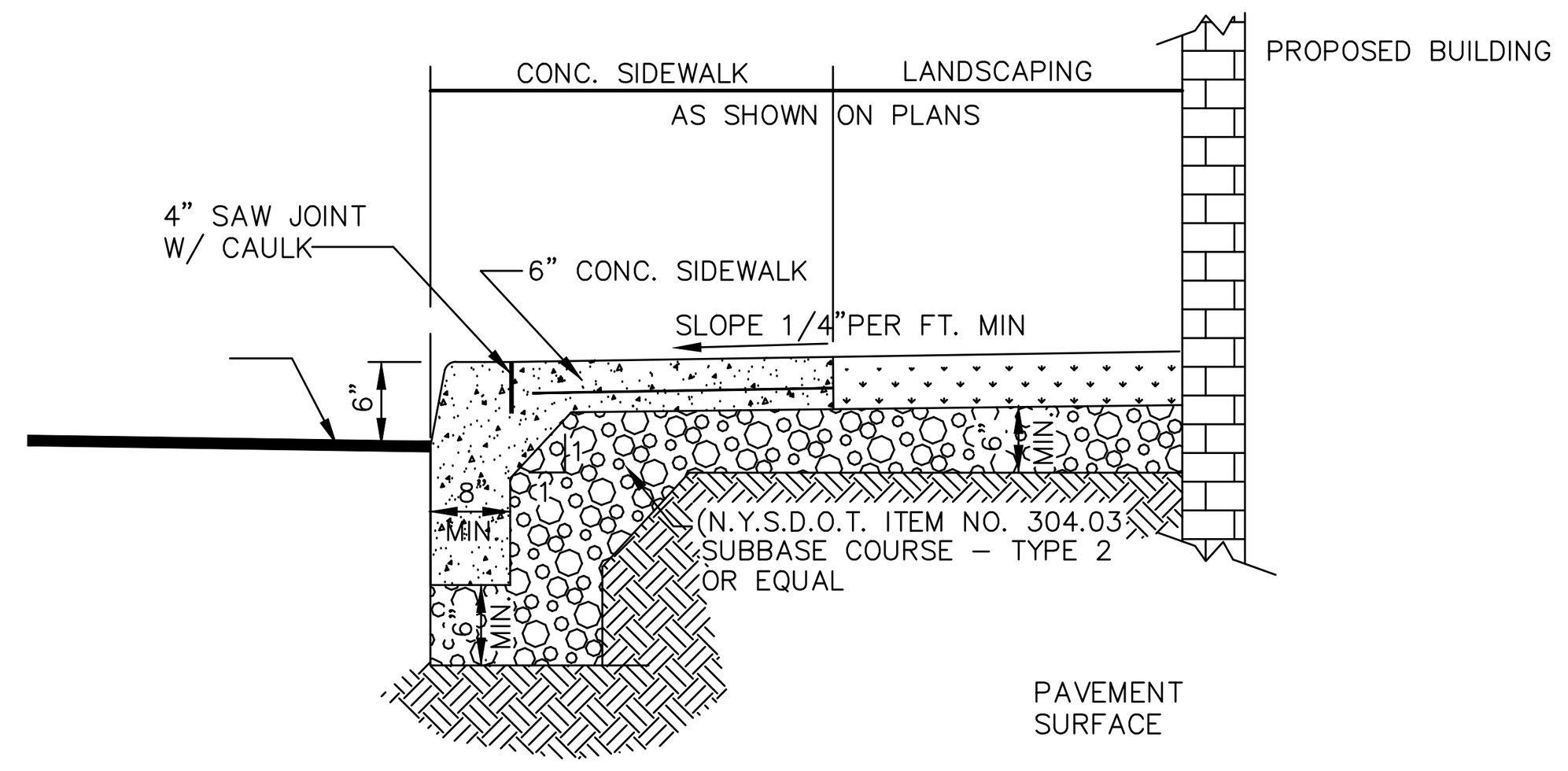
DRAWING NO.
D2
SHEET 6 OF 13





EXPANDED SCOUR HOLE DETAIL FOR DETENTION POND OUTLET

SCALE: NO SCALE

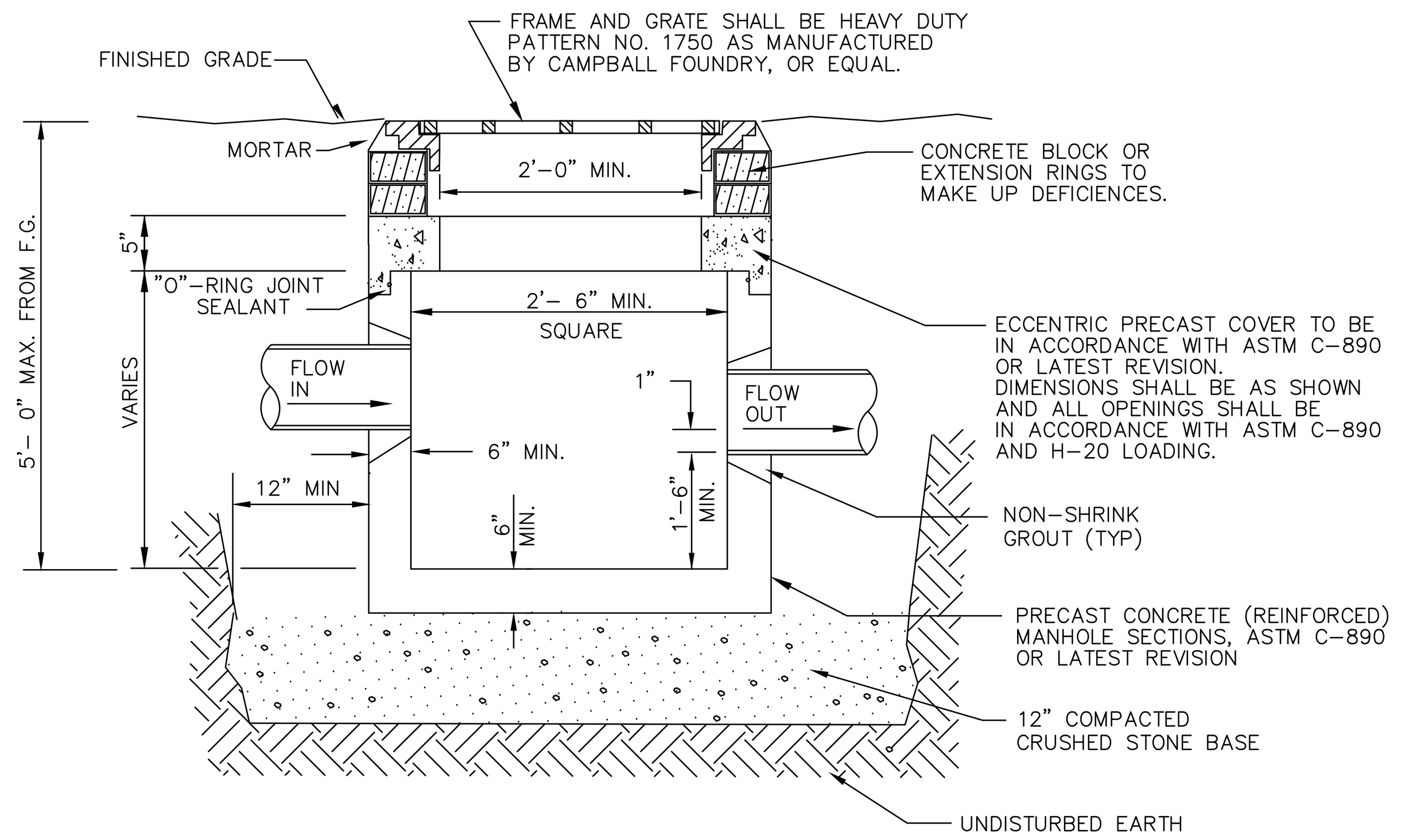


CONCRETE CURB & SIDEWALK DETAIL

SCALE: NONE

NOTES:
FOR DEPTHS GREATER THAN 5'– 0", A 4'– 0" I.D. PRECAST CONCRETE STRUCTURE SHALL BE USED.

STRUCTURES SHALL BE AS MANUFACTURED BY THE FORT MILLER COMPANY, OR EQUAL.



TYPE "A" CATCH BASIN

SCALE: NONE

DISINFECTION OF WATER MAINS:

A. DISINFECTION METHODS IN ACCORDANCE WITH AWWA C651.

B. CHLORINATION SHALL PROVIDE A MINIMUM OF 25 PPM RESIDUAL AFTER 24–HOURS CONTACT IN PIPELINE. IN GENERAL, THIS RESIDUAL MAY BE EXPECTED WITH AN APPLICATION OF 50 PPM ALTHOUGH SOME CONDITIONS MAY REQUIRE MORE.

C. CHLORINE, IN A FORM OF A 1% SLURRY OF HIGH TEST CALCIUM HYPOCHLORITE (HTH, PERCHLORON, PITTCHLOR,ETC.) SHALL BE FED INTO THE PIPELINE IN SUCH A MANNER AS TO MIX WITH THE WATER FLOWING IN THE PIPELINE. (A 1% SLURRY RESULTS FROM MIXING 1 POUND OF CALCIUM HYPOCHLORITE WITH 7.5 GALLONS OF WATER)

D. THE FOLLOWING TABLE PROVIDES INFORMATION AS TO THE REQUIRED QUANTITY OF SLURRY TO BE USED PER 100 FEET OF PIPE TO PROVIDE A CHLORINE CONCENTRATION OF 50 PPM:

PIPE SIZE INCHES	VOL. OF 100 FT LENGTH (GALLONS)	REQUIRED AMOUNT OF SLURRY (GALLONS)
4	65	0.33
6	147	0.74
8	261	1.3
10	408	2.0
12	588	3.0
16	1044	5.2

A. DURING THE PROCESS OF CHLORINATING THE PIPELINE, ALL VALVES AND OTHER PIPELINE APPURTENANCES SHALL BE OPERATED SEVERAL TIMES TO PROVIDE SUFFICIENT CONTACT WITH THE CHLORINATING AGENT.

HYDROSTATIC WATER MAIN TEST:

A. THE HYDROSTATIC TEST METHOD SHALL BE IN ACCORDANCE WITH ANSI/AWWA C600.

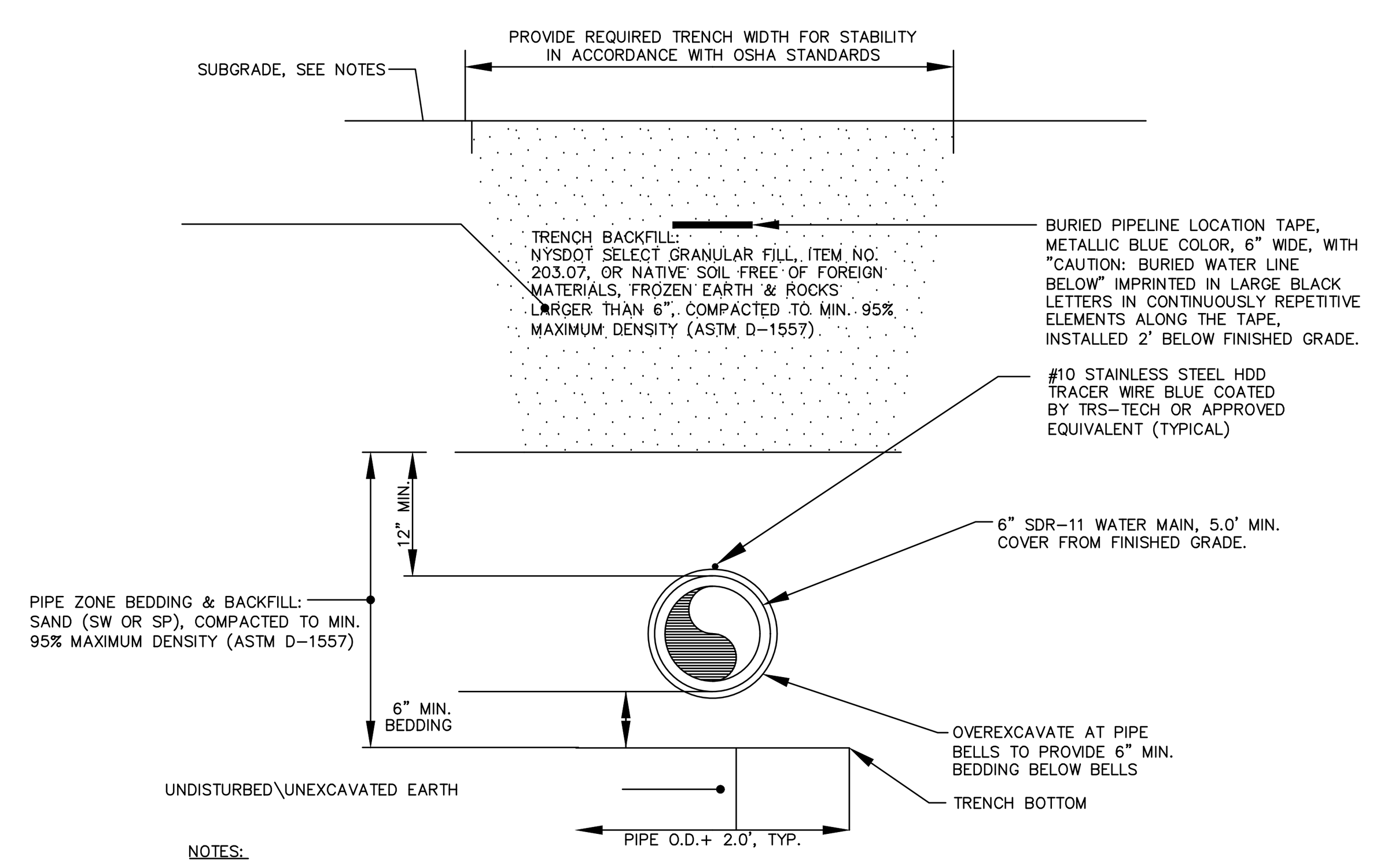
B. ALL PIPELINES, SERVICES, AIR RELEASE VALVES AND APPURTENANCES SHALL BE HYDROSTATIC TESTED.

C. ALL WATER MAINS SHALL BE GIVEN A HYDROSTATIC TEST OF AT LEAST 1.5 TIMES THE WATER SYSTEM OPERATING PRESSURE OR 150 POUNDS PER SQUARE INCH (PSI), WHICH EVER IS GREATER. THE PRESSURE MEASUREMENT SHALL BE MADE FROM THE LOWEST ELEVATION OF THE FORCE MAIN SECTION BEING TESTED. THE TEST PRESSURE SHALL NOT EXCEED THE PIPE OR VALVE RATED PRESSURES.

D. THE HYDROSTATIC TEST DURATION OF EACH WATER/FIRE LINE TEST SECTION IS 2 HOURS (UNINTERRUPTED).

E. THE MAXIMUM ALLOWABLE LEAKAGE OF FORCE MAIN SHALL BE BASED UPON THE FOLLOWING TABLE:

ALLOWABLE LEAKAGE OF DIP WATER MAINS IN GALLONS PER HOUR (GPH) AT 150 PSI										
DIA.	100 FT.	200 FT.	300 FT.	400 FT.	500 FT.	600 FT.	700 FT.	800 FT.	900 FT.	1000 FT.
4	0.04	0.07	0.11	0.15	0.18	0.22	0.26	0.29	0.33	0.37
6	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.55
8	0.07	0.15	0.22	0.29	0.37	0.44	0.51	0.59	0.66	0.74
10	0.09	0.18	0.28	0.37	0.46	0.55	0.64	0.74	0.83	0.92
12	0.11	0.22	0.33	0.44	0.55	0.66	0.77	0.88	0.99	1.10



NOTES:

1. THE TOWN OF NISKAYUNA SHALL BE NOTIFIED A MIN. OF 72 HOURS PRIOR TO THE COMMENCEMENT OF THE WATER MAIN CONSTRUCTION.

2. WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLASTIC PIPE INSTITUTE, NYSDOH, NYSDEC, AMERICAN WATER WORKS ASSOCIATION (AWWA), GREAT LAKES–UPPER MISSISSIPPI RIVER BOARD OF STATE & PROVINCIAL PUBLIC HEALTH & ENVIRONMENTAL MANAGERS "RECOMMENDED STANDARDS FOR WATER WORKS (GLUMRB–TEN STATE STANDARDS), AND THE TOWN OF NISKAYUNA, NY.

3. ALL ITEMS DISTURBED BY THE CONTRACTOR, SHALL BE RESTORED TO THE FULL LIMIT OF DISTURBANCE AT THE CONTRACTOR'S EXPENSE.

A. PAVEMENT AREAS ONLY: RESTORE DISTURBED AREAS IN ACCORDANCE WITH ASPHALT CONCRETE PAVEMENT DETAIL.
B. LAWN AREAS ONLY: RESTORE DISTURBED AREAS WITH MIN. 4" TOPSOIL, SEED, MULCH, & JUTE MESH.

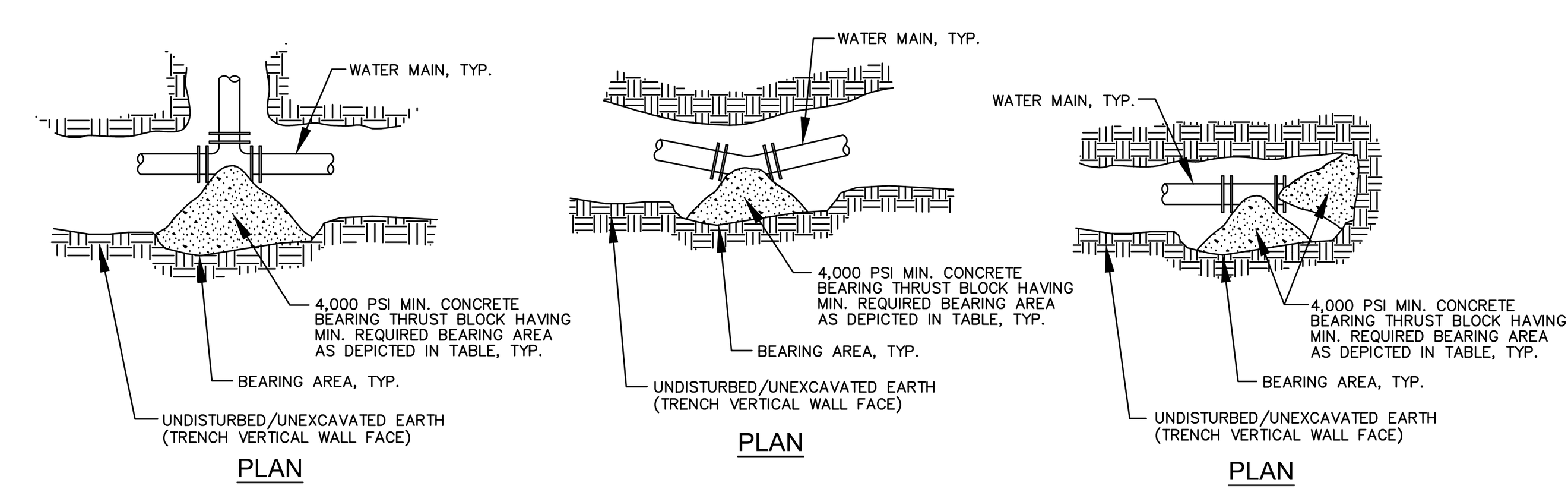
4. ALL NEW WATER SYSTEMS SHALL BE FLUSHED THOROUGHLY AT MIN. 2.5 FT/SEC. FOR A DURATION ACCEPTABLE TO THE TOWN OF NISKAYUNA, THEN HYDROSTATIC PRESSURE TESTED IN ACCORDANCE WITH ANSI/AWWA C906–7 STANDARDS PRIOR TO PLACING IN SERVICE.

5. AFTER HYDROSTATIC PRESSURE TESTING, WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH ANSI/AWWA C651 STANDARDS PRIOR TO PLACING IN SERVICE.

6. PROVIDE (3) COPIES OF THE HYDROSTATIC PRESSURE, DISINFECTION, & BACTERIOLOGICAL TEST REPORTS TO THE TOWN OF NISKAYUNA AND THE SCHENECTADY COUNTY DEPARTMENT OF HEALTH FOR APPROVAL.

WATER MAIN TRENCH DETAIL - H.D.P.E. PIPE

SCALE: NO SCALE



THRUST BLOCK DETAIL

SCALE: NO SCALE

MINIMUM REQUIRED BEARING AREAS FOR CONCRETE THRUST BLOCKS 225 PSIG & 2,000 PSF SOIL						
PIPE DIAMETER	DEAD END, TEE	90° BEND	45° BEND	22.5° BEND	11.25° BEND	5.625° BEND
	AREA (SF)	AREA (SF)	AREA (SF)	AREA (SF)	AREA (SF)	AREA (SF)
6"	4.2	5.9	3.2	1.6	0.8	0.8

NOTES:

1. REQUIRED BEARING AREAS ARE DUE TO THRUSTS CAUSED BY 225 PSI TOTAL INTERNAL PRESSURE (MAX. 150 PSIG WORKING PRESSURE PLUS 75 PSIG SURGE ALLOWANCE)

2. CONCRETE THRUST BLOCK SHALL BE PLACED SO THAT THE PIPE & FITTING SHALL BE ACCESSIBLE FOR FUTURE REPAIR. FITTING AND HARDWARE SHALL BE WRAPPED WITH A TOTAL OF 12–MIL OF POLYETHYLENE PLASTIC PRIOR TO PLACING CONCRETE THRUST BLOCKS. THRUST BLOCKS ARE REQUIRED AT ALL HORIZONTAL & VERTICAL BENDS.

3. REQUIRED BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING CAPACITY OF 2,000 POUNDS PER SQUARE FOOT FOR SAND. DUE TO OTHER SOIL CONDITIONS THAT MAY BE ENCOUNTERED, BEARING AREAS MAY BE MODIFIED (BY THE ENGINEER ONLY) BY MULTIPLYING THE AREA GIVEN IN THE TABLE FOR THE APPROPRIATE PIPE SIZE AND FITTING BY THE CORRECTION FACTORS LISTED BELOW. IN THE EVENT THAT ENCOUNTERED SOIL CONDITIONS ARE OTHER THAN SAND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF SAID CONDITIONS, AND THE CONTRACTOR SHALL CONSTRUCT THE MODIFIED CONCRETE THRUST BLOCK(S) IN ACCORDANCE WITH THE ENGINEER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL NOT MODIFY THE MINIMUM REQUIRED BEARING AREAS OF THE CONCRETE THRUST BLOCKS FROM THOSE DEPICTED ABOVE WITHOUT RECEIVING THE ENGINEER'S WRITTEN PERMISSION TO DO SO.

SOIL	ALLOWABLE SOIL PRESSURE (PSF)	CORRECTION FACTOR
SOFT CLAY	1,000	2.00
SAND	2,000	1.00
SAND & GRAVEL	3,000	0.67
SAND & GRAVEL CEMENTED W/CLAY	4,000	0.50
HARD SHALE	10,000	0.20

4. IN MUCK, PEAT, OR RECENTLY PLACED FILL, ALL THRUSTS SHALL BE RESISTED BY PILES, OR BY INSTALLING TIE RODS TO SOLID FOUNDATIONS, OR BY REMOVAL OF SUCH UNSTABLE MATERIAL AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS, ALL AS REQUIRED BY THE ENGINEER.

5. ALL CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED OF MINIMUM 4,000 PSI COMPRESSIVE STRENGTH (f'c) CONCRETE (28–DAY STRENGTH) WITH 4% TO 6% AIR ENTRAINMENT, AND A MAXIMUM WATER–TO–CEMENT (W/C) RATIO OF 0.35. ALL THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED/UNEXCAVATED SOIL OF TRENCH VERTICAL WALL FACE.

6. MINIMUM REQUIRED THRUST BLOCK BEARING AREA SHALL BE THE ACTUAL CONTACT AREA AGAINST THE VERTICAL FACE OF THE TRENCH WALL LOCATED BEHIND THE PIPE FITTING. BEARING AREA SHALL BE IN A SQUARE CONFIGURATION TO THE BEST EXTENT POSSIBLE.

THRUST BLOCK BEARING AREA TABLE & NOTES

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of __________ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS			
NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED: PARKING; LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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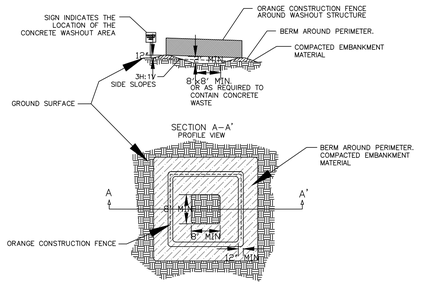
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS
STANDARD DETAILS
SOUTH HAMILTON

TAX MAP : 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA
DRAWING NO.
D3
SHEET 7 OF 13

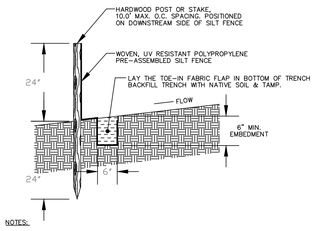


NOTES:

1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. VEHICLE TRACKING CONTROL IS REQUIRED AT CONCRETE WASHOUT ENTRANCE IF ACCESS TO CONCRETE WASHOUT AREA IS OFF PAVEMENT.
3. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND/OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR WASTE CONCRETE.
4. WASTE MATERIAL FROM CONCRETE WASHOUT OPERATIONS MUST BE REMOVED AND LEGALLY DISPOSED OF WHEN IT HAS ACCUMULATED TWO–THIRDS OF THE WET STORAGE CAPACITY OF THE STRUCTURE.
5. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT AN APPROVED WASTE SITE.
6. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE TOWN.

CONCRETE WASHOUT AREA DETAIL

SCALE: NO SCALE



NOTES:

1. THE LENGTH OF SLOPE ABOVE THE SILT FENCE SHALL NOT EXCEED THE FOLLOWING LIMITS:

SLOPE	MAX. SLOPE LENGTH
1V:2H (50%)	50 FEET
1V:3H (33%)	75 FEET
1V:4H (25%)	125 FEET
1V:5H (20%)	175 FEET
FLATTER THAN 1V:5H (20%)	200 FEET

2. DRAINAGE AREA SHALL NOT BE GREATER THAN 0.25 ACRES PER 100 L.F. OF SILT FENCE.

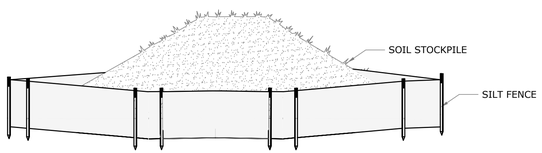
3. ALL SILT FENCES SHALL BE PLACED AS CLOSE TO THE WORK AREA AS POSSIBLE, AND THE AREA BELOW THE SILT FENCE MUST BE UNDISTURBED OR STABILIZED.

4. WHERE ENDS OF FILTER CLOTH COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.

5. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS TO PREVENT BLOCKING OR IMPEDING STORMWATER RUNOFF.

TEMPORARY SILT FENCE DETAIL

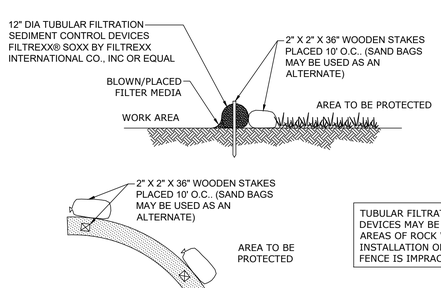
SCALE: NO SCALE



1. TOPSOIL AND FILL THAT IS ANTICIPATED TO REMAIN STOCKPILED ON–SITE FOR PERIODS GREATER THAN 30 DAYS SHALL BE STABILIZED BY SEEDING. PRIOR TO THE SEEDING OPERATION, THE STOCKPILED MATERIAL SHALL BE GRADED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IN NO CASE SHALL ERODIBLE MATERIALS BE STOCKPILED WITHIN 25 FT OF ANY DITCH, STREAM, OR OTHER SURFACE WATERBODY.
2. SILT FENCE SHALL BE CONSTRUCTED AROUND ALL STOCKPILES OF FILL, TOPSOIL AND EXCAVATED OVERBURDEN THAT ARE TO REMAIN EXPOSED FOR PERIODS LESS THAN 30 DAYS. SILT FENCE SHALL BE ANCHORED AND MAINTAINED IN GOOD CONDITION UNTIL SUCH TIME AS SAID STOCKPILES ARE REMOVED AND STOCKPILING AREAS ARE BROUGHT TO FINAL GRADE AND PERMANENTLY STABILIZED.
3. TEMPORARY STABILIZATION MEASURES SHALL START AS SOON AS PRACTICAL ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NOT MORE THAN 14 DAYS AFTER WORK HAS CEASED.

SOIL STOCKPILE DETAIL

SCALE: NONE



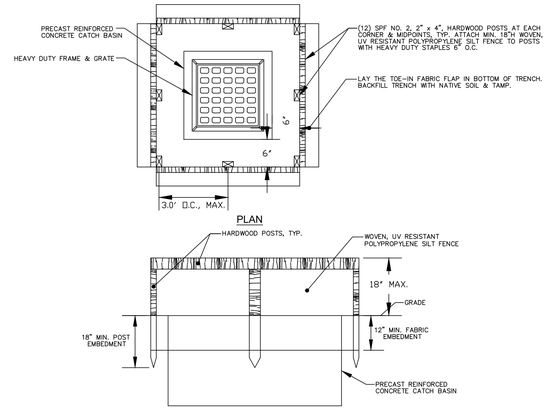
TUBULAR FILTRATION DEVICES MAY BE USED IN AREAS OF ROCK WHERE INSTALLATION OF SILT FENCE IS IMPRACTICAL

NOTE:

1. FILL TUBULAR FILTRATION SEDIMENT CONTROL DEVICE WITH FILTER MEDIA APPROVED BY NYSDEC FOR THIS APPLICATION.

TUBULAR FILTRATION SEDIMENT CONTROL DEVICE

SCALE: NO SCALE

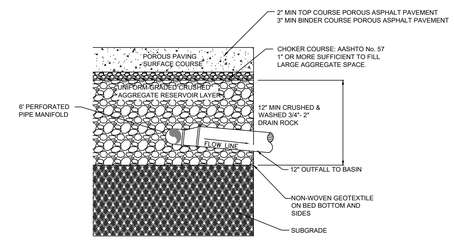


NOTES:

1. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY MUST BE OVERLAPPED TO THE NEXT STAKE.
2. 1 ACRE MAXIMUM DRAINAGE AREA PER PROTECTION DEVICE.
3. LAND AREA SLOPE IMMEDIATELY SURROUNDING THE PROTECTION DEVICE SHOULD NOT EXCEED 1%
4. REMOVE SEDIMENT FROM THE POOL AREA AS NECESSARY WITH CARE TO PREVENT UNDERCUTTING OR DAMAGING THE FILTER FABRIC.
5. PROTECTION DEVICE SHALL BE KEPT IN PLACE UNTIL ASPHALT CONCRETE PLACEMENT IS COMMENCED.

TEMPORARY FILTER FABRIC CATCH BASIN PROTECTION DETAIL

SCALE: NO SCALE

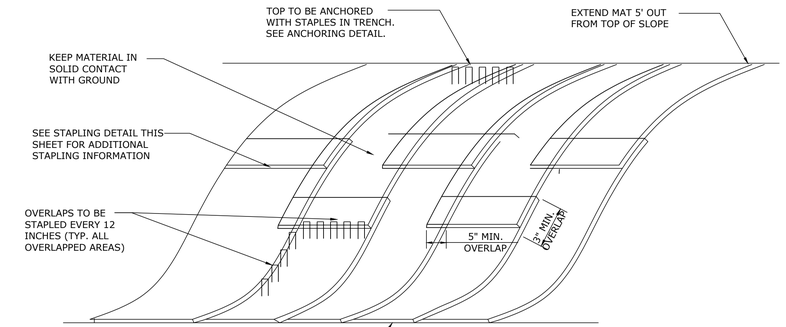


NOTES:

1. PRIVATE WATER QUANTITY CONTROL SYSTEM, NOT FOR PUBLIC RIGHT OF WAY
2. PAVEMENT SURFACE WITH SIGNIFICANT PERMEABILITY (> 8" PER HR)
3. UNIFORM-GRADED DRAIN ROCK BED WITH MINIMUM 40% VOID SPACE
4. PROVIDE PERFORATED PIPE MANIFOLD IN RESERVOIR LAYER FOR CONVEYANCE, IF NATIVE SOIL INFILTRATION RATES LESS THAN 2"/HOUR. SEE PERFORATED PIPE DETAIL.
5. NOT RECOMMENDED FOR TRAFFIC SURFACES WITH SLOPE > 5%.
6. DO NOT PLACE DRAIN ROCK BED ON COMPACTED FILL.
7. SUBGRADE SLOPED TO MANIFOLD FOR DRAINAGE.
8. HIGHEST SEASONAL WATER TABLE MUST BE AT LEAST 10' BELOW RESERVOIR LAYER. STRUCTURE MUST BE 100' AWAY FROM DRINKING WATER WELL. MINIMUM OF 100' AWAY UP SLOPE & 10' AWAY DOWN SLOPE FROM STRUCTURE FOUNDATIONS.
9. SIGNAGE IDENTIFYING POROUS PAVEMENT REQUIRED.
10. WATER QUALITY TREATMENT REQUIRED FOR FLOWS FROM OTHER IMPERVIOUS AREAS THAT DRAIN TO POROUS PAVEMENT.
11. NON-WOVEN GEOTEXTILE CONFORMING TO ODOT TYPE II VARIATION OR APPROVED EQUAL.

POROUS PAVEMENT DETAIL

SCALE: NO SCALE



NOTES:

1) APPLY APPLICATION OF ANY LIME, FERTILIZER, AND SEED BEFORE INSTALLING TURF REINFORCEMENT MAT.

2) INSTALL USING ALL MANUFACTURERS INSTALLATION RECOMMENDATIONS AND GUIDLINES.

3) BLANKET FOR 5:1 SLOPES - S75 BY NORTH AMERICAN GREEN
BLANKET FOR 2:1 TO 3:1 SLOPES - HYDRAMAX STEEP SLOPE MATRIX - NORTH AMERICAN GREEN

EROSION CONTROL BLANKET DETAIL

SCALE: NONE

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING / LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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& CONSULTANTS
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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

STANDARD DETAILS SOUTH HAMILTON

TAX MAP 6161-30-151783

DATE: JANUARY 2023

JOB NO. 22.10

SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.

D4

SHEET 8 OF 13

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Lands Now or Formerly of
MP HOMESTEAD LLC
Book 2008 Page 7149
Section 6161.30 Lot 182812

Lands Now or Formerly of
GEORGE & ANN HARMUTH
DOC. NO. 219956247
Section 6161.30 Lot 182803

Lands Now or Formerly of
GORDON GEBERT
LIZABETH PARAVISINI-GEBERT
Book 2003 Page 5091
Section 6161.30 Lot 174764

Lands Now or Formerly of
HAMILTON GARDEN APARTMENTS, INC.
DOC. NO. 219932589
Section 6161.30 Lot 152824

Lands Now or Formerly of
G. NICHOLAS & GAYLE GARIN
Book 1538 Page 473
Section 6161.30 Lot 138812

Lands Now or Formerly of
SHIRLEY ADAMS
Book 2008 Page 3021
Section 6161.30 Lot 137803

Lands Now or Formerly of
MICHAEL PETRONIO
MORIA FITZGIBBONS
Book 2004 Page 9446
Section 6161.30 Lot 166759

Lands Now or Formerly of
JEFFREY LINTEL
Book 1833 Page 809
Section 6161.30 Lot 160759

Lands Now or Formerly of
NEW HORIZONS RESOURCES INC.
Book 2005 Page 228
Section 6161.30 Lot 139757

STORMWATER MANAGEMENT AREA

5' WALKING PATH (TYP)

RETAINING WALL (TYP)

4 Park Benches

12 Thuja occidentalis 'American Pillar' American Pillar Arborvitae 4'-5'
Mature height 30' x 4' wide with 3'-6' of growth per year

2 Gazebo 10'-12' diameter

WALKING PATH (TYP)

1,103 Liriope muscari 'Variegata' 1gal 12" o.c.

55 Hydrangea paniculata 'Little Quick Fire' 3gal
Mature size 4'x4'

130 Thuja occidentalis 'American Pillar' American Pillar Arborvitae 4'-5'
Mature height 30' x 4' wide with a 3'-6' growth rate per year

537 Liriope muscari 'Variegata' 1gal 12" o.c.
Mature size 12"x12"

4 Buxus 'Winter Gem' Winter Gem Boxwood 3'x3' B&B

80 Hydrangea paniculata 'Little Quick Fire' HPLQF 3gal
Mature size 4'x4'

16 Hydrangea quercifolia 'Snow Queen' HQSQ 3gal
Mature height 8'x8'

PROPOSED 3-STORY
MULTI-FAMILY
58 UNITS
22,800 SF FOOTPRINT

6 Nyssa sylvatica 'NS' Black Gum 3"-3.5" caliper
Mature size 40'-70' x 25'-35' wide

12 Metasequoia glyptostroboides
Dawn Redwood 7'-8' B&B
Mature height 60'-80' x 25' wide with a 3' growth rate per year

25 Thuja plicatua 'Green Giant' Green Giant Arborvitae 7'-8' B&B
Mature height 35' x 12'-16' wide with a 5'-6' growth rate per year

35 Hypericum frondosum 'Sunburst' HFSB Sunburst St John's Wort 3gal
Mature size 3'-4' x 3'-4' wide

6 Acer rubrum 'October Glory' AROG October Glory Red Maple 3"-3.5" caliper
Mature size 40'-50' x 30'-40' wide

941 Schizachyrium scoparium 'Standing Ovation 1gal 2' o.c.
Mature size with seed heads 3' x 2' wide

7 Tilia cordata Little TC Leaf Linden 3"-3.5" caliper
Mature size 50'-70' x 30'-50' wide

GEOCELL VEGETATED GRID SURFACE FILLED WITH CRUSHED STONE AND TOPPED WITH 2" TOPSOIL

47 Buddleia 'Low and Behold' 2gal
Mature size 2'x2'

39 Hypericum frondosum 'Sunburst' HFSB Sunburst St John's Wort 3gal
Mature size 3'-4' wide x 3'-4' wide

3 Prunus serrulata 'Kwanzan' KC Kwanzan Cherry' 3"-3.5" caliper
Mature size 30'-40' x 25'-30' wide

21 Pennisedtum alopecuroides 'Red Head' Red Headed Dwarf Fountain Grass 1gal
Mature size 4'x4'

211 Liriope muscari 'Variegata' 1gal 12" o.c.
Mature size 12"x12"

MAINTAIN EXISTING GRADE ALONG BUILDING AND PROPERTY BOUNDARY

87 Thuja occidentalis 'American Pillar' American Pillar Arborvitae 4'-5'
Mature height 30' x 4' wide with 3'-6' of growth per year

37 Thuja plicatua 'Green Giant' Green Giant Arborvitae 7'-8' B&B
Mature height 35' x 12'-16' wide with 5'-6' of growth per year

4 Acer rubrum 'The Rocket' ARTR Red Maple 3"-3.5" caliper
Mature size 30'-40' x 15'-20' wide

4 Acer saccharum 'Goldspire' ASGS Sugar Maple 3"-3.5" caliper
Mature size 60'-70' x 25'-30' wide

16 Hydrangea paniculata 'Tardiva' HPT ***SHRUB FORM*** 5gal
Mature size 10'x10'

637 Polystichum acrostichoides Christmas Fern 1gal 2' o.c
Mature size 2'x2'.

8" WATER MAIN FOR FIRE AND DOMESTIC. CONNECT TO EXISTING MAIN IN HAMILTON STREET WITH 6"x6"x8" TAPPING SLEEVE AND VALVE

CONNET TO DRAINAGE MANHOLE

6" SEWER LATERAL. CONNECT TO EXISTING GRAVITY SEWER INV. AT PIPE 188.20±

8" WATER MAIN FOR FIRE AND DOMESTIC. CONNECT TO EXISTING MAIN IN HAMILTON STREET WITH 6"x6"x8" TAPPING SLEEVE AND VALVE

BENCHMARK
RR SPIKE
ELEV.= 188.6

DWIGHT STREET

SOUTH HAMILTON STREET

690'

SHEET 10 0F 13

Solar South Hudson Area

L1

845-702-1004
11 South Fowlerhouse Road Wappinger Falls, New York 12590

The Michael Boice Collaboration
DESIGNERS AND MAKERS OF FINE LANDSCAPES

One Key South Hamilton Street
South Hamilton Street Poughkeepsie, New York

Scale | 1" - 25' - 0"

Date | September 21, 2023

Revisions |

mob September 26, 2023
revised building footprint,
revised parking configurations,
mob September 29, 2023
revised building footprints,
mature size ranges, Benches and
gazebos

PLANTING NOTES

Designs Are The Property of The Michael Boice Collaboration. Un-authorized Use of Plans is Strictly Prohibited

1. All plant material must conform to American Standard for Nursery Stock ANSI Z60.1-2014

2. Voluntary Alternates/Plant substitutions must be approved by the Designer/Landscape Architect

3. All plant material delivered to the site and or planted must be maintained by the Landscape Contractor until the scope of agreed Landscape work is complete

4. All wire baskets must be either removed from the root ball or cut from the root ball after placing the plant in the planting hole

5. All burlap must be removed from root balls or cut away from the root ball after placing the plant in the planting hole. All planting holes must be 50% wider than the root ball or container root mass.

6a. The indigenous soil or back fill for major trees must not be conditioned unless rocky or unsuitable conditions are present

6b. Incorporate 50% organic soil media and slow release fertilizer per instructions into indigenous soil used to back fill shrubs, perennials and ground cover. Ground cover areas in particular may require mechanical tilling in an effort to create a friable soil texture

6c. Any soil glazing created by the back of the shovel shall be removed by reversing the shovel and caving in the planting hole

7. A soil pH test is highly recommended before planting begins

8. All existing unwanted plant material and weeds and their roots systems must be completely removed from planting beds prior to installing new plant material. The use of Round-Up may be required to eliminate invasive/stoloniferous weeds. Only a licensed professional may apply Round-Up

9. Only non-dyed natural mulch may be used. Install mulch to a depth of 2" - 3"

10. Stake any trees or plants that may be affected by high wind loads.

11. Where an automatic irrigation system is recommended, the Landscape Contractor shall provide proof of CID, CIC, CIT - Certified Irrigation Designer, Contractor, Technician through the Irrigation Association

12. It is the Landscape Contractor's responsibility to comply with all local and state codes. Any permits required for the Landscape Contractor's work must be obtained by the Landscape Contractor

13. It is the Landscape Contractor's responsibility to coordinate the planting schedule with the owner

14. Any deviations from the design due to unkown site conditions must be brought to the attention of the Designer/Landscape Architect

15. All Grasses and perennials must be cut back either in fall or early spring - before new foliage emerges. Grasses must not be pruned lower than 12", 18" is ideal

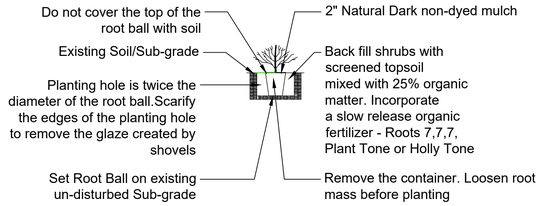
16. All hydrangea paniculata can be pruned in fall, winter or early spring. Little Quick fire does not require pruing and will grow to 4'x4'

17. Hypericum can be pruned to 12"-18" in late fall or early spring

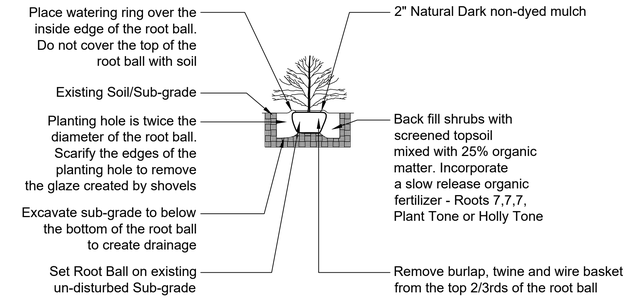
18. The liriope can be cut with a typical hand lawn mower set at 3" in late fall or early spring before the new foliage appears

PLANTING LIST

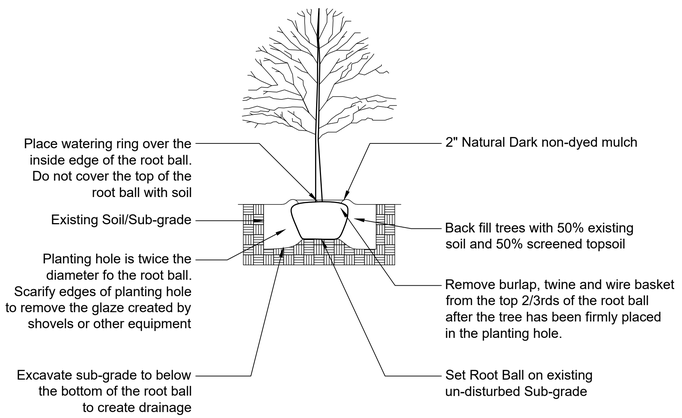
GENUS SPECIE	COMMON NAME	SIZE	KEY	QUANTITY	NOTES	Zone
Tilia tomentosa	Silver Leaf Linden	3"-3.5" cal. branched 5-6'	TT - Labeled	7	Native, fragrant pollinator friendly	4-7
Acer rubrum 'The Rocket'	The Rocket Red Maple	3"-3.5" cal. branched 5-6'	ARTR - Labeled	4	Native, red fall color upright habit	3-9
Acer saccharum 'Goldspire'	Goldspire Sugar Maple	3"-3.5" cal. branched 5-6'	ASGS - Labeled	4	Native, fragrant pollinator friendly	3-9
Acer rubrum 'October Glory'	October Glory Red Maple	3"-3.5" cal. branched 5-6'	AROG - Labeled	6	Native, wet soils, red/orange fall color	3-9
Metasequoia glyptostroboides	Dawn Redwood	7'-8'	Labeled	12	Introduced, wet soils, deciduous evergreen	5-10
Nyssa Sylvatica	Black Gum	3"-3.5" cal.	NS - Labeled	6	Native wetland tree, red fall color	3-9
Prunus serrulata 'Kwanzan'	Kwanzan Cherry	3"-3.5" cal. branched 5-6'	KC - Labeled	3	Introduced, pink flowers spring, yellow fall color	5-8
Thuja plicata 'Green Giant'	Green Giant Arborvitae	7'-8'	Labeled	62	Evergreen, deer resistant, grow 5'-6'/yr	5-8
Thuja occidentalis 'American Pillar'	American Pillar Arborvitae	4'-5' Larger sizes N/A	Labeled	229	Evergreen, deer resistant, grow 4'-5'/yr	2-7
Hydrangea paniculata 'Little Quick Fire'	Little Quick Fire Hydrangea	3 gal	HPLQF - Labeled	135	White flowers summer fade to red/pink in fall	4-8
Hypericum frondosum 'Sunburst'	Sunburst St John's Wort	3 gal	HFSB - Labeled	16	Yellow flowers summer native specie	5-8
Hydrangea quercifolia' Snow Queen'	Snow Queen Oakleaf Hydrangea	3 al	HQSQ - Labeled	16	White flowers summer fade to pink in fall	4-8
Hydrangea paniculata 'Tardiva'	Tardiva Hydrangea	5 gal	HPT - Labeled	16	White flowers summer fade to pink in fall	4-8
Buddleia 'Low and Behold'	Low and Behold Buddleia	2 gal	BLB - Labeled	47	Lavendaer flowers all summer, fragrant	5-9
Pennisetum alopecuroides 'Red Head'	Red Headed Fountain Grass	1 gal	Labeled	21	Introduced Drought tolerant	5-9
Schizachyrium scoparium 'Standing Ovation'	Standing Ovation Little Bluestem	1 gal	Labeled	911	Native grass, intense blue color	3-10
Liriope spicata 'Variegata'	Variegated Liriope	1 gal	Labeled	1,916	Low Grassy texture, Purple Flowers	5-10
Polystichum acrostichoides	Christmas Fern	1 gal	Labeled	637	Evergreen fern	3-8



CONTAINER PLANTING SPECIFICATIONS



SHRUB PLANTING SPECIFICATIONS



TREE PLANTING SPECIFICATION

L1a

The Michael Boice Collaboration
DESIGNERS AND MAKERS OF FINE LANDSCAPES
845-702-1004
11 South Fowlerhouse Road Wappinger Falls, New York 12590

mmb September 29, 2023
move plant table to L1a

Date | September 27, 2023
Revisions |

Scale | 1" - 25' - 0"

One Key South Hamilton Street
South Hamilton Street Poughkeepsie, New York

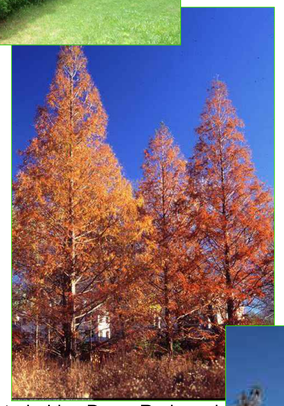
The Pr[illegible]ael Boice Collaboration. Un-authorized [illegible] Strictly Prohibited



Acer rubrum 'October Glory' October Glory Red Maple

Thuja occidentalis 'American Pillar' American Pillar Arborvitea





Metasequoia glyptostroboides Dawn Redwood



Acer rubrum 'The Rocket' The Rocket Red Maple

Schizachyrium scoparium 'Standing Ovation' Standing Ovation Little Bluestem





Liriope muscari 'Variegata'



Pennisetum alopecuroides 'Red Head' Red Headed Dwarf Fountain Grass

Polystichum acrostichoides Chrismas Fern





Hydrangea paniculata 'Tardiva'

Buddleia 'Low and Behold'





Hydrangea paniculata 'Little Quick Fire'



Hydrangea quercifolia 'Snow Queen'



Hypericum frondosum 'Sunburst' Sunburst St John's Wort

Tilia cordata Little Leaf Linden



Acer saccharum 'Goldspire' Goldspire Sugar Maple





Nyssa sylvatica Black Gum

Thuja plicata 'Green Giant' Green Giant Arborvitae





Prunus serrulata 'Kwanzan' Kwanzan Cherry

L2

The Michael Boice Collaboration
DESIGNERS AND MAKERS OF FINE LANDSCAPES
845-702-1004
11 South Fowlerhouse Road Wappinger Falls, New York 12590
One Key South Hamilton Street
South Hamilton Street Poughkeepsie, New York

Revisions |
Date | September 27, 2023
Scale | 1" - 25' - 0"



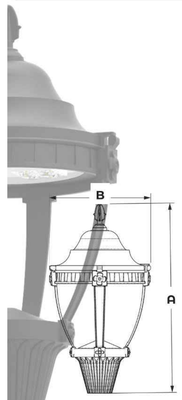
PHOTOMETRIC PLAN

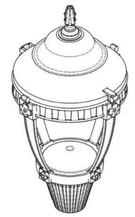
SCALE: 1"=40±'

Schedule											
Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage	Plot
	Bollard 3		14	Crystal Lighting Corp.	CLP-3096-GR3-15CLED-30K-MV	CLP-3096 WITH 15 WATT LED ARRAY AND TYPE III REFRACTOR LENS	1	1873	1	20.8	
	Bollard 5		6	Crystal Lighting Corp.	CLP-3096-GR5-15CLED-30K-MV	CLP-3096 WITH 15 WATT LED ARRAY AND TYPE III REFRACTOR LENS	1	1834	1	20.8	
	x434		9	Crystal Lighting Corp.	CLP-X43-70CLED-T3-30K--MV	X43 Series Fixture,Type 3 Optic	1	5772	1	72.2	
	A		5	Crystal Lighting Corp.	CLP-X43-70CLED-T5-30K--MV	X43 Series Fixture, Type 5 Optic	1	6202	1	144.6	

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #2	+	1.1 fc	26.3 fc	0.0 fc	N/A	N/A

CLP-X43





CAT#	A	B	EPA
CLP-X43	33" 3/8	17	1.4

Cat #	Input Power	Lumen Output	LPW	Color Temp. (CCT)	CRI	Rated Life (L70)	Imput Voltage	HID Equivalent
CLP-X43-20CLED	25W	3,680	184	5000K	70+	>200,000	120-277V	50W MH
CLP-X43-40CLED	45W	6,492	162	5000K	70+	>200,000	120-277V	150W MH
CLP-X43-50CLED	55W	7,780	155	5000K	70+	>200,000	120-277V	250W MH
CLP-X43-60CLED	65W	8,539	142	5000K	70+	>200,000	120-277V	175W PSMH
CLP-X43-80CLED	85W	9,590	119	5000K	70+	>200,000	120-277V	250W PSMH
CLP-X43-100CLED	105W	12,306	123	5000K	70+	>200,000	120-277V	250W HPS
CLP-X43-120CLED	125W	16,012	133	5000K	70+	>200,000	120-277V	400W MH

Proudly Manufactured and Assembled in the USA

CLP-X43 Architectural LED Luminaire

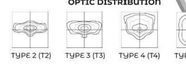


The CLP-X43 is an architectural LED area light fixture constructed with rugged die-cast aluminum. IP66 OPTICS standard . Perfect for lighting up residential exteriors, walkways, perimeters, school campuses, industrial/commercial spaces, parking lots, recreational parks.

-10 year/100,000 hour limited warranty.
-Dark Sky Luminaire

FEACTURES
Energy Savings: Over 66% compared to HID light sources..
Improved lumen maintenance.
Utilizes high efficient Phillips Lumiled LED's.
Operating temperatures: -30°C ~ 60°C.
Driver: Constant current, 120-277v or 480v (Optional).
10kv surge protector (Standard)
0-10Dimming, Occupancy Sensors, Photocell and Wireless Controls (Optional)
CONSTRUCTION
Housing is Heavy-Duty Cast Aluminum.
Clear Optical System
3 mils Powder Coat bronze finish (standard) various colors available
Silicone gasket provide weather-tight protection.
Mounting: over of a 3" O.D Tenon or Pole (standard) (Adapter is Required for other mounting sizes)

OPTIC DISTRIBUTION

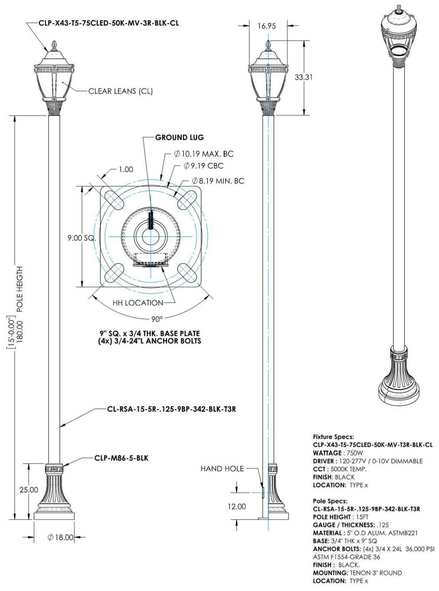


Example: CLP-X43-40CLED-T2-30K-MV-BLK-PC)

Cat #	Wattage	Light Dist.	Color Temp.	Voltage	Mounting	Finish	Options
CLP-X43	20W (20CLED) 40W (40CLED) 50W (50CLED) 60W (60CLED) 80W (80CLED) 100W (100CLED) 120W (120CLED)	Type 2 (T2) Type 3 (T3) Type 4 (T4) Type 5 (T5)	3000K (30K) 4000K (40K) 5000K (50K)	120-277V (MV) 480V (HV)	3" OD (3R)	Black (BLK) White (WHT) Silver (SLR) Bronze (BRZ) Graphite (GPH) Custom (CST)	Occupancy Sensor (OCC) Photo Cell (PC) Wireless Control (UC)

Crystal Lighting
www.crystallighting.us

Call. Us: 1-562-944-0223



Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING LANDSCAPING	DFA	08.18.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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LIC. NO. 085551

ARICO ASSOCIATES
ENGINEERS
LAND PLANNERS
& CONSULTANTS
1407 Route 9, Bldg 2 Suite 6, Clifton Park, New York 12065
518.573.6989
dfa@aricoassociates@gmail.com

CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

LIGHTING & PHOTOMETRIC PLAN
SOUTH HAMILTON

TAX MAP - 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
LP1
SHEET 13 OF 13

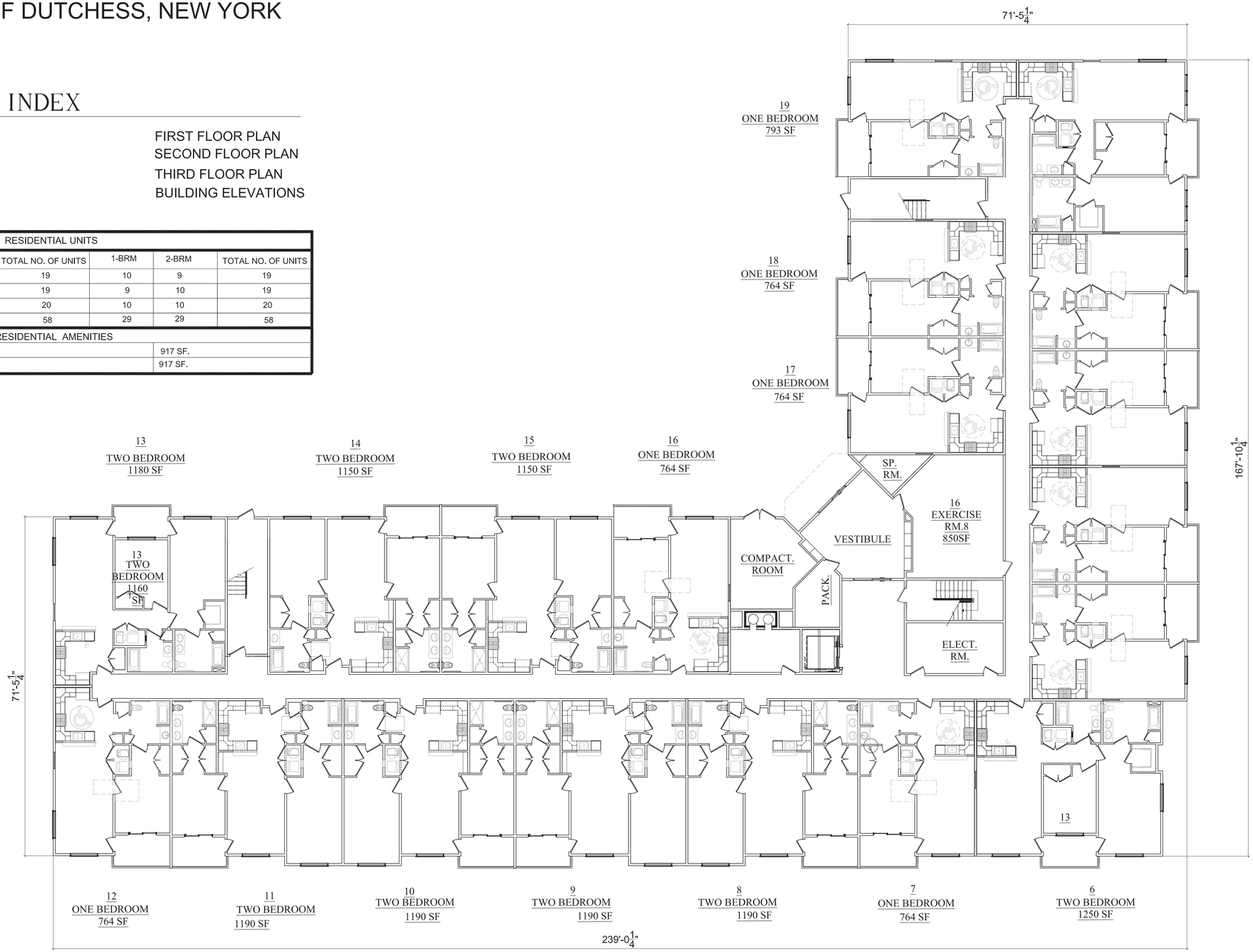
58- UNIT RESIDENTIAL BUILDING

100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS, NEW YORK

DRAWING INDEX

SK-100	FIRST FLOOR PLAN
SK-101	SECOND FLOOR PLAN
SK-102	THIRD FLOOR PLAN
SK-103	BUILDING ELEVATIONS

RESIDENTIAL UNITS				
UNIT	TOTAL NO. OF UNITS	1-BRM	2-BRM	TOTAL NO. OF UNITS
FIRST FLOOR	19	10	9	19
SECOND FLOOR	19	9	10	19
THIRD FLOOR	20	10	10	20
TOTAL	58	29	29	58
RESIDENTIAL AMENITIES				
FITNESS CENTER (GYM)			917 SF.	
ACTIVITY RM			917 SF.	



FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

ASSOCIATE ARCHITECTS

Mija Architecture LLC

N.J. AC. 669

241 HUDSON STREET
HACKENSACK, NJ 07601
PHONE: (201) 925 5888
F A X : (201) 488-1020
MIJAARCH@OPTONLINE.NET

ARCHITECT

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NJ LIC. # AI01665500
NY LIC. # 032031
PA LIC. # RA405317
CT LIC. # 13827
SC LIC. # 8469

PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

RELEASE STATUS OF DRAWING	DATE:
FOR REVIEW	10-3-2013

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DRAWING TITLE:

FIRST FLOOR

REVISIONS

DATE	DWN	CHK	REMARKS

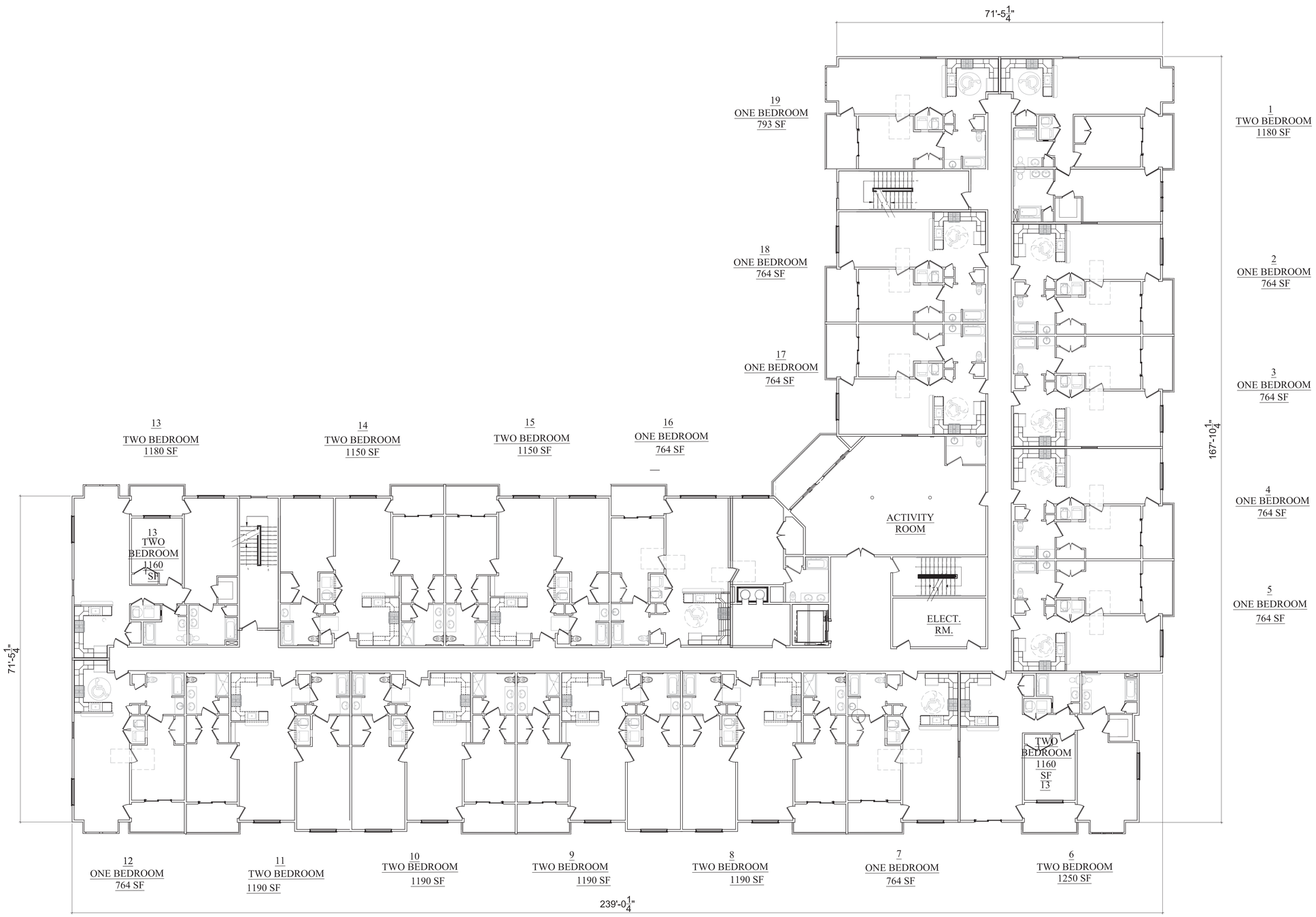
DO NOT SCALE DRAWINGS

DATE:	8/30/2023
DRAWN :	RI
CHECKED:	NM
SCALE:	AS NOTED
PROJECT NUMBER:	0102023

DRAWING N0:

SK-100

ZONING DOCUMENTS 10-03-2023



SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

ASSOCIATE ARCHITECTS

Mija Architecture LLC

N.J. AC. 669

241 HUDSON STREET
HACKENSACK, NJ 07601
PHONE: (201) 925 5888
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MIJAARCH@OPTONLINE.NET

ARCHITECT

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NY LIC. # 032031
PA LIC. # RA405317
CT LIC. # 13827
SC LIC. # 8469

PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

RELEASE STATUS OF DRAWING	DATE:
FOR REVIEW	10-3-2013

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SECOND FLOOR

REVISIONS

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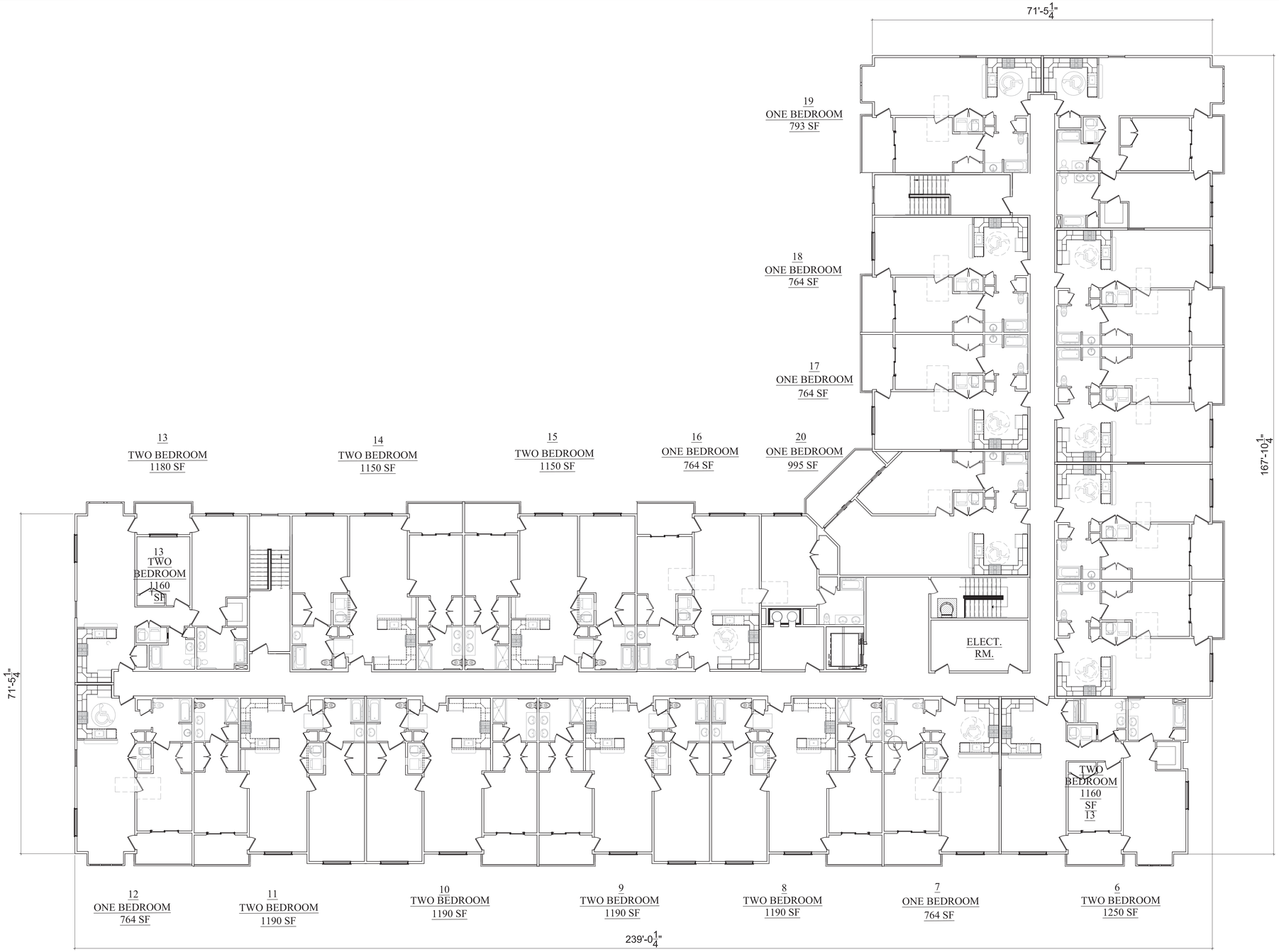
CHECKED:	NM
SCALE:	AS NOTED
PROJECT NUMBER:	0102023

DRAWING N0:

SK-101

ZONING DOCUMENTS 10-03-2023



THIRD FLOOR PLAN

SCALE: 3/32" = 1'-0"

ASSOCIATE ARCHITECTS

Mija Architecture LLC

N.J. AC. 669

241 HUDSON STREET
HACKENSACK, NJ 07601
PHONE: (201) 925 5888
F A X : (201) 488-1020
MIJAARCH@OPTONLINE.NET

ARCHITECT

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NY LIC. # 032031
PA LIC. # RA405317
CT LIC. # 13827
SC LIC. # 8469

PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

RELEASE STATUS OF DRAWING	DATE:
FOR REVIEW	10-3-2013

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DRAWING TITLE:

THIRD FLOOR

REVISIONS			
DATE	DWN	CHK	REMARKS

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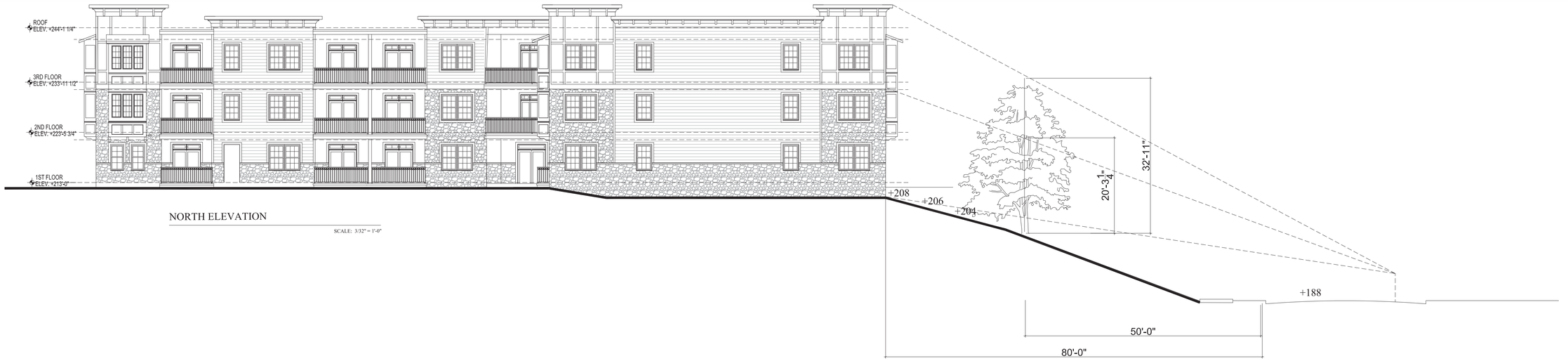
DATE:	8/30/2023
DRAWN :	RI
CHECKED:	NM
SCALE:	AS NOTED
PROJECT NUMBER:	0102023

DRAWING N0:

SK-102

ZONING DOCUMENTS 10-03-2023



NORTH ELEVATION

SCALE: 3/32" = 1'-0"



EAST ELEVATION

SCALE: 3/32" = 1'-0"



WEST ELEVATION (S. HAMILTON STREET)

SCALE: 3/32" = 1'-0"



SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

ASSOCIATE ARCHITECTS

Mija Architecture LLC

N.J. AC. 669

241 HUDSON STREET
HACKENSACK, NJ 07601
PHONE: (201) 925 5888
F A X : (201) 488-1020
MIJAARCH@OPTONLINE.NET

ARCHITECT

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NJ LIC. # AI01665500
NY LIC. # 032031
PA LIC. # RA405317
CT LIC. # 13827
SC LIC. # 8469

PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

RELEASE STATUS OF DRAWING	DATE:
FOR REVIEW	10-3-2013

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DRAWING TITLE:

ELEVATIONS

REVISIONS

DATE	DWN	CHK	REMARKS

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DATE:	8/30/2023
DRAWN :	RI
CHECKED:	NM
SCALE:	AS NOTED
PROJECT NUMBER:	0102023

DRAWING NO:

SK- 103

ZONING DOCUMENTS 10-03-2023

SOUTH HAMILTON MULTI-FAMILY DEVELOPMENT



One Key South Hamilton Street
South Hamilton Street Poughkeepsie, New York

ARCHITECT: NABIL N MIJALLI
241 HUDSON STREET
HACKENSACK, NJ 07601

12-12-2023

MIJA ARCHITECTURE LLC
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SOUTH HAMILTON MULTI-FAMILY DEVELOPMENT



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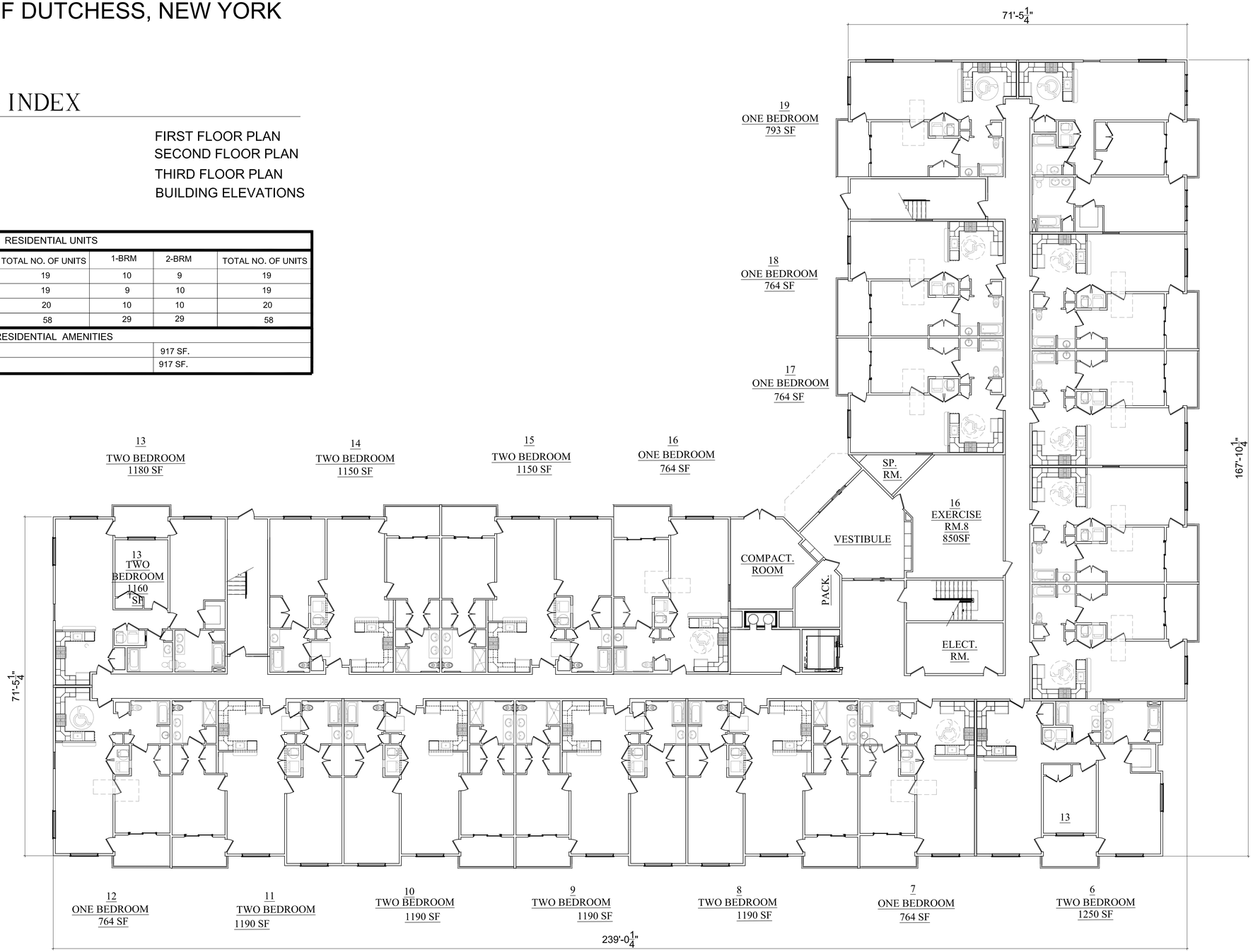
58- UNIT RESIDENTIAL BUILDING

100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS, NEW YORK

DRAWING INDEX

SK-100	FIRST FLOOR PLAN
SK-101	SECOND FLOOR PLAN
SK-102	THIRD FLOOR PLAN
SK-103	BUILDING ELEVATIONS

RESIDENTIAL UNITS				
UNIT	TOTAL NO. OF UNITS	1-BRM	2-BRM	TOTAL NO. OF UNITS
FIRST FLOOR	19	10	9	19
SECOND FLOOR	19	9	10	19
THIRD FLOOR	20	10	10	20
TOTAL	58	29	29	58
RESIDENTIAL AMENITIES				
FITNESS CENTER (GYM)			917 SF.	
ACTIVITY RM			917 SF.	



FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

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PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

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FIRST FLOOR

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DRAWING N0:

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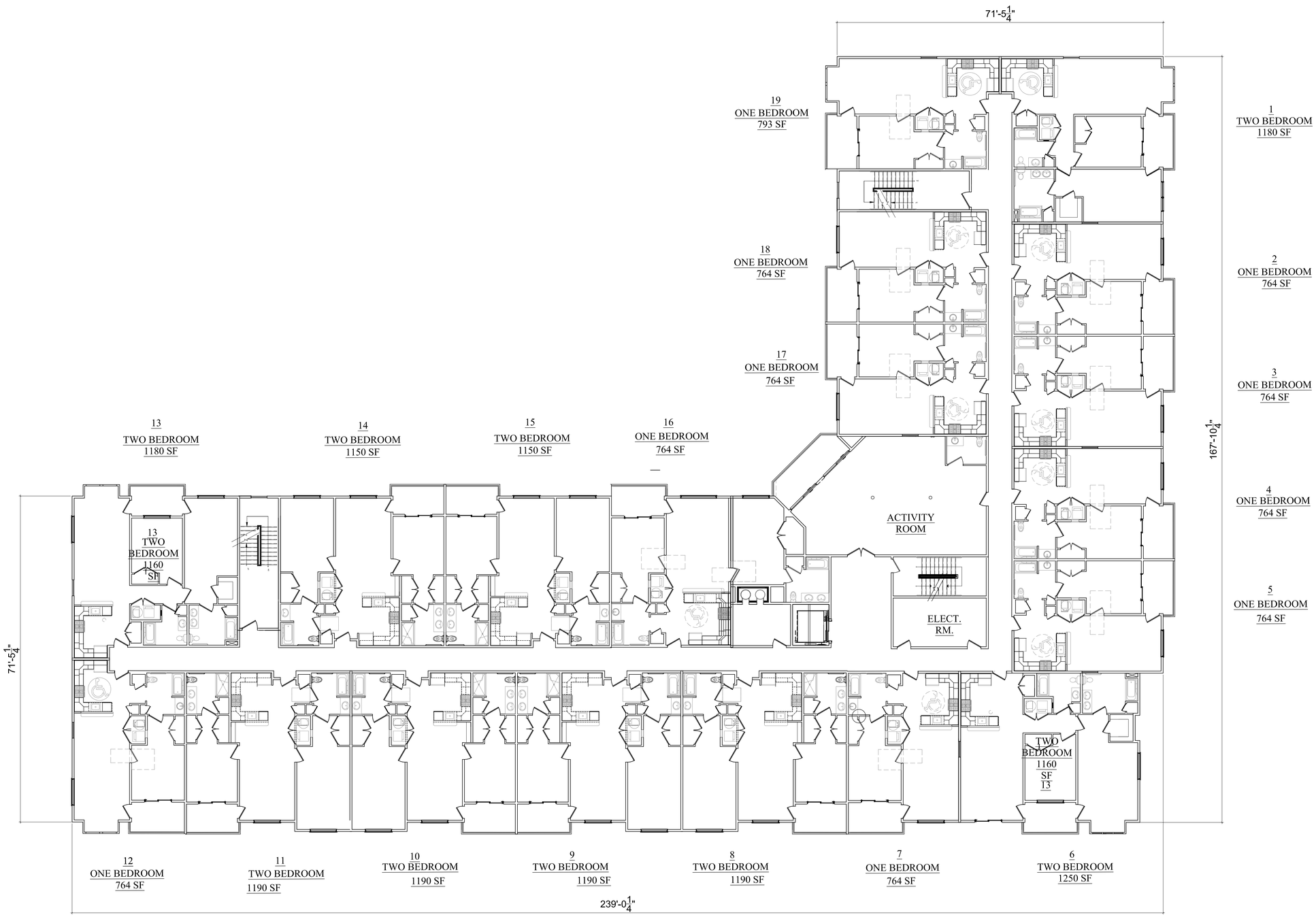

SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

ASSOCIATE ARCHITECTS

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PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
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SECOND FLOOR

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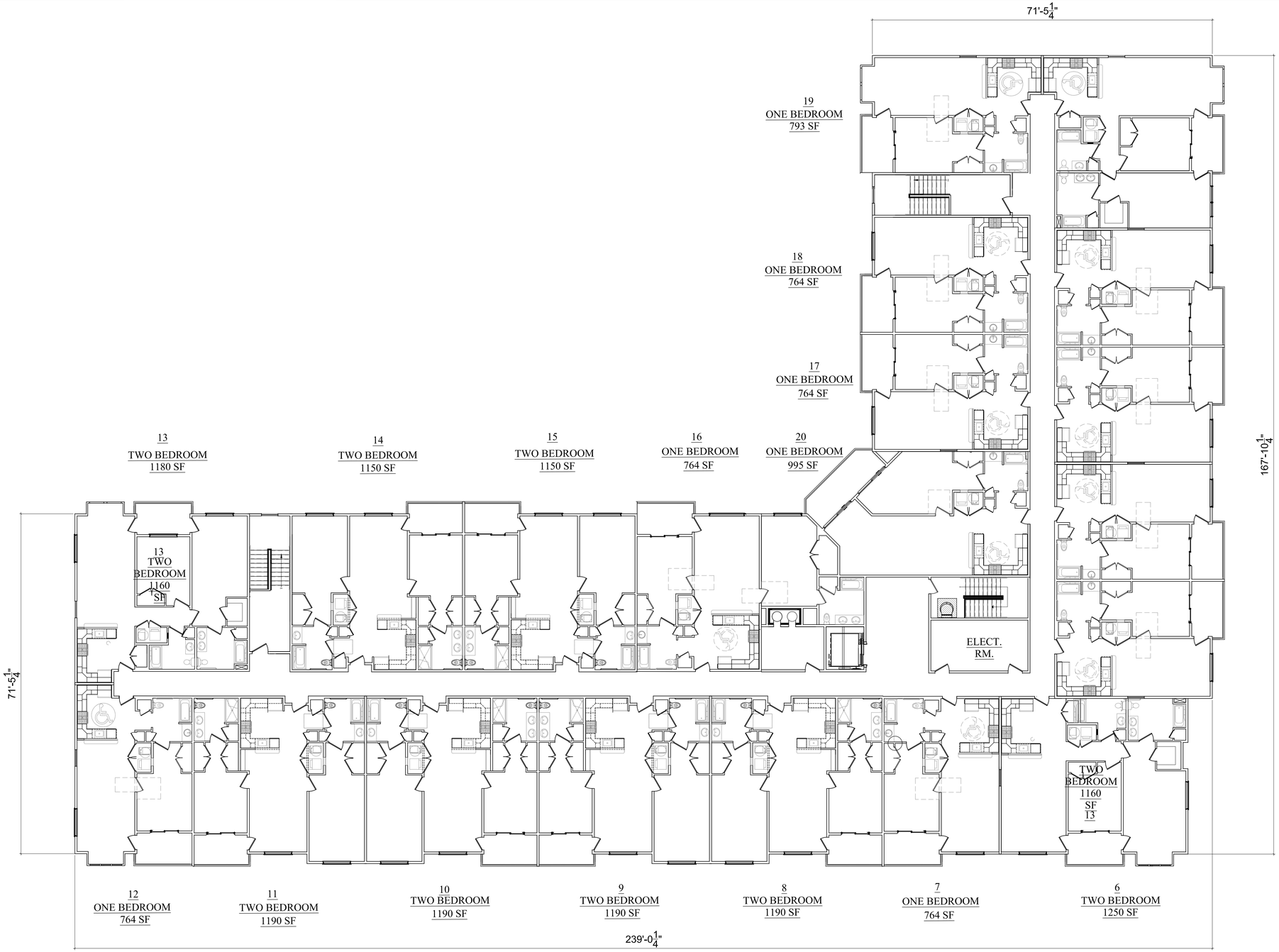
DRAWING N0:

SK-101



THIRD FLOOR PLAN

SCALE: 3/32" = 1'-0"

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PROJECT:

58- UNIT RESIDENTIAL BUILDING
100 SOUTH HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

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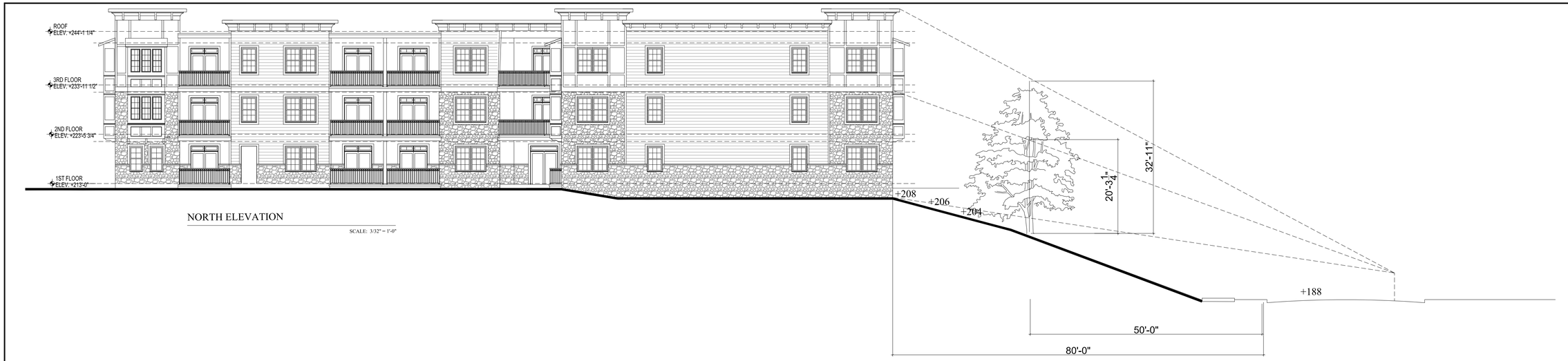
PROJECT NUMBER:	0102023

DRAWING N0:

SK-102

ZONING DOCUMENTS 10-03-2023



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EAST ELEVATION

SCALE: 3/32" = 1'-0"



WEST ELEVATION (S. HAMILTON STREET)

SCALE: 3/32" = 1'-0"



SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

ASSOCIATE ARCHITECTS

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PROJECT:

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CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS

OWNER:

O'NEILL GROUP HAMILTON LLC
241 HUDSON STREET
HACKENSACK, NJ 07601

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ELEVATIONS

REVISIONS

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CHECKED:	NM
SCALE:	AS NOTED
PROJECT NUMBER:	0102023

DRAWING NO:

SK- 103

ZONING DOCUMENTS 10-03-2023

SOUTH HAMILTON MULTI-FAMILY DEVELOPMENT



10-4-2023

MIJA ARCHITECTURE LLC

NABIL N. MIJALLI, ARCHITECT

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SOUTH HAMILTON MULTI-FAMILY DEVELOPMENT



10-3-2023

MIJA ARCHITECTURE LLC
NABIL N. MIJALLI, ARCHITECT
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F. (201) 488-1020

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: SOUTH HAMILTON STREET		
Project Location (describe, and attach a general location map): SOUTH HAMILTON STREET OFF DWIGHT STREET - 41°41'42.82"W 73°55'28.39"		
Brief Description of Proposed Action (include purpose or need): THE PROJECT SITE IS LOCATED AT S. HAMILTON ST. AND CONSISTS OF 3.378 ACRES. THE TAX MAP NUMBER FOR THE PARCEL IS 13130-6161-30-151783. THE PROJECT CONSISTS OF 58 LUXURY RENTAL APARTMENTS CONSISTING OF 29 TWO-BEDROOM APARTMENTS AND 29 ONE-BEDROOM APARTMENTS SERVICED BY CENTRAL WATER AND SANITARY SEWER. IN WINTER OF 2021, THE SITE WAS PARTIALLY CLEARED. IN THE 1970'S THE SITE WAS USED AS RENTAL PROPERTY UNTIL IT WAS DESTROYED BY FIRE AND DEMOLISHED IN 1973. TODAY THE PROPERTY IS VACANT AND LARGELY COVERED WITH SMALL BRUSH AND DYING AND DECEASED TREES. THE FUTURE DEVELOPMENT WILL INCLUDE LANDSCAPING, LIGHTING, SURFACE PARKING AND SIDEWALKS TYPICALLY ASSOCIATED WITH A RESIDENTIAL DEVELOPMENT, AS WELL AS A STORMWATER DETENTION POND TO IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN.		
Name of Applicant/Sponsor: O'NEILL GROUP HAMILTON LLC	Telephone: 201-488-4455 E-Mail: LONEILL@ONEKEYLLC.COM	
Address: 241 HUDSON STREET		
City/PO: HACKENSACK	State: NEW JERSEY	Zip Code: 07601
Project Contact (if not same as sponsor; give name and title/role):	Telephone: 201-488-4455 E-Mail: LONEILL@ONEKEYLLC.COM	
Address:		
City/PO:	State:	Zip Code:
Property Owner (if not same as sponsor):	Telephone: E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)		
Government Entity	**If Yes: Identify Agency and Approval(s) Required**	**Application Date (Actual or projected)**
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes☑No		
b. City, Town or Village Planning Board or Commission ☑Yes☐No	SITE PLAN	
c. City, Town or Village Zoning Board of Appeals ☐Yes☑No		
d. Other local agencies ☑Yes☐No	POUGHKEEPSIE DEPT. OF PUBLIC WORKS	
e. County agencies ☑Yes☐No	DUTCHESS DEPT OF HEALTH WATER & SEWER	
f. Regional agencies ☐Yes☑No		
g. State agencies ☑Yes☐No	NYSDEC - SPDES FROM CONSTRUCTION ACTIVITY	
h. Federal agencies ☐Yes☑No		

i. Coastal Resources.
i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes☑No
iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes☑No

If Yes, identify the plan(s):

_____
_____
_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes☑No

If Yes, identify the plan(s):

_____
_____
_____

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
MEDIUM HIGH-DENSITY RESIDENCE (R-4)

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? CITY OF POUGHKEEPSIE SCHOOLS

b. What police or other public protection forces serve the project site?
CITY OF POUGHKEEPSIE POLICE DEPARTMENT

c. Which fire protection and emergency medical services serve the project site?
CITY OF POUGHKEEPSIE FIRE DEPARTMENT

d. What parks serve the project site?
NONE

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? RESIDENTIAL

b. a. Total acreage of the site of the proposed action? 3.378 acres
b. Total acreage to be physically disturbed? 3.0 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 3.378 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: 18 months
ii. If Yes:
- Total number of phases anticipated 1
- Anticipated commencement date of phase 1 (including demolition) 12 month 24 year
- Anticipated completion date of final phase 6 month 26 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☑Yes ☐No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				58
At completion of all phases				58

g. Does the proposed action include new non-residential construction (including expansions)? ☐Yes ☑No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes ☑No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐Surface water streams ☐Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☑Yes ☐No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)

If Yes:

i. What is the purpose of the excavation or dredging? CLEARING AND GRADING

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
ON SITE SOIL WILL BE EXCAVATED AND DISPOSED OF OFFSITE. TOP SOIL WILL BE STOCKPILED AND STORE FOR REUSE.

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☑No
If yes, describe. _____

v. What is the total area to be dredged or excavated? 3 acres

vi. What is the maximum area to be worked at any one time? 3.378 acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐Yes ☑No

ix. Summarize site reclamation goals and plan:
ON SITE SOIL AND ROCK WILL BE EXCAVATED AND DISPOSED OF OFFSITE. TOP SOIL WILL BE STOCKPILED AND STORE FOR REUSE.

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☑Yes ☐No
If Yes:

i. Total anticipated water usage/demand per day: 9,570 gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑Yes ☐No
If Yes:

- Name of district or service area: CITY OF POUGHKEEPSIE WATER DISTRICT
- Does the existing public water supply have capacity to serve the proposal? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No
- Do existing lines serve the project site? ☑Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☑No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☑No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☑Yes ☐No
If Yes:

i. Total anticipated liquid waste generation per day: 9,570 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):
SANITARY WASTEWATER

iii. Will the proposed action use any existing public wastewater treatment facilities? ☑Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: CITY OF POUGHKEEPSIE WASTEWATER PLANT
- Name of district: CITY OF POUGHKEEPSIE SEWER DISTRICT
- Does the existing wastewater treatment plant have capacity to serve the project? ☑Yes ☐No
- Is the project site in the existing district? ☑Yes ☐No
- Is expansion of the district needed? ☐Yes ☑No

- Do existing sewer lines serve the project site? ☑Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☑No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☑No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 1.81 acres (impervious surface)

_____ Square feet or 3.378 acres (parcel size)

ii. Describe types of new point sources. City of Poughkeepsie storm system

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

Off site storm collection system

- If to surface waters, identify receiving water bodies or wetlands: _____
- Will stormwater runoff flow to adjacent properties? ☐Yes ☑No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☑No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

CONSTRUCTION EQUIPMENT SUCH AS EXCAVATORS, GRADERS AND PAVERS

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

TEMPORARY POWER FROM GENERATORS

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

HEATING AND COOLING EQUIPMENT

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐Morning ☐Evening ☐Weekend ☐Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: TBD

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): Local utility

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 7-5
- Saturday: 8-3
- Sunday: CLOSED
- Holidays: CLOSED

ii. During Operations:

- Monday - Friday: 9-5
- Saturday: TBD
- Sunday: CLOSED
- Holidays: CLOSED

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☑ No

If yes:

i. Provide details including sources, time of day and duration:

NO UNREASONABLE NOISE WILL BE GENERATED AND THE PROJECT WILL COMPLY WITH THE STANDARDS ESTABLISHED UNDER CITY CODE SECTION 13 1/2.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☑ Yes ☐ No

Describe: AREAS OF VEGETATIVE COVER WILL BE REDUCED WHICH MAY LESSEN THE NOISE BARRIER. SEE LANDSCAPE PLAN FOR REVEGETATIVE PLANTING AND BUFFER DETAILS.

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

LIGHTING THAT COMPLIES WITH THE CITY CODE FOR SAFETY AND CONVENIENCE WILL BE KEPT FROM SPILLING ONTO NEIGHBORING PROPERTIES

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☑ Yes ☐ No

Describe: PARTICULAR CARE WILL BE TAKEN TO ENSURE ADEQUATE SCREENING AND LIGHT BARRIER CONSISTENT WITH THE CITY CODE.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☑ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☑ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: 2.5 tons per MONTHLY (unit of time)
- Operation : 8.7 tons per MONTHLY (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: UNUSED CONSTRUCTION MATERIAL, PARTICULARLY PIPES AND FITTINGS, ARE STORED FOR FUTURE REUSE OR SPARE PARTS.
- Operation: MATERIALS ARE NEVER THROWN AWAY BUT STORED OR STOCKPILED FOR FUTURE REUSE SUCH AS SPARE PARTS OR RETURNED TO SUPPLIERS WHEN POSSIBLE. COMPLIANCE WITH CITY/COUNTY REGS.

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: NYSDEC LICENSED DISPOSAL CONTAINER CONTRACTORS AND FACILITIES ARE USED.
- Operation: COUNTY RESOURCE RECOVERY FACILITY.

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☑ Commercial ☑ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	.05	1.81	+1.76
• Forested	0	0	0
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0	0	0
• Wetlands (freshwater or tidal)	0	0	0
• Non-vegetated (bare rock, earth or fill)	0	0	0
• Other Describe: Open/Grassed/Brush	3.328	1.568	-1.76

c. Is the project site presently used by members of the community for public recreation? ☐Yes ☑No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☑Yes ☐No

If Yes,

i. Identify Facilities:

REFORMED CHURCH OF POUGHKEEPSIE, THE PINES AT POUGHKEEPSIE NURSING AND REHABILITATION CENTER, TABERNACLE BAPTIST CHURCH, AND NEW HORIZONS RESOURCES INC.

e. Does the project site contain an existing dam? ☐Yes ☑No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

_____

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐Yes ☑No

If Yes:

i. Has the facility been formally closed? ☐Yes ☐No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐Yes ☑No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐Yes ☑No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐Yes ☑No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____

☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

_____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐Yes ☑No

If yes, provide DEC ID number(s): _____

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____

_____

v. Is the project site subject to an institutional control limiting property uses? ☐Yes ☑No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐Yes ☑No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? 3-5 feet

b. Are there bedrock outcroppings on the project site? ☑Yes ☐No
If Yes, what proportion of the site is comprised of bedrock outcroppings? 5 %

c. Predominant soil type(s) present on project site: DUTCHESS-CARDIGAN-URBAN 100 %

d. What is the average depth to the water table on the project site? Average: > 8 feet

e. Drainage status of project site soils:
☐ Well Drained: ____% of site
☑ Moderately Well Drained: 100 % of site
☐ Poorly Drained ____% of site

f. Approximate proportion of proposed action site with slopes:
☑ 0-10%: 60 % of site
☑ 10-15%: 35 % of site
☑ 15% or greater: 5 % of site

g. Are there any unique geologic features on the project site? ☐Yes ☑No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☐Yes ☑No

ii. Do any wetlands or other waterbodies adjoin the project site? ☐Yes ☑No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☐Yes ☑No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name _____ Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐Yes ☑No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐Yes ☑No

j. Is the project site in the 100-year Floodplain? ☐Yes ☑No

k. Is the project site in the 500-year Floodplain? ☐Yes ☑No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐Yes ☑No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site: _____

n. Does the project site contain a designated significant natural community? ☐Yes ☑No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐No

If Yes:

i. Species and listing (endangered or threatened): _____

Bald Eagle

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐Yes ☑No

If Yes:

i. Species and listing: _____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐Yes ☑No

If yes, give a brief description of how the proposed action may affect that use: _____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐Yes ☑No

If Yes, provide county plus district name/number: _____

b. Are agricultural lands consisting of highly productive soils present? ☐Yes ☑No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐Yes ☑No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐Yes ☑No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☑ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☑ Historic Building or District

ii. Name: Reynolds House, South Hamilton Street Row, Dwight-Hooker Avenue Historic District, Carlies-Ritter-Hart House, Refor...

iii. Brief description of attributes on which listing is based:
HISTORIC DISTRICTS AND LOCATIONS ON EAST AND WEST SIDES OF PROJECT SITE AS WELL AS THE WEST SIDE OF PROJECT SITE.

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: WALKWAY OVER THE HUDSON

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): NEW YORK STATE PARK

iii. Distance between project and resource: 1.3 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

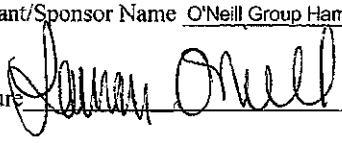
Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name O'Neill Group Hamilton LLC Date 4/24/2023

Signature  Title Director of Business Development

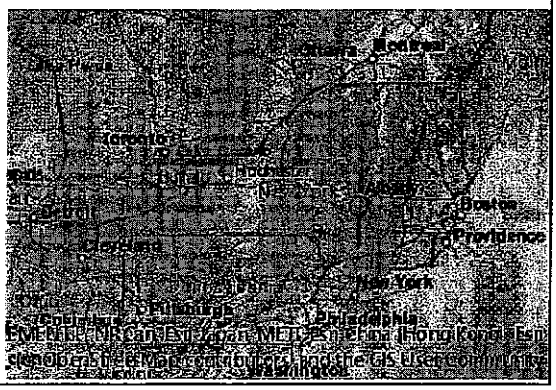
PRINT FORM

EAF Mapper Summary Report

Monday, April 3, 2023 9:44 AM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	No
E.2.h.iii [Surface Water Features]	No
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Bald Eagle

E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	, Reynolds House, South Hamilton Street Row, Dwight-Hooker Avenue Historic District, Corlies-Ritter-Hart House, Reformed Dutch Church of Poughkeepsie
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

THE CITY OF POUGHKEEPSIE
NEW YORK
DEVELOPMENT DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845) 451-4006

MEMORANDUM

To: O'Neill Group Hamilton LLC

From: Tyler Maegerle, Junior Planner

Date: 6/12/2023

Re: Lot 151783 South Hamilton Avenue

Upon review of project materials provided by the applicant, including Full EAF and site plan application, it is my understanding that the proposed action to be undertaken includes construction of a three-story building consisting of 29 one-bedroom units and 29 two-bedroom units.

Based on the above description it is the determination of the planning division that the proposed action is classified as Type I Action with regards to SEQRA pursuant to 6 NYCRR Section 617.4 (b)(9) "any Unlisted action (unless the action is designed for the preservation of the facility or site), that exceeds 25 percent of any threshold established in this section, occurring wholly or partially within, or substantially contiguous to, any historic building, structure, facility, site or district or prehistoric site that is listed on the National Register of Historic Places (Volume 36 of the Code of Federal Regulations, parts 60 and 63, which is incorporated by reference pursuant to section 617.17 of this Part), or that is listed on the State Register of Historic Places or that has been determined by the Commissioner of the Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places pursuant to sections 14.07 or 14.09 of the Parks, Recreation and Historic Preservation Law." and Section 617.4 (b)(5)(iii) "in a city, town or village having a population of 150,000 persons or less, 200 units to be connected (at the commencement of habitation) to existing community or public water and sewerage systems including sewage treatment works." The action is therefore subject to coordinated environmental review.

KEVIN L. PATTON, P.E.
36 PATTON ROAD
NEWBURGH, N.Y. 12550
845 275-7732 PATTONGEOTECH.COM

CLIENT:	One Key Development 241 Hudson Street Hackensack, NJ 07601	PROJECT: Project No. Date:	South Hamilton Street Site Poughkeepsie, N.Y. 23216 July 6, 2023

SUBSURFACE INVESTIGATION REPORT

PROJECT DESCRIPTION

This geotechnical investigation report was prepared for use in the design and construction of a new three-story multi-family apartment building on a previously-developed lot at 100 South Hamilton Street, as shown on the attached plan. The building will have an L-shaped footprint of approximately 22,800 square feet, with the main section aligned generally north-south, along South Hamilton Street, with a width of approximately seventy feet and a length of about 235 feet. A wing seventy feet in width will extend approximately one hundred feet east from the south part of the building. A stormwater control area is proposed along the east side of the site.

The proposed building is expected to have a first floor elevation of 213 feet, with no basement level. It will straddle the top of a small hill which peaks at about 223 feet in the middle of the building area, most of which is at elevations of 210 to 223 feet, with low points of 206 feet at the northwest corner, 208 feet at the southwest corner and 202 feet at the northeast corner. The existing elevations in the proposed stormwater control area are approximately 197 to 198 feet. Aerial photos indicate that a large residence on the site was demolished approximately forty to fifty years ago, and that since then the site has been idle, and was covered with trees prior to starting the project. Remnants of the driveway are still present, near the northeast corner of the site, minor demolition debris was encountered in the former house area, and some fill materials were noted in the proposed stormwater control area.

The Surficial Geologic Map of New York State (N.Y. State Museum, 1989,) indicates that the site is in a large area of glacial till over shallow bedrock. The USDA Soil Survey indicates that the native topsoil type in the project area is Dutchess-Cardigan-Urban land complex. Dutchess soils typically form over deposits of glacial till composed of sandy silty gravel with few flat (flaggy) cobbles, and are typically more than seven feet thick over bedrock. Cardigan soils typically form in till deposits composed of silt and sand with traces gravel and trace flaggy cobbles, with bedrock at about thirty to 34 inches depth. The soil survey reports that the water table is typically at a depth of six feet or more year-round where these soils are present. The local bedrock is thinly-layered gray siltstone, shale and sandstone of the Ordovician-age Austin Glen formation. Bedrock was encountered in several of the test pits. The soils and rock encountered in the test pits were generally consistent with the reference data. Some minor areas of fill were also noted.

SOIL INVESTIGATION AND TEST RESULTS

Eight test pits were excavated on June 14, 2023, six in the proposed building area and two in the proposed stormwater control area. The two test pits at the north end of the building were offset to the north of the building due to the site conditions. Only the north half of the stormwater area was accessible. The test pits were excavated using a tracked mini-excavator by One Key LLC. The subsurface investigation was supervised and witnessed by Kevin Patton, P.E.

Soils and bedrock were observed and sampled, and laboratory testing was performed on representative soil samples, for moisture content, particle size distribution and Atterberg Limits. USCS classifications of the soil, per ASTM D2487 and D2488, are provided on the logs and on the subsurface profile drawing.

TEST PIT SUMMARY								
	Building Area						Stormwater	
Test Pit No.	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8
Elevation, approx.	212	205	214	222	222	209	197.5	197
Depth, feet	12	6	7.5	8	5	4.9	6	8.5
Depth to Rock, feet	-	5.2	6.5	7.5	4.2	4.9	-	-



PHOTO 1. Excavating test pit TP4. All photos were taken on June 14, 2023.

Laboratory Data

Natural Moisture Content, Percent						
Depth, feet	TP1	TP2	TP3	TP4	TP7	TP8
2					16.5	
3		14.1	13.7			
4				13.6		20.6
5					13.5	
8	13.6					
11	14.4					

SOIL TEXTURE					
Particle Size Analysis					
Sample		TP1	TP3	TP7	TP8
Depth		8 feet	3 feet	2 feet	4 feet
Type					
USCS Class		SC-SM	ML	CL	ML
Sieve Size	mm	Percent Passing by Weight			
¾″	19.0	86	100	100	100
#4	4.75	74	92	98	100
#10	2.00	66	88	97	99
#40	0.425	53	82	94	96
#200	0.075	35	54	67	53
Hydrometer	0.050	28	42	54	33
	0.005	5	11	17	1
	0.002	1	5	9	0
Atterberg Limits					
Liquid Limit		22	-	28	-
Plastic Limit		16	-	17	-
Plasticity Index		6	Non-plastic	11	Non-plastic

The moisture content test results were consistent with the observed moist to very moist or wet conditions in well-consolidated soils with negligible organic content. The particle size analyses and Atterberg Limits tests represent some of the typical native soils in the project area. The first sample was composed of 26% gravel, 39% sand and 35% silty clay. The second sample consisted of 8% gravel, 38% sand and 54% silt, the third was 2% gravel, 31% sand and 67% clay, and the fourth sample contained 47% sand and 53% silt, with no gravel. Occasional cobbles and few boulders were present in the soil, as noted in the logs, but were not included in the tests. The Atterberg Limits tests indicate that the fine fraction of the more highly-plastic soils is silty clay or lean clay, making them somewhat moisture-sensitive, but indicating a low potential for detrimental shrink-swell (expansive) behavior. The Atterberg Limits were not tested for the two silty samples; the sample from TP3 had low cohesion; it might have a plastic limit but does not have a liquid limit. The sample from TP8 was fine-sandy cohesionless silt, without an LL or a PL.

SUBSURFACE PROFILE AND SUMMARY OF SOIL CONDITIONS

The observed subsurface conditions are described in the test pit logs and are summarized in the drawing attached to this report. Most of the native soils and most of the existing fill consisted of fine-sandy silt with traces gravel, few cobbles and boulders. Some of the native soils in test pits TP3 and TP4 were identified as glacial till, but most of the native material appears to be till that has been significantly reworked by frost, soil creep and similar factors. Well-graded granular soil (gravelly silty clayey sand) was only encountered in test pit TP1, below elevation 205; this was also the only soil in the building area that was noted as being 'very most,' with moist conditions observed elsewhere.

Bedrock was encountered in five of the six building area test pits. It was not found in test pit TP1, near the northeast building corner, which stopped at twelve feet depth, approximately elevation 200. Near the top of the hill, bedrock was encountered at 7.5 feet depth, approximately elevation 214.5 in test pit TP4, and in TP5 it was at 50 inches depth, elevation 218. Test pit TP2, near the proposed northwest building corner, encountered rock at five feet depth, roughly elevation 200. Test pit TP6, in the low southeast corner area, stopped on rock at about five feet depth, at an approximate elevation of 204 feet. Near the southwest corner, TP3 encountered bedrock at 6.5 feet depth, approximately 207 feet elevation. The bedrock was thin-bedded shale, with near-vertical beds striking northeast observed in test pit TP2. The first six to twelve inches of the bedrock could be ripped easily with the small excavator. The other three test pits in the building area ended in soil at elevation of 200 to 207 feet. The other test pits indicate rock near elevation 200 at the northwest corner (TP2,) becoming shallower toward the south and east (±207 ft southwest, TP3; 214 ft north-center, TP4; 218 feet center, TP5,) then dropping off at the southeast corner (TP6, ±204 feet.)

The soils in test pit TP8, near the north end of the proposed stormwater control area, consisted of approximately thirty inches of moist fill (gravelly silt and sand) over silt and fine sand, which was very moist to sixty inches depth, where it became wet. Test pit TP7, near the center of the proposed practice, encountered two inches of organics over eight inches of silty sandy fill over clay, which was moist from ten inches to 32 inches depth, where it became wet. A rock outcrop projects above grade off-site, just east of the property line in this area.

Fill materials were observed in the two stormwater area test pits as noted above, and in three of the six building area test pits. The fill materials in the stormwater control area were mostly soil, but included minor amounts of debris such as steel, concrete, cinders and glass. In the building area, twelve to eighteen inches of sandy silt fill was noted in test pits TP1 and TP4, with a couple small pipes at the latter location. Test pit TP5, near the location of the former residence, encountered forty inches of sandy silty fill over a ten-inch layer of bricks with soil, over bedrock.

SUBGRADE PREPARATION

The investigation indicates that the subgrade conditions throughout the proposed building area are suitable for the use of shallow spread footing foundations and slabs-on-grade, subject to performing the required subgrade preparation operations, as described below.

The test pits indicate that the top of rock is typically about five feet below existing grade in the building area, deeper near the northeast corner. Using five feet as an average, approximately five-eighths of the slab is expected to be supported on a bedrock subgrade at elevation 212 feet. At the north end and at the southwest and southeast corners of the building the subgrade will transition from rock to native soil, then to fill. Most of the footings will also bear on rock, transitioning to native soil at the north end and at the two south corners, however at the south end the footings may be made deeper as the grade drops off; with close proximity to the property line, this appears to be more practical than building up a fill pad to the same elevation as the rest of the foundation.

Remove all existing pavement, topsoil, soft subsoil, stumps and large roots from the subgrade surface, in all foundation and slab areas. Remove existing slabs and foundations, if encountered, in their entirety from below new foundation areas, and to at least twenty-four inches below bottom-of-slab in slab-on-grade areas, and as needed to prevent interference with the new construction. Remove uncontrolled fill in its entirety from below new foundation areas and from below slab-on-grade areas unless otherwise approved by the Engineer.

Excavate to the design subgrade elevation, or deeper if required to reach suitable subgrade, which shall be bedrock (hard or weathered) or undisturbed native soils, free from topsoil, fine organics and root masses. Where the subgrade material is soil it shall have a stiff/ medium-dense or harder consistency. Dewatering and draining of the excavation may be required to some extent during excavation, with storms expected to be the main source of water.

Trim soil to the required subgrade elevation using excavation methods that minimize disturbance of the final soil surface. Compact the surface as needed to consolidate any soil that was loosened during excavation. Remove any pockets or small zones of unsuitable materials that are encountered, and replace them with controlled compacted fill. Contact the Engineer prior to performing any significant extra excavation. Where old foundations, stumps or boulders are removed, or where other over-excavation work is performed to prepare subgrade areas, the sides of the excavation shall be trimmed back to stable soil as each lift of backfill is placed. Where deficient soil is removed from below footing locations, the remediated area shall extend at least one foot out from the footing per foot of depth (1 to 1 splay.)

Where bedrock is present and excavation is performed by ripping, hammering or blasting, remove the rock to an approximately level and uniform elevation, with a slope of ten percent or less in areas below footings and slabs. If the rock subgrade surface has open fractures, level and seat the surface by tracking back-and-forth over it with a bulldozer or excavator and/or spade it with the excavator bucket, then compact the surface with several passes of a vibratory trench roller or a single-drum soil roller.

Footings may bear directly on the prepared soil or rock subgrade, or on controlled compacted fill placed over the subgrade. Where bedrock is present, over-excavation of the rock by six to twelve inches is

recommended, with the rock replaced by compacted granular site-borrow soil or Structural Fill, to act as a cushioning layer and as a leveling course for the concrete forms. Where fine-grained native soil is present at the bearing elevation, a layer up to four inches thick of Structural Fill or equivalent site-borrow soil may be placed in the footing bottom to protect the soil surface, after properly preparing the surface to a level and stable condition. This layer shall be thoroughly compacted with a vibratory plate tamper or roller, and its surface shall not extend above the design bearing elevation. Footing bearing surfaces shall be free from frost, mud and loose soil or standing water, when concrete is placed. Rock surfaces should be thoroughly moistened prior to placing concrete.

Protect the prepared subgrade surface from erosion, from frost and from construction damage. Traffic from dump trucks and similar heavy vehicles should be minimized on the exposed surface of the subgrade and on compacted fine-grained fills.

EXCAVATION

The existing fill and native soils may be excavated using conventional heavy equipment, such as tracked excavators and bulldozers. Backhoes and mini-excavators should be suitable for the excavation of shallow trenches in soil, but may require assistance if boulders are encountered. The investigation indicates that the soils which will be encountered in the building excavations are likely to predominately be OSHA Type B, requiring a minimum slope of 1-to-1 in shallow excavations, with benching permitted. Soil types and excavation requirements must be confirmed by a qualified representative of the Contractor during construction.

Rock excavation is expected to be needed in most of the building area. A large bulldozer with a ripper tooth should be able to excavate the shallow rock, provided it can 'bite' into the bedrock surface, which may be smooth on top of the hill. A large excavator with a hydraulic hoe-ram will likely be required to excavate to depths of more than two or three feet into the bedrock. Excavation work in the building area should be practical using conventional methods, without blasting. Blasting could, however, be used to facilitate the removal of bedrock. The project area is sufficiently distant from existing structures, roads and other public areas to perform shallow blasting without causing adverse impacts to them. There is sufficient overburden present to use small, lightly-loaded blast holes to fracture the bedrock, so that it can be more easily removed by conventional excavation, although some ripping and hammering could still be required.

Little or no shoring of excavations should be required for building construction, as there appears to be sufficient distance from the property line to the estimated limits of the foundation work area to allow the use of conventional excavation slopes. Trench boxes or other temporary shoring will be required for work in deep trenches, other than trenches in rock, and may be required when excavating trenches in wet areas, regardless of depth. The design of any necessary shoring or other support-of-excavation is the responsibility of the Contractor and is not included in this report.

Groundwater seepage rates in the building excavations are expected to be slow, but may be persistent during the wet season. Groundwater seepage and stormwater should be removed promptly from the excavations, and the groundwater elevation should be maintained at a depth of at least one foot below the soil surface in active construction areas. When dewatering excavations, the water level should be drawn

down at a controlled rate to minimize sloughing, allowing the water to drain from the soil in the sides of the excavation. Gravity drainage and conventional shallow sump pits installed in the excavation should be adequate for the control of groundwater seepage and stormwater.

FILL MATERIALS

All fill placed below foundations and slabs shall consist of Structural Fill or Structural Fill HD, as described below, or shall be suitable site-borrow soil or rock, as described below, or shall be other imported fill of a quality at least equal to that of the site-borrow fill.

Soils excavated from the site are expected to be of suitable quality for re-use as fill and backfill for foundations, slabs and pavement areas. Exclude topsoil and wet, organic otherwise deficient soils from the excavated soil, which should be blended as much as practical, to produce a uniformly compactible fill material. The site-borrow soil will likely require some require drying prior to compaction. Boulders and large cobbles must be removed from the borrow fill. Clumps of clayey soil should be excluded from the fill, but if included they must be thoroughly broken up and mixed in.

Rock excavated from the site may also be used as fill in building and pavement areas. If the rock is excavated by ripping or hammering, it should be processed by crushing and/or screening to approximately the grading of Structural Fill, below. Blasted rock will likely be suitable for use as fill after removing the oversize pieces, without further processing.

Open-graded gravel or crushed stone should not be placed directly against the silty native soils for most applications, as the soil may erode into the stone. The gravel should be separated from the soil by a geotextile layer or by a layer of well-graded soil. Pipe bedding in utility trenches may also act as a drainage path for groundwater seepage. If coarse granular bedding is used in sloping trenches, it should be interrupted periodically by sections of well-graded bedding, to regulate the flow of this seepage.

Structural Fill, if imported for use below foundations and slabs, shall be good-quality bank-run sand and gravel or crushed stone, and should be a well-graded product complying with the gradation limits below. Structural Fill may also be used as foundation backfill. Structural Fill HD (Heavy Duty) should be used in areas to be protected from heavy construction traffic and where subgrade stabilization and/or enhanced drainage is needed and is suitable for use as fill during winter conditions.

Sieve size		Structural Fill	Structural Fill HD
Inch	mm	Percent Passing by Weight	
4″	100	100	100
1½″	37.5	60-100	50-95
#4	4.75	20-85	20-50
#40	0.425	5-50	5-25
#200	0.075	0-30	0-10
Plasticity Index		12 max.	4 max.

All fill materials shall be composed of sound, durable particles, shall be free from frost or snow, garbage, construction debris or other deleterious material, and shall be substantially free from organic matter and roots. Recycled crushed concrete and masonry from a registered source may be acceptable for some applications above the water table, subject to approval by the Designer of Record. Fill shall not be placed over frozen or unstable soil, unless approved by the Engineer.

CLSM (Controlled Low-Strength Material, aka flowable fill) may be used under footings and foundations when specifically approved by the Engineer, and may also be used to backfill trenches or other excavations, typically where rapid fill placement is required, fill areas are narrow, or the use of conventional compaction methods is not practical. For support of footings, a CLSM mix consisting of sand, cement and water, with a 56-day compressive strength of 75 to 200 psi, is appropriate. CLSM may produce high fluid pressures during placement, and caution must be used for placements against foundation walls, near unbraced cuts, etc. Pipes or tanks can also float if not properly restrained during placement. CLSM should not be placed against unprotected aluminum; CLSM containing flyash should not be used in contact with cast iron or ductile iron. Hardened CLSM masses may also adversely affect groundwater flow, possibly causing erosion under or along the CLSM, particularly in sloping trenches.

Other Fill Materials:

- Crushed stone base course for slabs-on-grade should consist of ASTM C33 #56 or #57 stone (⅜- to ¾-inch size,) or as required by the slab system design.
- Crushed stone or gravel for footing drains should consist of ASTM C33 #5, #56 or #57 stone (¾-inch or ⅜-¾-inch size.)
- Well-graded granular subbase material (NYSDOT Item 733-04 'Item 4' or similar) should be used under sidewalks and exterior slabs.

FILL PLACEMENT AND COMPACTION

Soil surfaces, including the surface of the subgrade and of previously-placed fill materials, shall be prepared to a stiff and essentially unyielding condition prior to placing each new lift of fill. Bedrock surfaces to receive fill shall be free from voids or loose areas and the rock surface shall be free from large loose pieces of stone. Use mid-size equipment to compact the site-borrow fill or similar materials. Vibratory trench rollers, and single-drum soil rollers with a nominal size of three to five tons, should be appropriate for the observed soil conditions. Larger rollers may be used when compacting well-graded granular fill over essentially unyielding surfaces. In areas with limited access, vibratory plate tampers or jumping-jack tampers may be used. Avoid over-compacting the shallow soils in landscaped areas.

Soil fill and processed rock fill shall be placed in controlled lifts, with each lift compacted to the required density at a moisture content close to optimum moisture, as determined by the ASTM D1557 Modified Proctor Method. When the moisture content of fill which will support footings or slabs is within two percent of optimum, fill may be placed in lifts with compacted thicknesses of up to eight inches. If the moisture content is two to 2.5 percent from optimum, reduce the maximum thickness to six inches, and if it is more than 2.5 percent from optimum, discontinue compaction. In roadway, embankment and other non-structural locations, fill may be placed in lifts with a compacted thickness of up to twelve inches when the moisture content of the fill is within two percent of optimum, and up to eight inches thick when it is

two to 2.5 percent from optimum. Use a reduced lift thickness if required to obtain the specified percent compaction and when using small compaction equipment.

When placing fill during freezing temperatures, use Structural Fill HD or similar fill material containing less than ten percent non-plastic fines. Fill produced from natural sand and gravel is preferable to crushed stone or concrete fill for winter work, for ease of compaction. Compact the fill with a maximum lift thickness of six inches and do not compact fill whose moisture content is more than two percent above or below optimum. Do not place or compact fill when the air temperature is less than 25°F. Do not place frozen fill materials.

Mass rock fills may be constructed using well-graded shot-rock from blasting. The design lift thicknesses should be approximately twelve to eighteen inches, depending on the dimensions of the fill, the fill placement method and the compaction method, and may require adjustment based on the actual size and grading of the rock after it is blasted. Rock fill should be placed in a manner that minimizes segregation and which creates an initially-dense state. Allowing the rock fill to free-fall into place from a belt or bucket can be an effective method, but dust, noise and flying particles are of concern. Lifts of rock fill may be acceptably placed with a bulldozer, but a moving pile of fill should be maintained in front of the blade, rather than running the pile out completely. Re-work any boulder pockets to a dense, well-graded condition, and level the surface of the fill prior to compaction. The rock fill should be compacted in a wet condition when practical, but may also be compacted when dry or moist. Rock fills should be placed in conformance with an engineered design which includes any necessary requirements for drainage; for geotextiles and/or aggregate filter zones between the rock fill and the subgrade, adjacent and/or overlying soils; the clearance depth for utilities, etc.

Where fill will be placed against slopes, bench the fill into the slope to create a stair-step interface, for improved stability and groundwater control. Lightly scarify the surface of the existing soil prior to placing the fill, and key the fill into the subgrade at the toe of the slope. When the fill is more than five feet high against a slope of twenty percent or more, the key should be at least two feet deep and ten feet wide.

Backfill placed against foundation walls should be compacted with trench rollers or with similar equipment which will not produce damaging stresses on the wall. Place backfill equally on opposite sides of the foundation unless otherwise indicated by the specifications or drawings. Foundation walls acting as retaining walls should be braced (i.e. by installation of the floor framing) before placing backfill, unless otherwise indicated on the drawings or approved by the Engineer.

Open-graded stone base course material for slabs-on-grade should be graded level and seated with one or more compaction passes, to help resist displacement during slab area preparation and concrete placement.

Compaction Requirements
Compact each lift of soil fill supporting slabs or foundations with at least six one-way compaction passes, even if the required compaction percentage is obtained with fewer passes. Each compaction pass shall be made at a slow walking speed (less than four feet per second,) with the equipment passing completely over all areas of the fill. Fill materials shall be compacted to at least the following percentage of the ASTM D1557

maximum dry density. For coarse-graded fill materials with more than thirty percent retained on the ¾-inch sieve, the ASTM D4253 Maximum Index Density test may be substituted for the D1557 test.

Location	Percent Compaction
Below Footings, Foundations, Slabs and Pavements	95% minimum
Exterior Foundation Backfill in Landscaped Areas	90% minimum

Mass rock fills must be compacted with the largest vibratory single-drum soil roller that is available and appropriate for the site, typically in the ten-ton to sixteen-ton size range. Compact each lift with at least six vibratory roller passes, with the passes applied in two perpendicular directions, or in multiple directions, when possible. Vary the vibration frequency to maximize compaction, using the high-frequency mode for the final passes, for increased compaction depth with less surface disturbance. Continue compaction until the fill surface is in an unyielding condition.

TESTING

The prepared subgrade shall be inspected to verify that it has been prepared in conformance with the requirements of this report, prior to placing fill or foundations. Recommended test procedures and frequencies are provided below.

PROOF-ROLLING: Proof-rolling of the prepared subgrade soil is not required, but may be performed to determine the limits of a soft area. Use an appropriately–sized vehicle, to avoid damaging wet and/or fine-grained, but otherwise acceptable soils. Observe the effects of the moving vehicle; if the soil exhibits excessive deflection, rutting or cracking, additional excavation or drying of the subgrade may be required.

BEARING CAPACITY: The prepared subgrade surface throughout the foundation and slab areas area shall be probed thoroughly to check for soft spots. The foundation subgrade shall be in a dense and unyielding condition, substantially free from soft areas and/or loose material. If these conditions are not encountered at the bearing elevation, testing shall be performed with a Static Cone Penetrometer or equivalent device in foundation bearing areas. If the design bearing capacity is not indicated within three inches of the bearing surface, the soil conditions shall be corrected and/or, if approved by the Engineer, the footing depth may be increased to reach acceptable soil. The slab subgrade areas shall be densely consolidated and sufficiently stiff to prevent rutting or displacement during slab base course and concrete placement operations. Where fractured rock or bedrock is present at the subgrade surface, it shall be visually inspected to verify that it is generally level and free from accumulations of loose material, and that in areas where it is fractured, the fractured mass is in a dense and stable condition, free from large open voids.

COMPACTION TESTING: Compaction testing shall be performed for each lift of soil fill supporting foundations, with testing performed while the work is in progress. Testing is also recommended for the fill supporting slabs or pavement, exterior backfill and for fill placed in embankments. Compaction testing is recommended for all retaining wall construction, with requirements to be determined by the wall designer. Compaction tests of fill and backfill supporting foundations and slabs should be performed in at least one location per 50 linear feet or per 1000 square feet of fill surface, per lift. At least one test per 100 linear feet

or per 2500 square feet should be performed for each lift of fill in embankment, roadway and other non-structural areas. Compaction tests should be performed with a nuclear moisture-density gauge, per ASTM Test Method D6938, unless otherwise approved. Required percent compaction values are provided above. Rock fill placement shall be visually monitored for fill quality and grading and for conformance with the requirements for lift thickness and placement methods and for application of the specified compaction effort.

CLSM: When flowable fill is used to support footings or foundations, at least one set of three 6x12-inch test cylinders shall be cast from each day's placement, per ASTM D4832. Test the cylinders for unit weight and for compliance with the specified strength requirements. Cast additional cylinders if early tests are needed.

GEOSYNTHETIC MATERIALS

Geosynthetic materials are expected to be used for reinforcement and drainage applications at the site on an as-needed basis, or where required by Code, such as for footing drains. Geosynthetic materials shall be installed over a smooth and evenly shaped subgrade, to avoid 'tenting' of the material over voids or high points. The geosynthetic shall be installed substantially free from wrinkles, and fill material shall be placed and spread in a manner which pushes the wrinkles out but which does not otherwise displace the geosynthetic material. Vehicles shall not drive on the exposed geosynthetics. The following material types are recommended.

Drainage Separation: For footing drains and similar applications, a woven drainage geotextile with at least 4% open area, with an apparent opening size of 0.21mm (#70) or smaller, should be installed around the open-graded drainage stone. Non-woven geotextiles are not recommended for use in this application, due to the presence of fine particles in the native soil that will tend to clog the fabric. If stone drains are installed in areas of fine sand or cohesionless silt, provide a zone of clean sand at least three inches thick between the geotextile and the soil.

Subgrade Reinforcement: Typically, a woven reinforcing geotextile with a grab tensile strength of at least 200 pounds should be used where needed to improve the stability of soft subgrade soils. Geogrids may be used instead of woven geotextiles, especially if free drainage is desired. A minimum of twelve inches of granular fill cover is typically required to fully mobilize the strength of the reinforcing geosynthetic.

Subgrade Separation: Where fines from the subgrade may infiltrate into an overlying granular layer, and strengthening of the subgrade and some vertical drainage is desirable, a non-woven geotextile should be used. A four-ounce nominal weight fabric is suitable for light- to moderate-duty applications; heavier fabric should be used where it will be subjected to heavy traffic, especially when it is placed in contact with sharp or very coarse-graded materials.

Woven reinforcement geotextiles will usually act as an infiltration barrier when installed in a continuous horizontal layer, and non-woven separation geotextile may also work as a barrier; this may or may not be desirable, depending on the installation location and conditions, and should be considered when specifying or using these products.

ENGINEERING DESIGN VALUES AND RECOMMENDATIONS

Soil engineering properties and recommendations for design are provided in this section; additional important design considerations are also discussed in the other sections of this report. The design values assume that the building will be supported by a conventional spread footing foundation with slab-on-grade floor, as described in the previous sections, and will be provided with proper drainage.

Bearing Capacity and Soil Pressure

Allowable Bearing Capacity, q_a	
Footings on Soil, bearing at least 42 inches below finished grade, with a minimum width of 12 inches	4000 psf
Footings on Soil, bearing at least 24 inches below finished grade, with a minimum width of 36 inches	4000 psf
Minor Footings on Soil, bearing at least 12 inches below finished grade, with a minimum width of 12 inches	2000 psf
Footings on Fractured and/or Weathered Rock, bearing at least 12 inches below finished grade, with a minimum width of 12 inches	4000 psf

Soil Properties	Native Soils	Rock, fractured
Moist Density, γ, lbs/cu ft	130	160
Effective Internal Angle of Friction, $\emptyset$	32°	42°
Coefficient of Active Earth Pressure, k_a	0.31	0.20
Coefficient of Passive Earth Pressure, k_p	3.25	5.0
Coefficient of At-Rest Earth Pressure, k_o	0.47	0.33
Lateral Bearing Capacity (psf per ft below grade)	210	400
Coefficient of Friction (vs. concrete)	0.35	0.60
Modulus of Subgrade Reaction, k, psi per inch	175	550

Footings subject to frost shall bear at least 42 inches below finished grade, or shall be otherwise protected from frost. Footings not exposed to frost, or bearing on non-frost susceptible subgrade material (e.g. fractured bedrock) shall bear at least one foot below finished grade. Bearing elevations of footings shall be established such that a line drawn between the bottoms of two adjacent footings is not steeper than 30 degrees between the closest points on the footings. (Slope of 1 vertical to 1.75 horizontal.)

Settlement of the foundation elements over the course of construction, due to normal elastic compression of the underlying soils, is expected to be one half inch or less in the well-consolidated soils at this site. Up to one inch of settlement and ¾-inch of differential settlement should be assumed for design purposes. No measurable settlement is expected where foundations bear on rock. If fill is placed below footings, an additional quarter inch of settlement should be expected per five feet of fill thickness.

If encountered above the design bearing depth, undisturbed bedrock and rock that has been fractured by excavation are non-frost-susceptible subgrade materials, and frost-protected shallow footings, as specified

in ASCE 32, may bear on rock at depths as shallow as twelve inches when the required vertical foundation wall insulation is also provided. Where footing depths are reduced, pinning to rock may be required if the footing will be subjected to significant uplift or lateral forces. These installation conditions must be reviewed and approved on a case-by-case basis.

Control of Groundwater and Soil Gases

Minor groundwater seepage should be expected in excavations and below-grade areas during and after construction. It is understood that the building will not have a basement and the first floor slab will be entirely above grade. Adequate drainage must be provided to maintain the groundwater at an elevation below the slab base course; footing drains may be helpful, but are not required by Code for the above-grade slab condition. Construction dewatering is discussed elsewhere in this report. For the completed construction, the elevations shown on the plans indicate that a foundation drain, if used, should be able to discharge by gravity.

Soil gases that could normally be expected to impact the structure are water vapor and radon. The interior spaces should be adequately protected from these gases by providing drainage and moisture protection measures as described above, and by sealing all wall-to-slab joints, concrete cracks, pipe penetrations, drainage sumps, etc. If an open-graded base course is used under the slab, a passive or powered vapor mitigation system using small-diameter PVC pipes can be included or can be added retroactively. The potential for these gases to adversely impact the use of the building is estimated to be low, if the above recommended practices are used, and normal interior ventilation is provided.

Seismic and Expansive Properties

Seismic Design Values: The Seismic Site Class and Seismic Design Category for the proposed construction were determined per section 1613 of the New York State Building Code and ASCE 7-16. Seismic values for the site were obtained from the current database maintained by the Applied Technology Council, Redwood City, Cal., and are consistent with the published maps in the Building Code. Values were as follow.

Occupancy Category	I/II/III	
Seismic Site Class	C- Very Dense Soil and Soft Rock D – Stiff Soil	
IBC Seismic Design Category	**SDC - B**	
Maximum Acceleration	0.2 sec S_S 1.0 sec S_1	0.195 g 0.055 g
Maximum Spectral Response Acceleration	0.2 sec S_{MS} 1.0 sec S_{M1}	0.254 g 0.082 g
5% Damped Spectral Response	0.2 sec S_{DS} 1.0 sec S_{D1}	0.169 g 0.055 g

The seismic design values are based on the "risk adjusted maximum probable earthquake." These are not the maximum values that *could* occur, they are values that are not likely to be exceeded during the service life of a typical structure.

Liquefaction Potential: The soils encountered in the investigation have very low liquefaction susceptibility. Liquefaction is typically associated with thick deposits of loose poorly-graded sand situated below the water table, and may also occur in loose, poorly-graded cohesionless silt. A similar phenomenon, cyclic softening, can occur in saturated soft clays. Those soils are also prone to shifting or spreading during seismic events when they are situated near a slope, even if the slope is gentle. The soils encountered in the test pits had textures, drainage conditions, locations and/or sufficient consolidation (density) to resist liquefaction or unusual movement during the design seismic event. No special mitigation measures are required.

Expansive Soils and Frost Heave: The soils encountered in the investigation have a very low potential for expansion due to shrinking and swelling resulting from moisture changes. This behavior is typically associated with high-plasticity silt and clay soils. Physical testing and qualitative examination indicate that the soil properties do not meet the criteria for potentially expansive soils as defined in section 1803.5.3 of the Code. No mitigation measures are required. The on-site soils are moderately to highly susceptible to frost heave. Frost heave can be minimized by providing good drainage and by thoroughly compacting the soil. Well-graded granular fill should be used in areas where frost heave could result in damage.



PHOTO 2. The slope along the west side of the site, overlooking South Hamilton Street.



PHOTO 3. The proposed stormwater control area on the east side of the site. A rock outcrop forms a long knob on the far side of the fence.

NOTES AND LIMITATIONS

Please see the attached pages for additional information. Subsurface conditions encountered during construction shall be compared to the test pit logs and to this report; any significant variations from anticipated conditions must be evaluated for their effect on the design. This report summarizes the results of a limited investigation and does not purport to predict every variation in subsurface conditions. Elevations, slopes, contours, project layout and similar or related data provided in this report were interpreted from the drawings, from field data or from other information which was provided, unless otherwise noted.

This geotechnical investigation was conducted to evaluate the engineering properties of the soils at the site, to aid in the design and construction of the proposed work. The investigation did not include evaluation of the potential effects of the proposed construction on other properties, nor did it include inspection of, or sampling for, items of environmental concern such as the presence of soil contaminants or of regulated wetlands, and did not include review of local zoning regulations, codes, floodplain boundaries or similar matters, unless specifically referenced in the report. This investigation was conducted solely for the use of the Client, the Client's Project Designers and Agents and the Authorities Having Jurisdiction; this report should not be used by others, nor for any use other than its stated purpose, without contacting the Engineer. Any such use is solely at the user's risk.



Prepared by Kevin L. Patton, P.E.

Attachments:

- Soil Technical Notes
- Test Pit Location Plan
- Test Pit Logs
- Laboratory Test Reports
- Bedrock Geologic Map
- Surficial Geologic Map
- USDA Soil Survey Data

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Soil Technical Notes:
Soil Classifications, Descriptions and Properties

The USCS (Unified Soil Classification System) was used to classify the soils in this report. The USCS is described in ASTM D2487 (laboratory test method) and D2488 (visual-manual method.) The USCS classification gives a 'Group Symbol' and 'Group Name' based on particle size distribution (gradation,) clay properties (Atterberg Limits) and basic composition (mineral or organic.)

USCS Soil Classes

Soils with less than 5% passing the #200 sieve:

GW, GP, SW, SP – Well-graded gravel, Poorly-graded gravel, Well-graded sand, Poorly-graded sand.

Soils with 12% to 50% passing the #200 sieve:

GC, GM, GC-GM, SC, SM, SC-SM – Clayey gravel, Silty gravel, Silty clayey gravel, Clayey sand, Silty sand, Silty clayey sand.

Soils with 5% to 12% passing the #200 sieve use a dual symbol, such as SW-SC (Clayey well-graded sand.)

Soils with more than 50% passing the #200 sieve:

CL-ML, ML, CL, MH, CH, OL, OH – Silty clay, Silt, Lean clay, Elastic silt, Fat clay, Organic silt, Organic clay.

Highly organic soils:

PT – Peat.

The soil group name is modified with the term 'with sand' or 'with gravel' added if the soil contains more than 15% of these materials; clays and silts with 30% or more plus-#200 material are described as 'sandy' or 'gravelly' (whichever is predominate.) Examples – GM, Silty gravel with sand; CL, Gravelly lean clay.

Particle size

>12" (300mm)	Boulders
12" to 3" (300-75mm)	Cobbles
3" to #4 (75-4.75mm)	Gravel
#4 to #200 (4.75-0.075mm)	Sand
<#200 (0.075mm)	Silt & Clay

Organic Soils

Highly organic soils such as peat are visually classified. Partly organic soils, with a mix of organic and mineral matter, are classified visually and by Atterberg Limits tests.

Moisture Content

Moisture is visually estimated and samples are usually tested. Soil moisture capacity varies with texture and compaction.

Typical examples:
GW, moist at 3%, saturated at 9%
SP, moist at 6%, saturated at 20%.
CL, moist at 12%, saturated at 33%.

Fine- and Coarse-grained Soils

The USCS classification applies to the material smaller than the 3-inch sieve.

'Fine-Grained Soils' (silts and clays) have more than 50% passing the #200 sieve and are classified by their Atterberg Limits.

'Coarse-Grained Soils' (sands and gravels) have less than 50% passing the #200 sieve. When more than 50% of the plus-200 material is retained on the #4 sieve the general soil type is gravel, and if more than 50% is finer than the #4 sieve, it is sand.

Clean coarse-grained soils are classified as well-graded (Classes GW, SW) or poorly-graded (GP, SP.) Well-graded soils have a wider range of sizes and are typically more stable. Poorly-graded soils are usually more permeable.

Atterberg Limits

Test is performed on the clay, silt and fine sand fraction of the soil:
Liquid Limit (LL) – moisture content (%) at which soil becomes very soft.
Plastic Limit (PL) – moisture content at which soil crumbles.
Plasticity Index (PI) = LL minus PL

Higher PI values may indicate reduced permeability and increased drying shrinkage.

LL > 50 indicates soil with a higher potential to shrink and swell due to changing moisture content.

Silts have lower PI values, and behave like very fine sand; most silts also contain some clay. Behavior of clays is partly controlled by electrochemical forces and varies among the several clay minerals.

Color

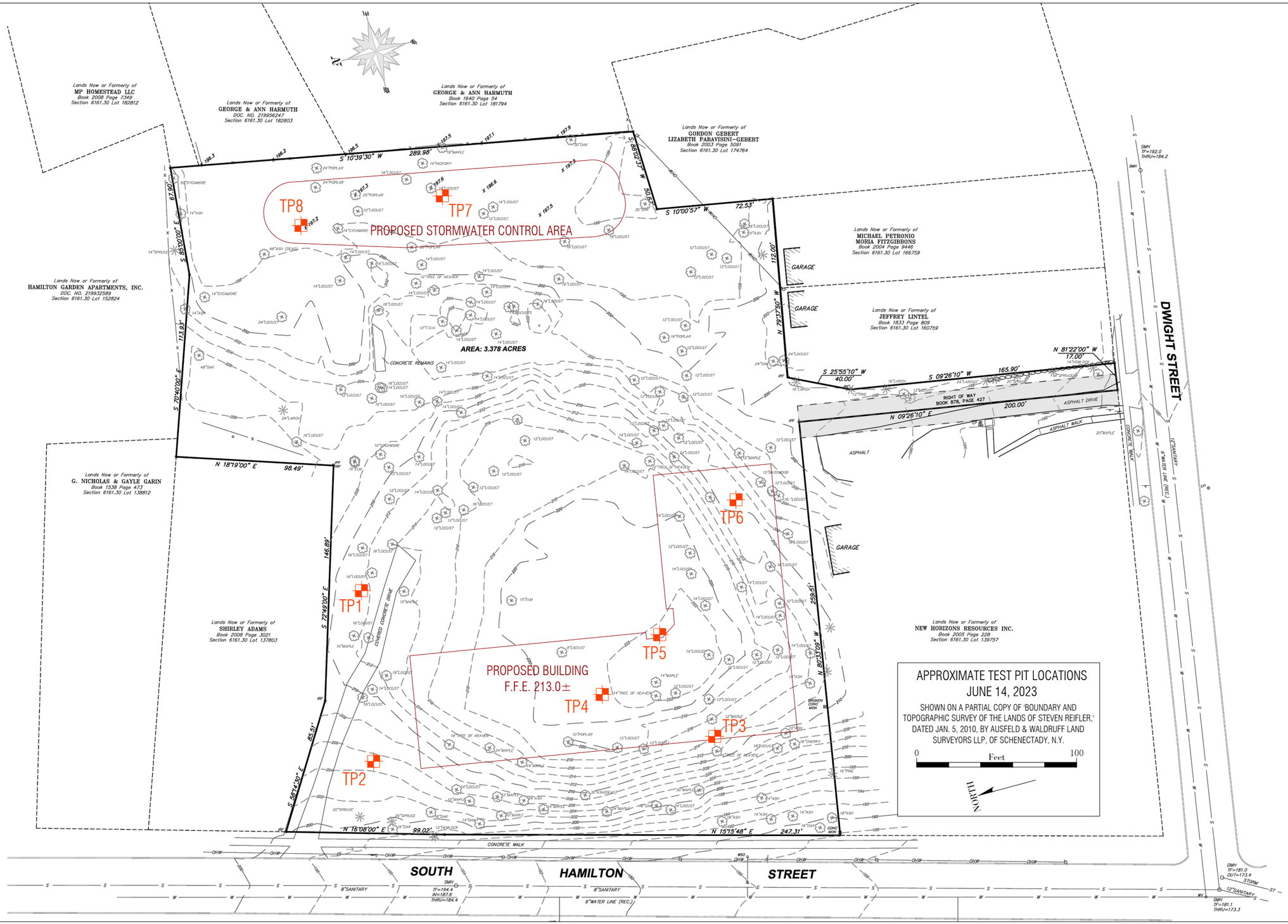
Soil color sometimes indicates groundwater conditions, with subdued colors below the water table and mottled (mixed) colors in the zone of seasonal water table fluctuation. Color changes tend to be more prominent in fine-grained soils.

Relative Quantities

Estimated percentages in descriptions:
<5% - Trace
5-10% - Traces
10-25% - Little
25-35% - Some
'And' - Approx. equal amounts
'Few' - <10% (cobbles and boulders)

USDA Soil Classification

USDA classifications are based on the relative amounts of sand, silt and clay in the soil fraction passing the #10 (2mm) sieve. 'Gravelly' indicates more than 15% of #10 to 3" size. 'Channery' indicates 15 to 35% thin flat pieces up to 6" long.



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SOUTH HAMILTON STREET

100 SOUTH HAMILTON ST., POUGHKEEPSIE, N.Y.

TEST PIT LOCATIONS

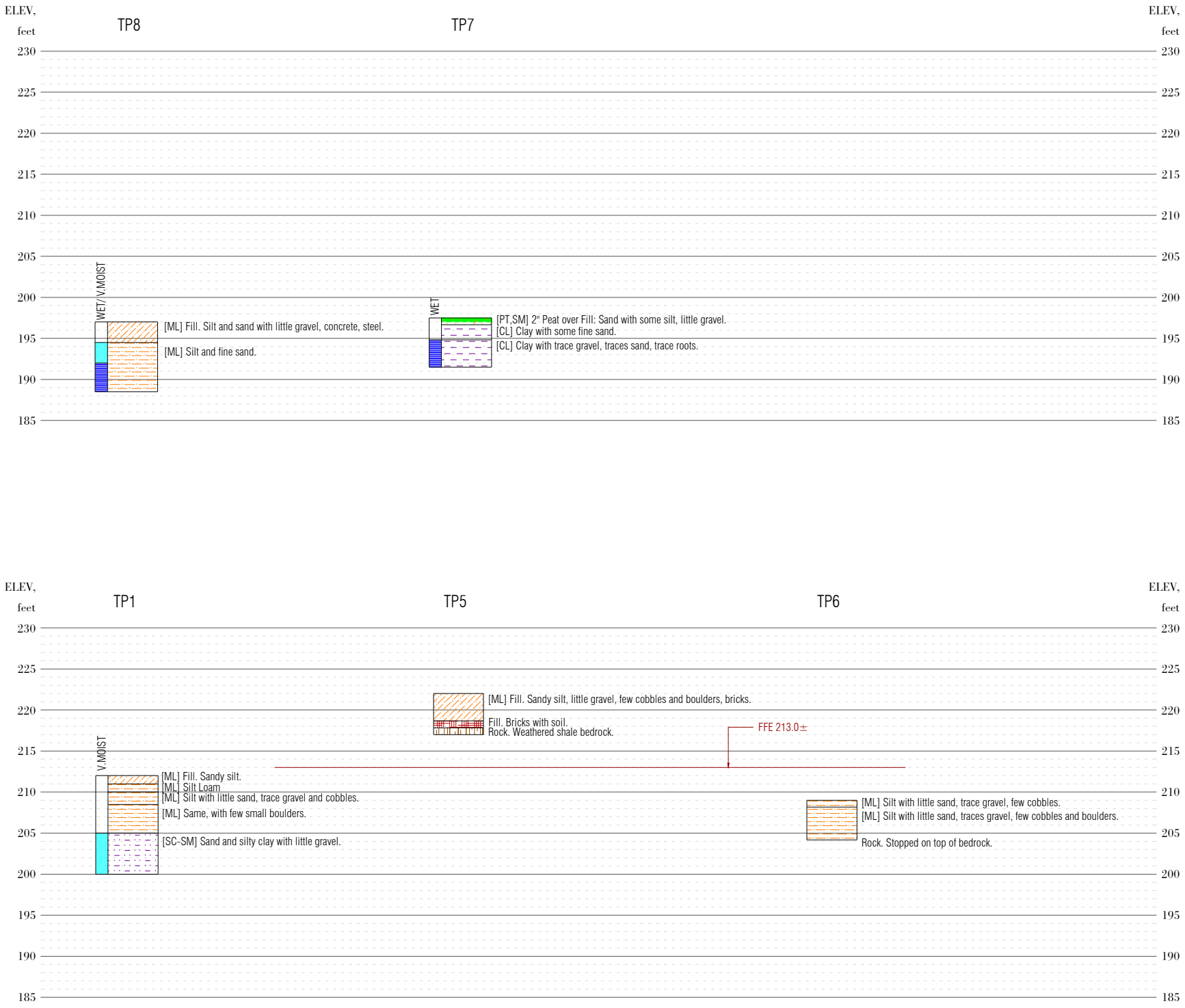
REV.	DATE	BY
0	7/5/2023	KLP

GENERALIZED SUBSURFACE PROFILE

NO HORIZONTAL SCALE.
USCS SOIL CLASSIFICATIONS ARE IN BRACKETS.

IN GENERAL, RED PATTERNS INDICATE RELATIVELY CLEAN SANDY OR GRAVELLY SOILS, PURPLE PATTERNS INDICATE SOILS WITH SIGNIFICANT CLAY CONTENT AND ORANGE PATTERNS INDICATE SOILS WITH A SIGNIFICANT SILT CONTENT.

THESE SECTIONS ARE GENERALIZED REPRESENTATIONS OF THE SUBSURFACE PROFILE, BASED ON THE SUBSURFACE EXPLORATION DATA, OBSERVATIONS, RESEARCH, AND OTHER RELEVANT INFORMATION. THE SOILS INFORMATION PRESENTED HEREIN SHOULD BE INTERPRETED IN CONJUNCTION WITH THE INFORMATION FROM THE TEST PIT LOGS AND THE GEOTECHNICAL INVESTIGATION REPORT. SITE CONDITIONS MAY DIFFER FROM THOSE ENCOUNTERED AT THE TEST PIT LOCATIONS.



			SOUTH HAMILTON STREET
			100 SOUTH HAMILTON ST., POUGHKEEPSIE, N.Y.
0	7/5/2023	KLP	SUBSURFACE PROFILE
REV.	DATE	BY	

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CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	50 ft NE from NE corner of proposed building	**TEST PIT NUMBER**	**TP1**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	212+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-12"	ML	Slightly moist	Fill. Loose. Grayish brown sandy silt with trace brick, glass, few small roots.	
12-24"	ML	Moist	Native soil. Loose to medium-dense. Mottled brown silt loam.	
24-42"	ML	Moist	Dense. Slightly mottled brown silt with little sand, trace gravel and cobbles.	
42" to 7ft	ML	Moist	Dense. Mottled pale brown silt with little sand, trace gravel and cobbles, few boulders to 24" size.	
7ft - 12ft	SC-SM	Very Moist	Dense. Mottled pale brown sand and silty clay with little gravel, few cobbles and boulders to 24" size.	
12 ft	-	-	Stopped at 12 feet in soil.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	30 ft N from NW corner of proposed building	**TEST PIT NUMBER**	**TP2**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	205+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-6"	ML	Slightly moist.	Loose. Grayish brown silt loam with some small roots.	
6-24"	ML	Moist	Medium-dense. Pale orangeish brown silt with some sand, traces gravel, few cobbles.	
24-62"	ML	Moist	Dense. Slightly mottled olive brown silt with some sand, little gravel and few cobbles.	
62"-72"	Rock	-	Top of shale bedrock. Beds nearly vertical, strike northeast. Ripped 12 inches into rock, which was still somewhat soft at this depth.	
72"	-	-	Stopped in rock at 6 feet.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	50 ft N from SW corner of proposed building	**TEST PIT NUMBER**	**TP3**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	214+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-4"	ML	Moist	Loose. Topsoil. Brown silt loam with fine roots.	
4"-22"	ML	Moist	Medium-dense. Pale orangeish brown silt with some fine-graded sand, trace gravel and cobbles.	
22"-48"	ML	Moist	Dense. Pale orangeish brown silt and fine-graded sand, trace gravel and cobbles, with few small boulders.	
48"-6.5ft	ML	Moist	Very dense. Till. Mottled olive brown silt with little sand, little gravel, few cobbles and boulders.	
6.5-7.5 ft	Rock	-	Top of shale bedrock. Ripped 12 inches into rock with ease.	
7.5 ft	-	-	Stopped in rock.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	North wing of proposed building, S from center	**TEST PIT NUMBER**	**TP4**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	222+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-18"	ML	Moist	Loose. Fill. Silt with some sand, trace gravel and cobbles, few small boulders. Buried pipes (+/- 1.5"diameter steel, 2" lead.)	
18"-48"	ML	Moist	Dense. Till. Olive brown silt with little sand, little gravel, few cobbles and small boulders.	
48"-7.5ft	ML	Moist	Same, Very dense.	
7.5ft - 8ft	Rock	-	Shale bedrock. Ripped six inches into the surface, with effort.	
8 ft	-	-	Stopped in rock.	



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PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	Inside corner of proposed building	**TEST PIT NUMBER**	**TP5**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	222+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-40"	ML	Moist	Loose. Fill. Grayish brown silt with some sand, little gravel, few cobbles, bricks and shale fragments.	
40-50"	Bricks	Moist	Loose. Fill. Mostly bricks with little soil mixed in.	
50-60"	Rock	-	Shale bedrock. Ripped to 12", becoming hard.	
60"	-	-	Stopped in rock.	



KEVIN L. PATTON, P.E. 36 PATTON ROAD NEWBURGH, NY 12550 PATTONGEOTECH.COM 845 275-7732	CLIENT:	One Key LLC		
	PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
	DATE:	6/14/2023	Project No.:	23216
	WEATHER:	Cloudy, 65F		

TEST PIT LOG					
EXCAVATING COMPANY:	One Key LLC	LOCATION:	East wing of proposed building, near east end	TEST PIT NUMBER	TP6
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	209+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-10"	ML	Moist	Loose. Grayish brown silt with little sand, trace gravel, few cobbles. Few roots.	
10"-36"	ML	Moist	Medium-dense. Pale orangeish brown silt with little sand, traces gravel, few cobbles, few small boulders.	
36"-58"	ML	Moist	Dense. Pale yellowish brown silt with little sand, trace gravel, few cobbles.	
58"	Rock	-	Top of bedrock. Flat, hard.	
58"	-	-	Stopped on top of rock.	



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PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	Proposed stormwater control area, center	**TEST PIT NUMBER**	**TP7**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	197.5+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-2"	PT	Moist	Decomposed organics and leaf-litter. Dusky brown.	
2"-10"	SM	Moist	Loose. Fill. Brownish gray sand with some silt, little gravel, trace glass, small pocket of coal cinders.	
10"-32"	CL	Moist	Native Soil. Medium-dense. Pale yellowish brown, mottled orange. Lean Clay with some fine-graded sand, trace gravel. Massive structure, no significant joints or pores.	
32"-6ft	CL	Wet	Dense. Mottled olive brown-orange-gray Lean Clay with trace gravel, traces sand, trace roots. Dense.	
6 ft	-	-	Stopped in soil.	

No photo available.

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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	Proposed stormwater control area, north end	**TEST PIT NUMBER**	**TP8**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	197+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-30"	ML	Moist	Loose. Fill. Dusky brown silt and sand with little gravel, trace concrete, two streetcar rails.	
30"-60"	ML	Very Moist	Native soil. Loose to Medium-dense. Mottled olive brown and gray silt and fine sand. Massive structure. Trace concretions (cemented sand,) 3/8" size, noted in lab sample.	
60"-8.5ft	ML	Wet	Same, wet.	
8.5 ft	-	-	Stopped in soil.	



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CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

MOISTURE CONTENT OF SOIL

TEST METHOD: ASTM D2216

Location	DEPTH,FT.	% MOISTURE
TP1	8'	13.6
TP1	11'	14.4
TP2	3'	14.1
TP3	3'	13.7
TP4	4'	13.6
TP7	2'	16.5
TP7	5'	13.5
TP8	4'	20.6

Moisture content is expressed as a percent of the dry mass of the soil.

Reviewed by: *Kevin Patton*

Form NMC

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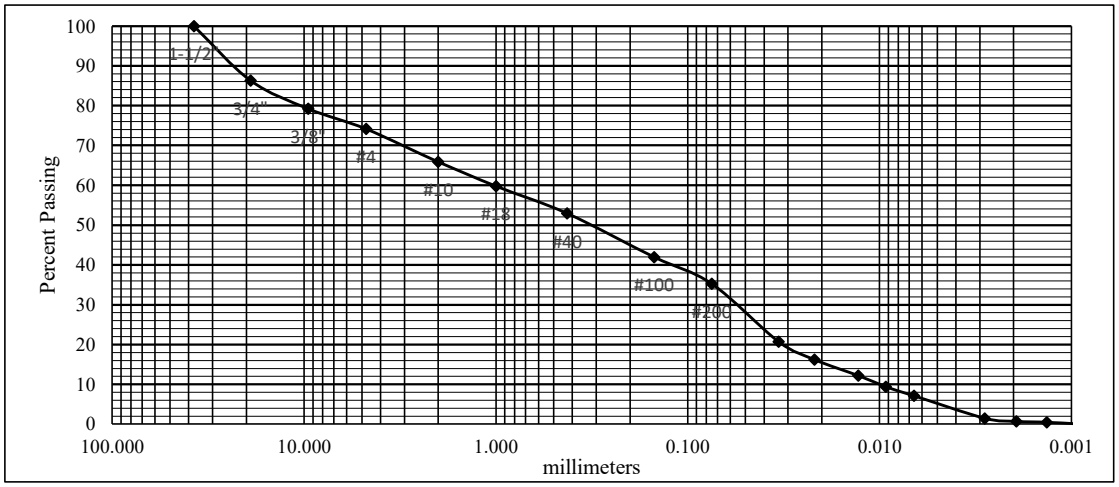
CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP1
Depth	8 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
1-1/2"	37.5	0	100	
3/4"	19.0	14	86	
3/8"	9.5	7	79	
#4	4.75	5	74	
#10	2.00	8	66	
#18	1.00	6	60	
#40	0.425	7	53	
#100	0.150	11	42	
#200	0.075	7	35	
Hydrometer Analysis	0.050	7	28	
	0.020	13	15	
	0.010	5	10	
	0.005	5	5	
	0.002	4	1	
	0.001	1	0	



USDA Particle Size Classification:		**USDA Textural Class:** Gravelly Sandy Loam
Gravel, 3" to 2.00mm	34	
Sand, 2.00 to 0.050mm:	38	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	27	SC-SM, Silty Clayey Sand with Gravel
Clay, <0.002mm	1	
Total	100	Atterberg Limits were determined by: Test

Reviewed by: *Kevin Patton* Form HYD

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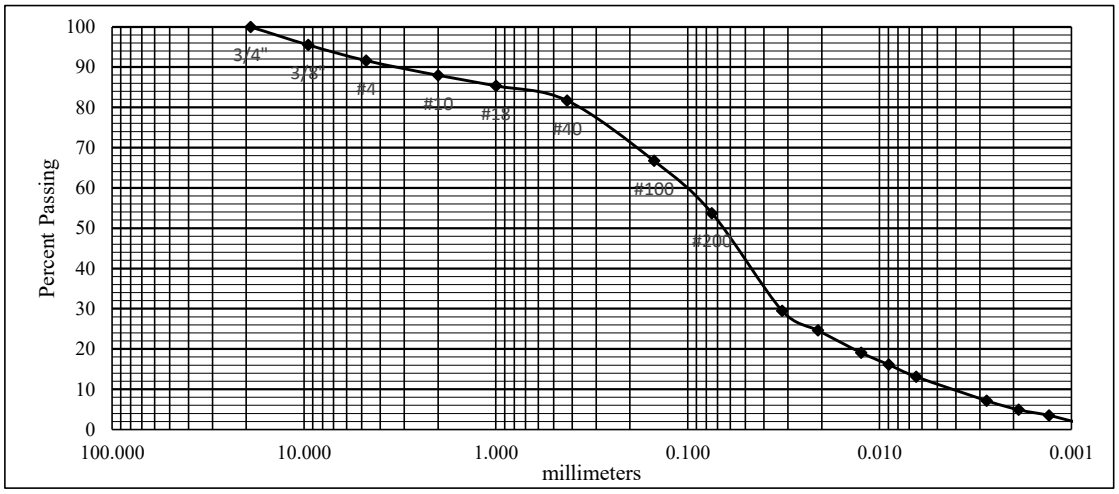
CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP3
Depth	3 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
3/4"	19.0	0	100	
3/8"	9.5	5	95	
#4	4.75	3	92	
#10	2.00	4	88	
#18	1.00	3	85	
#40	0.425	3	82	
#100	0.150	15	67	
#200	0.075	13	54	
Hydrometer Analysis	0.050	12	42	
	0.020	18	24	
	0.010	7	17	
	0.005	6	11	
	0.002	6	5	
	0.001	3	2	



USDA Particle Size Classification:		**USDA Textural Class:** Sandy Loam
Gravel, 3" to 2.00mm	12	
Sand, 2.00 to 0.050mm:	46	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	37	ML, Sandy Silt
Clay, <0.002mm	5	
Total	100	Atterberg Limits were determined by: Estimated (ASTM D2488)

Reviewed by: *Kevin Patton* Form HYD

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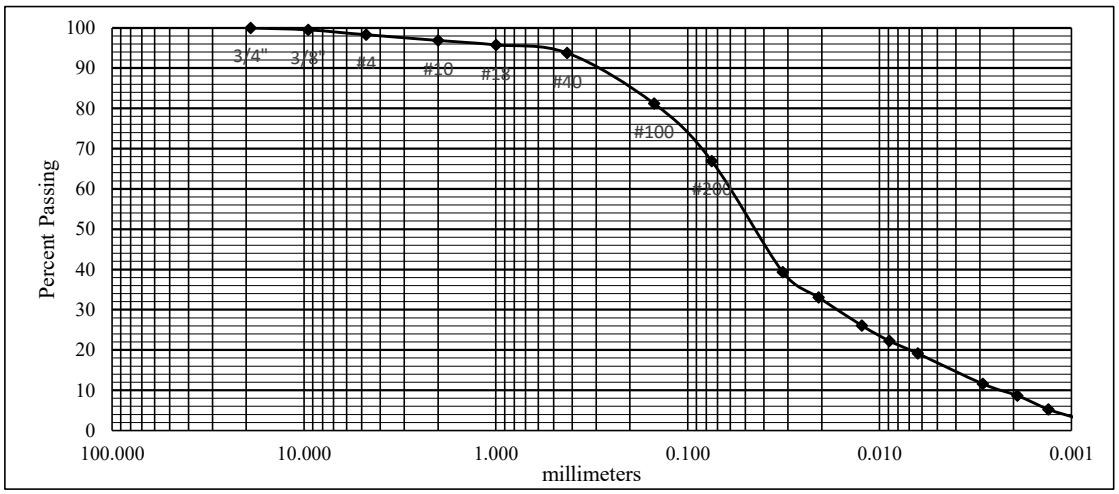
CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP7
Depth	2 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
3/4"	19.0	0	100	
3/8"	9.5	1	99	
#4	4.75	1	98	
#10	2.00	1	97	
#18	1.00	1	96	
#40	0.425	2	94	
#100	0.150	13	81	
#200	0.075	14	67	
Hydrometer Analysis	0.050	13	54	
	0.020	22	32	
	0.010	9	23	
	0.005	6	17	
	0.002	8	9	
	0.001	6	3	



USDA Particle Size Classification:		**USDA Textural Class:** Loam
Gravel, 3" to 2.00mm	3	
Sand, 2.00 to 0.050mm:	43	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	45	CL, Sandy Clay
Clay, <0.002mm	9	
Total	100	Atterberg Limits were determined by: Test

Reviewed by: *Kevin Patton* Form HYD

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CLIENT:	One Key LLC		
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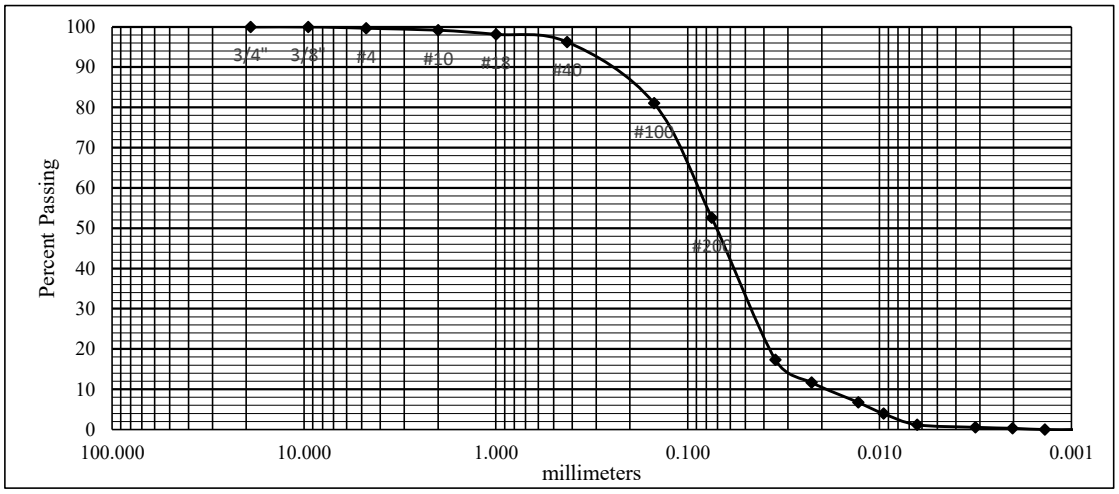
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP8
Depth	4 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
3/4"	19.0	0	100	
3/8"	9.5	0	100	
#4	4.75	0	100	
#10	2.00	1	99	
#18	1.00	1	98	
#40	0.425	2	96	
#100	0.150	15	81	
#200	0.075	28	53	
Hydrometer Analysis	0.050	20	33	
	0.020	23	10	
	0.010	6	4	
	0.005	3	1	
	0.002	1	0	
	0.001	0	0	



USDA Particle Size Classification:		**USDA Textural Class:** Sandy Loam
Gravel, 3" to 2.00mm	1	
Sand, 2.00 to 0.050mm:	66	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	33	ML, Sandy Silt
Clay, <0.002mm	0	
Total	100	Atterberg Limits were determined by: Estimated (ASTM D2488)

Reviewed by: *Kevin Patton* Form HYD

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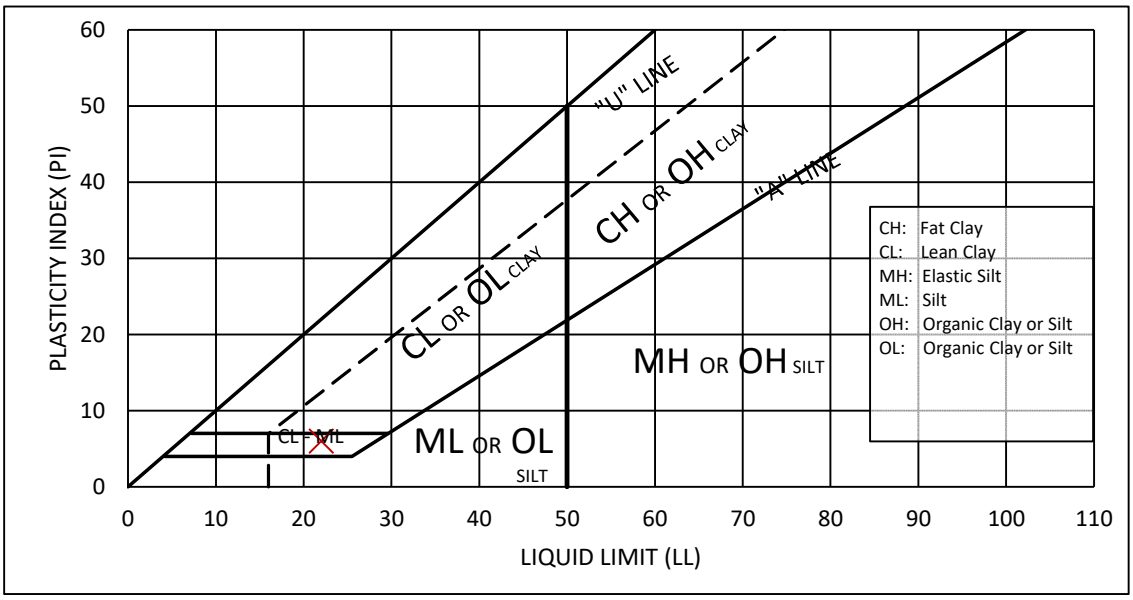
CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

ATTERBERG LIMITS TEST

TEST METHODS: ASTM D4318/ AASHTO T89, T90

Sample Location	TP1
Depth	8 feet
Percent Passing #40	53
Liquid Limit (LL)	**22**
Plastic Limit (PL)	**16**
Plasticity Index (PI)	**6**
USCS Class of -#40	CL-ML, Silty Clay



LL, PL and PI values are percent moisture of the soil by dry mass.

Test is performed on the 'matrix' fraction of the soil, finer than the #40 (0.425mm) sieve.

The Liquid Limit is the moisture content at which the matrix fraction of the soil changes from a stiff to a flowing consistency. The plastic limit is the moisture content at which it changes from cohesive to crumbly. The Plasticity Index is the Liquid Limit minus the Plastic Limit.

Reviewed by: *Kevin Patton*

Form ABL

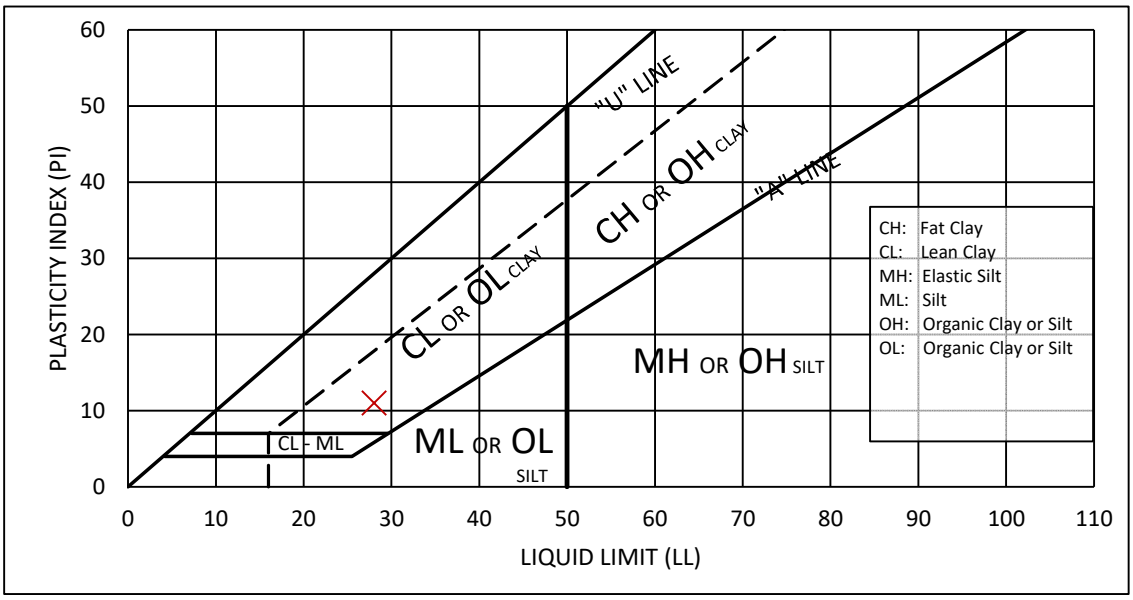
KEVIN L. PATTON, P.E.
36 PATTON ROAD
NEWBURGH, NY 12550
845 275-7732 PATTONGEOTECH.COM

CLIENT:	One Key LLC		
PROJECT:	South Hamilton Street, Poughkeepsie, N.Y.		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

ATTERBERG LIMITS TEST

TEST METHODS: ASTM D4318/ AASHTO T89, T90

Sample Location	TP7
Depth	2 feet
Percent Passing #40	94
Liquid Limit (LL)	**28**
Plastic Limit (PL)	**17**
Plasticity Index (PI)	**11**
USCS Class of -#40	CL, Lean Clay



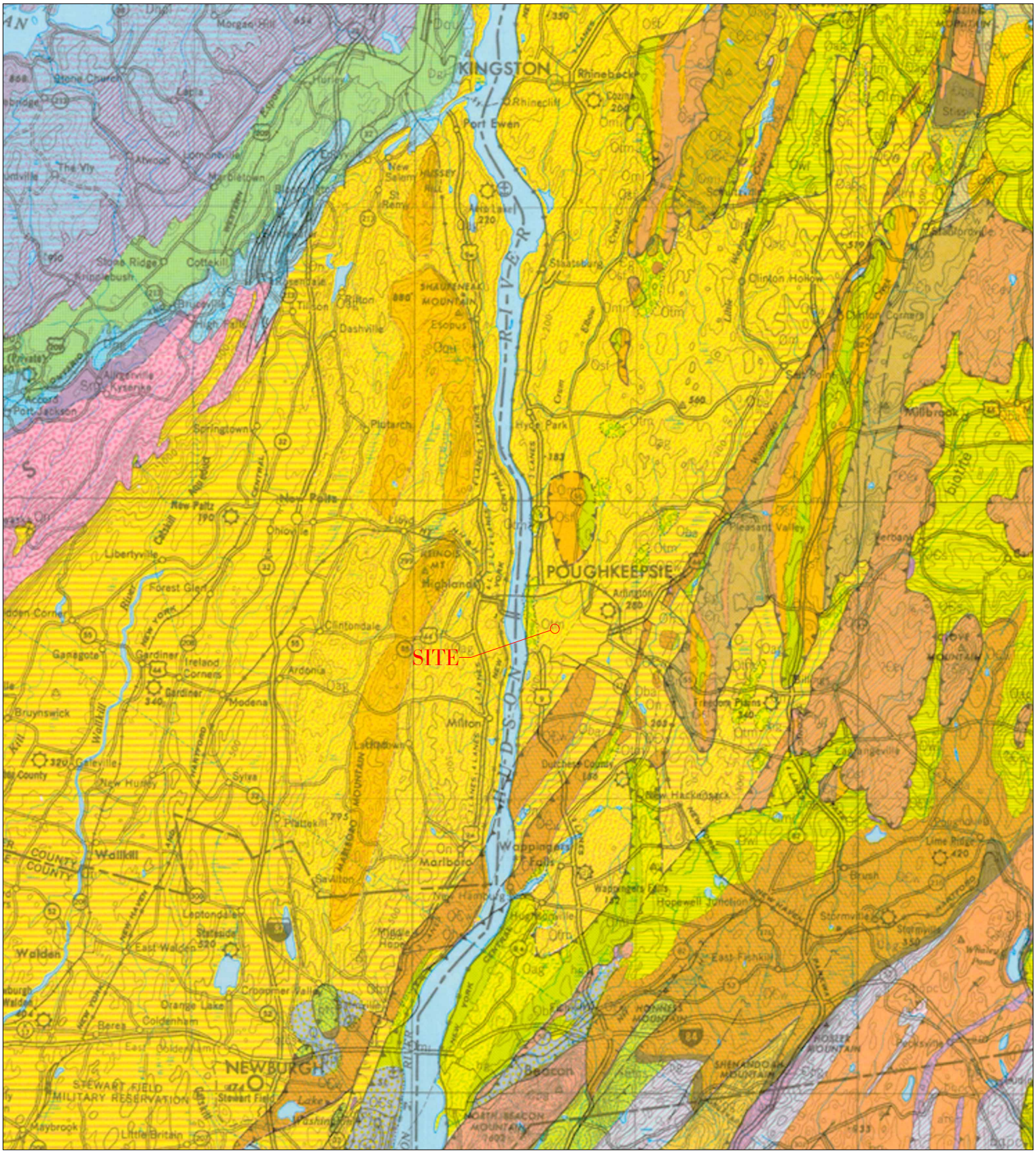
LL, PL and PI values are percent moisture of the soil by dry mass.

Test is performed on the 'matrix' fraction of the soil, finer than the #40 (0.425mm) sieve.

The Liquid Limit is the moisture content at which the matrix fraction of the soil changes from a stiff to a flowing consistency. The plastic limit is the moisture content at which it changes from cohesive to crumbly. The Plasticity Index is the Liquid Limit minus the Plastic Limit.

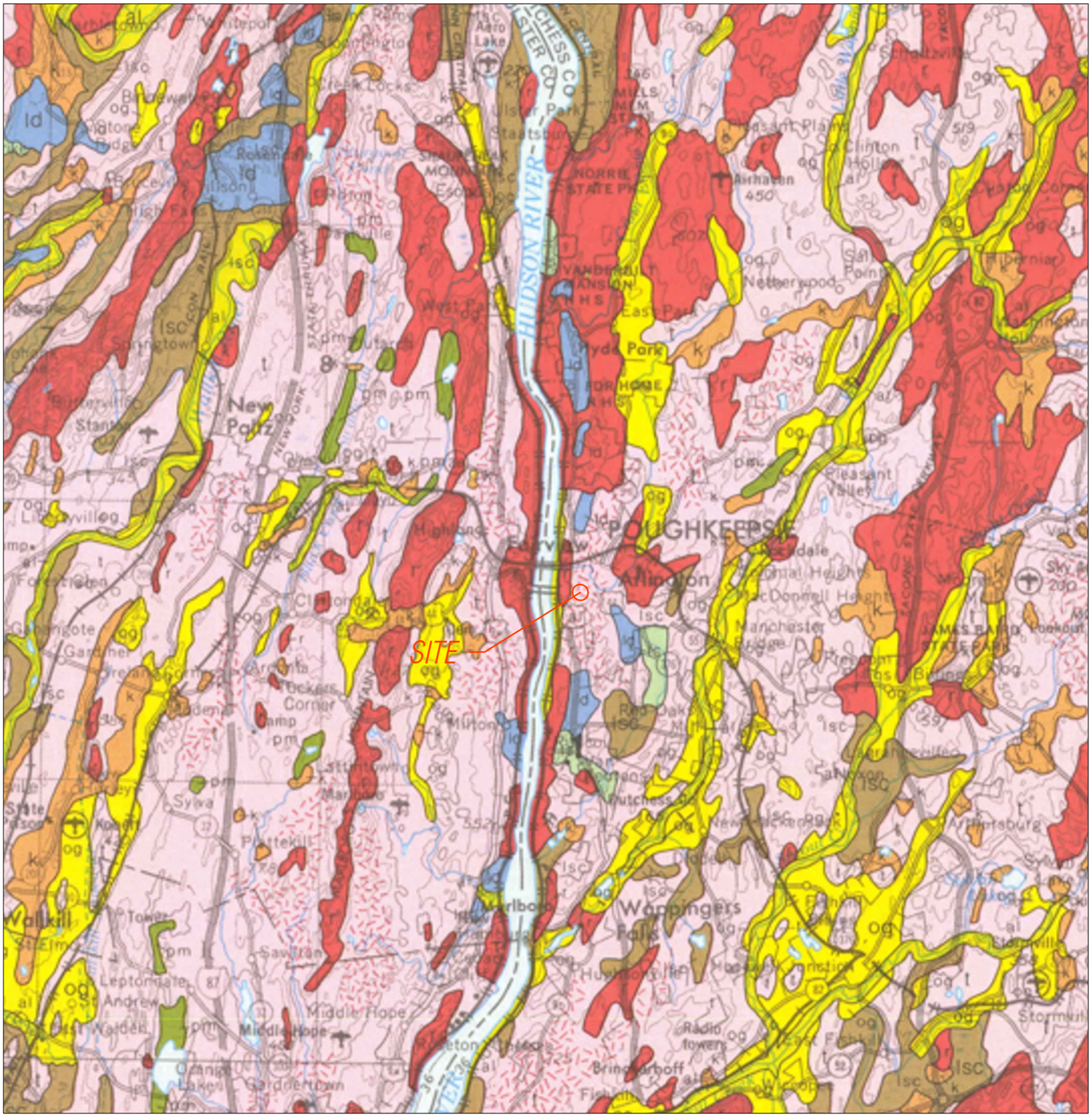
Reviewed by: *Kevin Patton*

Form ABL



Approximate location of the project site, shown on part of the Bedrock Geologic Map of New York (1970.) The site is in an area of Ordovician-age sedimentary bedrock consisting mostly of gray siltstone, shale and greywacke sandstone. The bedrock at the site is shown as Austin Glen Formation (mottled green, symbol Oag,) which is generally bounded to the east and west by the somewhat older Normanskill shale (yellow with red stripes, symbol On,) and is overlain by the younger Quassaic quartzite in the high areas (orange, Oqu.) Taconic melange (green, Otm,) is indicated along the Hudson River in Poughkeepsie, to the west of the site; it is composed of slaty, sheared Austin Glen bedrock. To the southeast, the older Wappinger dolostone (brown, OCw,) is down-faulted against the Normanskill Formation bedrock.

SURFICIAL GEOLOGIC MAP



Approximate location of the project site, shown on a partial copy of the Surficial Geologic Map of New York (N.Y. State Museum, 1989.) The map indicates that the soils at and near the site are glacial till, shown in pink with the symbol 't.' A red stipple pattern is also shown, indicating that bedrock is generally within three to ten feet of the surface. Areas where bedrock is mostly very shallow or is exposed are indicated by red. Thee map units are generalized; alluvium, outwash and lacustrine deposits have all been encountered in parts of the City of Poughkeepsie where till is indicated by the map.

EXPLANATION

al — **Recent deposits**
Generally confined to floodplains within a valley,
oxidized, non-calcareous, fine sand to gravel,
in larger valleys may be overlain by silt,
subject to frequent flooding, thickness 1–10 meters.

alf — **Alluvial fan**
Fan shaped accumulations,
poorly stratified silt, sand and boulders,
at the foot of steep slopes,
generally permeable.

b — **Beach**
Sand and gravel deposit at marine shoreline,
thickness variable.

bi — **Barrier island**
Sand and gravel deposit as barrier island,
south shore of Long Island,
may have associated dunes,
thickness variable.

pm — **Swamp deposits**
Peat-muck, organic silt and sand in poorly drained areas,
un-oxidized,
may be overlying marl and lake silts,
potential land instability,
thickness generally 2-20 meters.

ld — **Lacustrine delta**
Coarse to fine gravel and sand,
stratified, generally well sorted,
deposited at a lake shoreline,
thickness variable (3-15 meters).

lsc — **Lacustrine silt and clay**
Generally laminated silt and clay,
deposited in proglacial lakes,
generally calcareous,
potential land instability,
thickness variable (up to 100 meters).

ls — **Lacustrine sand**
Sand deposits associated with large bodies of water,
generally a near-shore deposit or near a sand source,
well sorted, stratified,
generally quartz sand,
thickness variable (2-20 meters).

og — **Outwash sand and gravel**
Coarse to fine gravel with sand,
proglacial fluvial deposition,
well rounded and stratified,
generally finer texture away from ice border,
thickness variable (2-20 meters).

fg — **Fluvial sand and gravel**
Deposits of sand and gravel,
occasional laterally continuous lenses of silt,
deposition farther from glacier,
age uncertain.

k — **Kame deposits**
Includes kames, eskers, kame terraces, kame deltas,
coarse to fine gravel and/or sand,
deposition adjacent to ice,
lateral variability in sorting, coarseness and thickness,
locally firmly cemented with calcareous cement,
thickness variable (10-30 meters).

km — **Kame moraine**
Variable texture (size and sorting) from boulders to sand,
deposition at an ice margin during deglaciation,
positive constructional relief,
locally cemented with calcareous cement,
thickness variable (10-30 meters).

tm — **Till moraine**
More variably sorted than till,
generally more permeable than till,
deposition adjacent to ice,
more variably drained,
may include ablation till,
thickness variable (10-30 meters).

t — **Till**
Variable texture (e.g. clay, silt-clay, boulder clay),
usually poorly sorted diamict,
deposition beneath glacier ice,
relatively impermeable (loamy matrix),
variable clast content — ranging from abundant well-rounded
diverse lithologies in valley tills to relatively
angular, more limited lithologies in upland tills,
tends to be sandy in areas underlain by gneiss or sandstone,
potential land instability on steep slopes,
thickness variable (1-50 meters).

af — **Artificial fill**

r — **Bedrock**
Exposed or generally within 1 meter of surface.

Bedrock stipple overprint
Bedrock may be within 1-3 meters of surface,
may sporadically crop out,
variable mantle of rock debris and glacial till.

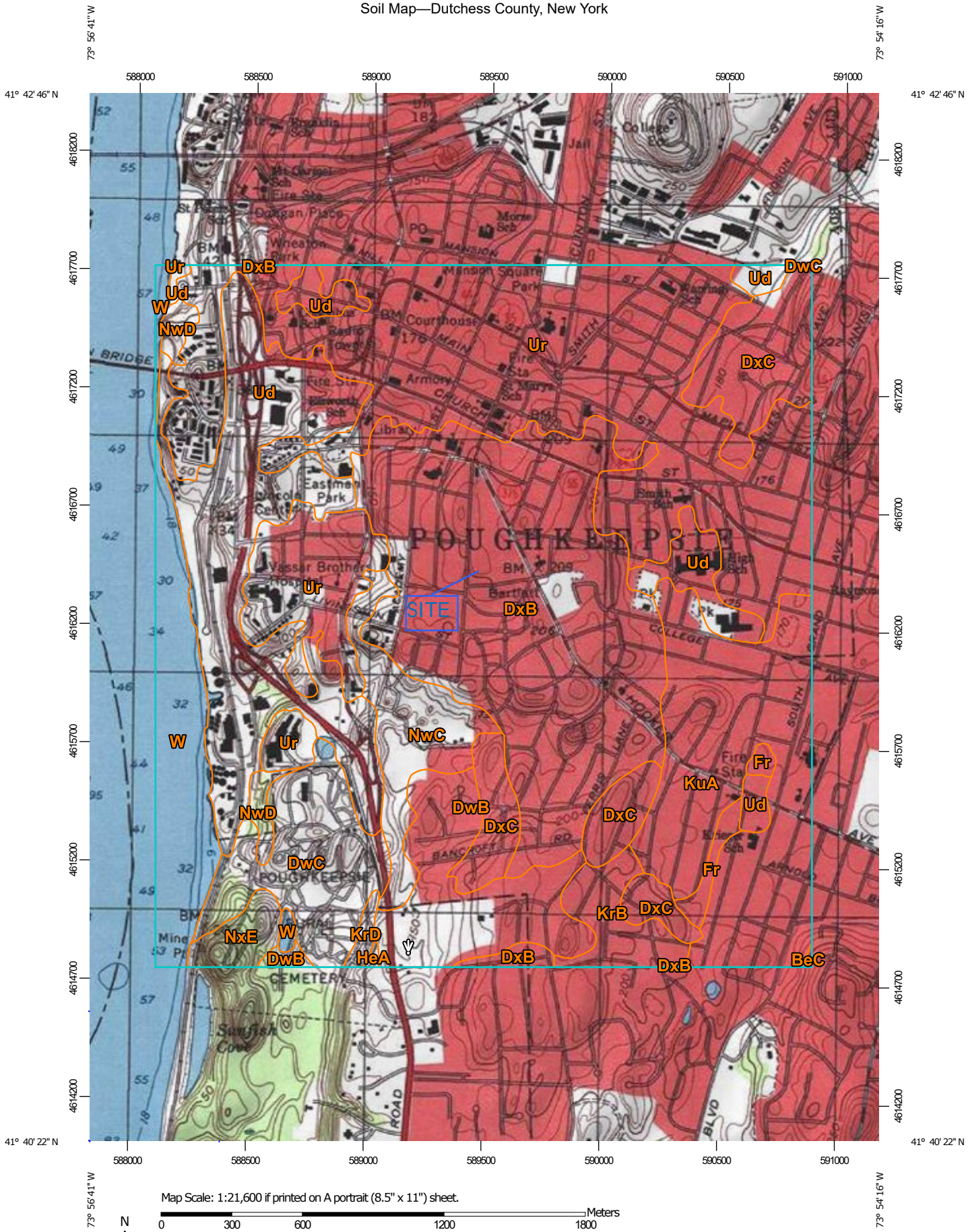
MAP SYMBOLS

Contact

.3 Dated radiocarbon locality

MAP KEY
NEW YORK STATE SURFICIAL GEOLOGIC MAP

KEVIN L. PATTON, P.E.


73° 56' 41" W
73° 54' 16" W
41° 42' 46" N
41° 40' 22" N
588000
588500
589000
589500
590000
590500
591000
4618200
4617700
4617200
4616700
4616200
4615700
4615200
4614700
4614200
Ur
DxB
Ud
W
NwD
DwC
DxC
SITE
NwC
Fr
KuA
DwB
KrB
NxE
KrD
HeA
BeC
POUGHKEEPSIE
Eastman Park
Vassar Brothers
Mansion Square Park
Wheaton Park
Morse Sch
Jail
College
Courthouse
Armory
Fire Sta
Smith Sch
Library
Cemetery
Sunset Cove
Map Scale: 1:21,600 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 300 600 1200 1800
Feet
0 1000 2000 4000 6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Background

- Topographic Map

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC	Bernardston silt loam, 8 to 15 percent slopes	0.6	0.0%
DwB	Dutchess-Cardigan complex, undulating, rocky	102.3	5.0%
DwC	Dutchess-Cardigan complex, rolling, rocky	96.6	4.7%
DxB	Dutchess-Cardigan-Urban land complex, undulating, rocky	399.6	19.5%
DxC	Dutchess-Cardigan-Urban land complex, rolling, rocky	123.4	6.0%
Fr	Fredon silt loam	12.3	0.6%
HeA	Haven loam, nearly level	1.0	0.1%
KrB	Knickerbocker fine sandy loam, undulating	36.0	1.8%
KrD	Knickerbocker fine sandy loam, hilly	5.2	0.3%
KuA	Knickerbocker-Urban land complex, nearly level	214.3	10.5%
NwC	Nassau-Cardigan complex, rolling, very rocky	68.8	3.4%
NwD	Nassau-Cardigan complex, hilly, very rocky	14.7	0.7%
NxE	Nassau-Rock outcrop complex, steep	19.6	1.0%
Ud	Udorthents, smoothed	286.3	14.0%
Ur	Urban land	565.5	27.6%
W	Water	104.2	5.1%
Totals for Area of Interest		**2,050.6**	**100.0%**

Dutchess County, New York

DxB—Dutchess-Cardigan-Urban land complex, undulating, rocky

Map Unit Setting

National map unit symbol: 9rfr
Elevation: 20 to 1,000 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Dutchess and similar soils: 30 percent
Cardigan and similar soils: 25 percent
Urban land: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dutchess

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from phyllite, slate, schist, and shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 28 inches: silt loam
H3 - 28 to 86 inches: channery silt loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Cardigan

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or colluvium derived from phyllite, slate, shale, and schist

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 20 inches: channery loam
H3 - 20 to 30 inches: channery silt loam
H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 10 percent
Hydric soil rating: No

Georgia
Percent of map unit: 5 percent
Hydric soil rating: No

Nassau
Percent of map unit: 5 percent
Hydric soil rating: No

Massena
Percent of map unit: 4 percent
Hydric soil rating: No

Sun
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Dutchess County, New York														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
DxB—Dutchess-Cardigan-Urban land complex, undulating, rocky														
Dutchess	30	B	0-8	Silt loam	ML	A-4	0- 0- 0	0- 8- 15	95-98-100	90-93-95	80-88-95	55-70-85	15-24-33	NP-2 -4
			8-28	Silt loam, channery silt loam, gravelly loam	GM, ML, SM	A-4	0- 0- 0	0- 0- 20	70-92-95	65-90-95	55-80-95	40-70-85	15-24-33	NP-2 -4
			28-86	Channery silt loam, very channery fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1-b, A-4, A-2-4	0- 0- 0	5-15- 25	55-68-80	50-63-75	30-53-75	15-40-65	15-20-25	NP-2 -4
Cardigan	25	C	0-8	Channery silt loam	ML, SM	A-4	0- 0- 0	0- 3- 5	80-88-95	70-83-95	60-68-75	35-53-70	15-24-33	NP-3 -5
			8-20	Silt loam, channery silt loam, channery loam	ML, SM	A-4	0- 0- 0	0- 5- 10	80-88-95	70-83-95	60-68-75	35-53-70	15-24-33	NP-3 -5
			20-30	Silt loam, loam, channery silt loam	ML, SM	A-1, A-4, A-2	0- 0- 0	0- 5- 10	80-88-95	60-75-90	40-58-75	20-45-70	15-24-33	NP-3 -5
			30-34	Unweathered bedrock	—	—	0- 0- 0	0- 0- 0	—	—	—	—	—	—
Urban land	20		0-6	Variable	—	—	0- 0- 0	0- 0- 0	—	—	—	—	—	—

Data Source Information

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

- The temporary perimeter controls (silt fences and hay bales) will be installed before any clearing and grading begins.
- Clearing and grading will not occur in an area until it is necessary for construction to proceed.
- Sandbag trench plugs will be placed in sloping open trenches during utility installation.
- The stabilized construction site entrance will be built before clearing and grading begins.
- Once construction ceases permanently in an area, that area will be stabilized with permanent seed and mulch.
- The temporary perimeter controls (silt fencing and hay bales) will not be removed until all construction activities at the site are complete and soils have been stabilized.

6.4 Certification of Compliance with Federal, State and Local Regulations

This SWPPP reflects the EPA, the New York State Department of Environmental Conservation (NYSDEC) regulations, and the City of Poughkeepsie requirements for stormwater management, erosion and sediment control.

7.0 MAINTENANCE & INSPECTION PROCEEDURES

7.1 Inspections

Following the start of construction, site inspections will be conducted by a qualified professional at least every seven (7) days. The inspection will verify that the structural BMPs described in Section 4 of the SWPPP are in good condition and are minimizing erosion. The inspection will also verify that the procedures used to prevent stormwater contamination from construction materials and petroleum products are effective. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built up sediment will be removed from silt fencing when it has reached one-third the height of the fence.
- Silt fences will be inspected for depth of sediment, for tears, to examine if the fabric is securely attached to the fence posts, and to ensure that the fence posts are firmly in the ground.
- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.
- The stabilized construction entrance will be inspected for sediment tracked on the road, for clean gravel and to make sure that all traffic uses the stabilized entrance when leaving the site.

The maintenance inspection reports will be made after each inspection. Copies of the report forms to be completed by the SWPPP coordinator, or qualified SWPPP team member, are provided in **Appendix C** of this SWPPP. Completed forms will be maintained on site during the entire construction project. Following construction, the completed forms will be retained at the general contractor's office for a minimum of 5 years.

If construction activities or design modifications are made to the site plan which could impact stormwater, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities. The Plan Changes, Authorization and Change Certification is included in **Appendix C**.

7.5 Post-Construction Maintenance

General

The Owner/Operating Manager of O'Neill Group Hamilton LLC shall overtake and become responsible for all inspecting, monitoring and maintaining erosion control features and drainage structures over the lifetime of the feature. Any SMP's that will be located within the city right-of-way or individual parcel of land that will be dedicated to the City of Poughkeepsie. The inspection of on-site stabilization measures will become part of routine and preventive maintenance practices developed by the owner and/or his representatives.

Inspection

The entire site should be inspected regularly for the presence of erosion gullies, cracking and wash-outs caused by heavy storm events. The cause of any irregularities should be identified and addressed in a timely manner. At minimum, eroded areas should be top soiled, seeded and mulched, as necessary, depending upon the identified irregularity.

The stormwater management system (i.e., roadway drainage ditches, stormwater management ponds, pipe inlets and outlets, etc.) shall be inspected at least yearly for sediment build-up, debris and structural integrity. Stormwater management pond outlet control structures should be checked more frequently for debris blockages. Vacuum truck services should be secured by the owner for periodic removal of sediment within the pond system, the outlet control structure and drainage structures.

The inspection should include, but not be limited to the following:

- Accumulation of pollutants such as grease and oils
- Stabilization and condition of vegetative ground cover areas
- Cracking, settlement, sliding or gully erosions of embankments
- Sedimentation of downstream water bodies, culvert or swales
- Sedimentation of lawns, pavement areas or catch basin sumps
- Presences of animal borrows, clogging or sedimentation at inlets or outlets
- Erosion or disruption of flow paths from stormwater management areas
- Structural integrity of spillways and obstruction of overflow
- Inlet and outlet riprap for scouring or dislodged stones or obstructions
- Forebays and aquatic benches to ensure proper and structural integrity.

Any sediment build-up should be removed and disposed of utilizing acceptable practices. Care should be exercised to avoid storing snow on any stormwater facilities, including the outfall swale.

Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control, as well as related appurtenances, which are installed or to be used by the permittee to achieve compliance with the conditions of this permit and within the requirements of the SWPPP. Maintenance shall occur on a regular basis and should include, but not be limited to the following:

- Mowing of lawn areas at least three times per year to prevent over and vigorous growth

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

DA 1
0.08±AC
Tc=5.0 MIN

DA 3
0.03±AC

DA 3.1
0.14±AC
Tc=5.0 MIN

SUB-DA 4
0.06±AC

SUB-DA1.1A
POROUS PAV'T
0.74±AC

SUB-DA1.1B
FILTER
0.94±AC

DA 1.1
2.49±AC

DA 4
0.35±AC
Tc=5.0 MIN

DA 2
2.76±AC

POA 1
POA 1.1
POA 2
POA 3
POA 3.1
POA 4

Lands Now or Formerly of
MP HOMESTEAD LLC
Book 2008 Page 7349
Section 6161.30 Lot 182812

Lands Now or Formerly of
GEORGE & ANN HARMUTH
DOC. NO. 219952247
Section 6161.30 Lot 182803

Lands Now or Formerly of
HAMILTON GARDEN APARTMENTS, INC.
DOC. NO. 219932589
Section 6161.30 Lot 152824

Lands Now or Formerly of
NICHOLAS & GAYLE GARIN
Book 1511 Page 473
Section 6161.30 Lot 136812

Lands Now or Formerly of
SHIRLEY ADAMS
Book 2008 Page 3021
Section 6161.30 Lot 173963

Lands Now or Formerly of
GORDON GEBERT
LIZABETH PARAVISINI-GEBERT
Book 2003 Page 5091
Section 6161.30 Lot 174764

Lands Now or Formerly of
MICHAEL PETRONIO
MORIA FITZGIBBONS
Book 2004 Page 9446
Section 6161.30 Lot 166759

Lands Now or Formerly of
JEFFREY LINTEL
Book 1837 Page 809
Section 6161.30 Lot 166759

Lands Now or Formerly of
NEW HORIZONS RESOURCES INC.
Book 2005 Page 228
Section 6161.30 Lot 139757

DWIGHT STREET

SOUTH HAMILTON STREET

4" STONE SWALE

STORMWATER MANAGEMENT AREA

TEMPORARY STOCKPILE AREA

SILT FENCE (TYP.)

CONCRETE WASHOUT AREA

POROUS PAVEMENT

12" OVERFLOW RISER

CONNECT 6" PERFORATE HDPE UNDERDRAIN FOR POROUS PAVEMENT, S=1.0%

1.25" PERFORATE HDPE UNDERDRAIN FOR POROUS PAVEMENT, S=1.0%

DUMPSTERS

8" HYDRANT AND VALVE

8" WATER MAIN FOR FIRE AND DOMESTIC.

6" WATER SHUTOFF VALVE

6" SEWER LATERAL, CONNECT TO EXISTING GRAVITY SEWER

8" WATER MAIN FOR FIRE AND DOMESTIC. CONNECT TO EXISTING MAIN IN HAMILTON STREET WITH 8"x6" TAPPING SLEEVE AND VALVE

MAINTAIN EXISTING GRADE ALONG BUILDING AND PROPERTY BOUNDARY

CONNET TO DRAINAGE MANHOLE

BENCHMARK
RR SPIKE
ELEV.= 188.6

0 60 120 Feet

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23

REVISIONS

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

POST-DEVELOPMENT DRAINAGE
SOUTH HAMILTON
LOCATED AT
100 SOUTH HAMILTON STREET
TAX MAP : 6161-30-151783

DATE: AUGUST 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
SWPPP
2.0

SHEET 1 OF 1

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DA 1
1.78±AC
Tc= MIN

DA 2
3.31±AC
Tc= MIN

DA 3
0.05±AC
Tc=5.0MIN.

DA 4
0.75±AC
Tc= MIN

SUB-DA 4
0.45±AC

POA 1
POA 2
POA 3
POA 4

Tc
(TYP)

Lands Now or Formerly of
MP HOMESTEAD LLC
Book 2008 Page 7349
Section 6161.30 Lot 182812

Lands Now or Formerly of
GEORGE & ANN HARMUTH
DOC. NO. 219956247
Section 6161.30 Lot 182803

Lands Now or Formerly of
HAMILTON GARDEN APARTMENTS, INC.
DOC. NO. 219932589
Section 6161.30 Lot 152824

Lands Now or Formerly of
NICHOLAS & GAYLE GARIN
Book 1784 Page 473
Section 6161.30 Lot 136812

Lands Now or Formerly of
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Book 2008 Page 3021
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MORIA FITZGIBBONS
Book 2004 Page 9446
Section 6161.30 Lot 166759

Lands Now or Formerly of
JEFFREY LINTEL
Book 1831 Page 809
Section 6161.30 Lot 165966

Lands Now or Formerly of
NEW HORIZONS RESOURCES INC.
Book 2005 Page 228
Section 6161.30 Lot 139757

S 10°39'30" W 289.98'
S 10°00'57" W 72.54'
S 85°20'00" E 67.90'
S 21°40'00" E 113.93'
N 18°19'00" E 98.49'
S 72°49'00" E 126.80'
S 58°52'00" E 85.51'
N 16°08'00" E 99.02'
N 15°15'48" E 247.31'
N 29°27'00" W 112.00'
N 80°33'00" W 259.51'
S 25°55'10" W 40.00'
S 09°26'10" W 185.80'
N 09°26'10" E 200.00'
N 81°22'00" W 17.00'

DWIGHT STREET
SOUTH HAMILTON STREET
ASPHALT DRIVE
ASPHALT WALK
CONCRETE WALK
GARAGE
CONCRETE DRIVE
ASPHALT
SOUTH HAMILTON STREET

SMH
IN=187.6
THRU=184.4

SMH
IN=181.0
OUT=173.4

SMH
IN=181.1
THRU=173.3

6"WATER LINE (REC.)
12"SANITARY
STORM

BENCHMARK
RR SPIKE
ELEV.= 188.6

0 60 120 Feet

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
RECORD PLANS

DATE SUBMITTED:

NO.	DESCRIPTION	BY	DATE

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS
PRE-DEVELOPMENT DRAINAGE
SOUTH HAMILTON
LOCATED AT
100 SOUTH HAMILTON STREET
TAX MAP - 6161-30-151763

DATE: AUGUST 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
SWPPP
1.0
SHEET 2 OF 3

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

FOR THE DEVELOPMENT OF

SOUTH HAMILTON

CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

PREPARED FOR:
O'NEILL GROUP HAMILTON, LLC
241 HUDSON AVENUE
HACKENSACK, NEW JERSEY 07601

OCTOBER 3, 2023

PREPARED BY:
Arico Associates
1407 Route 9, Bld.2, Suite 6
Clifton Park, New York 12065

ARICO ASSOCIATES PROJECT ID: 22.10



ARICO ASSOCIATES
ENGINEERS LAND PLANNERS & CONSULTANTS

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APPENDIX E: Copy of MS4, Notice of Intent (draft), Notice of Termination

APPENDIX F: Site Maps and Figures

APPENDIX G: Supporting Data and Calculations

APPENDIX H: Hydrographs and Supporting Data

APPENDIX I: Soil Data and Classification Summary

APPENDIX J: Construction BMP's

APPENDIX K: Alternative Construction BMP's

APPENDIX L: Operational and Maintenance Manual

1.0 INTRODUCTION

1.1 Background

In 1972, Congress passed the Federal Water Pollution Control Act (FWPCA), also known as the Clean Water Act (CWA), to restore and maintain the quality of the nation's waterways. The ultimate goal was to ensure that rivers and streams were fishable, swimmable, and drinkable. In 1987, the Water Quality Act (WQA) added provisions to the CWA that allowed the United States Environmental Protection Agency (EPA) to govern stormwater discharges from construction sites. In 1998, EPA published the final notice for General Permits for Stormwater Discharges from Construction Activities Disturbing 5 Acres or Greater (63 Federal Register 7898, February 14, 1998). The general permit includes provisions for development of a SWPPP to maximize the potential benefits of pollution prevention and sediment and erosion control measures at construction sites.

Development, implementation, and maintenance of the SWPPP will provide the General Contractor with the framework for reducing soil erosion and minimizing pollutants in stormwater during site work construction of South Hamilton (Project).

The SWPPP will:

- Define the characteristics of the site and the type of construction which will occur;
- Describe the site plan for the development to be constructed;
- Describe the practices that will be implemented to control erosion and the release of pollutants in stormwater;
- Create an implementation schedule to ensure that the practices described in this SWPPP are implemented and to evaluate the plan's effectiveness in reducing erosion, sediment, and pollutant levels in stormwater discharged from the site; and
- Describe the final stabilization/termination design to minimize erosion and prevent stormwater impacts after construction is complete.

1.2 SWPPP Content

This SWPPP has been prepared, based on the current level of design, in accordance with the regulations, guidelines, and conditions set forth in the Construction Stormwater General Permit, NYS Stormwater Pollution Prevention Plan (SWPPP) Design Manual, January 2015 and NYSDEC GP-0-20-001 Permit Requirements. The report is divided into sections with several appendices that include stormwater related reference materials.

This SWPPP includes the following:

- Identification of the SWPPP coordinator with a description of this person's duties;
- Description of the existing site conditions include existing land use for the site (i.e., wooded areas, open grassed areas, pavement, buildings, etc.), and if applicable the location of surface waters which are located on or immediately adjacent to the site (wetlands, streams, rivers, lakes, ponds, etc.);
- Identification of the water bodies which will receive runoff from the construction site, including the ultimate body of water that receives the stormwater;
- Identification of drainage areas and potential stormwater contaminants;
- Description of stormwater management controls and various Best Management Practices (BMP) necessary to reduce erosion, sediment and pollutants in stormwater discharge;
- Description of the facility monitoring plan and how controls will be coordinated with construction activities;
- Description of the implementation schedule and provisions for amendment of the plan.

Supporting documentation and standard forms are provided in the following Appendices:

- APPENDIX A: Certification Statements
- APPENDIX B: Site Location and USGS Quadrangle Maps
- APPENDIX C: Inspection Report and Miscellaneous Forms
- APPENDIX D: General Permit Copy of SPDES General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-20-001.
- APPENDIX E: Copy of MS4, Notice of Intent & Notice of Termination
- APPENDIX F: Site Maps and Figures
- APPENDIX G: Supporting Data and Calculations
- APPENDIX H: Hydrographs and Supporting Data
- APPENDIX I: Soil Data and Classification Summary
- APPENDIX J: Construction BMP's
- APPENDIX K: Alternative Construction BMP's
- APPENDIX L: Operational and Maintenance Manual

1.3 SWPPP COORDINATOR AND DUTIES

The construction site SWPPP coordinator will be determined following the acceptance of a General Contractor. Once the construction site SWPPP Coordinator is selected, the SWPPP will be revised and clearly detail the implementation responsibilities for each part of the site.

The SWPPP coordinator's duties include, but are not necessarily limited to the following:

- Implement the SWPPP plan with the aid of the SWPPP team;
- Oversee maintenance practices identified as BMPs in the SWPPP;
- Implement and oversee employee training;
- Conduct or provide for inspection and monitoring activities;
- Identify other potential pollutant sources and make sure they are added to the plan;
- Identify any deficiencies in the SWPPP and make sure they are corrected;
- Ensure that any changes in construction plans are addressed in the SWPPP; and
- To aid in the implementation of the SWPPP plan, the SWPPP coordinator will assign additional SWPPP team members as necessary.

2.0 PROJECT DESCRIPTION, GOALS AND ASSESSMENT

2.1 Site Location and Existing Conditions

The project applicant and current owner is O'Neill Group Hamilton LLC, located at 241 Hudson Avenue, Hackensack, New Jersey 07601. The applicant is pursuing approvals for a 58-unit multi-family residential apartment building to be known as South Hamilton.

The Project site is 3.378± acres, located on the east side of South Hamilton Street in the City of Poughkeepsie, Dutchess County, New York in the south-western portion of the City of Poughkeepsie. The site is bounded mostly by single-family residences and a community house to the south. The parcel is identified as Tax Map Number 13130-6161-30-151783 (NYSDEC Stormwater Mapper Coordinates: LAT 41.6952, LONG -73.9247).

The 3.378± acres site is currently wooded vacant land and was home to a single-family residence until 1973 when a fire completely destroyed the building and it was demolished. In the winter of 2021, the site was partially cleared and is now mainly covered with small brush and trees.

The Project is presently accessible from South Hamilton Street. Municipal water and sanitary sewer utilities are located within South Hamiliton Street and are still available.

2.2 Soils and Topography

A geotechnical study and analysis were prepared by Kevin L. Patton. P.E., 36 Patton Road, Newburgh, N.Y. 12550, (845) 275-7732 on July 6, 2023. In summary, the observed subsurface conditions are described in the test pit logs and are summarized in the drawing attached under separate cover to this report. Most of the native soils and most of the existing fill consisted of fine-sandy silt with traces gravel, few cobbles and boulders. Some of the native soils were identified as glacial till, but most of the native material appears to be till that has been significantly reworked by frost, soil creep and similar factors. Well-graded granular soil (gravelly silty clayey sand) was only encountered in test pits below elevation 205. Bedrock was encountered in five of the six building area test pits at elevation of 200 to 207 feet. The other test pits indicate rock near elevation 200 becoming shallower toward the south and east.

The topography of the site is varied, with steep sections and flatter plateaus. Approximately 70% of the site drains to the east and the remaining area to the west. According to regulatory mapping, the project site is not located in the 100-year flood plain area, have state or federal wetlands and no endangered species have been identified.

2.3 Proposed Site Conditions

South Hamilton proposes the development of fifty-eight (58) apartment units consisting of one-bedroom and two-bedroom units. The Project will contain one (1) three-story apartment building, accessory parking for 102 parking spaces, open common space, sidewalks, landscaping, lighting, public water and sewer, stormwater management areas and utilities.

Access to the site will be from Hamilton Street connecting a 102-space open parking area. Municipal water and sanitary sewer utilities are located along South Hamilton Street and are owned and operated by the City of Poughkeepsie.

The infrastructure development for the project will consist of the construction of approximately 2,700± linear feet of a private access drive leading to a 102-sapce parking area, together with utility extensions for water, sanitary, electric, gas, telephone and cable improvements. On-site improvement and developments will additionally include of stormwater conveyance and management facilities, general landscaping, lighting, walking trail and other amenities that can complement the project.

The proposed water distribution system will consist of an eight (8) inch DIP water main as an extension of the existing municipal infrastructure connecting Dwight Street and Hamilton Street water mains. A 4-inch lateral from the 8-inch main will service the building. The pipes will be installed with a minimum of 5.5 feet of cover with provisions for proper thrust restraint and separation from sanitary and storm sewers.

The proposed sanitary sewer for the project will be a 6-inch gravity sewer connecting into the existing gravity system along S. Hamilton Street.

3.0 STORMWATER MANAGEMENT AND RUNOFF CHARACTERISTICS

3.1 Introduction

In order to accommodate the proposed expansion, it is necessary to add on-site stormwater collection system and management areas. The stormwater collection system will be provided using sheet drainage, catch basin drains and piping. Proposed control structures and basins will regulate the discharge rate by not exceeding the peak flows for existing development conditions. The following data has been generated and based on the Rational Runoff & Storage-Induction Methods for both existing and expansion conditions for the Water Quality and Quantity Controls according to the NYS Stormwater Pollution Prevention Plan (SWPPP) Design Manual, January 2015 and NYSDEC GP-0-20-001 Permit Requirements.

The stormwater management model used for the design of the stormwater management areas is based upon 1-year, 10-year, 50-year and 100-year peak frequency twenty-four-hour storm events for pre-development and 1-year, 10-year, 50-year and 100-year peak frequency twenty-four-hour storm events for post-development. The control structures, ponds, and direct runoff will be regulated to the discharge rates and volumes by not exceeding the peak flows and volumes for pre-developed conditions at a 1-year, 10-year, 50-year and 100-year storm frequency. The post-developed flows will be stored and released over time through Stormwater Management Practices. The following data has been generated and based on the SCS Runoff & Storage-Induction Methods for both pre-developed and post-developed conditions.

Runoff rates based on post-construction site conditions have been calculated for a 1-year, 10- year, 50-year and 100-year storm event, and are shown below. The site contains primarily Hydrological Soil Group B soils that are considered to be moderately-drained soils. The calculated weighted SCS Runoff Curve Number (CN) is 76 for the pre-development site and the resulting post-development weighted CN is 83 based on the underlying soils types and post-construction cover.

3.2 Stormwater Management & Drainage

The proposed land use will modify the existing site by increasing impervious area. Accordingly, 1.59± acres, or 47.1% of the entire project parcel area of 3.378± acres, will contain impervious area (buildings, concrete walks and asphalt pavement). To reduce the storm water run-off and provide stormwater quality control near the source, a series of Green Infrastructure Practices (GIP) are planned for this project for removal of stormwater pollutants. The intended GIP include detention areas, bioretention areas, grassed swales and porous pavements. All or nearly all the new impervious area from roofs, pavement and other impervious areas will be directed to the storm sewer collection system and management areas. The discharge from the stormwater management basin and all pre-development flow will be tributary to the same discharge point locations that are tributary to the surrounding area.

The flow data is generated and based on the Rational Runoff & Storage-Induction Methods for both pre-developed and post-developed conditions and the Water Quality and Quantity Controls according to the

NYS Stormwater Pollution Prevention Plan (SWPPP) Design Manual, January 2015 and NYSDEC General Permit for Stormwater Discharges from Construction Activity (GP-0-20-001) guidelines and regulations.

In the post-development condition, the overall drainage pattern does not change significantly, and reflects the pre-development patterns. Water quality management and stormwater detention will be provided by the Stormwater Management Areas, (SMA). There are four (4) proposed drainage areas identified as DA1, DA2, DA3 and DA4 for pre- and post-development areas. In assessing the drainage areas, the points of analysis (POA) for each discharge point will remain the same for the pre- and post-development areas, identified as POA1, POA2, POA3 and POA4. See Appendices for maps depicting the Pre-Development Drainage Areas and Post-Development Drainage Areas. There are no tributary areas to the project.

3.3 Green Infrastructure Techniques

Under the guidance of the Design Manual, proprietary stormwater treatment practices were selected to provide the Water Quality controls for the proposed project. Proprietary practices for consideration of Green Infrastructure Practices were considered for use or not implemented as follows:

- *Planning.* Practice and techniques used in the site design and layout were to incorporate pavement reduction; and soil restoration for areas that will remain as open/landscaped areas.
- *Conservation of Natural Areas.* Due to the nature of the project, this practice is not practical.
- *Sheet Flow to Riparian Buffers or Filter Strips.* Due to the nature of the project site as developed, the proposed configuration does not allow for the use of riparian buffers or filter strips.
- *Vegetative Open Swale.* Some vegetative swales are proposed to direct runoff, this was considered and was not taken for RRv calculations.
- *Tree Planting/Tree Boxes.* Although tree plantings will occur on the project site, this is considered insignificant and no credit was taken for RRv calculations.
- *Disconnection of Rooftop Runoff.* Due to the nature of the project, this practice is not practical.
- *Soil Restoration.* There is existing pavement on the property, therefore as well as these areas and those that will receive heavy machinery and traffic during construction shall be restored prior to placement of topsoil.
- *Stream Day-lighting for Redevelopment Projects.* There are not existing drainage structures; therefore, there is not opportunity for stream day-lighting.
- *Rain Garden/Bioretention.* Though considered, the nature of the projects site the proposed configuration does not allow for the use of Bioretention or Rain Garden areas.
- *Green Roof.* Due to the nature of the project, this practice is not practical.
- *Stormwater Planter.* Due to the nature of the project, this practice is not practical.
- *Rain Tank/Cistern.* Due to the nature of the project, this practice is not practical.
- *Porous Pavement.* The site design and nature of the project it acceptable for porous pavements, which have been used for RRv calculations.
- *Alternate SMP.* The site design and nature of the project it acceptable for Hydrodynamic devices and/or Media Filters, and are being used for RRv and WQv calculations.

3.4 Proposed Management Practice(s)

Water quality management utilizing porous pavements and membrane filters (Jellyfish®) for runoff-reduction (RRv) and water quality (WQv), will be provided with a combination of a stormwater management basin to control water quantity controls for Overbank Flow (Qp) and Extreme Flood (Qf) from the site.

The porous pavement will collect sheet runoff form a portion of the paved parking and concrete walkways. The porous pavement will have an underdrain that will be directed towards the detention basin along the eastern portion of the property. The Jellyfish filtering system will collect the remaining portion of the parking and concrete walkways, as well as the entire roof area of 24,650 sf from the proposed building. The combination of the two (2) runoff area will collect all the impervious areas except for a small portion of the access drive at S. Hamilton Street.

In combination, the porous pavement and filtering system will reduce the Water Quality Volume (WQv) and add Runoff Reduction (RRv) credits to meet or exceed the required WQv of 0.123 ac-ft (5,336 cf) and the minimum RRv to be provided of 0.037 ac-ft (1,593 cf). The porous pavement will provide a RRv of 2,519 cf (0.058 ac-ft) leaving a minimal of 2,817 cf to be treated by the filtering system. (See Appendix G – Supportive Data and Calculations.)

The stormwater basin is comprised of an outlet control structure in combination with a broad-crested weir. Together the post-development discharge is maintained lower than the pre-development discharge rate for the 10-year (Qp) and 100-year (Qf) storm event and no further storage practice is implemented. The Channel Protection volume (CPv) is reduced to pre-developed volumes within the WQv and RRv techniques. Based on design data, the WQv+RRv provided meets the criteria for no further water quality management practices to be implemented.

3.5 Hydrologic & Hydraulic Model Input Parameters

The hydrologic parameters and runoff rates for pre- and post-construction site conditions have been calculated for a 1-year, 10- year, 50-year and 100-year storm event, and are shown below. The site contains primarily Hydrological Soil Group B soils that are considered to be moderately-drained soils. The calculated weighted SCS Runoff Curve Number (CN) is 76 for the pre-development site and the resulting post-development weighted CN is 83 based on the underlying soils types and post-construction cover.

To provide an evaluation of pre- and post- development flow rates and volumes, each drainage area is described below in more detail showing the comparison of the proposed development and surrounding areas to existing conditions. See Appendix H – Hydrographs & Supporting Data.

As depicted on the drainage area maps, the analysis point is POA1 and is to the eastern portion of the property. It should also be noted that there is a pre-existing condition, outside of the property limits, that creates off-site ponding during storm events due to grades that are lower than surrounding grades. The pre-development area for DA1 is 1.78± acres and the post-development area is broken down into two (2) sub-areas of DA1.1 (2.49± acres) and DA1 (0.08± acres). In pre-development conditions, the entire 1.78± acres contributed to the runoff, where the post-development conditions, only 0.08± acres

contribute to POA1. The remaining post-development area (DA1.1) is collected, treated and detained in the stormwater management basin. The discharge from the basin will be added to POA2 (see below) and discharge directly to the City of Poughkeepsie storm collection system in Dwight Street. In summary the total water volume to POA1 is significantly reduced, see Table POA1 below.

TABLE POA1

Storm Event	$Q_{1\text{-yr}}$		$Q_{10\text{-yr}}$		$Q_{50\text{-yr}}$		$Q_{100\text{-yr}}$	
Runoff	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**
Pre-Developed	0.56	3,349	2.14	11,403	4.22	22,474	5.47	29,291
Post-Developed	0.07	176	0.22	563	0.42	1,082	0.54	1,397
% change	-87.5	-94.7	-89.7	-95.0	-90.0	-95.2	-90.1	-95.2

As depicted on the drainage area maps, the analysis point is POA2 is to the south and west portion of the property. The pre-development area for DA2 is 3.31± acres and the post-development area is broken down into two (2) sub-areas of 2.49 ± acres (DA1.1) and 2.76± acres (DA2). In order to reduce the discharge to POA1, the remaining area (DA1.1) is collected treated and stored in the detention basin. As noted above, the discharge from the basin will be added to POA2 and discharge directly to the City of Poughkeepsie storm collection system in Dwight Street. In summary, the total water volume to POA2 will be reduced utilizing the outlet control structure and storage volume to reduce the discharge at POA2, see Table POA2 below.

TABLE POA2

Storm Event	$Q_{1\text{-yr}}$		$Q_{10\text{-yr}}$		$Q_{50\text{-yr}}$		$Q_{100\text{-yr}}$	
Runoff	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**
Pre-Developed	2.61	9,405	7.60	27,014	13.70	49,611	17.24	63,152
Post-Developed*	2.48	9,375	6.61	25,041	11.52	44,552	14.33	56,089
% change	-5.0	-0.32	-13.0	-7.3	-15.9	-10.2	-16.9	-11.2

*Based on release rate through SMP and discharge culverts

As depicted on the drainage area maps, the analysis point is POA3 and is to the eastern portion of the property. The pre-development area for DA3 is 0.05± acres and the post-development area is broken down into two (2) sub-areas of 0.03± acres (DA3) and 0.14± acres (portion of DA3.1). In pre-development conditions, the entire 0.05± acres contributed to the runoff, where the post-development conditions, only 0.03± acres contribute to POA3. The remaining post-development area is part of DA3.1 will collected by a catch basin and combined with the discharge from the detention basin. As noted abouve, this discharge from the basin will be added to POA2 and discharge directly to the City of Poughkeepsie storm collection system in Dwight Street. In summary the total water volume to POA3 is significantly reduced, see Table POA3 below.

TABLE POA3

Storm Event	$Q_{1\text{-yr}}$		$Q_{10\text{-yr}}$		$Q_{50\text{-yr}}$		$Q_{100\text{-yr}}$	
Runoff	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**
Pre-Developed	0.04	96	0.13	325	0.25	639	0.32	832
Post-Developed	0.03	66	0.08	211	0.16	406	0.20	524
% change	-0.25	-31.2	-38.5	-35.1	-36.0	-36.5	-37.5	-37.0

As depicted on the drainage area maps, the analysis point is POA4 and is to the northern portion of the property. The pre-development area for DA4 is 0.75± acres and the post-development area is 0.35± acres. In post-development conditions, 0.40± acres are now contributing to POA1.1. The remaining 0.06± acres (SUB-DA4) of the project site will continue to be tributary to POA4. In summary the total water volume to POA4 is significantly reduced, see Table POA4 below.

TABLE POA4

Storm Event	$Q_{1\text{-yr}}$		$Q_{10\text{-yr}}$		$Q_{50\text{-yr}}$		$Q_{100\text{-yr}}$	
Runoff	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**	**cfs**	**cf**
Pre-Developed	0.29	1,522	1.05	5,021	2.03	9,771	2.62	12,681
Post-Developed	0.23	769	0.78	2,457	1.48	4,720	1.89	6,100
% change	-20.7	-49.5	-25.7	-51.1	-27.1	-51.7	-27.9	-51.9

In conclusion, based on drainage patterns and peak flows compared relatively to pre-developed and post-developed conditions, it is believed that the improvements being proposed will not affect present or future downstream conditions relative to flow or sedimentation.

4.0 CONSTRUCTION SEQUENCING AND PHASING

Soil disturbing activities associated with the site development will be phased according to the construction schedule. The Project is not a phased project, though the sequence of major activities is shown on Erosion and Sedimentation Control Plans found in Appendix F and is expected to be as follows:

Site Preparation. The limits of disturbance shall be identified. Erosion and sedimentation control systems shall be placed in accordance with the plans and/or where erosion and sedimentation may occur. Erosion and sediment control systems will be placed as dictated by site conditions in order to maintain the intent of the specifications of the SWPPP and/or contract documents. Clearing and grubbing and removal of any trees, other vegetation and/or excavation from areas to be disturbed may begin only when erosion and sediment control systems are in place and fully functional. Place construction trailers (if any) and portable toilets.

Erosion & Sediment Control Systems. A number of stormwater controls are proposed for both construction and permanent/long-term measures. During construction, stormwater management areas will be used in conjunction with silt fence, soil berms, silt bags and stone check dams. Detention basins will be installed as a permanent water quality measure. For dust and debris control, construction traffic must enter and exit the site at the stabilized construction entrance(s).

Excavation & Rough Grading. Large scale earth moving will occur in this phase in order to construct the proposed roadway, proposed stormwater management areas, underground utilities, and building pad locations. The topsoil stripping and stockpiling will occur during this phase. The topsoil will be used later in landscaped areas. Erosion and sediment controls including, but not limited to, silt fencing will be installed prior to, during and after earthwork activities. The stormwater detention basins and the storm sewer drainage system shall be constructed and be fully operational. Material(s) resulting from clearing,

grubbing and excavation activities shall be stockpiled and protected up-slope from erosion and sediment control systems. Excavation and rough grading for lots will not be started prior to the completion of the road construction.

Decompaction of Existing Soils. Upon removal of any existing pavement areas, heavily traveled areas and/or areas that appear to be over compacted shall undergo a de-compaction application to restore soil porosity and permeability.

Installation of Utilities. Utilities will be installed once rough grading activities are completed and all exposed slopes are temporarily stabilized. Fill areas shall be compacted and stabilized.

Foundation Site Preparation. The building pad locations will be final graded to establish the finished floor elevation.

Access Drive & Pavement Preparation. Finished subgrade elevation and subbase course grades will be established and verified before any roadway asphalt courses are installed.

Landscaping. Topsoil shall be spread on areas to be landscaped and disturbed areas will be planted/seeded in accordance with approved plans.

Temporary Seeding. Within 7-days after construction activity ceases on any particular area, all disturbed ground where there will not be construction for longer than 21-days must be seeded with fast-germinating temporary seed and protected with mulch.

Permanent Seeding. All areas at final grade must be seeded within 7-days after completion of the major construction activity. Except for small level spots, seeded areas should generally be protected with mulch. Permanently seed and mulch cut slopes as excavation proceeds to extent considered desirable and practicable. Slopes exposed by the Road Construction Phase are deemed fully stabilized and complete when turf grass cover provides permanent stabilization for at least 80% of the disturbed soil surface, exclusive of pavement areas.

5.0 EROSION AND SEDIMENT CONTROLS & POLLUTION PREVENTION

During construction, the Operator will comply with the measures provided in this SWPPP and conduct construction activities in such a manner that is in accordance with GP-0-20-001 conditions. It is the Operator's responsibility not to undertake more than that magnitude of work that can be safely and adequately controlled by the methods at their disposal. The Operator's approach must emphasize preventing erosion before it occurs as opposed to treating sediment- laden storm water runoff.

The Erosion Control Plans show the direction of storm water flow and approximate slopes before and after grading activities, areas of soil disturbance and areas that will not be disturbed, natural features to be preserved, locations of non-structural BMPs identified in the SWPPP and locations where storm water discharges to a surface water (where applicable.)

The Erosion Control Plan represents the suggested best management practices proposed for the project. The Contractor's approach to controlling storm water runoff from the site may vary; however, they must

update this SWPPP to reflect the changes and appropriate corresponding erosion control measures using the Progress Maps and the SWPPP Amendment form (provided in Appendix C).

The use of erosion and sedimentation controls is mandatory and must be employed to minimize impacts to adjacent areas during the construction. If sediment escapes the construction site, off- site accumulations of sediment must be removed at a frequency sufficient to minimize off-site impacts.

The control practices which are required to control storm water pollution during construction must remain functional until disturbed areas have been stabilized. Erosion control products are to be installed and maintained in accordance with manufacturer's specifications and good engineering practices. Stabilization measures must be instituted on disturbed areas as soon as practicable, but no more than 14 days after construction activity has temporarily or permanently ceased on any portion of the site.

5.1 Site Maps

Site Maps are located in Appendix F of this report. The Operator must update these plans in accordance (but not limited to) the following:

- Locations where earth-disturbing activities will occur, noting changes in phases.
- Approximate slopes before and after major grading activities. Note sloped areas greater than 15%.
- Locations where sediment, soils or other construction materials, demolitions debris will be stockpiled.
- Locations of any crossing of surface waters.
- Designated points on the site where vehicles will exit onto paved roads.
- Locations of structures and impervious surfaces upon completion of construction.
- Locations of construction support activity areas covered by this permit.
- Locations of all surface waters, wetlands on or in the immediate vicinity of the Site.
- Boundary of any natural buffers (some work will, or may, occur inside of 50-foot buffer.)
- Areas of federally listed critical habitat for endangered or threatened species.
- Topography of the site, existing vegetative cover (e.g., forest, pasture, pavement, structures), and drainage pattern(s) of stormwater and authorized non-stormwaterflow onto, over, and from the site property before and after major grading activities.
- Stormwater and allowable non-stormwater discharge locations, including:
- Locations of any inlets to municipal separate storm sewer systems (MS4s).
- Locations where stormwater or allowable non-stormwater will be discharged to surface waters on or near the site.
- Locations of all potential pollutant-generating activities.
- Locations of stormwater control measures.
- Locations where polymers, flocculants, or other treatment chemicals will be used and stored.

5.2 Progress Site Maps.

GP-0-20-001 requires that as conditions change at the construction site (such as the location of BMPs) the Contractor must update the SWPPP to reflect suchchanges. Progress Maps (11 x 17) are provided in Appendix F. In addition to tracking the changes associated with the BMPs, the Contractor will indicate and track the location of thefollowing:

- Portable toilets
- Material storage areas
- Concrete washout areas
- Refueling areas

- Off-site material, waste, borrow, or equipment storage areas
- Dumpster or other trash and debris containers
- Spill kits
- Stockpiles
- Any other non-structural non-storm water management BMPs
- Any changes to structural BMPs
- Areas where final stabilization has been accomplished

If the Progress Maps become too full to easily read, it should be dated, folded, and put into the SWPPP in Appendix F for documentation and a new Progress Map should be started.

5.3 Construction Phasing and Best Management Practices (BMPS)

Construction activities will be sequenced in order to minimize site disturbance, protect sensitive natural features, and prevent soil erosion and sediment transport. The intended construction sequence and timing of major activities are identified below.

Stabilized Construction Exit: At the beginning a stabilized construction exit must be installed at the location where vehicles are expected to enter and/or exit the site in order to prevent the off-site tracking of sediment onto adjacent public roadways. The stabilized construction entrances will consist of compacted two to three inch (2"-4" thickness) crushed stone, placed over a layer of geotextile fabric (to provide separation from the underlying soil and prevent the stone from being ground down into the soil). The stabilized construction entrance must be wide enough to cover the entire width of the entrance/exit and allow two vehicles to pass comfortably, and it should be flared where it meets the public roadway to accommodate longer construction vehicles. The stabilized construction entrance must be long enough to allow mud and sediment to become dislodged from vehicle tires, and/or a minimum of fifty (50') in length.

Over the course of construction, the stabilized construction entrance will become filled with accumulated sediment. The Contractor must inspect the stabilized construction entrance and adjacent public roadways for off-site sediment tracking and repair the entrance as necessary (remove accumulated sediment and add new stone as necessary). If tracking onto public roadways does occur, the streets in the vicinity of the stabilized construction entrance shall be swept immediately. The stabilized construction entrance shall not be removed until just prior to project completion.

Mulch Tube/Silt Fence: At the beginning a combination of mulch tube and silt fence or just silt fence shall be installed to prevent sediment laden runoff from leaving the site. In addition, silt fence will be used on the down gradient sides of material stockpile areas.

The mulch tubes consist of a tube of mulch placed along a contour if possible. The tubes intercept and slow sheet flow runoff. Mulch tubes shall be firmly staked. Accumulated sediment must be removed from the tubes when it reaches ½ of the height of the tube. Silt fence is a sediment control BMP consisting of a length of geotextile fabric stretched between anchoring posts spaced at regular intervals along the site at low/down-slope areas. The geotextile fabric must be entrenched in the ground between the support posts. Silt fence is effective in treating low velo sheet flow and is not intended for use in areas of concentrated or channelized flow. Silt fence must be inspected for rips, tears, and gaps between the fence and the ground. An adequate reserve of silt fence must be kept on site at all times for

emergency and/or routine replacement. Silt fence shall be entirely removed only after exposed soils in the contributing drainage area are stabilized. Silt fence can also be used as an effective perimeter control to contain stockpiles of topsoil or other erodible material.

Stockpile Management: Stockpiles of erodible material, including any topsoil salvaged during construction, must be surrounded by a perimeter sediment control such as silt fence to prevent storm water runoff from being contaminated by eroded sediment. Stockpiles of erodible material must be stabilized utilizing a temporary stabilization technique if they remain inactive for more than fourteen (14) days. Stockpiles must be located at least 100 feet from wetland resource areas (i.e. bordering vegetated wetlands and Buffer zone). Stockpile locations must be tracked using the Site Maps included in Appendix A.

Dust Control: Dust control BMPs are various means and methods of preventing soil erosion by wind. During all stages of the project generation of dust must be minimized to prevent air and water pollution as well as minimize risks to human health. Earthmoving activities are the primary source of dust 'generation during construction, but traffic on un-stabilized access roads and sediment transport by wind blowing across exposed soil surfaces can also be contributing factors. The most effective dust control BMPs for preventing wind erosion involve stabilizing (temporary or permanent) exposed soils. However, where soil stabilization is not practical techniques that increase soil moisture and encourage the formation of soil clods or reduce wind velo at the soil surface are also effective. The following dust control BMPs are typically used on construction sites:

- Watering/Irrigation: Sprinkling the ground surface with water until it is moist.
- Soil Stabilization: Vegetative cover, mulch, riprap or any method that covers the soil surface reduces the potential for soil particles to become airborne.
- Wind Breaks: Wind breaks are barriers (either natural or constructed) that reduce wind velo across exposed soil surfaces and reduces the potential for soil particles become airborne. Wind breaks can be trees or shrubs left in place during site clearing or constructed barriers such as a wind fence.
- Soil Roughening: Deep tillage in large areas of exposed soil brings soil clods to the surface preventing soil particles from becoming airborne.

Temporary Sediment Basins/Traps: If temporary sediment basins/traps/swales are needed at the beginning, basins must provide 3,600 cubic feet of storage per acre drained and disturbed. Temporary sediment basins are a sediment control BMP that consist of an excavated or natural depression that detains/retains storm water runoff allowing sediments to settle out of suspension prior to discharge via a suitably stabilized outlet. They also provide an opportunity for storm water infiltration. The temporary sediment basin's side-slopes and bottom must be appropriately stabilized prior to directing runoff to it. Accumulated sediment must be removed when it reaches 33% of the design volume capacity of the basin in order to maximize sediment settling potential and minimize the possibility of sediment washout during high intensity/long duration storm events. The basins will include a controlled outlet structure consisting of a perforated riser pipe packed in gravel which allow for further reduction of sediment prior to discharge. Traps will include a rip rap spillway.

Temporary Stabilization: Stabilization measures must be initiated as soon as practicable on portions of the site where construction activities have temporarily or permanently ceased, but in no case more than

14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Temporary stabilization refers to a variety of erosion control BMPs that protect exposed soils from the erosive forces of precipitation (raindrop and sheet erosion) and/or prevent the formation of channelized flow (rill, gully and channel erosion). The Contractor must inspect temporarily stabilized areas to assess the effectiveness of temporary stabilization BMPs and replace/repair then as necessary. The following temporary stabilization BMPs are typically used on construction sites and may be used by the Contractor for this project:

Erosion Control Blankets: Erosion control blankets are erosion control BMPs consisting of natural or synthetic geotextile fabrics formed into long sheets or mats that are rolled out over exposed soils and fastened with stakes, pegs or staples. They are used in areas where high runoff velo makes traditional mulching ineffective. Blankets are highly effective at stabilizing steep slopes (3:1or greater) and can be used to stabilize areas of concentrated flow such as swales.

Soil Roughening: Soil roughening is an erosion control BMP that involves creating grooves or impressions in exposed soil surfaces with tracked construction equipment (bulldozer, excavator, etc.). Slopes that are not fine graded or smoothed but left in a roughened condition reduce erosion by decreasing slope length and runoff velo, increasing infiltration, trapping sediment, and allowing seed to take hold and grow. It is critically important that the impressions be made perpendicular to the slope contours (never parallel to the contour); improper use of this technique can actually accelerate erosion. Soil roughening shall be used as a last resort.

Temporary Seeding: Temporary seeding is an erosion control BMP that consists of using select varieties of grasses to establish vegetative cover. Temporary seeding utilizes annual species that establish quickly, are not persistent or invasive, but provide long term temporary cover (as opposed to the perennial species used in permanent seeding for final stabilization).

Temporary Diversion Ditches: Temporary diversion ditches are an option to divert runoff away from construction area. Temporary drainage ditches are a runoff control BMP consisting of a ditch or excavation installed as a means of conveying storm water runoff to temporary sediment basins/traps (or other sediment control BMPs) while soil disturbing construction activities are ongoing. The temporary drainage ditch side-slopes and bottom must be appropriately stabilized prior to directing runoff to it. The temporary ditches will include stone check dams (see below). Temporary drainage ditches may be constructed as needed at locations determined by the Operator. This is done to account for unanticipated on-site field conditions.

Concrete Washout Area: Concrete washout areas consist of a prefabricated or site-built impermeable containment area sized to hold concrete wastes and wash water (including one (1) foot freeboard). Concrete washouts are used to contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery. The washout facility consolidates solids for easier disposal and prevent runoff of liquids. The wash water is alkaline and contains high levels of chromium, which can leach into the ground and contaminate groundwater. It can also migrate to a storm drain, which can increase the pH of area waters and harm aquatic life. Solids that are improperly disposed of can clog storm drain pipes and cause flooding. The concrete washouts must be constructed prior to placement of concrete on-site. The concrete washout area must be located in an area where its likelihood

of contributing to storm water discharges is negligible. Washouts shall be located outside of any wetland resource area and 100' from buffer zones to wetlands.

These specially designated areas should be properly signed, and onsite personnel instructed in their proper use. The hardened residue from the concrete wash out area will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used onsite as appropriate. It is the responsibility of the Contractor to ensure that these procedures are followed. The Contractor must track concrete washout locations on the Progress Map if they are moved or if additional concrete washouts need to be constructed.

Permanent Stabilization: Permanent stabilization refers to a variety of erosion control BMPs that allow a construction project to achieve "final stabilization." Final stabilization is defined in Appendix A of GP-0-20-001 as: a uniform, perennial vegetative cover with a density of eighty percent (80%) over the entire pervious surface has been established, or other equivalent permanent stabilization measures have been employed.

6.0 STORMWATER MANAGEMENT CONTROLS

The purpose of this section is to identify the types of temporary and permanent erosion and sediment controls that will be used during construction activities. The controls will provide soil stabilization for disturbed areas and structural controls to divert runoff and remove sediment. This section will also address control of other potential stormwater pollutant sources such as construction materials (paints, concrete dust, solvents, plaster), waste disposal, control of vehicle traffic, and sanitary waste disposal. A number of the BMPs included in this plan have been developed to serve as stormwater controls. Project wide erosion control measures are illustrated on the site plans.

6.1 Site Wide Control Measures

To prevent soil from washing into undisturbed areas of the site, the following BMPs will be implemented:

- Construction vehicles will be directed to avoid wetlands, steep slopes and areas to remain vegetated to the maximum extent practicable.
- Silt fencing and hay bale barriers will be placed along the perimeter of the area to be cleared and graded before any clearing or grading takes place. Super silt fencing will be used on steep slopes at appropriate locations.
- Within 14-days after clearing and grading, agricultural limestone and fertilizer will be applied to each acre to be stabilized.
- After fertilizing, all areas which will not be impacted by construction will be seeded.
- After seeding, each area will be mulched with straw. The straw mulch is to be tacked into place by a disk with blades set nearly straight.
- Top soil stock piles will be stabilized with temporary seed and mulch no later than 14-days from the last construction activities in that area.
- Areas of the site which are to be paved will be temporarily stabilized by applying geotextile where required and/or stone sub-base until asphalt is applied.

6.2 Construction Practices to Minimize Stormwater Contamination

All waste materials will be collected and stored in a securely lidded metal dumpster. All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of twice per week and the trash will be hauled to a nearby solid waste landfill. No construction materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. Good housekeeping and spill control practices will be followed during construction to minimize stormwater contamination from petroleum products, fertilizers, paints and concrete. Any housekeeping practices for each drainage area are listed below:

To prevent stormwater contamination, the following BMPs will be implemented:

- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Spill kits will be included with all fueling sources and maintenance activities.
- Any asphalt substances used on site will be applied according to the manufacturer's recommendation.
- Sanitary waste will be collected from portable units as necessary to avoid overfilling.
- A covered dumpster will be used for all waste materials.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the environment but will be properly disposed according to the manufacturer's instructions.
- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer onsite. Equipment will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, saw dust and plastic and metal trash containers.
- Spray guns will be cleaned on a removable tarp.
- All spills will be cleaned up immediately upon discovery. Significant spills will be reported to the NYSDEC Spill Response Hotline at 1-800-457-7362. All spills will be detailed in the Spill Response Reports (**Appendix D**).
- Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site.
- All ruts caused by equipment used for cutting and removing of trees will be graded.
- Form release oil used for decorative stone work will be applied over a pallet covered with an absorbent material to collect excess fluid. The absorbent material will be replaced and disposed of properly when saturated.
- When testing/cleaning of water supply lines, the discharge from the tested pipe will be collected and disposed of appropriately.

To prevent stormwater contamination at the site entrance, the following BMPs will be implemented:

- A stabilized construction entrance will be constructed to reduce vehicle tracking of sediments.
- Dump trucks hauling material from the construction site will be covered with a tarpaulin.

6.3 Coordination of BMPs with Construction Activities

Structural BMPs will be coordinated with construction activities so the BMP is in place before construction begins. The following BMPs will be coordinated with construction activities:

- The temporary perimeter controls (silt fences and hay bales) will be installed before any clearing and grading begins.
- Clearing and grading will not occur in an area until it is necessary for construction to proceed.
- Sandbag trench plugs will be placed in sloping open trenches during utility installation.
- The stabilized construction site entrance will be built before clearing and grading begins.
- Once construction ceases permanently in an area, that area will be stabilized with permanent seed and mulch.
- The temporary perimeter controls (silt fencing and hay bales) will not be removed until all construction activities at the site are complete and soils have been stabilized.

6.4 Certification of Compliance with Federal, State and Local Regulations

This SWPPP reflects the EPA, the New York State Department of Environmental Conservation (NYSDEC) regulations, and the Town of Clifton Park requirements for stormwater management, erosion and sediment control.

7.0 MAINTENANCE & INSPECTION PROCEEDURES

7.1 Inspections

Following the start of construction, site inspections will be conducted by a qualified professional at least every seven (7) days. The inspection will verify that the structural BMPs described in Section 4 of the SWPPP are in good condition and are minimizing erosion. The inspection will also verify that the procedures used to prevent stormwater contamination from construction materials and petroleum products are effective. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built up sediment will be removed from silt fencing when it has reached one-third the height of the fence.
- Silt fences will be inspected for depth of sediment, for tears, to examine if the fabric is securely attached to the fence posts, and to ensure that the fence posts are firmly in the ground.
- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.
- The stabilized construction entrance will be inspected for sediment tracked on the road, for clean gravel and to make sure that all traffic uses the stabilized entrance when leaving the site.

The maintenance inspection reports will be made after each inspection. Copies of the report forms to be completed by the SWPPP coordinator, or qualified SWPPP team member, are provided in **Appendix C** of this SWPPP. Completed forms will be maintained on site during the entire construction project. Following construction, the completed forms will be retained at the general contractor's office for a minimum of 5 years.

If construction activities or design modifications are made to the site plan which could impact stormwater, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities. The Plan Changes, Authorization and Change Certification is included in **Appendix C**.

7.2 Contractor/Employee Inspection Training

The contracting (construction) company will have employee(s) receive four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

Additionally, the contracting (construction) company can utilize a *qualified inspector* qualifications (e.g. licensed Professional, Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the SWPPP.

7.3 Final stabilization and Notice of Termination

Once construction activity has been completed a Notice of Termination must be filed with the DEC within 30 days of final stabilization on all portions of the site for which the Operator was responsible. A blank NOT has been provided in Appendix D. However, before terminating permit coverage, the following items must be accomplished:

- Remove any construction debris and trash
- Remove temporary BMPs (such as silt fence). Remove any residual sediment as needed. Seed and mulch any small bare spots. BMPs that will decompose, including some fiber rolls and blankets, may be left in place.
- Check areas where erosion-control blanket or matting was installed. Cut away and remove all loose, exposed material, especially in areas where walking or mowing will occur. Reseed all bare soil areas.
- Ensure that 80 percent of vegetation coverage has been achieved or equivalent stabilization measures have been applied.
- Repair any remaining signs of erosion
- Inspect storm drain system and any permanent sedimentation/detention basins and clean accumulated sediment or debris
- Ensure that post-construction BMPs are in place and operational. Provide written maintenance requirements for all post-construction BMPs to the appropriate party.
- Check all drainage conveyances and outlets to ensure they were installed correctly and are operational. Inspect inlet areas to ensure complete stabilization and remove any brush or debris that could clog inlets.
- Seed and mulch or otherwise stabilize any areas where runoff flows might converge, or high velocity flows are expected.
- Ensure subcontractors have repaired their work areas before final closeout.

7.5 Post-Construction Maintenance

General

The Owner/Operating Manager of 21st Century Park shall overtake and become responsible for all inspecting, monitoring and maintaining erosion control features and drainage structures over the lifetime of the feature. Any SMP's that will be located within the Town right-of-way or individual parcel of land that will be dedicated to the Town of Clifton Park. The inspection of on-site stabilization measures will become part of routine and preventive maintenance practices developed by the owner and/or his representatives.

Inspection

The entire site should be inspected regularly for the presence of erosion gullies, cracking and wash-outs caused by heavy storm events. The cause of any irregularities should be identified and addressed in a timely manner. At minimum, eroded areas should be top soiled, seeded and mulched, as necessary, depending upon the identified irregularity.

The stormwater management system (i.e., roadway drainage ditches, stormwater management ponds, pipe inlets and outlets, etc.) shall be inspected at least yearly for sediment build-up, debris and structural integrity. Stormwater management pond outlet control structures should be checked more frequently for debris blockages. Vacuum truck services should be secured by the owner for periodic removal of sediment within the pond system, the outlet control structure and drainage structures.

The inspection should include, but not be limited to the following:

- Accumulation of pollutants such as grease and oils
- Stabilization and condition of vegetative ground cover areas
- Cracking, settlement, sliding or gully erosions of embankments
- Sedimentation of downstream water bodies, culvert or swales
- Sedimentation of lawns, pavement areas or catch basin sumps
- Presences of animal borrows, clogging or sedimentation at inlets or outlets
- Erosion or disruption of flow paths from stormwater management areas
- Structural integrity of spillways and obstruction of overflow
- Inlet and outlet riprap for scouring or dislodged stones or obstructions
- Forebays and aquatic benches to ensure proper and structural integrity.

Any sediment build-up should be removed and disposed of utilizing acceptable practices. Care should be exercised to avoid storing snow on any stormwater facilities, including the outfall swale.

Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control, as well as related appurtenances, which are installed or to be used by the permittee to achieve compliance with the conditions of this permit and within the requirements of the SWPPP. Maintenance shall occur on a regular basis and should include, but not be limited to the following:

- Mowing of lawn areas at least three times per year to prevent over and vigorous growth

- Mowing of steep slopes, embankments, overflow spillways at least three times per year to prevent overgrowth
- Sweeping common paved areas at least three times per year, especially during early spring to remove excessive deicing material and sediment
- Removing litter and debris that has accumulated during mowing and sweeping operations
- Repairing catch basins, storm sewer components upon immediately addressing and identifying structural deficiency
- Clean catch basin sumps once accumulation is within six inches of the outlet pipe invert
- Repair of riprap lined swales, inlets and outlets, replacing stone where signs of scouring have occurred
- Remove trees and excessive growth from inlets and outlets
- Infiltration basins, bio-retention and rain gardens shall be monitored periodically for sediment accumulations. Once the accumulations have reduced the water quality volume by more than 25%, sediment shall be removed. Removal of sediment shall be in a manner to re-establish original grades as shown on the original construction plans.
- A simple maintenance agreement should identify where Soil Restoration is applied, where newly restored areas are/cannot be cleared, who the responsible parties are to ensure that routine vegetation improvements are made (i.e., thinning, invasive plant removal, etc.). Soil compost amendments within a filter strip or grass channel should be located in public right of way, or within a dedicated Stormwater or drainage easement.
- First year maintenance operations include:
    - Initial inspections for the first six months (once after each storm greater than half- inch)
- Reseeding to repair bare or eroding areas to assure grass stabilization
    - Water once every three days for first month, and then provide a half inch of water per week during first year. Irrigation plan may be adjusted according to the rain event.
    - Fertilization may be needed in the fall after the first growing season to increase plant vigor

7.6 Signatory Requirements and Certifications

All NOIs, NOTs SWPPPs, reports, certifications or information required by this permit or submitted pursuant to this permit shall be signed as follows:

1. All NOIs and NOTs shall be signed as follows:
    a. For a corporation: by (1) a president, secretary, trustee, or vice president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
    b. For a partnership or sole proprietorship; by general partner or the proprietor, respectively; or
    c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking official. For purposes of this section, a principal executive officer of a federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having

responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and all reports required by the permit and other information requested by the department or local agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
   a. The authorization is made in writing by a person described above and submitted to the Department
   b. The authorization specifies either an individual or a position having responsibilities for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named person)
   c. Certification Statement – Except for NOIs and NOTs, any person signing documents in accordance with this Part shall make the certifications as attached in **Appendix A**.

◊ ◊ ◊ ◊ ◊ ◊ ◊ ◊ ◊

APPENDIX A

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit For Stormwater Discharges From Construction Activity (GP-0-20-001)

Project/Site Name: South Hamilton

eNOI Submission Number: _____

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Owner/Operator First Name M.I. Last Name

_____

Signature

_____

Date

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges From Construction Activity (GP-0-20-001)

Project Site Information

Project/Site Name

South Hamilton

Owner/Operator Information

Owner/Operator (Company Name/Private Owner/Municipality Name)

O'Neill GTroup Hamilton, LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Dominick	F	Arico
First name	MI	Last Name

10.03.23

Signature Date

Revised: January 2020

CONTRACTOR/SUNCONTRACTOR CERTIFICATION

STORMWATER POLLUTION PREVENTION PLAN

SPDES Project Number: _____

Project Title: _____

_____

Operator: _____

As a subcontractor, you are required to comply with the Stormwater Pollution Prevention Plan (SWPPP) for any work that you perform on-site. Any person or group who violates any condition of the SWPPP may be subject to substantial penalties or loss of contract. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP. A copy of the SWPPP is available for your review at the office trailer.

Each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement:

I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharges* from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment of knowing violations.

This certification is hereby signed in reference to the above-named project:

Company: _____

Address: _____

Telephone Number: _____

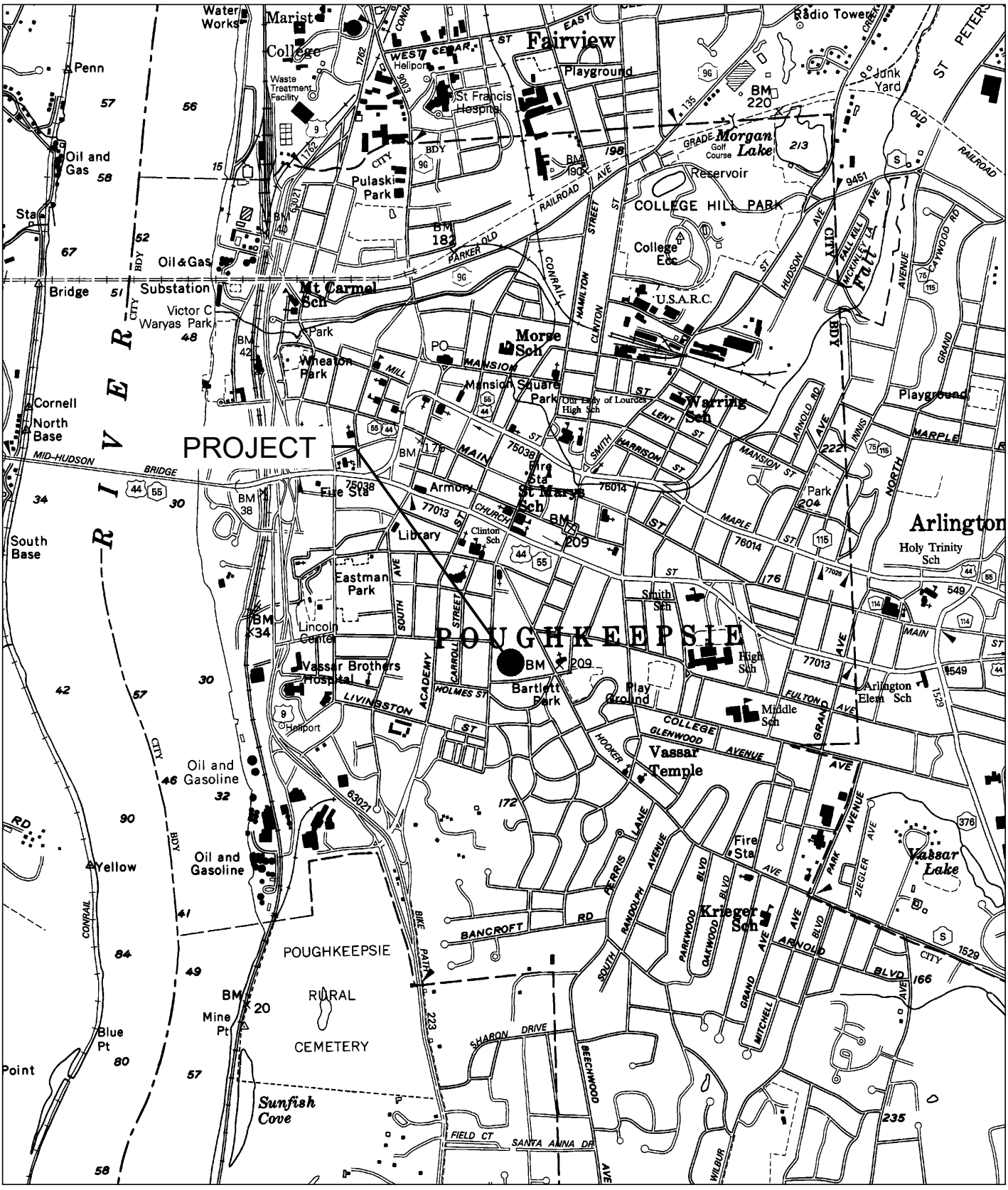
Description of Work: _____

Trained Contractor's Signature: _____

Title: _____

Date: _____

APPENDIX B



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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

LOCATION MAP

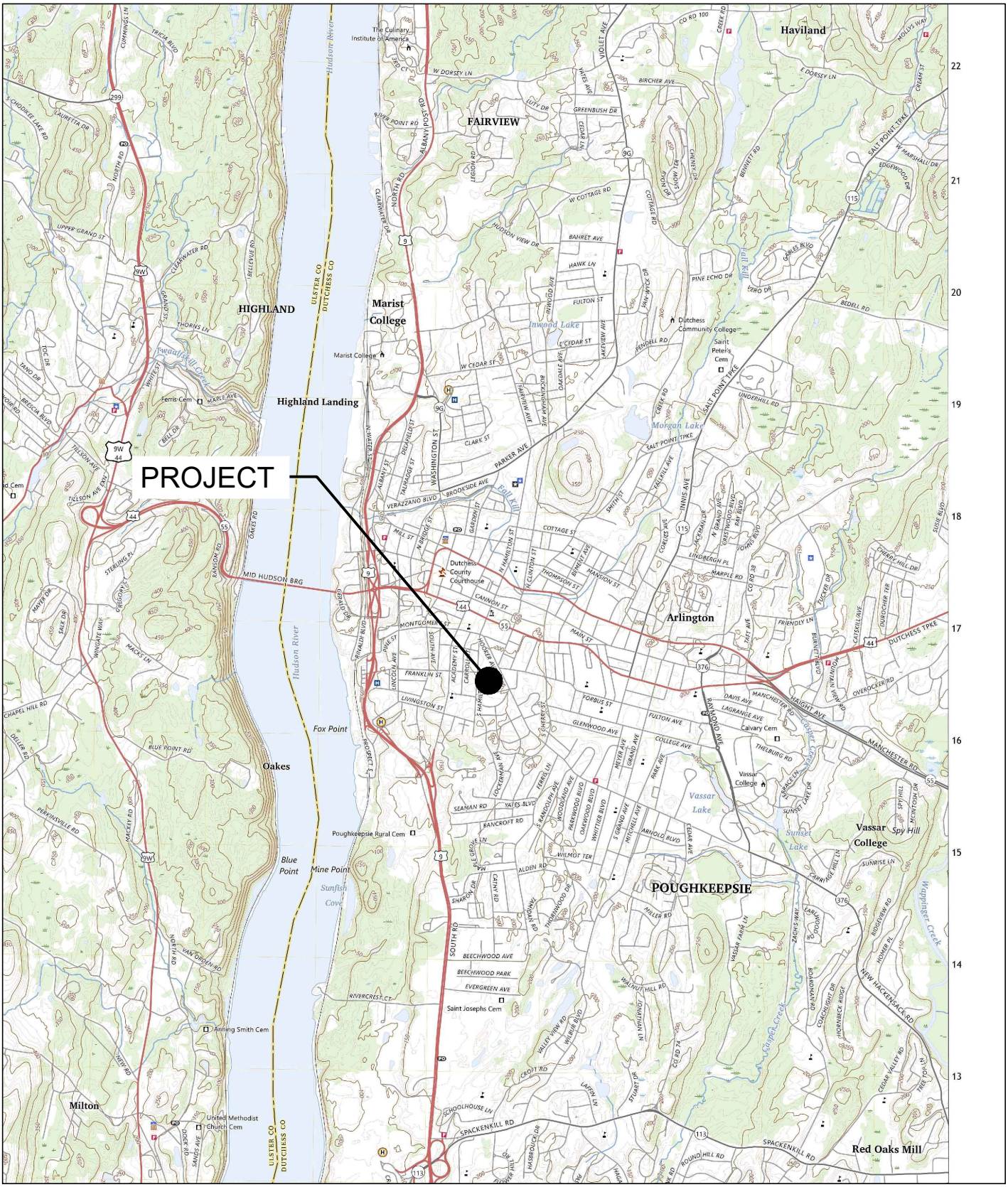
SOUTH HAMILTON

LOCATED AT

S. HAMILTON STREET

DATE: OCTOBER 2023

SCALE: 1"=2000'±



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518.573.6989 aricoassociates@gmail.com

CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

U.S.G.S MAP
SOUTH HAMILTON
LOCATED AT
S. HAMILTON STREET

DATE: OCTOBER 2023
SCALE: 1"=4000'±

APPENDIX C

SITE INSPECTION REPORT REQUIREMENTS

This information is to be provided on contracts covered by SPDES General Permit for Construction Activity (GP-0-10-001). The completed inspection form must be filed in the Engineer's Field Office.

1. Describe the condition of the runoff at all points of discharge from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.

2. Describe condition of any waterbodies within or adjacent to the construction site. Identify any sediment discharges to the surface waterbody.

3. Identify all erosion and sediment control practices that need repair or maintenance.

4. Identify all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced.

5. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection.

6. Identify current phase of construction of all post-construction stormwater management practices and identify all construction that is not in conformance with the SWPPP and technical standards.

7. Identify corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).

8. Digital photographs, with date stamp, that show the condition of all practices that have been identified as needing corrective actions.

    a. Photographs must also be taken that show the practice(s) after the corrective action has been completed.

    b. Color paper copies of the photographs must be included in the inspection report within 7 calendar days.

9. Inspection Notification:
   Within One Business day of the inspection, the qualified inspector shall notify the owner or operator and appropriate contractor or subcontractor of any corrective actions required. .

STORMWATER POLLUTION PREVENTION PLAN INSPECTION REPORT

Project Name: _____ Project Number: _____

Date of Inspection: _____ Time: _____ Day of the Week: Mon | Tue | Wed | Thur | Fri | Sat | Sun

Weather Conditions: _____ Soil Conditions: ☐ Dry ☐ Wet ☐ Saturated

Temperature: _____ Reason for Visit: ☐ Weekly ☐ Special ☐ 5+ acres exposed

Inspector Name: _____ Inspector's Signature: _____

Codes for erosion and sedimentation controls to be inspected:

(1) Mulch
(2) Seeding and Mulch
(3) Check Dams
(4) Triangular Silt Dike
(5) Silt Fence
(6) Sediment Trap
(7) Turbidity Curtains
(8) Sedimentation Basins
(9) Drain Structure Inlet Protection
(10) Rolled Erosion Control Products
(11) Soil Stabilizers
(12) Construction Entrance
(13) Pipe inlet/outlet protection
(14) Water bars
(15) Other Control Measures

Location	**Disturbance**		**Measure**		**Remarks**	**Approximate Sediment Accumulation** (%) of Depth	**Maintenance Required Y or N (if Y describe)**
	Existing Y or N	Next 7 days Y or N	Code #	Temp or Perm (T,P or NA)	Describe structure integrity and any erosion		

Comments: _____

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM
FOR CONSTRUCTION ACTIVITIES

CONSTRUCTION SITE LOG BOOK

Table of Contents

I. Pre-Construction Meeting Documents.

a. Preamble to Site Assessment and Inspections

b. Operator's Certification

c. Qualified Professional's Credentials & Certification

d. Pre-Construction Site Assessment Checklist

a.

II. Construction Duration Inspections

a. Directions

b. Modification to the SWPPP

III. Monthly Summary Reports

IV. Monitoring, Reporting, and Three-Month Status Reports

a. Operator's Compliance Response Form

a

Properly completing forms such as those contained in this document meet the inspection requirement of NYSDEC SPDES GP for Construction Activities. Completed forms shall be kept on site at all times and made available to authorities upon request.

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____

Permit No. _____**Date of Authorization**_____

Name of Operator _____

Prime Contractor _____

a. Preamble to Site Assessment and Inspections -The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Operators Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law. "

Name (please print):_____

Title _____ **Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

c. Qualified Professional's Credentials & Certification

" I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print):_____

Title _____ **Date:**_____

Address: _____

Phone: _____ **Email:**_____

Signature:_____

d. Pre-construction Site Assessment Checklist (NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

Pre-construction Site Assessment Checklist (continued)

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?

[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.

[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.

[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.

[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.

[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.

[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.

[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.

[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals

[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.

[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.

[ ] [ ] [ ] The plan is contained in the SWPPP on page _____

[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

(6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Professional (print name)	**Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA

[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA

[ ] [ ] [ ] Is construction site litter and debris appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA

[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering

Yes No NA

[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

Runoff Control Practices (continued)

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control

1. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is ___% of design capacity.

Sediment Control (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS
b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:
1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

III. Monthly Summary of Site Inspection Activities

Name of Permitted Facility:	**Today's Date:**	**Reporting Month:**
Location:	**Permit Identification #:**	
Name and Telephone Number of Site Inspector:		

Date of Inspection	Regular / Rainfall based Inspection	Name of Inspector	Items of Concern

Owner/Operator Certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

_____ _____

Signature of Permittee or Duly Authorized Representative Name of Permittee or Duly Authorized Representative date

Duly authorized representatives must have written authorization, submitted to DEC, to sign any permit documents.

APPENDIX D

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020 Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature Date

Address: NYS DEC
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PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River - Figure 1
- Onondaga Lake Watershed - Figure 2
- Greenwood Lake Watershed -Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

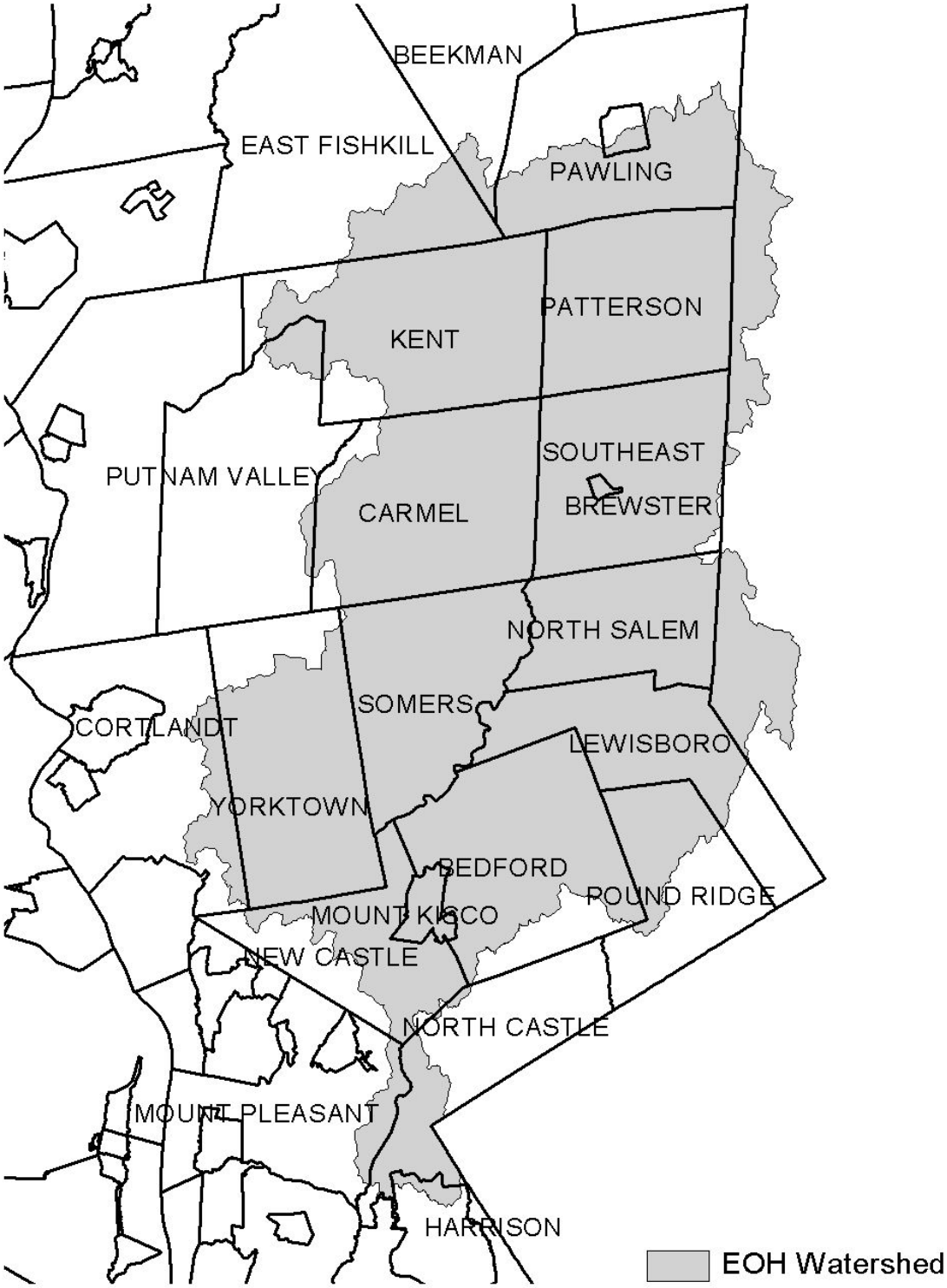


Figure 2 - Onondaga Lake Watershed



Figure 3 - Greenwood Lake Watershed

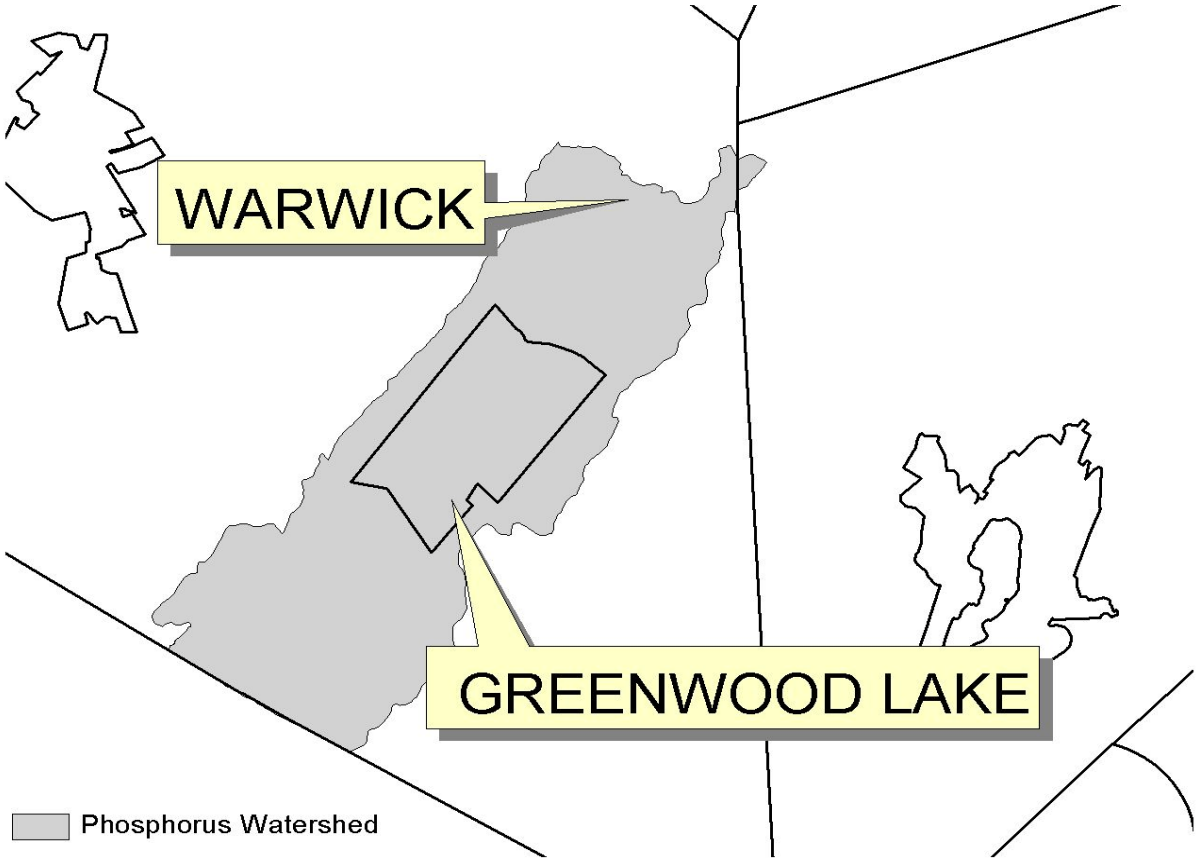


Figure 4 - Oscawana Lake Watershed

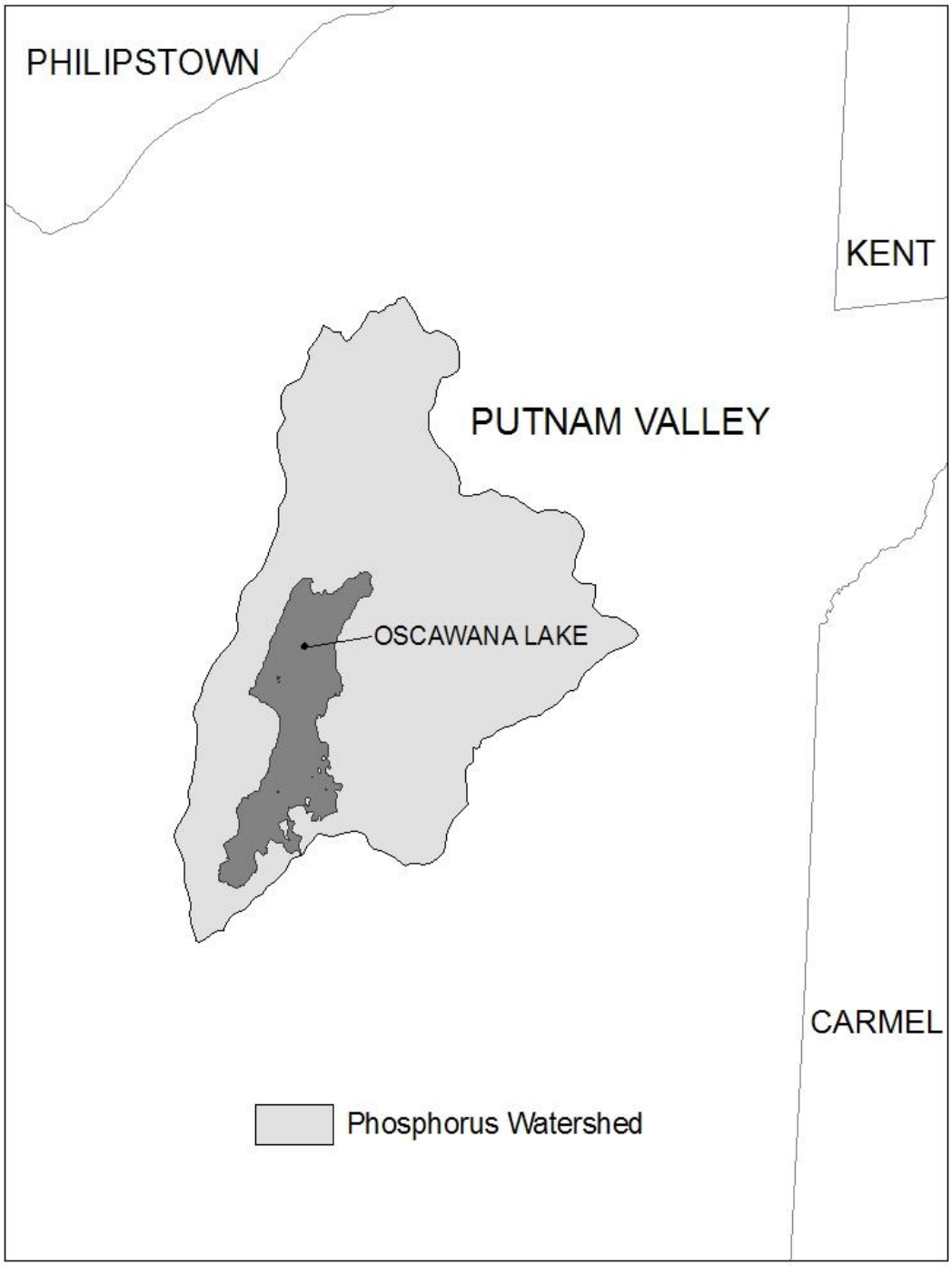
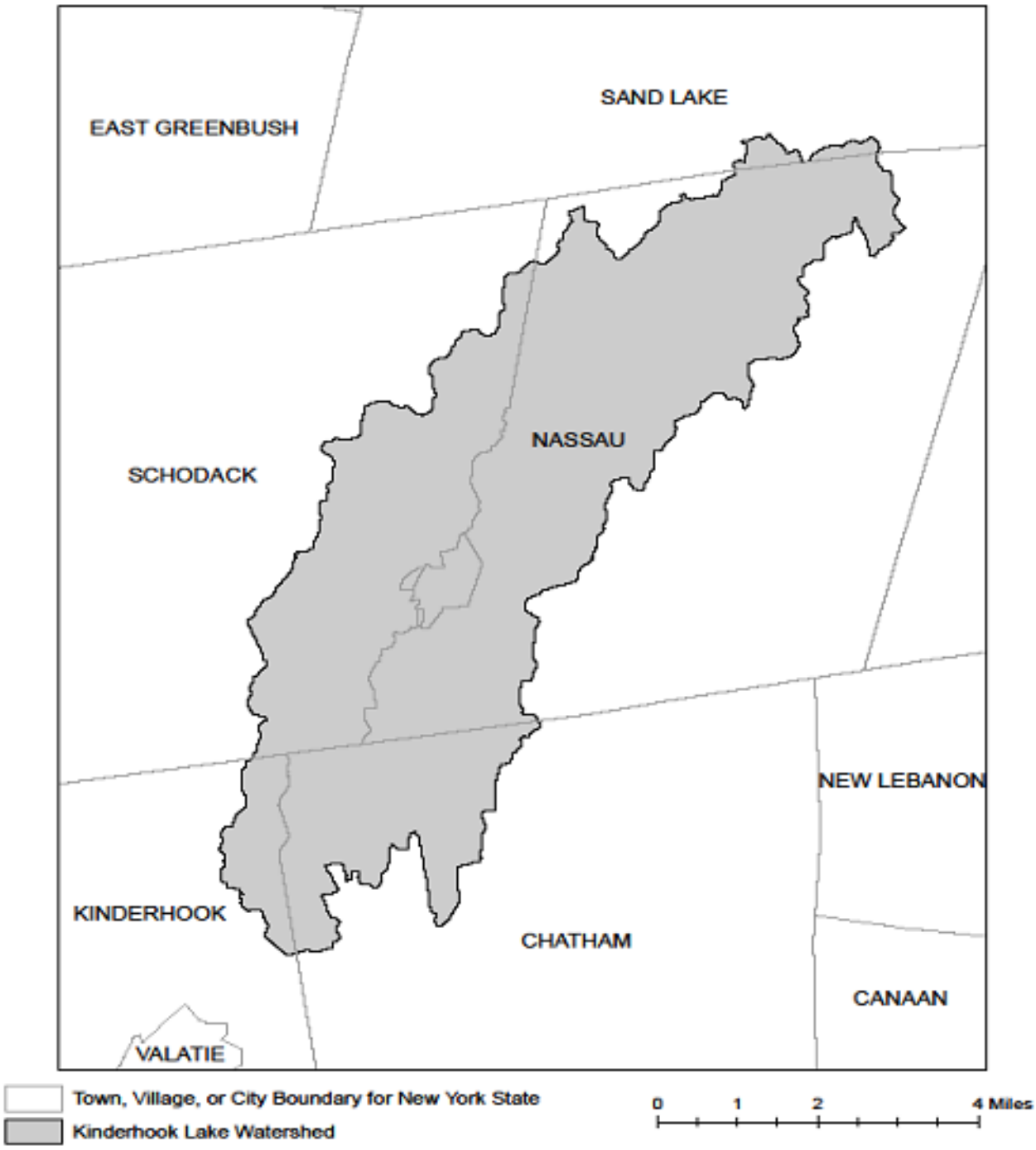


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

APPENDIX E

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	O'Neill Group Hamilton, LLC
2. Contact Person:	George Brandt
3. Street Address:	241 Hudson Avenue
4. City/State/Zip:	Hackensack, New Jersey 07601
II. Project Site Information	
5. Project/Site Name:	South Hamilton
6. Street Address:	South Hamilton Street
7. City/State/Zip:	South Hamilton
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	City of Poughkeepsie
9. Title/Position:	Stormwater Coordinator
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	City of Poughkeepsie
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Contact Person:	
14. Street Address:	
15. City/State/Zip:	
16. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR ☐☐☐☐☐☐
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State ☐☐ Zip ☐☐☐☐☐ - ☐☐☐☐

Phone (Owner/Operator) ☐☐☐ - ☐☐☐ - ☐☐☐☐

Fax (Owner/Operator) ☐☐☐ - ☐☐☐ - ☐☐☐☐

Email (Owner/Operator)

FED TAX ID ☐☐ - ☐☐☐☐☐☐☐ (not required for individuals)

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

Side of Street
○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip - County DEC Region

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Project In Relation to Cross Street
○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)
-7
Ex. -73.749

Y Coordinates (Northing)
4
Ex. 42.652

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	**Total Area To Be Disturbed**	**Existing Impervious Area To Be Disturbed**	**Future Impervious Area Within Disturbed Area**
.	.	.	.

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ○ **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	%	%	%

7. Is this a phased project? ○ **Yes** ○ **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date / / - **End Date** / /

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ **Yes** ○ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ○ **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ○ **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ **Yes** ○ **No** ○ **Unknown**

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ○ **No** ○ **Unknown**

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ **Yes** ○ **No**

19. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ○ **No**

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ **Yes** ○ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ○ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ **Yes** ○ **No**
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - -

Fax - -

Email

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

			.			
			.			**acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

. **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). [ ][ ][ ].[ ][ ][ ]

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

[ ][ ][ ].[ ][ ][ ] **acre-feet**

CPv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

[ ][ ][ ].[ ][ ][ ] **CFS**

Post-development

[ ][ ][ ].[ ][ ][ ] **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

[ ][ ][ ].[ ][ ][ ] **CFS**

Post-development

[ ][ ][ ].[ ][ ][ ] **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N][Y][R][ ][ ][ ][ ][ ][ ]
- ○ Other [ ]
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ○ **No**
If Yes, Indicate Size of Impact. [ ][ ][ ][ ][ ].[ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N][Y][R][ ][ ][ ][ ][ ][ ]

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

MI

Print Last Name

Owner/Operator Signature

Date

/ /

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name: O'Neill Group Hamilton, LLC

2. Street Address: 241 Hudson Avenue

3. City/State/Zip: Hackensack, New Jersey 07601

4. Contact Person: George Brandt | 4a. Telephone: 201-488-4455

4b. Contact Person E-Mail: wawrla@gmail.com

II. Project Site Information

5. Project/Site Name: South Hamilton

6. Street Address: South Hamilton Street

7. City/Zip: City of Poughkeepsie, NY 12061

8. County: Dutchess

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

APPENDIX F

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

DA 1
1.78±AC
Tc= MIN

DA 2
3.31±AC
Tc= MIN

DA 3
0.05±AC
Tc=5.0MIN.

DA 4
0.75±AC
Tc= MIN

SUB-DA 4
0.45±AC

POA 1
POA 2
POA 3
POA 4

Tc
(TYP)

Lands Now or Formerly of
MP HOMESTEAD LLC
Book 2008 Page 7349
Section 6161.30 Lot 182812

Lands Now or Formerly of
GEORGE & ANN HARMUTH
DOC. NO. 219956247
Section 6161.30 Lot 182803

Lands Now or Formerly of
HAMILTON GARDEN APARTMENTS, INC.
DOC. NO. 219932589
Section 6161.30 Lot 152824

Lands Now or Formerly of
NICHOLAS & GAYLE GARIN
Book 1784 Page 473
Section 6161.30 Lot 136812

Lands Now or Formerly of
SHIRLEY ADAMS
Book 2008 Page 3021
Section 6161.30 Lot 137903

Lands Now or Formerly of
GORDON GEBERT
LIZABETH PARAVISINI-GEBERT
Book 2003 Page 5091
Section 6161.30 Lot 174764

Lands Now or Formerly of
MICHAEL PETRONIO
MORIA FITZGIBBONS
Book 2004 Page 9446
Section 6161.30 Lot 166759

Lands Now or Formerly of
JEFFREY LINTEL
Book 1831 Page 809
Section 6161.30 Lot 165966

Lands Now or Formerly of
NEW HORIZONS RESOURCES INC.
Book 2005 Page 228
Section 6161.30 Lot 139757

S 10°39'30" W 289.98'
S 85°20'00" E 617.90'
S 21°40'00" E 113.93'
N 18°19'00" E 98.49'
S 72°49'00" E 126.80'
S 58°52'00" E 85.51'
N 16°08'00" E 99.02'
N 15°15'48" E 247.31'
S 10°00'57" W 72.54'
N 29°27'00" W 112.00'
N 60°33'00" W 259.51'
S 25°55'10" W 40.00'
S 09°26'10" W 185.80'
N 09°26'10" E 200.00'
N 81°22'00" W 17.00'

DWIGHT STREET
SOUTH HAMILTON STREET

BENCHMARK
RR SPIKE
ELEV.= 188.6

0 60 120 Feet

REVISIONS

NO.	DESCRIPTION	BY	DATE

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
RECORD PLANS

DATE SUBMITTED:

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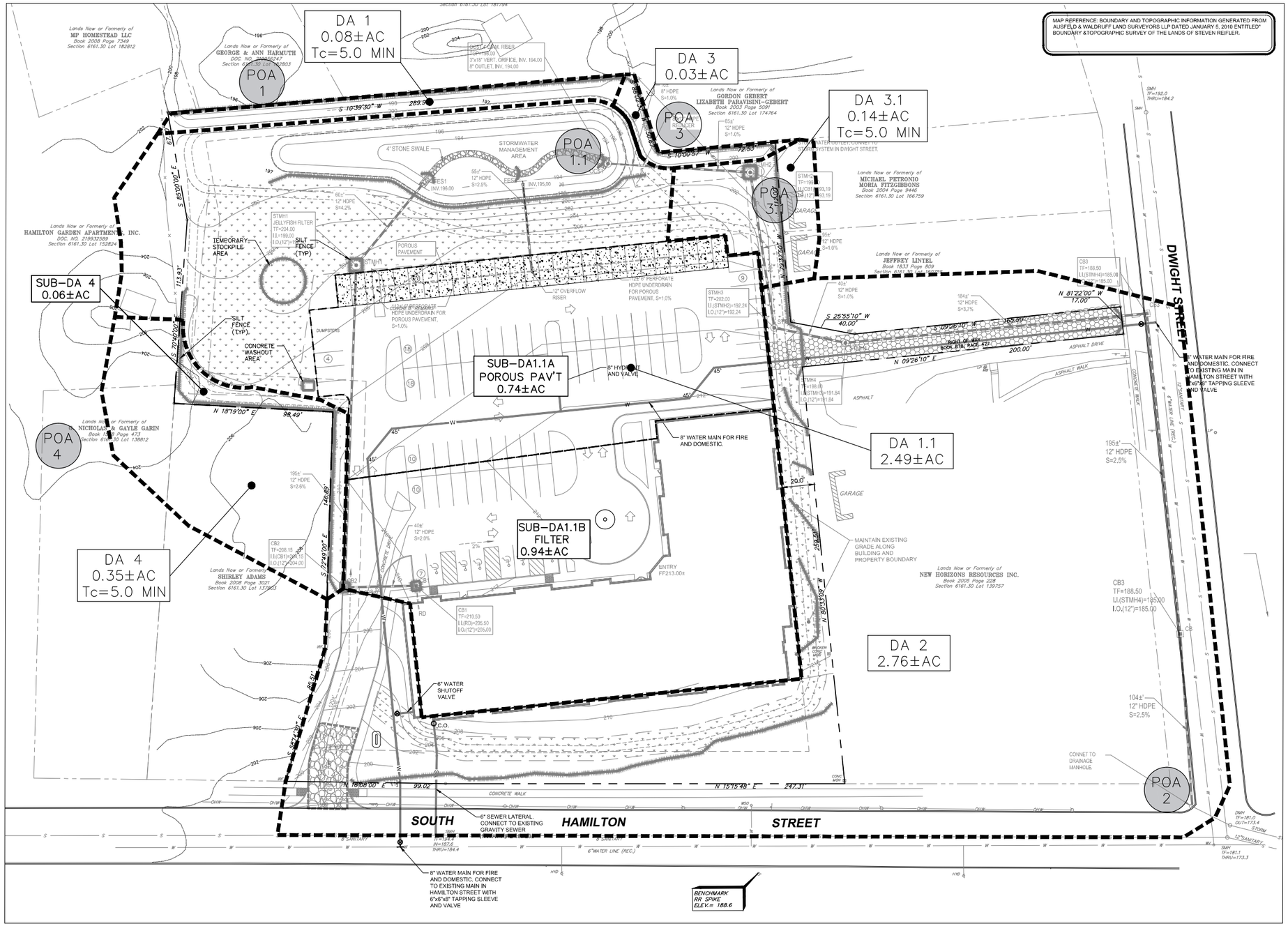
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

PRE-DEVELOPMENT DRAINAGE
SOUTH HAMILTON
LOCATED AT
100 SOUTH HAMILTON STREET
TAX MAP - 6161-30-151763

DATE: AUGUST 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
SWPPP
1.0
SHEET 2 OF 3



ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
RECORD PLANS

DATE SUBMITTED:

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23

REVISIONS

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

POST-DEVELOPMENT DRAINAGE SOUTH HAMILTON

LOCATED AT

100 SOUTH HAMILTON STREET

TAX MAP : 6161-30-151783

DATE: AUGUST 2023

JOB NO. 22.10

SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.

SWPPP 2.0

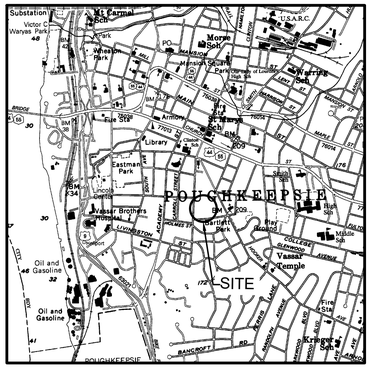
SHEET 1 OF 1

SOUTH HAMILTON

CITY OF POUGHKEEPSIE

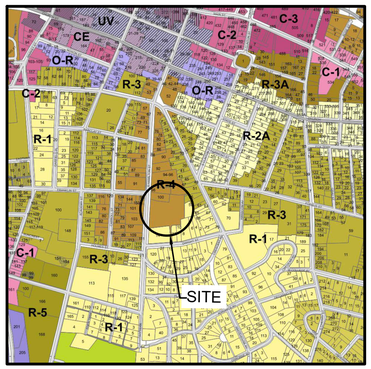
COUNTY OF DUTCHESS STATE OF NEW YORK

OCTOBER 3, 2023



SITE LOCATION MAP

SCALE: 1"=2000'±



ZONING MAP

SCALE: 1"=2000'±

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

CITY OF POUGHKEEPSIE
ZONING DISTRICT INFORMATION

DESCRIPTION	REQUIREMENT	PROPOSED
R4 - MEDIUMHIGH DENSITY RESIDENTIAL		
MINIMUM LOT AREA	145,000 SF* (> 3 BEDROOM UNITS)	147,145.7± SF (58 UNITS)
MINIMUM LOT WIDTH	50 FT	346.3 FT
MINIMUM LOT FRONTAGE	30 FT	346.3 FT
FRONT SETBACK	35 FT	39.0± FT
SIDE SETBACK	20 FT (0.5 MAX HEIGHT OF 40 FT)	20.0 FT (LEFT SIDE) 65.0± FT (RIGHT SIDE)
REAR SETBACK	20 FT (0.5 MAX HEIGHT OF 40 FT)	215.4± FT
USABLE OPEN SPACE	40%	52.2±%
MAX. BUILDING HEIGHT	40 FT	40.0 FT
LOT COVERAGE	40%	15.4%
* - SEE SITE AREA CALCULATIONS TABLE		

SITE STATISTICS

TOTAL PROJECT AREA 147,145.7± SF 3.378± AC	EXISTING			PROPOSED		
	SQUARE FEET	ACRES	COVERAGE	SQUARE FEET	ACRES	COVERAGE
BUILDING AREA	0.00	0.00	0.00%	24,650 SF	0.56±	16.5%
PAVEMENT AREA	2,000.0±	0.050±	1.5%	46,835.0±	1.07±	31.7%
GREEN/OPEN AREA	145,145.7±	3.328±	98.5%	75,660.7±	1.75±	51.8%

PROJECT INFORMATION

ADDRESS	100 SOUTH HAMILTON STREET
TAX MAP No.	6161-30-151783
ZONING DISTRICT	R-4 MEDIUM HIGH DENSITY RESIDENTIAL
SITE COORDINATES	N 41°41'42.82" W 73°55'28.39"
TOTAL PROJECT AREA	3.378± ACRES
EXISTING USE	RESIDENTIAL / VACANT
PROPOSED USE	MULTI-FAMILY
PARCEL FRONTAGE	346.3 LF (S. HAMILTON STREET) 17.0 LF (DWIGHT STREET)
WATER SUPPLY	CITY OF POUGHKEEPSIE
SANITARY SERVICE	CITY OF POUGHKEEPSIE
FIRE PROTECTION	CITY OF POUGHKEEPSIE
SCHOOL DISTRICT	CITY OF POUGHKEEPSIE
PROPSED DENSITY	58 UNITS

SITE AREA CALCULATIONS

PARKING REQUIREMENTS
1.5 SPACES PER 1-BEDROOM UNIT @ 29 UNITS = 43.5 SPACES
2.0 SPACES PER 2-BEDROMM UNIT @ 29 UNITS = 58.0 SPACES
TOTAL PARKING REQUIRED = 102 SPACES
TOTAL PARKING PROVIDED = 102 SPACES

MIMIMUM LOT AREA
2,200 SF PER 1-BEDROOM UNIT @ 29 UNITS = 81,200 SF
2,800 SF PER 2-BEDROMM UNIT @ 29 UNITS = 63,800 SF
TOTAL LOT AREA REQUIRED = 145,000 SF
TOTAL LOT AREA PROVIDED = 147,145.7 SF

USUABLE OPEN SPACE
300 SF PER 1-BEDROOM UNIT @ 29 UNITS = 8,700 SF
400 SF PER 2-BEDROMM UNIT @ 29 UNITS = 11,600 SF
TOTAL OPEN SPACE REQUIRED = 20,300 SF
TOTAL OPEN SPACE PROVIDED = 32,850 SF



OVERALL SITE LOCATION

SCALE: 1"= 200'

INDEX TO DRAWINGS

SHEET No.	DESCRIPTION
1.	SITE LAYOUT PLAN
2.	WATER AND SEWER UTILITY PLAN
3.	GRADING AND DRAINAGE PLAN
4.	EROSION CONTROL PLAN
5.	STANDARD DETAILS
6.	STANDARD CITY DETAILS
7.	STANDARD DETAILS
8.	STANDARD DETAILS
9.	EXISTING CONDITIONS SURVEY (BY Others)
10.	LANDSCAPING PLAN (BY OTHERS)
11.	LIGHTING PLAN (BY OTHERS)

GENERAL NOTES:

1. THE APPLICANT SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL RULES AND REGULATIONS, INCLUDING BUT NOT LIMITED TO THE SEQR, FRESHWATER WETLAND PERMIT REGULATIONS, THE TOWN GRADING LAW AND THE TOWN FLOOD PLAIN MANAGEMENT.

2. THE APPLICANT SHALL BEAR THE SOLE RESPONSIBILITY FOR ENSURING THAT ALL IMPROVEMENTS ARE COMPLETED AND MAINTAINED IN ACCORDANCE WITH APPROVED PLANS, SPECIFICATIONS AND STANDARDS.

3. NO CERTIFICATE OF OCCUPANCY SHALL BE ISSUED UNTIL ALL REQUIRED IMPROVEMENTS ARE SATISFACTORILY COMPLETED, AND THE PLANNING BOARD HAS PROVIDED WRITTEN AUTHORIZATION TO THE BUILDING DEPARTMENT.

4. THE APPLICANT SHALL BE RESPONSIBLE FOR KEEPING EXISTING PUBLIC HIGHWAYS AND ADJACENT LANDS FREE OF DEBRIS, SOIL AND OTHER MATTER WHICH MAY ACCUMULATE DUE TO CONSTRUCTION RELATED TO THE SITE.

5. ALL PLANT MATERIALS INSTALLED PURSUANT TO THIS SITE DEVELOPMENT PLAN SHALL CONFORM TO THE AMERICAN STANDARD NURSERY STOCK (ANSI Z60.1–1986) OF THE AMERICAN ASSOCIATION OF NURSERYMEN OR EQUIVALENT RECOGNIZED STANDARD, AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICE.

6. NO PORTION OF THIS SITE SHALL BE USED FOR STORAGE OR DISPLAY OF ANY PRODUCT OR MATERIAL, OR FOR PARKING OF ANY VEHICLES, OR FOR THE CONDUCT OF ANY OTHER BUSINESS OPERATIONS, UNLESS SPECIFICALLY DESIGNATED FOR SUCH USE ON THIS SITE DEVELOPMENT PLAN.

7. ALL REQUIRED EROSION & SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND THE BUILDING DEPARTMENT SHALL BE NOTIFIED PRIOR TO ANY SOIL DISTURBANCE OR ISSUANCE OF ANY GRADING PERMIT.

8. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH ANY AND ALL OTHER CONTRACTORS PERFORMING WORK ON–SITE.

9. THE CONTRACTOR AND/OR HIS REPRESENTATIVE(S) ARE ENTIRELY RESONSIBLE FOR EXECUTING THE WORK AND MAINTAINING THE WORK SITE IN ACCORDANCE WITH ALL APPLICABLE SAFESTY CODES AND STANDARDS.

10. THE CONTRACTOR SHALL CLEAN–UP AT THE END OF EACH WORK DAY AND LEAVE THE WORK SITE CLEAN, WITH ALL ITEMS ATTENDED TO; NO FASTENERS, TOOLS AND/OR ANY OTHER ITEM MAY NOT BE LEFT UNATTENDED.

11. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION MATERIALS AND DEBRIS FROM THE WORK SITE ON A DAILY BASIS.

12. ON–SITE VERIFICATION OF ALL DIMENSIONS AND CONDITIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

13. THE ENGINEER SHALL BE NOTIFIED, IN WRITING, OF ANY ANY DISCREPANCIES OF CONFLICTS THAT MAY ARISE PERTAINING TO THESE DRAWINGS. NO DECISION SHALL BE MADE WITHOUT APPROVAL OR CONSENT FROM THE ENGINEER.

14. ALL CONSTRUCTION SHALL COMPLY WITH NYS FIRE PREVENTION AND BUILDING CODES, LOCAL BUILDING CODES AND REQUIREMENTS, AS WELL AS FEDERAL PLUMBING AND ELECTRICAL CODES.

15. THE CONTRACTOR SHALL PERFORM ALL WORK IN A PROFESSIONAL AND SKILLED MANNER.

16. ANY EXISTING CONDITIONS DAMAGED OR DESTROYED DURING THE COURSE OF WORK SHALL BE RESTORED AT THE CONTRACTORS EXPENSE TO "AS GOOD AS CONDITION" AS DETERMINED BY THE ENGINEER.

17. ACCESS TO ALL PUBLIC UTILITIES INCLUDING FIRE HYDRANTS AND ALARMS, POLICE CALL BOXES, STREET LIGHTS, MANHOLES, ETC. SHALL BE KEPT UNOBSTRUCTED DURING CONSTRUCTION.

18. ALL MATERIALS AND EQUIPMENT USED FOR THIS PROJECT AND/OR KEPT ON–SITE SHALL COMPLY WITH NYS ENERGY CONSERVATION CONSTRUCTION CODE.

19. THESE PLANS ARE CERTIFIED TO BE IN ACCORDANCE WITH NYS BUILDING CODES; THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE FINISHED PRODUCT.

20. THE CONTRACTOR SHALL PROVIDE PROTECTIVE BARRICADES, PROPER SIGNAGE AND LIGHTING TO PREVENT UNAUTHORIZED ENTRY TO THE WORK–SITE.

21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OSHA REGULATIONS AND NYS LABOR COMPLIANCE.

22. THE CONTRACTOR SHALL COMPLY WITH ALL DRAWING NOTES.

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING HIGHWAY WORK PERMIT BEFORE PERFORMING ANY WORK WITHIN RIGHT–OF–WAY.

24. APPROPRIATE TRAFFIC CONTROL DEVICES & PERSONEL SHALL BE PROVIDED IN ACCORDANCE WITH FEDERAL, STATE OR LOCAL REGULATIONS TO REGULATE, WARN & GUIDE TRAFFIC THROUGH THE WORK SITE.

OWNER / APPLICANT:

O'NEILL GROUP HAMILTON, LLC
241 HUDSON STREET
HACKENSACK, NEW JERSEY 07601

PREPARED BY:

ARICO ASSOCIATES
ENGINEERS
LAND PLANNERS
& CONSULTANTS

N O T E

UNAUTHORIZED ALTERATION OR ADDITION TO THESE PLANS IS A VIOLAITON OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

Fire Chief

Police Chief

Building Inspector

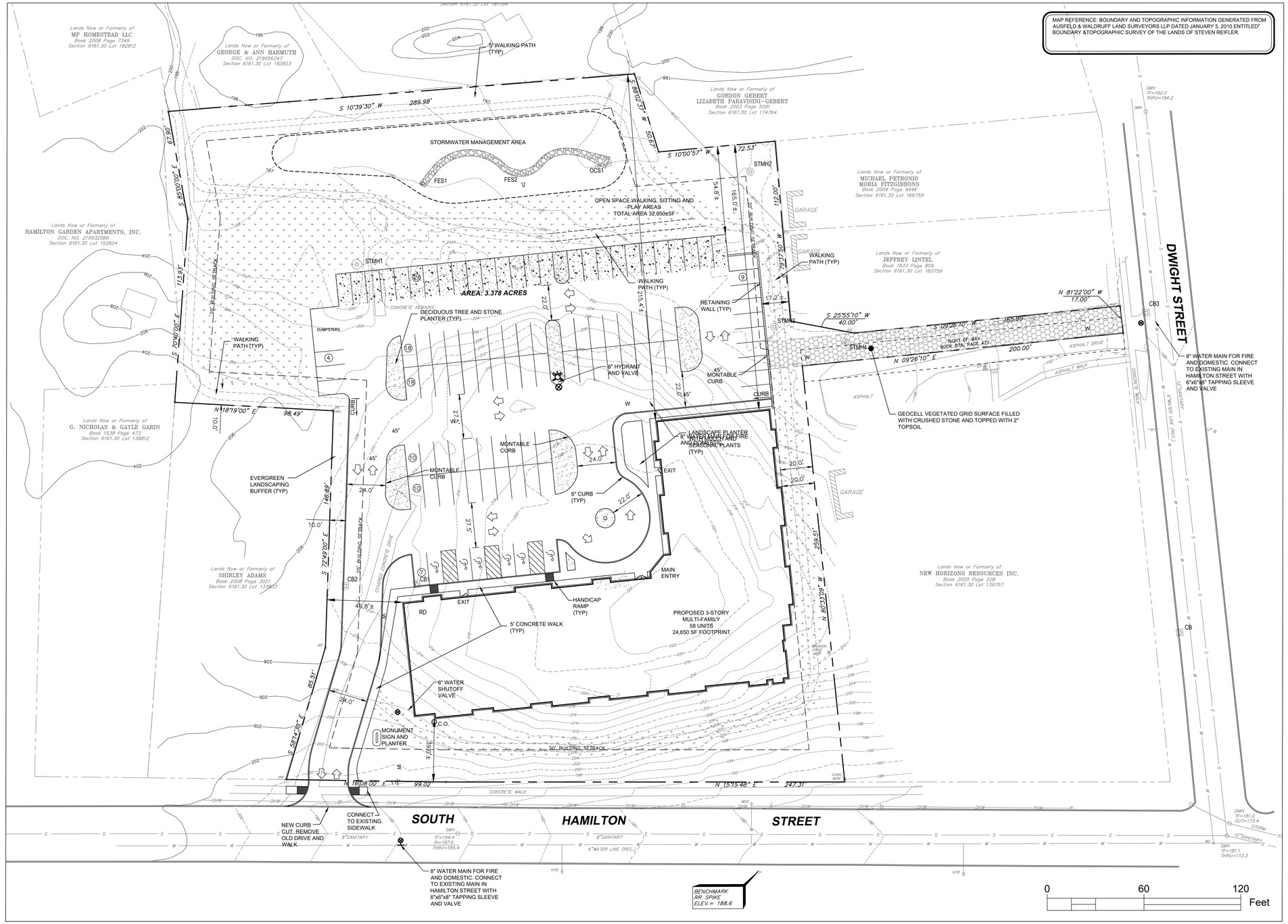
City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):



SITE LAYOUT PLAN

SCALE: 1"= 30'

PRIOR TO START OF CONSTRUCTION OR EXCAVATION, TREES TO BE RETAINED SHALL BE PROTECTED BY SILT FENCE, SNOW FENCE, CONSTRUCTION FENCE, OR EQUAL, WHICH WILL BE PLACED AT THE DRIP LINE OR SEVERAL FEET BEYOND. HOWEVER, THE FENCING SHALL NOT CROSS PUBLIC SIDEWALKS. NO STORAGE OR STOCKPILING OF CONSTRUCTION MATERIALS, DEBRIS OR EQUIPMENT SHALL OCCUR WITHIN THE FENCED AREA.

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	04.04.23
2	REVISED PARKING, LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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518.573.6989
aricoassociates@gmail.com

CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

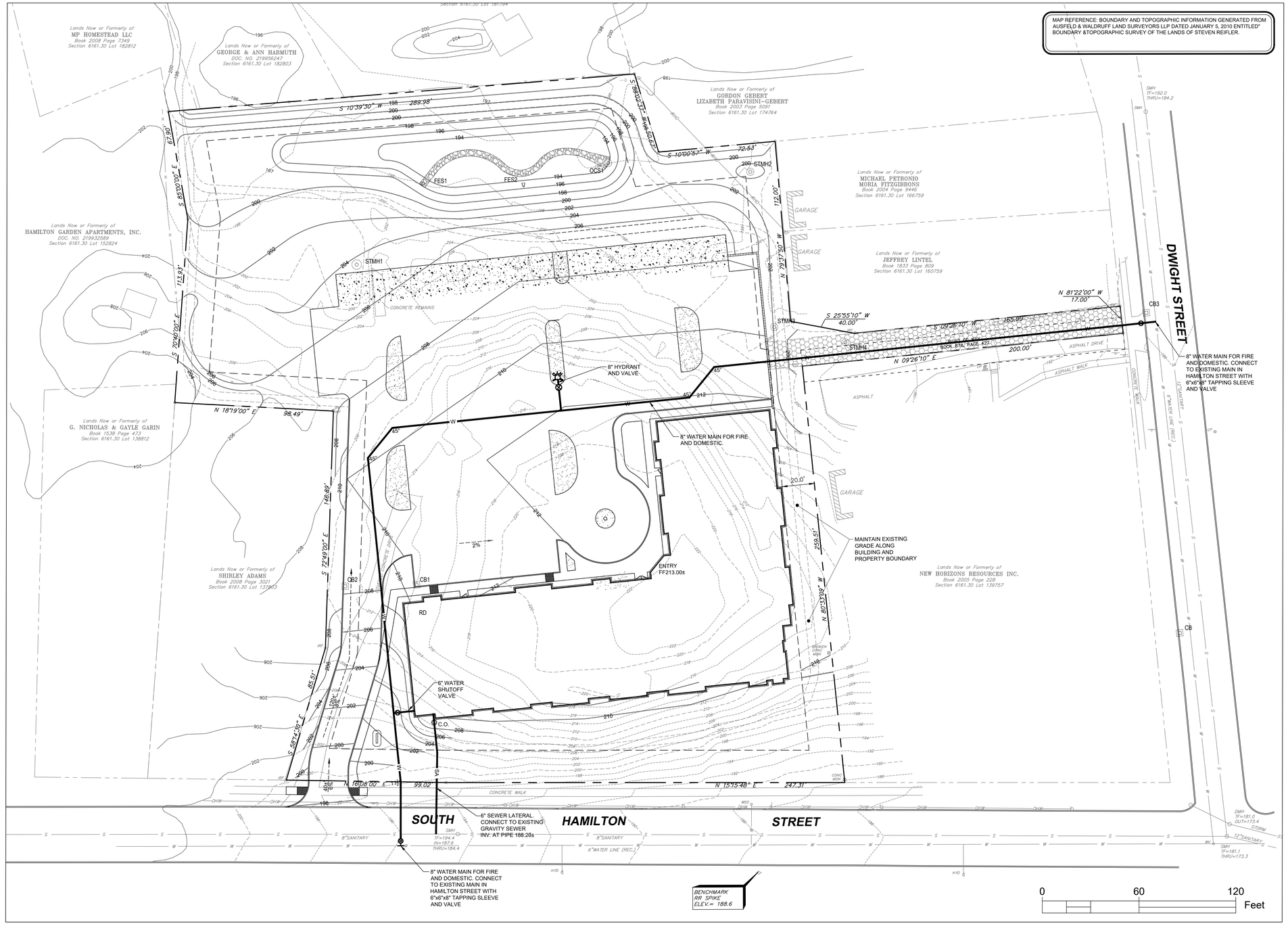
LAYOUT PLAN
SOUTH HAMILTON

TAX MAP 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S1

SHEET 1 OF 8



UTILITY PLAN
SCALE: 1"= 30'

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
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☐ RECORD PLANS

DATE SUBMITTED:

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2	REVISED PARKING, LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS
WATER & SEWER UTILITY PLAN
SOUTH HAMILTON

TAX MAP - 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S2
SHEET 2 OF 8

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

Lands Now or Formerly of
MP HOMESTEAD LLC
Book 2008 Page 7549
Section 6161.30 Lot 182812

Lands Now or Formerly of
GEORGE & ANN HARMUTH
DOC. NO. 219956247
Section 6161.30 Lot 182803

Lands Now or Formerly of
HAMILTON GARDEN APARTMENTS, INC.
DOC. NO. 219932589
Section 6161.30 Lot 152824

Lands Now or Formerly of
G. NICHOLAS & GAYLE GARIN
Book 1538 Page 473
Section 6161.30 Lot 138812

Lands Now or Formerly of
SHIRLEY ADAMS
Book 2008 Page 3021
Section 6161.30 Lot 137903

Lands Now or Formerly of
GORDON GEBERT
LIZABETH PARAVISINI–GEBERT
Book 2003 Page 5091
Section 6161.30 Lot 174764

Lands Now or Formerly of
MICHAEL PETRONIO
MORIA FITZGIBBONS
Book 2004 Page 9446
Section 6161.30 Lot 166759

Lands Now or Formerly of
JEFFREY LINTEL
Book 1833 Page 809
Section 6161.30 Lot 160759

Lands Now or Formerly of
NEW HORIZONS RESOURCES INC.
Book 2005 Page 228
Section 6161.30 Lot 139757

OCS1 4' DIAM. RISER
TOP=198.00
3"x18" VERT. ORIFICE, INV. 194.00
8" OUTLET, INV. 194.00

4' STONE SWALE

STORMWATER MANAGEMENT AREA

FES1 INV.196.00

FES2 INV. 195.00

OCS1

STMH1
JELLYFISH FILTER
TF=204.00
I.I.=199.00
I.O.(12")=198.50

POROUS PAVEMENT

112±' 6" PERFORATE HDPE UNDERDRAIN FOR POROUS PAVEMENT, S=1.0%

12" OVERFLOW RISER

112±' 6" PERFORATE HDPE UNDERDRAIN FOR POROUS PAVEMENT, S=1.0%

STMH3
TF=202.00
I.I.(STMH2)=192.24
I.O.(12")=192.24

STMH2
TF=199.00
I.I.(CB1)=193.19
I.O.(12")=193.19

STORMWATER OUTLET, CONNET TO STORM SYSTEM IN DWIGHT STREET.

STMH4
TF=198.00
I.I.(STMH3)=191.84
I.O.(12")=191.84

CB1
TF=210.50
I.I.(RD)=205.50
I.O.(12")=205.00

CB2
TF=208.15
I.I.(CB1)=204.15
I.O.(12")=204.00

CB3
TF=188.50
I.I.(STMH4)=185.00
I.O.(12")=185.00

ENTRY FF213.00±

MAINTAIN EXISTING GRADE ALONG BUILDING AND PROPERTY BOUNDARY

CONNET TO DRAINAGE MANHOLE.

16±' 8" HDPE S=1.0%

8"x12" HDPE REDUCER

65±' 12" HDPE S=1.0%

55±' 12" HDPE S=2.5%

60±' 12" HDPE S=4.2%

95±' 12" HDPE S=1.0%

40±' 12" HDPE S=1.0%

184±' 12" HDPE S=3.7%

195±' 12" HDPE S=2.6%

40±' 12" HDPE S=2.0%

195±' 12" HDPE S=2.5%

104±' 12" HDPE S=2.5%

S 10°39'30" W 289.98'
S 85°20'00" E 173.93'
S 72°40'00" E 112.93'
N 18°19'00" E 98.49'
S 72°49'00" E 148.89'
S 68°14'30" E 85.51'
N 78°06'00" E 99.02'
S 10°00'57" W 72.63'
N 79°02'00" W 112.00'
N 10°58'00" E 125.57'
S 25°55'10" W 40.00'
S 09°26'10" W 175.00'
N 09°26'10" E 200.00'
N 81°22'00" W 17.00'
N 80°31'00" W 259.51'
N 15°15'48" E 247.31'

DWIGHT STREET

SOUTH HAMILTON STREET

RIGHT-OF-WAY-BOOK 878, PAGE 422

ASPHALT DRIVE

ASPHALT WALK

CONCRETE WALK

ASPHALT

GARAGE

CONCRETE CURB MTH

BROKEN CONC. MTH

8"SANITARY

6"WATER LINE (REC.)

12"SANITARY

SMH TF=192.0 THRU=184.2

SMH TF=194.4 IN=187.6 THRU=184.4

SMH TF=181.0 OUT=173.4

SMH TF=181.1 THRU=173.3

DMH TF=181.0 OUT=173.4

BENCHMARK
RR SPIKE
ELEV.= 188.6

GRADING & STORM PLAN
SCALE: 1"= 30'

0 60 120 Feet

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING / LANDSCAPING	DFA	08.03.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

GRADING & DRAINAGE PLAN
SOUTH HAMILTON

TAX MAP - 6161-30-151783

DATE: JANUARY 2023

JOB NO. 22.10

SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.

S3

SHEET 3 OF 8

GENERAL NOTES:

BEFORE UNDERTAKING ANY CONSTRUCTION ACTIVITY, ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH SITE WORK THAT INVOLVES PHYSICAL GROUND DISTURBANCE ON THE PROJECT SITE SHALL SIGN AND DATE A COPY OF THE CERTIFICATION STATEMENT, WHICH IS LOCATED IN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP), PREPARED FOR THIS PROJECT.

1. ALL EROSION & SEDIMENT CONTROL MEASURES SHALL ADHERE TO THE PROJECT'S STORMWATER POLLUTION PREVENTION PLAN (SWPPP). ALL APPROPRIATE STORMWATER CONTROL MEASURES IDENTIFIED IN THE SWPPP SHALL BE IN PLACE BEFORE COMMENCING CONSTRUCTION OF ANY SEGMENT OF THE PROJECT THAT REQUIRES THESE MEASURES.

2. INSPECTIONS: THE OPERATOR SHALL HAVE A QUALIFIED PROFESSIONAL CONDUCT AN ASSESSMENT OF THE SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION & CERTIFY IN AN INSPECTION REPORT THAT THE APPROPRIATE EROSION & SEDIMENT CONTROLS DESCRIBED IN THE SWPPP HAVE BEEN ADEQUATELY INSTALLED OR IMPLEMENTED TO ENSURE OVERALL PREPAREDNESS OF THE SITE FOR THE COMMENCEMENT OF CONSTRUCTION. FOLLOWING THE COMMENCEMENT OF CONSTRUCTION, SITE INSPECTIONS SHALL BE CONDUCTED BY THE QUALIFIED PROFESSIONAL AT LEAST EVERY 7 CALENDAR DAYS. INSPECTIONS SHALL LOOK FOR EVIDENCE OF SOIL EROSION ON THE SITE, POTENTIAL OF POLLUTANTS ENTERING DRAINAGE SYSTEMS, PROBLEMS AT DISCHARGE POINTS, I.E., TURBIDITY IN RECEIVING WATERS, & SIGNS OF SOIL & MUD TRANSPORT FROM THE SITE ONTO PUBLIC ROADWAYS. REPAIRS & CLEANING SHALL BE MADE IMMEDIATELY.

3. SITE LOG/CERTIFICATION: THE OPERATOR MUST MAINTAIN A RECORD OF ALL INSPECTION REPORTS IN A SITE LOG BOOK. THE SITE LOG BOOK MUST BE MAINTAINED ON-SITE & BE MADE AVAILABLE TO THE PERMITTING AUTHORITY UPON REQUEST.

4. STABILIZATION: THE OPERATOR SHALL INITIATE STABILIZATION MEASURES AS SOON AS PRACTICABLE ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED.

5. MAINTENANCE: SEDIMENT SHALL BE REMOVED FROM TEMPORARY SEDIMENT TRAPS OR PONDS WHENEVER THEIR CAPACITY HAS BEEN REDUCED BY 50% OF THE DESIGN CAPACITY. INSTALL ADDITIONAL SEDIMENT TRAPS & BARRIERS AS NEEDED DURING CONSTRUCTION.

6. CONTRACTOR SHALL ESTABLISH A TEMPORARY STABILIZED CONSTRUCTION ENTRANCE TO CAPTURE MUD & DEBRIS FROM CONSTRUCTION VEHICLES BEFORE THEY ENTER A PUBLIC ROADWAY, AS DETAILED. SEDIMENT TRACKED ONTO THE ROADWAYS SHALL BE REMOVED OR CLEANED ON A DAILY BASIS. ALL BARE AREAS, E.G., ENTRANCES, CONSTRUCTION ROUTES, & EQUIPMENT PARKING AREAS, SHALL BE STABILIZED IMMEDIATELY AS CONSTRUCTION TAKES PLACE. PLACE GRAVEL ON THESE AREAS OR MAINTAIN THE EXISTING VEGETATIVE COVER.

7. TEMPORARY CONSTRUCTION SILT FENCES, STRAW BALE DIKES, OR TRIANGULAR SILT DIKES SHALL BE PLACED ON OR PARALLEL TO CONTOURS WHERE THERE IS NO CONCENTRATION OF STORMWATER RUNOFF FLOWING TO THEM & WHERE EROSION OCCURS IN THE FORM OF SHEET EROSION, AS DETAILED. THE AREA BELOW THESE TEMPORARY STRUCTURAL MEASURES SHOULD BE UNDISTURBED/UNEXCAVATED EARTH.

TEMPORARY STABILIZATION MEASURES SHALL START AS SOON AS PRACTICAL ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NOT MORE THAN (7) DAYS AFTER WORK HAS CEASED. ACCEPTABLE TEMPORARY STABILIZATION MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO SEEDING MULCH, STRAW, EROSION CONTROL BLANKETS, SOIL STABILIZING EMULSION PRODUCTS, OR SOME FUNCTIONALLY EQUIVALENT MEASURE. TEMPORARY SEEDING SHALL BE ANNUAL RYE GRASS, APPLIED AT A RATE OF 30 LBS./ACRE.

8. DIVERT OFFSITE OR CLEAN STORMWATER RUNOFF FROM DISTURBED AREAS. CONVEY RUNOFF FROM HIGHLY ERODIBLE SOILS & STEEP SLOPES TO MORE SUITABLE STABLE AREAS. INSTALL TRIANGULAR SILT DIKES TO REDUCE THE VELOCITY OF CONCENTRATED RUNOFF.

9. LIMIT ALL CLEARING & EXCAVATION ACTIVITIES TO MAINTAIN EXISTING VEGETATIVE COVER AS MUCH AS PRACTICABLE. TOPSOIL SHALL BE STOCKPILED, PROTECTED, & STABILIZED IN AN AREA LOCATED AWAY FROM DRAINAGE CHANNELS.

10. WHEN ACTIVITIES TEMPORARILY CEASE DURING CONSTRUCTION, SOIL STOCKPILES & EXPOSED SOIL SHALL BE STABILIZED BY SEED, MULCH, OR OTHER APPROPRIATE MEASURES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN 14 DAYS AFTER CONSTRUCTION ACTIVITY HAS CEASED. PERMANENT VEGETATION & LANDSCAPING SHALL BE INSTALLED IMMEDIATELY FOLLOWING FINAL GRADING.

11. NO GRADING, FILLING, OR OTHER DISTURBANCE IS ALLOWED WITHIN EXISTING DRAINAGE SWALES, UNLESS INDICATED ON THE GRADING PLANS.

12. BACKFILL & STABILIZE ALL UTILITY TRENCHES DAILY.

13. SEEDING:
A. SOW GRASS SEED BETWEEN APRIL 1 & MAY 15TH OR BETWEEN AUGUST 15TH & OCTOBER 15TH, EXCEPT AS OTHERWISE APPROVED IN WRITING BY THE ENGINEER. NO SEEDING SHALL OCCUR ON FROZEN GROUND, HIGHLY MUDDY SOILS, OR DURING EXTREME HEAT OR DROUGHT CONDITIONS.
B. SEED MIXTURE: 40% FENWAY RED FESCUE, 30% ABBEY KENTUCKY BLUEGRASS BLEND, 20% DEVINE PERENNIAL RYE, & 10% ENCHANTED PERENNIAL RYE. PROVIDE SEED MIXTURE EQUAL TO SCOTT'S PURE PREMIUM SUN & SHADE NORTH GRASS SEED MIXTURE, OR APPROVED EQUIVALENT. VARIETY MAY BE ALTERED DEPENDING ON AVAILABILITY OF SEED FROM MANUFACTURER.

14. TOPSOIL:
A. PROVIDE TOPSOIL FROM EXISTING STOCKPILES STRIPPED FROM THE PROJECT SITE & APPROVED BY THE ENGINEER. IF REQUIRED, PROVIDE ADDITIONAL TOPSOIL CONFORMING TO THE FOLLOWING:
B. ORIGINAL LOAM TOPSOIL, WELL DRAINED HOMOGENEOUS TEXTURE & OF UNIFORM GRADE, WITHOUT THE ADMIXTURE OF SUBSOIL MATERIAL & ENTIRELY FREE OF DENSE MATERIAL, HARDPAN, SOD, OR ANY OTHER OBJECTIONABLE FOREIGN MATERIAL.
C. CONTAINING NOT LESS THAN 4% NOR MORE THAN 20% ORGANIC MATTER IN THAT PORTION OF A SAMPLE PASSING A 1/4 INCH SIEVE WHEN DETERMINED BY THE WET COMBUSTION METHOD ON A SAMPLE DRIED AT 105 DEGREES C.
D. CONTAINING A PH VALUE WITHIN THE RANGE OF 4.5 TO 7 ON THAT PORTION OF THE SAMPLE THAT PASSES A 1/4 INCH SIEVE.

15. FERTILIZER:
A. MIXED COMMERCIAL FERTILIZERS SHALL CONTAIN TOTAL NITROGEN, AVAILABLE PHOSPHORIC ACID & SOLUBLE POTASH IN THE RATIO OF 10-6-4 (50% N/UF). 50% OF TOTAL NITROGEN SHALL BE DERIVED FROM UREAFORM FURNISHING A MINIMUM OF 3.5% WATER INSOLUBLE NITROGEN (3.5% WIN). THE BALANCE OF THE NITROGEN SHALL BE PRESENT AS METHYLENE UREA, WATER-SOLUBLE UREA, NITRATE & AMMONIACAL COMPOUNDS. OTHER FERTILIZERS MEETING NYSDOT SPECIFICATION SECTION 713-03 FERTILIZER CAN BE USED.

16. MULCH:
A. DRY APPLICATION, STRAW: STALKS OF OATS, WHEAT, RYE OR OTHER APPROVED CROPS THAT ARE FREE OF NOXIOUS WEED SEEDS. WEIGHT SHALL BE BASED ON A 15% MOISTURE CONTENT.
B. HYDRO APPLICATION: COLORED WOOD CELLULOSE FIBER PRODUCT SPECIFICALLY DESIGNED FOR USE AS A HYDRO-MECHANICAL APPLIED MULCH, BY CONWED HYDRO MULCH, CONWED FIBERS, OR APPROVED EQUIVALENT.

17. JUTE MESH:
A. HEAVY JUTE EROSION CLOTH WITH 12 INCH LENGTHS OF NO. 11 GAGE WIRE BENT TO FORM A "U" WIRE STAPLE, BY JUTE PRODUCTS, INC., OR APPROVED EQUIVALENT.

18. EROSION CONTROL BLANKETS:
A. FOR USE IN REPLACE OF MULCH ON SLOPES GREATER THAN 5% AS SHOWN ON THE PLANS. CONSISTING OF LIGHTWEIGHT PHOTODEGRADABLE POLYPROPYLENE NETS WITH AN APPROXIMATE WEIGHT OF 1.64 LBS/1,000 SQUARE FEET, DEGRADABLE THREAD, STRAW FIBER WITH AN APPROXIMATE WEIGHT OF 0.5 LBS/SQUARE YARD, WITH MANUFACTURER'S DOT STAPLE SYSTEM & 6 INCH BIOSTAKE'S BIODEGRADABLE BLANKET PIN FASTENERS. USE DEGRADABLE DOUBLE NET STRAW BLANKET, PRODUCT NO. S150 BY NORTH AMERICAN GREEN, OR APPROVED EQUIVALENT.

19. DUST SUPPRESSION MEASURES MAY INCLUDE: 1) USING A DEDICATED ON-SITE WATER TRUCK FOR ROAD AND SOILS WETTING, CAPABLE OF SPRAYING WATER DIRECTLY ONTO OFF-ROAD AREAS, INCLUDING EXCAVATIONS AND STOCKPILES; 2) CLEARING AND GRUBBING OF LARGER SITES WILL BE DONE IN STAGES TO LIMIT THE AREA OF EXPOSED, UNVEGETATED SOILS VULNERABLE TO DUST PRODUCTION; AND 3) GRAVEL WILL BE USED ON ROADWAYS TO PROVIDE A CLEAN AND DUST-FREE ROAD SURFACE.

SILT FENCE NOTES:

1. SILT FENCE SHALL BE PLACED ON THE DOWNSLOPE SIDE OF DISTURBED AREAS AND AROUND THE PERIMETER OF SOIL STOCKPILES.
2. SILT FENCE SHALL BE PLACED AROUND THE BOUNDARY OF WETLANDS ADJACENT TO THE WORK AREA, AND AT THE EDGE OF WETLANDS AFTER CONSTRUCTION IS COMPLETED.
3. SILT FENCE SHALL BE REPAIRED OR REPLACED WHEN THE ENDS ARE FRAYED OR WORN, AND WHEN THE FENCE IS NOT ANCHORED 6" INTO THE GROUND. WHEN THE ACCUMULATED SEDIMENT REACHES 30% OF THE SILT FENCE HEIGHT, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROPRIATE UPLAND AREA.

DUST CONTROL NOTES:

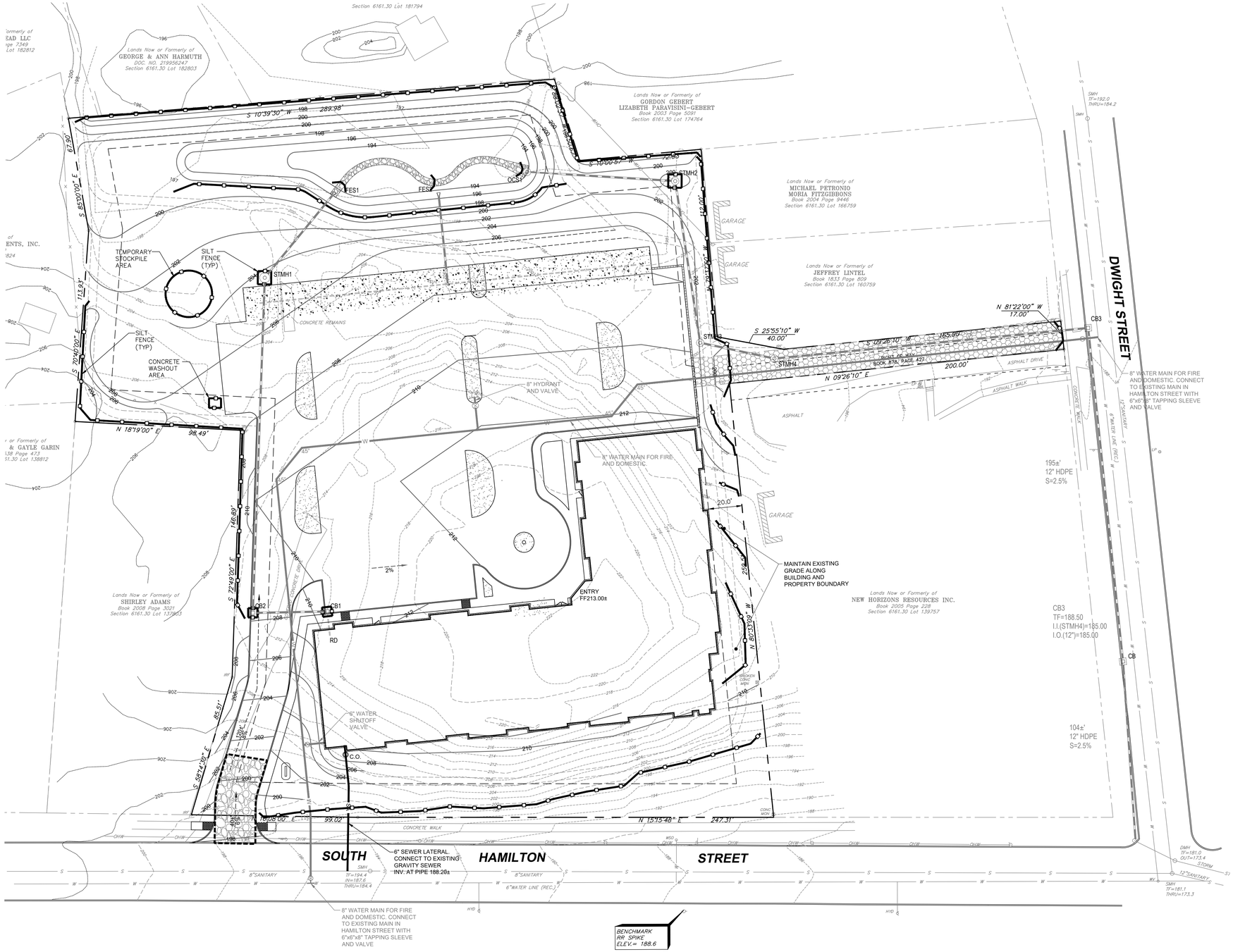
1. DUST SHALL BE CONTROLLED ON THIS PROJECT BY USE OF A WATER TRUCK.
2. THE QUALIFIED INSPECTOR WILL DETERMINE THE FREQUENCY OF WATER APPLICATION IN ORDER TO CONTROL DUST.
3. CHEMICALS OR OTHER METHODS OF DUST CONTROL ARE PROHIBITED TO BE USED ON THIS PROJECT, UNLESS APPROVED BY NYSDEC REGION 3.

STABILIZED CONSTRUCTION ACCESS NOTES:

1. STABILIZED CONSTRUCTION ACCESS SHALL BE INSTALLED WHERE NECESSARY TO PREVENT SEDIMENT FROM BEING TRACKED ONTO ROADWAYS.
2. PERMANENT TRAFFIC CORRIDORS SHALL BE ESTABLISHED AND "ROUTES OF CONVENIENCE" SHALL BE AVOIDED. CONSTRUCTION TRAFFIC SHALL NOT CROSS STREAMS OR DITCHES EXCEPT AT SUITABLE CROSSING FACILITIES, AND SHALL NOT OPERATE UNNECESSARILY WITHIN WATERWAYS OR DRAINAGE DITCHES.
3. IF INTERNAL CONSTRUCTION ROADS ARE DETERMINED TO BE A SOURCE OF SEDIMENT-LADEN RUNOFF TO SENSITIVE AREAS, THEY SHALL BE STABILIZED AS SOON AS PRACTICABLE.

TEMPORARY SEEING AND MULCHING NOTES:

1. AREAS TO RECEIVE TEMPORARY SEEDING AND MULCHING SHALL RECEIVE BOTH GRASS SEED AND MULCH.
2. A JUTE MESH SHALL BE PLACED OVER THE MULCH IN AREAS WHERE WIND OR WATER EROSION PREVENTS ESTABLISHMENT OF GRASS COVER.



EROSION CONTROL PLAN

SCALE: 1"= 30'

Fire Chief	
Police Chief	
Building Inspector	
City Engineer	
Commissioner of Public Works	

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.15.23
2	REVISED PARKING & LANDSCAPING	DFA	09.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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& CONSULTANTS
ARICO ASSOCIATES
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518.573.6988
aricoassociates@gmail.com

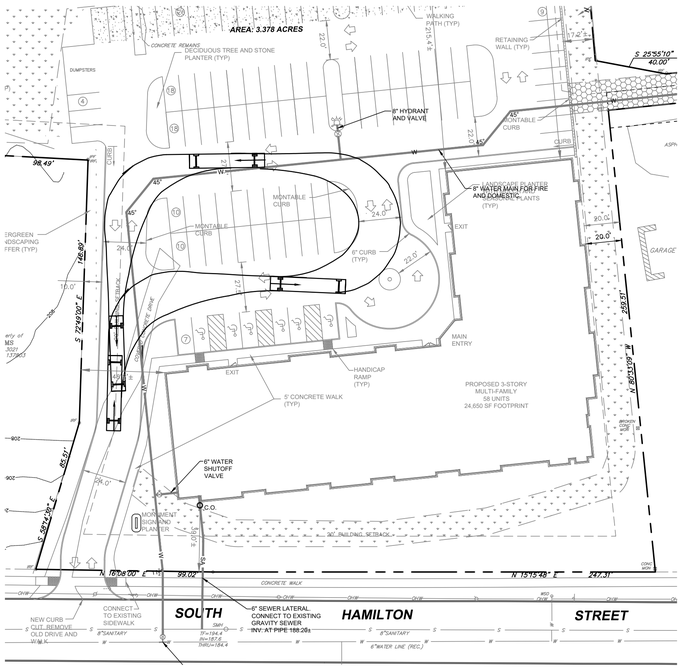
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

EROSION CONTROL PLAN
SOUTH HAMILTON

TAX MAP - 6161-30-151783

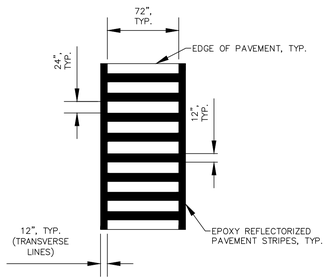
DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
S4
SHEET 4 OF 8



EMERGENCY VEHICLE TURNING MOVEMENT

SCALE: 1"= 40'

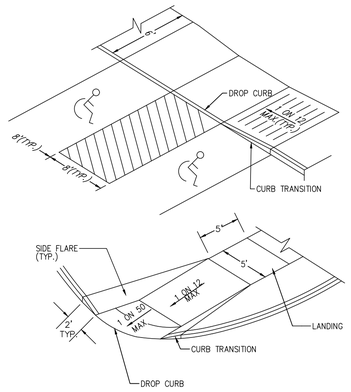


COMBINED TYPE LS CROSSWALK MARKING DETAIL

NOTE:

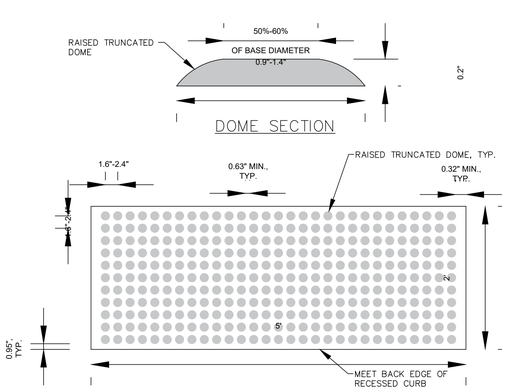
1. ALL CROSSWALK MARKINGS SHALL BE WHITE.

N.T.S.



SIDEWALK RAMP DETAILS

SCALE: NO SCALE

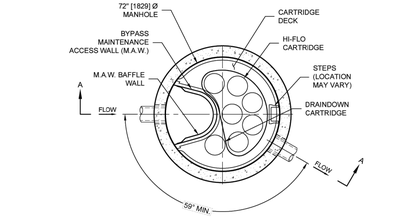


NOTES:

1. SIDEWALK SIDE FLARES ARE NOT REQUIRED FOR RAMPS IN LAWN AREAS, SEE PLANS FOR LOCATIONS. IN THESE AREAS, THE CURB SHALL TRANSITION FROM FLUSH TO FULL REVEAL IN 3 LF.
2. IN ACCORDANCE WITH THE AMERICAN WITH DISABILITY ACT (ADA) REQUIREMENTS, DETECTABLE WARNINGS SHALL BE INSTALLED WHENEVER SIDEWALK CURB RAMPS OR CUT-THROUGHS IN MEDIAN/REFUGE ISLANDS, & IN-STREET OR CROSS-SIDEWALK RAIL CROSSINGS ARE CONSTRUCTED OR ALTERED.
3. SURFACE APPLIED DETECTABLE WARNINGS ARE NOT ALLOWED. BRICK PAVERS, TILES, SHEETS & STAMPED CONCRETE METHODS ARE ALLOWABLE.
4. THE SIZE OF THE DETECTABLE WARNING FIELD SHALL BE 2' IN THE DIRECTION OF TRAVEL & SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, EXCLUSIVE OF SIDE FLARES.
5. DETECTABLE WARNINGS SHALL BE LOCATED SO THAT THE EDGE OF THE WARNING FIELD MEETS THE BACK EDGE OF THE RECESSED CURB.
6. THE COLORS FOR THE DETECTABLE WARNING FIELDS SHALL BE DARK GRAY (MUNSELL BOOK NOTATION BG-PB 3/5), DARK BROWN (MUNSELL BOOK NOTATION 10 YR. 3/2), DARK RED (MUNSELL BOOK NOTATION 10R 3/6), OR DARK GREEN (MUNSELL BOOK NOTATION 2.5G 3/6).
7. DOME SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL.

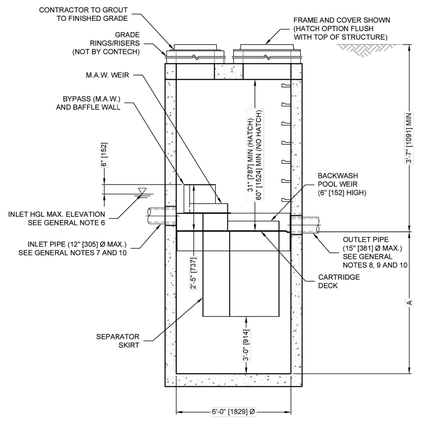
REINFORCED CONCRETE SIDEWALK RAMP DETAILS

SCALE: NO SCALE



PLAN VIEW

TOP SLAB NOT SHOWN

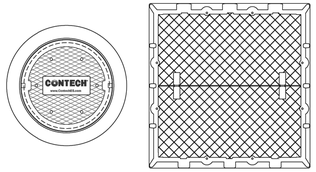


SECTION A-A

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SIZE, TYPE AND QUANTITY. THE STANDARD MANHOLE STYLE IS SHOWN. THE 72" [1829 mm] Ø MANHOLE JELLYFISH PEAK TREATMENT CAPACITY IS 1.16 CFS [32.85 L/s] AND MAXIMUM BYPASS CAPACITY IS 4.0 CFS [113.27 L/s]. IF THE SITE CONDITIONS EXCEED THE BYPASS CAPACITY OF THE SYSTEM, AN UPSTREAM DIVERSION STRUCTURE IS REQUIRED. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD.

CARTRIDGE SIZE	54	40	27	15
FLOW RATE, HIGH-FLO / DRAINDOWN (cfs [L/s])	0.18 / 0.09 [5.10 / 2.55]	0.13 / 0.065 [3.68 / 1.84]	0.09 / 0.045 [2.55 / 1.28]	0.05 / 0.025 [1.42 / 0.71]
MAXIMUM CARTRIDGE QUANTITY HIGH-FLO / DRAINDOWN	5 / 1			
MAXIMUM TREATMENT	1.16	0.87	0.58	0.32
OUTLET INVERT TO STRUCTURE INVERT (A) (ft. [mm])	7.42 [188]	6.25 [159]	5.17 [131]	4.17 [106]



FRAME AND COVER

(DIAMETER VARIES)
NOT TO SCALE

HATCH

(48" x 48" CAST INTO SLAB)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID					
BYPASS FLOW RATE (cfs [L/s])					
WATER QUALITY FLOW RATE (cfs [L/s])					
PEAK FLOW RATE (cfs [L/s])					
RETURN PERIOD OF PEAK FLOW (yrs)					
NUMBER OF CARTRIDGES REQUIRED (HF / DD)					
CARTRIDGE SIZE (54, 40, 27, 15)					
RIM ELEVATION					
PIPE DATA:	INVERT	MAT'L	DIA	SLOPE %	HGL
INLET PIPE 1					
INLET PIPE 2					
OUTLET PIPE					
SEE GENERAL NOTES 6-10 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.					
NOTES / SPECIAL REQUIREMENTS:					

GENERAL NOTES:

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 2' - 3' [305], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. INLET HGL NOT TO EXCEED 6" [152] BELOW THE TOP OF THE M.A.W. DURING THE PEAK DESIGN STORM, OR 10-YEAR STORM (WHICHEVER IS GREATER).
7. INLET PIPE INVERT ELEVATION VARIES FROM 1" TO 6" [25 TO 152] ABOVE THE OUTLET PIPE INVERT.
8. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
9. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
10. THE DIFFERENCE IN THE INLET AND OUTLET PIPE ELEVATIONS FOR RETROFIT INSTALLATIONS TO EXISTING STORM DRAIN PIPES SHALL BE EQUAL TO THE SLOPE OVER THE DIAMETER OF THE MANHOLE; NOT THE EXCEED 6" [152] IN VERTICAL DIFFERENTIAL BETWEEN INLET AND OUTLET PIPES.
11. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.
12. ALTERNATE UNITS ARE SHOWN IN [mm].

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. WHEN ACTIVATED PRIOR TO SITE STABILIZATION, CONTRACTOR TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ACCORDING TO THE PROVISIONS IN THE ACTIVATION CHECKLIST AND THE QUOTED SCOPE OF WORK. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION AT (800) 338-1122.

Jellyfish Filter

This PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENT NO. 8,287,730; 8,351,910; OR 9,120,690. OTHER INTERNATIONAL PATENTS PENDING.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

JELLYFISH JF6
ONLINE CONFIGURATION
STANDARD DETAIL

H:\DRAWINGS\JCTECH\TRENT13 JELLYFISH FILTERS\STANDARD DRAWINGS\JF-BARON-INLINE\BARON PROCESS\JF6-ONLINE DTL.DWG 9/17/2021 9:27 AM

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2___
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING / LANDSCAPING	DFA	08.04.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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LAND PLANNERS
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518.573.6999 aricoassociates@gmail.com

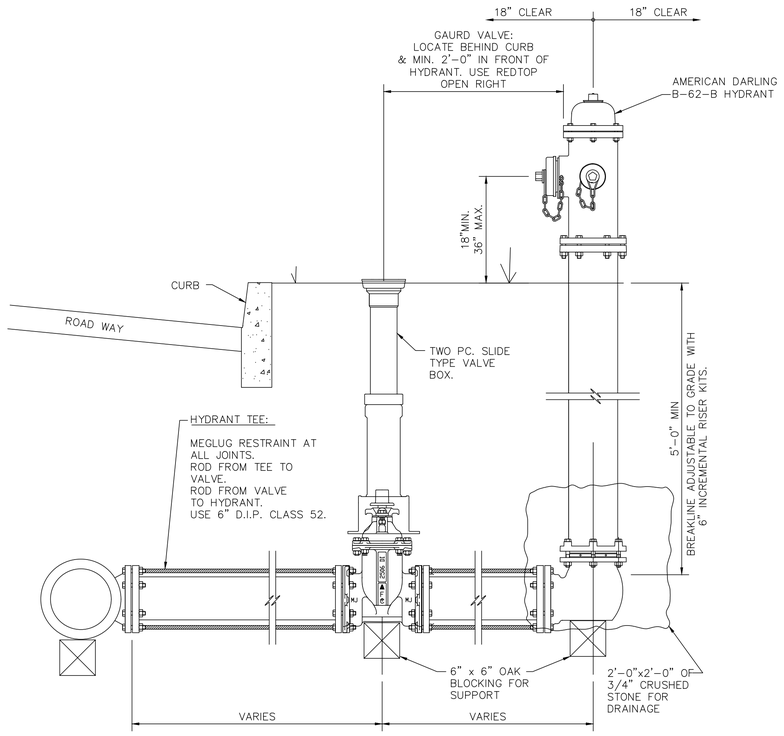
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

STANDARD DETAILS
SOUTH HAMILTON

TAX MAP: 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

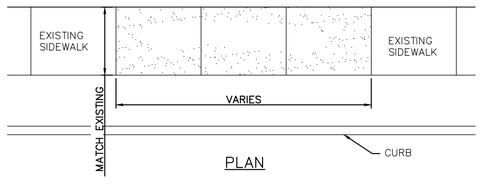
DRAWING NO.
D1
SHEET 5 OF 8



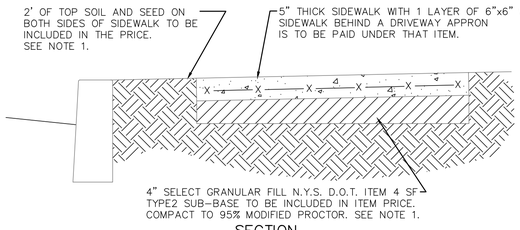
NOTES:
1. PAINT AMERICAN DARLING B-62-B HYDRANT RED
2. ALL MATERIAL TO BE MADE IN USA
3. NEW OR REPLACEMENT HYDRANT ON EXISTING CAST IRON MAIN REQUIRES TRANSITION COUPLINGS & SPOOLS FROM TEE (ROCKWELL 441 OR EQUAL)
4. ALL JOINTS TO BE FULLY RESTRIANTED ROD SUBSTITUIONS TO BE APROVED BY ENGINEER.

CITY OF POUGHKEEPSIE
STANDARD HYDRANT DETAIL

SCALE: N.T.S.



PLAN



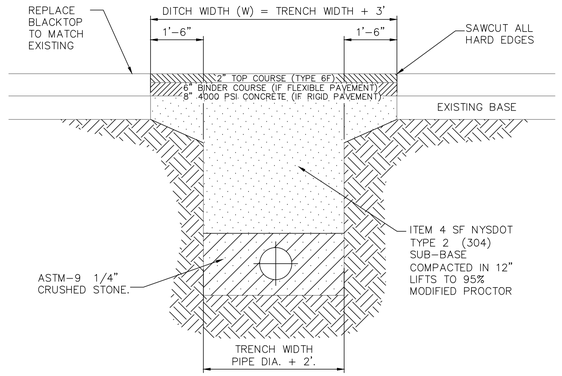
SECTION

NOTES:

1. ALL CONCRETE SHALL BE MINIMUM 4,000 PSI.
2. WHERE MATERIAL IS NOT USED THE CITY OF POUGHDEEPSIE WILL BE CREDITED IN AREAS WHERE MORE THAN THE SPECIFIED AMOUNT OF MATERIAL IS USED. MAJOR GRADE CHANGES WILL BE APROVED BY THE CITY ENGINEERING DEPT. AND WILL BE PAID UNDER APPROPRIATE ITEMS.
3. UPON COMPLETION OF CURING ALL CONCRETE SURFACES SHALL BE COATED WITH SODIUM CHLORIDE INHIBITING SEALER AS REQ'D.

SIDEWALK DETAIL REPLACE & NEW

SCALE: 1"-2'-0"

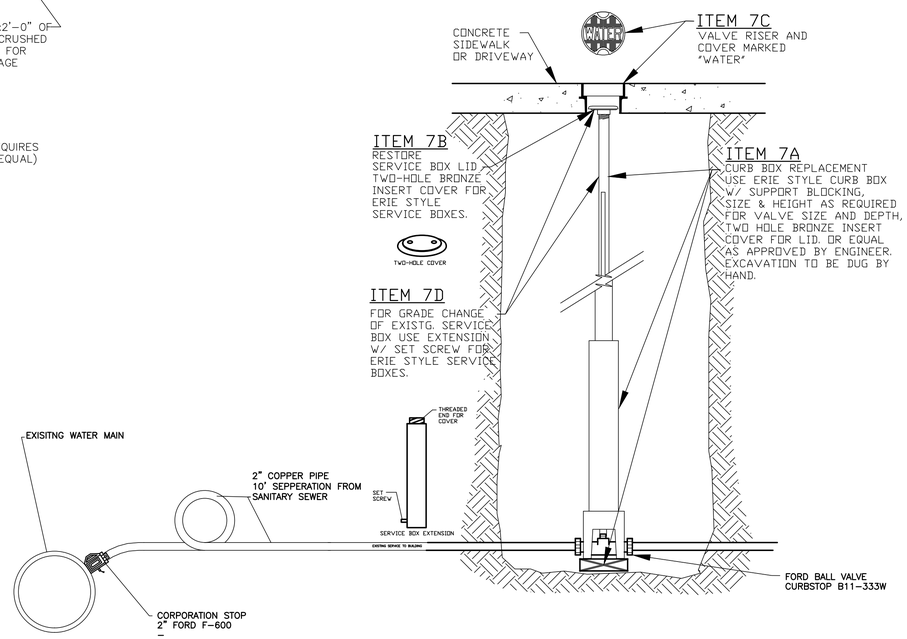


UTILITY TRENCH DETAIL IN PUBLIC R.O.W.

SCALE: 1/4" =1'-0"

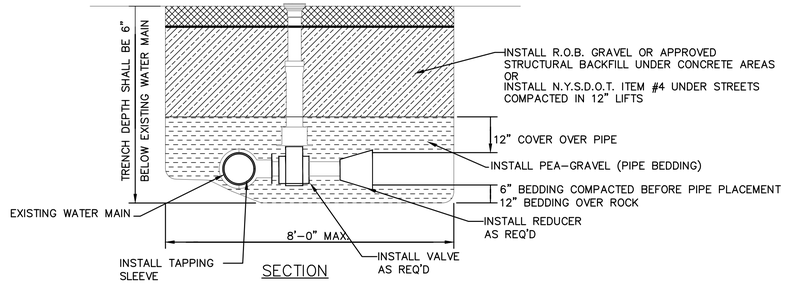
NOTES:

1. DITCH WIDTH SHALL EXTEND A MINIMUM OF ONE AND ONE-HALF FT. FROM THE EDGES OF THE TRENCH.
2. REPLACED BASE MATERIAL OVER TRENCH SHALL BE ITEM 4 COMPACTED IN 12" LIFTS.
3. PIPE BEDDING SHALL BE A MINIMUM OF 6" ABOVE AND BELOW PIPE
4. ALL JOINTS SHALL BE MECHANICALLY SAWED.
5. ALL JOINTS SHALL BE SQUARED TO THE EXISTING EDGE OF CURB AND/OR PAVEMENT, AND TACK COATED PER DETAIL.
6. ROAD SURFACE REPLACEMENT SHALL BE MINIMUM OF SIX INCHES OF ASPHALIC CONCRETE.
7. BINDER COURSE ASPHALT PAVEMENT TO BE PLACED IN TWO LIFTS.

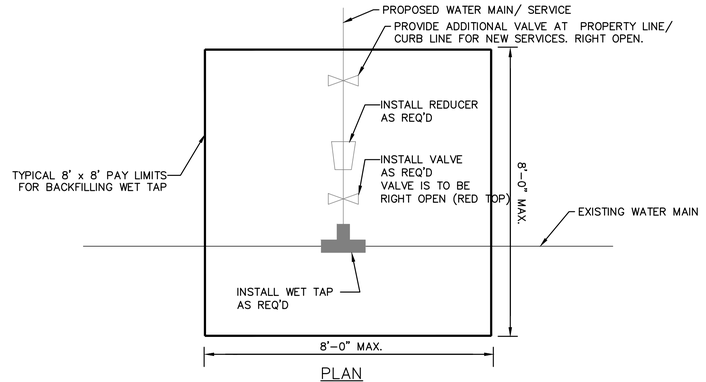


CURB BOX AND SERVICE CONNECTION

SCALE: N.T.S.



SECTION

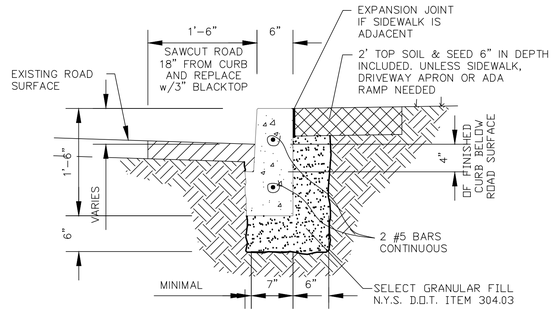


PLAN

NOTE: ALL BACKFILL TO BE PLACED IN 1' LIFTS AND COMPACTED TO 95% OF MODIFIED PROCTOR (ASTM 1557)

TAPPING SLEEVE & VALVE

SCALE: N.T.S.



CLEATED CURB DETAIL

SCALE: 1"-1'-0"

Fire Chief	
Police Chief	
Building Inspector	
City Engineer	
Commissioner of Public Works	

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ___ day of _____ 2___
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING & LANDSCAPING	DFA	08.01.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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LIC. NO. 085557

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LAND PLANNERS
& CONSULTANTS
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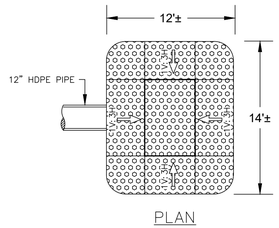
518.573.6999 aricoassociates@gmail.com

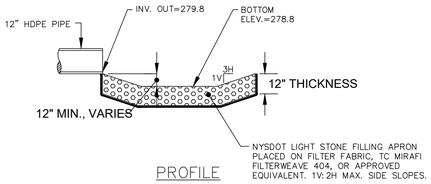
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS
CITY OF POUGHKEEPSIE
STANDARD DETAILS
SOUTH HAMILTON
TAX MAP - 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
D2
SHEET 6 OF 8



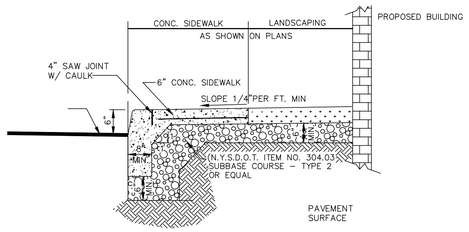
PLAN



PROFILE

EXPANDED SCOUR HOLE DETAIL FOR DETENTION POND OUTLET

SCALE: NO SCALE

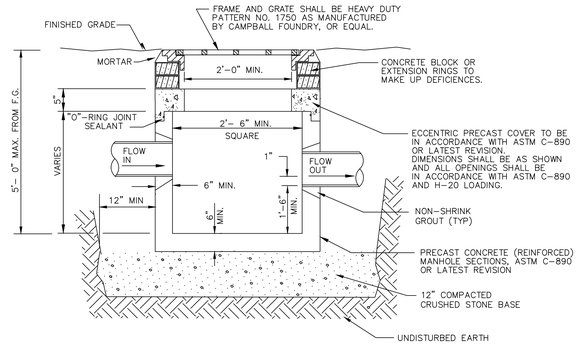


CONCRETE CURB & SIDEWALK DETAIL

SCALE: NONE

NOTES:
FOR DEPTHS GREATER THAN 5'– 0", A 4'– 0" I.D. PRECAST CONCRETE STRUCTURE SHALL BE USED.

STRUCTURES SHALL BE AS MANUFACTURED BY THE FORT MILLER COMPANY, OR EQUAL.



TYPE "A" CATCH BASIN

SCALE: NONE

DISINFECTION OF WATER MAINS:

A. DISINFECTION METHODS IN ACCORDANCE WITH AWWA C651.

B. CHLORINATION SHALL PROVIDE A MINIMUM OF 25 PPM RESIDUAL AFTER 24–HOURS CONTACT IN PIPELINE. IN GENERAL, THIS RESIDUAL MAY BE EXPECTED WITH AN APPLICATION OF 50 PPM ALTHOUGH SOME CONDITIONS MAY REQUIRE MORE.

C. CHLORINE, IN A FORM OF A 1% SLURRY OF HIGH TEST CALCIUM HYPOCHLORITE (HTH, PERCHLORON, PITTCHLOR,ETC.) SHALL BE FED INTO THE PIPELINE IN SUCH A MANNER AS TO MIX WITH THE WATER FLOWING IN THE PIPELINE. (A 1% SLURRY RESULTS FROM MIXING 1 POUND OF CALCIUM HYPOCHLORITE WITH 7.5 GALLONS OF WATER)

D. THE FOLLOWING TABLE PROVIDES INFORMATION AS TO THE REQUIRED QUANTITY OF SLURRY TO BE USED PER 100 FEET OF PIPE TO PROVIDE A CHLORINE CONCENTRATION OF 50 PPM:

PIPE SIZE INCHES	VOL. OF 100 FT LENGTH (GALLONS)	REQUIRED AMOUNT OF SLURRY (GALLONS)
4	65	0.33
6	147	0.74
8	261	1.3
10	408	2.0
12	588	3.0
16	1044	5.2

A. DURING THE PROCESS OF CHLORINATING THE PIPELINE, ALL VALVES AND OTHER PIPELINE APPURTENANCES SHALL BE OPERATED SEVERAL TIMES TO PROVIDE SUFFICIENT CONTACT WITH THE CHLORINATING AGENT.

HYDROSTATIC WATER MAIN TEST:

A. THE HYDROSTATIC TEST METHOD SHALL BE IN ACCORDANCE WITH ANSI/AWWA C600.

B. ALL PIPELINES, SERVICES, AIR RELEASE VALVES AND APPURTENANCES SHALL BE HYDROSTATIC TESTED.

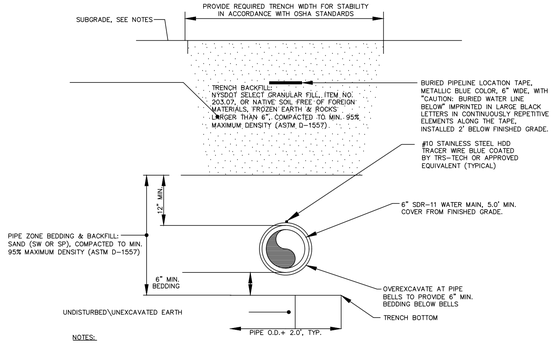
C. ALL WATER MAINS SHALL BE GIVEN A HYDROSTATIC TEST OF AT LEAST 1.5 TIMES THE WATER SYSTEM OPERATING PRESSURE OR 150 POUNDS PER SQUARE INCH (PSI), WHICH EVER IS GREATER. THE PRESSURE MEASUREMENT SHALL BE MADE FROM THE LOWEST ELEVATION OF THE FORCE MAIN SECTION BEING TESTED. THE TEST PRESSURE SHALL NOT EXCEED THE PIPE OR VALVE RATED PRESSURES.

D. THE HYDROSTATIC TEST DURATION OF EACH WATER/FIRE LINE TEST SECTION IS 2 HOURS (UNINTERRUPTED).

E. THE MAXIMUM ALLOWABLE LEAKAGE OF FORCE MAIN SHALL BE BASED UPON THE FOLLOWING TABLE:

ALLOWABLE LEAKAGE OF DIP WATER MAINS IN GALLONS PER HOUR (GPH) AT 150 PSI

DIA.	100 FT.	200 FT.	300 FT.	400 FT.	500 FT.	600 FT.	700 FT.	800 FT.	900 FT.	1000 FT.
4	0.04	0.07	0.11	0.15	0.18	0.22	0.26	0.29	0.33	0.37
6	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.55
8	0.07	0.15	0.22	0.29	0.37	0.44	0.51	0.59	0.66	0.74
10	0.09	0.18	0.28	0.37	0.46	0.55	0.64	0.74	0.83	0.92
12	0.11	0.22	0.33	0.44	0.55	0.66	0.77	0.88	0.99	1.10



NOTES:

1. THE TOWN OF NISKAYUNA SHALL BE NOTIFIED A MIN. OF 72 HOURS PRIOR TO THE COMMENCEMENT OF THE WATER MAIN CONSTRUCTION.

2. WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLASTIC PIPE INSTITUTE, NYSDOH, NYSDEC, AMERICAN WATER WORKS ASSOCIATION (AWWA), GREAT LAKES–UPPER MISSISSIPPI RIVER BOARD OF STATE & PROVINCIAL PUBLIC HEALTH & ENVIRONMENTAL MANAGERS "RECOMMENDED STANDARDS FOR WATER WORKS (GLUMRB–TEN STATE STANDARDS), AND THE TOWN OF NISKAYUNA, NY.

3. ALL ITEMS DISTURBED BY THE CONTRACTOR, SHALL BE RESTORED TO THE FULL LIMIT OF DISTURBANCE AT THE CONTRACTOR'S EXPENSE.

A. PAVEMENT AREAS ONLY: RESTORE DISTURBED AREAS IN ACCORDANCE WITH ASPHALT CONCRETE PAVEMENT DETAIL.
B. LAWN AREAS ONLY: RESTORE DISTURBED AREAS WITH MIN. 4" TOPSOIL, SEED, MULCH, & JUTE MESH.

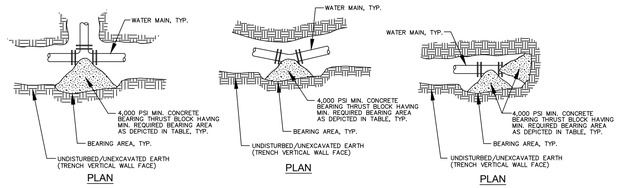
4. ALL NEW WATER SYSTEMS SHALL BE FLUSHED THOROUGHLY AT MIN. 2.5 FT/SEC FOR A DURATION ACCEPTABLE TO THE TOWN OF NISKAYUNA, THEN HYDROSTATIC PRESSURE TESTED IN ACCORDANCE WITH ANSI/AWWA C906–7 STANDARDS PRIOR TO PLACING IN SERVICE.

5. AFTER HYDROSTATIC PRESSURE TESTING, WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH ANSI/AWWA C651 STANDARDS PRIOR TO PLACING IN SERVICE.

6. PROVIDE (3) COPIES OF THE HYDROSTATIC PRESSURE, DISINFECTION, & BACTERIOLOGICAL TEST REPORTS TO THE TOWN OF NISKAYUNA AND THE SCHENECTADY COUNTY DEPARTMENT OF HEALTH FOR APPROVAL.

WATER MAIN TRENCH DETAIL - H.D.P.E. PIPE

SCALE: NO SCALE



THRUST BLOCK DETAIL

SCALE: NO SCALE

MINIMUM REQUIRED BEARING AREAS FOR CONCRETE THRUST BLOCKS
225 PSIG & 2,000 PSF SOIL

PIPE DIAMETER	DEAD END, TEE AREA (SF)	90° BEND AREA (SF)	45° BEND AREA (SF)	22.5° BEND AREA (SF)	11.25° BEND AREA (SF)	5.625° BEND AREA (SF)
6"	4.2	5.9	3.2	1.6	0.8	0.8

NOTES:

1. REQUIRED BEARING AREAS ARE DUE TO THRUSTS CAUSED BY 225 PSI TOTAL INTERNAL PRESSURE (MAX. 150 PSIG WORKING PRESSURE PLUS 75 PSIG SURGE ALLOWANCE)

2. CONCRETE THRUST BLOCK SHALL BE PLACED SO THAT THE PIPE & FITTING SHALL BE ACCESSIBLE FOR FUTURE REPAIR. FITTING AND HARDWARE SHALL BE WRAPPED WITH A TOTAL OF 12–MIL OF POLYETHYLENE PLASTIC PRIOR TO PLACING CONCRETE THRUST BLOCKS. THRUST BLOCKS ARE REQUIRED AT ALL HORIZONTAL & VERTICAL BENDS.

3. REQUIRED BEARING AREAS ARE BASED ON ALLOWABLE SOIL BEARING CAPACITY OF 2,000 POUNDS PER SQUARE FOOT FOR SAND. DUE TO OTHER SOIL CONDITIONS THAT MAY BE ENCOUNTERED, BEARING AREAS MAY BE MODIFIED (BY THE ENGINEER ONLY) BY MULTIPLYING THE AREA GIVEN IN THE TABLE FOR THE APPROPRIATE PIPE SIZE AND FITTING BY THE CORRECTION FACTORS LISTED BELOW. IN THE EVENT THAT ENCOUNTERED SOIL CONDITIONS ARE OTHER THAN SAND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF SAID CONDITIONS, AND THE CONTRACTOR SHALL CONSTRUCT THE MODIFIED CONCRETE THRUST BLOCK(S) IN ACCORDANCE WITH THE ENGINEER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL NOT MODIFY THE MINIMUM REQUIRED BEARING AREAS OF THE CONCRETE THRUST BLOCKS FROM THOSE DEPICTED ABOVE WITHOUT RECEIVING THE ENGINEER'S WRITTEN PERMISSION TO DO SO.

SOIL	ALLOWABLE SOIL PRESSURE (PSF)	CORRECTION FACTOR
SOFT CLAY	1,000	2.00
SAND	2,000	1.00
SAND & GRAVEL	3,000	0.67
SAND & GRAVEL CEMENTED W/CLAY	4,000	0.50
HARD SHALE	10,000	0.20

4. IN MUCK, PEAT, OR RECENTLY PLACED FILL, ALL THRUSTS SHALL BE RESISTED BY PILES, OR BY INSTALLING TIE RODS TO SOLID FOUNDATIONS, OR BY REMOVAL OF SUCH UNSTABLE MATERIAL AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS, ALL AS REQUIRED BY THE ENGINEER.

5. ALL CONCRETE THRUST BLOCKS SHALL BE CONSTRUCTED OF MINIMUM 4,000 PSI COMPRESSIVE STRENGTH (f'c) CONCRETE (28–DAY STRENGTH) WITH 4% TO 6% AIR ENTRAINMENT, AND A MAXIMUM WATER–TO–CEMENT (W/C) RATIO OF 0.35. ALL THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED/UNEXCAVATED SOIL OF TRENCH VERTICAL WALL FACE.

6. MINIMUM REQUIRED THRUST BLOCK BEARING AREA SHALL BE THE ACTUAL CONTACT AREA AGAINST THE VERTICAL FACE OF THE TRENCH WALL LOCATED BEHIND THE PIPE FITTING. BEARING AREA SHALL BE IN A SQUARE CONFIGURATION TO THE BEST EXTENT POSSIBLE.

THRUST BLOCK BEARING AREA TABLE & NOTES

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED PARKING LANDSCAPING	DFA	08.03.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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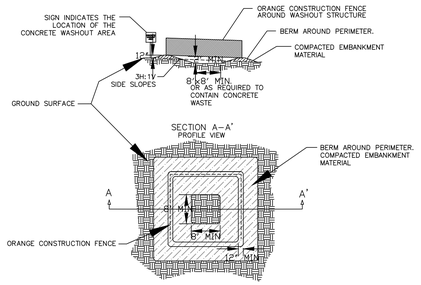
CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

STANDARD DETAILS SOUTH HAMILTON

TAX MAP: 6161-30-151783

DATE: JANUARY 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
D3
SHEET 7 OF 8

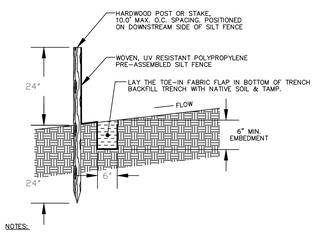


NOTES:

1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. VEHICLE TRACKING CONTROL IS REQUIRED AT CONCRETE WASHOUT ENTRANCE IF ACCESS TO CONCRETE WASHOUT AREA IS OFF PAVEMENT.
3. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND/OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR WASTE CONCRETE.
4. WASTE MATERIAL FROM CONCRETE WASHOUT OPERATIONS MUST BE REMOVED AND LEGALLY DISPOSED OF WHEN IT HAS ACCUMULATED TWO–THIRDS OF THE WET STORAGE CAPACITY OF THE STRUCTURE.
5. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT AN APPROVED WASTE SITE.
6. WHEN THE CONCRETE WASHOUT AREA IS REMOVED, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED IN A MANNER ACCEPTED BY THE TOWN.

CONCRETE WASHOUT AREA DETAIL

SCALE: NO SCALE



NOTES:

1. THE LENGTH OF SLOPE ABOVE THE SILT FENCE SHALL NOT EXCEED THE FOLLOWING LIMITS:

SLOPE	MAX. SLOPE LENGTH
1V:2H (50%)	50 FEET
1V:3H (33%)	75 FEET
1V:4H (25%)	125 FEET
1V:5H (20%)	175 FEET
FLATTER THAN 1V:5H (20%)	200 FEET

2. DRAINAGE AREA SHALL NOT BE GREATER THAN 0.25 ACRES PER 100 L.F. OF SILT FENCE.

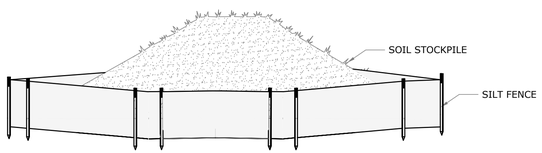
3. ALL SILT FENCES SHALL BE PLACED AS CLOSE TO THE WORK AREA AS POSSIBLE, AND THE AREA BELOW THE SILT FENCE MUST BE UNDISTURBED OR STABILIZED.

4. WHERE ENDS OF FILTER CLOTH COME TOGETHER, THEY SHALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.

5. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS TO PREVENT BLOCKING OR IMPEDING STORMWATER RUNOFF.

TEMPORARY SILT FENCE DETAIL

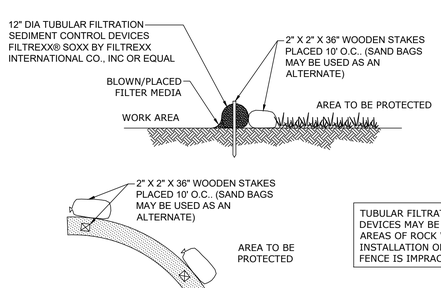
SCALE: NO SCALE



1. TOPSOIL AND FILL THAT IS ANTICIPATED TO REMAIN STOCKPILED ON–SITE FOR PERIODS GREATER THAN 30 DAYS SHALL BE STABILIZED BY SEEDING. PRIOR TO THE SEEDING OPERATION, THE STOCKPILED MATERIAL SHALL BE GRADED TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IN NO CASE SHALL ERODIBLE MATERIALS BE STOCKPILED WITHIN 25 FT OF ANY DITCH, STREAM, OR OTHER SURFACE WATERBODY.
2. SILT FENCE SHALL BE CONSTRUCTED AROUND ALL STOCKPILES OF FILL, TOPSOIL AND EXCAVATED OVERBURDEN THAT ARE TO REMAIN EXPOSED FOR PERIODS LESS THAN 30 DAYS. SILT FENCE SHALL BE ANCHORED AND MAINTAINED IN GOOD CONDITION UNTIL SUCH TIME AS SAID STOCKPILES ARE REMOVED AND STOCKPILING AREAS ARE BROUGHT TO FINAL GRADE AND PERMANENTLY STABILIZED.
3. TEMPORARY STABILIZATION MEASURES SHALL START AS SOON AS PRACTICAL ON PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NOT MORE THAN 14 DAYS AFTER WORK HAS CEASED.

SOIL STOCKPILE DETAIL

SCALE: NONE



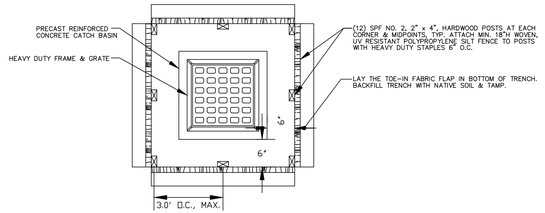
TUBULAR FILTRATION DEVICES MAY BE USED IN AREAS OF ROCK WHERE INSTALLATION OF SILT FENCE IS IMPRACTICAL

NOTE:

1. FILL TUBULAR FILTRATION SEDIMENT CONTROL DEVICE WITH FILTER MEDIA APPROVED BY NYSDEC FOR THIS APPLICATION.

TUBULAR FILTRATION SEDIMENT CONTROL DEVICE

SCALE: NO SCALE



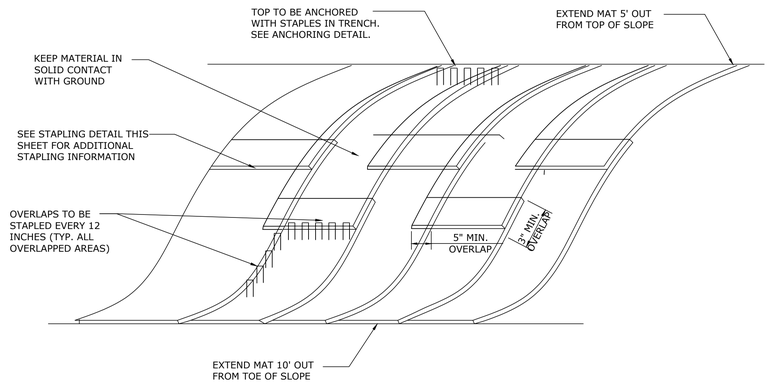
SECTION

NOTES:

1. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY MUST BE OVERLAPPED TO THE NEXT STAKE.
2. 1 ACRE MAXIMUM DRAINAGE AREA PER PROTECTION DEVICE.
3. LAND AREA SLOPE IMMEDIATELY SURROUNDING THE PROTECTION DEVICE SHOULD NOT EXCEED 1%
4. REMOVE SEDIMENT FROM THE POOL AREA AS NECESSARY WITH CARE TO PREVENT UNDERCUTTING OR DAMAGING THE FILTER FABRIC.
5. PROTECTION DEVICE SHALL BE KEPT IN PLACE UNTIL ASPHALT CONCRETE PLACEMENT IS COMMENCED.

TEMPORARY FILTER FABRIC CATCH BASIN PROTECTION DETAIL

SCALE: NO SCALE



NOTES:

1) APPLY APPLICATION OF ANY LIME, FERTILIZER, AND SEED BEFORE INSTALLING TURF REINFORCEMENT MAT.

2) INSTALL USING ALL MANUFACTURERS INSTALLATION RECOMMENDATIONS AND GUIDLINES.

3) BLANKET FOR 5:1 SLOPES - S75 BY NORTH AMERICAN GREEN
BLANKET FOR 2:1 TO 3:1 SLOPES - HYDRAMAX STEEP SLOPE MATRIX - NORTH AMERICAN GREEN

EROSION CONTROL BLANKET DETAIL

SCALE: NONE

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:

OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

☐ ISSUED FOR REVIEW
☐ NOT FOR CONSTRUCTION
☐ RECORD PLANS

DATE SUBMITTED:

REVISIONS

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23
2	REVISED LANDSCAPING	DFA	08.10.23
3	REVISED PER CITY COMMENTS	DFA	10.03.23

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

STANDARD DETAILS
SOUTH HAMILTON

TAX MAP 6161-30-151783

DATE: JANUARY 2023

JOB NO. 22.10

SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.

D4

SHEET 8 OF 8

APPENDIX G

Version 1.8
Last Updated: 11/09/2015

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	DA1.1	
P=	1.00	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	0.74	0.73	99%	0.94	2,519	Porous Pavement
2	0.94	0.81	86%	0.83	2,817	Filter-JellyFish
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	1.68	1.54	92%	0.88	**5,336**	**Subtotal 1**
Total	1.68	1.54	92%	0.88	**5,336**	**Initial WQv**	**0.12**	**af**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*		
"<<Initial WQv"	1.68	1.54	92%	0.88	5,336		
Subtract Area	0.00	0.00					
WQv adjusted after Area Reductions	**1.68**	**1.54**	92%	0.88	5,336		
Disconnection of Rooftops		0.00					
Adjusted WQv after Area Reduction and Rooftop Disconnect	1.68	1.54	92%	0.88	**5,336**	**0.12**	**af**
WQv reduced by Area Reduction techniques					0	**0.00**	**af**

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**cf**	**cf**
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.74	0.73	2519	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4				
	Bioretention & Infiltration Bioretention	F-5	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4	0.94	0.81		2817.000
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.74	0.73	2519	
Totals by Standard SMP w/RRV →			0.00	0.00	0	0
Totals by Standard SMP →			0.94	0.81		2817
Totals (Area + Volume + all SMPs) →			1.68	1.54	2,519	2,817
	Impervious Cover √	okay				
	Total Area √	okay				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C	100.00	30%
D		20%
Total Area	100	
Calculate the Minimum RRv		
S =	**0.30**	
Impervious =	1.54	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**1,593**	***ft3***
	0.04	af

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	5336	*0.123*
30	Total RRV Provided	2519	*0.058*
31	Is RRv Provided ≥WQv Required?	No	
32	Minimum RRv	1593	*0.037*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	2817	*0.065*
34	Sum of Volume Reduced & Treated	5336	*0.123*
34	Sum of Volume Reduced and Treated	5336	*0.123*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

47.21%

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?	*Yes*	Plan Completed

Planning

Practice	Description	Application
Preservation of Undisturbed Areas	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.	Considered & Not Applied
Preservation of Buffers	Define, delineate and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.	Considered & Applied
Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.	Considered & Not Applied
Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact.	Considered & Not Applied
Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.	Considered & Applied
Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices.	Considered & Applied
Roadway Reduction	Minimize roadway widths and lengths to reduce site impervious area	N/A
Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area	Considered & Applied
Driveway Reduction	Minimize driveway lengths and widths to reduce site impervious area	N/A
Cul-de-sac Reduction	Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.	N/A
Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.	Considered & Applied
Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.	Considered & Applied

Porous Pavement Worksheet

Ap = Vw / (n x dt)

Ap	Required porous pavement surface area	*ft2*	
Vw	Design Volume	*ft3*	
n	porosity of gravel bed/resevoir		*Assume .4 for gravel*
dt	depth of gravel bed/resevoir		

Design Point:	**DA1.1**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	0.74	0.73	0.99	0.94	2519.22	1.00	Porous Pavement

Enter Soil Infiltration Rate			
Soil Inflitration Rate	0.00	*in/hour*	*Infiltration rate should be a minimum of 0.5 in/hr.*

Calculate Required Surface Area				
Design Volume	Vw	2,519	*ft^3*	
Are underdrains being used?		Yes	-	Only Gravel Bed Depth below underdrain can be considered.
Porosity of Gravel Bed	*n*	0.40	-	
Gravel Bed Depth	dt	2.00	*ft*	Must be the depth below the underdrain.
Required Surface Area	Ap	3,149	*sf*	
Surface Area Provided		4,860	*sf*	*Dimensions of pavement can be provided here*
Storage Volume Provided		3,888	*ft^3*	

Determine the Runoff Reduction			
RRv	**2,519**	***ft^3***	

Porous Pavement Worksheet

Ap = Vw / (n x dt)

Ap	Required porous pavement surface area	*ft2*	
Vw	Design Volume	*ft3*	
n	porosity of gravel bed/resevoir		*Assume .4 for gravel*
dt	depth of gravel bed/resevoir		

Design Point:	**DA1.1**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area**	**Percent Imperviousness**	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**

Enter Soil Infiltration Rate			
Soil Inflitration Rate		*in/hour*	*Infiltration rate should be a minimum of 0.5 in/hr.*

Calculate Required Surface Area				
Design Volume	Vw		*ft^3*	
Are underdrains being used?			-	
Porosity of Gravel Bed	*n*		-	
Gravel Bed Depth	dt		*ft*	
Required Surface Area	Ap	#VALUE!	*sf*	
Surface Area Provided			*sf*	*Dimensions of pavement can be provided here*
Storage Volume Provided		0	*ft^3*	*Practice too small*

Determine the Runoff Reduction			
RRv	**Error**	***ft^3***	

Porous Pavement Worksheet

Ap = Vw / (n x dt)

Ap	Required porous pavement surface area	*ft2*	
Vw	Design Volume	*ft3*	
n	porosity of gravel bed/resevoir		*Assume .4 for gravel*
dt	depth of gravel bed/resevoir		

Design Point:	**DA1.1**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** (Acres)	**Impervious Area**	**Percent Impervious**	**Rv**	**WQv** (ft^3)	**Precipitation** (in)	**Description**

Enter Soil Infiltration Rate			
Soil Inflitration Rate		*in/hour*	*Infiltration rate should be a minimum of 0.5 in/hr.*

Calculate Required Surface Area				
Design Volume	Vw		ft^3	
Are underdrains being used?			-	
Porosity of Gravel Bed	*n*		-	
Gravel Bed Depth	dt		*ft*	
Required Surface Area	Ap	#VALUE!	*sf*	
Surface Area Provided			*sf*	*Dimensions of pavement can be provided here*
Storage Volume Provided		0	ft^3	*Practice too small*

Determine the Runoff Reduction			
RRv	**Error**	ft^3	

Porous Pavement Worksheet

Ap = Vw / (n x dt)

Ap	Required porous pavement surface area	*ft2*	
Vw	Design Volume	*ft3*	
n	porosity of gravel bed/resevoir		*Assume .4 for gravel*
dt	depth of gravel bed/resevoir		

Design Point:	**DA1.1**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area**	**Percent Impervious**	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**

Enter Soil Infiltration Rate			
Soil Inflitration Rate		*in/hour*	*Infiltration rate should be a minimum of 0.5 in/hr.*

Calculate Required Surface Area				
Design Volume	Vw		*ft^3*	
Are underdrains being used?			-	
Porosity of Gravel Bed	*n*		-	
Gravel Bed Depth	dt		*ft*	
Required Surface Area	Ap	#VALUE!	*sf*	
Surface Area Provided			*sf*	*Dimensions of pavement can be provided here*
Storage Volume Provided		0	*ft^3*	*Practice too small*

Determine the Runoff Reduction			
RRv	**Error**	***ft^3***	

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 7040 NY Dutchess S
Rainfall events imported from "NRCS-Rain.txt" for 7040 NY Dutchess S

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	NRCC 24-hr	C	Default	24.00	1	2.64	2
2	10-Year	NRCC 24-hr	C	Default	24.00	1	4.71	2
3	50-Year	NRCC 24-hr	C	Default	24.00	1	7.01	2
4	100-Year	NRCC 24-hr	C	Default	24.00	1	8.32	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
236,749	74	>75% Grass cover, Good, HSG C (POA1-POST, POA1-PRE, POA1.1-POST, POA2-POST, POA2-PRE, POA3-POST, POA3.1-POST, POA4-POST, POA4-PRE)
43,560	98	Paved parking, HSG C (POA1.1-POST)
63,815	98	Paved roads w/curbs & sewers, HSG C (POA2-POST, POA2-PRE)
23,958	98	Roofs, HSG C (POA1.1-POST)
143,312	72	Woods/grass comb., Good, HSG C (POA1-PRE, POA2-PRE, POA3-PRE, POA4-PRE)
511,394	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
511,394	HSG C	POA1-POST, POA1-PRE, POA1.1-POST, POA2-POST, POA2-PRE, POA3-POST, POA3-PRE, POA3.1-POST, POA4-POST, POA4-PRE
0	HSG D	
0	Other	
511,394		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	236,749	0	0	236,749	>75% Grass cover, Good
0	0	43,560	0	0	43,560	Paved parking
0	0	63,815	0	0	63,815	Paved roads w/curbs & sewers
0	0	23,958	0	0	23,958	Roofs
0	0	143,312	0	0	143,312	Woods/grass comb., Good
0	**0**	**511,394**	**0**	**0**	**511,394**	**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	POA1.1-POST	0.00	0.00	45.0	0.0100	0.010	0.0	12.0	0.0
2	POA1.1-POST	0.00	0.00	190.0	0.0150	0.010	0.0	12.0	0.0
3	POA1.1-POST	0.00	0.00	70.0	0.0500	0.010	0.0	18.0	0.0
4	SMA1	194.00	193.75	25.0	0.0100	0.010	0.0	8.0	0.0

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPOA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.07 cfs 176 cf

SubcatchmentPOA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>0.52"
Flow Length=557' Tc=32.9 min CN=72 Runoff=0.56 cfs 3,349 cf

SubcatchmentPOA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>1.45"
Flow Length=615' Tc=6.5 min CN=89 Runoff=4.82 cfs 13,125 cf

SubcatchmentPOA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>0.94"
Flow Length=533' Tc=16.4 min CN=81 Runoff=2.48 cfs 9,375 cf

SubcatchmentPOA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>0.78"
Flow Length=734' Tc=14.3 min CN=78 Runoff=2.61 cfs 9,405 cf

SubcatchmentPOA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.03 cfs 66 cf

SubcatchmentPOA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>0.53"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.04 cfs 96 cf

SubcatchmentPOA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.11 cfs 308 cf

SubcatchmentPOA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=178' Tc=10.8 min CN=74 Runoff=0.23 cfs 769 cf

SubcatchmentPOA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>0.56"
Flow Length=390' Tc=26.9 min CN=73 Runoff=0.29 cfs 1,522 cf

Pond SMA1: SMA1 Peak Elev=196.53' Storage=13,120 cf Inflow=4.82 cfs 13,125 cf
Outflow=0.00 cfs 0 cf

Link TOTAL POA2: TOTAL DA2 Inflow=2.48 cfs 9,375 cf
Primary=2.48 cfs 9,375 cf

Total Runoff Area = 511,394 sf Runoff Volume = 38,191 cf Average Runoff Depth = 0.90"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPOA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>1.94"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.22 cfs 563 cf

SubcatchmentPOA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>1.76"
Flow Length=557' Tc=32.9 min CN=72 Runoff=2.14 cfs 11,403 cf

SubcatchmentPOA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>3.25"
Flow Length=615' Tc=6.5 min CN=89 Runoff=10.30 cfs 29,365 cf

SubcatchmentPOA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>2.50"
Flow Length=533' Tc=16.4 min CN=81 Runoff=6.61 cfs 25,041 cf

SubcatchmentPOA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>2.25"
Flow Length=734' Tc=14.3 min CN=78 Runoff=7.60 cfs 27,014 cf

SubcatchmentPOA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>1.94"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.08 cfs 211 cf

SubcatchmentPOA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>1.79"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.13 cfs 325 cf

SubcatchmentPOA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>1.94"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.37 cfs 985 cf

SubcatchmentPOA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>1.93"
Flow Length=178' Tc=10.8 min CN=74 Runoff=0.78 cfs 2,457 cf

SubcatchmentPOA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>1.84"
Flow Length=390' Tc=26.9 min CN=73 Runoff=1.05 cfs 5,021 cf

Pond SMA1: SMA1 Peak Elev=198.04' Storage=24,657 cf Inflow=10.30 cfs 29,365 cf
Outflow=0.35 cfs 4,819 cf

Link TOTAL POA2: TOTAL DA2 Inflow=6.61 cfs 29,860 cf
Primary=6.61 cfs 29,860 cf

Total Runoff Area = 511,394 sf Runoff Volume = 102,385 cf Average Runoff Depth = 2.40"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPOA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.42 cfs 1,081 cf

SubcatchmentPOA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>3.48"
Flow Length=557' Tc=32.9 min CN=72 Runoff=4.22 cfs 22,474 cf

SubcatchmentPOA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>5.31"
Flow Length=615' Tc=6.5 min CN=89 Runoff=16.35 cfs 48,031 cf

SubcatchmentPOA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>4.45"
Flow Length=533' Tc=16.4 min CN=81 Runoff=11.52 cfs 44,552 cf

SubcatchmentPOA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>4.13"
Flow Length=734' Tc=14.3 min CN=78 Runoff=13.70 cfs 49,611 cf

SubcatchmentPOA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.16 cfs 406 cf

SubcatchmentPOA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>3.52"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.25 cfs 639 cf

SubcatchmentPOA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.70 cfs 1,891 cf

SubcatchmentPOA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=178' Tc=10.8 min CN=74 Runoff=1.48 cfs 4,720 cf

SubcatchmentPOA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>3.59"
Flow Length=390' Tc=26.9 min CN=73 Runoff=2.03 cfs 9,771 cf

Pond SMA1: SMA1 Peak Elev=198.44' Storage=28,254 cf Inflow=16.35 cfs 48,031 cf
Outflow=2.69 cfs 23,426 cf

Link TOTAL POA2: TOTAL DA2 Inflow=14.24 cfs 67,978 cf
Primary=14.24 cfs 67,978 cf

Total Runoff Area = 511,394 sf Runoff Volume = 183,176 cf Average Runoff Depth = 4.30"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentPOA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>4.81"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.54 cfs 1,397 cf

SubcatchmentPOA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>4.53"
Flow Length=557' Tc=32.9 min CN=72 Runoff=5.47 cfs 29,291 cf

SubcatchmentPOA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>6.50"
Flow Length=615' Tc=6.5 min CN=89 Runoff=19.77 cfs 58,722 cf

SubcatchmentPOA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>5.60"
Flow Length=533' Tc=16.4 min CN=81 Runoff=14.33 cfs 56,089 cf

SubcatchmentPOA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>5.26"
Flow Length=734' Tc=14.3 min CN=78 Runoff=17.24 cfs 63,152 cf

SubcatchmentPOA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>4.81"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.20 cfs 524 cf

SubcatchmentPOA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>4.58"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.32 cfs 832 cf

SubcatchmentPOA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>4.81"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.89 cfs 2,444 cf

SubcatchmentPOA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>4.80"
Flow Length=178' Tc=10.8 min CN=74 Runoff=1.89 cfs 6,100 cf

SubcatchmentPOA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>4.66"
Flow Length=390' Tc=26.9 min CN=73 Runoff=2.62 cfs 12,681 cf

Pond SMA1: SMA1 Peak Elev=199.10' Storage=34,574 cf Inflow=19.77 cfs 58,722 cf
Outflow=2.90 cfs 34,084 cf

Link TOTAL POA2: TOTAL DA2 Inflow=17.15 cfs 90,173 cf
Primary=17.15 cfs 90,173 cf

Total Runoff Area = 511,394 sf Runoff Volume = 231,231 cf Average Runoff Depth = 5.43"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

APPENDIX H

MAP REFERENCE: BOUNDARY AND TOPOGRAPHIC INFORMATION GENERATED FROM AUSFELD & WALDRUFF LAND SURVEYORS LLP DATED JANUARY 5, 2010 ENTITLED" BOUNDARY &TOPOGRAPHIC SURVEY OF THE LANDS OF STEVEN REIFLER.

DA 3
0.05±AC
Tc=5.0MIN.

DA 1
1.78±AC
Tc= MIN

DA 4
0.75±AC
Tc= MIN

SUB-DA 4
0.45±AC

DA 2
3.31±AC
Tc= MIN

Tc
(TYP)

POA 1
POA 2
POA 3
POA 4

Lands Now or Formerly of
MP HOMESTEAD LLC
Book 2008 Page 7349
Section 6161.30 Lot 182812

Lands Now or Formerly of
GEORGE & ANN HARMUTH
DOC. NO. 219956247
Section 6161.30 Lot 182803

Lands Now or Formerly of
HAMILTON GARDEN APARTMENTS, INC.
DOC. NO. 219932589
Section 6161.30 Lot 152824

Lands Now or Formerly of
NICHOLAS & GAYLE GARIN
Book 1784 Page 473
Section 6161.30 Lot 136812

Lands Now or Formerly of
SHIRLEY ADAMS
Book 2008 Page 3021
Section 6161.30 Lot 137903

Lands Now or Formerly of
GORDON GEBERT
LIZABETH PARAVISINI-GEBERT
Book 2003 Page 5091
Section 6161.30 Lot 174764

Lands Now or Formerly of
MICHAEL PETRONIO
MORIA FITZGIBBONS
Book 2004 Page 9446
Section 6161.30 Lot 166759

Lands Now or Formerly of
JEFFREY LINTEL
Book 1837 Page 809
Section 6161.30 Lot 167995

Lands Now or Formerly of
NEW HORIZONS RESOURCES INC.
Book 2005 Page 228
Section 6161.30 Lot 139757

S 10°39'30" W 289.98'
S 85°20'00" E 67.90'
S 21°40'00" E 113.93'
N 18°19'00" E 98.49'
S 72°49'00" E 126.89'
S 58°52'00" E 85.51'
N 16°08'00" E 99.02'
N 15°15'48" E 247.31'
S 10°00'57" W 72.54'
N 29°27'00" W 112.00'
N 80°33'00" W 259.51'
S 25°55'10" W 40.00'
S 09°26'10" W 185.80'
N 09°26'10" E 200.00'
N 81°22'00" W 17.00'

DWIGHT STREET
SOUTH HAMILTON STREET

BENCHMARK
RR SPIKE
ELEV.= 188.6

0 60 120 Feet

ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
RECORD PLANS

DATE SUBMITTED:

NO.	DESCRIPTION	BY	DATE

REVISIONS

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

PRE-DEVELOPMENT DRAINAGE SOUTH HAMILTON

LOCATED AT

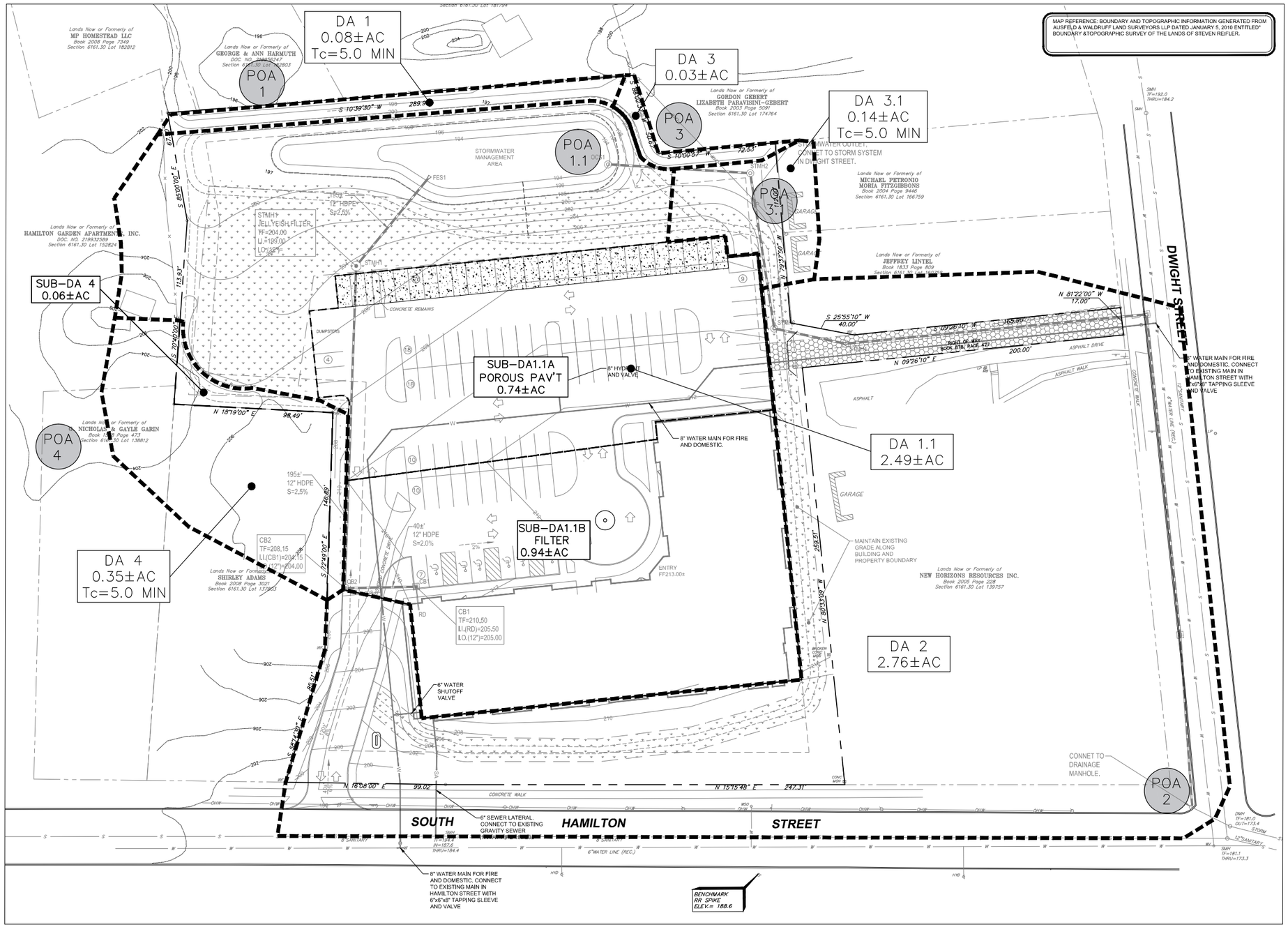
100 SOUTH HAMILTON STREET

TAX MAP - 6161-30-151763

DATE: AUGUST 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
SWPPP
1.0

SHEET 2 OF 3



ISSUED FOR REVIEW
NOT FOR CONSTRUCTION
RECORD PLANS

DATE SUBMITTED:

NO.	DESCRIPTION	BY	DATE
1	PER CITY COMMENTS	DFA	05.13.23

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CITY OF POUGHKEEPSIE COUNTY OF DUTCHESS

POST-DEVELOPMENT DRAINAGE SOUTH HAMILTON

LOCATED AT

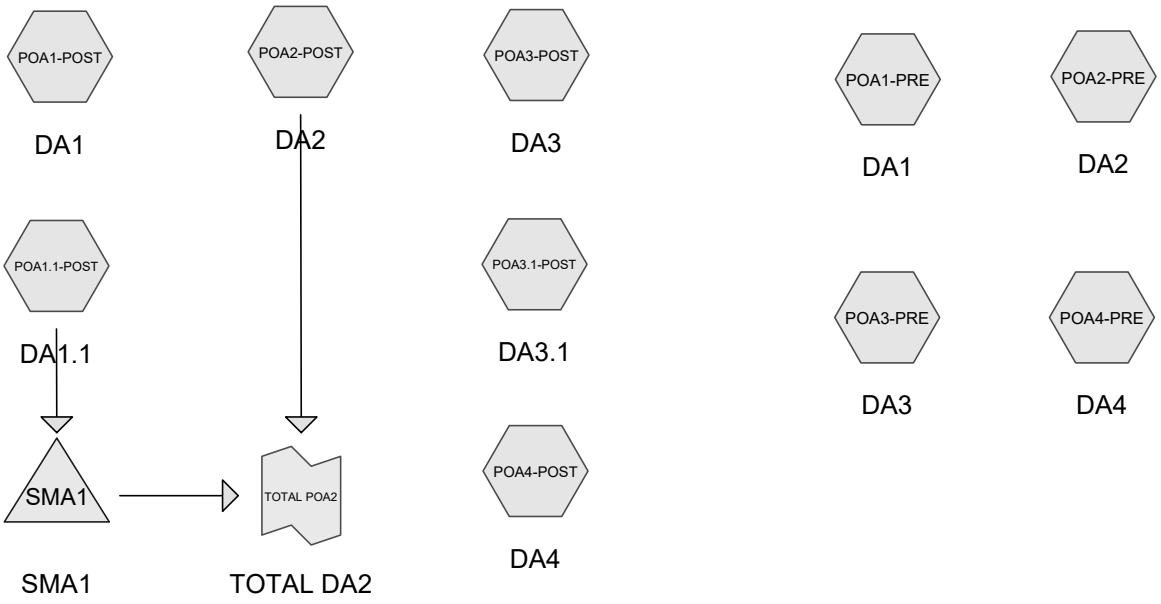
100 SOUTH HAMILTON STREET

TAX MAP - 6161-30-151763

DATE: AUGUST 2023
JOB NO. 22.10
SCALE: AS NOTED
DRAWN BY: DFA
CHECKED BY: DFA

DRAWING NO.
SWPPP 2.0

SHEET 1 OF 1



Subcat Reach Pond Link

Routing Diagram for HAMILTON ST_POSTvsPRE_10.03.23_OUTLET CONTROL

Prepared by ARICO ASSOCIATES, Printed 9/25/2023

HydroCAD® 10.10-5a s/n 10839 © 2020 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment POA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.07 cfs 176 cf

Subcatchment POA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>0.52"
Flow Length=557' Tc=32.9 min CN=72 Runoff=0.56 cfs 3,349 cf

Subcatchment POA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>1.45"
Flow Length=615' Tc=6.5 min CN=89 Runoff=4.82 cfs 13,125 cf

Subcatchment POA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>0.94"
Flow Length=533' Tc=16.4 min CN=81 Runoff=2.48 cfs 9,375 cf

Subcatchment POA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>0.78"
Flow Length=734' Tc=14.3 min CN=78 Runoff=2.61 cfs 9,405 cf

Subcatchment POA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.03 cfs 66 cf

Subcatchment POA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>0.53"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.04 cfs 96 cf

Subcatchment POA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.11 cfs 308 cf

Subcatchment POA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>0.61"
Flow Length=178' Tc=10.8 min CN=74 Runoff=0.23 cfs 769 cf

Subcatchment POA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>0.56"
Flow Length=390' Tc=26.9 min CN=73 Runoff=0.29 cfs 1,522 cf

Pond SMA1: SMA1 Peak Elev=196.53' Storage=13,120 cf Inflow=4.82 cfs 13,125 cf
Outflow=0.00 cfs 0 cf

Link TOTAL POA2: TOTAL DA2 Inflow=2.48 cfs 9,375 cf
Primary=2.48 cfs 9,375 cf

Total Runoff Area = 511,394 sf Runoff Volume = 38,191 cf Average Runoff Depth = 0.90"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Summary for Subcatchment POA1-POST: DA1

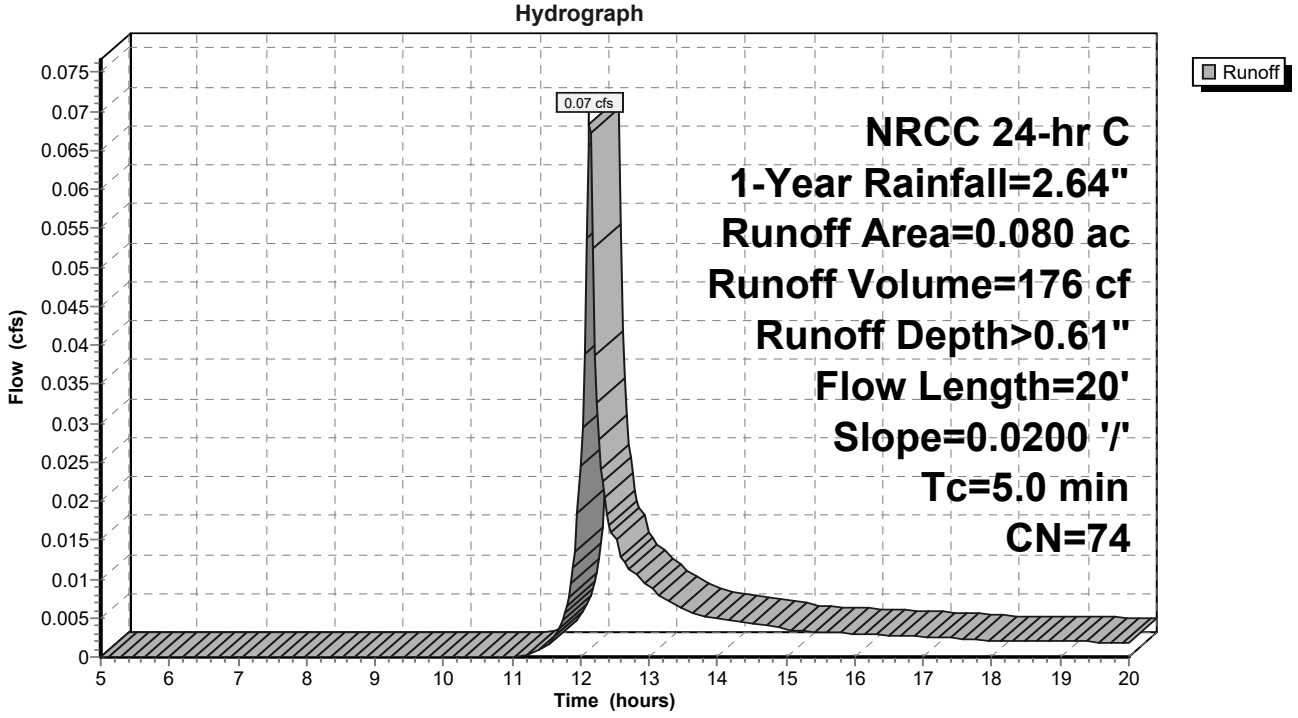
Runoff = 0.07 cfs @ 12.13 hrs, Volume= 176 cf, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
0.080	74	>75% Grass cover, Good, HSG C
0.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	20	0.0200	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
4.0	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA1-POST: DA1



Summary for Subcatchment POA1-PRE: DA1

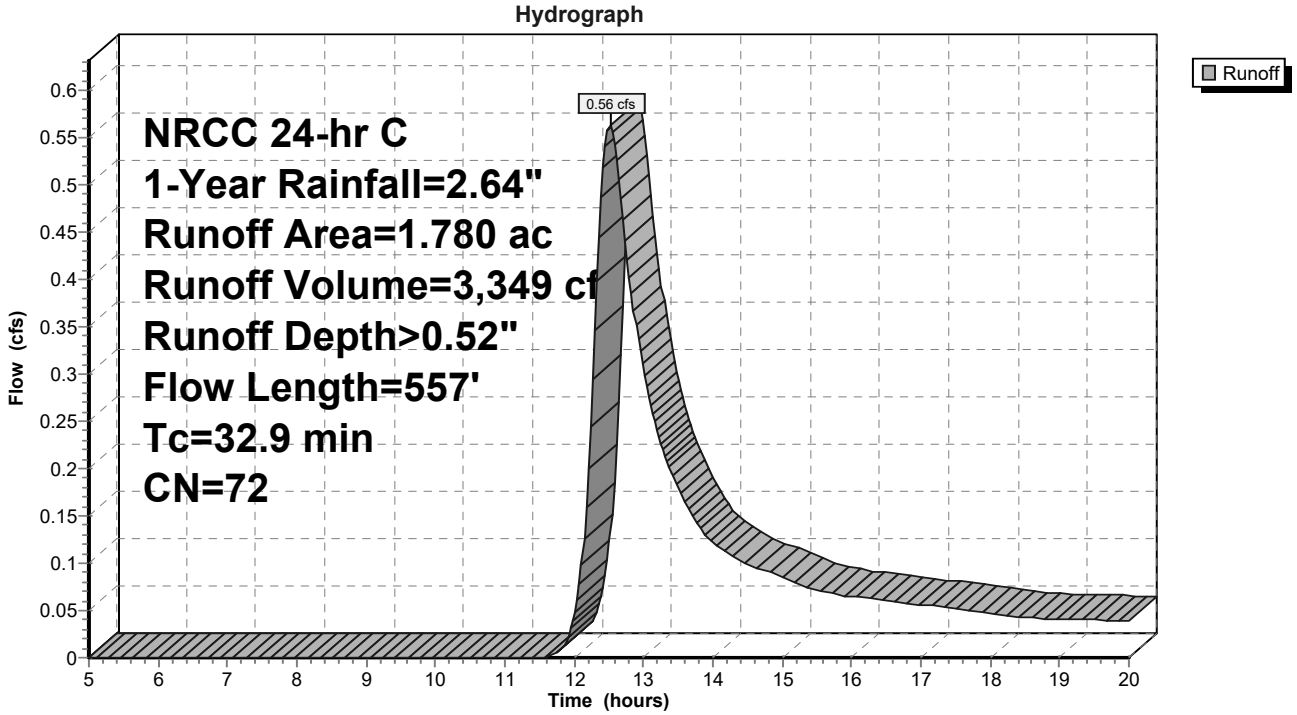
Runoff = 0.56 cfs @ 12.52 hrs, Volume= 3,349 cf, Depth> 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
1.640	72	Woods/grass comb., Good, HSG C
0.140	74	>75% Grass cover, Good, HSG C
1.780	72	Weighted Average
1.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
0.6	86	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	371	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.9	557	Total			

Subcatchment POA1-PRE: DA1



Summary for Subcatchment POA1.1-POST: DA1.1

[47] Hint: Peak is 104% of capacity of segment #3

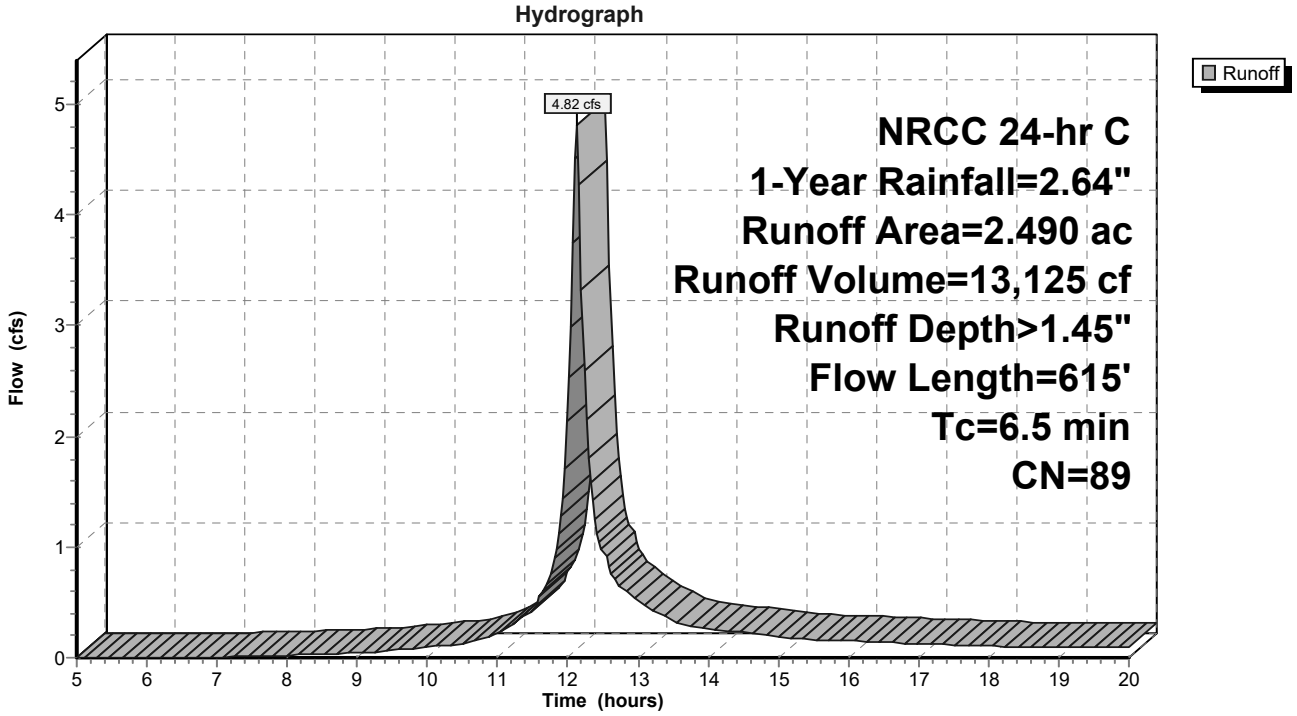
Runoff = 4.82 cfs @ 12.14 hrs, Volume= 13,125 cf, Depth> 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG C
0.550	98	Roofs, HSG C
0.940	74	>75% Grass cover, Good, HSG C
2.490	89	Weighted Average
0.940		37.75% Pervious Area
1.550		62.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.18"
0.8	150	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	45	0.0100	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.4	190	0.0150	7.22	5.67	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.1	70	0.0500	17.28	30.53	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
1.3	130	0.0050	1.63	16.34	**Channel Flow,** Area= 10.0 sf Perim= 9.0' r= 1.11' n= 0.069 Riprap, 6-inch
6.5	615	Total			

Subcatchment POA1.1-POST: DA1.1



Summary for Subcatchment POA2-POST: DA2

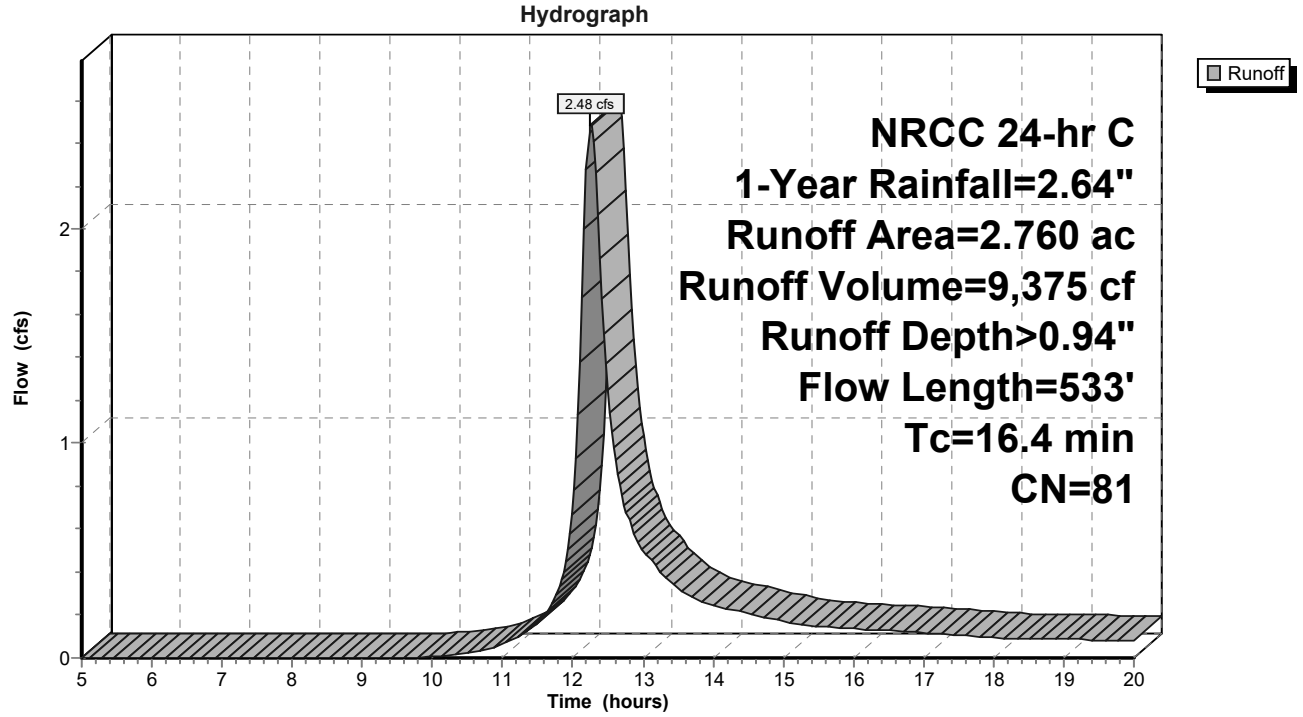
Runoff = 2.48 cfs @ 12.26 hrs, Volume= 9,375 cf, Depth> 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
1.995	74	>75% Grass cover, Good, HSG C
0.765	98	Paved roads w/curbs & sewers, HSG C
2.760	81	Weighted Average
1.995		72.28% Pervious Area
0.765		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.6	137	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.4	533	Total			

Subcatchment POA2-POST: DA2



Summary for Subcatchment POA2-PRE: DA2

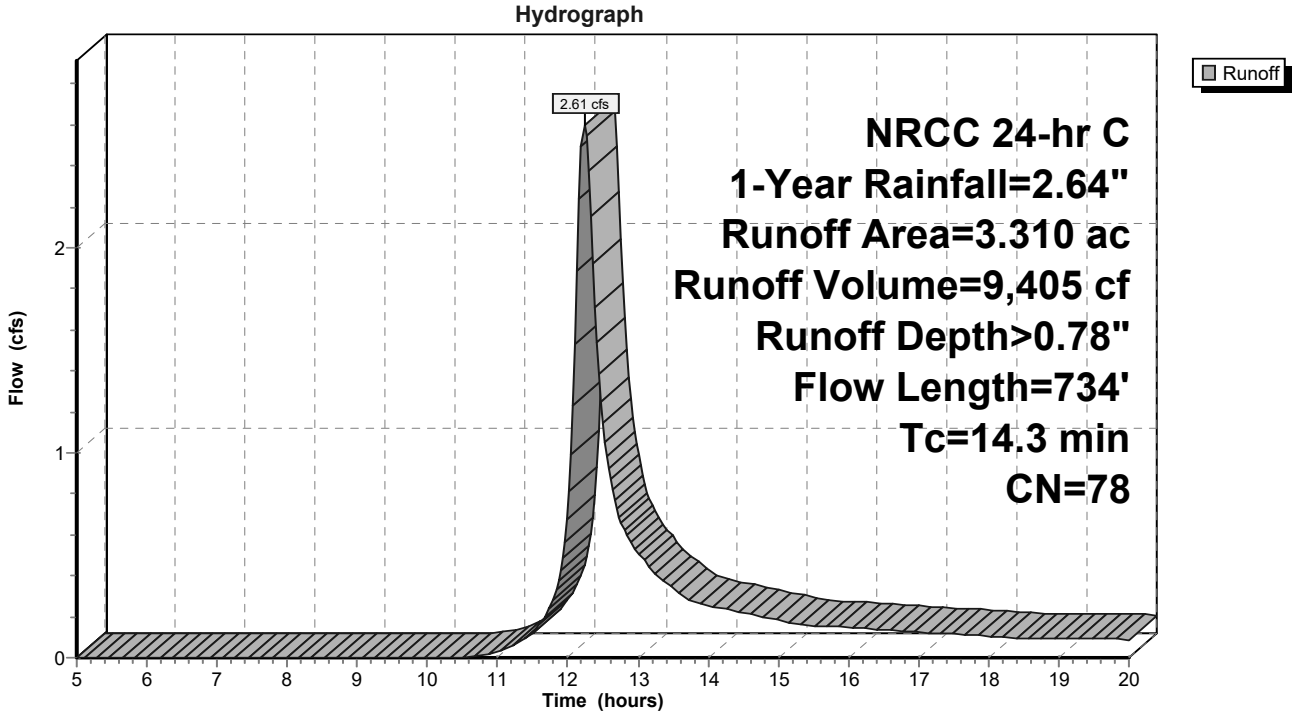
Runoff = 2.61 cfs @ 12.23 hrs, Volume= 9,405 cf, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
1.150	72	Woods/grass comb., Good, HSG C
1.460	74	>75% Grass cover, Good, HSG C
0.700	98	Paved roads w/curbs & sewers, HSG C
3.310	78	Weighted Average
2.610		78.85% Pervious Area
0.700		21.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.3	123	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	215	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.3	734	Total			

Subcatchment POA2-PRE: DA2



Summary for Subcatchment POA3-POST: DA3

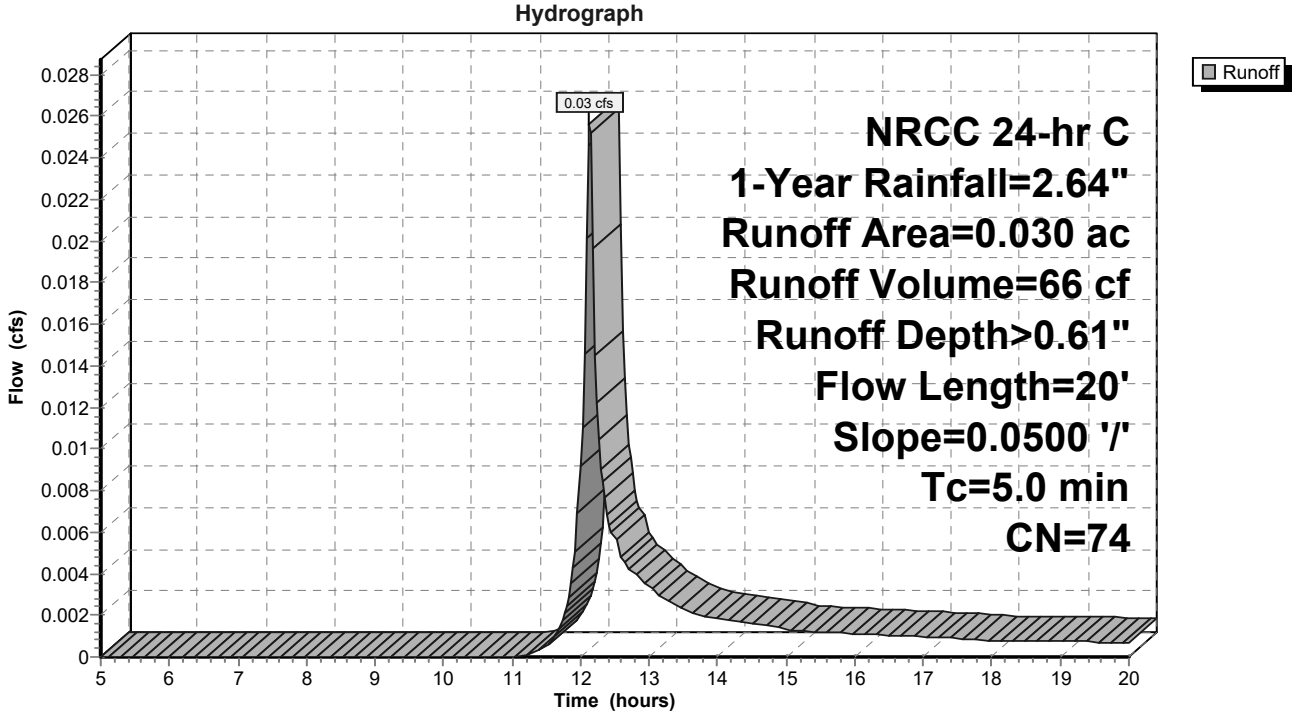
Runoff = 0.03 cfs @ 12.13 hrs, Volume= 66 cf, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
0.030	74	>75% Grass cover, Good, HSG C
0.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.0500	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
2.7	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-POST: DA3



Summary for Subcatchment POA3-PRE: DA3

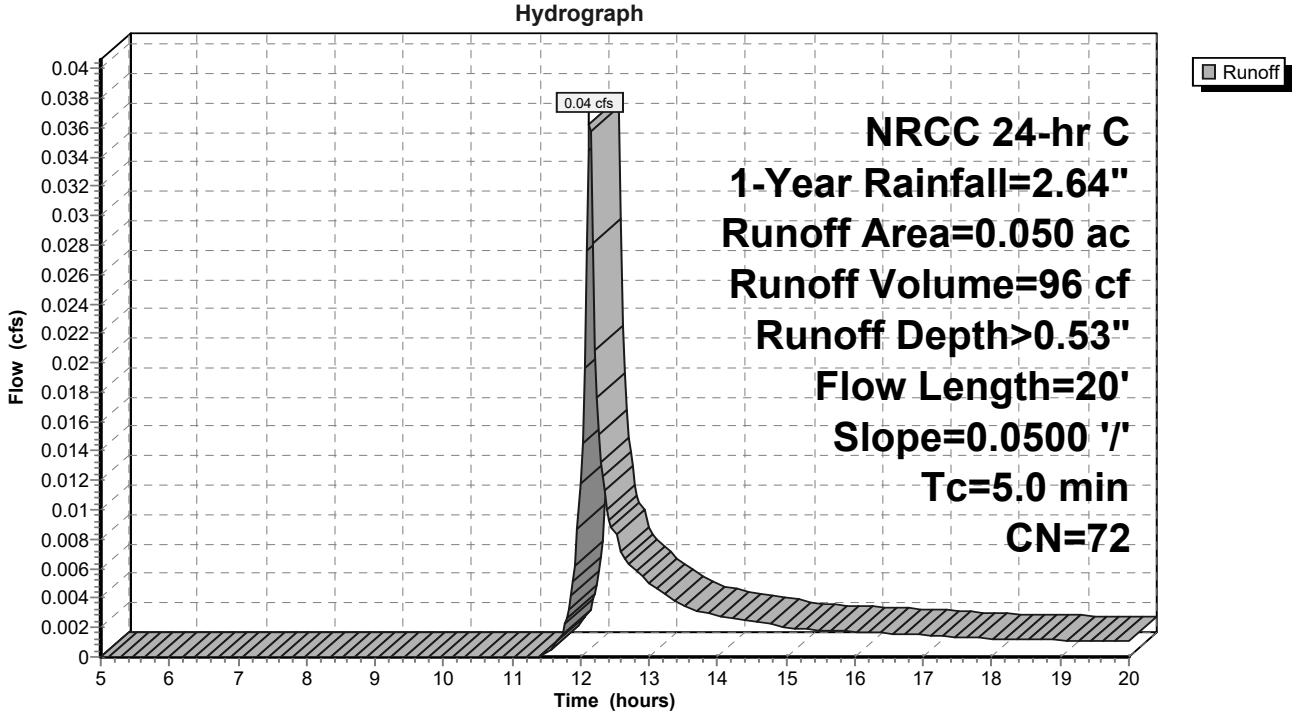
Runoff = 0.04 cfs @ 12.13 hrs, Volume= 96 cf, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
0.050	72	Woods/grass comb., Good, HSG C
0.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	20	0.0500	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
4.1	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-PRE: DA3



Summary for Subcatchment POA3.1-POST: DA3.1

TO CB1

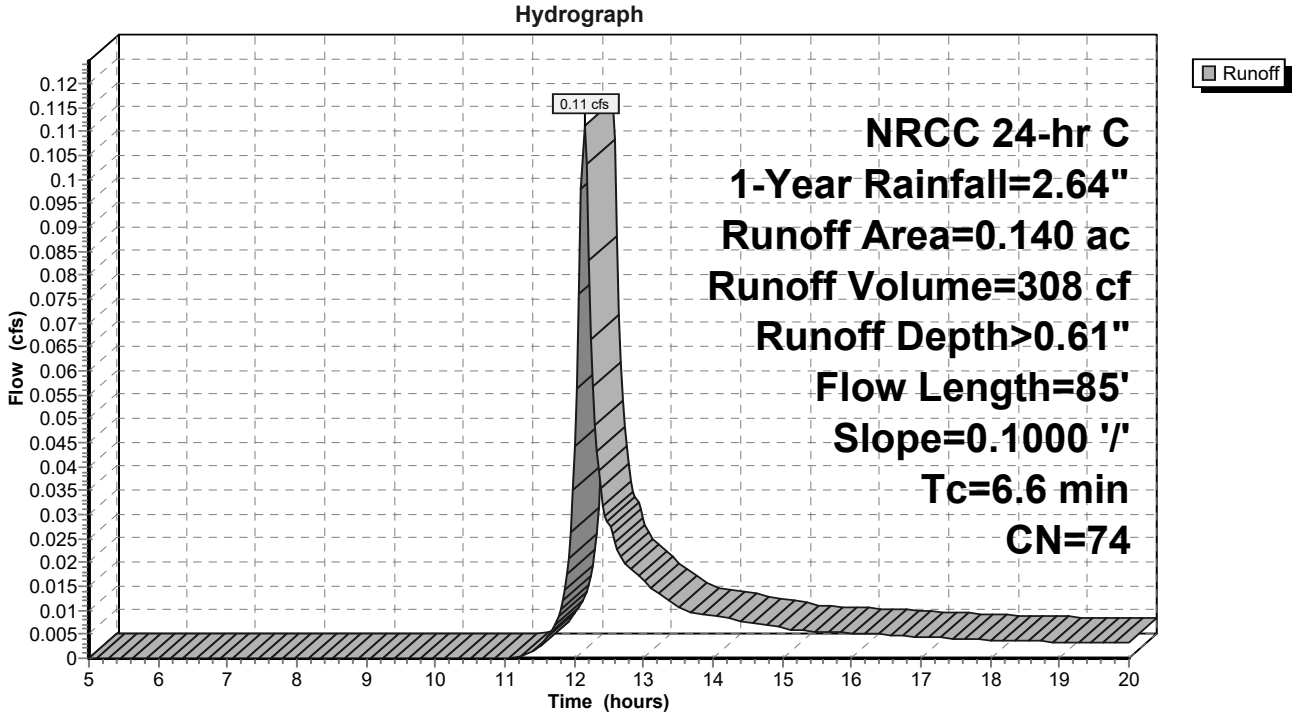
Runoff = 0.11 cfs @ 12.14 hrs, Volume= 308 cf, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
0.041	74	>75% Grass cover, Good, HSG C
0.099	74	>75% Grass cover, Good, HSG C
0.140	74	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	85	0.1000	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"

Subcatchment POA3.1-POST: DA3.1



Summary for Subcatchment POA4-POST: DA4

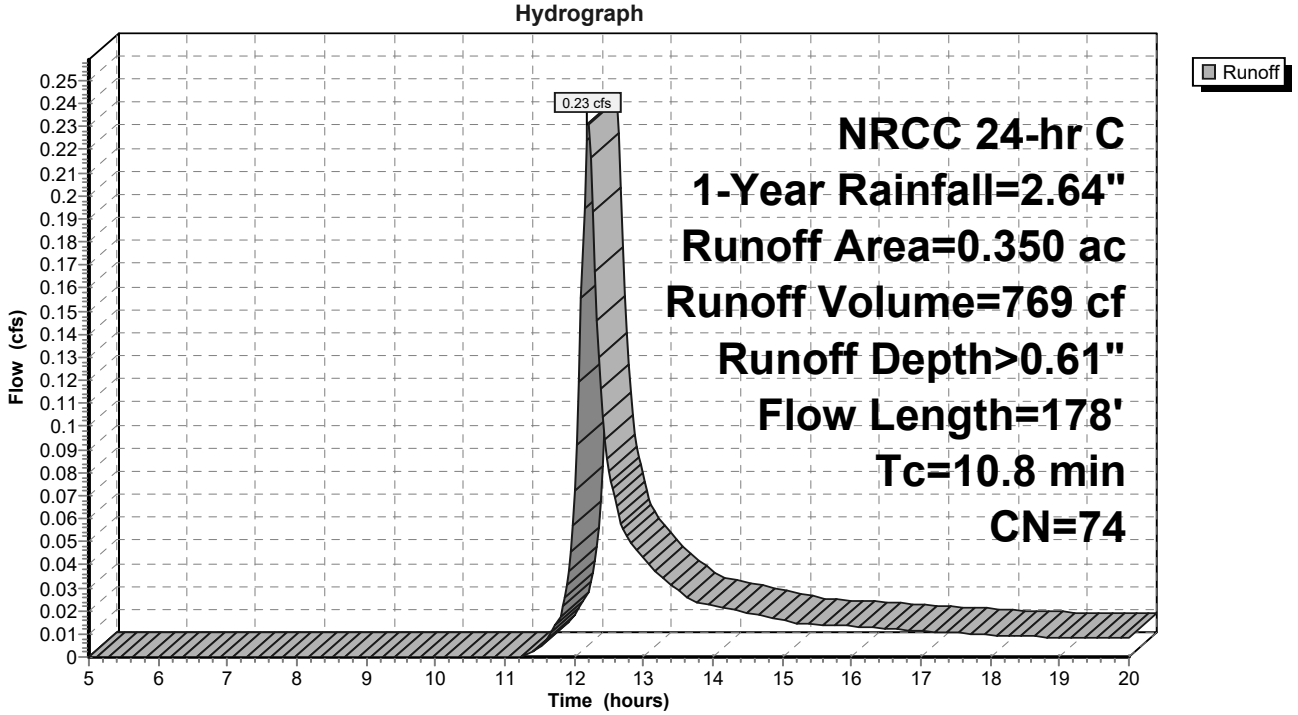
Runoff = 0.23 cfs @ 12.19 hrs, Volume= 769 cf, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
0.350	74	>75% Grass cover, Good, HSG C
0.350		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.5	78	0.0250	2.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.8	178	Total			

Subcatchment POA4-POST: DA4



Summary for Subcatchment POA4-PRE: DA4

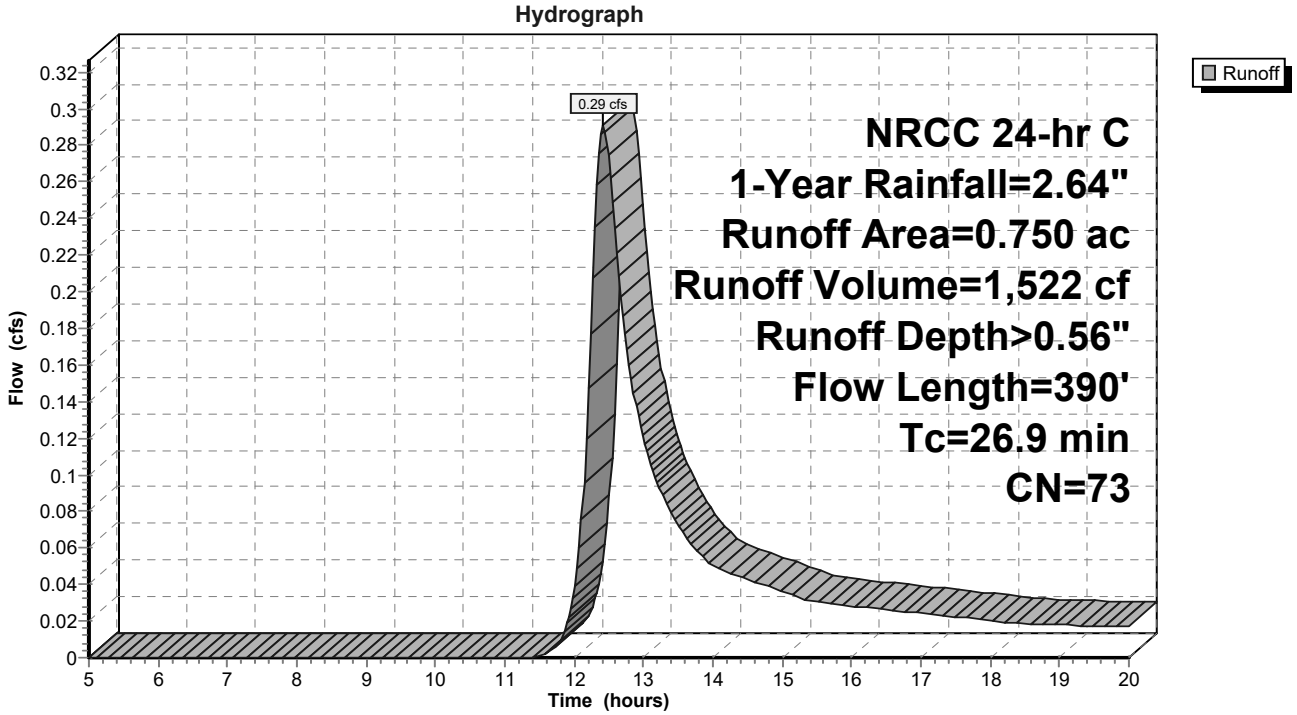
Runoff = 0.29 cfs @ 12.42 hrs, Volume= 1,522 cf, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 1-Year Rainfall=2.64"

Area (ac)	CN	Description
0.450	72	Woods/grass comb., Good, HSG C
0.300	74	>75% Grass cover, Good, HSG C
0.750	73	Weighted Average
0.750		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.2	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.5	140	0.0920	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	150	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	390	Total			

Subcatchment POA4-PRE: DA4



Summary for Pond SMA1: SMA1

Inflow Area = 108,464 sf, 62.25% Impervious, Inflow Depth > 1.45" for 1-Year event
Inflow = 4.82 cfs @ 12.14 hrs, Volume= 13,125 cf
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 196.53' @ 20.00 hrs Surf.Area= 6,753 sf Storage= 13,120 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

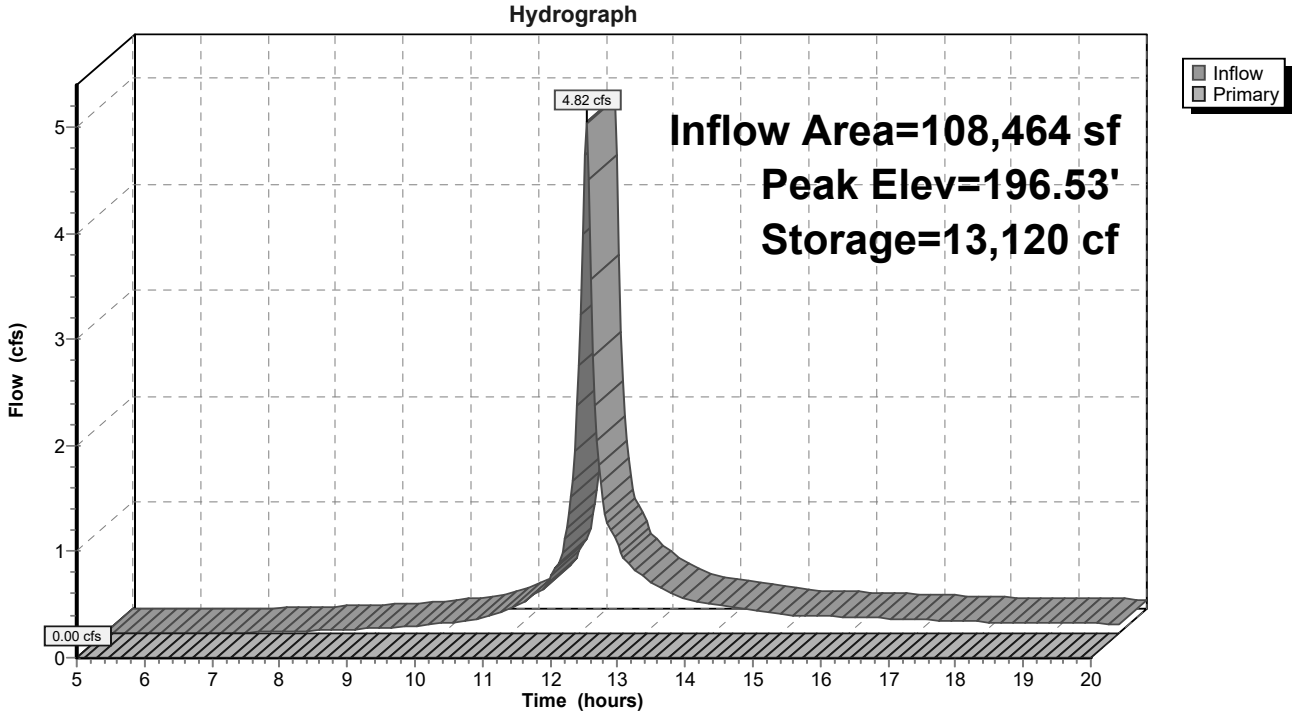
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	44,331 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
194.00	3,650	0	0	3,650
196.00	6,170	9,710	9,710	6,218
198.00	8,520	14,627	24,337	8,644
200.00	11,550	19,993	44,331	11,756

Device	Routing	Invert	Outlet Devices
#1	Primary	194.00'	**8.0" Round Culvert - RISER OUTLET** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 194.00' / 193.75' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.35 sf
#2	Device 1	194.00'	**3.0" W x 18.0" H Vert. Orifice - SIDE OF RISER** C= 0.600 Limited to weir flow at low heads
#3	Device 2	198.00'	**48.0" Horiz. Orifice - TOP OF RISER** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=194.00' (Free Discharge)
└**1=Culvert - RISER OUTLET** (Controls 0.00 cfs)
└**2=Orifice - SIDE OF RISER** (Controls 0.00 cfs)
└**3=Orifice - TOP OF RISER** (Controls 0.00 cfs)

Pond SMA1: SMA1

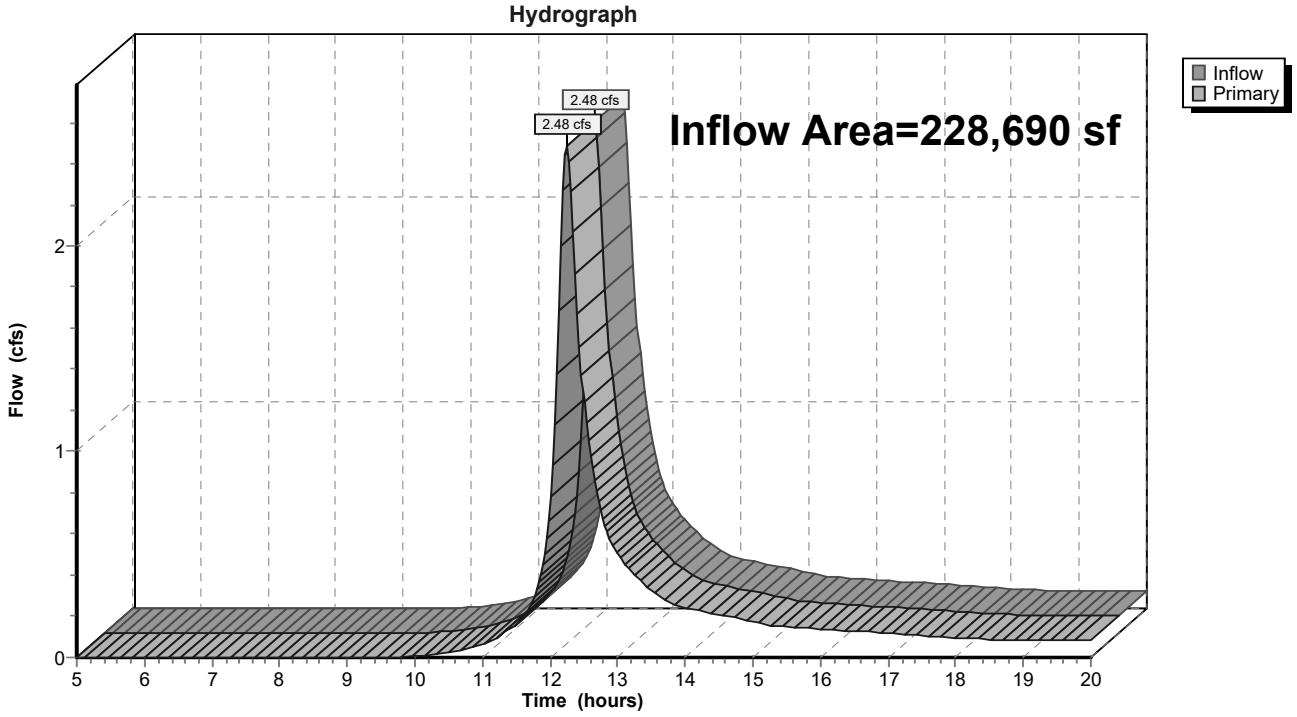


Summary for Link TOTAL POA2: TOTAL DA2

Inflow Area = 228,690 sf, 44.10% Impervious, Inflow Depth > 0.49" for 1-Year event
Inflow = 2.48 cfs @ 12.26 hrs, Volume= 9,375 cf
Primary = 2.48 cfs @ 12.26 hrs, Volume= 9,375 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Link TOTAL POA2: TOTAL DA2



Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment POA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>1.94"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.22 cfs 563 cf

Subcatchment POA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>1.76"
Flow Length=557' Tc=32.9 min CN=72 Runoff=2.14 cfs 11,403 cf

Subcatchment POA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>3.25"
Flow Length=615' Tc=6.5 min CN=89 Runoff=10.30 cfs 29,365 cf

Subcatchment POA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>2.50"
Flow Length=533' Tc=16.4 min CN=81 Runoff=6.61 cfs 25,041 cf

Subcatchment POA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>2.25"
Flow Length=734' Tc=14.3 min CN=78 Runoff=7.60 cfs 27,014 cf

Subcatchment POA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>1.94"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.08 cfs 211 cf

Subcatchment POA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>1.79"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.13 cfs 325 cf

Subcatchment POA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>1.94"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.37 cfs 985 cf

Subcatchment POA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>1.93"
Flow Length=178' Tc=10.8 min CN=74 Runoff=0.78 cfs 2,457 cf

Subcatchment POA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>1.84"
Flow Length=390' Tc=26.9 min CN=73 Runoff=1.05 cfs 5,021 cf

Pond SMA1: SMA1 Peak Elev=198.04' Storage=24,657 cf Inflow=10.30 cfs 29,365 cf
Outflow=0.35 cfs 4,819 cf

Link TOTAL POA2: TOTAL DA2 Inflow=6.61 cfs 29,860 cf
Primary=6.61 cfs 29,860 cf

Total Runoff Area = 511,394 sf Runoff Volume = 102,385 cf Average Runoff Depth = 2.40"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Summary for Subcatchment POA1-POST: DA1

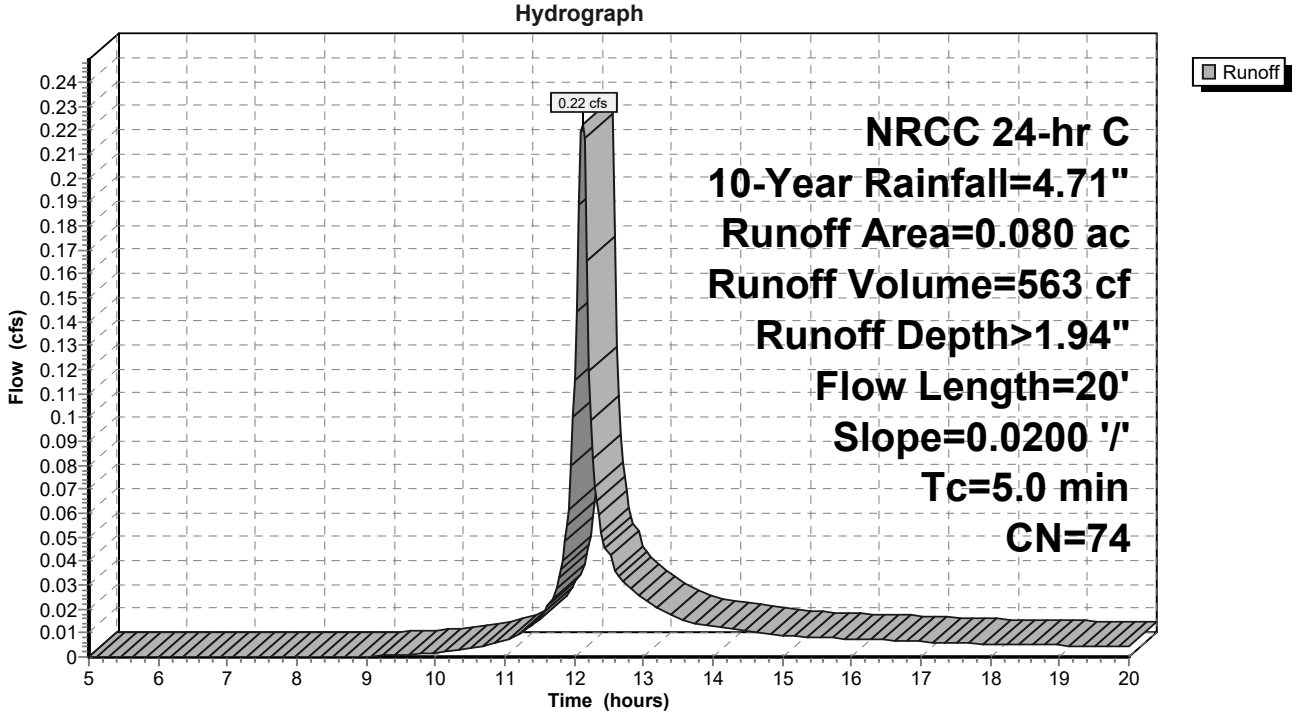
Runoff = 0.22 cfs @ 12.12 hrs, Volume= 563 cf, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
0.080	74	>75% Grass cover, Good, HSG C
0.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	20	0.0200	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
4.0	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA1-POST: DA1



Summary for Subcatchment POA1-PRE: DA1

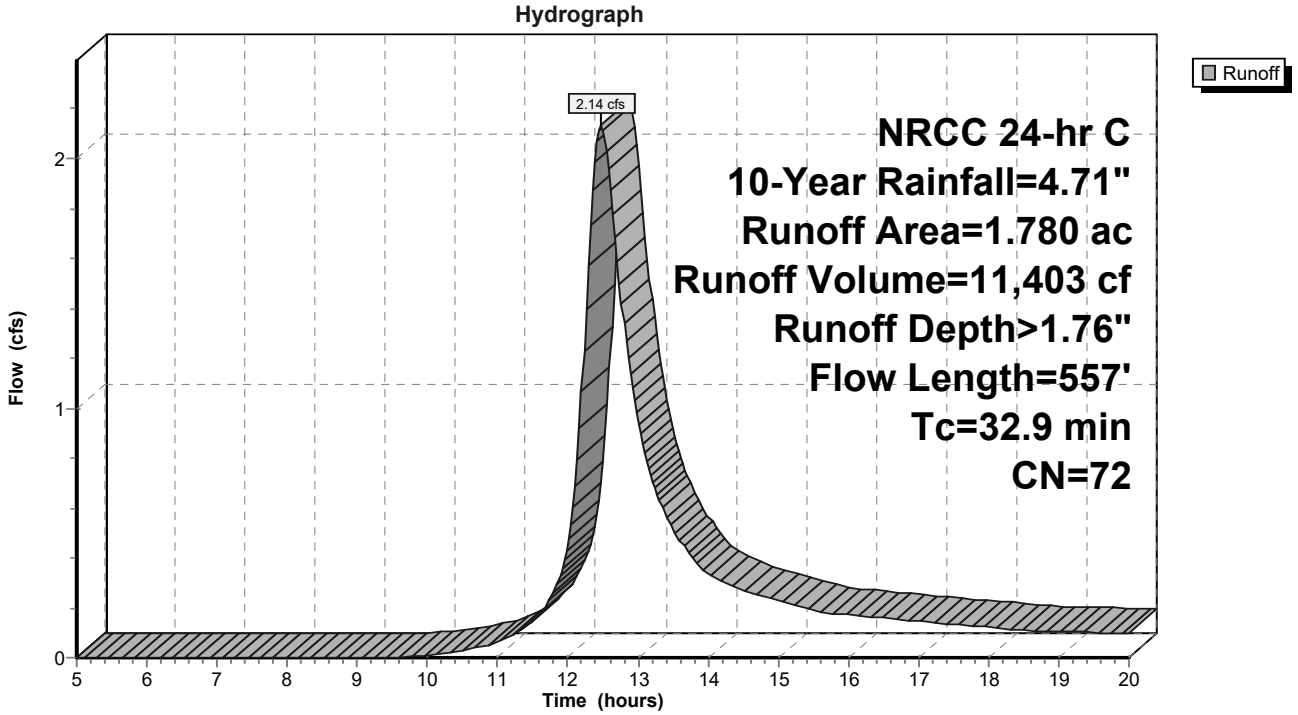
Runoff = 2.14 cfs @ 12.47 hrs, Volume= 11,403 cf, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
1.640	72	Woods/grass comb., Good, HSG C
0.140	74	>75% Grass cover, Good, HSG C
1.780	72	Weighted Average
1.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
0.6	86	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	371	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.9	557	Total			

Subcatchment POA1-PRE: DA1



Summary for Subcatchment POA1.1-POST: DA1.1

[47] Hint: Peak is 222% of capacity of segment #3
[47] Hint: Peak is 182% of capacity of segment #4

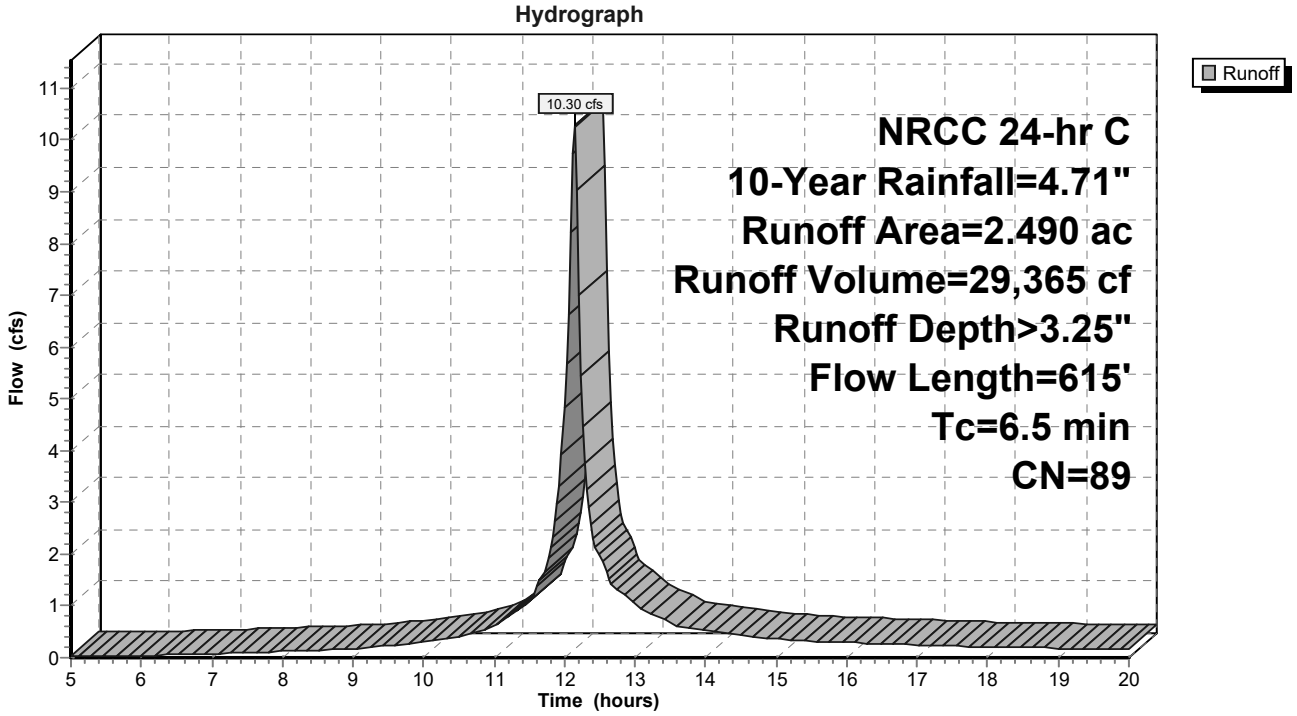
Runoff = 10.30 cfs @ 12.13 hrs, Volume= 29,365 cf, Depth> 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG C
0.550	98	Roofs, HSG C
0.940	74	>75% Grass cover, Good, HSG C
2.490	89	Weighted Average
0.940		37.75% Pervious Area
1.550		62.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.18"
0.8	150	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	45	0.0100	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.4	190	0.0150	7.22	5.67	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.1	70	0.0500	17.28	30.53	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
1.3	130	0.0050	1.63	16.34	**Channel Flow,** Area= 10.0 sf Perim= 9.0' r= 1.11' n= 0.069 Riprap, 6-inch
6.5	615	Total			

Subcatchment POA1.1-POST: DA1.1



Summary for Subcatchment POA2-POST: DA2

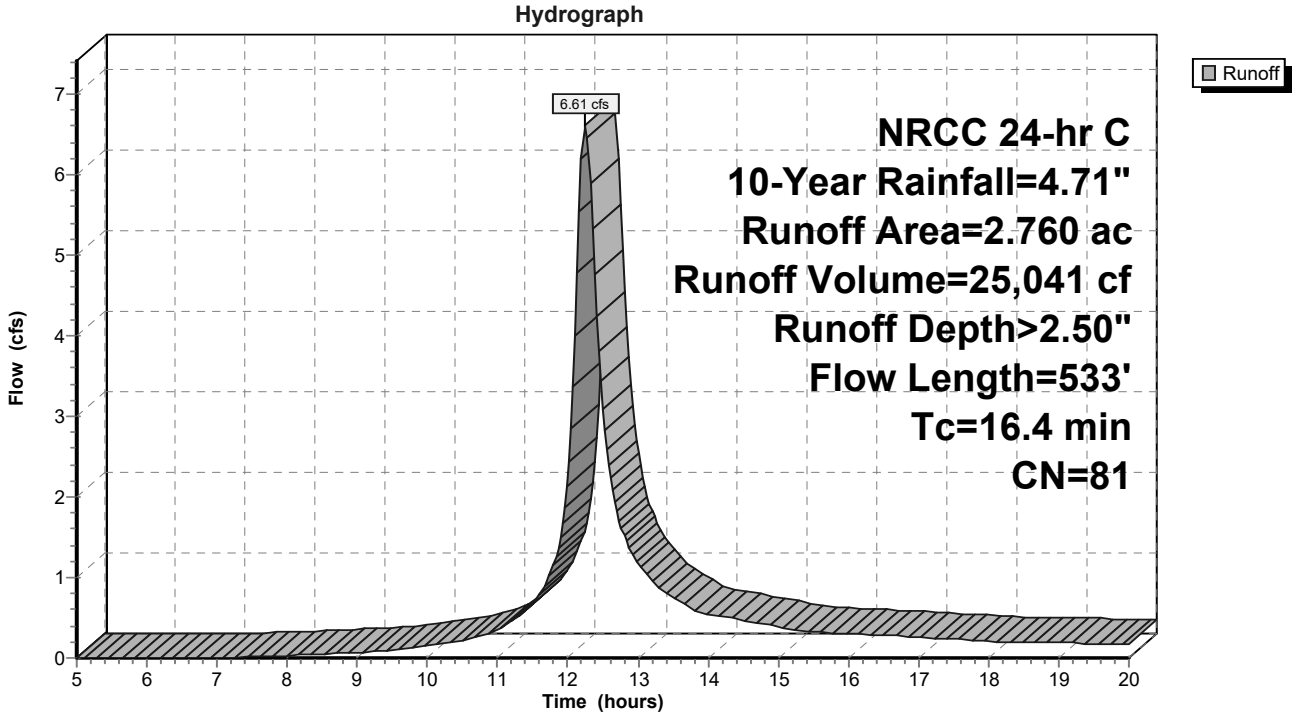
Runoff = 6.61 cfs @ 12.25 hrs, Volume= 25,041 cf, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
1.995	74	>75% Grass cover, Good, HSG C
0.765	98	Paved roads w/curbs & sewers, HSG C
2.760	81	Weighted Average
1.995		72.28% Pervious Area
0.765		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.6	137	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.4	533	Total			

Subcatchment POA2-POST: DA2



Summary for Subcatchment POA2-PRE: DA2

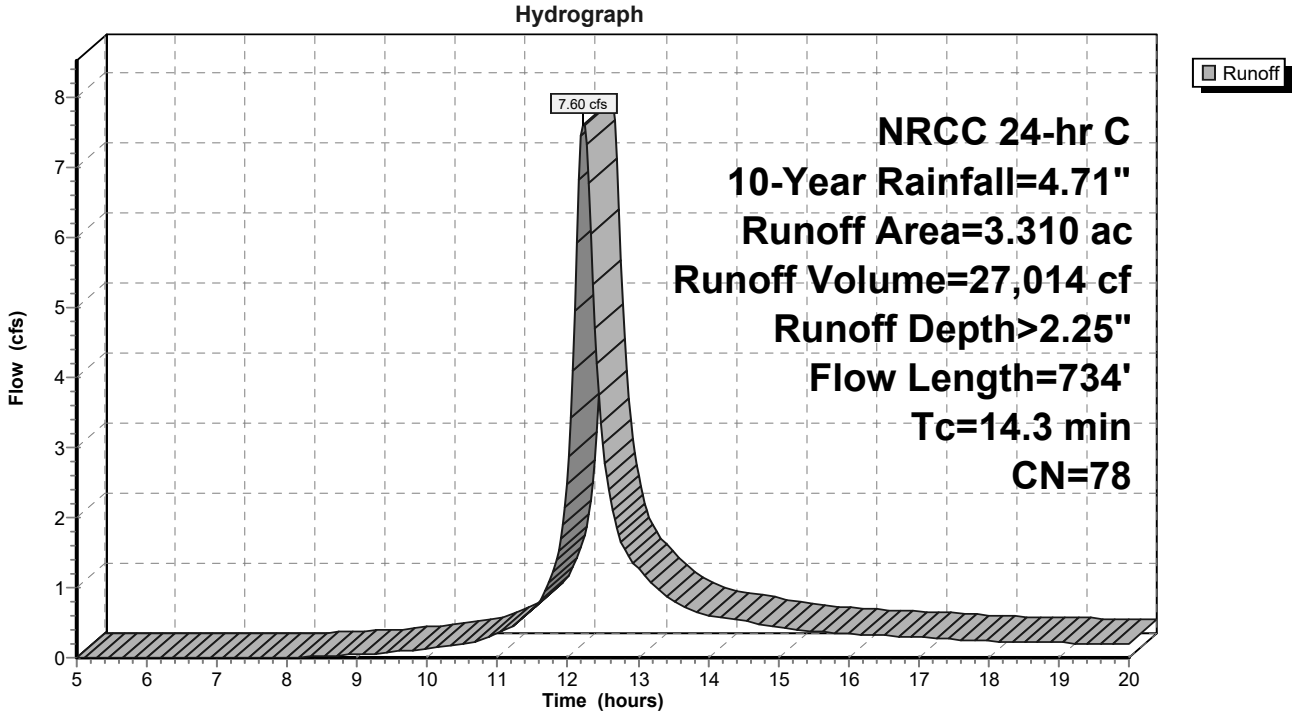
Runoff = 7.60 cfs @ 12.23 hrs, Volume= 27,014 cf, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
1.150	72	Woods/grass comb., Good, HSG C
1.460	74	>75% Grass cover, Good, HSG C
0.700	98	Paved roads w/curbs & sewers, HSG C
3.310	78	Weighted Average
2.610		78.85% Pervious Area
0.700		21.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.3	123	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	215	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.3	734	Total			

Subcatchment POA2-PRE: DA2



Summary for Subcatchment POA3-POST: DA3

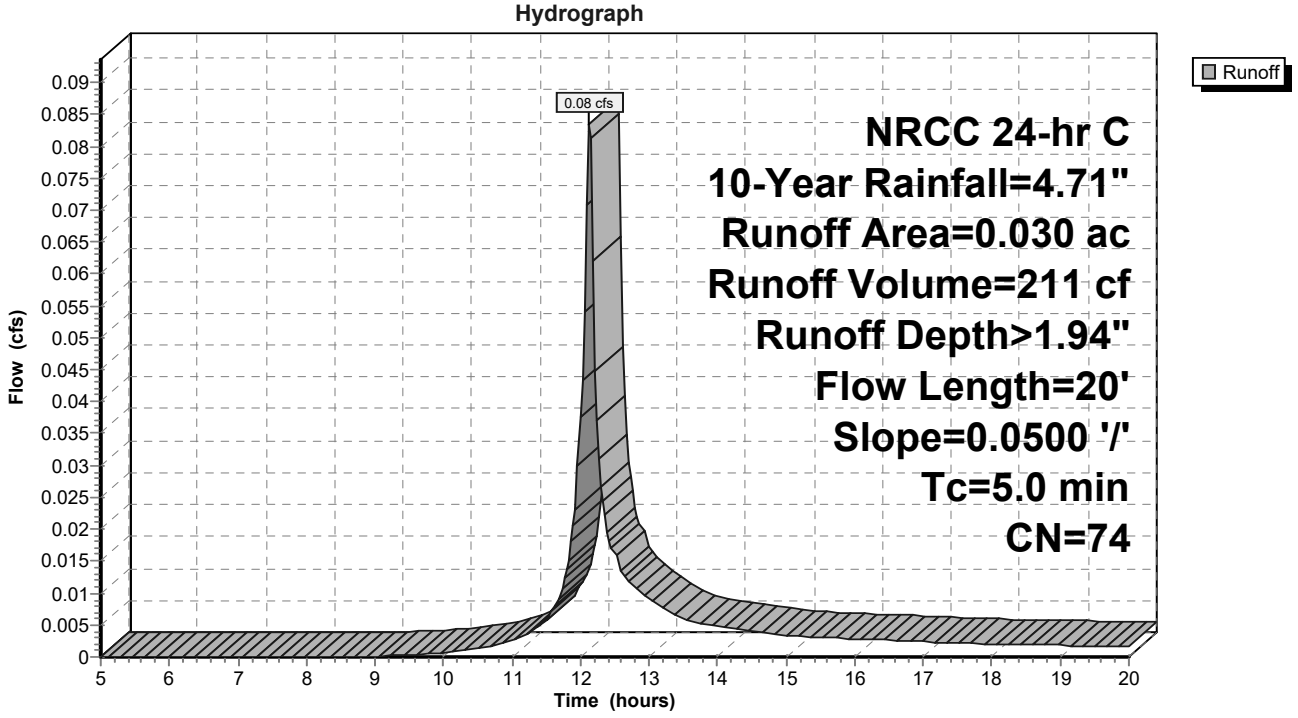
Runoff = 0.08 cfs @ 12.12 hrs, Volume= 211 cf, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
0.030	74	>75% Grass cover, Good, HSG C
0.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.0500	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
2.7	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-POST: DA3



Summary for Subcatchment POA3-PRE: DA3

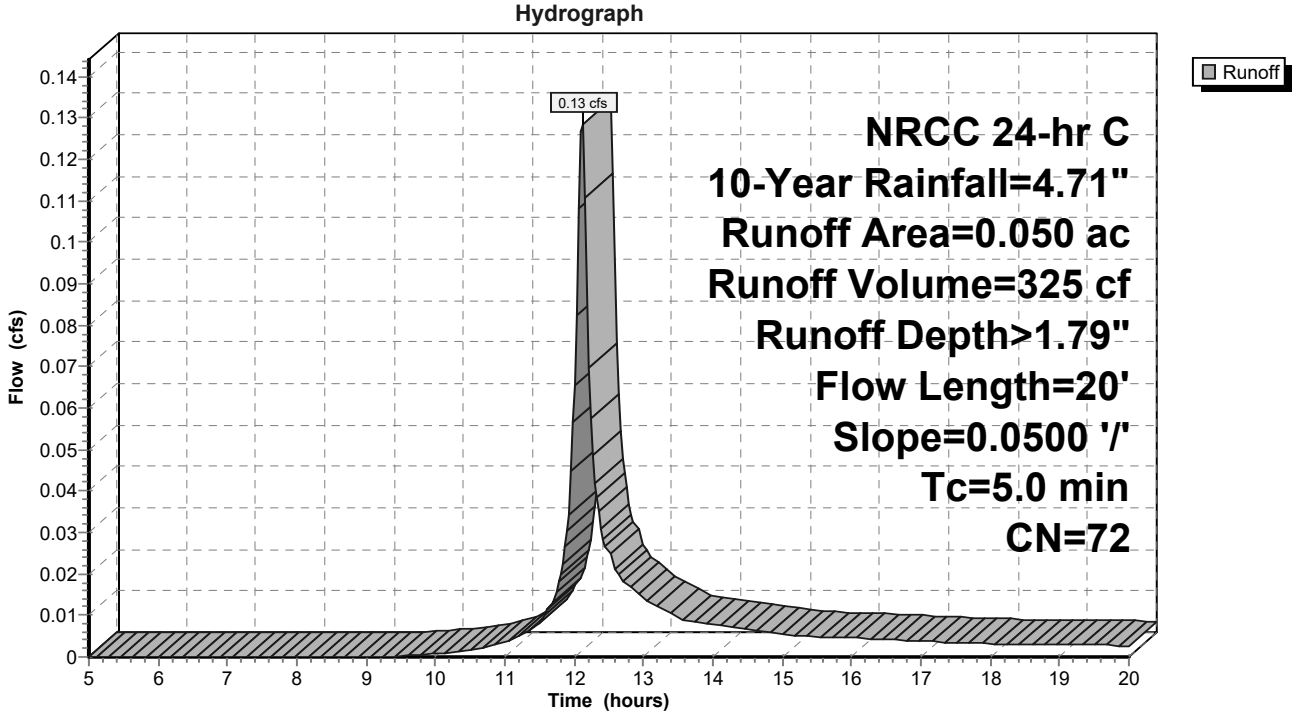
Runoff = 0.13 cfs @ 12.12 hrs, Volume= 325 cf, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
0.050	72	Woods/grass comb., Good, HSG C
0.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	20	0.0500	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
4.1	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-PRE: DA3



Summary for Subcatchment POA3.1-POST: DA3.1

TO CB1

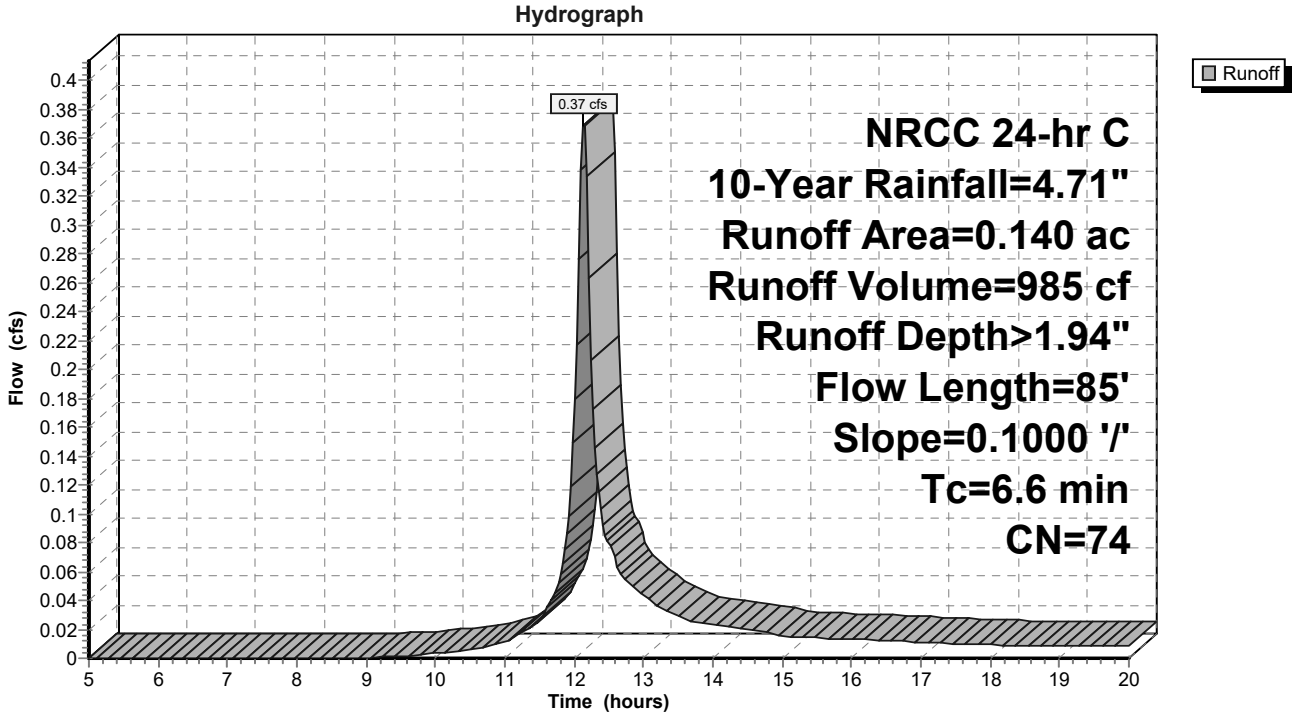
Runoff = 0.37 cfs @ 12.14 hrs, Volume= 985 cf, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
0.041	74	>75% Grass cover, Good, HSG C
0.099	74	>75% Grass cover, Good, HSG C
0.140	74	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	85	0.1000	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"

Subcatchment POA3.1-POST: DA3.1



Summary for Subcatchment POA4-POST: DA4

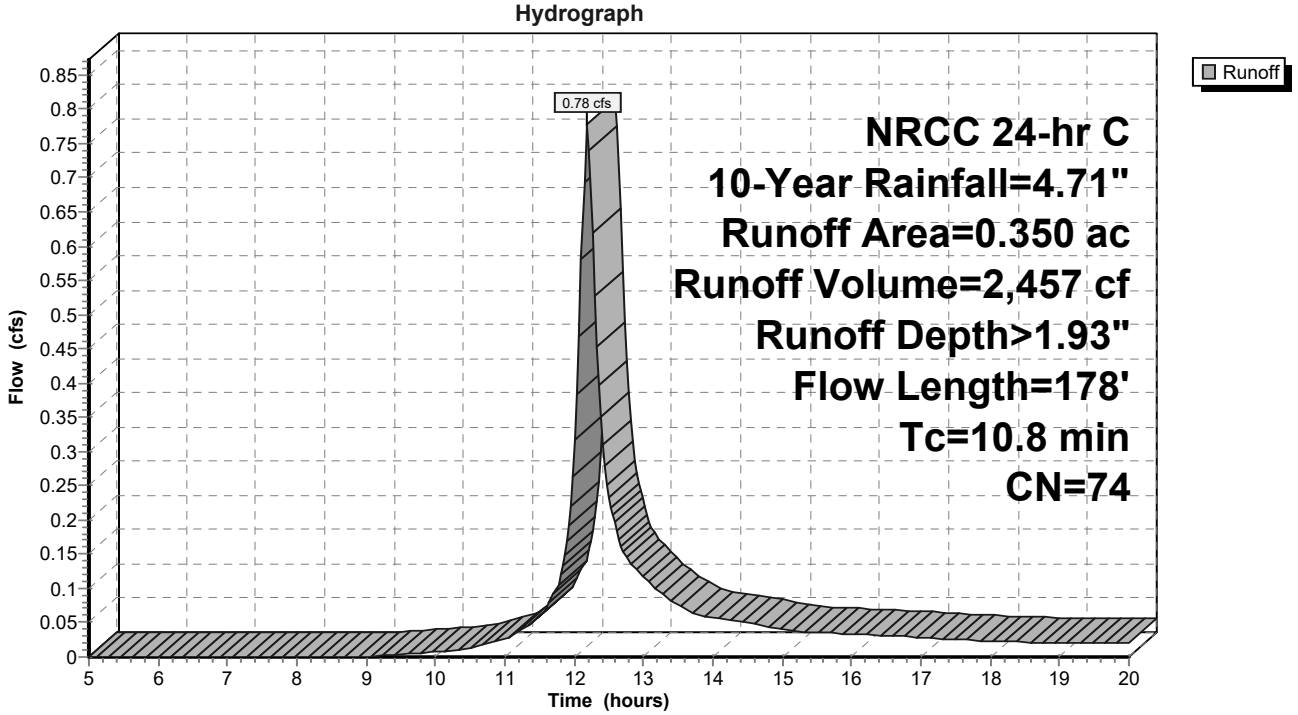
Runoff = 0.78 cfs @ 12.19 hrs, Volume= 2,457 cf, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
0.350	74	>75% Grass cover, Good, HSG C
0.350		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.5	78	0.0250	2.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.8	178	Total			

Subcatchment POA4-POST: DA4



Summary for Subcatchment POA4-PRE: DA4

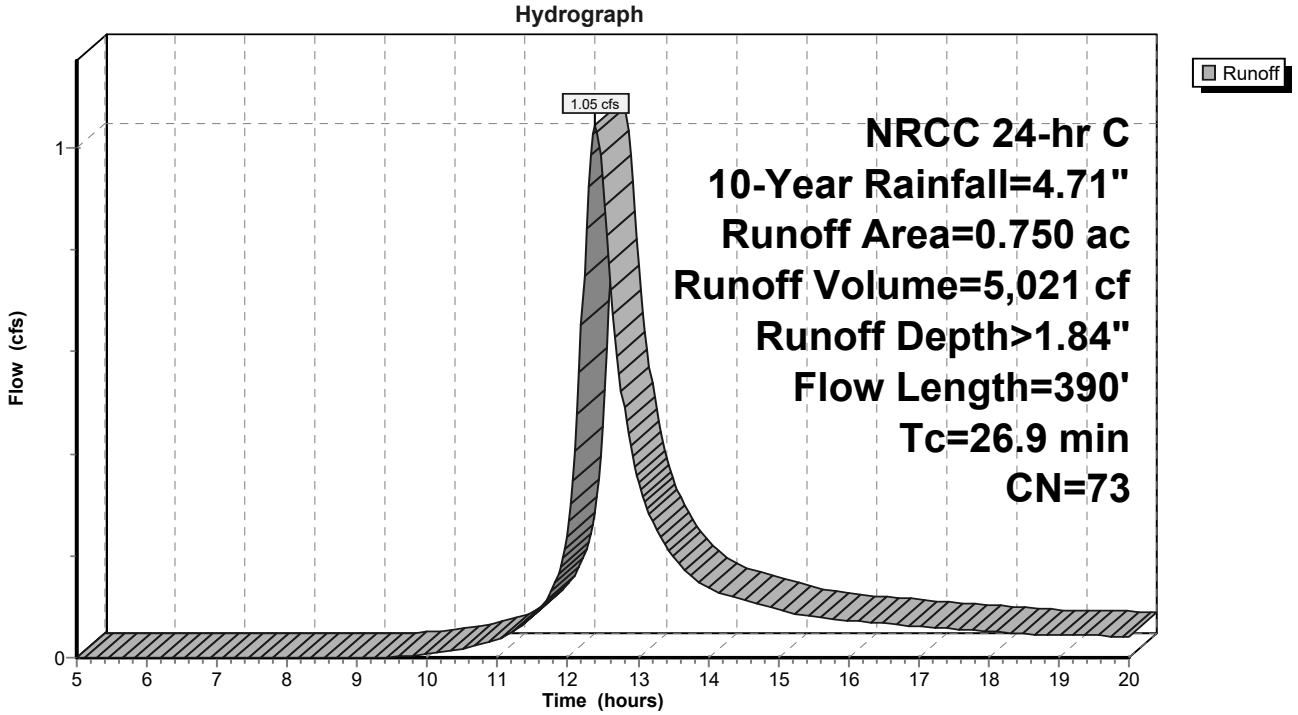
Runoff = 1.05 cfs @ 12.39 hrs, Volume= 5,021 cf, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 10-Year Rainfall=4.71"

Area (ac)	CN	Description
0.450	72	Woods/grass comb., Good, HSG C
0.300	74	>75% Grass cover, Good, HSG C
0.750	73	Weighted Average
0.750		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.2	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.5	140	0.0920	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	150	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	390	Total			

Subcatchment POA4-PRE: DA4



Summary for Pond SMA1: SMA1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 108,464 sf, 62.25% Impervious, Inflow Depth > 3.25" for 10-Year event
Inflow = 10.30 cfs @ 12.13 hrs, Volume= 29,365 cf
Outflow = 0.35 cfs @ 15.07 hrs, Volume= 4,819 cf, Atten= 97%, Lag= 176.2 min
Primary = 0.35 cfs @ 15.07 hrs, Volume= 4,819 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 198.04' @ 15.07 hrs Surf.Area= 8,572 sf Storage= 24,657 cf

Plug-Flow detention time= 430.2 min calculated for 4,818 cf (16% of inflow)
Center-of-Mass det. time= 253.9 min (1,019.4 - 765.5)

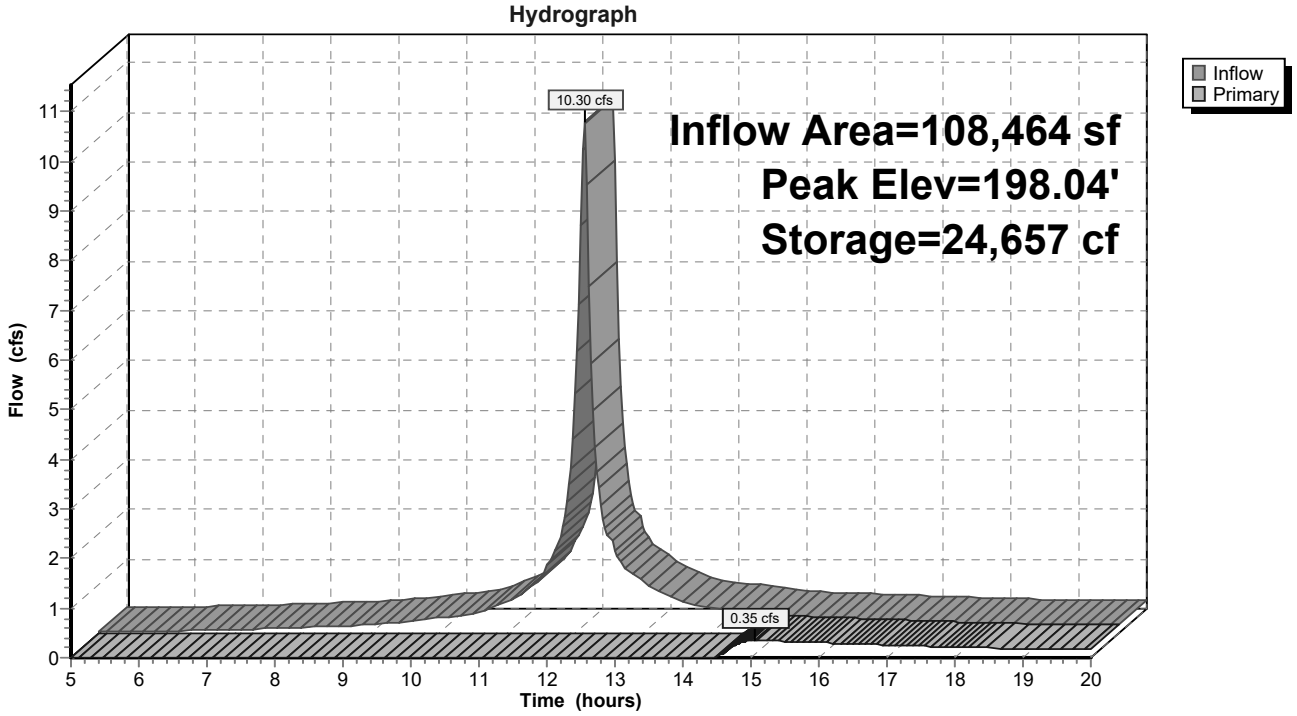
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	44,331 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
194.00	3,650	0	0	3,650
196.00	6,170	9,710	9,710	6,218
198.00	8,520	14,627	24,337	8,644
200.00	11,550	19,993	44,331	11,756

Device	Routing	Invert	Outlet Devices
#1	Primary	194.00'	**8.0" Round Culvert - RISER OUTLET** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 194.00' / 193.75' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.35 sf
#2	Device 1	194.00'	**3.0" W x 18.0" H Vert. Orifice - SIDE OF RISER** C= 0.600 Limited to weir flow at low heads
#3	Device 2	198.00'	**48.0" Horiz. Orifice - TOP OF RISER** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.30 cfs @ 15.07 hrs HW=198.04' (Free Discharge)
└─**1=Culvert - RISER OUTLET** (Passes 0.30 cfs of 2.55 cfs potential flow)
└─**2=Orifice - SIDE OF RISER** (Passes 0.30 cfs of 3.27 cfs potential flow)
└─**3=Orifice - TOP OF RISER** (Weir Controls 0.30 cfs @ 0.63 fps)

Pond SMA1: SMA1

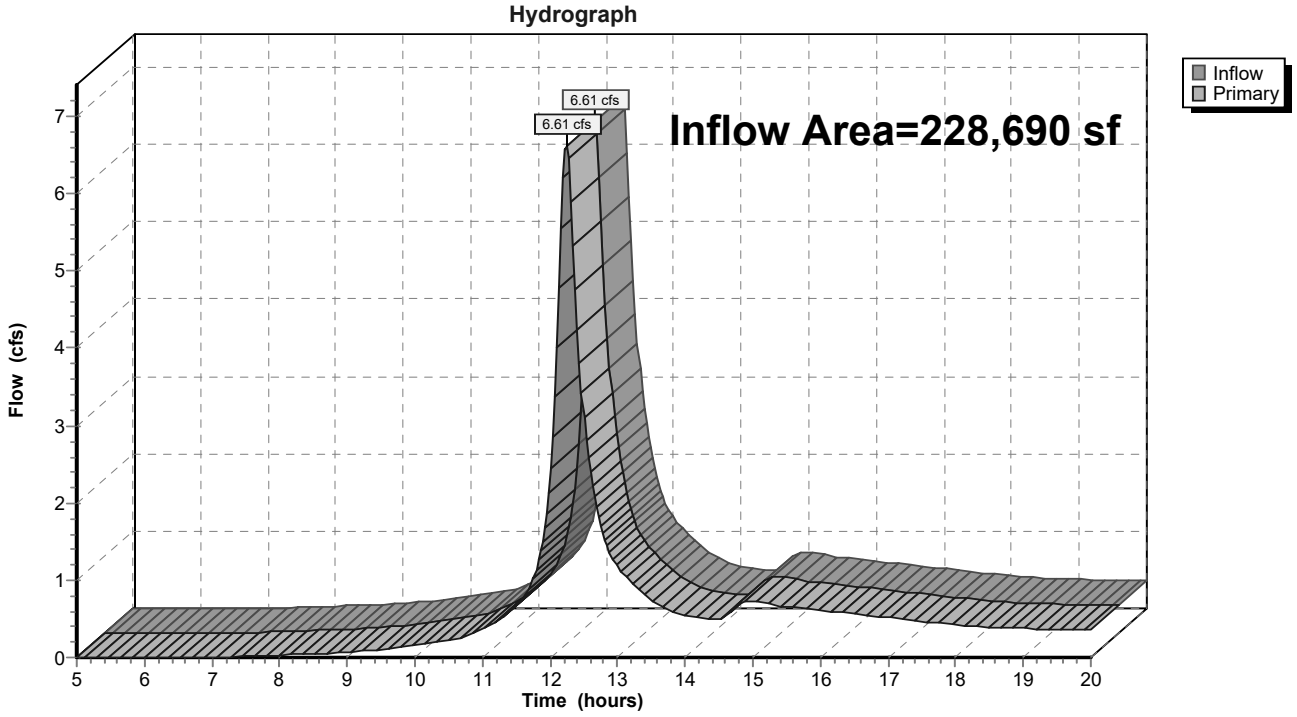


Summary for Link TOTAL POA2: TOTAL DA2

Inflow Area = 228,690 sf, 44.10% Impervious, Inflow Depth > 1.57" for 10-Year event
Inflow = 6.61 cfs @ 12.25 hrs, Volume= 29,860 cf
Primary = 6.61 cfs @ 12.25 hrs, Volume= 29,860 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Link TOTAL POA2: TOTAL DA2



Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment POA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.42 cfs 1,081 cf

Subcatchment POA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>3.48"
Flow Length=557' Tc=32.9 min CN=72 Runoff=4.22 cfs 22,474 cf

Subcatchment POA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>5.31"
Flow Length=615' Tc=6.5 min CN=89 Runoff=16.35 cfs 48,031 cf

Subcatchment POA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>4.45"
Flow Length=533' Tc=16.4 min CN=81 Runoff=11.52 cfs 44,552 cf

Subcatchment POA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>4.13"
Flow Length=734' Tc=14.3 min CN=78 Runoff=13.70 cfs 49,611 cf

Subcatchment POA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.16 cfs 406 cf

Subcatchment POA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>3.52"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.25 cfs 639 cf

Subcatchment POA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.70 cfs 1,891 cf

Subcatchment POA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>3.72"
Flow Length=178' Tc=10.8 min CN=74 Runoff=1.48 cfs 4,720 cf

Subcatchment POA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>3.59"
Flow Length=390' Tc=26.9 min CN=73 Runoff=2.03 cfs 9,771 cf

Pond SMA1: SMA1 Peak Elev=198.44' Storage=28,254 cf Inflow=16.35 cfs 48,031 cf
Outflow=2.69 cfs 23,426 cf

Link TOTAL POA2: TOTAL DA2 Inflow=14.24 cfs 67,978 cf
Primary=14.24 cfs 67,978 cf

Total Runoff Area = 511,394 sf Runoff Volume = 183,176 cf Average Runoff Depth = 4.30"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Summary for Subcatchment POA1-POST: DA1

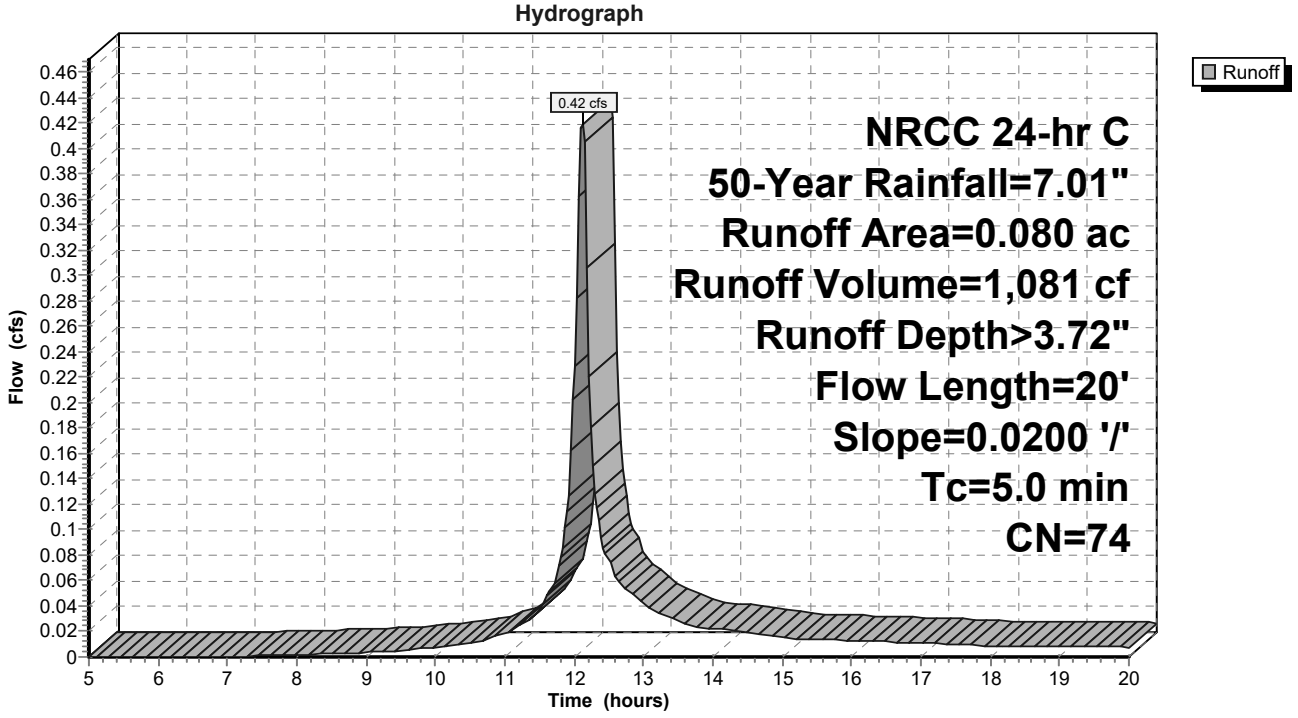
Runoff = 0.42 cfs @ 12.12 hrs, Volume= 1,081 cf, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
0.080	74	>75% Grass cover, Good, HSG C
0.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	20	0.0200	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
4.0	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA1-POST: DA1



Summary for Subcatchment POA1-PRE: DA1

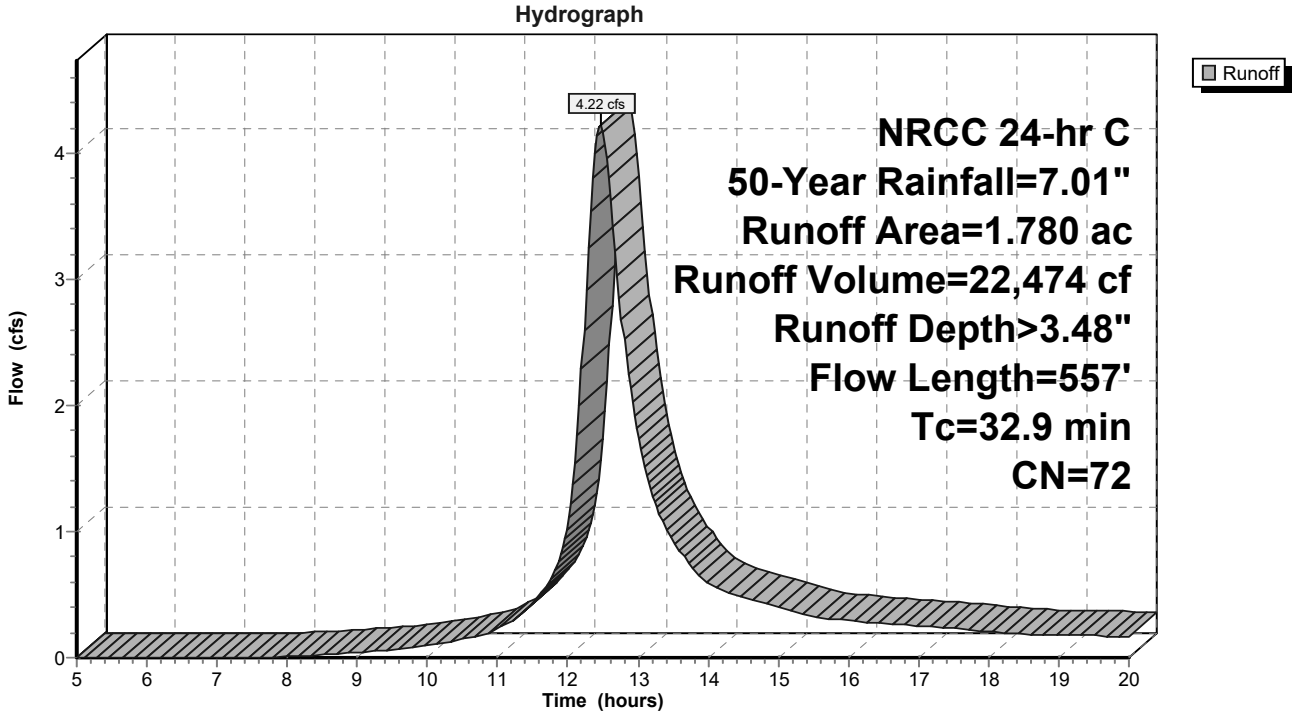
Runoff = 4.22 cfs @ 12.46 hrs, Volume= 22,474 cf, Depth> 3.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
1.640	72	Woods/grass comb., Good, HSG C
0.140	74	>75% Grass cover, Good, HSG C
1.780	72	Weighted Average
1.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
0.6	86	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	371	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.9	557	Total			

Subcatchment POA1-PRE: DA1



Summary for Subcatchment POA1.1-POST: DA1.1

[47] Hint: Peak is 353% of capacity of segment #3
[47] Hint: Peak is 288% of capacity of segment #4

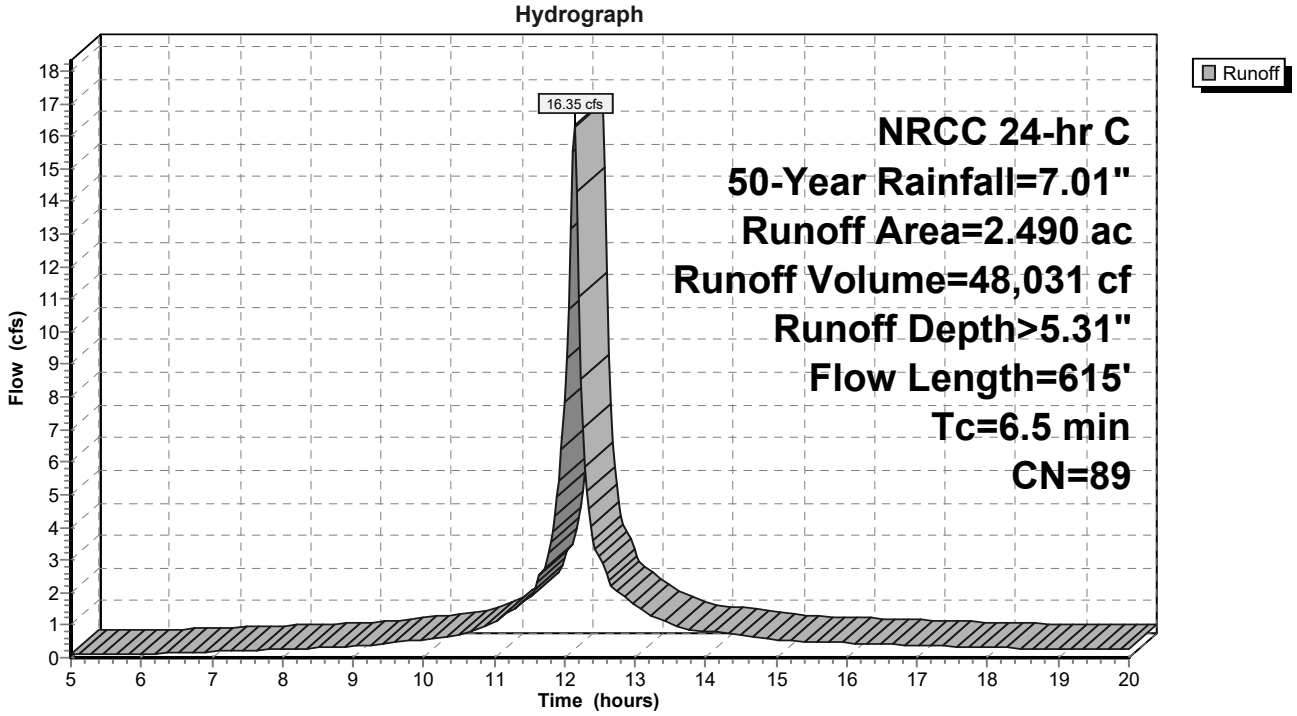
Runoff = 16.35 cfs @ 12.13 hrs, Volume= 48,031 cf, Depth> 5.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG C
0.550	98	Roofs, HSG C
0.940	74	>75% Grass cover, Good, HSG C
2.490	89	Weighted Average
0.940		37.75% Pervious Area
1.550		62.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.18"
0.8	150	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	45	0.0100	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.4	190	0.0150	7.22	5.67	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.1	70	0.0500	17.28	30.53	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
1.3	130	0.0050	1.63	16.34	**Channel Flow,** Area= 10.0 sf Perim= 9.0' r= 1.11' n= 0.069 Riprap, 6-inch
6.5	615	Total			

Subcatchment POA1.1-POST: DA1.1



Summary for Subcatchment POA2-POST: DA2

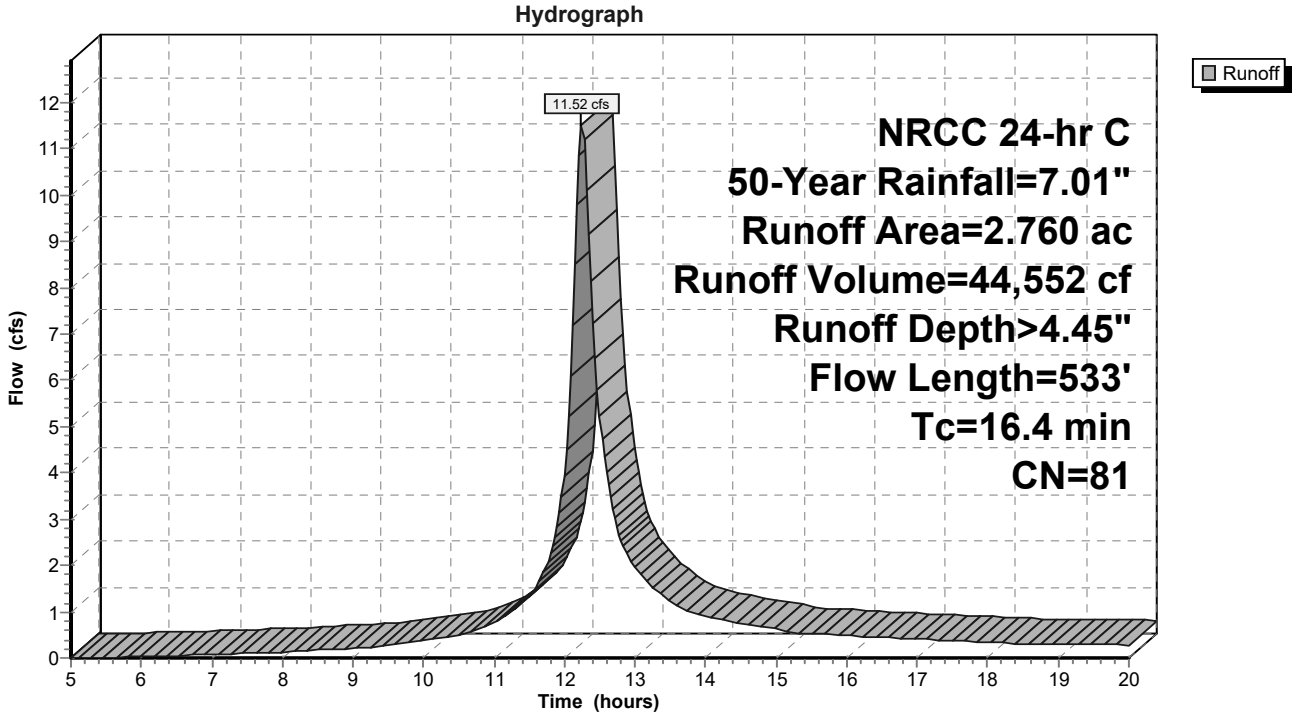
Runoff = 11.52 cfs @ 12.24 hrs, Volume= 44,552 cf, Depth> 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
1.995	74	>75% Grass cover, Good, HSG C
0.765	98	Paved roads w/curbs & sewers, HSG C
2.760	81	Weighted Average
1.995		72.28% Pervious Area
0.765		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.6	137	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.4	533	Total			

Subcatchment POA2-POST: DA2



Summary for Subcatchment POA2-PRE: DA2

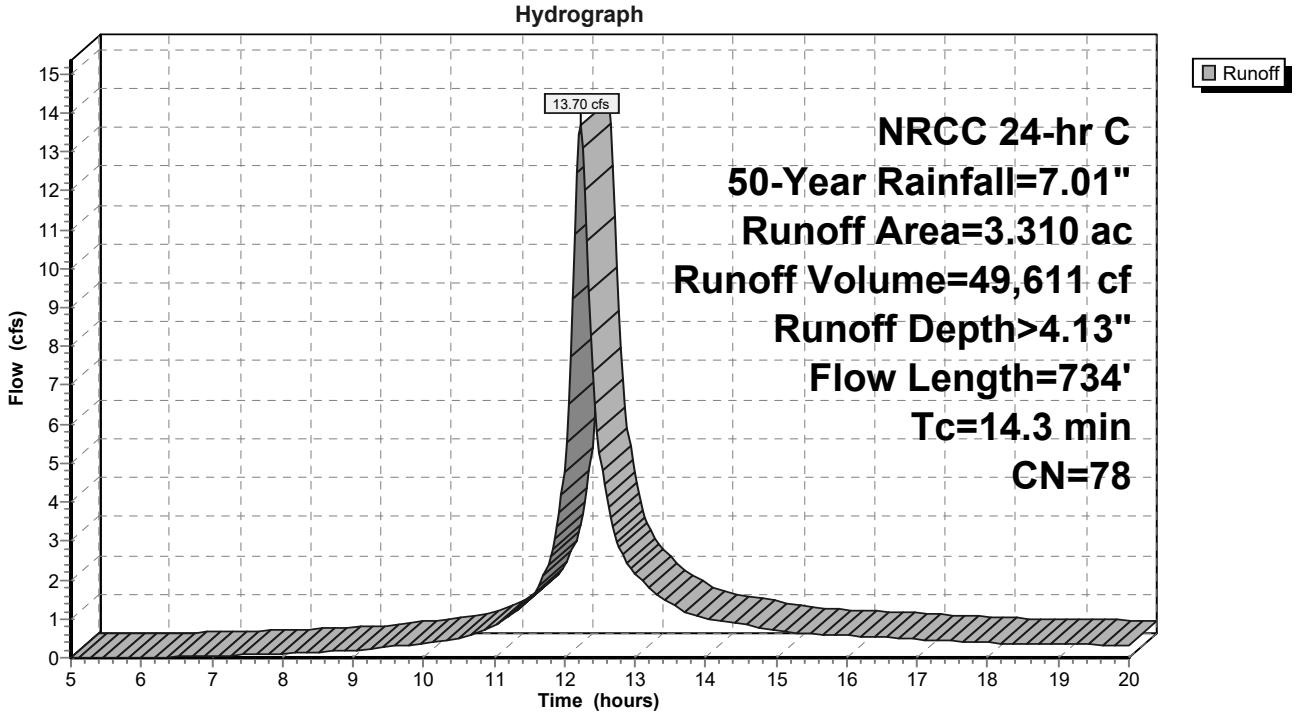
Runoff = 13.70 cfs @ 12.22 hrs, Volume= 49,611 cf, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
1.150	72	Woods/grass comb., Good, HSG C
1.460	74	>75% Grass cover, Good, HSG C
0.700	98	Paved roads w/curbs & sewers, HSG C
3.310	78	Weighted Average
2.610		78.85% Pervious Area
0.700		21.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.3	123	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	215	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.3	734	Total			

Subcatchment POA2-PRE: DA2



Summary for Subcatchment POA3-POST: DA3

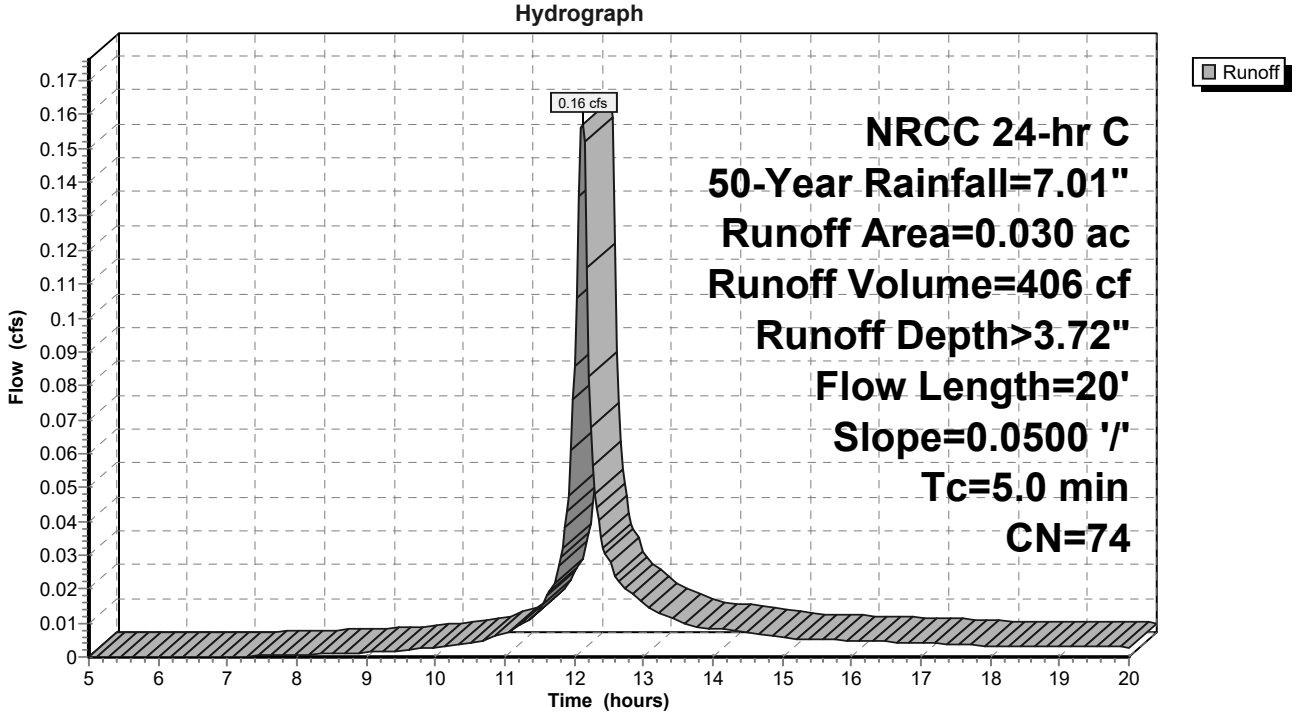
Runoff = 0.16 cfs @ 12.12 hrs, Volume= 406 cf, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
0.030	74	>75% Grass cover, Good, HSG C
0.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.0500	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
2.7	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-POST: DA3



Summary for Subcatchment POA3-PRE: DA3

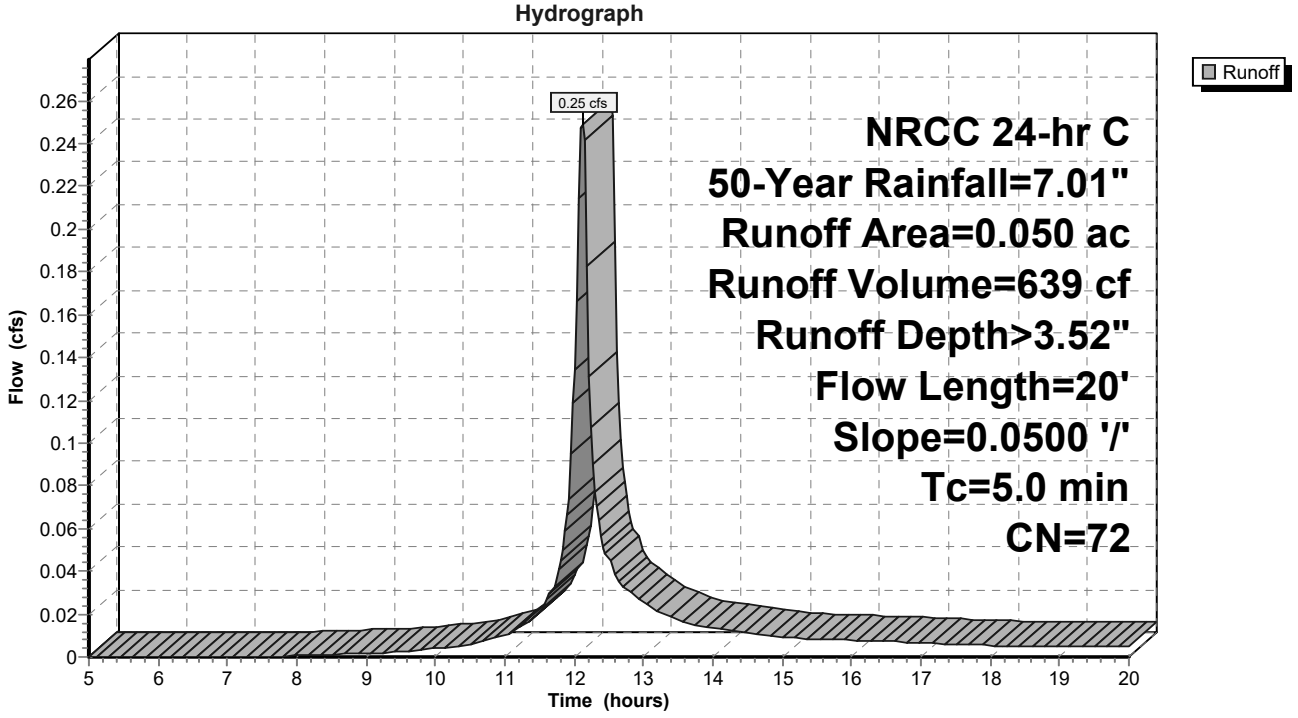
Runoff = 0.25 cfs @ 12.12 hrs, Volume= 639 cf, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
0.050	72	Woods/grass comb., Good, HSG C
0.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	20	0.0500	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
4.1	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-PRE: DA3



Summary for Subcatchment POA3.1-POST: DA3.1

TO CB1

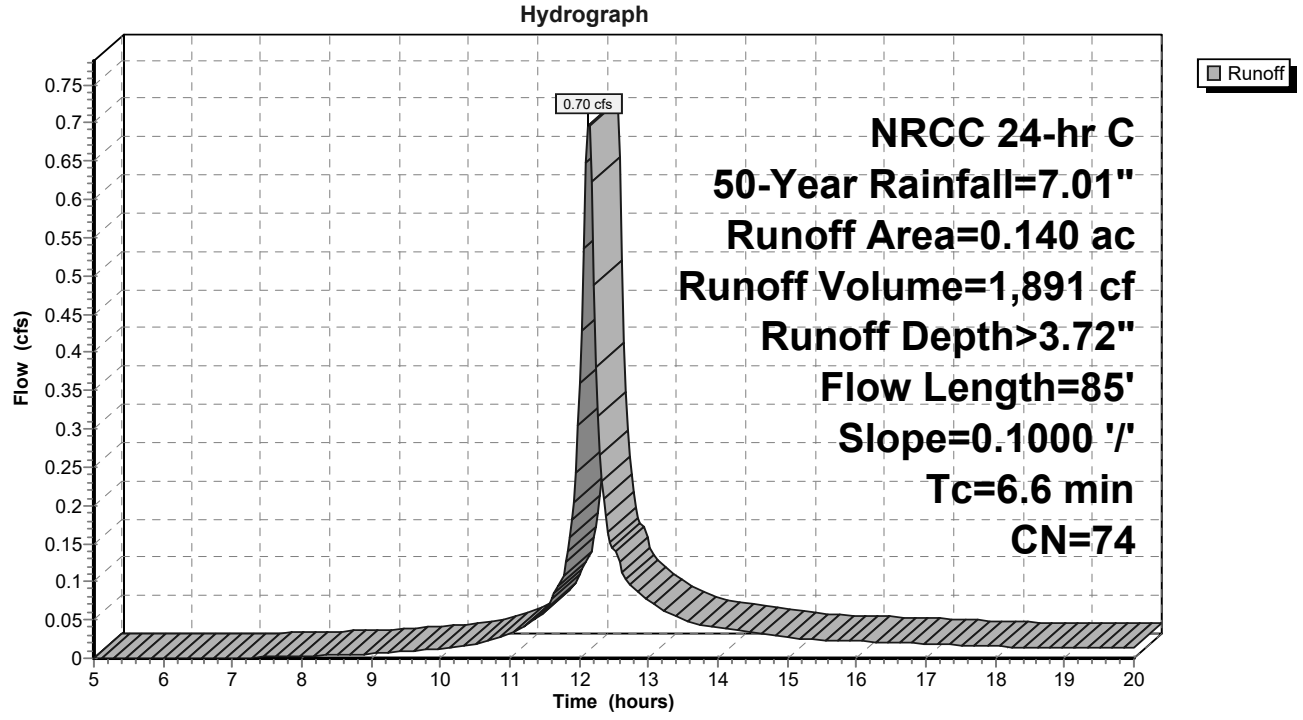
Runoff = 0.70 cfs @ 12.14 hrs, Volume= 1,891 cf, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
0.041	74	>75% Grass cover, Good, HSG C
0.099	74	>75% Grass cover, Good, HSG C
0.140	74	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	85	0.1000	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"

Subcatchment POA3.1-POST: DA3.1



Summary for Subcatchment POA4-POST: DA4

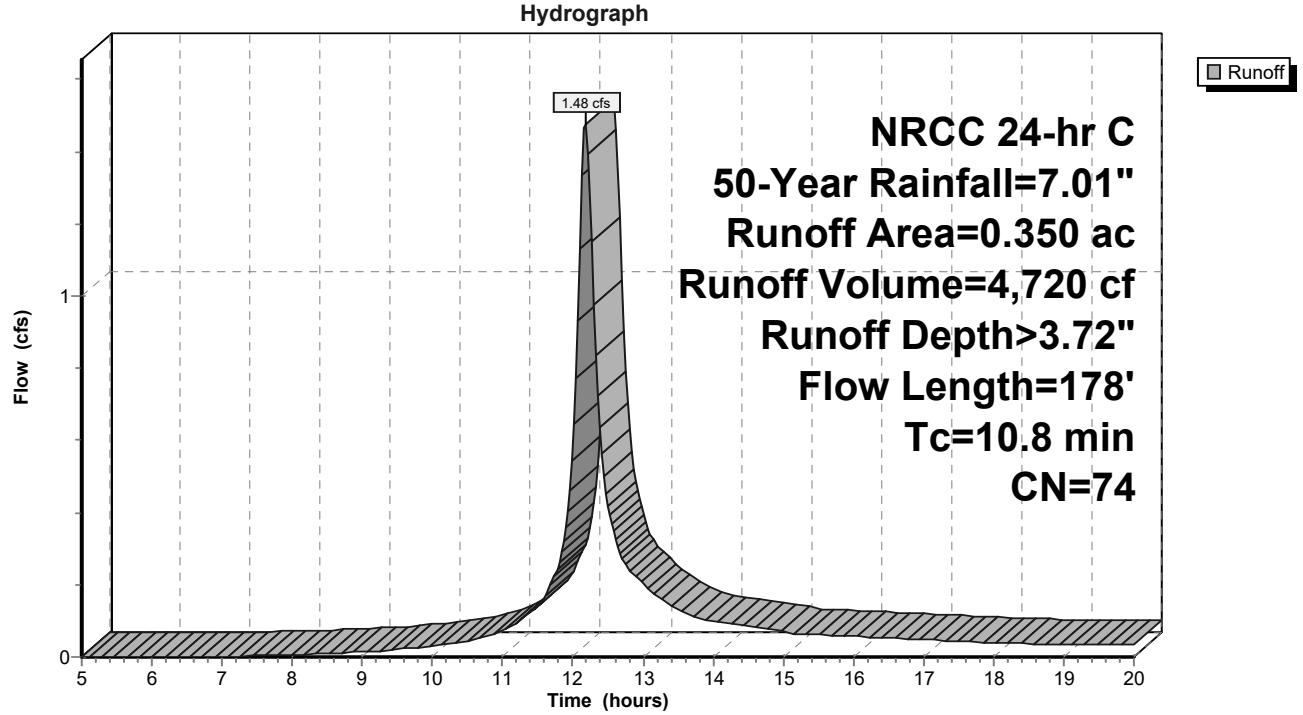
Runoff = 1.48 cfs @ 12.18 hrs, Volume= 4,720 cf, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
0.350	74	>75% Grass cover, Good, HSG C
0.350		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.5	78	0.0250	2.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.8	178	Total			

Subcatchment POA4-POST: DA4



Summary for Subcatchment POA4-PRE: DA4

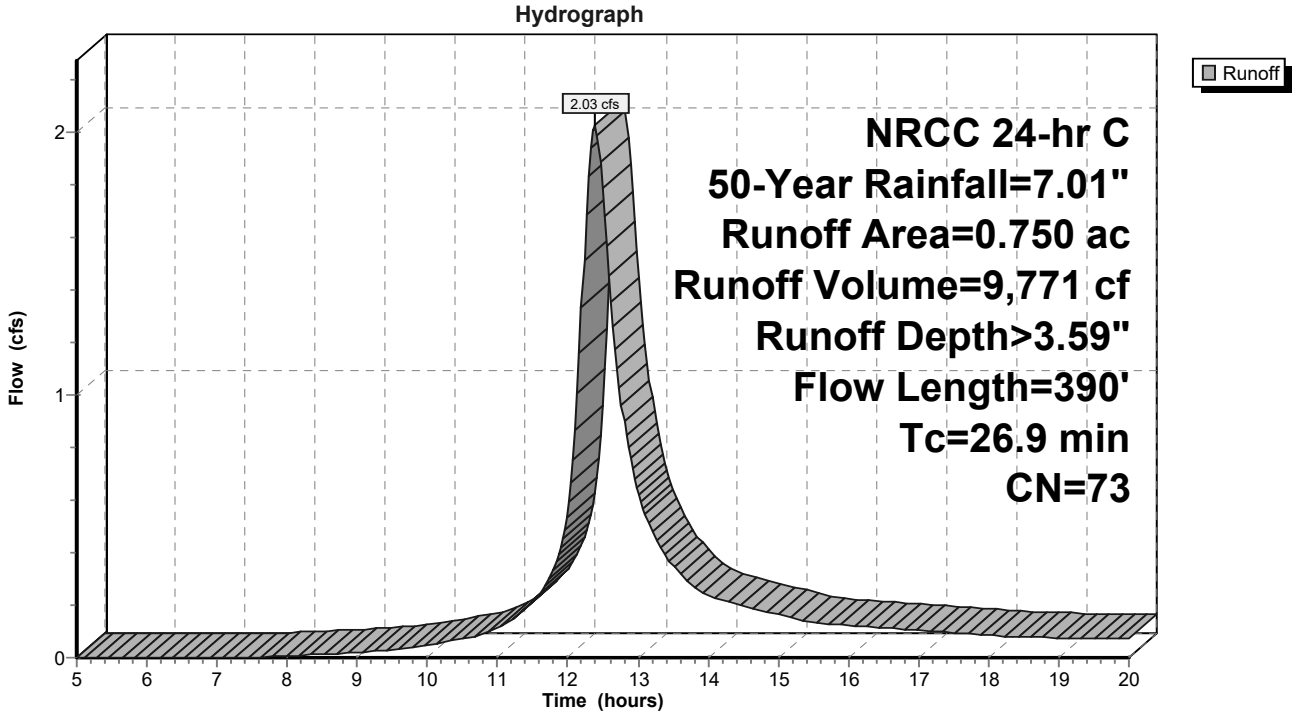
Runoff = 2.03 cfs @ 12.38 hrs, Volume= 9,771 cf, Depth> 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 50-Year Rainfall=7.01"

Area (ac)	CN	Description
0.450	72	Woods/grass comb., Good, HSG C
0.300	74	>75% Grass cover, Good, HSG C
0.750	73	Weighted Average
0.750		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.2	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.5	140	0.0920	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	150	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	390	Total			

Subcatchment POA4-PRE: DA4



Summary for Pond SMA1: SMA1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 108,464 sf, 62.25% Impervious, Inflow Depth > 5.31" for 50-Year event
Inflow = 16.35 cfs @ 12.13 hrs, Volume= 48,031 cf
Outflow = 2.69 cfs @ 12.58 hrs, Volume= 23,426 cf, Atten= 84%, Lag= 26.5 min
Primary = 2.69 cfs @ 12.58 hrs, Volume= 23,426 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 198.44' @ 12.58 hrs Surf.Area= 9,152 sf Storage= 28,254 cf

Plug-Flow detention time= 200.2 min calculated for 23,422 cf (49% of inflow)
Center-of-Mass det. time= 106.0 min (861.0 - 754.9)

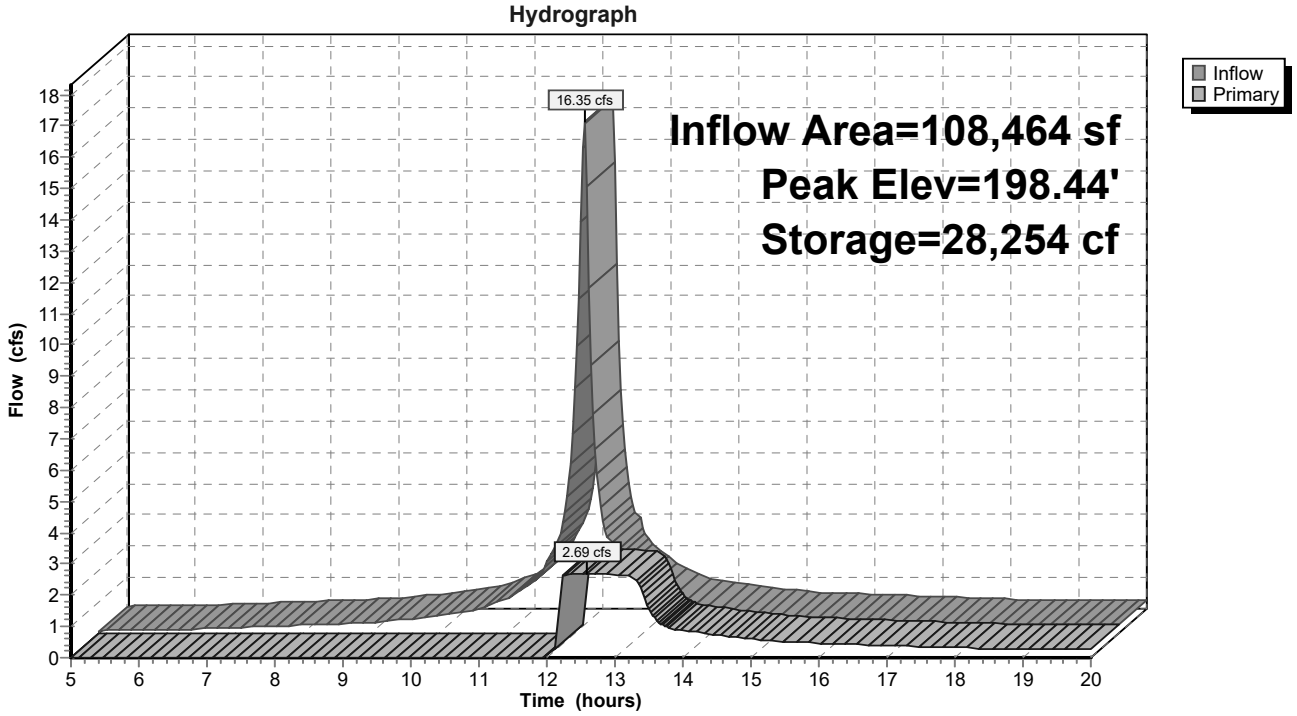
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	44,331 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
194.00	3,650	0	0	3,650
196.00	6,170	9,710	9,710	6,218
198.00	8,520	14,627	24,337	8,644
200.00	11,550	19,993	44,331	11,756

Device	Routing	Invert	Outlet Devices
#1	Primary	194.00'	**8.0" Round Culvert - RISER OUTLET** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 194.00' / 193.75' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.35 sf
#2	Device 1	194.00'	**3.0" W x 18.0" H Vert. Orifice - SIDE OF RISER** C= 0.600 Limited to weir flow at low heads
#3	Device 2	198.00'	**48.0" Horiz. Orifice - TOP OF RISER** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.69 cfs @ 12.58 hrs HW=198.44' (Free Discharge)
└**1=Culvert - RISER OUTLET** (Inlet Controls 2.69 cfs @ 7.71 fps)
└**2=Orifice - SIDE OF RISER** (Passes 2.69 cfs of 3.46 cfs potential flow)
└**3=Orifice - TOP OF RISER** (Passes 2.69 cfs of 12.12 cfs potential flow)

Pond SMA1: SMA1

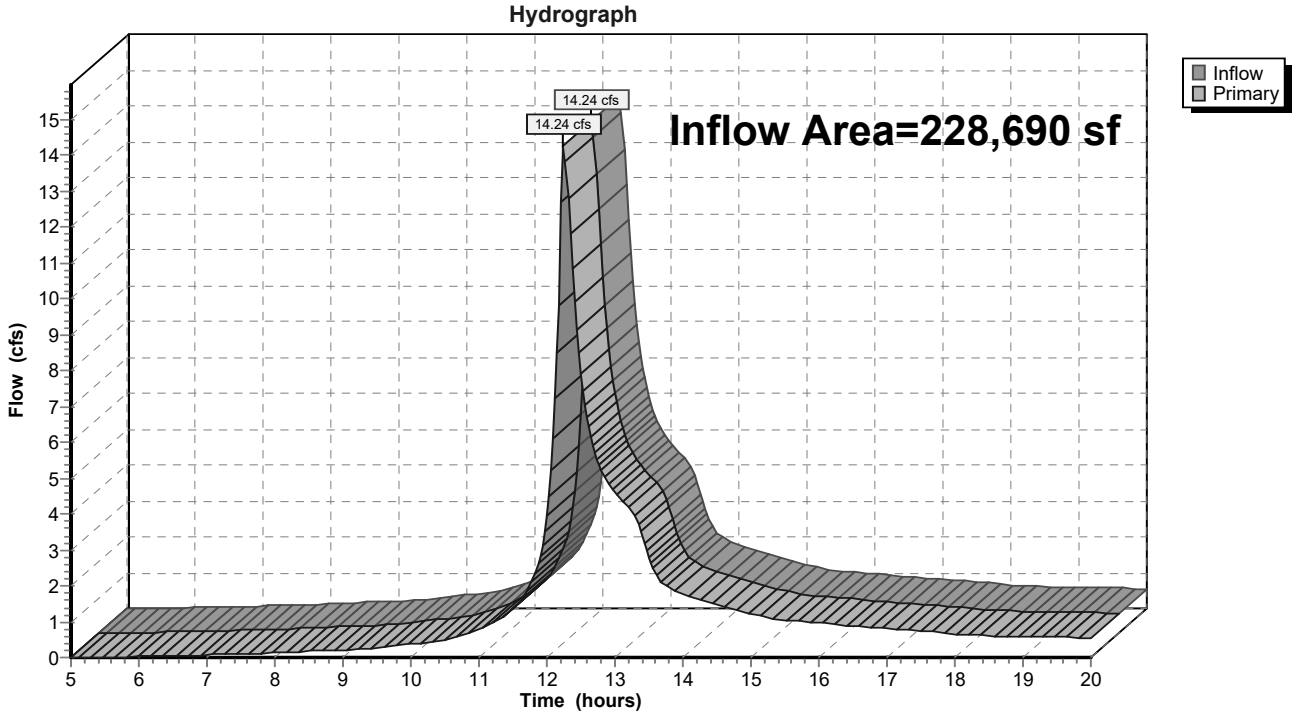


Summary for Link TOTAL POA2: TOTAL DA2

Inflow Area = 228,690 sf, 44.10% Impervious, Inflow Depth > 3.57" for 50-Year event
Inflow = 14.24 cfs @ 12.24 hrs, Volume= 67,978 cf
Primary = 14.24 cfs @ 12.24 hrs, Volume= 67,978 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Link TOTAL POA2: TOTAL DA2



Time span=5.00-20.00 hrs, dt=0.03 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment POA1-POST: DA1 Runoff Area=0.080 ac 0.00% Impervious Runoff Depth>4.81"
Flow Length=20' Slope=0.0200 '/' Tc=5.0 min CN=74 Runoff=0.54 cfs 1,397 cf

Subcatchment POA1-PRE: DA1 Runoff Area=1.780 ac 0.00% Impervious Runoff Depth>4.53"
Flow Length=557' Tc=32.9 min CN=72 Runoff=5.47 cfs 29,291 cf

Subcatchment POA1.1-POST: DA1.1 Runoff Area=2.490 ac 62.25% Impervious Runoff Depth>6.50"
Flow Length=615' Tc=6.5 min CN=89 Runoff=19.77 cfs 58,722 cf

Subcatchment POA2-POST: DA2 Runoff Area=2.760 ac 27.72% Impervious Runoff Depth>5.60"
Flow Length=533' Tc=16.4 min CN=81 Runoff=14.33 cfs 56,089 cf

Subcatchment POA2-PRE: DA2 Runoff Area=3.310 ac 21.15% Impervious Runoff Depth>5.26"
Flow Length=734' Tc=14.3 min CN=78 Runoff=17.24 cfs 63,152 cf

Subcatchment POA3-POST: DA3 Runoff Area=0.030 ac 0.00% Impervious Runoff Depth>4.81"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=74 Runoff=0.20 cfs 524 cf

Subcatchment POA3-PRE: DA3 Runoff Area=0.050 ac 0.00% Impervious Runoff Depth>4.58"
Flow Length=20' Slope=0.0500 '/' Tc=5.0 min CN=72 Runoff=0.32 cfs 832 cf

Subcatchment POA3.1-POST: DA3.1 Runoff Area=0.140 ac 0.00% Impervious Runoff Depth>4.81"
Flow Length=85' Slope=0.1000 '/' Tc=6.6 min CN=74 Runoff=0.89 cfs 2,444 cf

Subcatchment POA4-POST: DA4 Runoff Area=0.350 ac 0.00% Impervious Runoff Depth>4.80"
Flow Length=178' Tc=10.8 min CN=74 Runoff=1.89 cfs 6,100 cf

Subcatchment POA4-PRE: DA4 Runoff Area=0.750 ac 0.00% Impervious Runoff Depth>4.66"
Flow Length=390' Tc=26.9 min CN=73 Runoff=2.62 cfs 12,681 cf

Pond SMA1: SMA1 Peak Elev=199.10' Storage=34,574 cf Inflow=19.77 cfs 58,722 cf
Outflow=2.90 cfs 34,084 cf

Link TOTAL POA2: TOTAL DA2 Inflow=17.15 cfs 90,173 cf
Primary=17.15 cfs 90,173 cf

Total Runoff Area = 511,394 sf Runoff Volume = 231,231 cf Average Runoff Depth = 5.43"
74.32% Pervious = 380,061 sf 25.68% Impervious = 131,333 sf

Summary for Subcatchment POA1-POST: DA1

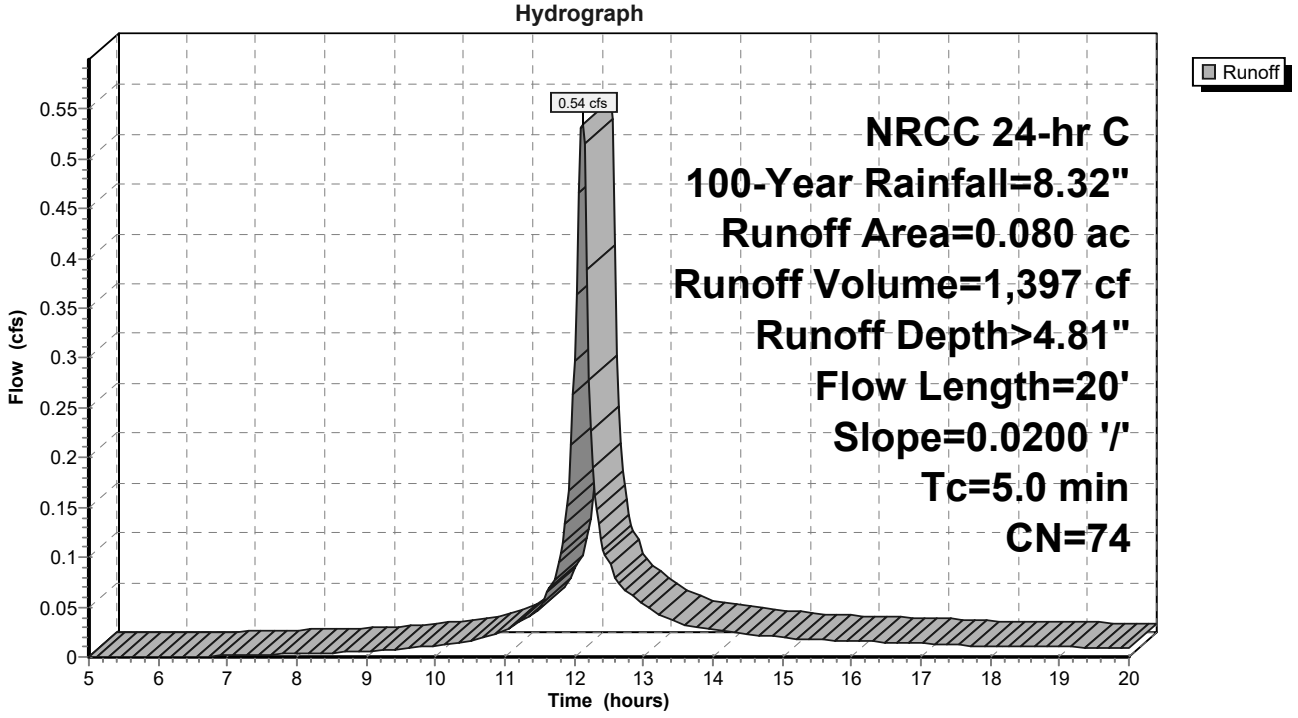
Runoff = 0.54 cfs @ 12.12 hrs, Volume= 1,397 cf, Depth> 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
0.080	74	>75% Grass cover, Good, HSG C
0.080		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0	20	0.0200	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
4.0	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA1-POST: DA1



Summary for Subcatchment POA1-PRE: DA1

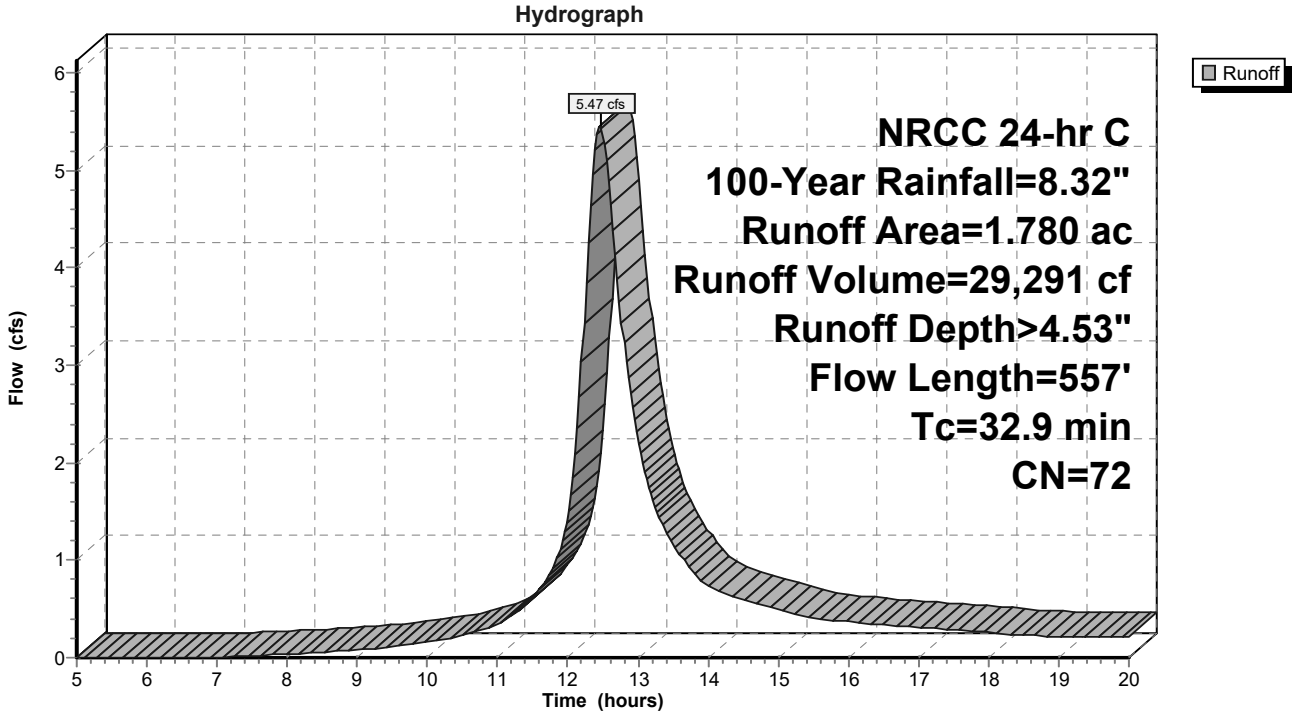
Runoff = 5.47 cfs @ 12.46 hrs, Volume= 29,291 cf, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
1.640	72	Woods/grass comb., Good, HSG C
0.140	74	>75% Grass cover, Good, HSG C
1.780	72	Weighted Average
1.780		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	100	0.0200	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
0.6	86	0.2100	2.29		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.8	371	0.0130	0.57		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.9	557	Total			

Subcatchment POA1-PRE: DA1



Summary for Subcatchment POA1.1-POST: DA1.1

[47] Hint: Peak is 427% of capacity of segment #3
[47] Hint: Peak is 348% of capacity of segment #4
[47] Hint: Peak is 121% of capacity of segment #6

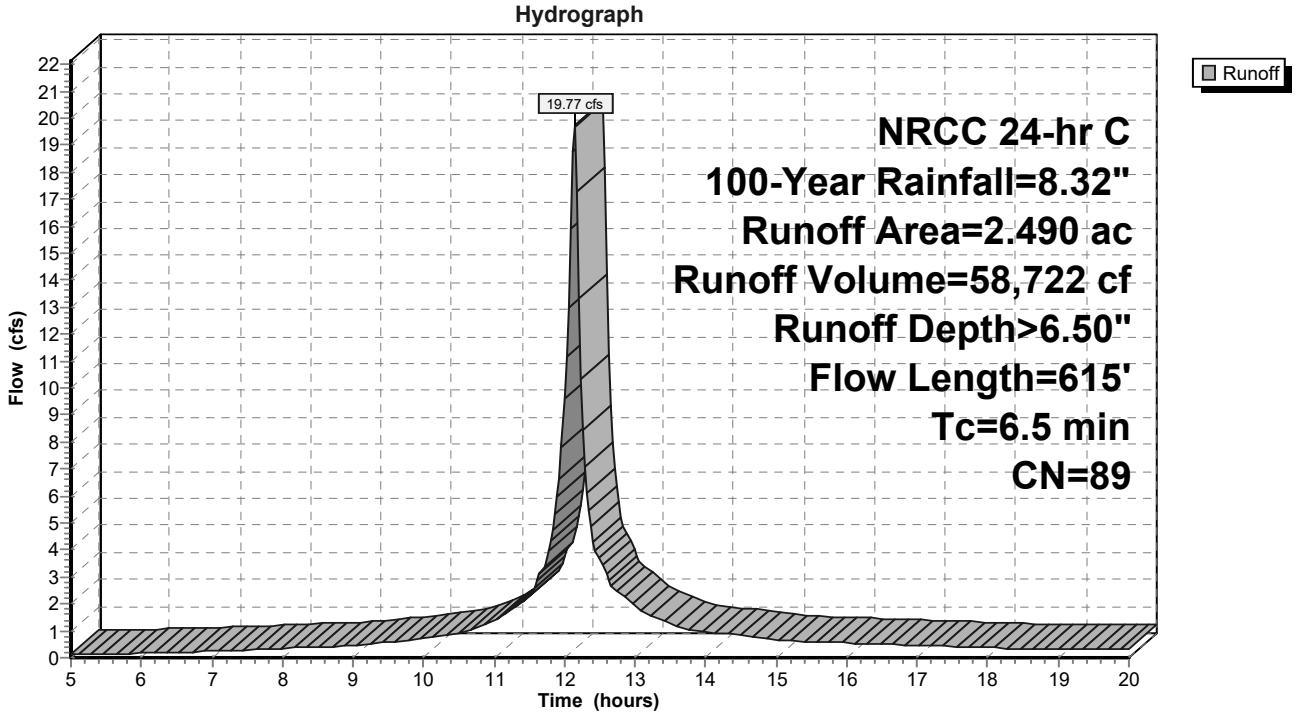
Runoff = 19.77 cfs @ 12.13 hrs, Volume= 58,722 cf, Depth> 6.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG C
0.550	98	Roofs, HSG C
0.940	74	>75% Grass cover, Good, HSG C
2.490	89	Weighted Average
0.940		37.75% Pervious Area
1.550		62.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	30	0.0200	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.18"
0.8	150	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	45	0.0100	5.90	4.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.4	190	0.0150	7.22	5.67	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
0.1	70	0.0500	17.28	30.53	**Pipe Channel,** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
1.3	130	0.0050	1.63	16.34	**Channel Flow,** Area= 10.0 sf Perim= 9.0' r= 1.11' n= 0.069 Riprap, 6-inch
6.5	615	Total			

Subcatchment POA1.1-POST: DA1.1



Summary for Subcatchment POA2-POST: DA2

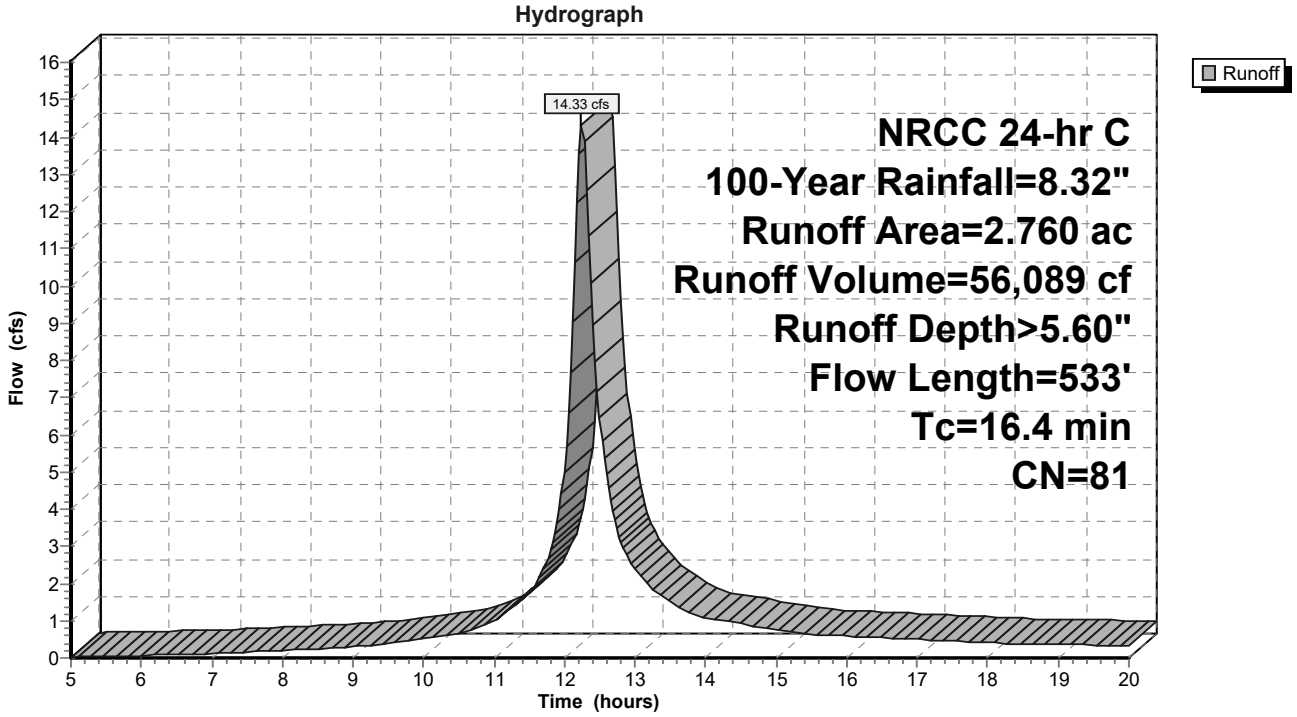
Runoff = 14.33 cfs @ 12.24 hrs, Volume= 56,089 cf, Depth> 5.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
1.995	74	>75% Grass cover, Good, HSG C
0.765	98	Paved roads w/curbs & sewers, HSG C
2.760	81	Weighted Average
1.995		72.28% Pervious Area
0.765		27.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	100	0.0200	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.6	137	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.4	533	Total			

Subcatchment POA2-POST: DA2



Summary for Subcatchment POA2-PRE: DA2

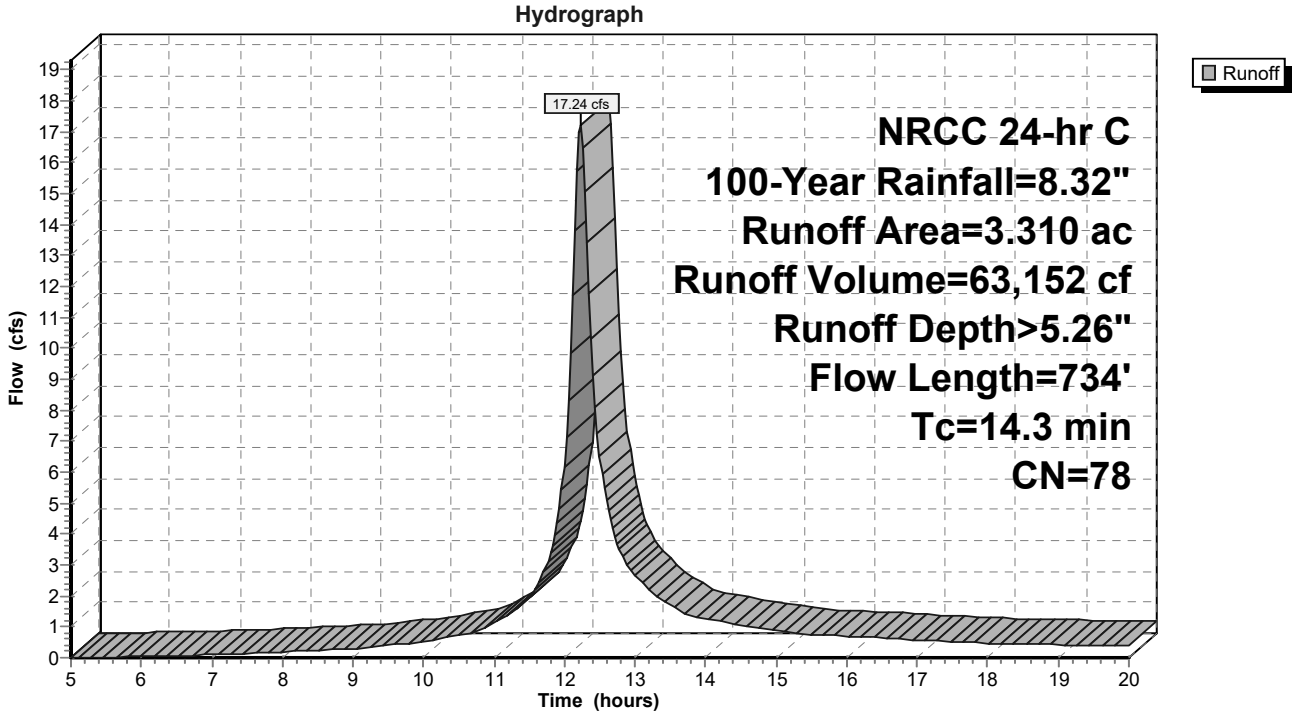
Runoff = 17.24 cfs @ 12.22 hrs, Volume= 63,152 cf, Depth> 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
1.150	72	Woods/grass comb., Good, HSG C
1.460	74	>75% Grass cover, Good, HSG C
0.700	98	Paved roads w/curbs & sewers, HSG C
3.310	78	Weighted Average
2.610		78.85% Pervious Area
0.700		21.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.1200	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.3	123	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.0	215	0.0510	3.64		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.5	296	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
14.3	734	Total			

Subcatchment POA2-PRE: DA2



Summary for Subcatchment POA3-POST: DA3

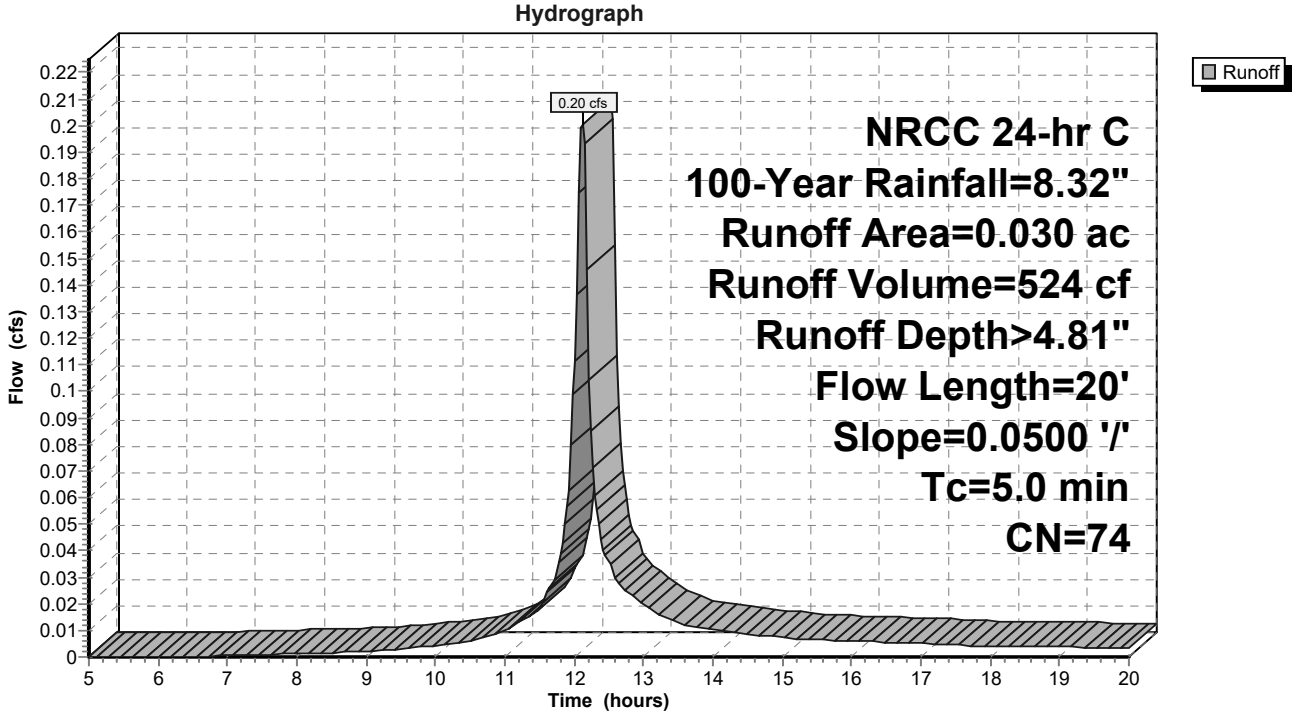
Runoff = 0.20 cfs @ 12.12 hrs, Volume= 524 cf, Depth> 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
0.030	74	>75% Grass cover, Good, HSG C
0.030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	20	0.0500	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
2.7	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-POST: DA3



Summary for Subcatchment POA3-PRE: DA3

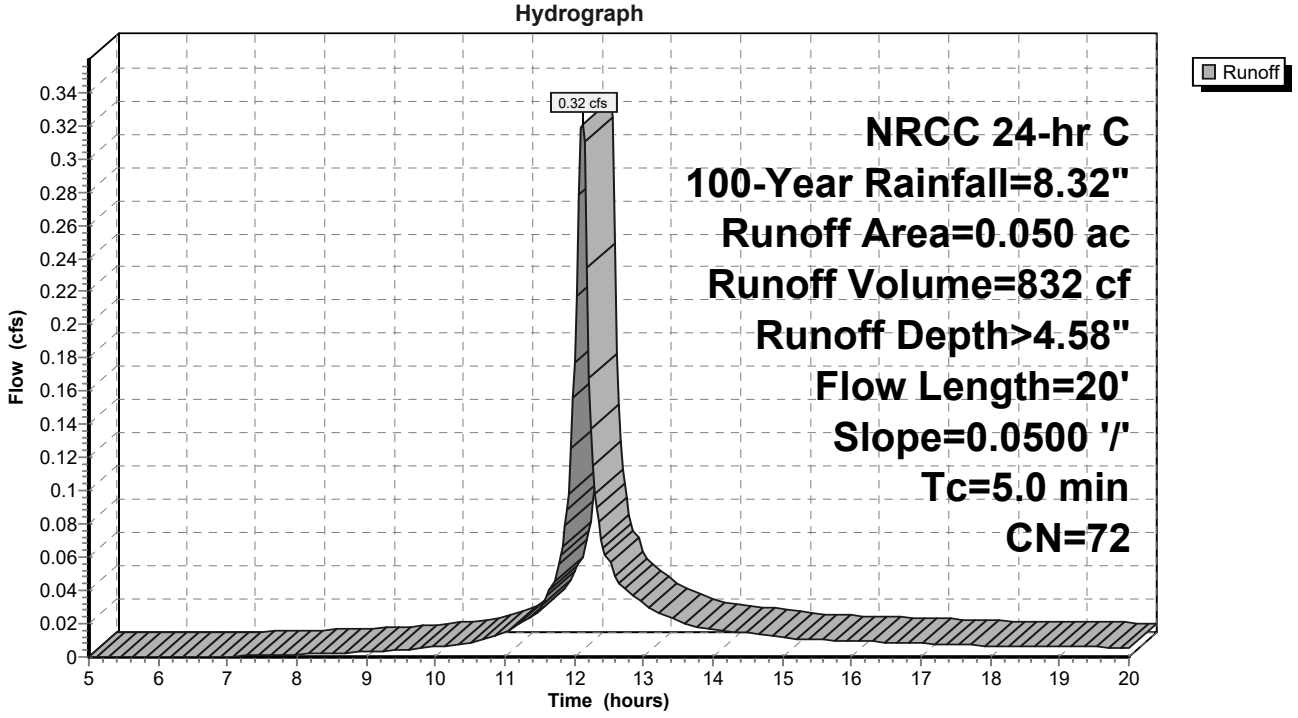
Runoff = 0.32 cfs @ 12.12 hrs, Volume= 832 cf, Depth> 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
0.050	72	Woods/grass comb., Good, HSG C
0.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	20	0.0500	0.08		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
4.1	20	Total, Increased to minimum Tc = 5.0 min			

Subcatchment POA3-PRE: DA3



Summary for Subcatchment POA3.1-POST: DA3.1

TO CB1

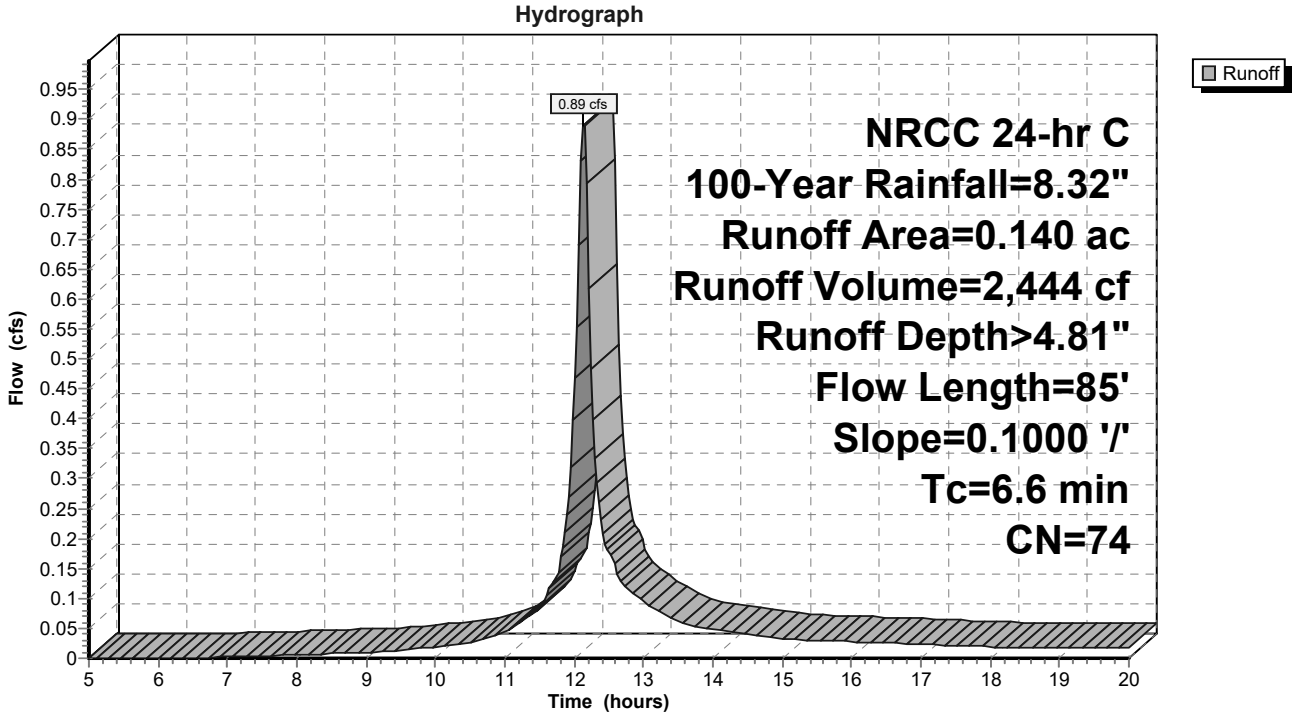
Runoff = 0.89 cfs @ 12.14 hrs, Volume= 2,444 cf, Depth> 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
0.041	74	>75% Grass cover, Good, HSG C
0.099	74	>75% Grass cover, Good, HSG C
0.140	74	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	85	0.1000	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"

Subcatchment POA3.1-POST: DA3.1



Summary for Subcatchment POA4-POST: DA4

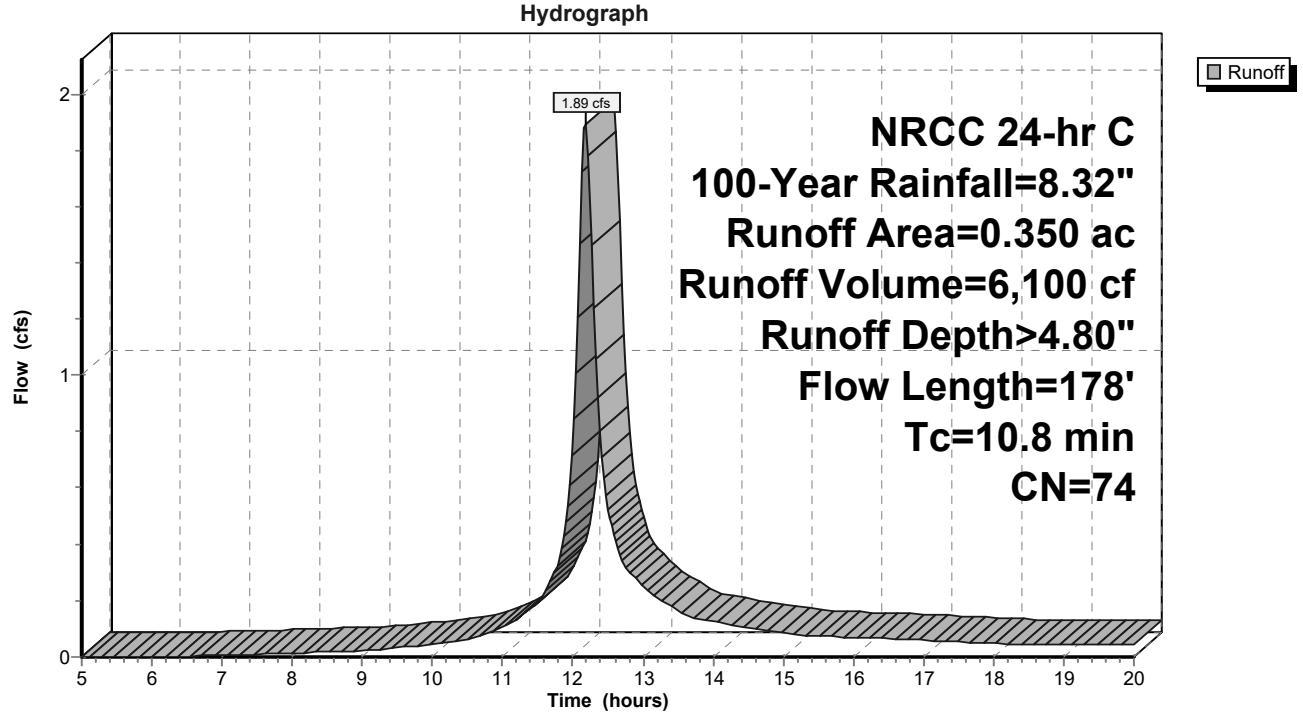
Runoff = 1.89 cfs @ 12.18 hrs, Volume= 6,100 cf, Depth> 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
0.350	74	>75% Grass cover, Good, HSG C
0.350		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	100	0.0450	0.16		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.18"
0.5	78	0.0250	2.55		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
10.8	178	Total			

Subcatchment POA4-POST: DA4



Summary for Subcatchment POA4-PRE: DA4

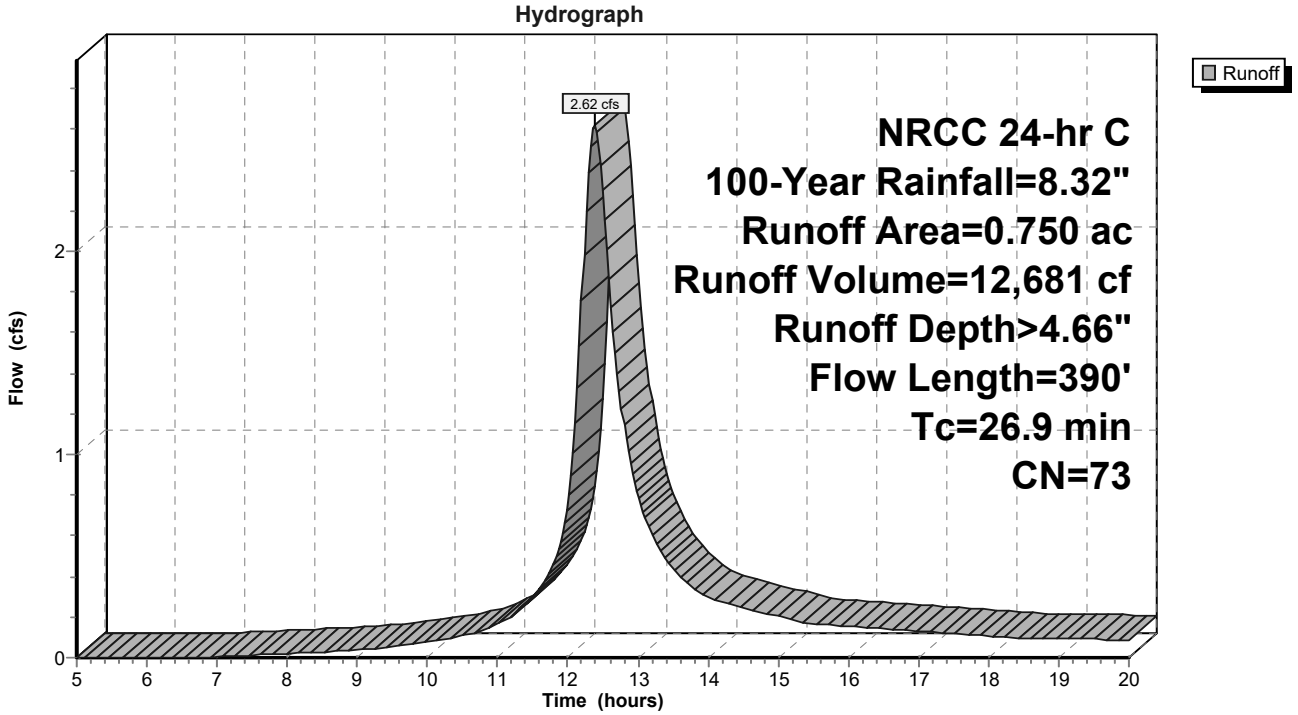
Runoff = 2.62 cfs @ 12.38 hrs, Volume= 12,681 cf, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
NRCC 24-hr C 100-Year Rainfall=8.32"

Area (ac)	CN	Description
0.450	72	Woods/grass comb., Good, HSG C
0.300	74	>75% Grass cover, Good, HSG C
0.750	73	Weighted Average
0.750		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.2	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.18"
1.5	140	0.0920	1.52		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	150	0.0160	2.04		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
26.9	390	Total			

Subcatchment POA4-PRE: DA4



Summary for Pond SMA1: SMA1

[82] Warning: Early inflow requires earlier time span

Inflow Area = 108,464 sf, 62.25% Impervious, Inflow Depth > 6.50" for 100-Year event
Inflow = 19.77 cfs @ 12.13 hrs, Volume= 58,722 cf
Outflow = 2.90 cfs @ 12.62 hrs, Volume= 34,084 cf, Atten= 85%, Lag= 29.1 min
Primary = 2.90 cfs @ 12.62 hrs, Volume= 34,084 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs
Peak Elev= 199.10' @ 12.62 hrs Surf.Area= 10,128 sf Storage= 34,574 cf

Plug-Flow detention time= 189.4 min calculated for 34,077 cf (58% of inflow)
Center-of-Mass det. time= 106.1 min (857.3 - 751.3)

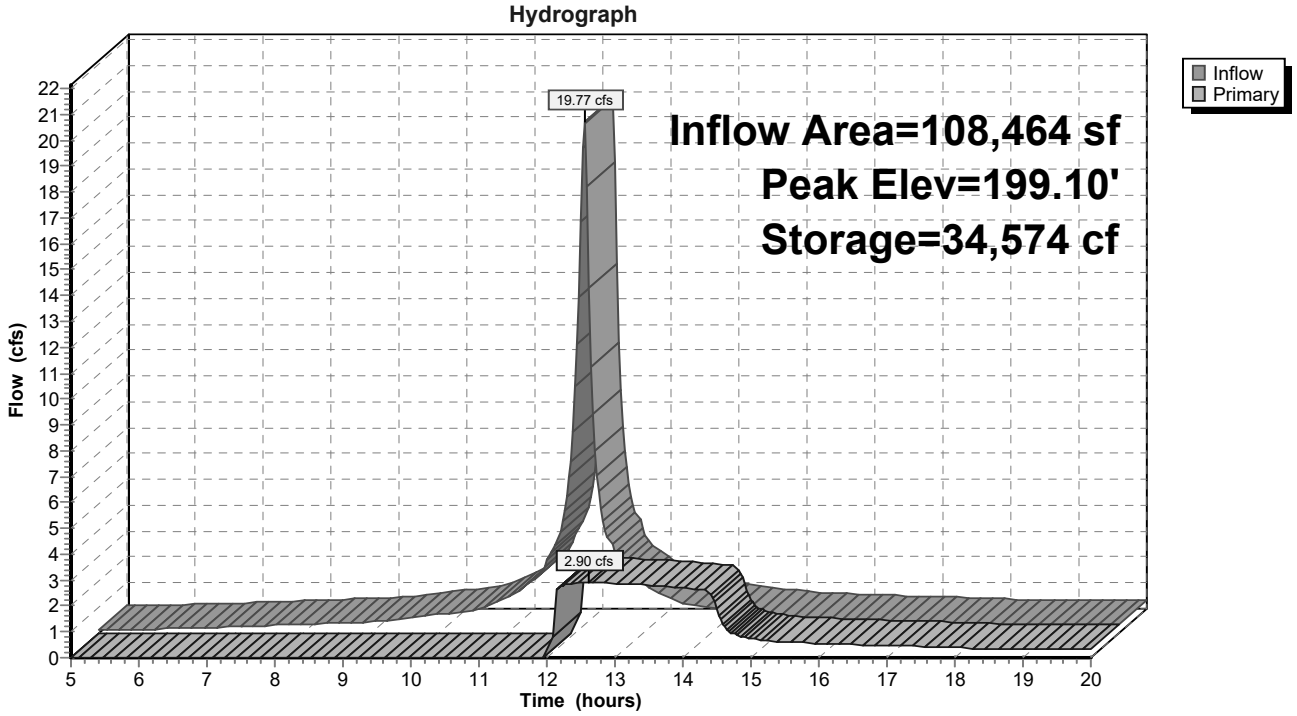
Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	44,331 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
194.00	3,650	0	0	3,650
196.00	6,170	9,710	9,710	6,218
198.00	8,520	14,627	24,337	8,644
200.00	11,550	19,993	44,331	11,756

Device	Routing	Invert	Outlet Devices
#1	Primary	194.00'	**8.0" Round Culvert - RISER OUTLET** L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 194.00' / 193.75' S= 0.0100 '/' Cc= 0.900 n= 0.010, Flow Area= 0.35 sf
#2	Device 1	194.00'	**3.0" W x 18.0" H Vert. Orifice - SIDE OF RISER** C= 0.600 Limited to weir flow at low heads
#3	Device 2	198.00'	**48.0" Horiz. Orifice - TOP OF RISER** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.90 cfs @ 12.62 hrs HW=199.10' (Free Discharge)
└─**1=Culvert - RISER OUTLET** (Inlet Controls 2.90 cfs @ 8.30 fps)
└─**2=Orifice - SIDE OF RISER** (Passes 2.90 cfs of 3.76 cfs potential flow)
└─**3=Orifice - TOP OF RISER** (Passes 2.90 cfs of 47.35 cfs potential flow)

Pond SMA1: SMA1

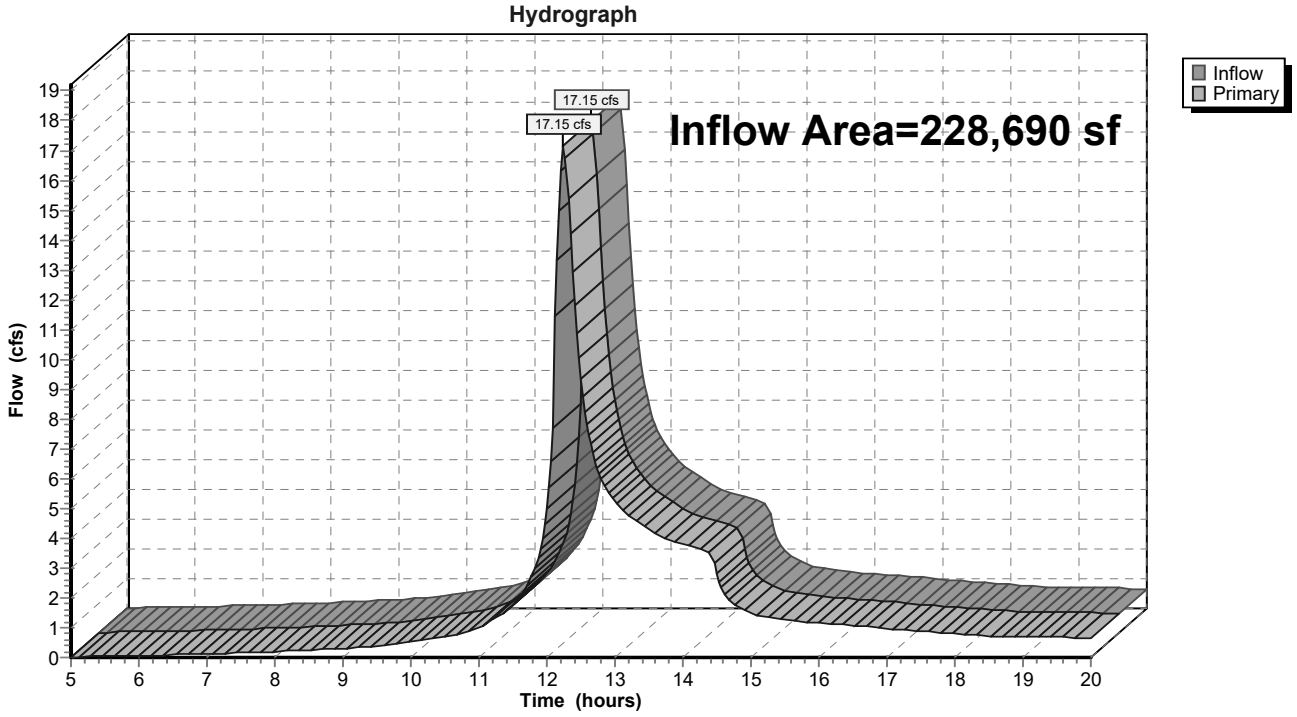


Summary for Link TOTAL POA2: TOTAL DA2

Inflow Area = 228,690 sf, 44.10% Impervious, Inflow Depth > 4.73" for 100-Year event
Inflow = 17.15 cfs @ 12.24 hrs, Volume= 90,173 cf
Primary = 17.15 cfs @ 12.24 hrs, Volume= 90,173 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.03 hrs

Link TOTAL POA2: TOTAL DA2



APPENDIX I

KEVIN L. PATTON, P.E.
36 PATTON ROAD
NEWBURGH, N.Y. 12550
845 275-7732 PATTONGEOTECH.COM

CLIENT:	One Key Development 241 Hudson Street Hackensack, NJ 07601	PROJECT: Project No. Date:	Harrington Heights Poughkeepsie, N.Y. 23216 July 6, 2023

SUBSURFACE INVESTIGATION REPORT

PROJECT DESCRIPTION

This geotechnical investigation report was prepared for use in the design and construction of a new three-story multi-family apartment building on a previously-developed lot at 100 South Hamilton Street, as shown on the attached plan. The building will have an L-shaped footprint of approximately 22,800 square feet, with the main section aligned generally north-south, along South Hamilton Street, with a width of approximately seventy feet and a length of about 235 feet. A wing seventy feet in width will extend approximately one hundred feet east from the south part of the building. A stormwater control area is proposed along the east side of the site.

The proposed building is expected to have a first floor elevation of 213 feet, with no basement level. It will straddle the top of a small hill which peaks at about 223 feet in the middle of the building area, most of which is at elevations of 210 to 223 feet, with low points of 206 feet at the northwest corner, 208 feet at the southwest corner and 202 feet at the northeast corner. The existing elevations in the proposed stormwater control area are approximately 197 to 198 feet. Aerial photos indicate that a large residence on the site was demolished approximately forty to fifty years ago, and that since then the site has been idle, and was covered with trees prior to starting the project. Remnants of the driveway are still present, near the northeast corner of the site, minor demolition debris was encountered in the former house area, and some fill materials were noted in the proposed stormwater control area.

The Surficial Geologic Map of New York State (N.Y. State Museum, 1989,) indicates that the site is in a large area of glacial till over shallow bedrock. The USDA Soil Survey indicates that the native topsoil type in the project area is Dutchess-Cardigan-Urban land complex. Dutchess soils typically form over deposits of glacial till composed of sandy silty gravel with few flat (flaggy) cobbles, and are typically more than seven feet thick over bedrock. Cardigan soils typically form in till deposits composed of silt and sand with traces gravel and trace flaggy cobbles, with bedrock at about thirty to 34 inches depth. The soil survey reports that the water table is typically at a depth of six feet or more year-round where these soils are present. The local bedrock is thinly-layered gray siltstone, shale and sandstone of the Ordovician-age Austin Glen formation. Bedrock was encountered in several of the test pits. The soils and rock encountered in the test pits were generally consistent with the reference data. Some minor areas of fill were also noted.

SOIL INVESTIGATION AND TEST RESULTS

Eight test pits were excavated on June 14, 2023, six in the proposed building area and two in the proposed stormwater control area. The two test pits at the north end of the building were offset to the north of the building due to the site conditions. Only the north half of the stormwater area was accessible. The test pits were excavated using a tracked mini-excavator by One Key LLC. The subsurface investigation was supervised and witnessed by Kevin Patton, P.E.

Soils and bedrock were observed and sampled, and laboratory testing was performed on representative soil samples, for moisture content, particle size distribution and Atterberg Limits. USCS classifications of the soil, per ASTM D2487 and D2488, are provided on the logs and on the subsurface profile drawing.

TEST PIT SUMMARY								
	Building Area						Stormwater	
Test Pit No.	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8
Elevation, approx.	212	205	214	222	222	209	197.5	197
Depth, feet	12	6	7.5	8	5	4.9	6	8.5
Depth to Rock, feet	-	5.2	6.5	7.5	4.2	4.9	-	-



PHOTO 1. Excavating test pit TP4. All photos were taken on June 14, 2023.

Laboratory Data

Natural Moisture Content, Percent						
Depth, feet	TP1	TP2	TP3	TP4	TP7	TP8
2					16.5	
3		14.1	13.7			
4				13.6		20.6
5					13.5	
8	13.6					
11	14.4					

SOIL TEXTURE					
Particle Size Analysis					
Sample		TP1	TP3	TP7	TP8
Depth		8 feet	3 feet	2 feet	4 feet
Type					
USCS Class		SC-SM	ML	CL	ML
Sieve Size	mm	Percent Passing by Weight			
¾″	19.0	86	100	100	100
#4	4.75	74	92	98	100
#10	2.00	66	88	97	99
#40	0.425	53	82	94	96
#200	0.075	35	54	67	53
Hydrometer	0.050	28	42	54	33
	0.005	5	11	17	1
	0.002	1	5	9	0
Atterberg Limits					
Liquid Limit		22	-	28	-
Plastic Limit		16	-	17	-
Plasticity Index		6	Non-plastic	11	Non-plastic

The moisture content test results were consistent with the observed moist to very moist or wet conditions in well-consolidated soils with negligible organic content. The particle size analyses and Atterberg Limits tests represent some of the typical native soils in the project area. The first sample was composed of 26% gravel, 39% sand and 35% silty clay. The second sample consisted of 8% gravel, 38% sand and 54% silt, the third was 2% gravel, 31% sand and 67% clay, and the fourth sample contained 47% sand and 53% silt, with no gravel. Occasional cobbles and few boulders were present in the soil, as noted in the logs, but were not included in the tests. The Atterberg Limits tests indicate that the fine fraction of the more highly-plastic soils is silty clay or lean clay, making them somewhat moisture-sensitive, but indicating a low potential for detrimental shrink-swell (expansive) behavior. The Atterberg Limits were not tested for the two silty samples; the sample from TP3 had low cohesion; it might have a plastic limit but does not have a liquid limit. The sample from TP8 was fine-sandy cohesionless silt, without an LL or a PL.

SUBSURFACE PROFILE AND SUMMARY OF SOIL CONDITIONS

The observed subsurface conditions are described in the test pit logs and are summarized in the drawing attached to this report. Most of the native soils and most of the existing fill consisted of fine-sandy silt with traces gravel, few cobbles and boulders. Some of the native soils in test pits TP3 and TP4 were identified as glacial till, but most of the native material appears to be till that has been significantly reworked by frost, soil creep and similar factors. Well-graded granular soil (gravelly silty clayey sand) was only encountered in test pit TP1, below elevation 205; this was also the only soil in the building area that was noted as being 'very most,' with moist conditions observed elsewhere.

Bedrock was encountered in five of the six building area test pits. It was not found in test pit TP1, near the northeast building corner, which stopped at twelve feet depth, approximately elevation 200. Near the top of the hill, bedrock was encountered at 7.5 feet depth, approximately elevation 214.5 in test pit TP4, and in TP5 it was at 50 inches depth, elevation 218. Test pit TP2, near the proposed northwest building corner, encountered rock at five feet depth, roughly elevation 200. Test pit TP6, in the low southeast corner area, stopped on rock at about five feet depth, at an approximate elevation of 204 feet. Near the southwest corner, TP3 encountered bedrock at 6.5 feet depth, approximately 207 feet elevation. The bedrock was thin-bedded shale, with near-vertical beds striking northeast observed in test pit TP2. The first six to twelve inches of the bedrock could be ripped easily with the small excavator. The other three test pits in the building area ended in soil at elevation of 200 to 207 feet. The other test pits indicate rock near elevation 200 at the northwest corner (TP2,) becoming shallower toward the south and east (±207 ft southwest, TP3; 214 ft north-center, TP4; 218 feet center, TP5,) then dropping off at the southeast corner (TP6, ±204 feet.)

The soils in test pit TP8, near the north end of the proposed stormwater control area, consisted of approximately thirty inches of moist fill (gravelly silt and sand) over silt and fine sand, which was very moist to sixty inches depth, where it became wet. Test pit TP7, near the center of the proposed practice, encountered two inches of organics over eight inches of silty sandy fill over clay, which was moist from ten inches to 32 inches depth, where it became wet. A rock outcrop projects above grade off-site, just east of the property line in this area.

Fill materials were observed in the two stormwater area test pits as noted above, and in three of the six building area test pits. The fill materials in the stormwater control area were mostly soil, but included minor amounts of debris such as steel, concrete, cinders and glass. In the building area, twelve to eighteen inches of sandy silt fill was noted in test pits TP1 and TP4, with a couple small pipes at the latter location. Test pit TP5, near the location of the former residence, encountered forty inches of sandy silty fill over a ten-inch layer of bricks with soil, over bedrock.

SUBGRADE PREPARATION

The investigation indicates that the subgrade conditions throughout the proposed building area are suitable for the use of shallow spread footing foundations and slabs-on-grade, subject to performing the required subgrade preparation operations, as described below.

The test pits indicate that the top of rock is typically about five feet below existing grade in the building area, deeper near the northeast corner. Using five feet as an average, approximately five-eighths of the slab is expected to be supported on a bedrock subgrade at elevation 212 feet. At the north end and at the southwest and southeast corners of the building the subgrade will transition from rock to native soil, then to fill. Most of the footings will also bear on rock, transitioning to native soil at the north end and at the two south corners, however at the south end the footings may be made deeper as the grade drops off; with close proximity to the property line, this appears to be more practical than building up a fill pad to the same elevation as the rest of the foundation.

Remove all existing pavement, topsoil, soft subsoil, stumps and large roots from the subgrade surface, in all foundation and slab areas. Remove existing slabs and foundations, if encountered, in their entirety from below new foundation areas, and to at least twenty-four inches below bottom-of-slab in slab-on-grade areas, and as needed to prevent interference with the new construction. Remove uncontrolled fill in its entirety from below new foundation areas and from below slab-on-grade areas unless otherwise approved by the Engineer.

Excavate to the design subgrade elevation, or deeper if required to reach suitable subgrade, which shall be bedrock (hard or weathered) or undisturbed native soils, free from topsoil, fine organics and root masses. Where the subgrade material is soil it shall have a stiff/ medium-dense or harder consistency. Dewatering and draining of the excavation may be required to some extent during excavation, with storms expected to be the main source of water.

Trim soil to the required subgrade elevation using excavation methods that minimize disturbance of the final soil surface. Compact the surface as needed to consolidate any soil that was loosened during excavation. Remove any pockets or small zones of unsuitable materials that are encountered, and replace them with controlled compacted fill. Contact the Engineer prior to performing any significant extra excavation. Where old foundations, stumps or boulders are removed, or where other over-excavation work is performed to prepare subgrade areas, the sides of the excavation shall be trimmed back to stable soil as each lift of backfill is placed. Where deficient soil is removed from below footing locations, the remediated area shall extend at least one foot out from the footing per foot of depth (1 to 1 splay.)

Where bedrock is present and excavation is performed by ripping, hammering or blasting, remove the rock to an approximately level and uniform elevation, with a slope of ten percent or less in areas below footings and slabs. If the rock subgrade surface has open fractures, level and seat the surface by tracking back-and-forth over it with a bulldozer or excavator and/or spade it with the excavator bucket, then compact the surface with several passes of a vibratory trench roller or a single-drum soil roller.

Footings may bear directly on the prepared soil or rock subgrade, or on controlled compacted fill placed over the subgrade. Where bedrock is present, over-excavation of the rock by six to twelve inches is

recommended, with the rock replaced by compacted granular site-borrow soil or Structural Fill, to act as a cushioning layer and as a leveling course for the concrete forms. Where fine-grained native soil is present at the bearing elevation, a layer up to four inches thick of Structural Fill or equivalent site-borrow soil may be placed in the footing bottom to protect the soil surface, after properly preparing the surface to a level and stable condition. This layer shall be thoroughly compacted with a vibratory plate tamper or roller, and its surface shall not extend above the design bearing elevation. Footing bearing surfaces shall be free from frost, mud and loose soil or standing water, when concrete is placed. Rock surfaces should be thoroughly moistened prior to placing concrete.

Protect the prepared subgrade surface from erosion, from frost and from construction damage. Traffic from dump trucks and similar heavy vehicles should be minimized on the exposed surface of the subgrade and on compacted fine-grained fills.

EXCAVATION

The existing fill and native soils may be excavated using conventional heavy equipment, such as tracked excavators and bulldozers. Backhoes and mini-excavators should be suitable for the excavation of shallow trenches in soil, but may require assistance if boulders are encountered. The investigation indicates that the soils which will be encountered in the building excavations are likely to predominately be OSHA Type B, requiring a minimum slope of 1-to-1 in shallow excavations, with benching permitted. Soil types and excavation requirements must be confirmed by a qualified representative of the Contractor during construction.

Rock excavation is expected to be needed in most of the building area. A large bulldozer with a ripper tooth should be able to excavate the shallow rock, provided it can 'bite' into the bedrock surface, which may be smooth on top of the hill. A large excavator with a hydraulic hoe-ram will likely be required to excavate to depths of more than two or three feet into the bedrock. Excavation work in the building area should be practical using conventional methods, without blasting. Blasting could, however, be used to facilitate the removal of bedrock. The project area is sufficiently distant from existing structures, roads and other public areas to perform shallow blasting without causing adverse impacts to them. There is sufficient overburden present to use small, lightly-loaded blast holes to fracture the bedrock, so that it can be more easily removed by conventional excavation, although some ripping and hammering could still be required.

Little or no shoring of excavations should be required for building construction, as there appears to be sufficient distance from the property line to the estimated limits of the foundation work area to allow the use of conventional excavation slopes. Trench boxes or other temporary shoring will be required for work in deep trenches, other than trenches in rock, and may be required when excavating trenches in wet areas, regardless of depth. The design of any necessary shoring or other support-of-excavation is the responsibility of the Contractor and is not included in this report.

Groundwater seepage rates in the building excavations are expected to be slow, but may be persistent during the wet season. Groundwater seepage and stormwater should be removed promptly from the excavations, and the groundwater elevation should be maintained at a depth of at least one foot below the soil surface in active construction areas. When dewatering excavations, the water level should be drawn

down at a controlled rate to minimize sloughing, allowing the water to drain from the soil in the sides of the excavation. Gravity drainage and conventional shallow sump pits installed in the excavation should be adequate for the control of groundwater seepage and stormwater.

FILL MATERIALS

All fill placed below foundations and slabs shall consist of Structural Fill or Structural Fill HD, as described below, or shall be suitable site-borrow soil or rock, as described below, or shall be other imported fill of a quality at least equal to that of the site-borrow fill.

Soils excavated from the site are expected to be of suitable quality for re-use as fill and backfill for foundations, slabs and pavement areas. Exclude topsoil and wet, organic otherwise deficient soils from the excavated soil, which should be blended as much as practical, to produce a uniformly compactible fill material. The site-borrow soil will likely require some require drying prior to compaction. Boulders and large cobbles must be removed from the borrow fill. Clumps of clayey soil should be excluded from the fill, but if included they must be thoroughly broken up and mixed in.

Rock excavated from the site may also be used as fill in building and pavement areas. If the rock is excavated by ripping or hammering, it should be processed by crushing and/or screening to approximately the grading of Structural Fill, below. Blasted rock will likely be suitable for use as fill after removing the oversize pieces, without further processing.

Open-graded gravel or crushed stone should not be placed directly against the silty native soils for most applications, as the soil may erode into the stone. The gravel should be separated from the soil by a geotextile layer or by a layer of well-graded soil. Pipe bedding in utility trenches may also act as a drainage path for groundwater seepage. If coarse granular bedding is used in sloping trenches, it should be interrupted periodically by sections of well-graded bedding, to regulate the flow of this seepage.

Structural Fill, if imported for use below foundations and slabs, shall be good-quality bank-run sand and gravel or crushed stone, and should be a well-graded product complying with the gradation limits below. Structural Fill may also be used as foundation backfill. Structural Fill HD (Heavy Duty) should be used in areas to be protected from heavy construction traffic and where subgrade stabilization and/or enhanced drainage is needed and is suitable for use as fill during winter conditions.

Sieve size		Structural Fill	Structural Fill HD
Inch	mm	Percent Passing by Weight	
4″	100	100	100
1½″	37.5	60-100	50-95
#4	4.75	20-85	20-50
#40	0.425	5-50	5-25
#200	0.075	0-30	0-10
Plasticity Index		12 max.	4 max.

All fill materials shall be composed of sound, durable particles, shall be free from frost or snow, garbage, construction debris or other deleterious material, and shall be substantially free from organic matter and roots. Recycled crushed concrete and masonry from a registered source may be acceptable for some applications above the water table, subject to approval by the Designer of Record. Fill shall not be placed over frozen or unstable soil, unless approved by the Engineer.

CLSM (Controlled Low-Strength Material, aka flowable fill) may be used under footings and foundations when specifically approved by the Engineer, and may also be used to backfill trenches or other excavations, typically where rapid fill placement is required, fill areas are narrow, or the use of conventional compaction methods is not practical. For support of footings, a CLSM mix consisting of sand, cement and water, with a 56-day compressive strength of 75 to 200 psi, is appropriate. CLSM may produce high fluid pressures during placement, and caution must be used for placements against foundation walls, near unbraced cuts, etc. Pipes or tanks can also float if not properly restrained during placement. CLSM should not be placed against unprotected aluminum; CLSM containing flyash should not be used in contact with cast iron or ductile iron. Hardened CLSM masses may also adversely affect groundwater flow, possibly causing erosion under or along the CLSM, particularly in sloping trenches.

Other Fill Materials:

- Crushed stone base course for slabs-on-grade should consist of ASTM C33 #56 or #57 stone (⅜- to ¾-inch size,) or as required by the slab system design.
- Crushed stone or gravel for footing drains should consist of ASTM C33 #5, #56 or #57 stone (¾-inch or ⅜-¾-inch size.)
- Well-graded granular subbase material (NYSDOT Item 733-04 'Item 4' or similar) should be used under sidewalks and exterior slabs.

FILL PLACEMENT AND COMPACTION

Soil surfaces, including the surface of the subgrade and of previously-placed fill materials, shall be prepared to a stiff and essentially unyielding condition prior to placing each new lift of fill. Bedrock surfaces to receive fill shall be free from voids or loose areas and the rock surface shall be free from large loose pieces of stone. Use mid-size equipment to compact the site-borrow fill or similar materials. Vibratory trench rollers, and single-drum soil rollers with a nominal size of three to five tons, should be appropriate for the observed soil conditions. Larger rollers may be used when compacting well-graded granular fill over essentially unyielding surfaces. In areas with limited access, vibratory plate tampers or jumping-jack tampers may be used. Avoid over-compacting the shallow soils in landscaped areas.

Soil fill and processed rock fill shall be placed in controlled lifts, with each lift compacted to the required density at a moisture content close to optimum moisture, as determined by the ASTM D1557 Modified Proctor Method. When the moisture content of fill which will support footings or slabs is within two percent of optimum, fill may be placed in lifts with compacted thicknesses of up to eight inches. If the moisture content is two to 2.5 percent from optimum, reduce the maximum thickness to six inches, and if it is more than 2.5 percent from optimum, discontinue compaction. In roadway, embankment and other non-structural locations, fill may be placed in lifts with a compacted thickness of up to twelve inches when the moisture content of the fill is within two percent of optimum, and up to eight inches thick when it is

two to 2.5 percent from optimum. Use a reduced lift thickness if required to obtain the specified percent compaction and when using small compaction equipment.

When placing fill during freezing temperatures, use Structural Fill HD or similar fill material containing less than ten percent non-plastic fines. Fill produced from natural sand and gravel is preferable to crushed stone or concrete fill for winter work, for ease of compaction. Compact the fill with a maximum lift thickness of six inches and do not compact fill whose moisture content is more than two percent above or below optimum. Do not place or compact fill when the air temperature is less than 25°F. Do not place frozen fill materials.

Mass rock fills may be constructed using well-graded shot-rock from blasting. The design lift thicknesses should be approximately twelve to eighteen inches, depending on the dimensions of the fill, the fill placement method and the compaction method, and may require adjustment based on the actual size and grading of the rock after it is blasted. Rock fill should be placed in a manner that minimizes segregation and which creates an initially-dense state. Allowing the rock fill to free-fall into place from a belt or bucket can be an effective method, but dust, noise and flying particles are of concern. Lifts of rock fill may be acceptably placed with a bulldozer, but a moving pile of fill should be maintained in front of the blade, rather than running the pile out completely. Re-work any boulder pockets to a dense, well-graded condition, and level the surface of the fill prior to compaction. The rock fill should be compacted in a wet condition when practical, but may also be compacted when dry or moist. Rock fills should be placed in conformance with an engineered design which includes any necessary requirements for drainage; for geotextiles and/or aggregate filter zones between the rock fill and the subgrade, adjacent and/or overlying soils; the clearance depth for utilities, etc.

Where fill will be placed against slopes, bench the fill into the slope to create a stair-step interface, for improved stability and groundwater control. Lightly scarify the surface of the existing soil prior to placing the fill, and key the fill into the subgrade at the toe of the slope. When the fill is more than five feet high against a slope of twenty percent or more, the key should be at least two feet deep and ten feet wide.

Backfill placed against foundation walls should be compacted with trench rollers or with similar equipment which will not produce damaging stresses on the wall. Place backfill equally on opposite sides of the foundation unless otherwise indicated by the specifications or drawings. Foundation walls acting as retaining walls should be braced (i.e. by installation of the floor framing) before placing backfill, unless otherwise indicated on the drawings or approved by the Engineer.

Open-graded stone base course material for slabs-on-grade should be graded level and seated with one or more compaction passes, to help resist displacement during slab area preparation and concrete placement.

Compaction Requirements

Compact each lift of soil fill supporting slabs or foundations with at least six one-way compaction passes, even if the required compaction percentage is obtained with fewer passes. Each compaction pass shall be made at a slow walking speed (less than four feet per second,) with the equipment passing completely over all areas of the fill. Fill materials shall be compacted to at least the following percentage of the ASTM D1557

maximum dry density. For coarse-graded fill materials with more than thirty percent retained on the ¾-inch sieve, the ASTM D4253 Maximum Index Density test may be substituted for the D1557 test.

Location	Percent Compaction
Below Footings, Foundations, Slabs and Pavements	95% minimum
Exterior Foundation Backfill in Landscaped Areas	90% minimum

Mass rock fills must be compacted with the largest vibratory single-drum soil roller that is available and appropriate for the site, typically in the ten-ton to sixteen-ton size range. Compact each lift with at least six vibratory roller passes, with the passes applied in two perpendicular directions, or in multiple directions, when possible. Vary the vibration frequency to maximize compaction, using the high-frequency mode for the final passes, for increased compaction depth with less surface disturbance. Continue compaction until the fill surface is in an unyielding condition.

TESTING

The prepared subgrade shall be inspected to verify that it has been prepared in conformance with the requirements of this report, prior to placing fill or foundations. Recommended test procedures and frequencies are provided below.

PROOF-ROLLING: Proof-rolling of the prepared subgrade soil is not required, but may be performed to determine the limits of a soft area. Use an appropriately–sized vehicle, to avoid damaging wet and/or fine-grained, but otherwise acceptable soils. Observe the effects of the moving vehicle; if the soil exhibits excessive deflection, rutting or cracking, additional excavation or drying of the subgrade may be required.

BEARING CAPACITY: The prepared subgrade surface throughout the foundation and slab areas area shall be probed thoroughly to check for soft spots. The foundation subgrade shall be in a dense and unyielding condition, substantially free from soft areas and/or loose material. If these conditions are not encountered at the bearing elevation, testing shall be performed with a Static Cone Penetrometer or equivalent device in foundation bearing areas. If the design bearing capacity is not indicated within three inches of the bearing surface, the soil conditions shall be corrected and/or, if approved by the Engineer, the footing depth may be increased to reach acceptable soil. The slab subgrade areas shall be densely consolidated and sufficiently stiff to prevent rutting or displacement during slab base course and concrete placement operations. Where fractured rock or bedrock is present at the subgrade surface, it shall be visually inspected to verify that it is generally level and free from accumulations of loose material, and that in areas where it is fractured, the fractured mass is in a dense and stable condition, free from large open voids.

COMPACTION TESTING: Compaction testing shall be performed for each lift of soil fill supporting foundations, with testing performed while the work is in progress. Testing is also recommended for the fill supporting slabs or pavement, exterior backfill and for fill placed in embankments. Compaction testing is recommended for all retaining wall construction, with requirements to be determined by the wall designer. Compaction tests of fill and backfill supporting foundations and slabs should be performed in at least one location per 50 linear feet or per 1000 square feet of fill surface, per lift. At least one test per 100 linear feet

or per 2500 square feet should be performed for each lift of fill in embankment, roadway and other non-structural areas. Compaction tests should be performed with a nuclear moisture-density gauge, per ASTM Test Method D6938, unless otherwise approved. Required percent compaction values are provided above. Rock fill placement shall be visually monitored for fill quality and grading and for conformance with the requirements for lift thickness and placement methods and for application of the specified compaction effort.

CLSM: When flowable fill is used to support footings or foundations, at least one set of three 6x12-inch test cylinders shall be cast from each day's placement, per ASTM D4832. Test the cylinders for unit weight and for compliance with the specified strength requirements. Cast additional cylinders if early tests are needed.

GEOSYNTHETIC MATERIALS

Geosynthetic materials are expected to be used for reinforcement and drainage applications at the site on an as-needed basis, or where required by Code, such as for footing drains. Geosynthetic materials shall be installed over a smooth and evenly shaped subgrade, to avoid 'tenting' of the material over voids or high points. The geosynthetic shall be installed substantially free from wrinkles, and fill material shall be placed and spread in a manner which pushes the wrinkles out but which does not otherwise displace the geosynthetic material. Vehicles shall not drive on the exposed geosynthetics. The following material types are recommended.

Drainage Separation: For footing drains and similar applications, a woven drainage geotextile with at least 4% open area, with an apparent opening size of 0.21mm (#70) or smaller, should be installed around the open-graded drainage stone. Non-woven geotextiles are not recommended for use in this application, due to the presence of fine particles in the native soil that will tend to clog the fabric. If stone drains are installed in areas of fine sand or cohesionless silt, provide a zone of clean sand at least three inches thick between the geotextile and the soil.

Subgrade Reinforcement: Typically, a woven reinforcing geotextile with a grab tensile strength of at least 200 pounds should be used where needed to improve the stability of soft subgrade soils. Geogrids may be used instead of woven geotextiles, especially if free drainage is desired. A minimum of twelve inches of granular fill cover is typically required to fully mobilize the strength of the reinforcing geosynthetic.

Subgrade Separation: Where fines from the subgrade may infiltrate into an overlying granular layer, and strengthening of the subgrade and some vertical drainage is desirable, a non-woven geotextile should be used. A four-ounce nominal weight fabric is suitable for light- to moderate-duty applications; heavier fabric should be used where it will be subjected to heavy traffic, especially when it is placed in contact with sharp or very coarse-graded materials.

Woven reinforcement geotextiles will usually act as an infiltration barrier when installed in a continuous horizontal layer, and non-woven separation geotextile may also work as a barrier; this may or may not be desirable, depending on the installation location and conditions, and should be considered when specifying or using these products.

ENGINEERING DESIGN VALUES AND RECOMMENDATIONS

Soil engineering properties and recommendations for design are provided in this section; additional important design considerations are also discussed in the other sections of this report. The design values assume that the building will be supported by a conventional spread footing foundation with slab-on-grade floor, as described in the previous sections, and will be provided with proper drainage.

Bearing Capacity and Soil Pressure

Allowable Bearing Capacity, q_a	
Footings on Soil, bearing at least 42 inches below finished grade, with a minimum width of 12 inches	4000 psf
Footings on Soil, bearing at least 24 inches below finished grade, with a minimum width of 36 inches	4000 psf
Minor Footings on Soil, bearing at least 12 inches below finished grade, with a minimum width of 12 inches	2000 psf
Footings on Fractured and/or Weathered Rock, bearing at least 12 inches below finished grade, with a minimum width of 12 inches	4000 psf

Soil Properties	Native Soils	Rock, fractured
Moist Density, γ, lbs/cu ft	130	160
Effective Internal Angle of Friction, $\emptyset$	32°	42°
Coefficient of Active Earth Pressure, k_a	0.31	0.20
Coefficient of Passive Earth Pressure, k_p	3.25	5.0
Coefficient of At-Rest Earth Pressure, k_o	0.47	0.33
Lateral Bearing Capacity (psf per ft below grade)	210	400
Coefficient of Friction (vs. concrete)	0.35	0.60
Modulus of Subgrade Reaction, k, psi per inch	175	550

Footings subject to frost shall bear at least 42 inches below finished grade, or shall be otherwise protected from frost. Footings not exposed to frost, or bearing on non-frost susceptible subgrade material (e.g. fractured bedrock) shall bear at least one foot below finished grade. Bearing elevations of footings shall be established such that a line drawn between the bottoms of two adjacent footings is not steeper than 30 degrees between the closest points on the footings. (Slope of 1 vertical to 1.75 horizontal.)

Settlement of the foundation elements over the course of construction, due to normal elastic compression of the underlying soils, is expected to be one half inch or less in the well-consolidated soils at this site. Up to one inch of settlement and ¾-inch of differential settlement should be assumed for design purposes. No measurable settlement is expected where foundations bear on rock. If fill is placed below footings, an additional quarter inch of settlement should be expected per five feet of fill thickness.

If encountered above the design bearing depth, undisturbed bedrock and rock that has been fractured by excavation are non-frost-susceptible subgrade materials, and frost-protected shallow footings, as specified

in ASCE 32, may bear on rock at depths as shallow as twelve inches when the required vertical foundation wall insulation is also provided. Where footing depths are reduced, pinning to rock may be required if the footing will be subjected to significant uplift or lateral forces. These installation conditions must be reviewed and approved on a case-by-case basis.

Control of Groundwater and Soil Gases

Minor groundwater seepage should be expected in excavations and below-grade areas during and after construction. It is understood that the building will not have a basement and the first floor slab will be entirely above grade. Adequate drainage must be provided to maintain the groundwater at an elevation below the slab base course; footing drains may be helpful, but are not required by Code for the above-grade slab condition. Construction dewatering is discussed elsewhere in this report. For the completed construction, the elevations shown on the plans indicate that a foundation drain, if used, should be able to discharge by gravity.

Soil gases that could normally be expected to impact the structure are water vapor and radon. The interior spaces should be adequately protected from these gases by providing drainage and moisture protection measures as described above, and by sealing all wall-to-slab joints, concrete cracks, pipe penetrations, drainage sumps, etc. If an open-graded base course is used under the slab, a passive or powered vapor mitigation system using small-diameter PVC pipes can be included or can be added retroactively. The potential for these gases to adversely impact the use of the building is estimated to be low, if the above recommended practices are used, and normal interior ventilation is provided.

Seismic and Expansive Properties

Seismic Design Values: The Seismic Site Class and Seismic Design Category for the proposed construction were determined per section 1613 of the New York State Building Code and ASCE 7-16. Seismic values for the site were obtained from the current database maintained by the Applied Technology Council, Redwood City, Cal., and are consistent with the published maps in the Building Code. Values were as follow.

Occupancy Category	I/II/III	
Seismic Site Class	C- Very Dense Soil and Soft Rock D – Stiff Soil	
IBC Seismic Design Category	**SDC - B**	
Maximum Acceleration	0.2 sec S_S 1.0 sec S_1	0.195 g 0.055 g
Maximum Spectral Response Acceleration	0.2 sec S_{MS} 1.0 sec S_{M1}	0.254 g 0.082 g
5% Damped Spectral Response	0.2 sec S_{DS} 1.0 sec S_{D1}	0.169 g 0.055 g

The seismic design values are based on the "risk adjusted maximum probable earthquake." These are not the maximum values that *could* occur, they are values that are not likely to be exceeded during the service life of a typical structure.

Liquefaction Potential: The soils encountered in the investigation have very low liquefaction susceptibility. Liquefaction is typically associated with thick deposits of loose poorly-graded sand situated below the water table, and may also occur in loose, poorly-graded cohesionless silt. A similar phenomenon, cyclic softening, can occur in saturated soft clays. Those soils are also prone to shifting or spreading during seismic events when they are situated near a slope, even if the slope is gentle. The soils encountered in the test pits had textures, drainage conditions, locations and/or sufficient consolidation (density) to resist liquefaction or unusual movement during the design seismic event. No special mitigation measures are required.

Expansive Soils and Frost Heave: The soils encountered in the investigation have a very low potential for expansion due to shrinking and swelling resulting from moisture changes. This behavior is typically associated with high-plasticity silt and clay soils. Physical testing and qualitative examination indicate that the soil properties do not meet the criteria for potentially expansive soils as defined in section 1803.5.3 of the Code. No mitigation measures are required. The on-site soils are moderately to highly susceptible to frost heave. Frost heave can be minimized by providing good drainage and by thoroughly compacting the soil. Well-graded granular fill should be used in areas where frost heave could result in damage.



PHOTO 2. The slope along the west side of the site, overlooking South Hamilton Street.



PHOTO 3. The proposed stormwater control area on the east side of the site. A rock outcrop forms a long knob on the far side of the fence.

NOTES AND LIMITATIONS

Please see the attached pages for additional information. Subsurface conditions encountered during construction shall be compared to the test pit logs and to this report; any significant variations from anticipated conditions must be evaluated for their effect on the design. This report summarizes the results of a limited investigation and does not purport to predict every variation in subsurface conditions. Elevations, slopes, contours, project layout and similar or related data provided in this report were interpreted from the drawings, from field data or from other information which was provided, unless otherwise noted.

This geotechnical investigation was conducted to evaluate the engineering properties of the soils at the site, to aid in the design and construction of the proposed work. The investigation did not include evaluation of the potential effects of the proposed construction on other properties, nor did it include inspection of, or sampling for, items of environmental concern such as the presence of soil contaminants or of regulated wetlands, and did not include review of local zoning regulations, codes, floodplain boundaries or similar matters, unless specifically referenced in the report. This investigation was conducted solely for the use of the Client, the Client's Project Designers and Agents and the Authorities Having Jurisdiction; this report should not be used by others, nor for any use other than its stated purpose, without contacting the Engineer. Any such use is solely at the user's risk.



Prepared by Kevin L. Patton, P.E.

Attachments:

- Soil Technical Notes
- Test Pit Location Plan
- Test Pit Logs
- Laboratory Test Reports
- Bedrock Geologic Map
- Surficial Geologic Map
- USDA Soil Survey Data

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Soil Technical Notes:
Soil Classifications, Descriptions and Properties

The USCS (Unified Soil Classification System) was used to classify the soils in this report. The USCS is described in ASTM D2487 (laboratory test method) and D2488 (visual-manual method.) The USCS classification gives a 'Group Symbol' and 'Group Name' based on particle size distribution (gradation,) clay properties (Atterberg Limits) and basic composition (mineral or organic.)

USCS Soil Classes

Soils with less than 5% passing the #200 sieve:

GW, GP, SW, SP – Well-graded gravel, Poorly-graded gravel, Well-graded sand, Poorly-graded sand.

Soils with 12% to 50% passing the #200 sieve:

GC, GM, GC-GM, SC, SM, SC-SM – Clayey gravel, Silty gravel, Silty clayey gravel, Clayey sand, Silty sand, Silty clayey sand.

Soils with 5% to 12% passing the #200 sieve use a dual symbol, such as SW-SC (Clayey well-graded sand.)

Soils with more than 50% passing the #200 sieve:

CL-ML, ML, CL, MH, CH, OL, OH – Silty clay, Silt, Lean clay, Elastic silt, Fat clay, Organic silt, Organic clay.

Highly organic soils:

PT – Peat.

The soil group name is modified with the term 'with sand' or 'with gravel' added if the soil contains more than 15% of these materials; clays and silts with 30% or more plus-#200 material are described as 'sandy' or 'gravelly' (whichever is predominate.) Examples – GM, Silty gravel with sand; CL, Gravelly lean clay.

Particle size

>12" (300mm)	Boulders
12" to 3" (300-75mm)	Cobbles
3" to #4 (75-4.75mm)	Gravel
#4 to #200 (4.75-0.075mm)	Sand
<#200 (0.075mm)	Silt & Clay

Organic Soils

Highly organic soils such as peat are visually classified. Partly organic soils, with a mix of organic and mineral matter, are classified visually and by Atterberg Limits tests.

Moisture Content

Moisture is visually estimated and samples are usually tested. Soil moisture capacity varies with texture and compaction.

Typical examples:
GW, moist at 3%, saturated at 9%
SP, moist at 6%, saturated at 20%.
CL, moist at 12%, saturated at 33%.

Fine- and Coarse-grained Soils

The USCS classification applies to the material smaller than the 3-inch sieve.

'Fine-Grained Soils' (silts and clays) have more than 50% passing the #200 sieve and are classified by their Atterberg Limits.

'Coarse-Grained Soils' (sands and gravels) have less than 50% passing the #200 sieve. When more than 50% of the plus-200 material is retained on the #4 sieve the general soil type is gravel, and if more than 50% is finer than the #4 sieve, it is sand.

Clean coarse-grained soils are classified as well-graded (Classes GW, SW) or poorly-graded (GP, SP.) Well-graded soils have a wider range of sizes and are typically more stable. Poorly-graded soils are usually more permeable.

Atterberg Limits

Test is performed on the clay, silt and fine sand fraction of the soil:
Liquid Limit (LL) – moisture content (%) at which soil becomes very soft.
Plastic Limit (PL) – moisture content at which soil crumbles.
Plasticity Index (PI) = LL minus PL

Higher PI values may indicate reduced permeability and increased drying shrinkage.

LL > 50 indicates soil with a higher potential to shrink and swell due to changing moisture content.

Silts have lower PI values, and behave like very fine sand; most silts also contain some clay. Behavior of clays is partly controlled by electrochemical forces and varies among the several clay minerals.

Color

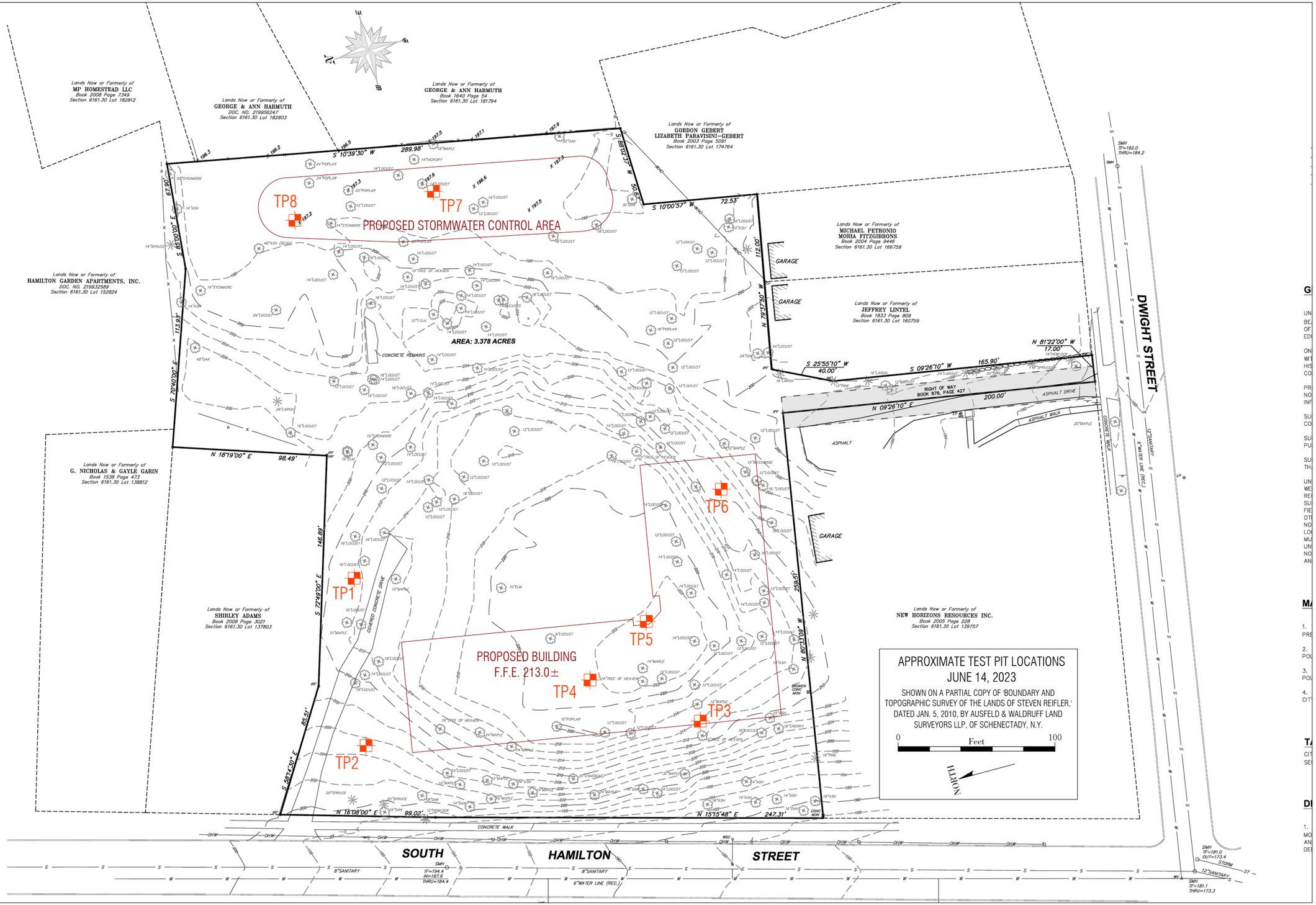
Soil color sometimes indicates groundwater conditions, with subdued colors below the water table and mottled (mixed) colors in the zone of seasonal water table fluctuation. Color changes tend to be more prominent in fine-grained soils.

Relative Quantities

Estimated percentages in descriptions:
<5% - Trace
5-10% - Traces
10-25% - Little
25-35% - Some
'And' - Approx. equal amounts
'Few' - <10% (cobbles and boulders)

USDA Soil Classification

USDA classifications are based on the relative amounts of sand, silt and clay in the soil fraction passing the #10 (2mm) sieve. 'Gravelly' indicates more than 15% of #10 to 3" size. 'Channery' indicates 15 to 35% thin flat pieces up to 6" long.



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HARRINGTON HEIGHTS

100 SOUTH HAMILTON ST., POUGHKEEPSIE, N.Y.

TEST PIT LOCATIONS

REV.	DATE	BY
0	7/5/2023	KLP

KEVIN L. PATTON, P.E.
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CLIENT:	One Key LLC		
PROJECT:	Harrington Heights, Poughkeepsie, N.Y.		
DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	50 ft NE from NE corner of proposed building	**TEST PIT NUMBER**	**TP1**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	212+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-12"	ML	Slightly moist	Fill. Loose. Grayish brown sandy silt with trace brick, glass, few small roots.	
12-24"	ML	Moist	Native soil. Loose to medium-dense. Mottled brown silt loam.	
24-42"	ML	Moist	Dense. Slightly mottled brown silt with little sand, trace gravel and cobbles.	
42" to 7ft	ML	Moist	Dense. Mottled pale brown silt with little sand, trace gravel and cobbles, few boulders to 24" size.	
7ft - 12ft	SC-SM	Very Moist	Dense. Mottled pale brown sand and silty clay with little gravel, few cobbles and boulders to 24" size.	
12 ft	-	-	Stopped at 12 feet in soil.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	30 ft N from NW corner of proposed building	**TEST PIT NUMBER**	**TP2**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	205+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-6"	ML	Slightly moist.	Loose. Grayish brown silt loam with some small roots.	
6-24"	ML	Moist	Medium-dense. Pale orangeish brown silt with some sand, traces gravel, few cobbles.	
24-62"	ML	Moist	Dense. Slightly mottled olive brown silt with some sand, little gravel and few cobbles.	
62"-72"	Rock	-	Top of shale bedrock. Beds nearly vertical, strike northeast. Ripped 12 inches into rock, which was still somewhat soft at this depth.	
72"	-	-	Stopped in rock at 6 feet.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	50 ft N from SW corner of proposed building	**TEST PIT NUMBER**	**TP3**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	214+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-4"	ML	Moist	Loose. Topsoil. Brown silt loam with fine roots.	
4"-22"	ML	Moist	Medium-dense. Pale orangeish brown silt with some fine-graded sand, trace gravel and cobbles.	
22"-48"	ML	Moist	Dense. Pale orangeish brown silt and fine-graded sand, trace gravel and cobbles, with few small boulders.	
48"-6.5ft	ML	Moist	Very dense. Till. Mottled olive brown silt with little sand, little gravel, few cobbles and boulders.	
6.5-7.5 ft	Rock	-	Top of shale bedrock. Ripped 12 inches into rock with ease.	
7.5 ft	-	-	Stopped in rock.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	North wing of proposed building, S from center	**TEST PIT NUMBER**	**TP4**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	222+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-18"	ML	Moist	Loose. Fill. Silt with some sand, trace gravel and cobbles, few small boulders. Buried pipes (+/- 1.5"diameter steel, 2" lead.)	
18"-48"	ML	Moist	Dense. Till. Olive brown silt with little sand, little gravel, few cobbles and small boulders.	
48"-7.5ft	ML	Moist	Same, Very dense.	
7.5ft - 8ft	Rock	-	Shale bedrock. Ripped six inches into the surface, with effort.	
8 ft	-	-	Stopped in rock.	



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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	Inside corner of proposed building	**TEST PIT NUMBER**	**TP5**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	222+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-40"	ML	Moist	Loose. Fill. Grayish brown silt with some sand, little gravel, few cobbles, bricks and shale fragments.	
40-50"	Bricks	Moist	Loose. Fill. Mostly bricks with little soil mixed in.	
50-60"	Rock	-	Shale bedrock. Ripped to 12", becoming hard.	
60"	-	-	Stopped in rock.	



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PROJECT:	Harrington Heights, Poughkeepsie, N.Y.		
DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	East wing of proposed building, near east end	**TEST PIT NUMBER**	**TP6**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	209+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-10"	ML	Moist	Loose. Grayish brown silt with little sand, trace gravel, few cobbles. Few roots.	
10"-36"	ML	Moist	Medium-dense. Pale orangeish brown silt with little sand, traces gravel, few cobbles, few small boulders.	
36"-58"	ML	Moist	Dense. Pale yellowish brown silt with little sand, trace gravel, few cobbles.	
58"	Rock	-	Top of bedrock. Flat, hard.	
58"	-	-	Stopped on top of rock.	



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PROJECT:	Harrington Heights, Poughkeepsie, N.Y.		
DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	Proposed stormwater control area, center	**TEST PIT NUMBER**	**TP7**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	197.5+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-2"	PT	Moist	Decomposed organics and leaf-litter. Dusky brown.	
2"-10"	SM	Moist	Loose. Fill. Brownish gray sand with some silt, little gravel, trace glass, small pocket of coal cinders.	
10"-32"	CL	Moist	Native Soil. Medium-dense. Pale yellowish brown, mottled orange. Lean Clay with some fine-graded sand, trace gravel. Massive structure, no significant joints or pores.	
32"-6ft	CL	Wet	Dense. Mottled olive brown-orange-gray Lean Clay with trace gravel, traces sand, trace roots. Dense.	
6 ft	-	-	Stopped in soil.	

No photo available.

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DATE:	6/14/2023	Project No.:	23216
WEATHER:	Cloudy, 65F		

TEST PIT LOG

EXCAVATING COMPANY:	One Key LLC	LOCATION:	Proposed stormwater control area, north end	**TEST PIT NUMBER**	**TP8**
OPERATOR:	Garrett				
EQUIPMENT:	Takeuchi TB180FR Mini-Excavator	ELEVATION:	197+/-		
INSPECTOR:	Kevin Patton	WATER DEPTH:			

Depth	USCS Class	Moisture	Description	Notes
0-30"	ML	Moist	Loose. Fill. Dusky brown silt and sand with little gravel, trace concrete, two streetcar rails.	
30"-60"	ML	Very Moist	Native soil. Loose to Medium-dense. Mottled olive brown and gray silt and fine sand. Massive structure. Trace concretions (cemented sand,) 3/8" size, noted in lab sample.	
60"-8.5ft	ML	Wet	Same, wet.	
8.5 ft	-	-	Stopped in soil.	

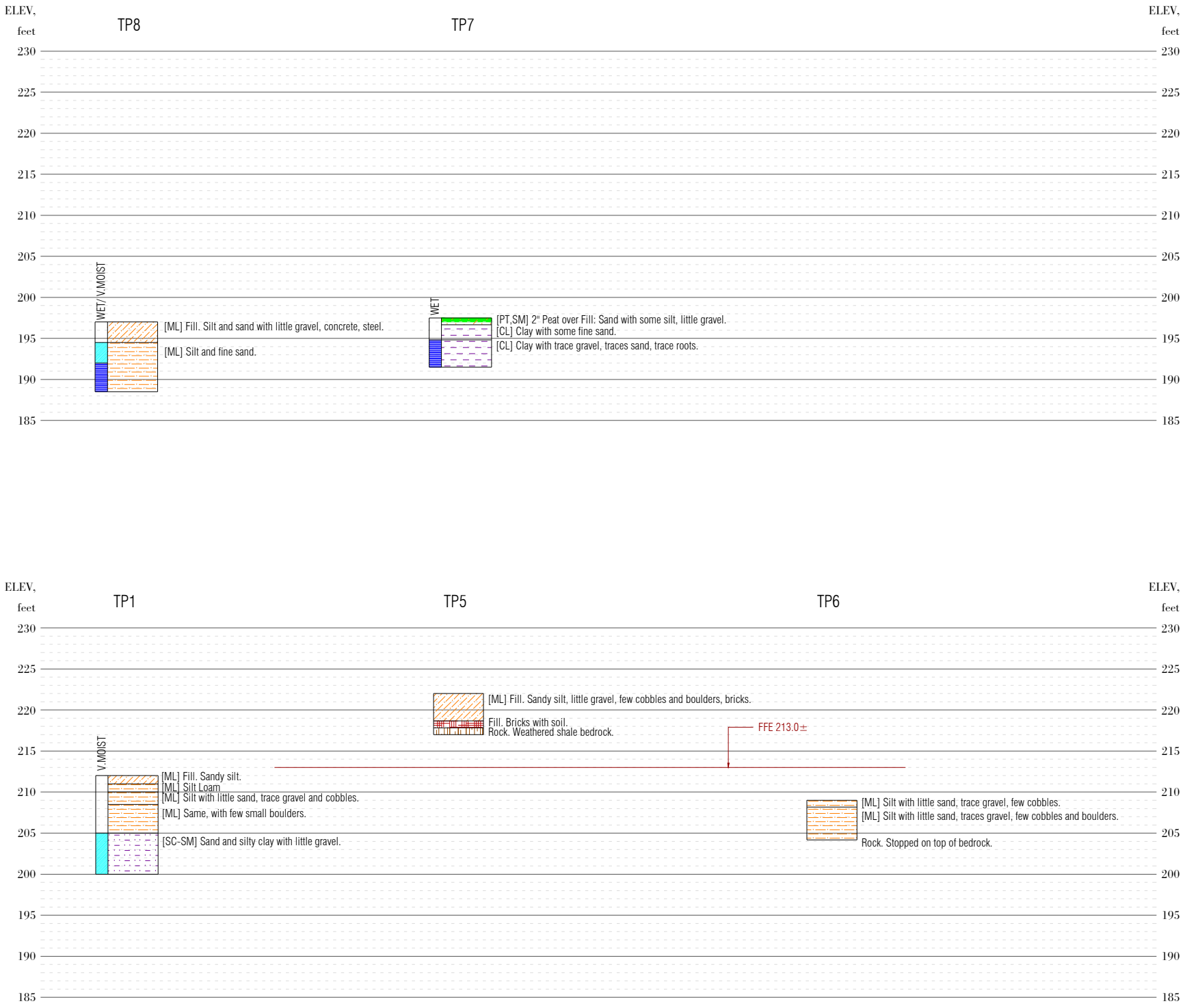


GENERALIZED SUBSURFACE PROFILE

NO HORIZONTAL SCALE.
USCS SOIL CLASSIFICATIONS ARE IN BRACKETS.

IN GENERAL, RED PATTERNS INDICATE RELATIVELY CLEAN SANDY OR GRAVELLY SOILS, PURPLE PATTERNS INDICATE SOILS WITH SIGNIFICANT CLAY CONTENT AND ORANGE PATTERNS INDICATE SOILS WITH A SIGNIFICANT SILT CONTENT.

THESE SECTIONS ARE GENERALIZED REPRESENTATIONS OF THE SUBSURFACE PROFILE, BASED ON THE SUBSURFACE EXPLORATION DATA, OBSERVATIONS, RESEARCH, AND OTHER RELEVANT INFORMATION. THE SOILS INFORMATION PRESENTED HEREIN SHOULD BE INTERPRETED IN CONJUNCTION WITH THE INFORMATION FROM THE TEST PIT LOGS AND THE GEOTECHNICAL INVESTIGATION REPORT. SITE CONDITIONS MAY DIFFER FROM THOSE ENCOUNTERED AT THE TEST PIT LOCATIONS.



			HARRINGTON HEIGHTS
			100 SOUTH HAMILTON ST., POUGHKEEPSIE, N.Y.
0	7/5/2023	KLP	SUBSURFACE PROFILE
REV.	DATE	BY	

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CLIENT:	One Key LLC		
PROJECT:	Harrington Heights, South Hamilton St., Poughkeepsie		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

MOISTURE CONTENT OF SOIL

TEST METHOD: ASTM D2216

Location	DEPTH,FT.	% MOISTURE
TP1	8'	13.6
TP1	11'	14.4
TP2	3'	14.1
TP3	3'	13.7
TP4	4'	13.6
TP7	2'	16.5
TP7	5'	13.5
TP8	4'	20.6

Moisture content is expressed as a percent of the dry mass of the soil.

Reviewed by: *Kevin Patton*

Form NMC

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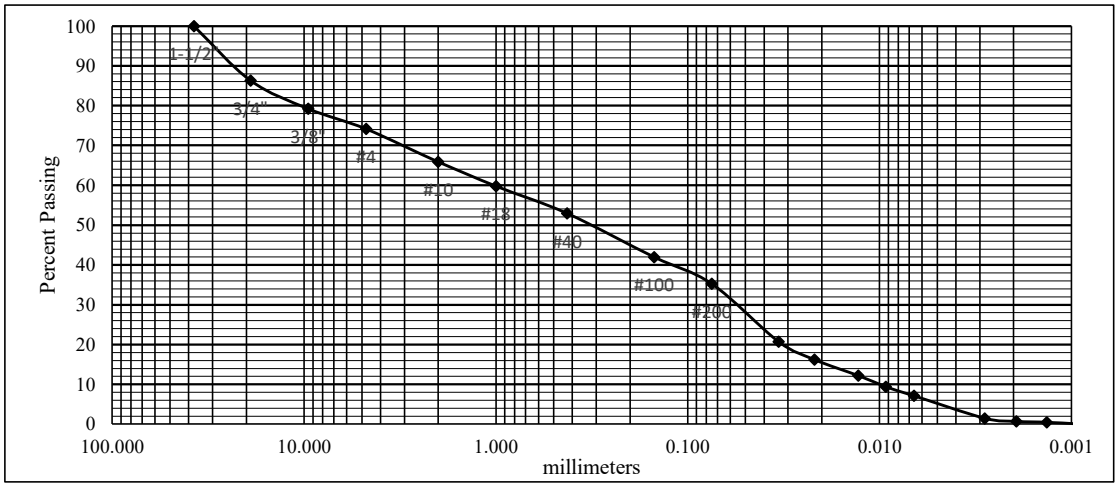
CLIENT:	One Key LLC		
PROJECT:	Harrington Heights, South Hamilton St., Poughkeepsie		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP1
Depth	8 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
1-1/2"	37.5	0	100	
3/4"	19.0	14	86	
3/8"	9.5	7	79	
#4	4.75	5	74	
#10	2.00	8	66	
#18	1.00	6	60	
#40	0.425	7	53	
#100	0.150	11	42	
#200	0.075	7	35	
Hydrometer Analysis	0.050	7	28	
	0.020	13	15	
	0.010	5	10	
	0.005	5	5	
	0.002	4	1	
	0.001	1	0	



USDA Particle Size Classification:		**USDA Textural Class:** Gravelly Sandy Loam
Gravel, 3" to 2.00mm	34	
Sand, 2.00 to 0.050mm:	38	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	27	SC-SM, Silty Clayey Sand with Gravel
Clay, <0.002mm	1	
Total	100	Atterberg Limits were determined by: Test

Reviewed by: *Kevin Patton* Form HYD

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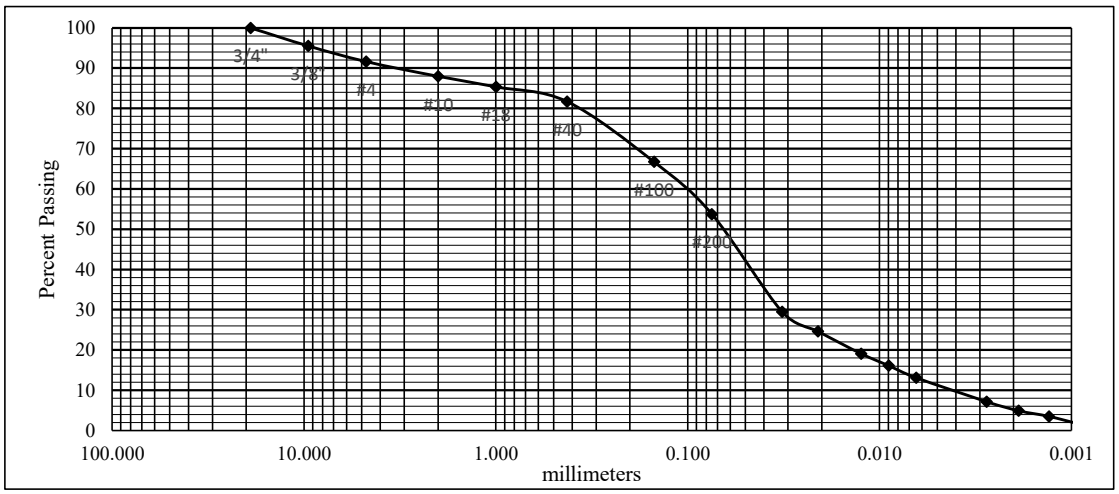
CLIENT:	One Key LLC		
PROJECT:	Harrington Heights, South Hamilton St., Poughkeepsie		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT
TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP3
Depth	3 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
3/4"	19.0	0	100	
3/8"	9.5	5	95	
#4	4.75	3	92	
#10	2.00	4	88	
#18	1.00	3	85	
#40	0.425	3	82	
#100	0.150	15	67	
#200	0.075	13	54	
Hydrometer Analysis	0.050	12	42	
	0.020	18	24	
	0.010	7	17	
	0.005	6	11	
	0.002	6	5	
	0.001	3	2	



USDA Particle Size Classification:		**USDA Textural Class:** Sandy Loam
Gravel, 3" to 2.00mm	12	
Sand, 2.00 to 0.050mm:	46	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	37	ML, Sandy Silt
Clay, <0.002mm	5	
Total	100	Atterberg Limits were determined by: Estimated (ASTM D2488)

Reviewed by: *Kevin Patton* Form HYD

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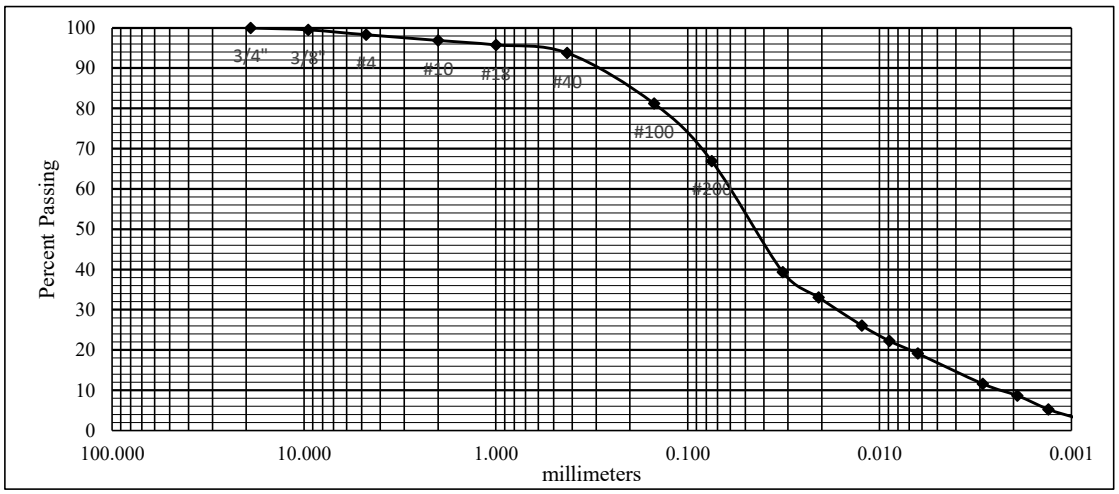
PROJECT:	Harrington Heights, South Hamilton St., Poughkeepsie		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP7
Depth	2 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
3/4"	19.0	0	100	
3/8"	9.5	1	99	
#4	4.75	1	98	
#10	2.00	1	97	
#18	1.00	1	96	
#40	0.425	2	94	
#100	0.150	13	81	
#200	0.075	14	67	
Hydrometer Analysis	0.050	13	54	
	0.020	22	32	
	0.010	9	23	
	0.005	6	17	
	0.002	8	9	
	0.001	6	3	



USDA Particle Size Classification:		**USDA Textural Class:** Loam
Gravel, 3" to 2.00mm	3	
Sand, 2.00 to 0.050mm:	43	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	45	CL, Sandy Clay
Clay, <0.002mm	9	
Total	100	Atterberg Limits were determined by: Test

Reviewed by: *Kevin Patton* Form HYD

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CLIENT:	One Key LLC		
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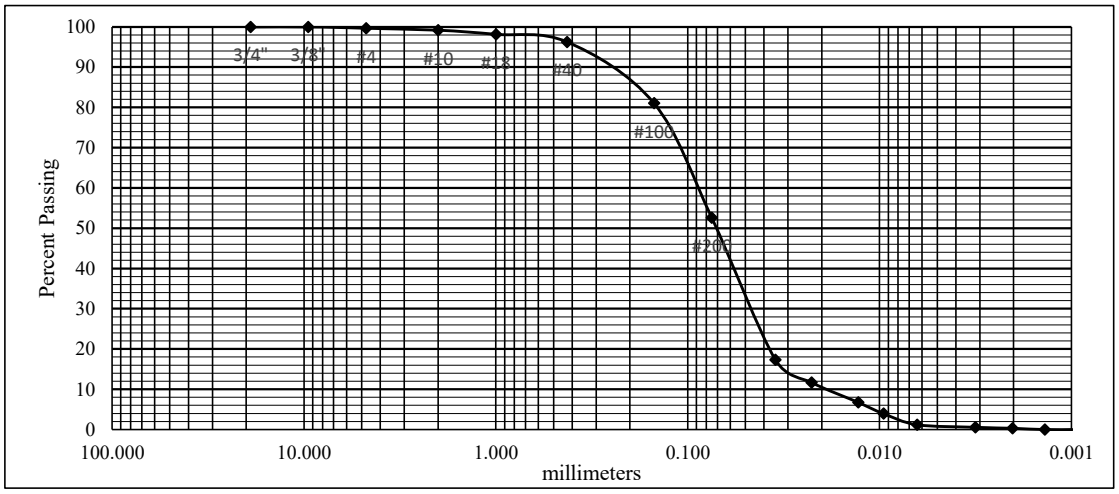
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

SIEVE-AND-HYDROMETER ANALYSIS TEST REPORT

TEST METHOD(s): ASTM D422, AASHTO T88

Sample Location	TP8
Depth	4 feet

Sieve Size		Percent Retained	Percent Passing	Specification
inches	mm			
3/4"	19.0	0	100	
3/8"	9.5	0	100	
#4	4.75	0	100	
#10	2.00	1	99	
#18	1.00	1	98	
#40	0.425	2	96	
#100	0.150	15	81	
#200	0.075	28	53	
Hydrometer Analysis	0.050	20	33	
	0.020	23	10	
	0.010	6	4	
	0.005	3	1	
	0.002	1	0	
	0.001	0	0	



USDA Particle Size Classification:		**USDA Textural Class:** Sandy Loam
Gravel, 3" to 2.00mm	1	
Sand, 2.00 to 0.050mm:	66	**USCS Classification (ASTM D2487/D2488):**
Silt, 0.050 to 0.002mm:	33	ML, Sandy Silt
Clay, <0.002mm	0	
Total	100	Atterberg Limits were determined by: Estimated (ASTM D2488)

Reviewed by: *Kevin Patton* Form HYD

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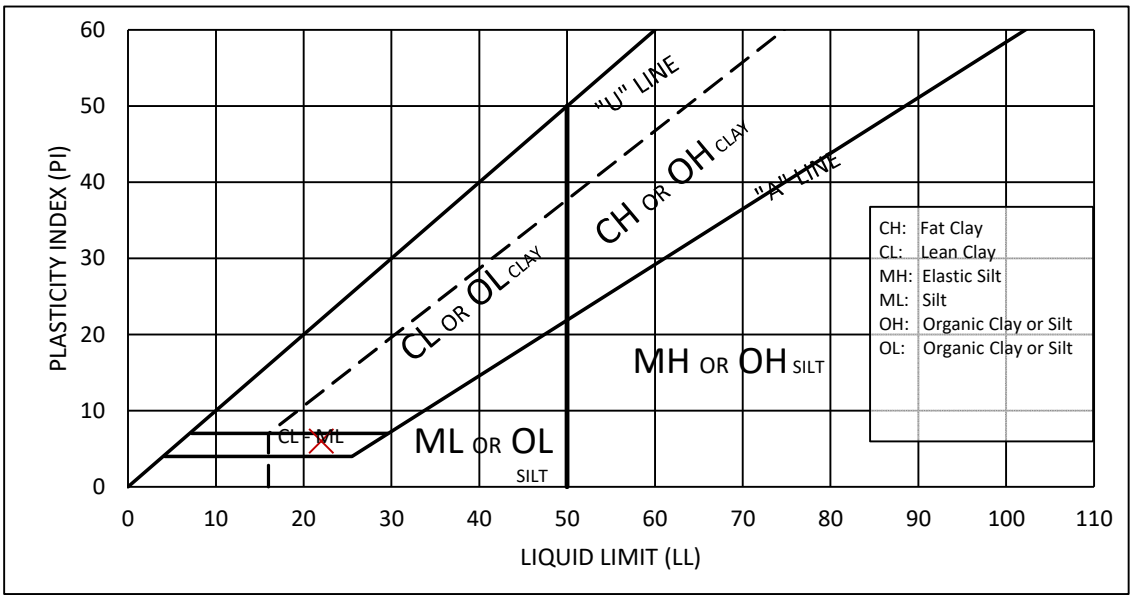
CLIENT:	One Key LLC		
PROJECT:	Harrington Heights, South Hamilton St., Poughkeepsie		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

ATTERBERG LIMITS TEST

TEST METHODS: ASTM D4318/ AASHTO T89, T90

Sample Location	TP1
Depth	8 feet
Percent Passing #40	53
Liquid Limit (LL)	**22**
Plastic Limit (PL)	**16**
Plasticity Index (PI)	**6**
USCS Class of -#40	CL-ML, Silty Clay



LL, PL and PI values are percent moisture of the soil by dry mass.

Test is performed on the 'matrix' fraction of the soil, finer than the #40 (0.425mm) sieve.

The Liquid Limit is the moisture content at which the matrix fraction of the soil changes from a stiff to a flowing consistency. The plastic limit is the moisture content at which it changes from cohesive to crumbly. The Plasticity Index is the Liquid Limit minus the Plastic Limit.

Reviewed by: *Kevin Patton*

Form ABL

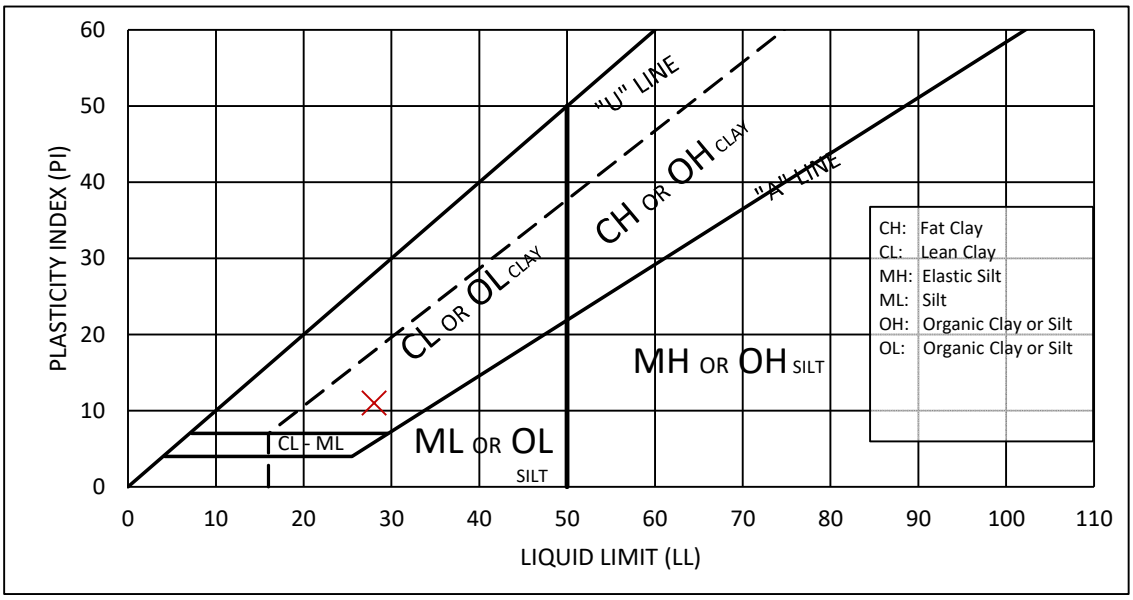
KEVIN L. PATTON, P.E.
36 PATTON ROAD
NEWBURGH, NY 12550
845 275-7732 PATTONGEOTECH.COM

CLIENT:	One Key LLC		
PROJECT:	Harrington Heights, South Hamilton St., Poughkeepsie		
PROJECT No.:	23216	SAMPLE LOT No.:	230614-1
DATE SAMPLED:	6/14/2023	DATE TESTED:	6/20/2023
SAMPLED BY:	Kevin Patton	TESTED BY:	Wyeth Patton

ATTERBERG LIMITS TEST

TEST METHODS: ASTM D4318/ AASHTO T89, T90

Sample Location	TP7
Depth	2 feet
Percent Passing #40	94
Liquid Limit (LL)	**28**
Plastic Limit (PL)	**17**
Plasticity Index (PI)	**11**
USCS Class of -#40	CL, Lean Clay



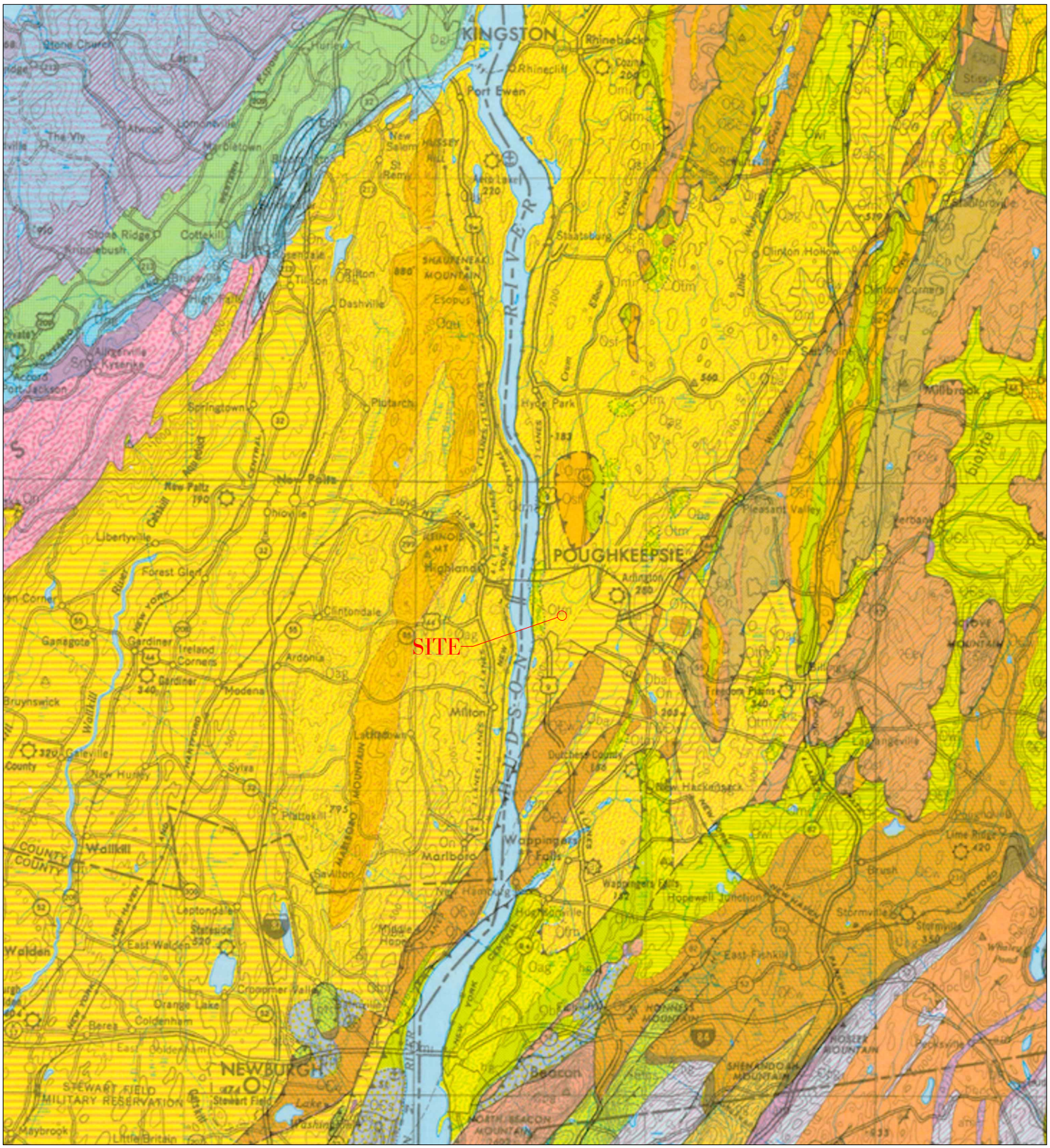
LL, PL and PI values are percent moisture of the soil by dry mass.

Test is performed on the 'matrix' fraction of the soil, finer than the #40 (0.425mm) sieve.

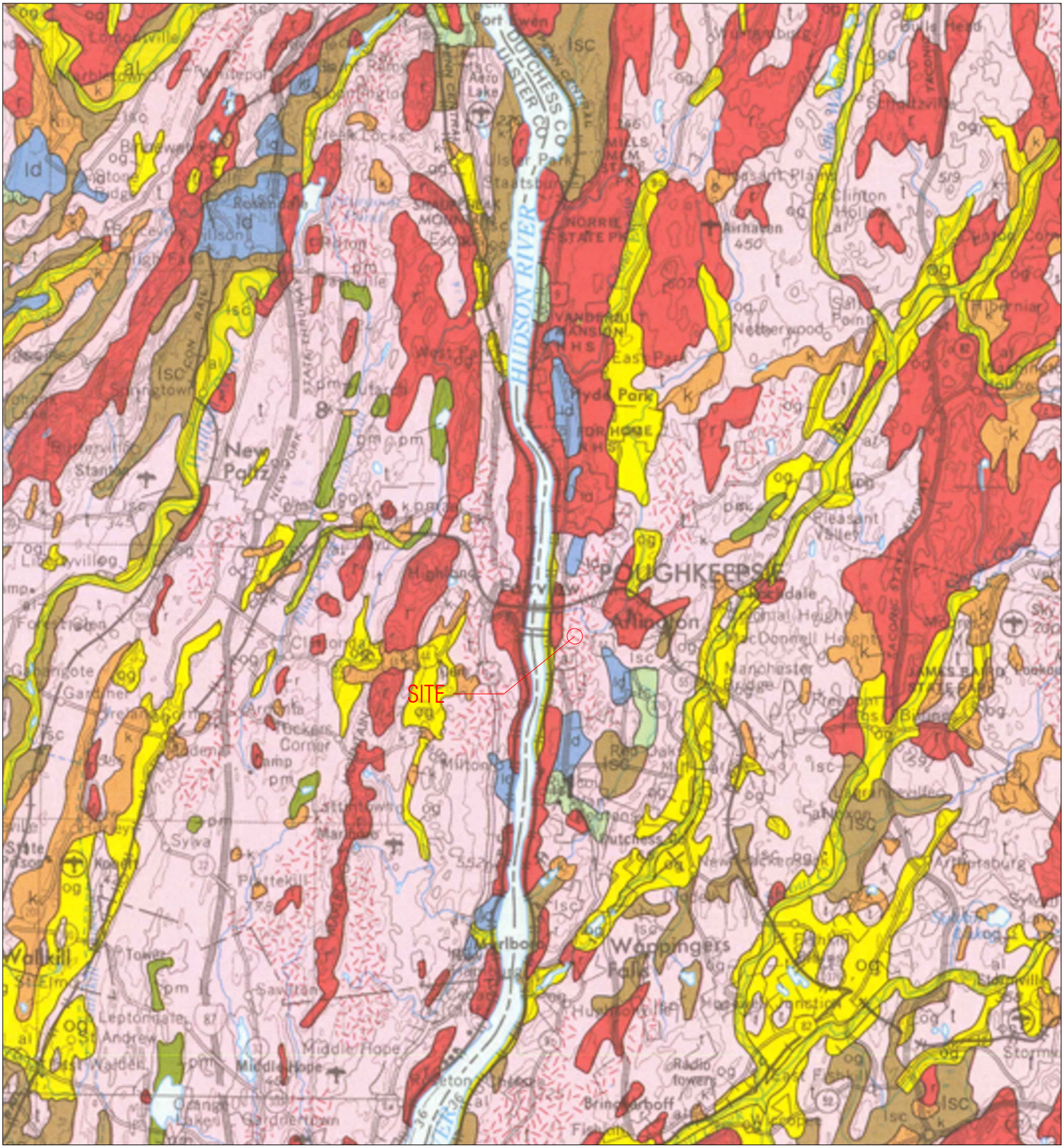
The Liquid Limit is the moisture content at which the matrix fraction of the soil changes from a stiff to a flowing consistency. The plastic limit is the moisture content at which it changes from cohesive to crumbly. The Plasticity Index is the Liquid Limit minus the Plastic Limit.

Reviewed by: *Kevin Patton*

Form ABL



Approximate location of the project site, shown on part of the Bedrock Geologic Map of New York (1970.) The site is in an area of Ordovician-age sedimentary bedrock consisting mostly of gray siltstone, shale and greywacke sandstone. The bedrock at the site is shown as Austin Glen Formation (yellow, symbol Oag,) which is generally bounded to the east and west by the somewhat older Normanskill shale (yellow with red stripes, On,) and is overlain by the younger Quassaic quartzite in the high areas (orange, Oqu.) Taconic melange (green, Otm) is indicated along the Hudson River in Poughkeepsie, to the west of the site; it is composed of slaty, sheared Austin Glen bedrock. To the southeast, the older Wappinger dolostone (brown, OCw,) is down-faulted against the Normanskill Formation bedrock.


HUDSON RIVER
DUTCHESS CO
ULSTER CO
SITE
POUGHKEEPSIE
New Paltz
Wappingers Falls
Wallkill
Hyde Park
Arlington
Milton
Marlboro
Middle Hope
Newburgh
Fishkill
Beacon
Glenham
Sylvia
Plattekill
Leptondale
Andrew
Orange Lake
Gardnertown
Bingarboff
Radio Towers
Stormville
Pleasant Valley
Manchester Bridge
Norrie State Park
James Baird State Park
Vanderbilt Mansion NHS
Eastman 450
Netherwood
Clinton Hollow
Pleasant Plains
Sal Point
Tacoma
Arlington
Donnell Heights
Dekers Corner
Wyndg
Stanfordville
Lagrangeville
Rokeby
Wilson
Staatsburg
Aero Lake
Port Ewen
Rondout
Locust Grove
Mills Mem. Park
Mills Mansion State Park
Old Rte 9
Rte 9
Rte 44
Rte 55
Rte 376
Rte 52
Rte 32
Rte 87
Rte 84
Rte 17
Rte 17K
Rte 299
Rte 9W
Rte 9D
Rte 208
Rte 300
Rte 44/55
Rte 84
Rte 52
Rte 376
Rte 32
Rte 87

EXPLANATION

al — **Recent deposits**
Generally confined to floodplains within a valley,
oxidized, non-calcareous, fine sand to gravel,
in larger valleys may be overlain by silt,
subject to frequent flooding, thickness 1–10 meters.

alf — **Alluvial fan**
Fan shaped accumulations,
poorly stratified silt, sand and boulders,
at the foot of steep slopes,
generally permeable.

b — **Beach**
Sand and gravel deposit at marine shoreline,
thickness variable.

bi — **Barrier island**
Sand and gravel deposit as barrier island,
south shore of Long Island,
may have associated dunes,
thickness variable.

pm — **Swamp deposits**
Peat-muck, organic silt and sand in poorly drained areas,
un-oxidized,
may be overlying marl and lake silts,
potential land instability,
thickness generally 2-20 meters.

ld — **Lacustrine delta**
Coarse to fine gravel and sand,
stratified, generally well sorted,
deposited at a lake shoreline,
thickness variable (3-15 meters).

lsc — **Lacustrine silt and clay**
Generally laminated silt and clay,
deposited in proglacial lakes,
generally calcareous,
potential land instability,
thickness variable (up to 100 meters).

ls — **Lacustrine sand**
Sand deposits associated with large bodies of water,
generally a near-shore deposit or near a sand source,
well sorted, stratified,
generally quartz sand,
thickness variable (2-20 meters).

og — **Outwash sand and gravel**
Coarse to fine gravel with sand,
proglacial fluvial deposition,
well rounded and stratified,
generally finer texture away from ice border,
thickness variable (2-20 meters).

fg — **Fluvial sand and gravel**
Deposits of sand and gravel,
occasional laterally continuous lenses of silt,
deposition farther from glacier,
age uncertain.

k — **Kame deposits**
Includes kames, eskers, kame terraces, kame deltas,
coarse to fine gravel and/or sand,
deposition adjacent to ice,
lateral variability in sorting, coarseness and thickness,
locally firmly cemented with calcareous cement,
thickness variable (10-30 meters).

km — **Kame moraine**
Variable texture (size and sorting) from boulders to sand,
deposition at an ice margin during deglaciation,
positive constructional relief,
locally cemented with calcareous cement,
thickness variable (10-30 meters).

tm — **Till moraine**
More variably sorted than till,
generally more permeable than till,
deposition adjacent to ice,
more variably drained,
may include ablation till,
thickness variable (10-30 meters).

t — **Till**
Variable texture (e.g. clay, silt-clay, boulder clay),
usually poorly sorted diamict,
deposition beneath glacier ice,
relatively impermeable (loamy matrix),
variable clast content — ranging from abundant well-rounded
diverse lithologies in valley tills to relatively
angular, more limited lithologies in upland tills,
tends to be sandy in areas underlain by gneiss or sandstone,
potential land instability on steep slopes,
thickness variable (1-50 meters).

af — **Artificial fill**

r — **Bedrock**
Exposed or generally within 1 meter of surface.

Bedrock stipple overprint
Bedrock may be within 1-3 meters of surface,
may sporadically crop out,
variable mantle of rock debris and glacial till.

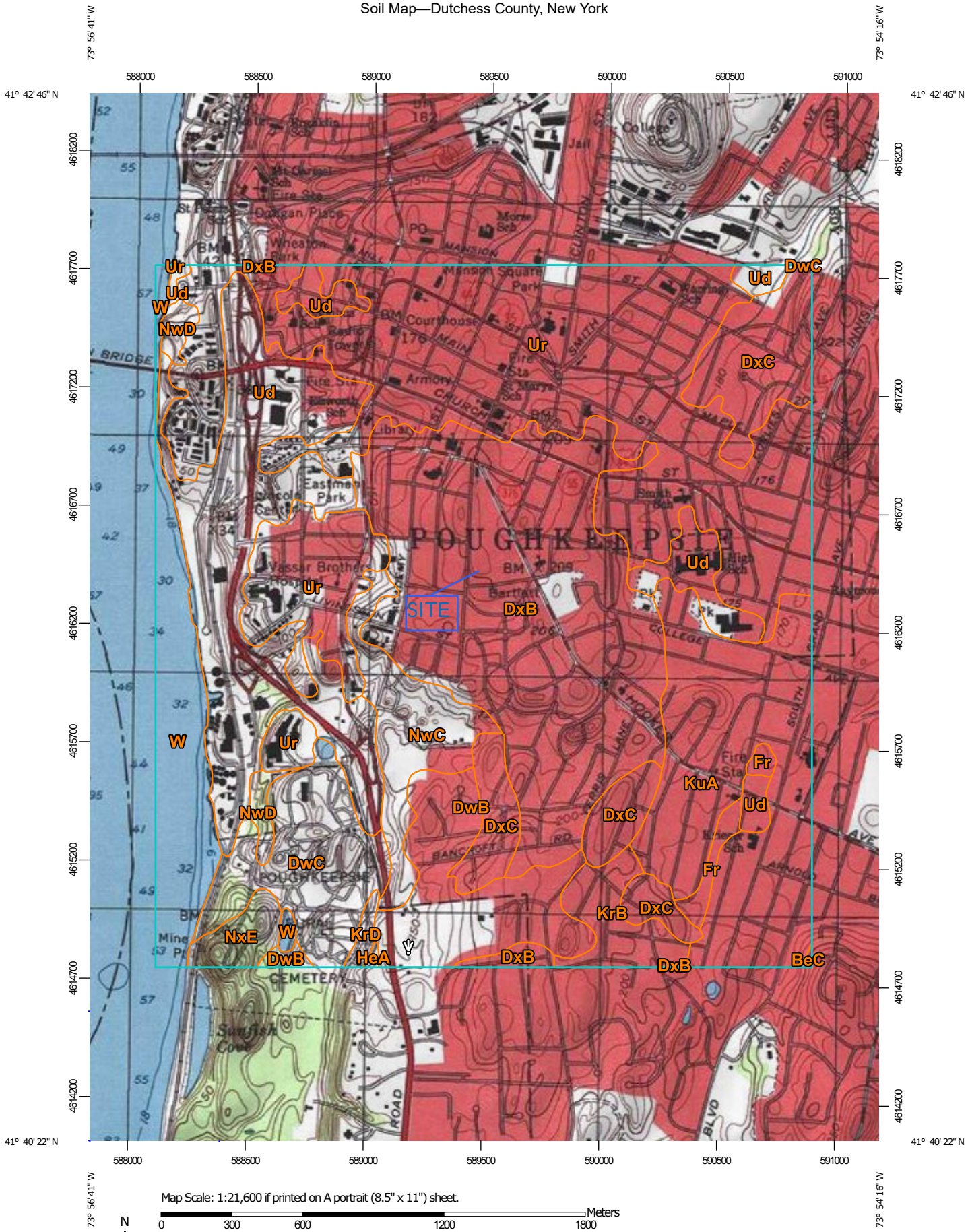
MAP SYMBOLS

Contact

.3 Dated radiocarbon locality

MAP KEY
NEW YORK STATE SURFICIAL GEOLOGIC MAP

KEVIN L. PATTON, P.E.


73° 56' 41" W
73° 54' 16" W
41° 42' 46" N
41° 40' 22" N
588000
588500
589000
589500
590000
590500
591000
4618200
4617700
4617200
4616700
4616200
4615700
4615200
4614700
4614200
Ur
DxB
Ud
W
NwD
DwC
DxC
SITE
NwC
Fr
KuA
DwB
KrB
NxE
KrD
HeA
BeC
POUGHKEEPSIE
Vassar Brothers
Eastman Park
Wheaton Park
Mansion Square Park
Morse Sch
Jail
College
Courthouse
Armory
Fire Sta
Library
Smith Sch
Bardwell Park
Overlook Park
Sunset Cove
CEMETERY
MAIN
CHURCH
SMITH
COLLEGE
HOOKER
SOUTH
ARNOLD
BANCROFT
CLINTON
ROAD
BLVD
Map Scale: 1:21,600 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 300 600 1200 1800
Feet
0 1000 2000 4000 6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Background

- Topographic Map

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BeC	Bernardston silt loam, 8 to 15 percent slopes	0.6	0.0%
DwB	Dutchess-Cardigan complex, undulating, rocky	102.3	5.0%
DwC	Dutchess-Cardigan complex, rolling, rocky	96.6	4.7%
DxB	Dutchess-Cardigan-Urban land complex, undulating, rocky	399.6	19.5%
DxC	Dutchess-Cardigan-Urban land complex, rolling, rocky	123.4	6.0%
Fr	Fredon silt loam	12.3	0.6%
HeA	Haven loam, nearly level	1.0	0.1%
KrB	Knickerbocker fine sandy loam, undulating	36.0	1.8%
KrD	Knickerbocker fine sandy loam, hilly	5.2	0.3%
KuA	Knickerbocker-Urban land complex, nearly level	214.3	10.5%
NwC	Nassau-Cardigan complex, rolling, very rocky	68.8	3.4%
NwD	Nassau-Cardigan complex, hilly, very rocky	14.7	0.7%
NxE	Nassau-Rock outcrop complex, steep	19.6	1.0%
Ud	Udorthents, smoothed	286.3	14.0%
Ur	Urban land	565.5	27.6%
W	Water	104.2	5.1%
Totals for Area of Interest		**2,050.6**	**100.0%**

Dutchess County, New York

DxB—Dutchess-Cardigan-Urban land complex, undulating, rocky

Map Unit Setting

National map unit symbol: 9rfr
Elevation: 20 to 1,000 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Dutchess and similar soils: 30 percent
Cardigan and similar soils: 25 percent
Urban land: 20 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Dutchess

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from phyllite, slate, schist, and shale

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 28 inches: silt loam
H3 - 28 to 86 inches: channery silt loam

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Cardigan

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or colluvium derived from phyllite, slate, shale, and schist

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 20 inches: channery loam
H3 - 20 to 30 inches: channery silt loam
H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 1 to 6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Typical profile

H1 - 0 to 6 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 10 percent
Hydric soil rating: No

Georgia
Percent of map unit: 5 percent
Hydric soil rating: No

Nassau
Percent of map unit: 5 percent
Hydric soil rating: No

Massena
Percent of map unit: 4 percent
Hydric soil rating: No

Sun
Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Dutchess County, New York														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
DxB—Dutchess-Cardigan-Urban land complex, undulating, rocky														
Dutchess	30	B	0-8	Silt loam	ML	A-4	0- 0- 0	0- 8- 15	95-98-100	90-93-95	80-88-95	55-70-85	15-24-33	NP-2 -4
			8-28	Silt loam, channery silt loam, gravelly loam	GM, ML, SM	A-4	0- 0- 0	0- 0- 20	70-92-95	65-90-95	55-80-95	40-70-85	15-24-33	NP-2 -4
			28-86	Channery silt loam, very channery fine sandy loam, very gravelly sandy loam	GM, ML, SM	A-1-b, A-4, A-2-4	0- 0- 0	5-15- 25	55-68-80	50-63-75	30-53-75	15-40-65	15-20-25	NP-2 -4
Cardigan	25	C	0-8	Channery silt loam	ML, SM	A-4	0- 0- 0	0- 3- 5	80-88-95	70-83-95	60-68-75	35-53-70	15-24-33	NP-3 -5
			8-20	Silt loam, channery silt loam, channery loam	ML, SM	A-4	0- 0- 0	0- 5- 10	80-88-95	70-83-95	60-68-75	35-53-70	15-24-33	NP-3 -5
			20-30	Silt loam, loam, channery silt loam	ML, SM	A-1, A-4, A-2	0- 0- 0	0- 5- 10	80-88-95	60-75-90	40-58-75	20-45-70	15-24-33	NP-3 -5
			30-34	Unweathered bedrock	—	—	0- 0- 0	0- 0- 0	—	—	—	—	—	—
Urban land	20		0-6	Variable	—	—	0- 0- 0	0- 0- 0	—	—	—	—	—	—

Data Source Information

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

APPENDIX K

New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

Better Site Design

April 2008

New York State
Department of Environmental Conservation

Document Prepared by:

Horsley Witten Group
with assistance from the
Center for Watershed Protection

BETTER SITE DESIGN

1 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide guidance to developers and designers to plan for and implement better site-design practices for new development and redevelopment projects. While reducing the effects of stormwater runoff may be achieved through both regulatory and non-regulatory techniques, this document focuses on the site-level planning and design tools available to the development community.

As research, technology and information transfer have improved over recent years, alternative approaches are being sought by the public and regulatory boards to reduce the effects of stormwater runoff from new development and redevelopment. Developers and designers also are seeking alternatives to expedite permitting processes, reduce construction costs, reduce long-term operation and maintenance costs and increase property values.

What is better site design, and how does it differ from conventional design? Better site design incorporates non-structural and natural approaches to new and redevelopment projects to reduce effects on watersheds by conserving natural areas, reducing impervious cover and better integrating stormwater treatment. For the purposes of this document, conventional design can be viewed as the style of suburban development that has evolved during the past 50 years and generally involves larger lot development, clearing and grading of significant portions of a site, wider streets and larger cul-de-sacs, enclosed drainage systems for stormwater conveyance and large “hole-in-the-ground” detention basins.

The aim of better site design is to reduce the environmental-impact “footprint” of the site while retaining and enhancing the owner/developer’s purpose and vision for the site. Many of the better site-design concepts employ non-structural on-site treatment that can reduce the cost of infrastructure while maintaining or even increasing the value of the property relative to conventional designed developments.

The goals of better site design include:

- Prevention of stormwater effects rather than having to mitigate for them
- Management of stormwater (quantity and quality) as close to the source as possible and minimization of the use of large or regional collection and conveyance
- Preservation of natural areas, native vegetation and reduction of the effect of on watershed hydrology
- Usage of natural drainage pathways as a framework for site design
- Utilization of simple, non-structural methods for stormwater management that are lower cost and lower maintenance than structural controls
- Creation of a multifunctional landscape

1.2Scope and Context/How to Use this Document

The scope and context of this document is to present developers and site designers with a series of alternatives to conventional stormwater management practices to reduce the effect development has on the watershed (e.g., peak stream flow, stormwater runoff, habitat, etc.). The information presented is intended to provide guidance during the site-planning process on how to "re-think" the traditional site layout and design approach for both new and redevelopment projects.

This document provides an overview of the broad categories of better site design, the specific practices under each category, guidance on evaluating appropriate practices by weighing the benefits and risks of each practice and further guidance on each individual practice. Two case studies are also presented, one for a residential development and one for a commercial development, that illustrate conventional site designs versus "better" site designs. This document provides general guidance on how to choose the appropriate design technique but does not provide detailed design requirements and specifications for each of these practices. A list of resources on where to find this information is provided in the profile sheets in Section 2.4.

1.3 Key Terminology

Better site design - Incorporates non-structural and natural approaches to new and redevelopment projects to reduce effects on watersheds by conserving natural areas, reducing impervious cover and better integrating stormwater treatment.

Conservation design - Includes laying out the elements of a development project in such a way that the site design takes advantage of a site's natural features, preserves the more sensitive areas and identifies any site constraints and opportunities to prevent effects.

Conventional site design - For the purposes of this document, conventional design can be viewed as the style of suburban development that has evolved during the past 50 years and generally involves larger lot development, clearing and grading of significant portions of a site, wider streets and larger cul-de-sacs, enclosed drainage systems for stormwater conveyance and large "hole-in-the-ground" detention basins.

Total impervious area - This is the total area within a watershed of all materials or structures on or above the ground surface that prevents water from infiltrating into the underlying soils. Impervious surfaces include, without limitation: paved parking lots, sidewalks, rooftops, patios, and paved, gravel and compacted-dirt surfaced roads. Gravel parking lots and/or compacted urban soils are often not included in total impervious area but may have hydrologic characteristics that closely resemble paved areas.

Natural areas - This is undisturbed land or previously disturbed land that has recovered and that retains pre-development hydrologic and water quality characteristics.

New development – Any construction or disturbance of a parcel of land that is currently undisturbed or unaltered by human activities and in a natural state.

Non-structural stormwater control – Natural measures that reduce pollution levels, do not require extensive construction or engineering efforts and/or promote pollutant reduction by eliminating the pollutant source.

Redevelopment – Any land disturbance for construction, alteration or improvement where the existing land use is commercial, industrial, institutional or multi-family residential.

Structural stormwater control – Devices that are engineered and constructed to provide temporary storage and treatment of stormwater runoff.

1.4 The Benefits of Better Site Design

The use of better site design can have a number of benefits that extend beyond improving water quality and stormwater runoff management, including:

- Reduced construction costs
- Reduced long-term operation and maintenance costs
- Increased property values
- Easier compliance with wetland and other resource protection regulations
- More open space for recreation
- More pedestrian-friendly neighborhoods
- Protection of sensitive forests, wetlands and habitats
- More aesthetically pleasing and naturally attractive landscape

1.5 The Obstacles of Better Site Design

Some obstacles exist or are perceived in the implementation of better site-design practices. Such as:

- Public perception of a particular practice may not be favorable
- Local codes may not allow for particular design elements
- Capital costs and/or operation and maintenance costs for some practices may not always be less expensive than conventional designs.

Typical perceived obstacles and realities specific to each practice are presented in the individual practice profile sheets in Section 2.4.

2 STORMWATER BETTER SITE DESIGN PRACTICES

2.1 Better Site-Design Categories and Listing of Practices

Stormwater better site-design practices and techniques covered in this document are grouped into the following three categories:

Preservation of Natural Features and Conservation Design: Preservation of natural features includes techniques to foster the identification and preservation of natural areas that can be used in the protection of water resources. Conservation design includes laying out the elements of a development project in such a way that the site design takes advantage of a site's natural features, preserves the more sensitive areas and identifies any site constraints and opportunities to prevent or reduce effects.

***Reduction of Impervious Cover*:** Reduction of impervious cover includes methods to reduce the amount of rooftops, parking lots, roadways, sidewalks and other surfaces that do not allow rainfall to infiltrate into the soil, in order to reduce the volume of stormwater runoff, increase groundwater recharge, and reduce pollutant loadings that are generated from a site.

***Use of Natural Features and Source Control for Stormwater Management*:** Use of natural features for stormwater management includes design strategies rather than structural stormwater controls to help manage and mitigate runoff. Source control for stormwater management includes elements to mitigate or manage stormwater in a natural or lower-impact manner.

Table 1 lists the specific better site-design practices and techniques presented in this document for each of the three categories. An evaluation of each practice is presented in Table 2, and further detail on each site-design practice is provided in the profile sheets in section 2.4.

Table 1: Better Site-Design General Categories and Specific Practices
Preservation of Natural Features and Conservation Design
1. Preservation of Undisturbed Areas 2. Preservation of Buffers 3. Reduction of Clearing and Grading 4. Locating Sites in Less Sensitive Areas 5. Open Space Design
Reduction of Impervious Cover
6. Roadway Reduction 7. Sidewalk Reduction 8. Driveway Reduction 9. Cul-de-sac Reduction 10. Building Footprint Reduction 11. Parking Reduction
Use of Natural Features and Source Control for Stormwater Management
12. Vegetated Buffer/Filter Strips 13. Open Vegetated Channels 14. Bioretention and Raingardens 15. Infiltration 16. Rooftop Runoff Reduction Mitigation 17. Stream Daylighting for Redevelopment Projects 18. Tree Planting

2.2 Better Site-Design Planning Process

Site design should be done in unison with the design and layout of stormwater infrastructure in attaining stormwater management and land use goals. The stormwater better site-design process used a three-step process as follows:

1. **Avoiding the Impacts** – Preserving natural features and use conservation design techniques
2. **Reducing the Impacts** – Reducing impervious cover.
3. **Managing the Impacts** – Using natural features and natural low-impact techniques to manage stormwater

The first step in the planning and design process is to avoid or minimize disturbance by preserving natural areas or strategically locating development based on the location of resource areas and physical conditions at a site. Once sensitive resource areas and site constraints have been avoided, the next step is to minimize the impact of land alteration by reducing impervious areas. Finally, for the areas that must be impervious, alternative and natural stormwater management techniques are chosen as opposed to the more routine structural, "pipe-to-pond," approach.

2.3 Evaluating and Selecting Better Site Design Practices

Part of the planning process for better site design includes choosing the appropriate practice or practices for a given site. Table 2 illustrates the various criteria and factors used to evaluate the feasibility of a particular design practice and are ranked as either good, fair or poor, or as often, sometimes or rarely. The factors presented in Table 2 that will help a developer decide which practices to choose include:

How the Practice Applies To Meeting New York State Stormwater Criteria – Does the practice help meet the water quality volume (WQv) criteria? Does the practice help provide the quantity controls such as channel protection (Cp_v), overbank flood (Qp), and extreme flooding (Qf)? For descriptions of the criteria, see the New York State Stormwater Management Design Manual. (www.dec.state.ny.us/website/dow/toolbox/swmanual/#Downloads)

Economics – Does the practice decrease capital construction/infrastructure costs and decrease long-term operation and maintenance costs? Does the practice increase property values?

Public Perception – Is the practice well received by the public and something people will want to live with?

Local Codes – Do local codes, ordinances and regulations typically allow implementation of the practice?

Table 2: Better Site Design Practice Evaluation

Category	Technique	Applies To SW Criteria[1]			Economics			Public Per-ception	Allowed by Local Codes[4]
		WQv	Cp_v, Qp, Qf	How Applies To Criteria	Lowers Capital Costs[2]	Lowers O&M[3] Costs	Raises Property Value		
Preservation of Natural Features and Conservation Design	1. Preservation of Undisturbed Areas	◉	◉	Increases times of concentration, reduces CN[5]	●	●	◉	◉	◉
	2. Preservation of Buffers	◉	◉	Increases times of concentration, reduces CN	●	●	◉	◉	●
	3. Reduction of Clearing and Grading	◉	◉	Increases times of concentration, reduces CN	●	●	●	●	◉
	4. Locating Sites in Less Sensitive Areas	◉	◉	Increases times of concentration, reduces CN	●	●	◉	◉	◉
	5. Open-Space Design	◉	◉	Increases times of concentration, reduces CN	●	●	○	◉	◉
Reduction of Impervious Cover	6. Roadway Reduction	●	●	Reduces impervious area, which reduces WQv & flows	●	●	●	◉	○
	7. Sidewalk Reduction	●	●	Reduces impervious area, which reduces WQv & flows	●	●	◉	◉	○
	8. Driveway Reduction	●	●	Reduces impervious area, which reduces WQv & flows	●	●	◉	◉	◉
	9. Cul-de-sac Reduction	●	●	Reduces impervious area, which reduces WQv & flows	●	●	◉	◉	○
	10. Building-Footprint Reduction	●	●	Reduces impervious area, which reduces WQv & flows	●	●	◉	●	●
	11. Parking Reduction	●	●	Reduces impervious area, which reduces WQv & flows	●	●	◉	◉	◉
Use of Natural Features and Source Control for Stormwater Management	12. Vegetated Buffer/Filter Strips	◉	◉	Increases times of concentration, reduces CN	●	●	◉	●	◉
	13. Open Vegetated Channels	●	●	Stores WQv & Peak Flows	●	◉	◉	◉	●
	14. Bioretention	●	●	Stores WQv & Peak Flows	●	◉	◉	●	●
	15. Infiltration	●	●	Stores WQv & Peak Flows	●	◉	◉	●	●
	16. Rooftop Runoff Reduction Mitigation	●	●	Stores WQv & Peak Flows	●	●	◉	◉	●
	17. Stream Daylighting for Redevelopment Projects	○	○	Increases travel times, decreases peak flows	○	◉	●	●	●
	18. Tree Planting	◉	◉	Reduces volume of runoff, reduces CN	◉	◉	●	●	●

Key: ● = good/often ◉ = fair/sometimes ○ = poor/rarely

1 - WQv = Water Quality Volume, Cp_v = Channel Protection, Qp = Overbank Flood, Qf = Extreme Flood

2 - "Lowers Capital Costs" is intended for general purposes. Capital costs may vary on a site-by-site basis.

3 - Operation and Maintenance

4 - "Allowed by Local Code" is intended for general purposes. User should consult with actual local planning codes.

5 - CN = Runoff Coefficient "Curve Number"

2.4 Better Site Design Practice Profile Sheets

2.4.1 Preservation of Natural Features and Conservation Design

Preservation of natural features includes the techniques to foster the identification and preservation of natural areas that can be used in the protection of water resources by reducing stormwater runoff, providing runoff storage, reducing flooding, preventing soil erosion, promoting infiltration and removing stormwater pollutants. Conservation Design includes laying out the elements of a development project in such a way that the site design takes advantage of a site's natural features, including areas to be protected as conservation areas, preserves the more sensitive areas and identifies any site constraints and opportunities (e.g., topography, soils, natural vegetation, wetlands, floodplains, shallow bedrock, high water table, etc.) to prevent both on-site and downstream stormwater effects.

2.4.2 Reduction of Impervious Cover

Reduction of impervious cover includes methods to reduce the amount of rooftops, parking lots, roadways, sidewalks and other surfaces that do not allow rainfall to infiltrate into the soil, in order to reduce the volume of stormwater runoff, increase groundwater recharge and reduce pollutant loadings that are generated from a site.

2.4.3 Utilization of Natural Features and Source Control for Stormwater Management

Use of natural features for stormwater management includes design strategies that use existing or recreate natural features to help manage and mitigate runoff, rather than structural stormwater controls. Source control for stormwater management includes elements to mitigate or manage stormwater in a natural or lower-impact manner.

Better Site Design Practice #1:

Preservation of Undisturbed

Preservation of Natural Features and Conservation

Description: Important natural features and areas such as undisturbed forested and native vegetated areas, natural terrain, riparian corridors, wetlands and other important site features should be delineated and placed into permanent conservation areas.

Key Benefits

- Helps to preserve a site's natural hydrology and water balance
- Can act as a non-structural stormwater feature to promote additional filtration and infiltration
- Can help to preserve a site's natural character, habitat and aesthetic appeal
- Has been shown to increase property values for adjacent parcels
- Can reduce structural stormwater management storage requirement and may be used as a "stormwater credit

Typical Perceived Obstacles and Realities

- Preserved conservation areas may limit the development potential of a site – *With clustering and other development incentives, development yield can be maintained.*
- Preserved habitats may harbor undesirable wildlife and insects – *Most people enjoy viewing wildlife; native vegetation does not provide a food source for most vermin; continued education is necessary to show that humans and wildlife can co-exist, even at the neighborhood level.*
- Preserved areas may represent a fire hazard – *Clearing setbacks and target vegetation around residential structures can reduce property damage potential*.

USING THIS PRACTICE

- Delineate and define natural conservation areas before performing site layout and design.
- Ensure that conservation areas and native vegetation are protected in an undisturbed state through the design, construction and occupancy stages.

Discussion

Conservation of natural areas such as undisturbed forested and native-vegetated areas, natural terrain, riparian corridors and wetlands on a development project can help to preserve pre-development hydrology of the site and aid in reducing stormwater runoff and pollutant load. Undisturbed vegetated areas also promote soil stabilization and provide for filtering and infiltration of runoff.

Natural conservation areas are typically identified through a site-analysis stage using mapping and field-reconnaissance assessments. Areas proposed for protection should be delineated early in the planning stage, long before any site design, clearing or construction begins. When done before the concept-plan phase, the planned conservation areas can be used to guide the layout of a project. Figure 1 shows components of a natural resources inventory map with proposed conservation areas delineated.

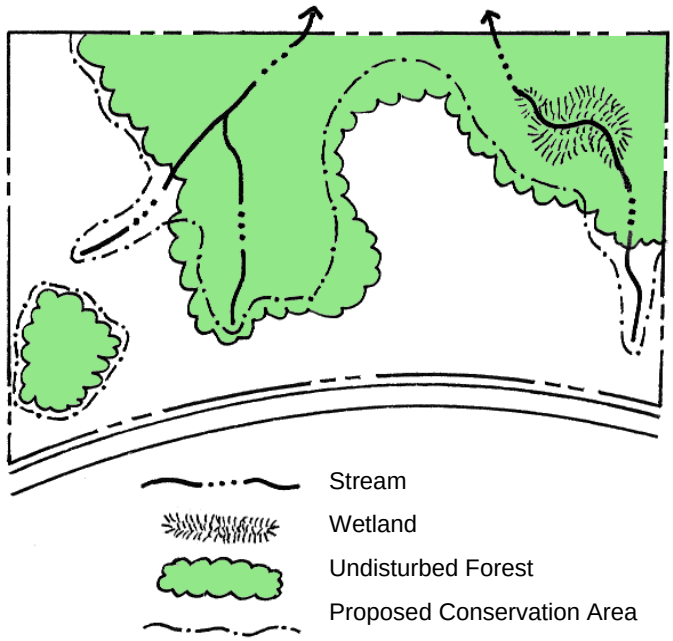


Figure 1: Example of Natural Resource Inventory Plan
(Source: Georgia Stormwater Manual, 2001)

Preservation areas should then be incorporated into site-development plans and clearly marked on all construction and grading plans to ensure that construction activities are kept out of these areas and that native vegetation is undisturbed. The boundaries of each conservation area should be mapped by carefully determining the limit which should not be crossed by construction activity.

Once established, natural conservation areas must be protected during construction and managed after occupancy by a responsible party able to maintain the areas in a natural state in perpetuity. Typically, conservation areas are protected by legally enforceable deed restrictions, conservation easements and a maintenance agreement. When all of these measures are applied, a permanently protected natural area can be applied as a "stormwater credit" to reduce the structural stormwater management measures (see Figure 2 for a representative project illustrating natural resource area protection).



Figure 2: Aerial Photograph of Development Project Illustrating Preservation of Undisturbed Natural Areas
(Source: Arendt, 1996)

Additional Guidance

Arendt, Randall. 1996. *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks.* American Planning Association. Chicago, IL. Available from the American Planning Association at www.planning.org

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

Better Site Design Practice #2:
Preservation of Buffers

Preservation of Natural Features and Conservation Design

Description: Naturally vegetated buffers should be defined, delineated and preserved along perennial streams, rivers, shorelines and wetlands.

Key Benefits	Typical Perceived Obstacles and Realities
• Riparian buffers treat stormwater and improve water quality • Can be used as nonstructural stormwater infiltration zones • Keep structures out of the floodplain and provide a right-of-way for large flood events • Help to preserve riparian ecosystems and habitats • Can serve as recreational areas • A buffer credit can be taken if allowed by the local review authority.	• Buffers may result in a potential loss of developable land – *Regulatory tools or other incentives may be available to protect the interests of property owners* • Private landowners may be required to provide public access to privately held stream buffers – *Effective buffers can be maintained in private ownership through deed restrictions and conservation easements* • Excessive nuisance species will be present due to the natural buffer area - *Forested buffers do not encourage nuisance vegetative species, and animal habitation can be controlled at the outer zone of the buffer.*

USING THIS PRACTICE

- Delineate and preserve naturally vegetated riparian buffers (define the width, identify the target vegetation, designate methods to preserve the buffer indefinitely)
- Ensure that buffers and native vegetation are protected throughout planning, design, construction and occupancy
- Consult local planning authority for minimum buffer width and/or recommended width.

Discussion

A riparian buffer is a special type of natural conservation area along a stream, wetland or shoreline where development is restricted or prohibited. The primary function of buffers is to protect and physically separate a stream, lake, coastal shoreline or wetland from future disturbance or encroachment. If properly designed, a buffer can provide stormwater management functions, can act as a right-of-way during floods, and can sustain the integrity of water-resource ecosystems and habitats. An example of a riparian stream buffer is shown in Figure 3.



Figure 3: Riparian Stream Buffer
(Source: Georgia Stormwater Manual, 2001)

Forested riparian buffers should be maintained and reforestation should be encouraged where no wooded buffer exists. Proper restoration should include all layers of the forest plant community, including understory, shrubs and groundcover, not just trees. A riparian buffer can be of fixed or variable width but should be continuous and not interrupted by impervious areas that would allow stormwater to concentrate and flow into the stream without first flowing through the buffer.

Ideally, riparian buffers should be sized to include the 100-year floodplain as well as steep banks and freshwater wetlands. The buffer depth needed to perform properly will depend on the size of the stream and the surrounding conditions, but a minimum 25-foot undisturbed vegetative buffer is needed for even the smallest perennial streams, and a 50-foot or larger undisturbed buffer is ideal. Even with a 25-foot undisturbed buffer, additional zones can be added to extend the total buffer to at least 75 feet from the edge of the stream. The three distinct zones within the 75-foot depth are shown in Figure 4. The function, vegetative target and allowable uses vary by zone as described in Table 3.

These recommendations are minimum standards for most streams. Some streams and watersheds may benefit from additional measures to ensure adequate protection. In some areas, specific state laws or local ordinances already require stricter buffers than are described here. The buffer widths discussed are not intended to modify or supersede wider or more restrictive buffer requirements that are already in place.

Table 3: Riparian Buffer Management Zones ***(Source: Adapted from Schueler, 1995)***

	Streamside Zone	Middle Zone	Outer Zone
Width	Minimum 25 feet plus wetlands and critical habitat	Variable, depending on stream order, slope, and 100-year floodplain (min. 25 ft.)	25-foot minimum setback from structures
Vegetative Target	Undisturbed mature forest. Reforest if necessary.	Managed forest, some clearing allowed.	Forest encouraged, but usually turfgrass.
Allowable Uses	Very restricted (e.g., flood control, utility easements, footpaths)	Restricted (e.g., some recreational uses, some stormwater controls, bike paths)	Unrestricted (e.g., residential uses, including lawn, garden, most stormwater controls)

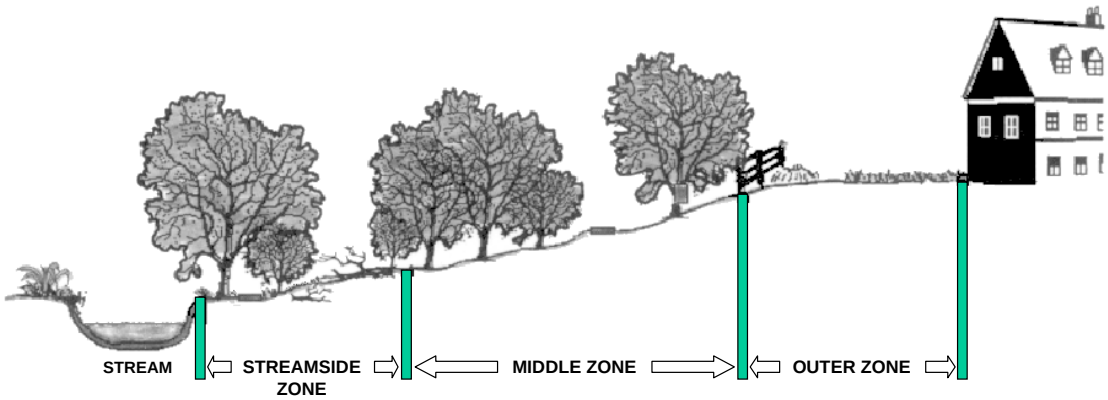


Figure 4: Three-Zone Stream Buffer System
(Source: Adapted from Schueler, 1995)

As stated above, the streamside or inner zone should consist of a minimum of 25 feet of undisturbed mature forest. In addition to runoff protection, this zone provides bank stabilization as well as shading and protection for the stream. This zone should also include wetlands and any critical habitats, and its width should be adjusted accordingly. The middle zone provides a transition between upland development and the inner zone and should consist of managed woodland that allows for infiltration and filtration of runoff. An outer zone allows more clearing and acts as a further setback for impervious surfaces. It also functions to prevent encroachment and filter runoff. It is here that flow into the buffer should be transformed from concentrated flow into sheet flow to maximize ground contact with the runoff.

Development within the riparian buffer should be limited only to those structures and facilities that are absolutely necessary. Such limited development should be specifically identified in any codes or ordinances enabling the buffers. When construction activities do occur within the riparian corridor, specific mitigation measures should be required, such as deeper buffers or riparian buffer improvements.

Generally, the riparian buffer should remain in its natural state. However, some maintenance is periodically necessary, such as planting to minimize concentrated flow, removal of exotic plant species when these species are detrimental to the vegetated buffer and removal of diseased or damaged trees.

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Berkshire Regional Planning Commission. 2003. *The Massachusetts Buffer Manual: Using Vegetated Buffers to Protect our Lakes and Rivers*. Prepared for the Massachusetts Department of Environmental Protection. Boston, MA. Available from www.berkshireplanning.org

Maine Department of Environmental Protection. 1998. *The Buffer Handbook: A Guide to Creating Vegetated Buffers for Lakefront Properties.* Maine DEP. Augusta, ME. Available from http://www.state.me.us/dep/blwq/doclake/publake.htm

Schueler, T. 1995. *Site Planning for Urban Stream Protection.* Prepared for: Metropolitan Washington Council of Governments. Washington, DC. Center for Watershed Protection, Ellicott City, MD. Available from www.cwp.org

Better Site Design Practice #3:
Reduction of Clearing and Grading

Preservation of Natural Features and Conservation Design

Description: Clearing and grading of the site should be limited to the minimum amount needed for the development function road access and infrastructure (e.g., utilities, wastewater disposal, stormwater management). Site foot-printing should be used to disturb the smallest possible land area on a site.

Key Benefits

- Preserves more undisturbed natural areas on a development site
- Areas of a site that are conserved in their natural state retain their natural hydrology and do not contribute to construction erosion
- Native trees, shrubs and grasses are important contributors to the overall quality and viability of the environment.

Typical Perceived Obstacles and Realities

- Preserving trees during construction is expensive – *Minimizing clearing during construction can reduce earth movement and erosion and sediment control costs*
- People prefer large lawns – *Lots with trees tend to have a higher value than those without*
- Vegetation near homes can be a fire risk – *Even if clearing is required near homes, this can be accommodated while minimizing clearing on the entire site*
- Native vegetation may harbor undesirable wildlife or insects - *Most people enjoy viewing wildlife; native vegetation does not provide a food source for most vermin; continued education is necessary to show that humans and wildlife can co-exist, even at the neighborhood level.*

USING THIS PRACTICE

- Restrict clearing to the minimum area required for building footprints, construction access, and safety setbacks
- Establish limits of disturbance for all development activities
- Use site foot-printing to minimize clearing and land disturbance
- Limit site mass grading approach.
- Use alternative site designs that use open-space or “cluster” developments.

Discussion

Minimal disturbance methods should be used to limit the amount of clearing and grading that takes place on a development site, preserving more of the undisturbed vegetation and natural hydrology of a site.

A limit of disturbance (LOD) should be established based on the maximum disturbance zone. These maximum distances should reflect reasonable construction techniques and equipment needs, together with the physical situation of the development site, such as slopes or soils. LOD

distances may vary by type of development, size of lot or site and by the specific development feature involved.

Site "foot-printing" should be used which maps all of the limits of disturbance to identify the smallest possible land area on a site which requires clearing or land disturbance. An example of site foot-printing is illustrated in figures 5 and 6.

Sites should be designed so that they fit the terrain (see practice #4). During construction, special procedures and equipment that reduce land disturbance should be used. Alternative site designs should be considered to minimize limits of clearing, such as “cluster” developments (see practice #5).

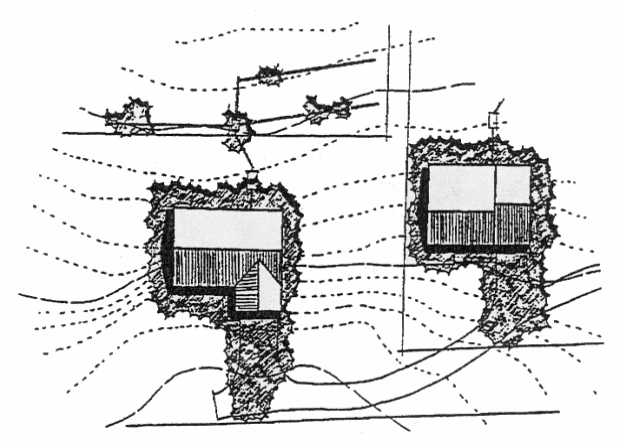


Figure 5: Establishing Limits of Clearing
(Source: DDNREC, 1997)



Figure 6: Example of Site Foot-Printing
(Source: Georgia Stormwater Manual, 2001)

Additional Guidance

Arendt, Randall. 1996. *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks.* American Planning Association. Chicago, IL. Available from the American Planning Association at www.planning.org

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Schueler, T. 1995. *Site Planning for Urban Stream Protection.* Prepared for: Metropolitan Washington Council of Governments. Washington, DC. Center for Watershed Protection, Ellicott City, MD. Available from www.cwp.org

Better Site Design Practice #4:
Locating Sites in Less Sensitive Areas

Preservation of Natural Features and Conservation Design

Description: Development sites should be located to avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitat areas. Buildings, roadways and parking areas should be located to fit the terrain and in areas that will create the least impact.

Key Benefits

- Preserving floodplains provides a natural right-of-way and temporary storage for large flood events; keeps people and structures out of harm's way and helps to preserve riparian ecosystems and habitats.
- Preserving steep slopes and building on flatter areas helps to prevent soil erosion and minimizes stormwater runoff; helps to stabilize hillsides and soils and reduces the need for cut-and-fill and grading.
- Avoiding development on erodible soils can prevent sedimentation problems and water-quality degradation. Areas with highly permeable soils can be used as nonstructural stormwater infiltration zones
- Fitting the design to the terrain and in less sensitive areas helps to preserve the natural hydrology and drainageways of a site; reduces the need for grading and land disturbance, and provides a framework for site design and layout.

Typical Perceived Obstacles and Realities

- Costs will be higher for developments due to increased planning and design, localized construction and less developable land - *Developments that protect sensitive areas will likely have higher market value, less liability for potential natural disasters, such as flooding or slope failures and lower construction costs for areas that require less earthwork or difficult terrain, such as steep slopes or wetland areas to work around.*

USING THIS PRACTICE

- Ensure all development activities do not encroach on designated floodplain and/or wetland areas
- Avoid development on steep slope areas and minimize grading and flattening of hills and ridges
- Leave areas of porous or highly erodible soils as undisturbed conservation areas

- Develop roadway patterns to fit the site terrain, and locate buildings and impervious surfaces away from steep slopes, drainageways and floodplains
- Locate site in areas that are less sensitive to disturbance or have a lower value in terms of hydrologic function.

Discussion

Development in floodplain areas can reduce the ability of the floodplain to convey stormwater, potentially causing safety problems or significant damage to the site in question, as well as to both upstream and downstream properties. Ideally, the entire 100-year full-buildout floodplain should be avoided for clearing or building activities and should be preserved in a natural, undisturbed state where possible.

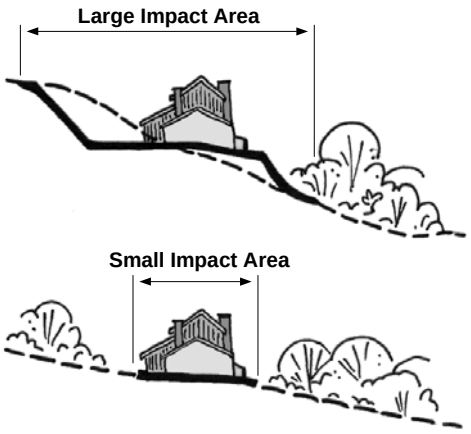


Figure 7: Grading that Creates Large Construction "Pads" Effects more Land than Contoured Grading on Smaller Areas at Flatter Slopes
(Source: MPCA, 1989)

Development on slopes with a grade of 15% or greater should be avoided, if possible, to limit soil loss, erosion, excessive stormwater runoff and the degradation of surface water. Excessive grading should be avoided on all slopes, as should the flattening of hills and ridges. Steep slopes should be kept in an undisturbed natural condition to help stabilize hillsides and soils. On slopes greater than 25%, no development, regarding or stripping of vegetation should be considered.

Areas of a site with hydrologic soil group A and B soils, such as sands and sandy loam soils, should be conserved as much as possible, and these areas should ideally be incorporated into undisturbed natural or open-space areas (Figure 8). Conversely, buildings and other impervious surfaces should be located on those portions of the site with the *least* permeable soils. Similarly, areas on a site with highly erodible or unstable soils should be avoided for land-disturbing activities and buildings to prevent erosion and sedimentation problems as well as potential structural problems. These areas should be left in an undisturbed and vegetated condition.

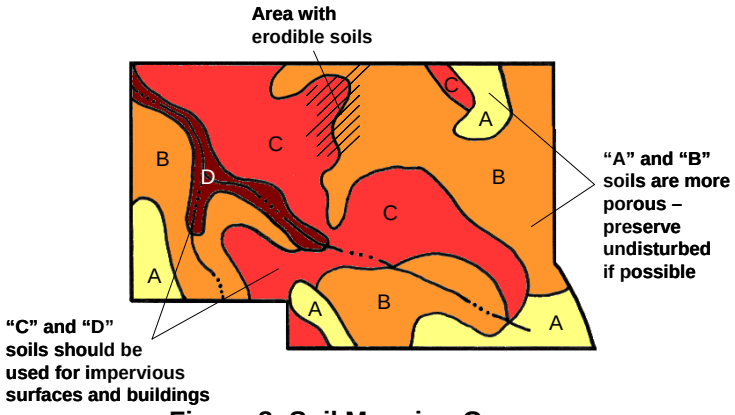


Figure 8: Soil Mapping Can Be Used to Guide Development
(Source: Georgia Stormwater Manual, 2001)

The layout of roadways and buildings on a site should generally conform to the landforms on a site (Figure 9). Natural drainageways and stream buffer areas should be preserved by designing road layouts around them. Buildings should be sited to use the natural grading and drainage system and avoid the unnecessary disturbance of vegetation and soils. Roadway patterns on a site should be chosen to provide access schemes which match the terrain. In rolling or hilly terrain, streets should be designed to follow natural contours to reduce clearing and grading. In flatter areas, a traditional grid pattern of streets or "fluid" grids which bend and may be interrupted by natural drainageways may be more appropriate.

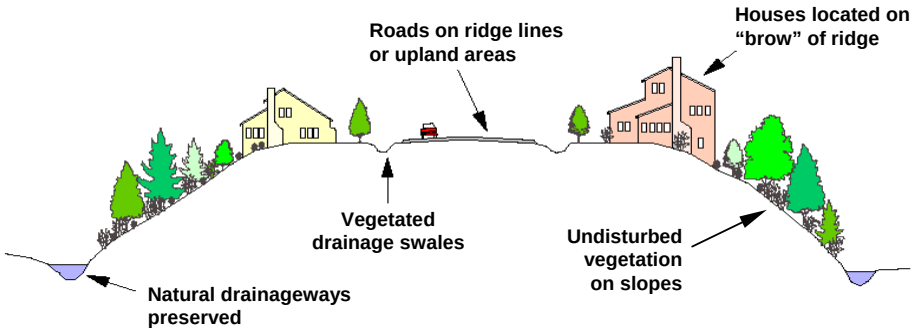


Figure 9: Preserving the Natural Topography of a Site
(Source: Adapted from Prince George's County, 1999)

In much the same way that a development should be designed to conform to the terrain of the site, layout should also be designed so that the areas of development are placed in the locations of the site that minimize the hydrologic impact of the project. This is accomplished by steering development to areas of the site that are less sensitive to land disturbance or have a lower value in terms of hydrologic function. Figure 10 shows a development site where the natural features have been mapped in order to delineate the hydrologically sensitive areas. Through careful site planning, sensitive areas can be set aside as natural open space areas. In many cases, such areas can be used as buffer spaces between land uses on the site or between adjacent sites.

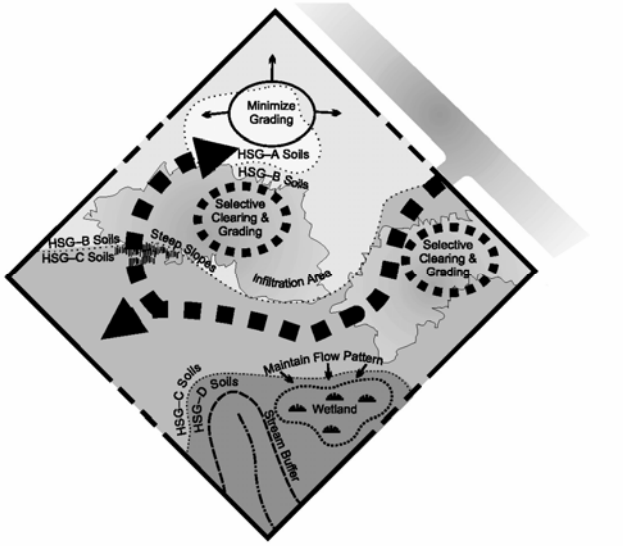


Figure 10: Guiding Development to Less Sensitive Areas of a Site
(Source: Adapted from Prince George's County, 1999)

Additional Guidance

Arendt, Randall. 1996. *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks.* American Planning Association. Chicago, IL. Available from the American Planning Association at www.planning.org

Environmental Protection Agency (EPA)
site on smart growth including a focus on community-based approaches to reducing sprawl.
www.epa.gov/ebtpages/envismartgrowth.html

Hart, Leslie. 1994. *Guiding Principles of Sustainable Design*. Prepared for the U.S Department of the Interior and the National Parks Service. Available from http://www.nps.gov/dsc/dsgncnstr/gpsd/

Better Site Design Practice #5:
Open-Space Design

Preservation of Natural Features and Conservation Design

Description: Open-space site designs (also referred to as conservation development or clustering) incorporate smaller lot sizes to reduce overall impervious cover while providing more undisturbed open space and protection of water resources.

Key Benefits

- Preserves conservation areas on a development site
- Can be used to preserve natural hydrology and drainageways
- Can be used to help protect natural conservation areas and other site features
- Reduces the need for grading and land disturbance
- Reduces infrastructure needs and overall development costs
- Allows flexibility for developers to implement creative site designs, including better stormwater management practices

Typical Perceived Obstacles and Realities

- Smaller lot sizes and compact development may be perceived by developers as less marketable – *Open space designs are in fact highly desirable and have economic advantages such as cost savings and higher market appreciation*
- Lack of speed and certainty in the review process may be of concern – *Consult with the local review authority to review requirements; some communities are moving toward open-space design as a "by right" form of subdivision*
- Prospective homebuyers may be reluctant to purchase homes due to concerns regarding management of the community open space – *Proper methods and implementation of maintenance agreements are available; natural open space reduces maintenance costs and can help keep association fees down*
- Open-space developments appear incompatible with adjacent land uses and are equated with increased noise and traffic – *Open-space design allows preservation of natural areas, using less space for streets, sidewalks, parking lots and driveways; incorporating buffers into the design can help alleviate incompatibility with other competing land uses.*

USING THIS PRACTICE

- Use a site design which concentrates development and preserves open space and natural areas of the site
- Locate the developed portion of the cluster areas in the least sensitive areas of the site (see practice #4).
- Use reduced setbacks and frontages and narrower right-of-way widths to design non-traditional lot layouts within the cluster.

Discussion

Open-space development, also known as “open space residential design” (OSRD), or *conservation development* or *clustering*, is a better site-design technique that concentrates structures and impervious surfaces in a compact area in one portion of the development site in exchange for providing open space and natural areas elsewhere on the site. Typically smaller lots and/or nontraditional lot designs are used to cluster development and create more conservation areas on the site.

Open-space developments have many benefits compared with conventional commercial developments or residential subdivisions: they can reduce impervious cover, stormwater pollution, construction costand the need for grading and landscaping, while providing for the conservation of natural areas. Figures 11 and 12 show examples of open space developments.

Along with reduced imperviousness, open-space designs provide a host of other environmental benefits lacking in most conventional designs. These developments reduce potential pressure to encroach on conservation and buffer areas because enough open space is usually reserved to accommodate these protection areas. As less land is cleared during the construction process, alteration of the natural hydrology and the potential for soil erosion are also greatly diminished. Perhaps most importantly open space design reserves 25 to 50 percent of the development site in conservation areas that would not otherwise be protected.

Open-space developments can also be significantly less expensive to build than conventional projects. Most of the cost savings are due to reduced infrastructure cost for roads and stormwater management controls and conveyances. While open-space developments are frequently less expensive to build, developers find that these properties often command higher prices than those in more conventional developments. Several studies estimate that residential properties in open-space developments garner premiums that are higher than conventional subdivisions and moreover, sell or lease at increased rates. Once established, common open-space and natural conservation areas must be managed by a responsible party able to maintain the areas in a natural state in perpetuity. Typically, the conservation areas are protected by legally enforceable deed restrictions, conservation easements and maintenance agreements.

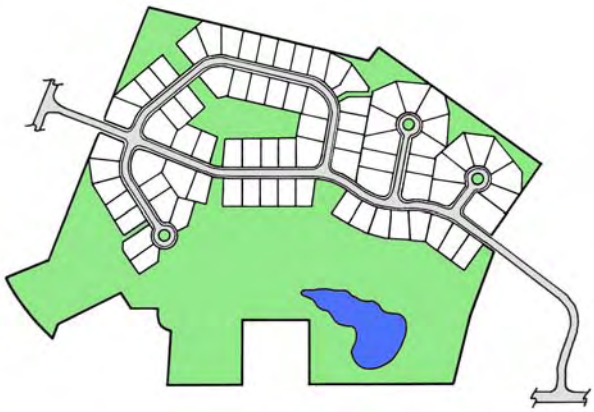


Figure 11: Example of an Open Space or “Cluster” Subdivision
(Source: Georgia Stormwater Manual, 2001)



Figure 12: Aerial View of an Open Space or “Cluster” Subdivision
(Source: Georgia Stormwater Manual, 2001)

Flexible lot shapes and setback and frontage distances allow site designers to create attractive and unique lots that provide homeowners with enough space while allowing for the preservation of natural areas in a residential subdivision. A narrower right-of-way will consume less land that may be better used for housing lots and allow for a more compact site design. Figure 13 illustrates various nontraditional lot designs, and Figure 14 illustrates reduced front and side setbacks.

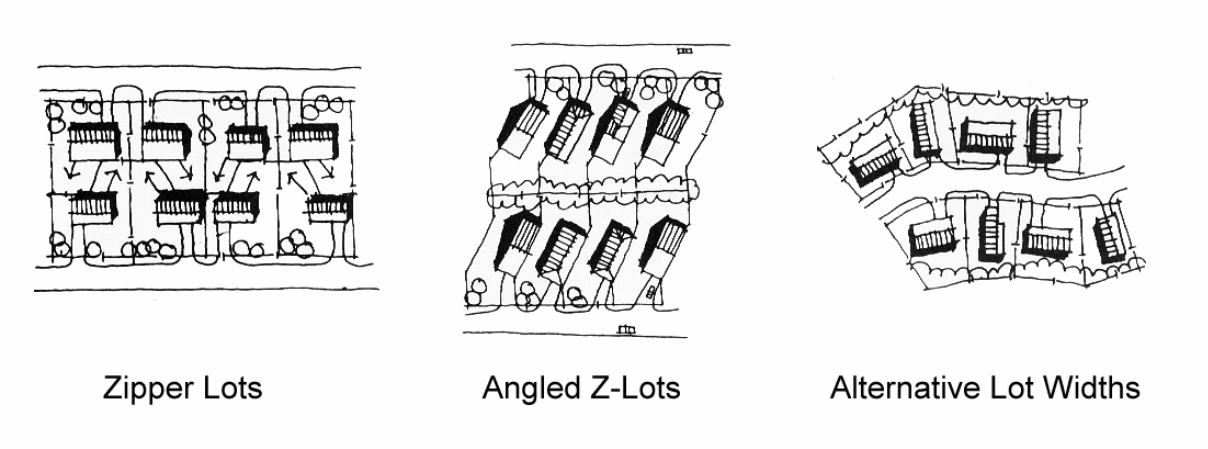


Figure 13: Nontraditional Lot Designs
(Source: ULI, 1992)



Figure 14: Lots with Reduced Front and Side Setbacks
(Source: Georgia Stormwater Manual, 2001)

Additional Guidance

Arendt, Randall. 1994. *Designing Open Space Subdivisions: A Practical Step-by-Step Approach*. Natural Lands Trust, Inc. Media, PA. Available from www.natlands.org or www.greenerprospects.com

Arendt, Randall. 1996. *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks*. American Planning Association. Chicago, IL. Available from the American Planning Association at www.planning.org

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

A non-profit Massachusetts organization dedicated to educating people about OSRD development and implementation. http://www.greenneighborhoods.org/site/Index.htm

University of Michigan study finds homebuyers want view of woods, not large lawns. www.umich.edu/news/index.html?Releases/2004/Jun04/r062904a

Environmental Protection Agency (EPA)
site on smart growth including a focus on community based approaches to reducing sprawl.
www.epa.gov/ebtpages/envismartgrowth.html

Better Site Design Practice #6:

Roadway Reduction

Reduction of Impervious Cover

Description: Roadway lengths and widths should be minimized on a development site where possible to reduce overall imperviousness.

Key Benefits

- Reduces the amount of impervious cover and associated runoff and pollutants generated
- Reduces the costs associated with road construction and maintenance

Typical Perceived Obstacles and Realities

- Local codes may not permit shorter or narrower roads – *Meet with local officials to discuss waivers for alternative designs that will address concerns of access, snow stockpiling, and parking.*
- The public may view narrow roads as unsafe – *Narrower roads in fact reduce the speeds at which vehicles drive; many maintenance and emergency vehicles can in fact access narrow roads*
- Narrow and shorter roads do not have enough parking – *Provisions can be made in the design of a site to accommodate off-street parking.*

USING THIS PRACTICE

- Consider different site and road layouts that reduce overall street length
- Minimize street width by using narrower street designs that are a function of land use, density and traffic demand.
- Use smaller side-yard setbacks to reduce total road length.

Discussion

The use of alternative road layouts that reduce the total linear length of roadways can significantly reduce overall imperviousness of a development site. Site designers are encouraged to analyze different site and roadway layouts to see if they can reduce overall street length.

In addition, residential streets and private streets within commercial and other development should be designed for the minimum required pavement width needed to support travel lanes, on-street parking and emergency access. Figure 15 shows options for narrower street designs. In many instances, on-street parking can be reduced to one lane or eliminated on local access roads with less than 200 average daily trips (ADT) and on short cul-de-sacs street. One-way, single-lane, loop roads are another way to reduce the width of lower-traffic streets.

Further, reducing side yard setbacks and using narrower frontages can reduce total street length, which is especially important in cluster and open-space designs.

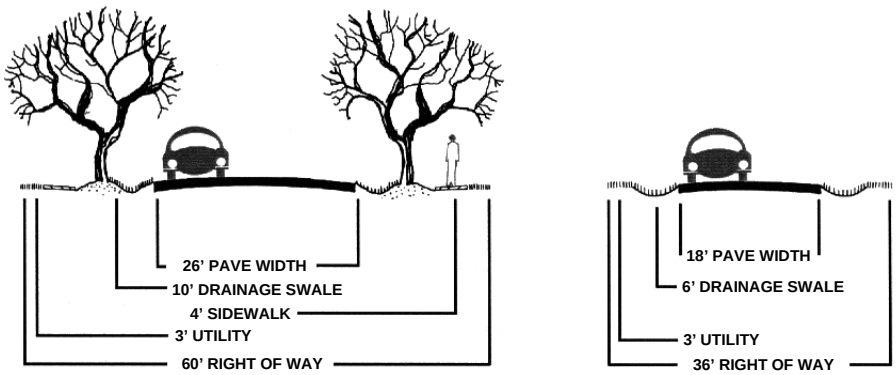


Figure 15: Potential Design Options for Narrower Roadway Widths
(Source: Georgia Stormwater Manual, 2001)

Additional Guidance

Arendt, Randall. 1994. *Designing Open Space Subdivisions: A Practical Step-by-Step Approach*. Natural Lands Trust, Inc. Media, PA. Available from www.natlands.org or www.greenerprospects.com

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Institute of Traffic Engineers (ITE). 2001. *Residential Streets, Third Edition*. Institute of Traffic Engineers, Publication No. LP-630. Available from www.ite.org

Institute of Traffic Engineers (ITE). 1999. *Traditional Neighborhood Development Street Design Guidelines*. Institute of Traffic Engineers, Publication No. RP-027A. Available from www.ite.org

Institute of Traffic Engineers (ITE). 1997. *Designing Neighborhood Streets*. Institute of Traffic Engineers, Publication No. VHS-027. Available from www.ite.org

Better Site Design Practice #7:

Sidewalk Reduction

Reduction of Impervious Cover

Description: Sidewalk lengths and widths should be minimized on a development site where possible to reduce overall imperviousness.

Key Benefits

- Reduces the amount of impervious cover and associated runoff and pollutants generated
- Reduces the costs associated with construction and maintenance
- Reduces the individual homeowner's responsibility for maintenance, such as snow clearance

Typical Perceived Obstacles and Realities

- Sidewalks on only one side of the street may be perceived as unsafe – *Accident research shows sidewalks on one side are nearly as safe as sidewalks on both*
- Homebuyers are perceived to want sidewalks on both sides – *Some actually prefer not to have a sidewalk in front of their home, and there is no market difference between homes with and without sidewalks directly in front.*
- Local codes may not permit narrower, alternative, or the elimination of a sidewalk – *Meet with local officials to discuss waivers for alternative designs that will address concerns of accessibility and safety issues.*

USING THIS PRACTICE

- Locate sidewalks on only one side of the street.
- Provide common walkways linking pedestrian areas.
- Use alternative sidewalk and walkway surfaces.
- Shorten front setbacks to reduce walkway lengths.

Discussion

Most codes require that sidewalks be placed on both sides of residential streets (e.g., double sidewalks) and be constructed of impervious concrete or asphalt. Many subdivision codes also require sidewalks to be 4 to 6 feet wide and 2 to 10 feet from the street. These codes are enforced to provide sidewalks as a safety measure.

Developers may wish to consider allowing sidewalks on only one side of the street or eliminating them where they don't make sense. Sidewalks should be designed with the goal of improving pedestrian movement and diverting it away from the street. Developers may also consider reducing sidewalk widths and placing them farther from the street. In addition, sidewalks should be graded to drain to front yards rather than the street.

Alternative surfaces for sidewalks and walkways should be considered to reduce impervious cover (figures 16 and 17). In addition, building and home setbacks should be shortened to reduce the amount of impervious cover from entry walks.



Figure 16: Sidewalk with a permeable paver surface
(Source: MA EOEA, 2005)



Figure 17: Sidewalk with Common Walkways Linking Pedestrian Areas
(Source: MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Website for Walkable Communities, Inc. www.walkablecommunities.org

Litman, Todd Alexander. 2004. *The Economic Value of Walkability*. Victoria Transport Policy Institute. Victoria, British Columbia. Available from http://www.vtpi.org/walkability.pdf

Better Site Design Practice #8:

Driveway Reduction

Reduction of Impervious Cover

Description: Where driveway lengths and widths should be minimized on a development site possible, to reduce overall imperviousness.

Key Benefits

- Reduces the amount of impervious cover and associated runoff and pollutants generated

Typical Perceived Obstacles and Realities

- Alternative driveway surfaces make snow removal more difficult – *Careful site design, material selection and homeowner education can help alleviate the concern*
- Developers perceive alternative surfaces as less marketable – "*Green" development projects are increasingly being sought by consumers.*
- Homeowners have concerns regarding access with shared driveways – *Proper site design and homeowner education will alleviate access issues.*
- Local codes may not permit shorter or narrower driveways or driveways with porous surfaces – *Meet with local officials to discuss waivers for alternative designs.*

USING THIS PRACTICE

- Use shared driveways that connect two or more homes.
- Use alternative driveway surfaces.
- Use smaller lot front building setbacks to reduce total driveway length.

Discussion

Most local subdivision codes are not very explicit as to how driveways must be designed. Most simply require a standard apron to connect the street to the driveway but do not specify width or surface material for driveways. Typical residential driveways range from 12 feet wide for one-car driveways to 20 feet for two.

Shared driveways are discouraged or prohibited by many communities. Shared driveways can reduce impervious cover and should be encouraged with enforceable maintenance agreements and easements.

Secondly, the typical 400-800 square feet of impervious cover per driveway can be minimized by using narrower driveway widths, reducing the length of driveways, or using alternative surfaces such as double-tracks, reinforced grass or permeable paving materials.

Building and home setbacks should be shortened to reduce the amount of impervious cover from driveways and entry walks. A setback of 20 feet is more than sufficient to allow a car to park in a driveway without encroaching into the public right of way and reduces driveway and walk pavement by more than 30 percent compared with a setback of 30 feet (see Figure 18).

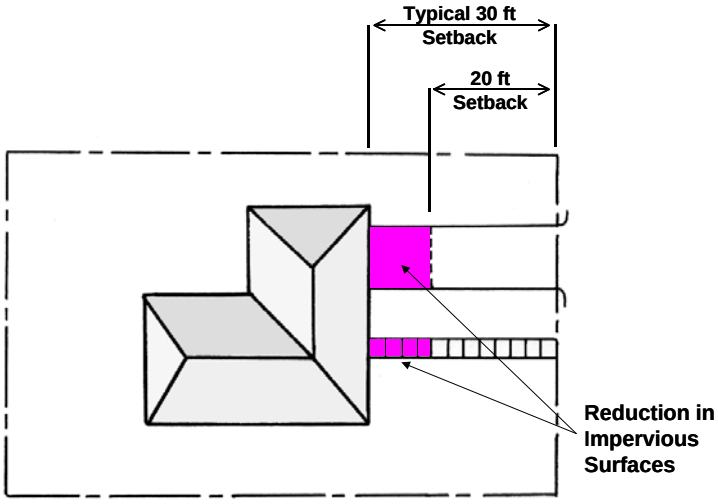


Figure 18: Reduced Driveway and Walkway Lengths by Using Reduced Setbacks
(Adapted from: MPCA, 1989)



Figure 19: Reduced Driveway Lengths by Using Shared Driveways
(Source: MA EOEA, 2005)



Figure 20: Permeable Pavers as an Alternative Driveway Surface
(Source: MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

Massachusetts Executive Office of Environmental Affairs (EOEA). 2005. *Smart Growth Toolkit*. Boston, MA. Available from http://www.mass.gov/envir/

Better Site Design Practice #9:

Cul-de-sac Reduction

Reduction of Impervious Cover

Description: Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover. The radius of a cul-de-sac should be the minimum required to accommodate emergency and maintenance vehicles. Alternative turnarounds should also be considered.

Key Benefits	Typical Perceived Obstacles and Realities
• Reduces the amount of impervious cover, associated runoff and pollutants generated • Increases aesthetics by allowing for natural or landscaped areas rather than pavement	• Emergency and maintenance vehicles require a large turning radius – *Many newer vehicles are available with small turning radii.* • School buses require a large turning radius - *Verify school bus pick-up plans. Not every cul-de-sac will need to accommodate school bus turning radii.* • Homeowners like the "end of the road" appeal of cul-de-sacs – *This appeal can be accommodated using loop roads or lots that back onto open space areas.* • Local codes may not permit smaller or alternative cul-de-sac designs – *Meet with local officials to discuss waivers for alternative designs that will address concerns of access.*

USING THIS PRACTICE

- Reduce the radius of the turnaround bulb or consider alternative cul-de-sac design, such as "tee" turn-a-rounds or looping lanes.
- Apply site design strategies that minimize dead-end streets.
- Create a pervious island or a stormwater bioretention area in the middle of the cul-de-sac to reduce impervious area.

Discussion

Alternative turnarounds are end of the street designs that replace fully-paved cul-de-sacs and reduce the amount of impervious cover created in developments. Cul-de-sacs are local access streets with a closed circular end that allows for vehicle turnarounds. Many of these cul-de-sacs can have a radius of more than 40 feet. From a stormwater perspective, cul-de-sacs create a huge bulb of impervious cover, increasing the amount of runoff. For this reason, reducing the size of cul-de-sacs through the use of alternative turnarounds or eliminating them altogether can reduce the amount of impervious cover created at a site.

Numerous alternatives create less impervious cover than the traditional 40-foot cul-de-sac. These alternatives include reducing cul-de-sacs to a 30-foot radius and creating hammerheads, loop roads and pervious islands in the cul-de-sac center (see figures 21, 22 and 23 below).

Sufficient turnaround area is a significant factor to consider in the design of cul-de-sacs. In particular, the types of vehicles entering the cul-de-sac should be considered. Firetrucks, service vehicles and schoolbuses are often cited as needing large turning radii. However, some firetrucks are designed for smaller turning radii. In addition, many newer largeservice vehicles are designed with a tri-axle (requiring a smaller turning radius), and many school buses usually do not enter individual cul-de-sacs.

Another option for designing cul-de-sacs involves the placement of a pervious island in the center. Vehicles only travel along the outside of the cul-de-sac when turning, leaving an unused "island" of pavement in the center. These islands can be attractively landscaped and also designed as bioretention areas to treat stormwater (see practice #14).

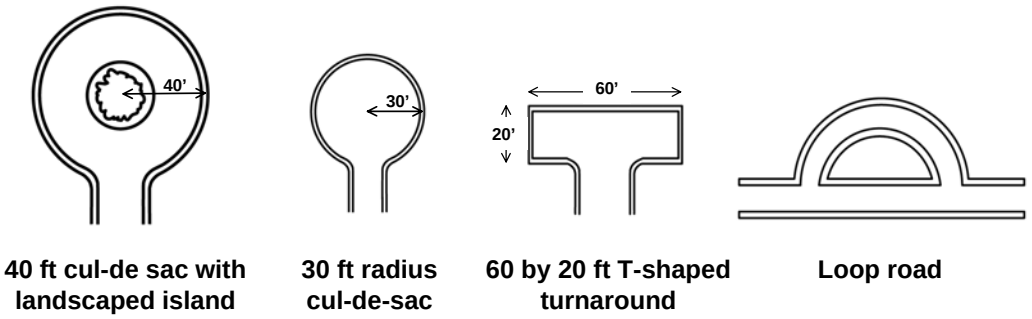


Figure 21: Turnaround Options for Residential Streets
(Source: Adapted from Schueler, 1995)



Figure 22: Loop Road Option
(Source: Center for Watershed Protection, 2005)



Figure 23: T-Shaped Turnaround Option
(Source: Center for Watershed Protection, 2005)

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Schueler, T. 1995. *Site Planning for Urban Stream Protection.* Prepared for: Metropolitan Washington Council of Governments. Washington, DC. Center for Watershed Protection, Ellicott City, MD. Available from www.cwp.org

Massachusetts Executive Office of Environmental Affairs (EOEA). 2005. *Smart Growth Toolkit*. Boston, MA. Available from http://www.mass.gov/envir/

Better Site Design Practice #10:

Building Footprint Reduction

Reduction of Impervious Cover

Description: The impervious footprint of residences and commercial buildings can be reduced by using alternate or taller buildings while maintaining the same floor to area ratio.

Key Benefits

- Reduces the amount of impervious cover and associated runoff and pollutants generated

Typical Perceived Obstacles and Realities

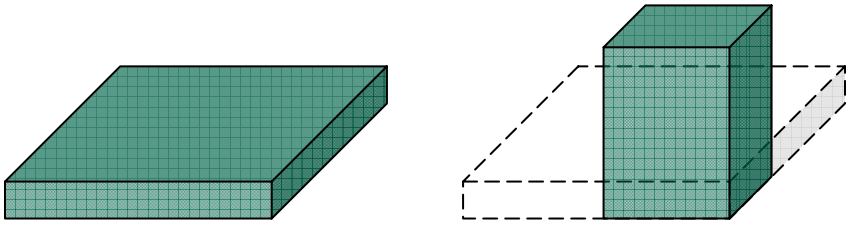
- Taller buildings are perceived to have higher construction and maintenance costs – *Costs for taller buildings and associated parking may be offset by land costs.*
- Local codes may not permit taller buildings – *Consider alternative locations that do allow taller buildings, or meet with local officials to discuss waivers for alternative designs.*

USING THIS PRACTICE

- Use alternate or taller building designs to reduce the impervious footprint of buildings.
- Consolidate functions and buildings or segment facilities to reduce footprints of structures.
- Reduce directly connected impervious areas.

Discussion

In order to reduce the imperviousness associated with the footprint and rooftops of buildings and other structures, alternative and/or vertical (taller) building designs should be considered. Consolidate functions and buildings, as required, or segment facilities to reduce the footprint of individual structures. Figure 24 shows the reduction in impervious footprint by using a taller building design, and figures 25 and 26 show residential examples of reduced footprints.



Single Story Building

Four Story Building (75% Less Impervious Cover)

Figure 24: Reduction of Impervious Cover by Building Up Rather than Out
(Source: Georgia Stormwater Manual, 2001)



Figure 25: Taller Houses Create a Smaller Impervious Footprint
(Source: Center for Watershed Protection, 2005)



Figure 26: Taller Apartments Create a Smaller Impervious Footprint
(Source: City of Portland, OR, 2001)

Additional Guidance

Environmental Protection Agency (EPA)
site on smart growth including a focus on community based approaches to reducing sprawl.
www.epa.gov/ebtpages/envismartgrowth.html

Hart, Leslie. 1994. *Guiding Principles of Sustainable Design*. Prepared for the U.S Department of the Interior and the National Parks Service. Available from http://www.nps.gov/dsc/dsgncnstr/gpsd

Better Site Design Practice #11:

Parking Reduction

Reduction of Impervious Cover

Description: Reduce the overall imperviousness associated with parking lots by eliminating unneeded spaces, providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes, using multi-storied parking decks and using porous paver surfaces or porous concrete in overflow parking areas where feasible.

Key Benefits

- Reduces the amount of impervious cover, associated runoff and pollutants generated
- Reduces construction costs, long-term operation and maintenance costs, and the need for larger stormwater facilities
- Improves aesthetics of an area by increasing vegetative surfaces and reducing the feeling a large, paved urban area

Typical Perceived Obstacles and Realities

- Developers desire excess parking and fear losing customers during peaks – T*he potential loss of customers due to reduced parking is unknown however, often times parking areas are not full during peak periods.*
- Parking may spill over into residential or commercial areas when full – I*nclude preferential parking provisions for residents or parking enforcement with meters.*
- Trend to larger vehicles such as SUVs – *Stall width requirements in most local parking codes are much larger than the widest SUVs.*
- Structured parking is more expensive than surface lots – *Costs for structured parking may be offset by land costs or by constructing garages above or below an actual building.*
- Porous pavement surfaces are more expensive to install and maintain – *Alternative surfaces may alleviate the need for larger stormwater treatment elsewhere on the site*.

USING THIS PRACTICE

- Reduce the number of unnecessary parking spaces by examining minimum parking ratio requirements, and set a maximum number of spaces.
- Reduce the number of un-needed parking spaces by examining the site's accessibility to mass transit.
- Minimize individual parking stall dimensions.
- Examine the traffic flow of the parking lot design to eliminate un-needed lanes / drive aisles
- Consider parking structures and shared parking arrangements between non-competing uses
- Use alternative porous surface for overflow areas or main parking areas if not a high-traffic parking lot.
- Use landscaping or vegetated stormwater practices in parking lot islands.
- Provide incentives for compact and hybrid cars.

Discussion

Setting maximums for parking spaces, minimizing stall dimensions, using structured parking, encouraging shared parking and using alternative porous surfaces can all reduce the overall parking footprint and site imperviousness.

Many parking lot designs result in far more spaces than actually required. This problem is exacerbated by a common practice of setting parking ratios to accommodate the highest hourly parking during the peak season. By determining average parking demand instead, a lower maximum number of parking spaces can be set to accommodate most of the demand. Table 4 provides examples of conventional parking requirements and compares them to average parking demand. In addition, the number of parking spaces needed may be reduced by a site's accessibility to public transportation.

Table 4: Conventional Minimum Parking Ratios *(Source: CWP, 1998)*

Land Use	Parking Requirement		Actual Average Parking Demand
	Parking Ratio	Typical Range	
Single family homes	2 spaces per dwelling unit	1.5–2.5	1.11 spaces per dwelling unit
Shopping center	5 spaces per 1000 ft^2 GFA	4.0–6.5	3.97 per 1000 ft^2 GFA
Convenience store	3.3 spaces per 1000 ft^2 GFA	2.0–10.0	--
Industrial	1 space per 1000 ft^2 GFA	0.5–2.0	1.48 per 1000 ft^2 GFA
Medical/dental office	5.7 spaces per 1000 ft^2 GFA	4.5–10.0	4.11 per 1000 ft^2 GFA

GFA = Gross floor area of a building without storage or utility spaces

Another technique to reduce the parking footprint is to minimize the dimensions of the parking spaces. This can be accomplished by reducing both the length and width of the parking stall. Parking stall dimensions can be further reduced if compact spaces are provided. Another method to reduce the parking area is to incorporate efficient parking lanes such as using one-way drive aisles with angled parking rather than the traditional two-way aisles.

Structured parking decks are another method for significantly reducing the overall parking footprint by minimizing surface parking. Figure 27 shows a parking deck used for a commercial development.

Shared parking in mixed-use areas and structured parking are techniques that can further reduce the conversion of land to impervious cover. A shared parking arrangement could include usage of the same parking lot by an office space that experiences peak parking demand during the weekday with a church that experiences parking demands during the weekends and evenings.



Figure 27: Structured Parking at an Office Park
(Source: Georgia Stormwater Manual, 2001)

Using alternative surfaces such as porous pavers or porous concrete is an effective way to reduce the amount of runoff generated by parking lots. They can replace conventional asphalt or concrete in both new developments and redevelopment projects. Figure 28 is an example of porous pavers used at an overflow lot. Alternative pavers can also capture and treat runoff from other sites area.



Figure 28: Grass Paver Used for Parking
(Source: Georgia Stormwater Manual, 2001)

When possible, expanses of parking should be broken up with landscaped islands which could include shade trees and shrubs (see Figure 29) or landscaped stormwater management "islands" such as filter strips, swales and bioretention areas (see practice #s 12, 13 & 14)



Figure 29: Expanses of Parking Area "Broken-Up" with Landscape Features
(Source: MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

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Institute of Traffic Engineers (ITE). 1994. *Guidelines for Parking Facility Location and Design*. Institute of Traffic Engineers, Publication No. RP-022A. Available from www.ite.org

U.S. Environmental Protection Agency. 1999. *Parking Alternatives: Making Way for Urban Infill and Brownfields Redevelopment.* U.S. EPA Urban and Economic Development Division. Washington, DC. Available from http://www.epa.gov/smartgrowth/publications.htm#articles

Better Site Design Practice #12: Use of Natural Features and Source Control for Stormwater Management

Vegetated Buffer/Filter Strips

Description: Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips can be used to treat and control stormwater runoff from some areas of a development project.

Key Benefits

- Riparian buffers and undisturbed vegetated areas can be used to filter and infiltrate stormwater runoff
- Natural depressions can provide inexpensive storage and detention of stormwater flows
- A stormwater site design credit can be taken if allowed by the local review authority.

Typical Perceived Obstacles and Realities

- Require space – *Use in areas where land is available and land costs are not significantly high.*
- May be inappropriate in areas of higher pollutant loading due to direct infiltration of pollutants– *Integrate with other practices to ensure adequate treatment prior to discharge.*
- Channelization and premature failure can occur – *This can be alleviated with proper design, construction and maintenance.*

USING THIS PRACTICE

- Direct runoff towards buffers and undisturbed areas using sheet flow or a level spreader to ensure sheet flow.
- Use natural depressions for runoff storage.
- Direct runoff and nature of runoff (sheet flow versus shallow concentrated flow) to buffer/filter strip areas.
- Examine the slope, soils and vegetative cover of the buffer/filter strip.
- Disconnect impervious areas to these areas.

Discussion

Runoff can be directed towards riparian buffers and other undisturbed natural areas delineated in the initial stages of site planning to infiltrate runoff, reduce runoff velocity and remove pollutants. Natural depressions can be used to temporarily store (detain) and infiltrate water, particularly in areas with more permeable (hydrologic soil groups A and B) soils.

The objective in using natural areas for stormwater infiltration is to intercept runoff before it has become substantially concentrated and then distribute this flow evenly (as sheet flow) to the buffer or natural area. This can typically be accomplished using a level spreader, as seen in Figure 30. A mechanism for the bypass of higher-flow events should be provided to reduce erosion or damage to a buffer or undisturbed natural area.

Carefully constructed berms can be placed around natural depressions and below undisturbed vegetated areas with porous soils to provide for additional runoff storage and/or infiltration of flows.

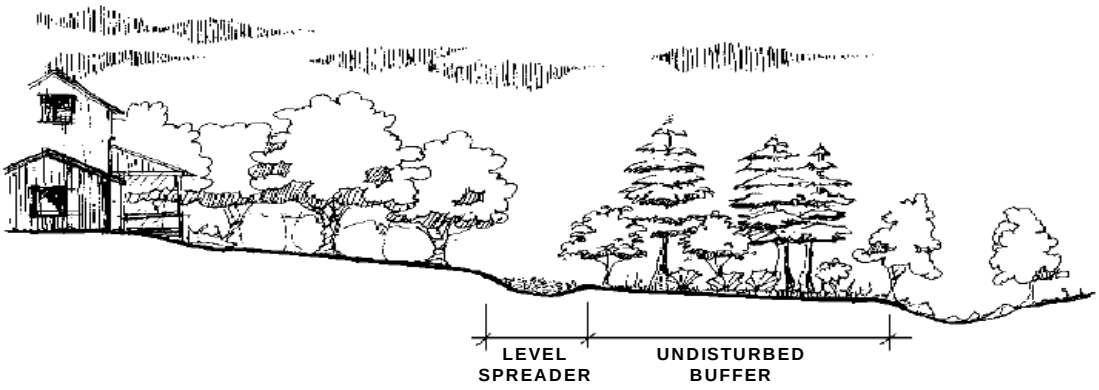

Figure 30: Use of a Level Spreader with a Riparian Buffer
(Source: Georgia Stormwater Manual, 2001)



Figure 31: Use of a Grassed Filter Strip
(Source: MA EOEA, 2005)



Figure 32: Use of a Vegetated Filter Strip
(Source: MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

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Better Site Design Practice #13: Use of Natural Features and Source Control for Stormwater Management

Open Vegetated Channels

Description: The natural drainage paths of a site, or properly designed and constructed vegetated channels can be used instead of constructing underground storm sewers or concrete open channels. Where density, topography, soils, slope and safety issues permit, vegetated open channels can be used in the street right-of-way to convey and treat stormwater runoff from roadways.

Key Benefits

- Reduces the cost of road and storm sewer construction
- Provides for some runoff storage and infiltration, as well as treatment of stormwater
- A stormwater site design credit can be taken if allowed by the local review authority.
- Increases stormwater travel times and lowers peak discharges.

Typical Perceived Obstacles and Realities

- Local codes may not allow swales instead of curb and gutter or closed drainage pipes – *Meet with local officials to discuss waivers for alternative designs.*
- There is a strong perception that swales require more maintenance than curb and gutter or closed drainage pipes – *With the proper design, swales require less maintenance and are less prone to failure.*
- Lack of curbing may increase potential for failure of the pavement at the grass interface – *The potential for failure can be alleviated by hardening the interface by installing grass pavers, geosynthetics or placing a low-rising concrete strip along the pavement edge.*

USING THIS PRACTICE

- Preserve natural flow paths in the site design.
- Direct runoff to natural drainage ways, ensuring that peak flows and velocities will not cause channel erosion.
- Use vegetated open channels (enhanced wet or dry swales or grass channels) and pipes in place of curb and gutter, to convey and treat stormwater runoff.
- Ensure runoff volumes and velocities provide adequate residence times and non-erosive conditions (i.e., use of check dams).

Discussion

Open vegetated channels (see figures 33 and 34) remove pollutants by allowing infiltration and filtration to occur, unlike curb-and-gutter systems or closed piping systems which move water with virtually no treatment. Curb-and-gutter and storm drain systems allow for the quick transport of stormwater, which results in increased peak flow and flood volumes and reduced runoff infiltration. Curb-and-gutter systems also do not provide treatment of stormwater that is often polluted from vehicle emissions, pet waste, lawn runoff and litter. Engineering techniques have advanced the roadside ditches of the past, which suffered from erosion, standing water and

breakup of the road edge. Grass channels and enhanced dry swales are two such alternatives, and with proper installation under the right site conditions, they are excellent methods for treating stormwater on site. In addition, open vegetated channels can be less expensive to install than curb-and-gutter systems. Complete descriptions and design criteria for open channels are included in the New York State Stormwater Management Manual.

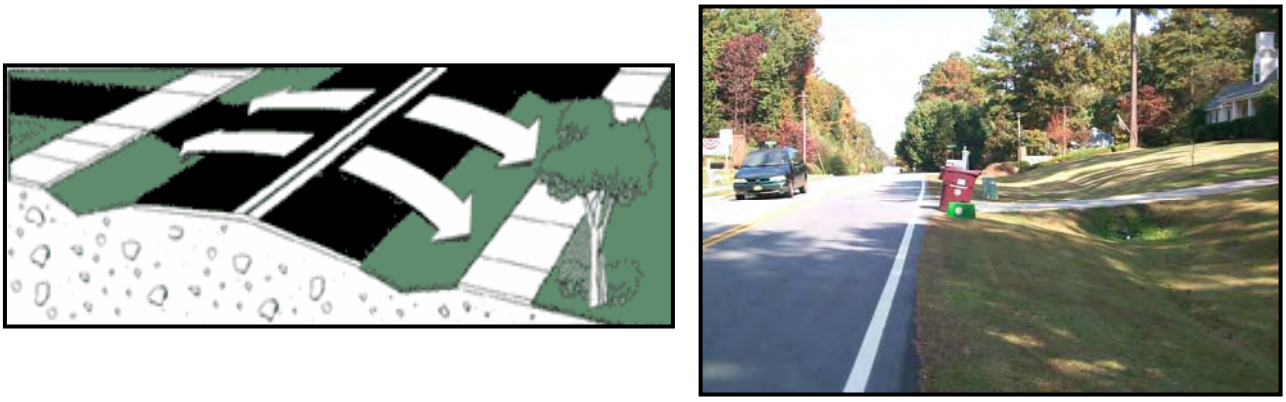

Figure 33: Examples of Open Vegetated Channels
(Source: Georgia Stormwater Manual, 2001)



Figure 34: Another Example of an Open Vegetated Channel
(Source: MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. 1998. *Better Site Design: A Handbook for Changing Development Rules in Your Community*. Available from www.cwp.org

Center for Watershed Protection. August 2003. *New York State Stormwater Management Design Manual*. Prepared for New York State Department of Environmental Conservation, Albany, NY. http://www.dec.state.ny.us/website/dow/toolbox/swmanual/#Downloads

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

City of Portland, Oregon. September 2004. *Stormwater Management Manual.* Bureau of Environmental Services, Portland, OR. Available from http://www.portlandonline.com/bes/

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Better Site Design Practice #14: Use of Natural Features and Source Control for Stormwater Management

Bioretention and Rain Gardens

Description: Provide stormwater treatment for runoff from impervious surfaces using bioretention areas or rain gardens that can be integrated into required landscaping areas and traffic islands.

Key Benefits

- Breaks up impervious cover, thus allowing for better infiltration and treatment from smaller drainage areas.
- Combines landscaping with stormwater treatment.
- Improves aesthetics.
- Reduces thermal impacts.

Typical Perceived Obstacles and Realities

- Bioretention areas require regular maintenance – *Regular maintenance amounts to general landscaping duties such as trash removal, mulching, weeding and irrigation.*
- Bioretention areas may be expensive – *Using bioretention and other on-site treatment can significantly reduce the need for storm drain,s thus reducing stormwater infrastructure costs*

USING THIS PRACTICE

- Integrate bioretention into a parking lot or roadway design.
- Integrate bioretention, or raingardens, into on-lot residential designs.
- Closely examine runoff volumes and velocities to ensure runoff enters bioretention in a distributed manner and in a non-erosive condition.
- Ensure the bioretention has proper pre-treatment.
- Carefully select the landscaping materials required.
- Use as a retrofit or in redevelopment projects.

Discussion

Bioretention areas are naturally vegetated, structural, stormwater-treatment practices that offer an aesthetically pleasing alternative to pavement or traditional detention stormwater facilities. Bioretention areas resemble landscaped depressions and can contain grasses, wildflowers or trees, depending on the size of the facility. Stormwater runoff is routed by slopes, curb cuts or piping into these depressions, where it is allowed to pond temporarily. Eventually, the retained runoff will seep through an organic underground filter system before discharging to an underdrain or infiltrating to the underlying soils. Treatment of stormwater includes attenuation of sediment, metals, bacteria and nutrients. Complete descriptions and design criteria for bioretention are included in the New York State Stormwater Management Manual (http://www.dec.state.ny.us/website/dow/toolbox/swmanual/#Downloads)

Bioretention facilities can receive runoff from areas as small as residential lawns or as large as commercial parking areas. These facilities are often used to replace conventional landscaping in parking areas or along roadways. Site limitations include steep slopes, high water tables or

excessively cold climates. Where unusually high sediment loading is expected, proper pretreatment, such as a sediment forebay designed for settling sediments, should be used to reduce the probability of clogging the subsurface filter.

Parking lots should be designed with landscaped stormwater management “islands” which reduce the connected impervious cover of the lot as well as provide for runoff treatment and control in stormwater facilities. Bioretention can be incorporated into roadway design as well, such as in the center of a cul-de-sac or within roadway rights-of-way or easements following sheet flow from the road surface.



Figure 35: Example of a Bioretention Facility in a Parking Lot Island



Figure 36: Example of a Bioretention Facility Along Roadway

Rain gardens are smaller versions of bioretention, typically considered for on-lot residential designs. Rain gardens can be landscaped depressions on the lot used to mitigate rooftop runoff, or can be designed as the low point of a lot to treat on-site stormwater. Rain gardens are constructed as shallow depressions where stormwater runoff will collect during and shortly after a rain event. These areas are vegetated with plants that are both aesthetically pleasing and well suited to an environment periodically inundated with water. Rain gardens can be designed at different scales to suit different levels of runoff. Adequate sizing of these gardens will allow for infiltration of the most common rain events, while runoff from larger events will overflow into other stormwater infrastructure or a receiving water body. Rain gardens are an appropriate practice as long as certain potential site constraints have been considered. Drainage areas cannot be too extensive for rain gardens, and slopes leading to them cannot be too steep because large volumes of rain or runoff moving at excessive velocities will simply overwhelm these facilities. Also, where subsurface soils do not naturally allow for good drainage, these soils should be replaced or mixed with sandier varieties.



Figure 37: Example of an On-Lot Rain Garden
Source (MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. August 2003. *New York State Stormwater Management Design Manual*. Prepared for New York State Department of Environmental Conservation, Albany, NY. http://www.dec.state.ny.us/website/dow/toolbox/swmanual/#Downloads

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City of Portland, Oregon. September 2004. *Stormwater Management Manual.* Bureau of Environmental Services, Portland, OR. Available from http://www.portlandonline.com/bes/

Massachusetts Executive Office of Environmental Affairs (EOEA). 2005. *Smart Growth Toolkit*. Boston, MA. Available from http://www.mass.gov/envir/

Low Impact Development (LID) Center website: http://www.lowimpactdevelopment.org/

Better Site Design Practice #15:
Infiltration

Use of Natural Features and Source Control for Stormwater Management

Description: Use infiltration trenches, basins or leaching chambers to provide groundwater recharge, mimic existing hydrologic conditions and reduce runoff and pollutant export. Permeable paving surfaces may also be used where site conditions are appropriate.

Key Benefits

- Increases recharge to the groundwater.
- Reduces stormwater runoff volume and peak runoff rates; therefore, pipes and basins are smaller.
- Can increase effective developable area on a site because portions of the stormwater system are located underneath the paved areas.
- Grass pavers can improve site appearance by providing vegetation where there would otherwise be only pavement.

Typical Perceived Obstacles and Realities

- Infiltration trenches and dry wells cannot receive untreated stormwater runoff, except rooftop runoff – *Provide proper pretreatment such as grass swales or filter strip.*
- Rehabilitation of failed infiltration trenches and dry wells requires complete reconstruction – *Proper system design, construction and ongoing operation and maintenance will prevent failure.*
- Permeable paving can be prone to clogging from sand and fine sediments that fill void spaces and the joints between pavers – *Avoid permeable paving in high traffic areas where frequent winter sanding is necessary; provide periodic maintenance.*
- Snow plows can catch the edge of grass pavers and some paving stones – *Avoid using in high traffic areas; and attach rollers to the bottom edge of a snowplow to prevent this problem.*

USING THIS PRACTICE

- May be used for roadway or parking impervious areas if adequate pre-treatment is. provided;Rooftop runoff may discharge directly to drywells or infiltration chambers.
- The site must have soils with moderate to high infiltration capacities and must have adequate depth to groundwater.
- Certain sites (i.e., pollutant hotspots) require additional pretreatment prior to infiltration.
- Use porous pavers only in low-traffic areas or for pedestrian walkways/plazas.
- Poor soils may preclude aggressive infiltration.

Discussion

Infiltration trenches, dry wells and chambers are standard stormwater management structures that can play an important role in lower-impact site design. Dispersed around the site, these infiltration structures can recharge groundwater and help to maintain or restore the site's natural hydrology. Dry wells, infiltration trenches, and chambers all store water in the void between crushed stone or gravel; the water slowly percolates downward into the subsoil. An overflow outlet is needed for runoff from large storms that cannot be fully infiltrated by the trench or dry well. Complete descriptions and design criteria for infiltration trenches, basins, and drywells are included in the New York State Stormwater Management Manual. (http://www.dec.state.ny.us/website/dow/toolbox/swmanual/#Downloads)

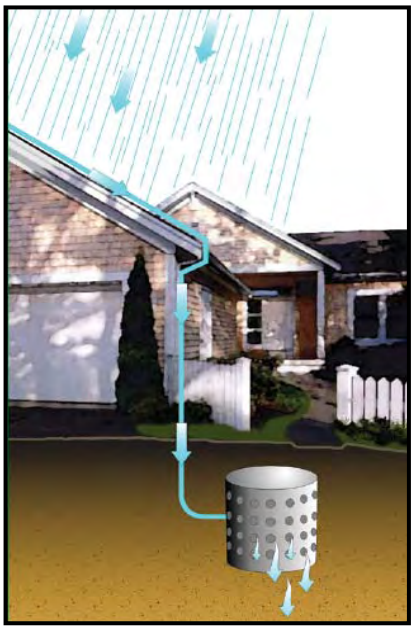

Figure 38: Dry Well
(Source: MA EOEA, 2005)



Figure 39: Infiltration Trench
(Source: MA EOEA, 2005)



Figure 40: Infiltration Chambers
(Source: MA EOEA, 2005)

Because impervious pavement is the primary source of stormwater runoff, better site-design strategies offer permeable paving as an option for parking areas and other hard surfaces. Permeable paving allows rainwater to percolate through the paving and into the ground before it runs off. This approach reduces stormwater runoff volumes and minimizes the pollutants introduced into stormwater runoff from parking areas. All permeable paving systems consist of a durable, load bearing, pervious surface overlying a crushed-stone base that stores rainwater before it infiltrates into the underlying soil.

Permeable paving techniques include porous asphalt, pervious concrete, paving stones and manufactured "grass pavers" made of concrete or plastic. Permeable paving may be used for walkways, patios, plazas, driveways, parking stalls and overflow parking areas.

Permeable paving is appropriate for pedestrian-only areas and for low-volume, low-speed areas such as overflow parking areas, residential driveways, alleys and parking stalls. It can be constructed where the underlying soils have a permeability of at least 0.5 inch per hour. Permeable paving is an excellent technique for dense urban areas because it does not require any additional land. With proper design, cold climates are not a major limitation; porous pavement has been used successfully in Norway, incorporating design features to reduce frost heave.



Figure 41: Examples of Permeable Pavers
(Source: MA EOEA, 2005)

Additional Guidance

Center for Watershed Protection. August 2003. *New York State Stormwater Management Design Manual*. Prepared for New York State Department of Environmental Conservation, Albany, NY. http://www.dec.state.ny.us/website/dow/toolbox/swmanual/#Downloads

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

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Better Site Design Practice #16: Use of Natural Features and Source Control for Stormwater Management

Rooftop Runoff Reduction Mitigation

Description: Direct runoff from residential rooftop areas to pervious areas, lower-impact practices or use "green-roof" (specially designed vegetated rooftops) strategies to reduce rooftop runoff volumes and rates.

Key Benefits

- Sending runoff to pervious areas, lower-impact practices or using green roofs increases overland flow time and reduces peak flows.
- Vegetated and pervious areas can filter and infiltrate stormwater runoff, thus increasing water quality.
- A stormwater site design credit can be taken if allowed by the local review authority.

Typical Perceived Obstacles and Realities

- Wet basements will result from re-directing rooftop runoff – C*areful design and construction inspection will minimize this condition.*
- Re-directed rooftop runoff may increase a property owner's maintenance burden – *When designed properly, on-lot rain gardens do not require supplemental water.*
- Alternative rooftop runoff mitigation may be costly – *Rain barrels, in fact, are inexpensive and will reduce water-use costs; green roofs reduce heating and cooling costs and roof replacement costs.*

USING THIS PRACTICE

- Direct rooftop runoff to pervious areas such as yards, open channels or vegetated areas.
- Direct rooftop runoff to lower-impact practices such as rain barrels, cisterns, drywells, rain gardens, or stormwater planters.
- Use "green roofs" to reduce stormwater runoff from rooftops.

Discussion

Stormwater quantity and quality benefits can be achieved by routing the runoff from rooftop areas to pervious areas such as lawns, landscaping, filter strips and vegetated channels. Much like the use of undisturbed buffers and natural areas (see practices #1 & 2), revegetated areas such as lawns and engineered filter strips and vegetated channels can act as biofilters for stormwater runoff and provide for infiltration in more permeable soils (hydrologic groups A and B).

Cisterns and rain barrels are designed to retain water that runs off of roofs for an extended period. Rain barrels are smaller structures ranging generally from 20 to 100 gallons, while cisterns can store thousands of gallons, depending on the design. Construction material for rain barrels is generally plastic although other materials such as wooden barrels have been used. Cisterns can be constructed of metal, wood, concrete or plastic. Stormwater stored in these structures is generally used for irrigation,



Figure 42: Rain Barrel
(Source: MA EOEA, 2005)

although more complex designs incorporate that water into everyday uses such as toilet and shower water. Rain barrels and cisterns have historically been used in more arid climates where water is scarce for much of the year. More recently, however, these technologies have been applied in less arid climates because of the savings in water costs and overall increases in water demands.

Drywells, as described under practice #15, are underground chambers surrounded by crushed stone, typically used to infiltrate runoff from rooftops. Drywells are well suited for residential applications or small buildings.

Rain gardens, as described under practice #14, are constructed as shallow depressions where stormwater runoff will collect during and shortly after a rain event. These areas are vegetated with plantings that are both aesthetically pleasing and well suited to an environment periodically inundated with water. Rain gardens are well suited for small drainage areas such as residential building rooftops.



Figure 43: Stormwater Planters
(Source: MA EOEA, 2005)

Stormwater planters are a small-scale engineered management strategy designed to treat limited volumes of stormwater runoff in discrete areas. Planters generally look like large vaulted plant boxes and can contain anything from basic wildflower communities to complex arrangements of trees and flowering shrubs. Other stormwater planters, known as "tree boxes," are simply modified side tree enclosures that are installed below the surface of the sidewalk. Stormwater is generally routed into these systems from roofs via downspouts, where it runs through various filtering media and is also subject to uptake from vegetation. Because of the compact and self-contained nature of these practices, they are best suited to handling rooftop runoff. Multiple units can be used to treat large-scale commercial developments.

Green rooftops are rooftop areas that have been landscaped with grasses, shrubs and, in some cases, trees. "Intensive" rooftops are designed with pedestrian access and deep soil layers to provide for complex planting schemes. "Extensive" rooftops are designed with a more shallow soil foundation and generally do not incorporate pedestrian access. Stormwater runoff is either retained until uptake can occur, or eventually runs off the roof with considerably less pollution than would be contained in runoff from a standard impervious rooftop. Beyond stormwater pretreatment, benefits of green rooftops include reduction of the "heat island" effect, extended life of the rooftop, aesthetic appeal and increased useable area. Green rooftops are best suited for

the construction of new buildings because the special structural considerations necessary for these applications can be incorporated early in the design phase. Retrofits to older buildings are often possible, however, owing to the fact that the rooftops were designed well beyond the minimum necessary support capacity.



Figure 44: Green Roof
(Source: MA EOEA, 2005)

Additional Guidance

Prince George's County, MD. June 1999. *Low-Impact Development Design Strategies: An Integrated Design Approach.* Prince George's County, Maryland, Department of Environmental Resources, Largo, Maryland. Available from www.epa.gov

Rhode Island Department of Environmental Management. January 2005. *The Urban Environmental Design Manual*. Rhode Island Department of Environmental Management, Providence, Rhode Island. Available from http://www.dem.state.ri.us/programs/bpoladm/suswshed/pubs.htm

City of Portland, Oregon. September 2004. *Stormwater Management Manual.* Bureau of Environmental Services, Portland, OR. Available from http://www.portlandonline.com/bes/

Green Roofs for Healthy Cities website - www.greenroofs.org

The international greenroof industry's resource and online information portal. www.greenroofs.com

Better Site Design Practice #17:

Stream Daylighting for Redevelopment Projects

Utilization of Natural Features and Source Control for Stormwater Management

Description: Stream Daylight previously-culverted/piped streams to restore natural habitats, better attenuate runoff and help reduce pollutant loads where feasible and practical.

Key Benefits

- The aesthetic appeal of daylighted streams can be expected to add appeal to neighborhoods or urban areas.
- Improves water quality.
- Prevents flooding by increasing storage and reducing peak flows.
- Increases habitat and wildlife value.
- Increases pedestrian traffic and general public use.
- Increases property values.

Typical Perceived Obstacles and Realities

- Daylighting a stream can be expensive - *Costs for daylighting streams are often comparable to costs for replacing culverts.*
- Maintenance of daylighted stream areas can be intensive during the first years the stream is established – *Once the banks are well established, regular maintenance is similar to that required in any public green spac,e such as trash removal, mowing and general housekeeping.*
- Finding the original stream channel may be difficult – *examine historic records, soils, and up and downstream channel characteristics.*
- Political backing and public support is more difficult for daylighting streams than for surface restoration because the culvert is not seen – *Provide proper public education and outreach about the benefits and how safety issues will be addressed.*

USING THIS PRACTICE

- Daylighting should be considered when a culvert replacement is scheduled.
- Restore historic drainage patterns by removing closed drainage systems and constructing stabilized, vegetated streams.
- Carefully examine flooding potential, utility impacts and/or prior contaminated sites.
- Consider runoff pretreatment and erosion potential of restored streams/rivers.

Discussion

Stream daylighting involves uncovering a stream or a section of a stream that had been artificially enclosed in the past to accommodate development. The original enclosure of rivers and streams often took place in urbanized areas through the use of large culvert operations that often integrated the stormsewer system and combined sanitary sewers. The daylighting operation, therefore, often requires overhauls or updating of storm-drain systems and re-

establishing stream banks where culverts once existed. When the operation is complete, what was once a linear pipe of heavily polluted water can become a meandering stream with dramatic improvements to both aesthetics and water quality. In some cases, instead of creating a natural channel for the daylighted stream, the culvert is simply replaced with a concrete channel.

Where combined sewer overflow (CSO) separation and other upgrades to storm-sewer systems are part of a daylighting project, significant water-quality improvements can be expected during wet-weather events. Also, as ultraviolet radiation is one of the most effective ways to eliminate pathogens in water, exposing these streams to sunlight could significantly decrease pathogen counts in the surface water.

Stream daylighting can play an integral role in neighborhood restoration and site redevelopment efforts. Aside from improvements to infrastructure, stream daylighting can restore floodplain and aquatic habitat areas, reduce runoff velocities and be integrated into pedestrian walkway or bike-path design.

Stream daylighting can generally be applied most successfully to sites with considerable open or otherwise vacant space. This space is required to: 1) Potentially reposition the stream in its natural stream bed; 2) Accommodate the meandering that will be required if a natural channel is being designed and 3) Provide adjacent floodplain area to store water in large storm-flow situations. However, where a concrete channel will replace a culverted stream, these projects require significantly less space than those designed for a natural streambed.

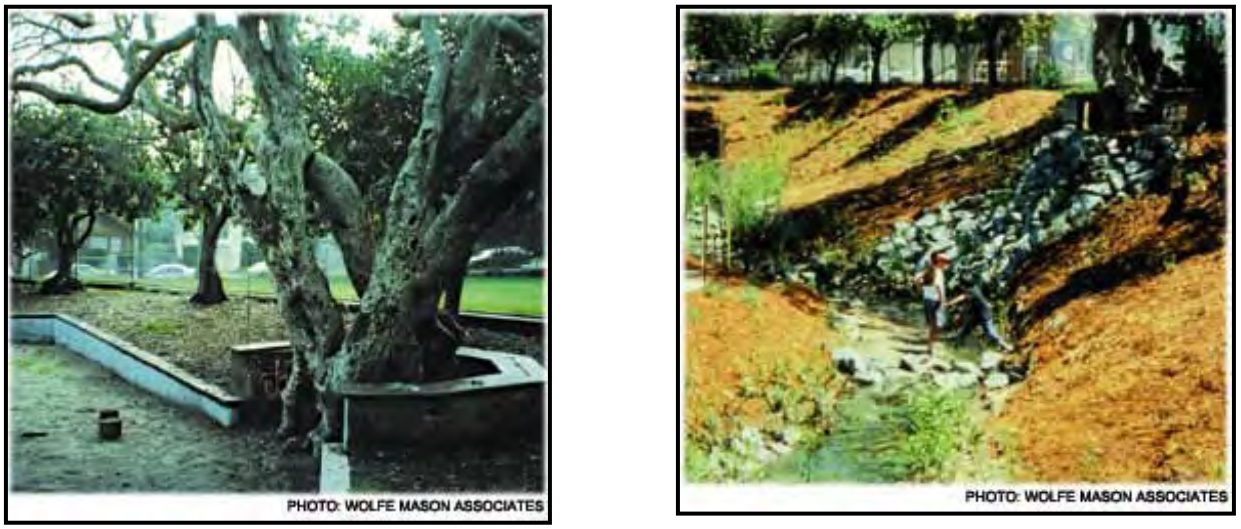

Figure 45: Before and After Daylighting
Blackberry Creek in Berkeley, CA
(Source: Stormwater Magazine, Nov/Dec 2001)



Figure 46: Daylighting Arcadia Creek in an Urban Area in Kalamazoo, MI
(Source: Stormwater Magazine, Nov/Dec 2001)

Additional Guidance

Rhode Island Department of Environmental Management. January 2005. *The Urban Environmental Design Manual*. Rhode Island Department of Environmental Management, Providence, Rhode Island. Available from http://www.dem.state.ri.us/programs/bpoladm/suswshed/pubs.htm

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Pinkham, Richard. Nov/Dec 2001. *Daylighting: New Life for Buried Streams.* Article from Stormwater Magazine Vol. 2, No. 6. Forester Communications. Caledonia, MI. Available from www.stormh2o.com

Better Site Design Practice #18:
Tree Planting

Description: Plant or conserve trees at new or redevelopment sites to reduce stormwater runoff, increase nutrient uptake, provide bank stabilization, provide shading and provide wildlife habitat. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas and erosion and sediment control.

Key Benefits

- Reduces construction and maintenance costs.
- Increases property values.
- Reduces urban heat island, decreases heating and cooling costs, blocks UV radiation.
- Buffers wind and noise.
- Planting trees in stormwater management practices can increase nutrient uptake, reduce runoff through rainfall interception and evapotranspiration (ET), aid infiltration, provide wildlife habitat, provide shading, discourage geese and reduce mowing costs.
- Tree planting can be applied to stormwater credit #6, "Riparian Reforestation."

Typical Perceived Obstacles and Realities

- Local codes may restrict trees in certain areas *– Consult with local officials to discuss waivers for alternative designs.*
- Trees may not survive through construction or in certain urban environments *– Trees will survive with proper tree selection, landscape design and protection during construction.*
- Planting or preserving trees may be expensive *– Conserving or planting trees increases property values.*
- Native vegetation may harbor undesirable wildlife and insects - *Most people enjoy viewing wildlife; native vegetation does not provide a food source for most vermin; continued education is necessary to show that humans and wildlife can co-exist, even at the neighborhood level.*

USING THIS PRACTICE

- Conserve existing trees during construction by performing an inventory of the existing forest and identifying trees to protect.
- Design the development with tree conservation in mind, protect trees during construction and protect trees after construction.
- Plant trees at development sites by first selecting the planting sites and then evaluate and improve the planting sites. Trees should be planted in stormwater-management practices and other open spaces.
- Tree types and locations should be chosen to withstand the constraints of an urban setting.

Discussion

Few communities require that trees and native vegetation be conserved during the development process. However, native trees, shrubs, and grasses are important contributors to the overall quality and viability of the environment. Some tools that can be used for tree conservation include open space development practices, planting of vegetation in street, clearing and grading restrictions that include preservation of trees and native vegetation and the addition of vegetation to parking-lot islands.

Developers, engineers or landscape architects can incorporate more trees into a development site, using a three-prong approach: Conserving existing trees during construction; planting trees in stormwater management practices; and Planting trees in other open spaces.

Trees can be conserved and planted at both new development and redevelopment or infill projects. On currently forested development sites, it is most important to conserve existing trees, particularly high-quality stands or large, mature trees (Figure 47). To conserve existing trees, developers should inventory existing forest at the site to identify the best trees and forest to protect, design the development around these trees and take measures to ensure the protection of trees both during and after construction.



Figure 47: Mature Trees Conserved During Development
(Photo Sources: Randall Arendt and Ed Gilman)

Where tree conservation is not an option, urban development sites provide many opportunities to plant new trees, such as in stormwater management practices (SMPs) and other pervious areas of the site. Some SMPs are not traditionally considered appropriate for tree planting; however, planting trees and shrubs in certain areas of specific SMPs can enhance the aesthetic appeal and even improve their performance.

The remaining pervious areas of the site that make good candidates for tree planting and are often overlooked and include local road rights-of-way, landscaped islands in cul-de-sacs or traffic circles and parking lots. Private lawns may also constitute a significant portion of green space at the site, and the developer should certainly strive to conserve or plant trees in these areas

as well. These urban planting sites may have harsh soil and environmental conditions that should be addressed through appropriate species selection or proper site preparation prior to planting.

Conserving or planting trees at development sites can be done to meet forest conservation, landscaping or other site-design requirements to enhance the appeal of the development and, therefore, increase land and housing values, to reduce costs of construction and stormwater management and to provide many additional benefits summarized above.

Additional Guidance

Cappiella, K., T. Schueler, T. Wright. 2004. *Urban Watershed Forestry Manual.* Available from www.cwp.org

American Forests website: www.americanforests.org

City of Toronto Tree Advocacy Planting Program website:
http://www.city.toronto.on.ca/parks/treeadvocacy.htm

2.3 BETTER SITE DESIGN CASE STUDIES

The following case studies illustrate how better site-design practices can be successfully incorporated into site planning. A comparison to a conventional design approach illustrates the opportunities presented by better site-design practices to meet stormwater management criteria in addition to identifying the obstacles for implementing such practices.

2.3.1 Medium Density Residential Subdivision Case Study

A conventional residential subdivision design on a parcel is shown in Figure 48. The entire parcel, except for the subdivision amenity area (clubhouse and tennis courts), is used for lots. The entire site is cleared and mass graded, and no attempt is made to fit the road layout to the existing topography. Because of the clearing and grading, all of the existing tree cover and vegetation and topsoil are removed, dramatically altering both the natural hydrology and drainage of the site. The wide residential streets create unnecessary impervious cover and a curb-and-gutter system that carries stormwater flows to the storm sewersystem. No provision for non-structural stormwater treatment is provided on the subdivision site.

A residential subdivision employing stormwater better site design practices is presented in Figure 49. This subdivision configuration preserves a quarter of the property as undisturbed open space and vegetation. The road layout is designed to fit the topography of the parcel, following the high points and ridgelines. The natural drainage patterns of the site are preserved and are used to provide natural stormwater treatment and conveyance. Narrower streets reduce impervious cover, and open vegetated channels provide for treatment and conveyance of roadway and driveway runoff. Bioretention islands at the ends of cul-de-sacs also reduce impervious cover and provide stormwater treatment functions. When constructing and building homes, only the building envelopes of the individual lots are cleared and graded, further preserving the natural hydrology of the site.

2.3.2 Commercial Development Case Study

Figure 50 shows a conventional commercial development containing a supermarket, drugstore, smaller shops and a restaurant on an adjacent lot. The majority of the parcel is a concentrated parking-lot area. The only pervious area is a small, replanted vegetation area acting as a buffer between the shopping center and adjacent land uses. Stormwater quality and quantity control are provided by a wet, extended-detention pond in the corner of the parcel.

A better site-design commercial development can be seen in Figure 51. Here the retail buildings are dispersed on the property, providing more of an “urban village” feel, with pedestrian access between the buildings. The parking is broken up, and bioretention areas for stormwater treatment are built into parking-lot islands. A large bioretention area which serves as open green space is located at the main entrance to the shopping center. A larger undisturbed buffer has been preserved on the site. Because the bioretention areas and buffer provide water-quality treatment, only a dry, extended-detention basin is needed for water-quantity control.

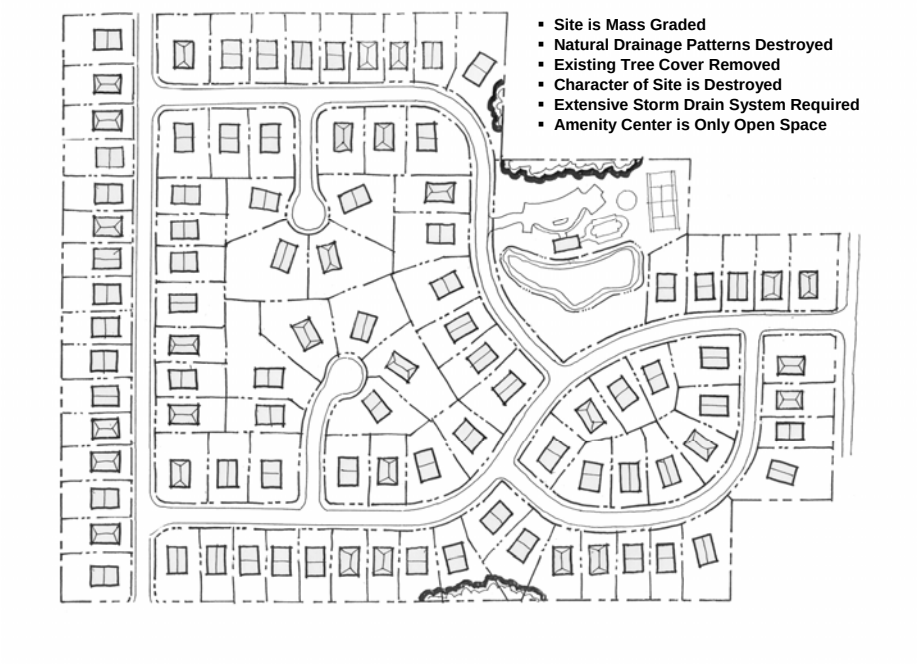

Figure 48: Residential Subdivision - Conventional Design
(Source: Georgia Stormwater Manual, 2001)

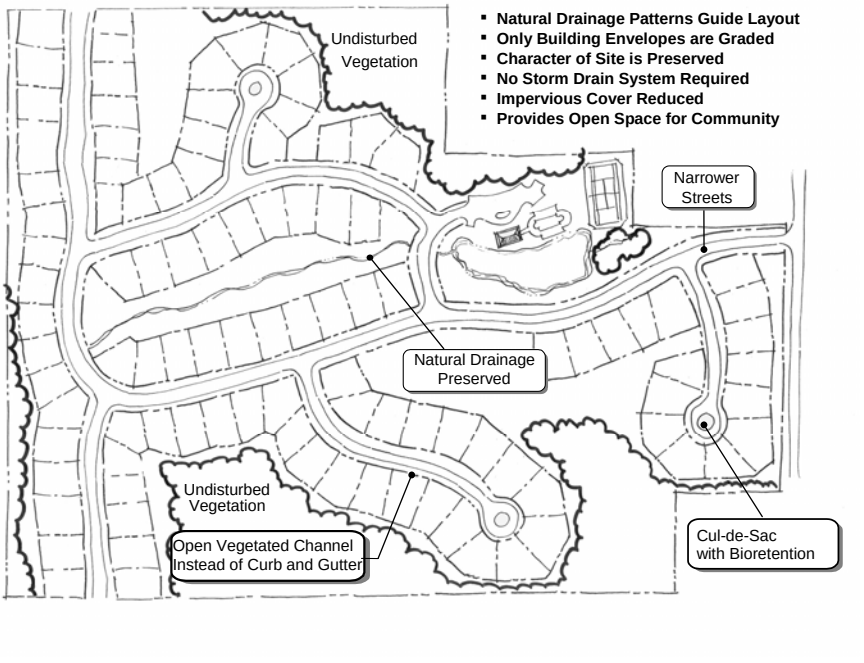

Figure 49: Residential Subdivision - Better Site Design
(Source: Georgia Stormwater Manual, 2001)

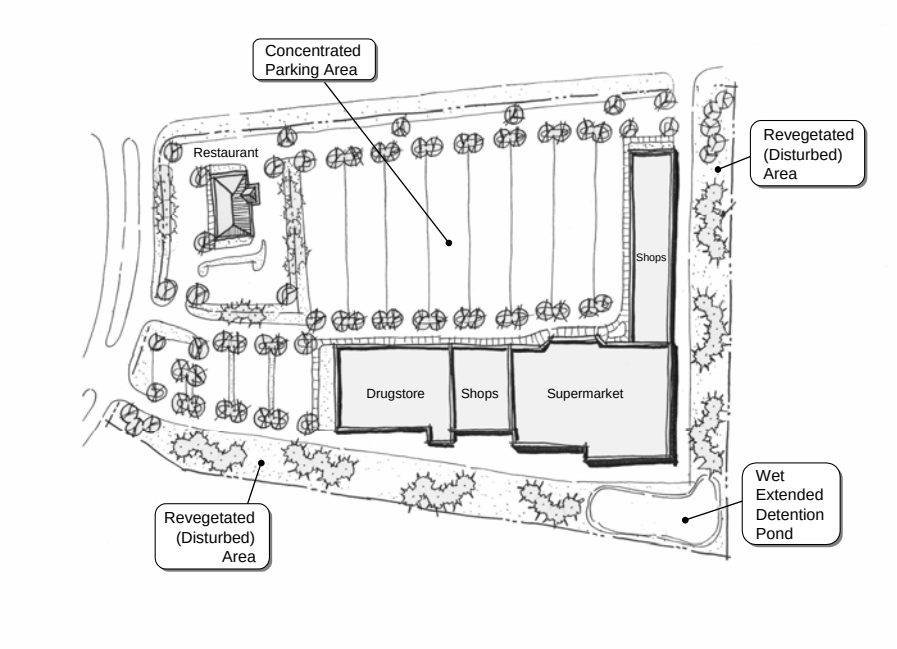

Figure 50: Commercial Development - Conventional Design
(Source: Georgia Stormwater Manual, 2001)

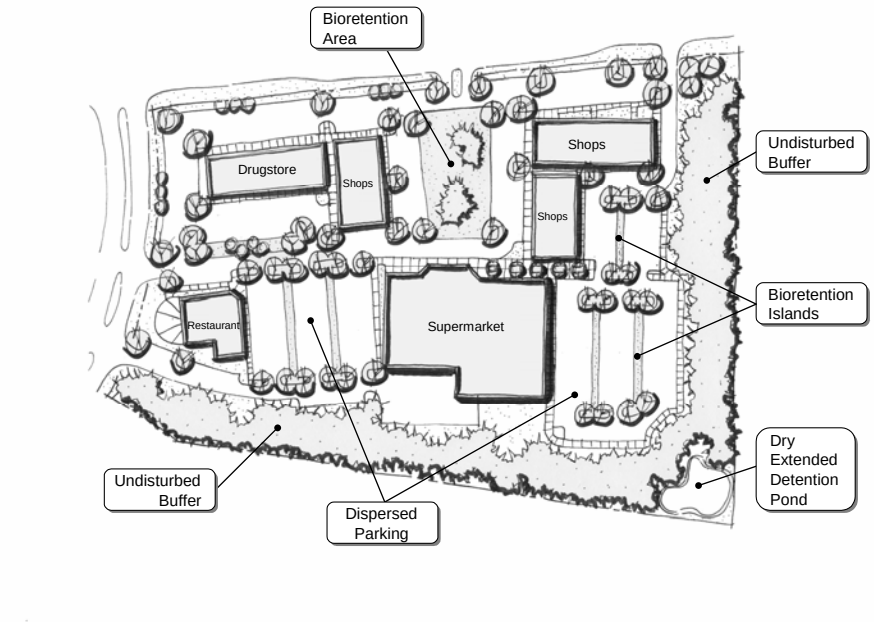

Figure 51: Commercial Development - Better Site Design
(Source: Georgia Stormwater Manual, 2001)

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New York State
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Water

Deep-Ripping and Decompaction

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New York State
Department of Environmental Conservation

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Alternative Stormwater Management
Deep-Ripping and Decompaction

Description

The two-phase practice of 1) “Deep Ripping;” and 2) “Decompaction” (deep subsoiling), of the soil material as a step in the cleanup and restoration/landscaping of a construction site, helps mitigate the physically induced impacts of soil compression; i.e.: soil compaction or the substantial increase in the bulk density of the soil material.

Deep Ripping and Decompaction are key factors which help in restoring soil pore space and permeability for water infiltration. Conversely, the physical actions of cut-and-fill work, land grading, the ongoing movement of construction equipment and the transport of building materials throughout a site alter the architecture and structure of the soil, resulting in: the mixing of layers (horizons) of soil materials, compression of those materials and diminished soil porosity which, if left unchecked, severely impairs the soil’s water holding capacity and vertical drainage (rainfall infiltration), from the surface downward.

In a humid climate region, compaction damage on a site is virtually guaranteed over the duration of a project. Soil in very moist to wet condition when compacted, will have severely reduced permeability. Figure 1 displays the early stage of the deep-ripping phase (Note that all topsoil was stripped prior to construction access, and it remains stockpiled until the next phase – decompaction – is complete). A heavy-duty tractor is pulling a three-shank ripper on the first of several series of incrementally deepening passes through the construction access corridor's densely compressed subsoil material. Figure 2 illustrates the approximate volumetric composition of a loam surface soil when conditions are good for plant growth, with adequate natural pore space for fluctuating moisture conditions.



Fig. 1. A typical deep ripping phase of this practice, during the first in a series of progressively deeper “rips” through severely compressed subsoil.

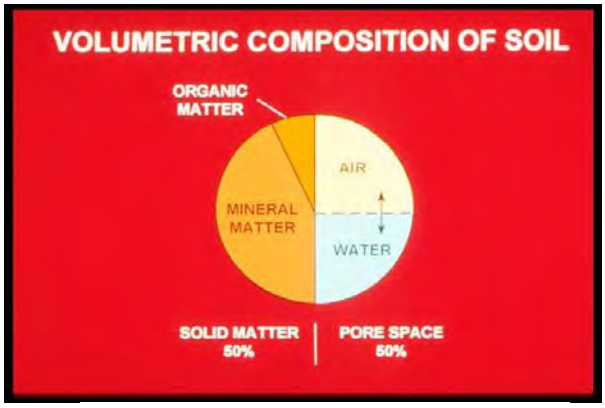

Fig. 2. About 50% of the volume of undisturbed loam surface soil is pore space, when soil is in good condition for plant growth. Brady, 2002.

Recommended Application of Practice

The objective of Deep Ripping and Decompaction is to effectively fracture (vertically and laterallly) through the thickness of the physically compressed subsoil material (see Figure 3), restoring soil porosity and permeability and aiding infiltration to help reduce runoff. Together with topsoil stripping, the "two-phase" practice of Deep Ripping and Decompaction first became established as a "best management practice" through ongoing success on commercial farmlands affected by heavy utility construction right-of-way projects (transmission pipelines and large power lines).



Fig. 3. Construction site with significant compaction of the deep basal till subsoil extends 24 inches below this exposed cut-and-fill work surface.

Soil permeability, soil drainage and cropland productivity were restored. For broader construction application, the two-phase practice of Deep Ripping and Decompaction is best adapted to areas impacted with significant soil compaction, on contiguous open portions of large construction sites and inside long, open construction corridors used as temporary access over the duration of construction. Each mitigation area should have minimal above-and-below-ground obstructions for the easy avoidance and maneuvering of a large tractor and ripping/decompacting implements. Conversely, the complete two-phase practice is not recommended in congested or obstructed areas due to the limitations on tractor and implement movement.

Benefits

Aggressive "deep ripping" through the compressed thickness of exposed subsoil before the replacement/respreading of the topsoil layer, followed by "decompaction," i.e.: "sub-soiling," through the restored topsoil layer down into the subsoil, offers the following benefits:

- Increases the project (larger size) area's direct surface infiltration of rainfall by providing the open site's mitigated soil condition and lowers the demand on concentrated runoff control structures

- Enhances direct groundwater recharge through greater dispersion across and through a broader surface than afforded by some runoff-control structural measures

- Decreases runoff volume generated and provides hydrologic source control

- May be planned for application in feasible open locations either alone or in

conjunction with plans for structural practices (e.g., subsurface drain line or infiltration basin) serving the same or contiguous areas

- Promotes successful long-term revegetation by restoring soil permeability, drainage and water holding capacity for healthy (rather than restricted) root-system development of trees, shrubs and deep rooted ground cover, minimizing plant drowning during wet periods and burnout during dry periods.

Feasibility / Limitations

The effectiveness of Deep Ripping and Decompaction is governed mostly by site factors such as: the original (undisturbed) soil's hydrologic characteristics; the general slope; local weather/timing (soil moisture) for implementation; the space-related freedom of equipment/implement maneuverability (noted above in **Recommended Application of Practice**), and by the proper selection and operation of tractor and implements (explained below in **Design Guidance**). The more notable site-related factors include:

Soil

In the undisturbed condition, each identified soil type comprising a site is grouped into one of four categories of soil hydrology, Hydrologic Soil Group A, B, C or D, determined primarily by a range of characteristics including soil texture, drainage capability when thoroughly wet, and depth to water table. The natural rates of infiltration and transmission of soil-water through the undisturbed soil layers for Group A is "high" with a low runoff potential while soils in Group B are moderate in infiltration and the transmission of soil-water with a moderate runoff potential, depending somewhat on slope. Soils in Group C have slow rates of infiltration and transmission of soil-water and a moderately high runoff potential influenced by soil texture and slope; while soils in Group D have exceptionally slow rates of infiltration and transmission of soil-water, and high runoff potential.

In Figure 4, the profile displays the undisturbed horizons of a soil in Hydrologic Soil Group C and the naturally slow rate of infiltration through the subsoil. The slow rate of infiltration begins immediately below the topsoil horizon (30 cm), due to the limited amount of macro pores, e.g.: natural subsoil fractures, worm holes and root channels. Infiltration after the construction-induced mixing and compression of such subsoil material is virtually absent; but can be restored back to this natural level with the two-phase practice of deep ripping and decompaction, followed by the permanent establishment of an appropriate, deep taproot

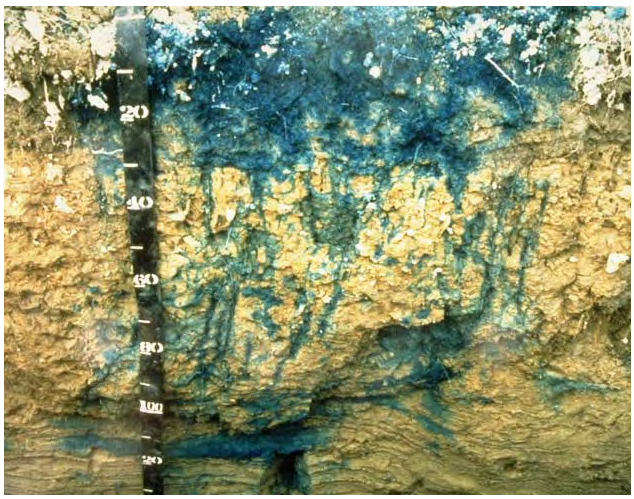

Fig. 4. Profile (in centimeters) displaying the infiltration test result of the natural undisturbed horizons of a soil in Hydrologic Soil Group C.

lawn/ground cover to help maintain the restored subsoil structure. Infiltration after construction-induced mixing and compression of such subsoil material can be notably rehabilitated with the Deep Ripping and Decompaction practice, which prepares the site for the appropriate long-term lawn/ground cover mix including deep taproot plants such as clover, fescue or trefoil, etc. needed for all rehabilitated soils.

Generally, soils in Hydrologic Soil Groups A and B, which respectively may include deep, well-drained, sandy-gravelly materials or deep, moderately well-drained basal till materials, are among the easier ones to restore permeability and infiltration, by deep ripping and decompaction. Among the many different soils in Hydrologic Soil Group C are those unique glacial tills having a natural fragipan zone, beginning about 12 to 18 inches (30 – 45cm), below surface. Although soils in Hydrologic Soil Group C do require a somewhat more carefully applied level of the Deep Ripping and Decompaction practice, it can greatly benefit such affected areas by reducing the runoff and fostering infiltration to a level equal to that of pre-disturbance.

Soils in Hydrologic Soil Group D typically have a permanent high water table close to the surface, influenced by a clay or other highly impervious layer of material. In many locations with clay subsoil material, the bulk density is so naturally high that heavy trafficking has little or no added impact on infiltration; and structural runoff control practices rather than Deep Ripping and Decompaction should be considered.

The information about Hydrologic Soil Groups is merely a general guideline. Site-specific data such as limited depths of cut-and-fill grading with minimal removal or translocation of the inherent subsoil materials (as analyzed in the county soil survey) or, conversely, the excavation and translocation of deeper, unconsolidated substratum or consolidated bedrock materials (unlike the analyzed subsoil horizons' materials referred to in the county soil survey) should always be taken into account.

Sites made up with significant quantities of large rocks, or having a very shallow depth to bedrock, are not conducive to deep ripping and decompation (subsoiling); and other measures may be more practical.

Slope

The two-phase application of 1) deep ripping and 2) decompaction (deep subsoiling), is most practical on flat, gentle and moderate slopes. In some situations, such as but not limited to temporary construction access corridors, inclusion areas that are moderately steep along a project's otherwise gentle or moderate slope may also be deep ripped and decompacted. For limited instances of moderate steepness on other projects, however, the post-construction land use and the relative alignment of the potential ripping and decompaction work in relation to the lay of the slope should be reviewed for safety and practicality. In broad construction areas predominated by moderately steep or steep slopes, the practice is generally not used.

Local Weather/Timing/Soil Moisture

Effective fracturing of compressed subsoil material from the exposed work surface, laterally and vertically down through the affected zone is achieved only when the soil material is moderately dry to moderately moist. Neither one of the two-phases, deep ripping nor decompaction (deep

subsoiling), can be effectively conducted when the soil material (subsoil or replaced topsoil) is in either a “plastic” or “liquid” state of soil consistency. Pulling the respective implements legs through the soil when it is overly moist only results in the “slicing and smearing” of the material or added “squeezing and compression” instead of the necessary fracturing. Ample drying time is needed for a “rippable” soil condition not merely in the material close to the surface, but throughout the material located down to the bottom of the physically compressed zone of the subsoil.

The “poor man’s Atterberg field test” for soil plasticity is a simple “hand-roll” method used for quick, on-site determination of whether or not the moisture level of the affected soil material is low enough for: effective deep ripping of subsoil; respreading of topsoil in a friable state; and final decompaction (deep subsoiling). Using a sample of soil material obtained from the planned bottom depth of ripping, e.g.: 20 - 24 inches below exposed subsoil surface, the sample is hand rolled between the palms down to a 1/8-inch diameter thread. (Use the same test for stored topsoil material before respreading on the site.) If the respective soil sample crumbles apart in segments no greater than 3/8 of an inch long, by the time it is rolled down to 1/8 inch diameter, it is low enough in moisture for deep ripping (or topsoil replacement), and decompaction. Conversely, as shown in Figure 5, if the rolled sample stretches out in increments greater than 3/8 of an inch long before crumbling, it is in a “plastic” state of soil consistency and is too wet for subsoil ripping (as well as topsoil replacement) and final decompaction.



Fig. 5. Augered from a depth of 19 inches below the surface of the replaced topsoil, this subsoil sample was hand rolled to a 1/8-inch diameter. The test shows the soil at this site stretches out too far without crumbling; it indicates the material is in a plastic state of consistence, too wet for final decompaction (deep subsoiling) at this time.

Design Guidance

Beyond the above-noted site factors, a vital requirement for the effective Deep Ripping and Decompaction (deep subsoiling), is implementing the practice in its distinct, two-phase process:

1) Deep rip the affected thickness of exposed subsoil material (see Figure 10 and 11), aggressively fracturing it before the protected topsoil is reapplied on the site (see Figure 12); and

2) Decompact (deep subsoil), simultaneously through the restored topsoil layer and the upper half of the affected subsoil (Figure 13). The second phase, “decompaction,” mitigates the partial recompaction which occurs during the heavy process of topsoil spreading/grading. Prior to deep ripping and decompacting the site, all construction activity, including construction equipment and material storage, site cleanup and trafficking (Figure 14), should be finished; and the site closed off to further disturbance. Likewise, once the practice is underway and the area’s soil permeability and

rainfall infiltration are being restored, a policy limiting all further traffic to permanent travel lanes is maintained.

The other critical elements, outlined below, are: using the proper implements (deep, heavy-duty rippers and subsoilers), and ample pulling-power equipment (tractors); and conducting the practice at the appropriate speed, depth and pattern(s) of movement.

Note that an appropriate plan for the separate practice of establishing a healthy perennial ground cover, with deep rooting to help maintain the restored soil structure, should be developed in advance. This may require the assistance of an agronomist or landscape horticulturist.

Implements

Avoid the use of all undersize implements. The small-to-medium, light-duty tool will, at best, only "scarify" the uppermost surface portion of the mass of compacted subsoil material. The term "chisel plow" is commonly but incorrectly applied to a broad range of implements. While a few may be adapted for the moderate subsoiling of non-impacted soils, the majority are less durable and used for only lighter land-fitting (see Figure 6).



Fig. 6. A light duty chisel implement, not adequate for either the deep ripping or decompaction (deep subsoiling) phase.



Fig. 7. One of several variations of an agricultural ripper. This unit has long, rugged shanks mounted on a steel V-frame for deep, aggressive fracturing through Phase 1.

Use a "heavy duty" agricultural-grade, deep ripper (see Figures 7,9,10 and 11) for the first phase: the lateral and vertical fracturing of the mass of exposed and compressed subsoil, down and through, to the bottom of impact, prior to the replacement of the topsoil layer. (Any oversize rocks which are uplifted to the subsoil surface during the deep ripping phase are picked and removed.) Like the heavy-duty class of implement for the first phase, the decompaction (deep subsoiling) of Phase 2 is conducted with the heavy-duty version of the deep subsoiler. More preferable is the angled-leg variety of deep subsoiler (shown in Figures 8 and 13). It minimizes the inversion of the subsoil and topsoil layers while laterally and vertically fracturing the upper half of the previously ripped subsoil layer and all of the topsoil layer by delivering a momentary, wave-like "lifting and shattering" action up through the soil layers as it is pulled.

Pulling-Power of Equipment

Use the following rule of thumb for tractor horsepower (hp) whenever deep ripping and decompacting a significantly impacted site: For both types of implement, have at least 40 hp of tractor pull available for each mounted shank/ leg.

Using the examples of a 3-shank and a 5-shank implement, the respective tractors should have 120 and 200 hp available for fracturing down to the final depth of 20-to-24 inches per phase. Final depth for the deep ripping in Phase 1 is achieved incrementally by a progressive series of passes (see Depth and Patterns of Movement, below); while for Phase 2, the full operating depth of the deep subsoiler is applied from the beginning.

The operating speed for pulling both types of implement should not exceed 2 to 3 mph. At this slow and managed rate of operating speed, maximum functional performance is sustained by the tractor and the implement performing the soil fracturing. Referring to Figure 8, the implement is the 6-leg version of the deep angled-leg subsoiler. Its two outside legs are "chained up" so that only four legs will be engaged (at the maximum depth), requiring no less than 160 hp, (rather than 240 hp) of pull. The 4-wheel drive, articulated-frame tractor in Figure 8 is 174 hp. It will be decompacting this unobstructed, former construction access area simultaneously through 11 inches of replaced topsoil and the upper 12 inches of the previously deep-ripped subsoil. In constricted areas of Phase 1) Deep Ripping, a medium-size tractor with adequate hp, such as the one in Figure 9 pulling a 3-shank deep ripper, may be more maneuverable.



Fig. 8. A deep, angled-leg subsoiler, ideal for Phase 2 decompaction of after the topsoil layer is graded on top of the ripped subsoil.



Fig. 9. This medium tractor is pulling a 3-shank deep ripper. The severely compacted construction access corridor is narrow, and the 120 hp tractor is more maneuverable for Phase 1 deep ripping (subsoil fracturing), here.

Some industrial-grade variations of ripping implements are attached to power graders and bulldozers. Although highly durable, they are generally not recommended. Typically, the shanks or "teeth" of these rippers are too short and stout; and they are mounted too far apart to achieve the well-distributed type of lateral and vertical fracturing of the soil materials necessary to restore soil permeability and infiltration. In addition, the power graders and bulldozers, as pullers, are far less maneuverable for turns and patterns than the tractor.

Depth and Patterns of Movement

As previously noted both Phase 1 Deep Ripping through significantly compressed, exposed subsoil and Phase 2 Decompaction (deep subsoiling) through the replaced topsoil and upper subsoil need to be performed at maximum capable depth of each implement. With an implement's guide wheels attached, some have a "normal" maximum operating depth of 18 inches, while others may go deeper. In many situations, however, the tractor/implement operator must first remove the guide wheels and other non essential elements from the implement. This adapts the ripper or the deep subsoiler for skillful pulling with its frame only a few inches above surface, while the shanks or legs, fracture the soil material 20-to-24 inches deep.

There may be construction sites where the depth of the exposed subsoil's compression is moderate, e.g.: 12 inches, rather than deep. This can be verified by using a ¾ inch cone penetrometer and a shovel to test the subsoil for its level of compaction, incrementally, every three inches of increasing depth. Once the full thickness of the subsoil's compacted zone is finally "pieced" and there is a significant drop in the psi measurements of the soil penetrometer, the depth/thickness of compaction is determined. This is repeated at several representative locations of the construction site. If the thickness of the site's subsoil compaction is verified as, for example, ten inches, then the Phase 1 Deep Ripping can be correspondingly reduced to the implement's minimum operable depth of 12 inches. However, the Phase 2 simultaneous Decompation (subsoiling) of an 11 inch thick layer of replaced topsoil and the upper subsoil should run at the subsoiling implements full operating depth.



Fig. 10. An early pass with a 3-shank deep ripper penetrating only 8 inches into this worksite's severely compressed subsoil.



Fig. 11. A repeat run of the 3-shank ripper along the same patterned pass area as Fig. 9; here, incrementally reaching 18 of the needed 22 inches of subsoil fracture.

Typically, three separate series (patterns) are used for both the Phase 1 Deep Ripping and the Phase 2 Decompaction on significantly compacted sites. For Phase 1, each series begins with a moderate depth of rip and, by repeat-pass, continues until full depth is reached. Phase 2 applies the full depth of Decompation (subsoiling), from the beginning.

Every separate series (pattern) consists of parallel, forward-and-return runs, with each progressive

pass of the implement's legs or shanks evenly staggered between those from the previous pass. This compensates for the shank or leg-spacing on the implement, e.g., with 24-to-30 inches between each shank or leg. The staggered return pass ensures lateral and vertical fracturing actuated every 12 to 15 inches across the densely compressed soil mass.

Large, Unobstructed Areas

For larger easy areas, use the standard patterns of movement:

- The first series (pattern) of passes is applied lengthwise, parallel with the longest spread of the site; gradually progressing across the site's width, with each successive pass.

- The second series runs obliquely, crossing the first series at an angle of about 45 degrees.

- The third series runs at right angle (or 90 degrees), to the first series to complete the fracturing and shattering on severely compacted sites, and avoid leaving large unbroken blocks of compressed soil material. (In certain instances, the third series may be optional, depending on how thoroughly the first two series loosen the material and eliminate large chunks/blocks of material as verified by tests with a ¾-inch cone penetrometer.)



Fig. 12. Moderately dry topsoil is being replaced on the affected site now that Phase 1 deep ripping of the compressed subsoil is complete.



Fig. 13. The same deep, angled-leg subsoiler shown in Fig. 7 is engaged at maximum depth for Phase 2, decompaction (deep soiling), of the replaced topsoil and the upper subsoil materials.

Corridors

In long corridors of limited width and less maneuverability than larger sites, e.g.: along compacted areas used as temporary construction access, a modified series of pattern passes are used.

- First, apply the same initial lengthwise, parallel series of passes described above.

● A second series of passes makes a broad “S” shaped pattern of rips, continually and gradually alternating the “S” curves between opposite edges inside the compacted corridor.

● The third and final series again uses the broad, alternating S pattern, but it is “flip-flopped” to continually cross the previous S pattern along the corridor’s centerline. This final series of the S pattern curves back along the edge areas skipped by the second series.

Maintenance and Cost

Once the two-phase practice of Deep Ripping and Decompation is completed, two items are essential for maintaining a site’s soil porosity and permeability for infiltration. They are: planting and maintaining the appropriate ground cover with deep roots to maintain the soil structure (see Figure 15); and keeping the site free of traffic or other weight loads.

Note that site-specific choice of an appropriate vegetative ground-cover seed mix, including the proper seeding ratio of one or more perennial species with a deep taproot system and the proper amount of lime and soil nutrients (fertilizer mix) adapted to the soil-needs, are basic to the final practice of landscaping, i.e: surface tillage, seeding/planting/fertilizing and culti-packing or mulching is applied. The "maintenance" of an effectively deep-ripped and decompacted area is generally limited to the successful perennial (long-term) landscape ground cover; as long as no weight-bearing force of soil compaction is applied.



Fig. 14. The severely compacted soil of a temporary construction yard used daily by heavy equipment for four months; shown before deep ripping, topsoil replacement, and decompaction.



Fig. 15. The same site as Fig. 14 after deep ripping of the exposed subsoil, topsoil replacement, decompaction through the topsoil and upper subsoil and final surface tillage and revegetation to maintain soil permeability and infiltration.

The Deep Ripping and Decompaction practice is, by necessity, more extensive than periodic subsoiling of farmland.The cost of deep ripping and decompacting (deep subsoiling), will vary according to the depth and severity of soil-material compression and the relative amount of tractor and implement time that is required. In some instances, depending on open maneuverability, two-to-three acres of compacted project area may be deep-ripped in one day. In other situations of more severe compaction and - or less maneuverability, as little as one acre may be fully ripped in a day. Generally, if the Phase 1) Deep Ripping is fully effective, the Phase 2) Decompaction should be completed in 2/3 to 3/4 of the time required for Phase 1.

Using the example of two acres of Phase 1) Deep Ripping in one day, at $1800 per day, the net cost is $900 per acre. If the Phase 2) Decompacting or deep subsoiling takes 3/4 the time as Phase 1, it costs $675 per acre for a combined total of $1575 per acre to complete the practice (these figures do not include the cost of the separate practice of topsoil stripping and replacement). Due to the many variables, it must be recognized that cost will be determined by the specific conditions or constraints of the site and the availability of proper equipment.

Resources

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- US Department of Agriculture in cooperation with Cornell University Agricultural Experiment Station. Various years. *Soil Survey of (various names) County, New York.* USDA.

Internet Access:

- Examples of implements:

V-Rippers. Access by internet search of *John Deere Ag -New Equipment for 915* (larger-frame model) *V-Rippe*; and, *for 913* (smaller-frame model) *V-Ripper*. Deep, angled-leg subsoiler. Access by internet search of: B*igham Brothers Shear Bolt Paratill-Subsoiler.* http://salesmanual.deere.com/sales/salesmanual/en_NA/primary_tillage/2008/feature/rippers/915v_pattern_frame.html?sbu=ag&link=prodcat Last visited March 08.

- Soils data of USDA Natural Resources Conservation Service. *NRCS Web Soil Survey.* http://websoilsurvey.nrcs.usda.gov/app/ and *USDA-NRCS Official Soil Series Descriptions; View by Name.* http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi . *Last visited Jan. 08.*
- Soil penetrometer information. Access by internet searches of: *Diagnosing Soil Compaction using a Penetrometer (soil compaction tester), PSU Extension;* as well as *Dickey-john Soil Compaction Tester*. http://www.dickey-johnproducts.com/pdf/SoilCompactionTest.pdf and http://cropsoil.psu.edu/Extension/Facts/uc178pdf Last visited Sept. 07

APPENDIX K

STANDARD AND SPECIFICATIONS
FOR
CHECK DAM



Definition

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable material across a drainage way.

Purpose

To reduce erosion in a drainage channel by restricting the velocity of flow in the channel.

Condition Where Practice Applies

This practice is used as a temporary or emergency measure to limit erosion by reducing velocities in small open channels that are degrading or subject to erosion and where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

Design Criteria

Drainage Area: Maximum drainage area above the check dam shall not exceed two (2) acres.

Height: Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

Side Slopes: Shall be 2:1 or flatter.

Spacing: The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore:

$$S = h/s$$

Where:

S = spacing interval (ft.)
h = height of check dam (ft.)
s = channel slope (ft./ft.)

Example:

For a channel with a 4% slope and 2 ft. high stone check dams, they are spaced as follows:

$$S = \frac{2 \text{ ft.}}{.04 \text{ ft/ft.}} = 50 \text{ ft.}$$

Stone size: Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 5A.9 on page 5A.24 for details.

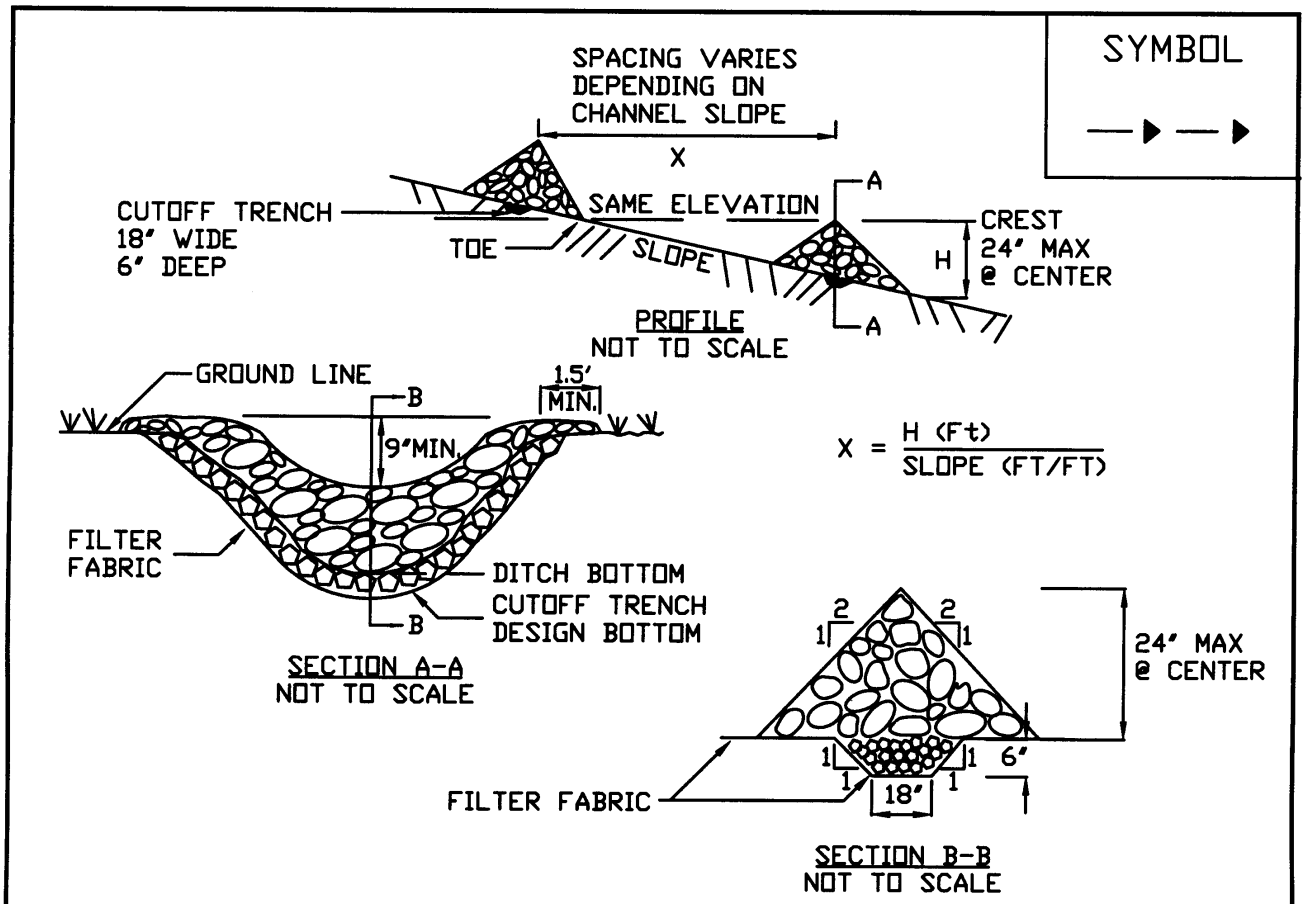
Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

Maintenance

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. Replace stones as needed to maintain the design cross section of the structures.

Figure 5A.9
Check Dam



CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	CHECK DAM

STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ENTRANCE



Definition

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area.

Purpose

The purpose of stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

Conditions Where Practice Applies

A stabilized construction entrance shall be used at all points of construction ingress and egress.

Design Criteria

See Figure 5A.35 on page 5A.76 for details.

Aggregate Size: Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

Thickness: Not less than six (6) inches.

Width: 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

Length: As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

Geotextile: To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

Criteria for Geotextile

The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties as shown:

Fabric Properties[3]	Light Duty[1] Roads Grade Subgrade	Heavy Duty[2] Haul Roads Rough Graded	Test Method
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Brust Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 modified
Equivalent Opening Size	40-80	40-80	US Std Sieve CW-02215
Aggregate Depth	6	10	--

[1]Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional multi-axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

[2]Heavy Duty Road: Area sites with only rough grading, and where most travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

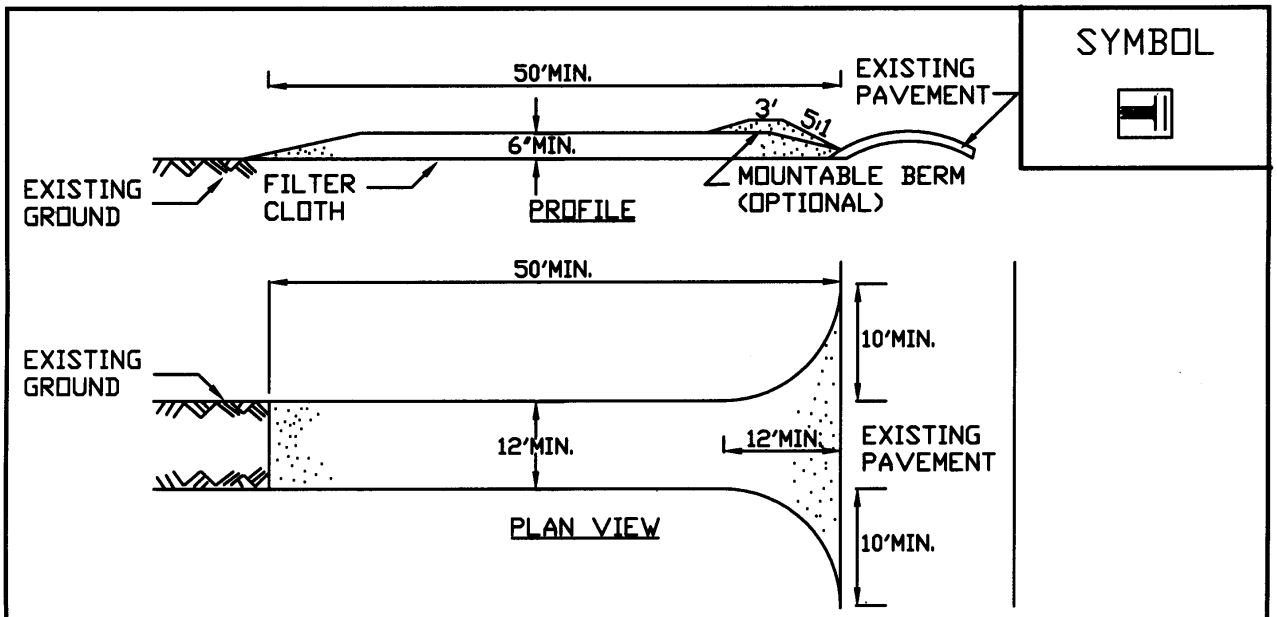
[3]Fabrics not meeting these specifications may be used only when design procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

Maintenance

The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

Figure 5A.35
Stabilized Construction Entrance



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STABILIZED CONSTRUCTION ENTRANCE

STANDARD AND SPECIFICATIONS FOR CONSTRUCTION ROAD STABILIZATION



Definition

The stabilization of temporary construction access routes, on-site vehicle transportation routes, and construction parking areas.

Purpose

To control erosion on temporary construction routes and parking areas.

Condition Where Practice Applies

All traffic routes and parking areas for temporary use by construction traffic.

Design Criteria

Construction roads should be located to reduce erosion potential, minimize impact on existing site resources, and maintain operations in a safe manner. Highly erosive soils, wet or rocky areas, and steep slopes should be avoided. Roads should be routed where seasonal water tables are deeper than 18 inches. Surface runoff and control should be in accordance with other standards.

Road Grade – A maximum grade of 12% is recommended, although grades up to 15% are possible for short distances.

Road Width – 14 foot minimum for one-way traffic or 24 foot minimum for two-way traffic.

Side Slope of Road Embankment – 2:1 or flatter.

Ditch Capacity – On-site roadside ditch and culvert capacities shall be the 10 yr. peak runoff.

Composition – Use a 6-inch layer of NYS DOT sub-base Types 1,2,3, 4 or equivalent as specified in NYS – Standards and Specifications for Highways.

Construction Specifications

1. Clear and strip roadbed and parking areas of all vegetation, roots, and other objectionable material.

2. Locate parking areas on naturally flat areas as available. Keep grades sufficient for drainage, but not more than 2 to 3 percent.

3. Provide surface drainage and divert excess runoff to stabilized areas.

4. Maintain cut and fill slopes to 2:1 or flatter and stabilized with vegetation as soon as grading is accomplished.

5. Spread 6-inch layer of sub-base material evenly over the full width of the road and smooth to avoid depressions.

6. Provide appropriate sediment control measures to prevent offsite sedimentation.

Maintenance

Inspect construction roads and parking areas periodically for condition of surface. Topdress with new gravel as needed. Check ditches for erosion and sedimentation after rainfall events. Maintain vegetation in a health, vigorous condition. Areas producing sediment should be treated immediately.

STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION



Definition

A temporary, somewhat permeable barrier, installed around inlets in the form of a fence, berm or excavation around an opening, trapping water and thereby reducing the sediment content of sediment laden water by settling.

Purpose

To prevent heavily sediment laden water from entering a storm drain system through inlets.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a trapping device, and watertight blocking of inlets is not advisable. **It is not to be used in place of sediment trapping devices.** This may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with low slope angle.

Types of Storm Drain Inlet Practices

There are four (4) specific types of storm drain inlet protection practices that vary according to their function, location, drainage area, and availability of materials:

I. Excavated Drop Inlet Protection
II. Fabric Drop Inlet Protection
III. Stone & Block Drop Inlet Protection
IV. Curb Drop Inlet Protection

Design Criteria

Drainage Area – The drainage area for storm drain inlets shall not exceed one acre. The crest elevations of these practices shall provide storage and minimize bypass flow.

Type I – Excavated Drop Inlet Protection

See details for Excavated Drop Inlet Protection in Figure 5A.11 on page 5A.29.

Limit the drainage area to the inlet device to 1 acre. Excavated side slopes shall be no steeper than 2:1. The minimum depth shall be 1 foot and the maximum depth 2 feet as measured from the crest of the inlet structure. Shape the excavated basin to fit conditions with the longest dimension oriented toward the longest inflow area to provide maximum trap efficiency. The capacity of the excavated basin should be established to contain 900 cubic feet per acre of disturbed area. Weep holes, protected by fabric and stone, should be provided for draining the temporary pool.

Inspect and clean the excavated basin after every storm. Sediment should be removed when 50 percent of the storage volume is achieved This material should be incorporated into the site in a stabilized manner.

Type II – Fabric Drop Inlet Protection

See Figure 5A.12 for details on Filter Fabric Drop Inlet Protection on page 5A.30.

Limit the drainage area to 1 acre per inlet device. Land area slope immediately surrounding this device should not exceed 1 percent. The maximum height of the fabric above the inlet crest shall not exceed 1.5 feet unless reinforced.

The top of the barrier should be maintained to allow overflow to drop into the drop inlet and not bypass the inlet to unprotected lower areas. Support stakes for fabric shall be a minimum of 3 feet long, spaced a maximum 3 feet apart. They should be driven close to the inlet so any overflow drops into the inlet and not on the unprotected soil. Improved performance and sediment storage volume can be obtained by excavating the area.

Inspect the fabric barrier after each rain event and make repairs as needed. Remove sediment from the pool area as

necessary with care not to undercut or damage the filter fabric. Upon stabilization of the drainage area, remove all materials and unstable sediment and dispose of properly. Bring the adjacent area of the drop inlet to grade, smooth and compact and stabilize in the appropriate manner to the site.

If straw bales are used in lieu of filter fabric, they should be placed tight with the cut edge adhering to the ground at least 3 inches below the elevation of the drop inlet. Two anchor stakes per bale shall be driven flush to bale surface. Straw bales will be replaced every 4 months until the area is stabilized.

Type III – Stone and Block Drop Inlet Protection

See Figure 5A.13 for details on Stone and Block Drop Inlet Protection on page 5A.31.

Limit the drainage area to 1 acre at the drop inlet. The stone barrier should have a minimum height of 1 foot and a maximum height of 2 feet. Do not use mortar. The height should be limited to prevent excess ponding and bypass flow.

Recess the first course of blocks at least 2 inches below the crest opening of the storm drain for lateral support. Subsequent courses can be supported laterally if needed by placing a 2x4 inch wood stud through the block openings perpendicular to the course. The bottom row should have a few blocks oriented so flow can drain through the block to dewater the basin area.

The stone should be placed just below the top of the blocks on slopes of 2:1 or flatter. Place hardware cloth of wire mesh with ½ inch openings over all block openings to hold stone in place.

As an optional design, the concrete blocks may be omitted and the entire structure constructed of stone, ringing the outlet ("doughnut"). The stone should be kept at a 3:1 slope toward the inlet to keep it from being washed into the inlet. A level area 1 foot wide and four inches below the crest will further prevent wash. Stone on the slope toward the inlet should be at least 3 inches in size for stability and 1 inch or smaller away from the inlet to control flow rate. The elevation of the top of the stone crest must be maintained 6 inches lower than the ground elevation down slope from the inlet to ensure that all storm flows pass over the stone into the storm drain and not past the structure. Temporary diking should be used as necessary to prevent bypass flow.

The barrier should be inspected after each rain event and repairs made where needed. Remove sediment as necessary to provide for accurate storage volume for subsequent rains. Upon stabilization of contributing drainage area, remove all materials and any unstable soil and dispose of properly.

Bring the disturbed area to proper grade, smooth, compact and stabilized in a manner appropriate to the site.

Type IV – Curb Drop Inlet Protection

See Figure 5A. 14 for details on Curb Drop Inlet Protection on page 5A.32.

The drainage area should be limited to 1 acre at the drop inlet. The wire mesh must be of sufficient strength to support the filter fabric and stone with the water fully impounded against it. Stone is to be 2 inches in size and clean. The filter fabric must be of a type approved for this purpose with an equivalent opening size (EOS) of 40-85. The protective structure will be constructed to extend beyond the inlet 2 feet in both directions. Assure that storm flow does not bypass the inlet by installing temporary dikes (such as sand bags) directing flow into the inlet. Make sure that the overflow weir is stable. Traffic safety shall be integrated with the use of this practice.

The structure should be inspected after every storm event. Any sediment should be removed and disposed of on the site. Any stone missing should be replaced. Check materials for proper anchorage and secure as necessary.

Figure 5A.11
Excavated Drop Inlet Protection

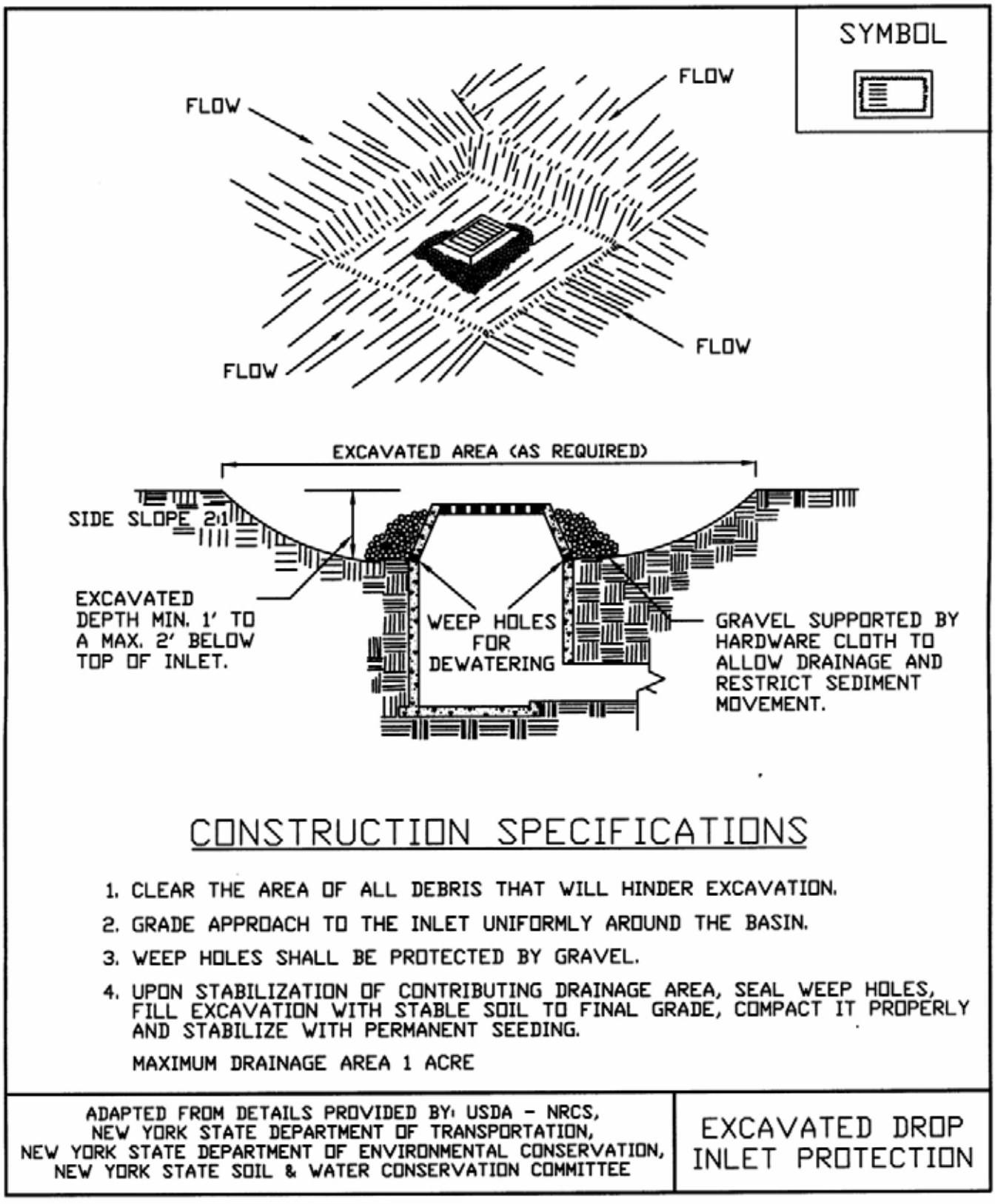
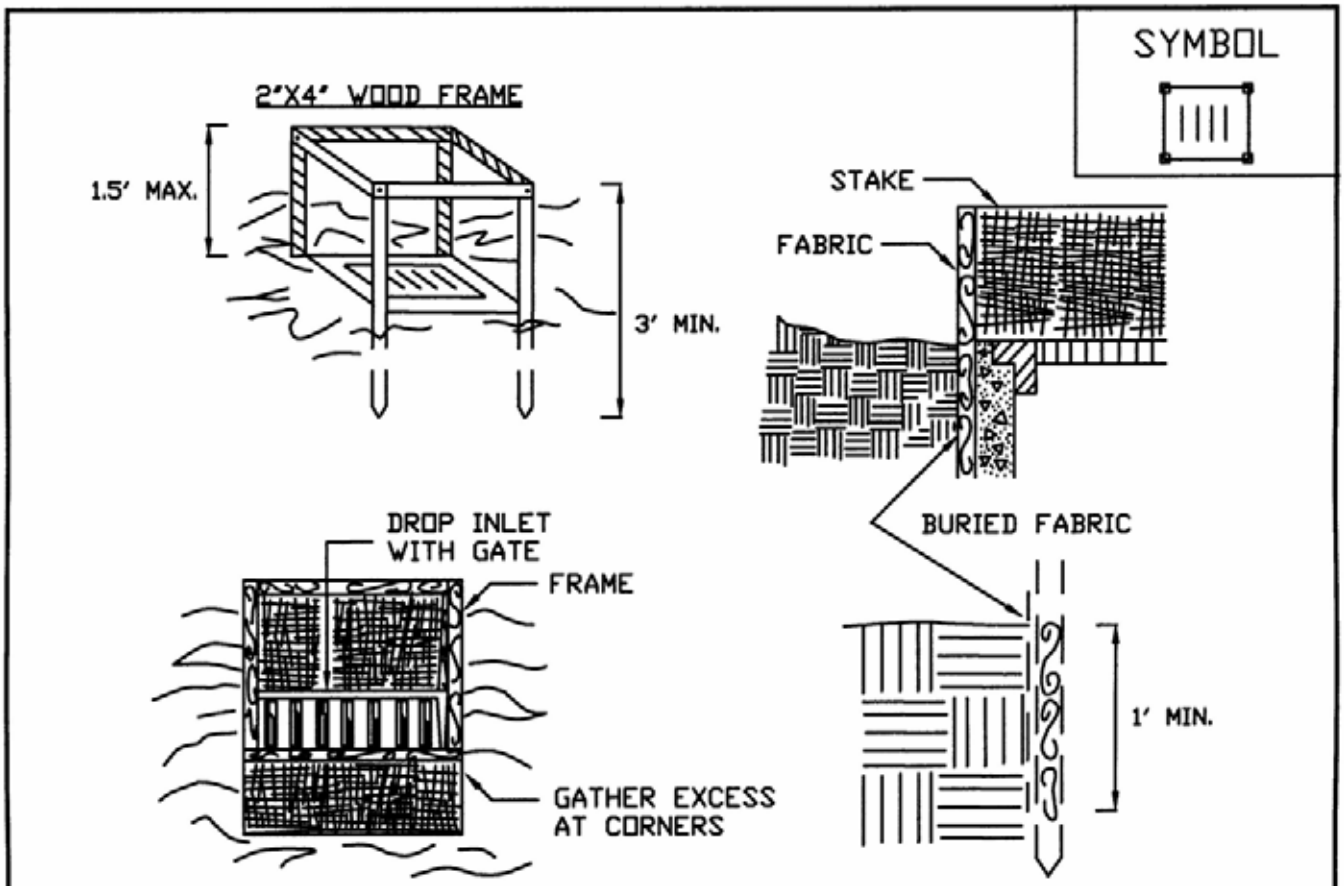


Figure 5A.12
Filter Fabric Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

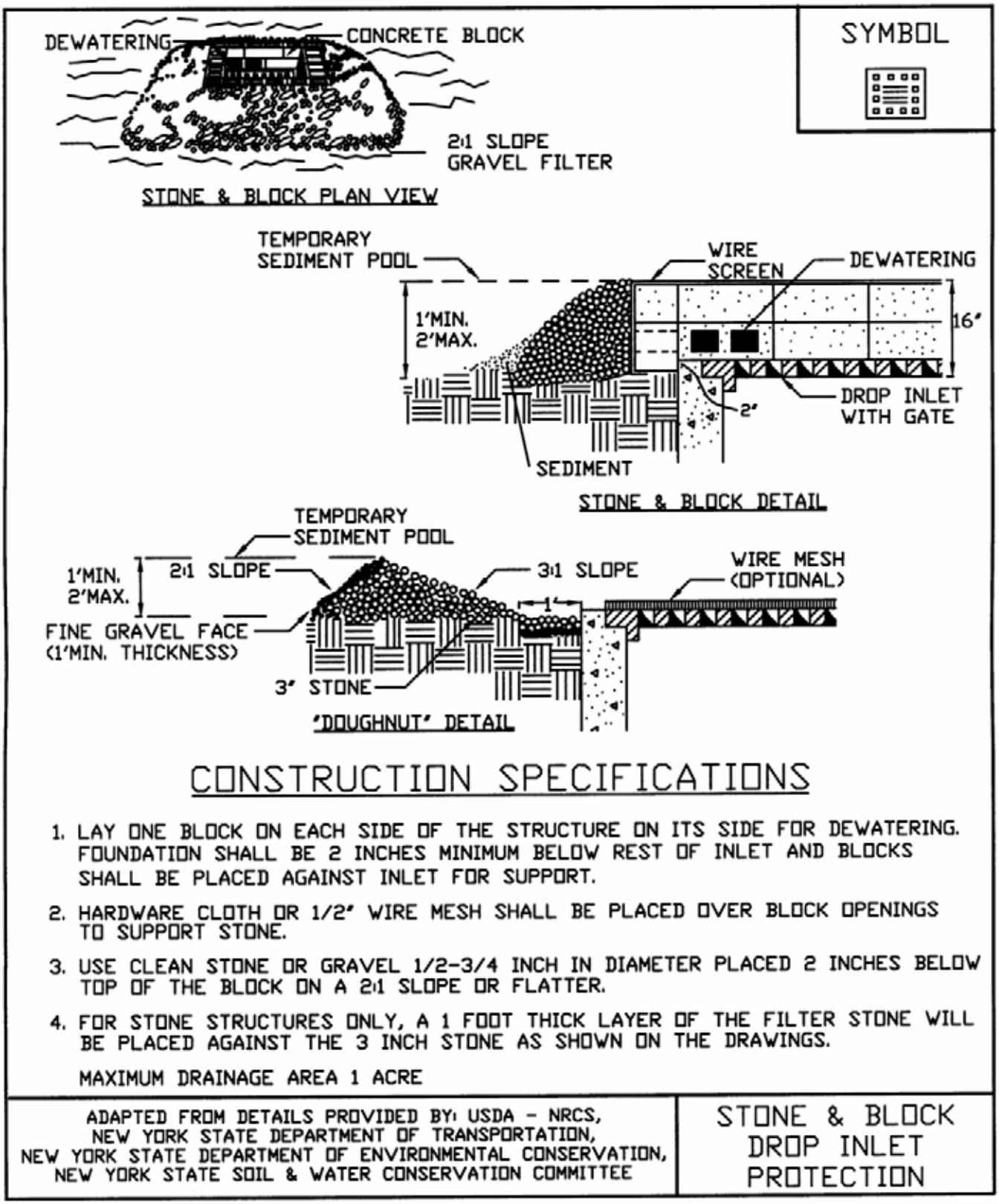
1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

FILTER FABRIC
DROP INLET
PROTECTION

Figure 5A.13
Stone & Block Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

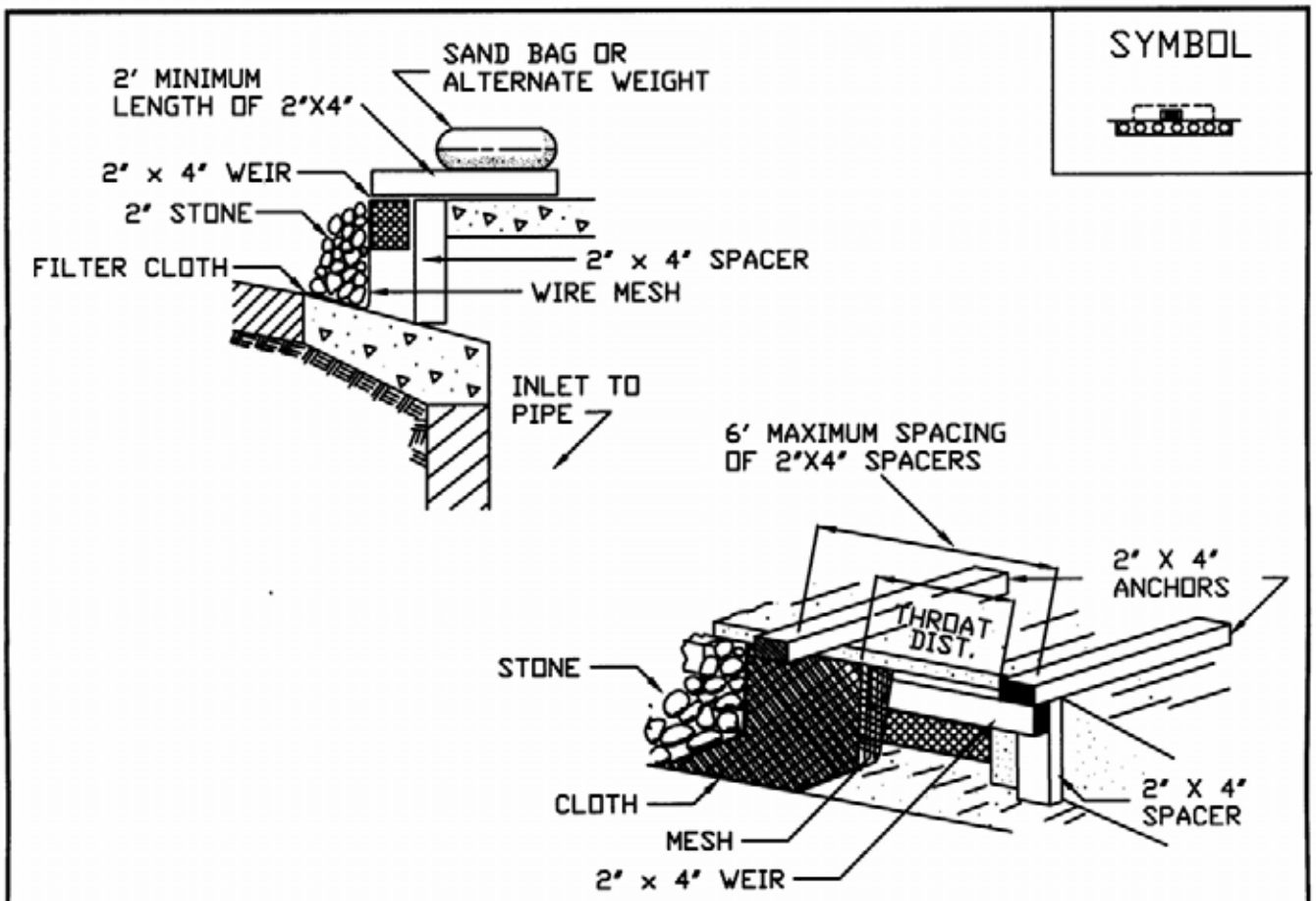
1. LAY ONE BLOCK ON EACH SIDE OF THE STRUCTURE ON ITS SIDE FOR DEWATERING. FOUNDATION SHALL BE 2 INCHES MINIMUM BELOW REST OF INLET AND BLOCKS SHALL BE PLACED AGAINST INLET FOR SUPPORT.
2. HARDWARE CLOTH OR 1/2" WIRE MESH SHALL BE PLACED OVER BLOCK OPENINGS TO SUPPORT STONE.
3. USE CLEAN STONE OR GRAVEL 1/2-3/4 INCH IN DIAMETER PLACED 2 INCHES BELOW TOP OF THE BLOCK ON A 2:1 SLOPE OR FLATTER.
4. FOR STONE STRUCTURES ONLY, A 1 FOOT THICK LAYER OF THE FILTER STONE WILL BE PLACED AGAINST THE 3 INCH STONE AS SHOWN ON THE DRAWINGS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

STONE & BLOCK
DROP INLET
PROTECTION

Figure 5A.14
Curb Drop Inlet Protection



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN AOS OF 40-85.
2. WOODEN FRAME SHALL BE CONSTRUCTED OF 2" x 4" CONSTRUCTION GRADE LUMBER.
3. WIRE MESH ACROSS THROAT SHALL BE A CONTINUOUS PIECE 30 INCH MINIMUM WIDTH WITH A LENGTH 4 FEET LONGER THAN THE THROAT. IT SHALL BE SHAPED AND SECURELY NAILED TO A 2" x 4" WEIR.
4. THE WEIR SHALL BE SECURELY NAILED TO 2" x 4" SPACERS 9 INCHES LONG SPACED NO MORE THAN 6 FEET APART.
5. THE ASSEMBLY SHALL BE PLACED AGAINST THE INLET AND SECURED BY 2" x 4" ANCHORS 2 FEET LONG EXTENDING ACROSS THE TOP OF THE INLET AND HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHTS.

MAXIMUM DRAINAGE AREA 1 ACRE

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

CURB DROP INLET PROTECTION

STANDARD AND SPECIFICATIONS FOR DUST CONTROL



Definition

The control of dust resulting from land-disturbing activities.

Purpose

To prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards, and traffic safety problems.

Conditions Where Practice Applies

On construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing where off-site damage may occur if dust is not controlled.

Design Criteria

Construction operations should be scheduled to minimize the amount of area disturbed at one time. Buffer areas of vegetation should be left where practical. Temporary or permanent stabilization measures shall be installed. No specific design criteria is given; see construction specifications below for common methods of dust control.

Water quality must be considered when materials are selected for dust control. Where there is a potential for the material to wash off to a stream, ingredient information must be provided to the local permitting authority.

Construction Specifications

A. Non-driving Areas – These areas use products and materials applied or placed on soil surfaces to prevent airborne migration of soil particles.

Vegetative Cover – For disturbed areas not subject to traffic, vegetation provides the most practical method of dust control (see Section 3).

Mulch (including gravel mulch) – Mulch offers a fast effective means of controlling dust. This can also include rolled erosion control blankets.

Spray adhesives – These are products generally composed of polymers in a liquid or solid form that are mixed with water to form an emulsion that is sprayed on the soil surface with typical hydroseeding equipment. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations for the specific soils on the site. In no case should the application of these adhesives be made on wet soils or if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators and others working with the material.

B. Driving Areas – These areas utilize water, polymer emulsions, and barriers to prevent dust movement from the traffic surface into the air.

Sprinkling – The site may be sprayed with water until the surface is wet. This is especially effective on haul roads and access routes.

Polymer Additives – These polymers are mixed with water and applied to the driving surface by a water truck with a gravity feed drip bar, spray bar or automated distributor truck. The mixing ratios and application rates will be in accordance with the manufacturer's recommendations. Incorporation of the emulsion into the soil will be done to the appropriate depth based on expected traffic. Compaction after incorporation will be by vibratory roller to a minimum of 95%. The prepared surface shall be moist and no application of the polymer will be made if there is a probability of precipitation within 48 hours of its proposed use. Material Safety Data Sheets will be provided to all applicators working with the material.

Barriers – Woven geotextiles can be placed on the driving surface to effectively reduce dust throw and particle migration on haul roads. Stone can also be used for construction roads for effective dust control.

Windbreak – A silt fence or similar barrier can control air currents at intervals equal to ten times the barrier height. Preserve existing wind barrier vegetation as much as practical.

All Stormwater Pollution Prevention Plans must contain the NYS DEC issued “Conditions for Use” and “Application Instructions” for any polymers used on the site. This information can be obtained from the NYS DEC website.

Maintenance

Maintain dust control measures through dry weather periods until all disturbed areas are stabilized.

STANDARD AND SPECIFICATIONS
FOR
FIBER ROLL



Definition

A fiber roll is a coir (coconut fiber), straw, or excelsior woven roll encased in netting of jute, nylon, or burlap.

Purpose

To dissipate energy along streambanks, channels, and bodies of water and reduce sheet flow on slopes.

Conditions Where Practice Applies

Fiber rolls are used where the water surface levels are relatively constant. Artificially controlled streams for hydropower are not good candidates for this technique. The rolls provide a good medium for the introduction of herbaceous vegetation. Planting in the fiber roll is appropriate where the roll will remain continuously wet.

Design Criteria

1. The roll is placed in a shallow trench dug below baseflow or in a 4 inch trench on the slope contour and anchored by 2" x 2", 3-foot long posts driven on each side of the roll (see Figure 4.9).

2. The roll is contained by a 9-gauge non-galvanized wire placed over the roll from post to post. Braided nylon rope (1/8" thick) may be used.

3. The anchor posts shall be spaced laterally 4 feet on center on both sides of the roll, staggered, and driven down to the top of the roll.

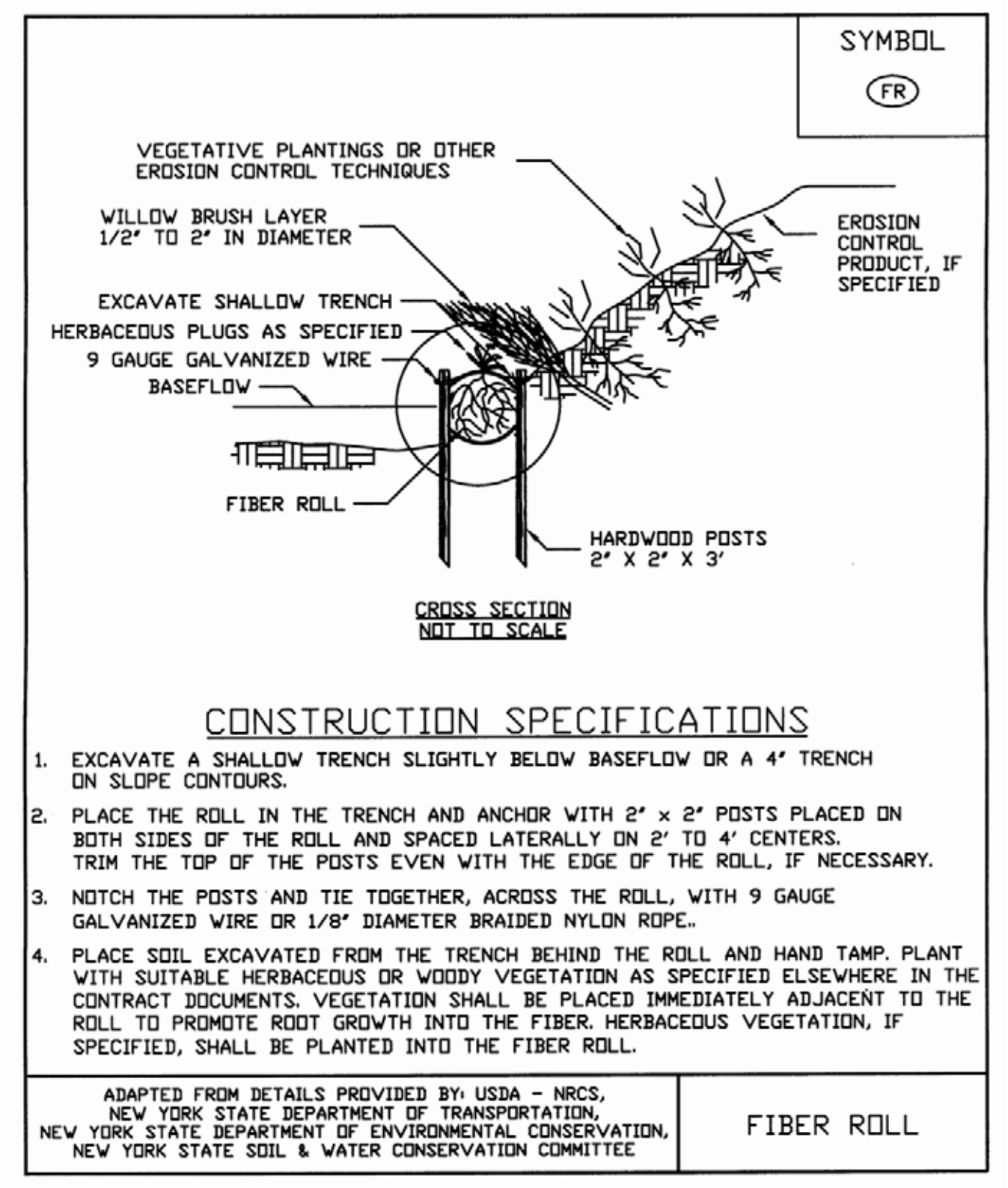
4. Soil is placed behind the roll and planted with suitable herbaceous or woody vegetation. If the roll will be continuously saturated, wetland plants may be planted into voids created in the upper surface of the roll.

5. Where water levels may fall below the bottom edge of the roll, a brush layer of willow should be installed so as to lay across the top edge of the roll.

Maintenance

Due to the susceptibility of plant materials to the physical constraints of the site, climate conditions, and animal populations, it is necessary to inspect installations frequently. This is especially important during the first year or two of establishment. Plant materials missing or damaged should be replaced as soon as possible. Sloughs or breaks in drainage pattern should be reestablished for the site as quickly as possible to maintain stability.

Figure 4.9
Fiber Roll



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2. Dickerson, John A. and D.W. Lake, Jr. 1989. ASAE Paper No. 892 654. Cost Effective Biotechnical Slope Protection Trials in New York.

3. Dickerson, John A. and M. Van der Grinten. 1991. ICEA paper Biotechnical Slope Protection Systems on Dry Soils in the Northeast United States.

4. Dickerson, et. al. 1990. ICEA paper. Obtaining Plant Materials for Biotechnical Work.

STANDARD AND SPECIFICATIONS FOR MULCHING



Definition

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

Purpose

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/ acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

Table 3.7
Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7”	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2”	9 cu. yds.	405 cu. yds.	3”	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48” x 50 yds. or 48” x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	8” x 100” 2-sided plastic, 48” x 180” 1-sided plastic	—	—	Use without additional mulch. Excellent for seeding establishment. Tie down as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Compost	Up to 3” pieces, moderately to highly stable	3-9 cu. yds.	134-402 cu. yds.	1-3”	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Table 3.8
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45^0 Fahrenheit are required.

STANDARD AND SPECIFICATIONS FOR ROCK OUTLET PROTECTION



Definition

A section of rock protection placed at the outlet end of the culverts, conduits, or channels.

Purpose

The purpose of the rock outlet protection is to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach.

Scope

This standard applies to the planning, design, and construction of rock riprap and gabions for protection of downstream areas. It does not apply to rock lining of channels or streams.

Conditions Where Practice Applies

This practice applies where discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This applies to:

1. Culvert outlets of all types.

2. Pipe conduits from all sediment basins, dry storm water ponds, and permanent type ponds.

3. New channels constructed as outlets for culverts and conduits.

Design Criteria

The design of rock outlet protection depends entirely on the location. Pipe outlet at the top of cuts or on slopes steeper than 10 percent, cannot be protected by rock aprons or riprap sections due to re-concentration of flows and high velocities encountered after the flow leaves the apron.

Many counties and state agencies have regulations and design procedures already established for dimensions, type and size of materials, and locations where outlet protection is required. Where these requirements exist, they shall be followed.

Tailwater Depth

The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. If the tailwater depth is less than half the diameter of the outlet pipe, and the receiving stream is wide enough to accept divergence of the flow, it shall be classified as a Minimum Tailwater Condition; see Figure 5B.12 on page 5B.25 as an example. If the tailwater depth is greater than half the pipe diameter and the receiving stream will continue to confine the flow, it shall be classified as a Maximum Tailwater Condition; see Figure 5B.13 on page 5B.26 as an example. Pipes which outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition; see Figure 5B.12 on page 5B.25 as an example.

Apron Size

The apron length and width shall be determined from the curves according to the tailwater conditions:

Minimum Tailwater – Use Figure 5B.12 on page 5B.25
Maximum Tailwater – Use Figure 5B.13 on page 5B.26

If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less.

The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe, or conform to pipe end section if used.

Bottom Grade

The outlet protection apron shall be constructed with no slope along its length. There shall be no overfall at the end of the apron. The elevation of the downstream end of the apron shall be equal to the elevation of the receiving channel or adjacent ground.

Alignment

The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

Materials

The outlet protection may be done using rock riprap, grouted riprap, or gabions.

Riprap shall be composed of a well-graded mixture of stone size so that 50 percent of the pieces, by weight, shall be larger than the d_{50} size determined by using the charts. A well-graded mixture, as used herein, is defined as a mixture composed primarily of larger stone sizes, but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone size in such a mixture shall be 1.5 times the d_{50} size.

Thickness

The minimum thickness of the riprap layer shall be 1.5 times the maximum stone diameter for d_{50} of 15 inches or less; and 1.2 times the maximum stone size for d_{50} greater than 15 inches. The following chart lists some examples:

D_{50} (inches)	d_{max} (inches)	Minimum Blanket Thickness (inches)
4	6	9
6	9	14
9	14	20
12	18	27
15	22	32
18	27	32
21	32	38
24	36	43

Stone Quality

Stone for riprap shall consist of field stone or rough unhewn quarry stone. The stone shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual stones shall be at least 2.5.

Recycled concrete equivalent may be used provided it has a density of at least 150 pounds per cubic foot, and does not have any exposed steel or reinforcing bars.

Filter

A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap. Riprap shall have a filter placed under it in all cases.

A filter can be of two general forms: a gravel layer or a plastic filter cloth. The plastic filter cloth can be woven or non-woven monofilament yarns, and shall meet these base requirements: thickness 20-60 mils, grab strength 90-120 lbs; and shall conform to ASTM D-1777 and ASTM D-1682.

Gravel filter blanket, when used, shall be designed by comparing particle sizes of the overlying material and the base material. Design criteria are available in Standard and Specification for Riprap Slope Protection on page 5B.57.

Gabions

Gabions shall be made of hexagonal triple twist mesh with heavily galvanized steel wire. The maximum linear dimension of the mesh opening shall not exceed 4 ½ inches and the area of the mesh opening shall not exceed 10 square inches.

Gabions shall be fabricated in such a manner that the sides, ends, and lid can be assembled at the construction site into a rectangular basket of the specified sizes. Gabions shall be of single unit construction and shall be installed according to manufacturers recommendations.

The area on which the gabion is to be installed shall be graded as shown on the drawings. Foundation conditions shall be the same as for placing rock riprap, and filter cloth shall be placed under all gabions. Where necessary, key, or tie, the structure into the bank to prevent undermining of the main gabion structure.

Maintenance

Once a riprap outlet has been installed, the maintenance needs are very low. It should be inspected after high flows for evidence of scour beneath the riprap or for dislodged stones. Repairs should be made immediately.

Design Procedure

1. Investigate the downstream channel to assure that nonerosive velocities can be maintained.

2. Determine the tailwater condition at the outlet to establish which curve to use.
3. Enter the appropriate chart with the design discharge to

determine the riprap size and apron length required. It is noted that references to pipe diameters in the charts are based on full flow. For other than full pipe flow, the parameters of depth of flow and velocity must be used to adjust the design discharges.

4. Calculate apron width at the downstream end if a flare section is to be employed.

Examples

Example 1: Pipe Flow (full) with discharge to unconfined section.

Given: A circular conduit flowing full.

Q = 280 cfs, diam. = 66 in., tailwater (surface) is 2 ft. above pipe invert (minimum tailwater condition).

Find: Read d_{50} = 1.2 and apron length (L_a) = 38 ft.

Apron width = diam. + L_a = 5.5 + 38 = 43.5 ft.

Use: d_{50} = 15", d_{max} = 22", blanket thickness = 32"

Example 2: Box Flow (partial) with high tailwater

Given: A box conduit discharging under partial flow conditions. A concrete box 5.5 ft. x 10 ft. flowing 5.0 ft. deep,

Q = 600 cfs and tailwater surface is 5 ft. above invert (max. tailwater condition).

Since this is not full pipe and does not directly fit the nomograph assumptions of Figure 7B.13 substitute depth as the diameter, to find a discharge equal to full pipe flow for that diameter, in this case 60 inches.

Since, $Q = AV$ and $A = \frac{\pi D^2}{4}$

First, compute velocity:

V = (Q/A) = (600/(5) (10)) = 12 fps

Then substituting:

$$Q = \frac{\pi D^2}{4} \times V = \frac{3.14\ (5\ ft)^2}{4} \times 12\ fps = 236\ cfs$$

At the intersection of the curve d = 60 in. and Q = 236 cfs, read d_{50} = 0.4 ft.

Then reading the d = 60 in. curve, read apron length (L_a) = 40 ft.

Apron width, W = conduit width + (6.4)(L_a) = 10 + (0.4) (40) = 26 ft.

Example 3: Open Channel Flow with Discharge to Unconfined Section

Given: A trapezoidal concrete channel 5 ft. wide with 2:1 side slopes is flowing 2 ft. deep, Q = 180 cfs (velocity = 10 fps) and the tailwater surface downstream is 0.8 ft. (minimum tailwater condition).

Find: Using similar principles as Example 2, compute equivalent discharge for a 2 foot, using depth as a diameter, circular pipe flowing full at 10 feet per second.

Velocity:

$$Q = \frac{\pi\ (2ft)^2}{4} \times 10\ fps = 31.4\ cfs$$

At intersection of the curve, d = 24 in. and Q = 32 cfs, read d_{50} = 0.6 ft.

Then reading the d = 24 in. curve, read apron length (L_a) = 20 ft.

Apron width, W = bottom width of channel + L_a = 5 + 20 = 25 ft.

Example 4: Pipe flow (partial) with discharge to a confined section

Given: A 48 in. pipe is discharging with a depth of 3 ft. Q = 100 cfs, and discharge velocity of 10 fps (established from partial flow analysis) to a confined trapezoidal channel with a 2 ft. bottom, 2:1 side slopes, n = .04, and grade of 0.6%.

Calculation of the downstream channel (by Manning's Equation) indicates a normal depth of 3.1 ft. and normal velocity of 3.9 fps.

Since the receiving channel is confined, the maximum tailwater condition controls.

Find: discharge using previous principles:

$$Q = \frac{\pi\ (3ft)^2}{4} \times 10\ fps = 71\ cfs$$

At the intersection of d = 36 in. and Q = 71 cfs, read d_{50} = 0.3 ft.

Reading the d = 36" curve, read apron length (L_a) = 30 ft.

Since the maximum flow depth in this reach is 3.1 ft., that is the minimum depth of riprap to be maintained for the entire length.

Construction Specifications

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.

3. Filter cloth shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps, whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.

4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

Figure 5B.12
Outlet Protection Design—Minimum Tailwater Condition
(Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)

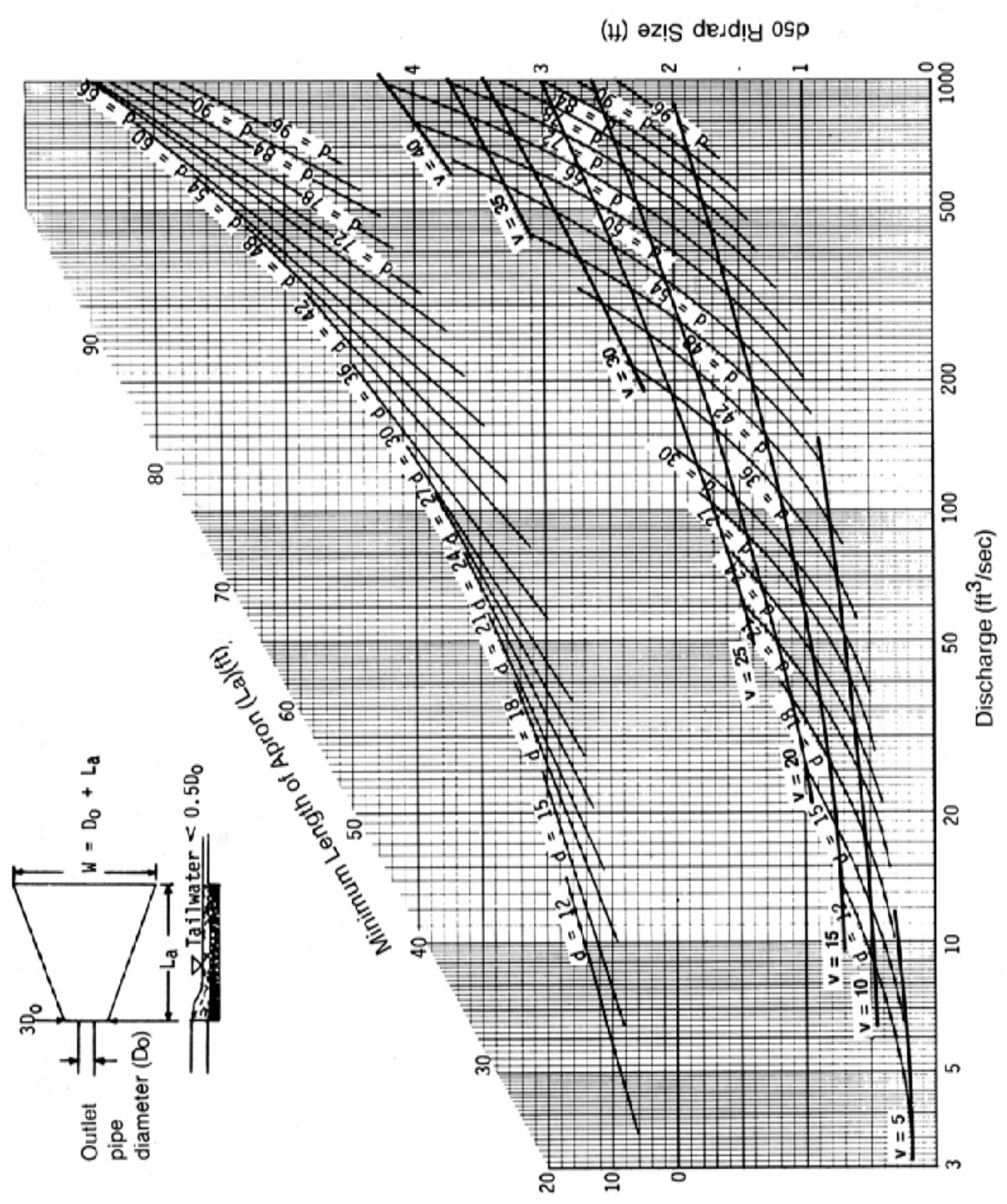


Figure 5B.13
Outlet Protection Design—Maximum Tailwater Condition
(Design of Outlet Protection from a Round Pipe Flowing Full, Maximum Tailwater Condition: $T_w \geq 0.5D_o$) (USDA - NRCS)

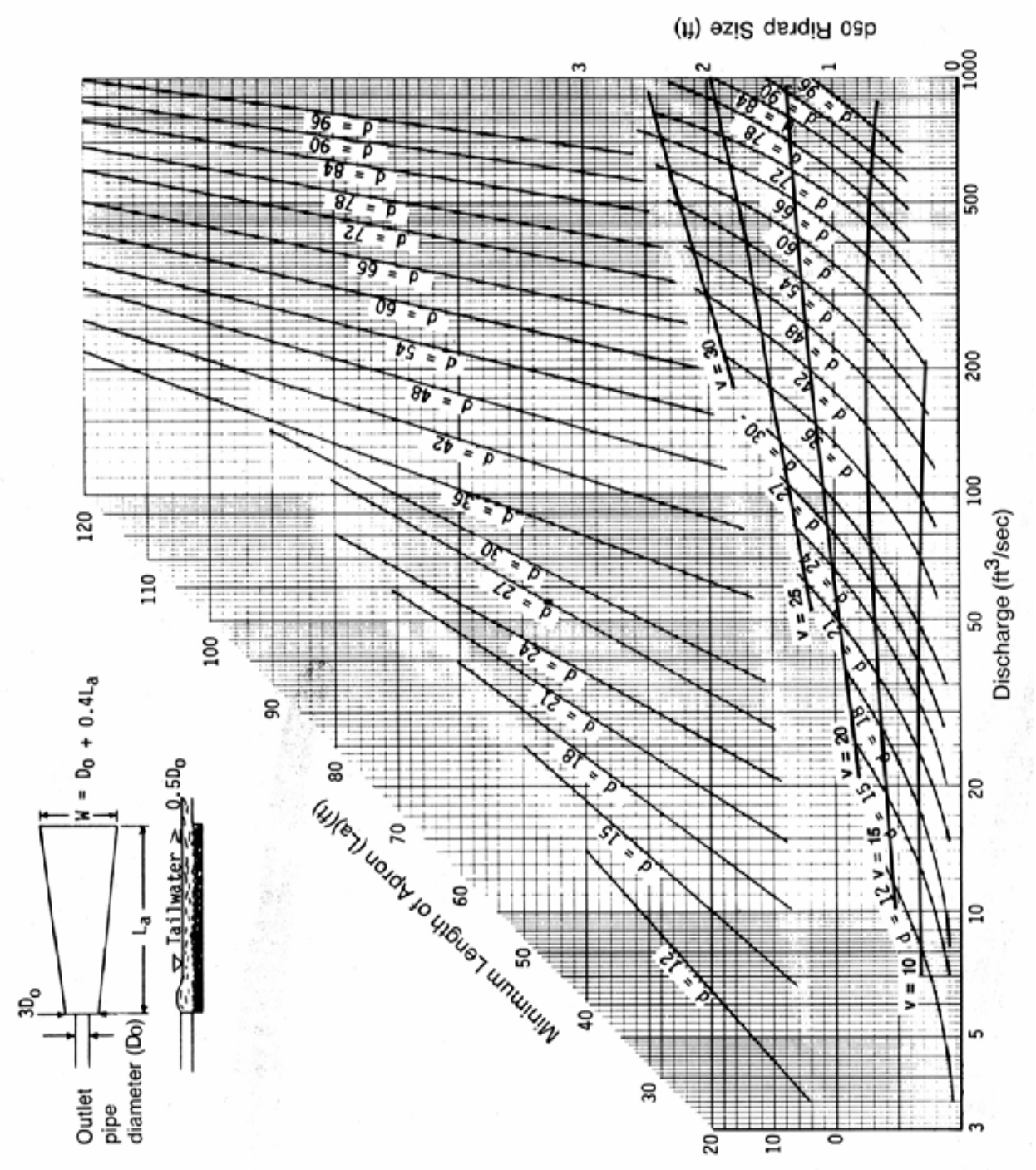


Figure 5B.14
Riprap Outlet Protection Detail (1)

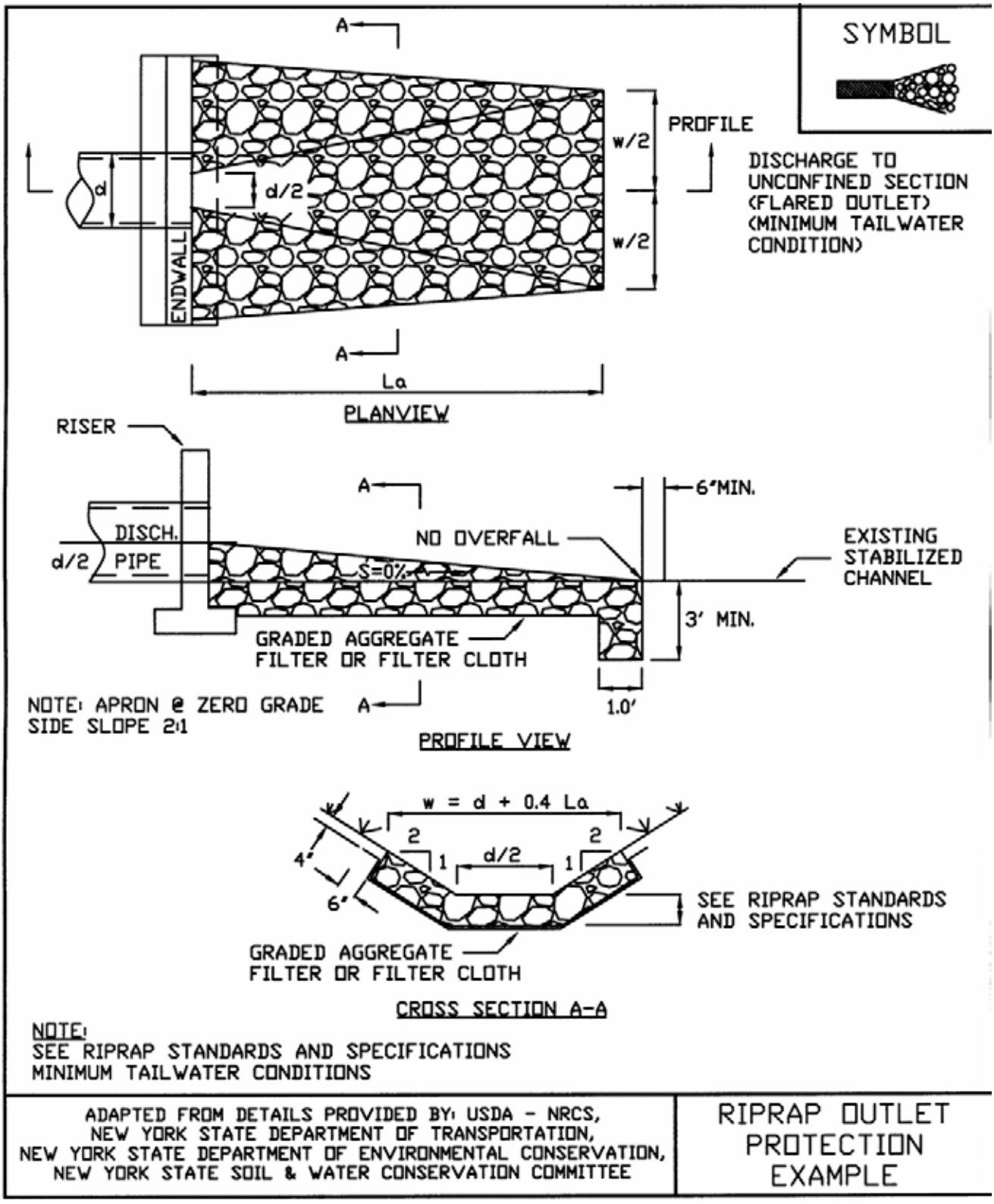


Figure 5B.15
Riprap Outlet Protection Detail (2)

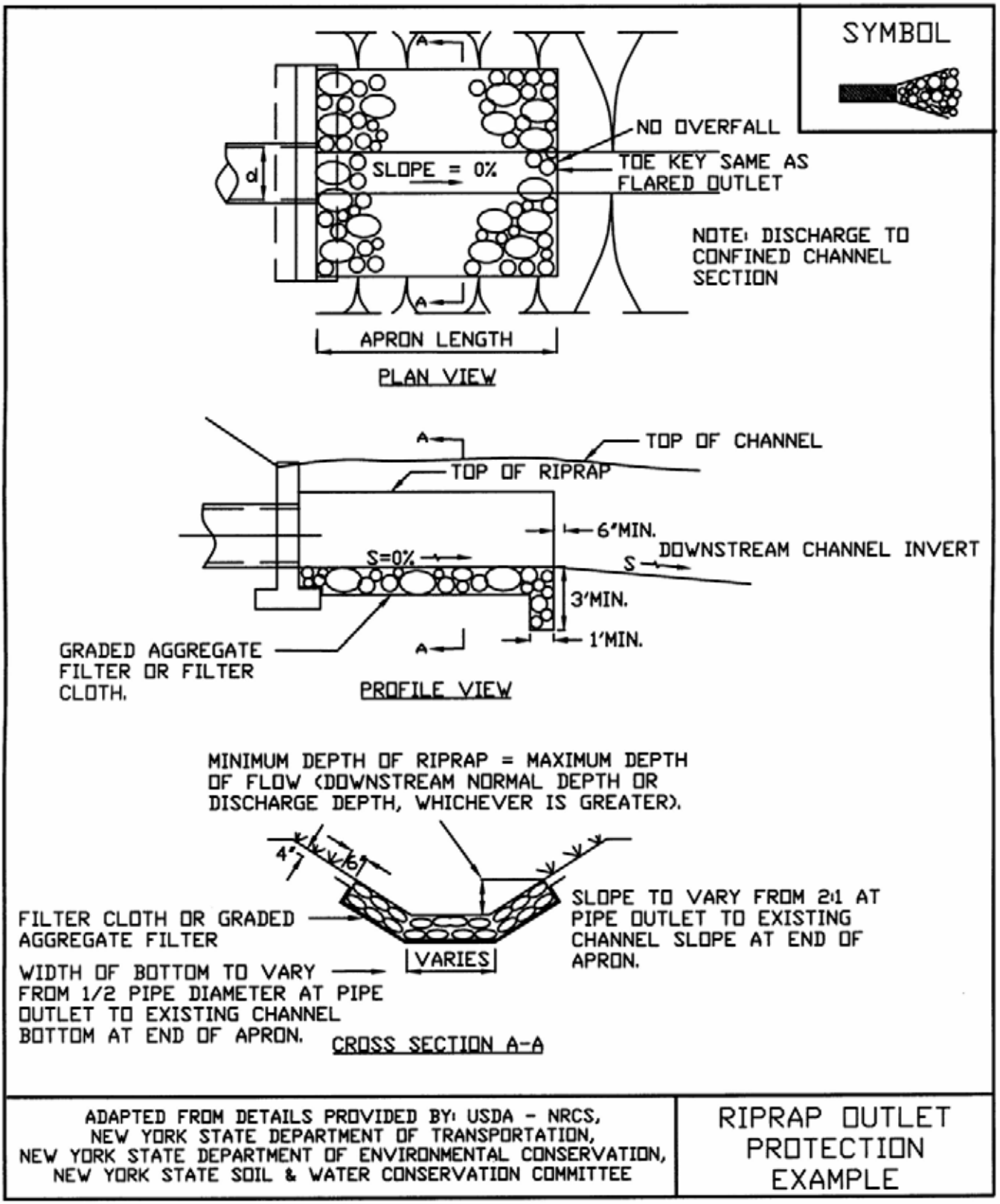
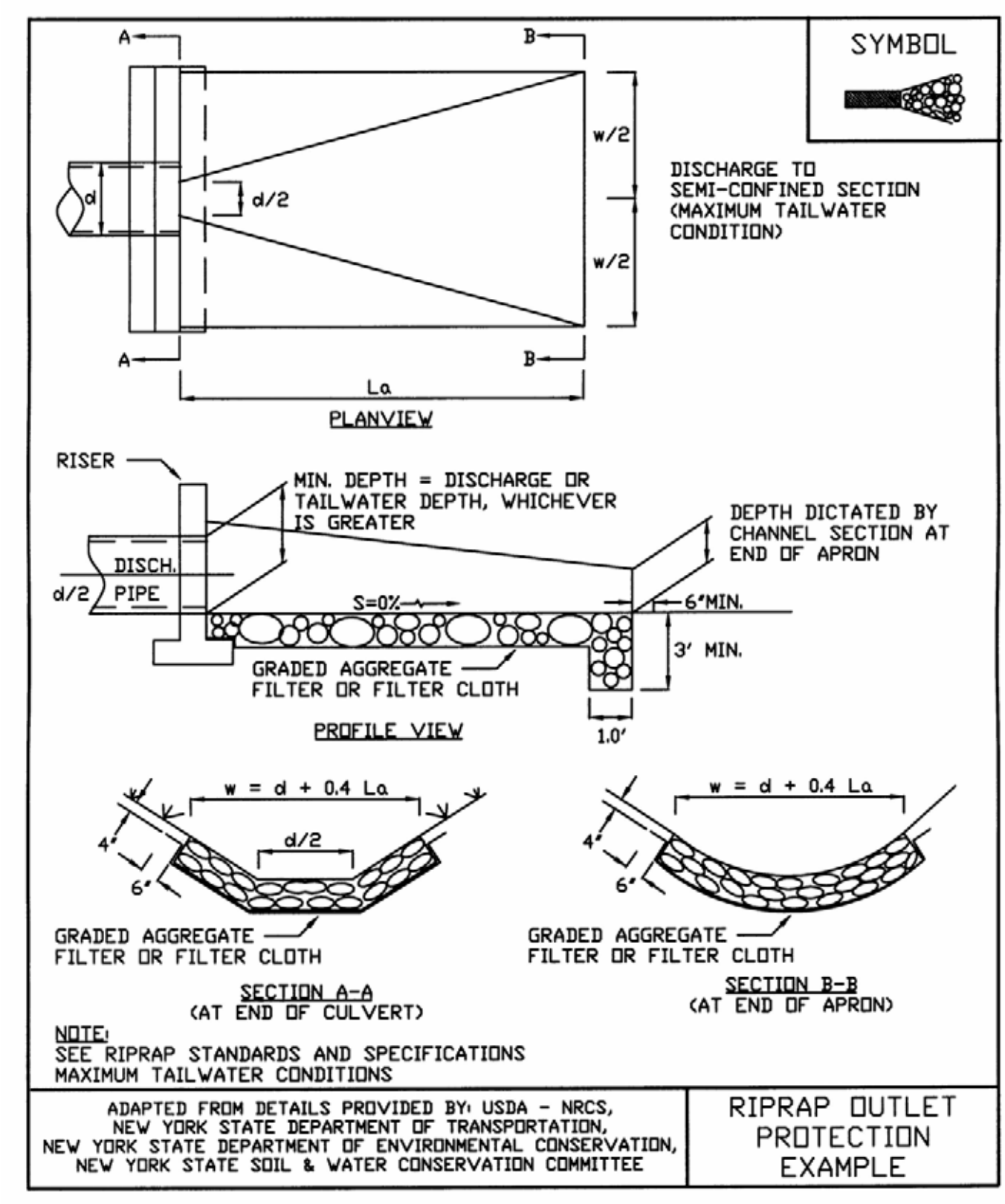


Figure 5B.16
Riprap Outlet Protection Detail (3)



STANDARD AND SPECIFICATIONS FOR SEDIMENT TRAP



Definition

A temporary sediment control device formed by excavation and/or embankment to intercept sediment laden runoff and retain the sediment.

Purpose

The purpose of the structure is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation.

Conditions Where Practice Applies

A sediment trap is usually installed in a drainage way, at a storm drain inlet, or other points of collection from a disturbed area.

Sediment traps should be used to artificially break up the natural drainage area into smaller sections where a larger device (sediment basin) would be less effective.

Design Criteria

If any of the design criteria presented here cannot be met, see Standard and Specification for Sediment Basin on page 5A.49.

Drainage Area

The drainage area for sediment traps shall be in accordance with the specific type of sediment trap used (Type I through V).

Location

Sediment traps shall be located so that they can be installed prior to grading or filling in the drainage area they are to protect. Traps must not be located any closer than 20 feet from a proposed building foundation if the trap is to function during building construction. Locate traps to obtain maximum storage benefit from the terrain and for ease of cleanout and disposal of the trapped sediment.

Trap Size

The volume of a sediment trap as measured at the elevation of the crest of the outlet shall be at least 3,600 cubic feet per acre of drainage area. The volume of a constructed trap shall be calculated using standard mathematical procedures. The volume of a natural sediment trap may be approximated by the equation: Volume (cu.ft.) = 0.4 x surface area (sq.ft.) x maximum depth (ft.).

Trap Cleanout

Sediment shall be removed and the trap restored to the original dimensions when the sediment has accumulated to ½ of the design depth of the trap. Sediment removed from the trap shall be deposited in a protected area and in such a manner that it will not erode.

Embankment

All embankments for sediment traps shall not exceed five (5) feet in height as measured at the low point of the original ground along the centerline of the embankment. Embankments shall have a minimum four (4) foot wide top and side slopes of 2:1 or flatter. The embankment shall be compacted by traversing with equipment while it is being constructed. The embankment shall be stabilized with seed and mulch as soon as it is completed

The elevation of the top of any dike directing water to any sediment trap will equal or exceed the maximum height of the outlet structure along the entire length of the trap.

Excavation

All excavation operations shall be carried out in such a manner that erosion and water pollution shall be minimal. Excavated portions of sediment traps shall have 1:1 or flatter slopes.

Outlet

The outlet shall be designed, constructed, and maintained in such a manner that sediment does not leave the trap and that erosion at or below the outlet does not occur.

Sediment traps must outlet onto stabilized (preferable undisturbed) ground, into a watercourse, stabilized channel, or into a storm drain system. Distance between inlet and outlet should be maximized to the longest length practicable.

Trap Details Needed on Erosion and Sediment Control Plans

Each trap shall be delineated on the plans in such a manner that it will not be confused with any other features. Each trap on a plan shall indicate all the information necessary to properly construct and maintain the structure. If the drawings are such that this information cannot be delineated on the drawings, then a table shall be developed. If a table is developed, then each trap on a plan shall have a number and the numbers shall be consecutive.

The following information shall be shown for each trap in a summary table format on the plans.

1. Trap number
2. Type of trap
3. Drainage area
4. Storage required
5. Storage provided (if applicable)
6. Outlet length or pipe sizes
7. Storage depth below outlet or cleanout elevation
8. Embankment height and elevation (if applicable)

Type of Sediment Traps

There are five (5) specific types of sediment traps which vary according to their function, location, or drainage area.

I. Pipe Outlet Sediment Trap
II. Grass Outlet Sediment Trap
III. Catch Basin Sediment Trap
IV. Stone Outlet Sediment Trap
V. Riprap Outlet Sediment Trap

I. Pipe Outlet Sediment Trap

A Pipe Outlet Sediment Trap consists of a trap formed by embankment or excavation. The outlet for the trap is through a perforated riser and a pipe through the embankment. The outlet pipe and riser shall be made of steel, corrugated metal or other suitable material. The top of the embankment shall be at least 1 ½ feet above the crest of the riser. The top 2/3 of the riser shall be perforated with one (1) inch nominal diameter holes or slits spaced six (6) inches vertically and horizontally placed in the concave portion of the corrugated pipe.

No holes or slits will be allowed within six (6) inches of the top of the horizontal barrel. All pipe connections shall be watertight. The riser shall be wrapped with ½ to ¼ inch hardware cloth wire then wrapped with filter cloth with a sieve size between #40-80 and secured with strapping or connecting band at the top and bottom of the cloth. The cloth shall cover an area at least six (6) inches above the highest hole and six (6) inches below the lowest hole. The top of the riser pipe shall not be covered with filter cloth. The riser shall have a base with sufficient weight to prevent flotation of the riser. Two approved bases are:

1. A concrete base 12 in. thick with the riser embedded 9 in. into the concrete base, or

2. One quarter inch, minimum, thick steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2.5 feet of stone, gravel, or earth placed on it to prevent flotation. In either case, each side of the square base measurement shall be the riser diameter plus 24 inches.

Pipe outlet sediment traps shall be limited to a five (5) acre maximum drainage area. Pipe outlet sediment traps may be interchangeable in the field with stone outlet or riprap sediment traps provided that these sediment traps are constructed in accordance with the detail and specifications for that trap.

Select pipe diameter from the following table:

Minimum Sizes

Barrel Diameter[1] (in.)	Riser Diameter[1] (in.)	Maximum Drainage Area (ac.)
12	15	1
15	18	2
18	21	3
21	24	4
21	27	5

[1] Barrel diameter may be same size as riser diameter.

See details for Pipe Outlet Sediment Trap ST-I in Figure 5A.16 (1) and 5A.16 (2) on pages 5A.38 and 5A.39.

II. Grass Outlet Sediment Trap

A Grass Outlet Sediment Trap consists of a trap formed by excavating the earth to create a holding area. The trap has a discharge point over natural existing grass. The outlet crest width (feet) shall be equal to four (4) times the drainage area (acres) with a minimum width of four (4) feet. The outlet shall be free of any restrictions to flow. The outlet lip must remain undisturbed and level. The volume of this trap shall be computed at the elevation of the crest of the outlet. Grass outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Grass Outlet Sediment Trap ST-II in Figure 5A.17 on page 5A.40.

III. Catch Basin Sediment Trap

A Catch Basin Sediment Trap consists of a basin formed by excavation on natural ground that discharges through an opening in a storm drain inlet structure. This opening can either be the inlet opening or a temporary opening made by omitting bricks or blocks in the inlet.

A yard drain inlet or an inlet in the median strip of a dual highway could use the inlet opening for the type outlet. The trap should be out of the roadway so as not to interfere with future compaction or construction. Placing the trap on the opposite side of the opening and diverting water from the roadway to the trap is one means of doing this. Catch basin sediment traps shall be limited to a three (3) acre maximum drainage area. The volume of this trap is measured at the elevation of the crest of the outlet (invert of the inlet opening).

See details for Catch Basin Sediment Trap ST-III in Figure 5A.18 on page 5A.41.

IV. Stone Outlet Sediment Trap

A Stone Outlet Sediment Trap consists of a trap formed by an embankment or excavation. The outlet of this trap is over a stone section placed on level ground. The minimum length (feet) of the outlet shall be equal to four (4) times the drainage area (acres).

Required storage shall be 3,600 cubic feet per acre of drainage area.

The outlet crest (top of stone in weir section) shall be level, at least one (1) foot below top of embankment and no more than one (1) foot above ground beneath the outlet. Stone used in the outlet shall be small riprap (4 in. x 8 in.). To provide more efficient trapping effect, a layer of filter cloth should be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.

Stone Outlet Sediment Traps may be interchangeable in the field with pipe or riprap outlet sediment traps provided they are constructed in accordance with the detail and specifications for those traps. Stone outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Stone Outlet Sediment Trap ST-IV in Figure 5A.19 on page 5A.42.

V. Riprap Outlet Sediment Trap

A Riprap Outlet Sediment Trap consists of a trap formed by an excavation and embankment. The outlet for this trap shall be through a partially excavated channel lined with riprap. This outlet channel shall discharge onto a stabilized area or to a stable watercourse. The riprap outlet sediment trap may be used for drainage areas of up to a maximum of 15 acres.

Design Criteria for Riprap Outlet Sediment Trap

1. The total contributing drainage area (disturbed or undisturbed either on or off the developing property) shall not exceed 15 acres.
2. The storage needs for this trap shall be computed using 3600 cubic feet of required storage for each acre of drainage area. The storage volume provided can be figured by computing the volume of storage area available behind the outlet structure up to an elevation of one (1) foot below the level weir crest.
3. The maximum height of embankment shall not exceed five (5) feet.
4. The elevation of the top of any dike directing water to a riprap outlet sediment trap will equal or exceed the minimum elevation of the embankment along the entire length of this trap.

Riprap Outlet Sediment Trap ST-V
(for Stone Lined Channel)

Contributing Drainage Area (ac.)	Depth of Channel (a) (ft.)	Length of Weir (b) (ft.)
1	1.5	4.0
2	1.5	5.0
3	1.5	6.0
4	1.5	10.0
5	1.5	12.0
6	1.5	14.0
7	1.5	16.0
8	2.0	10.0
9	2.0	10.0
10	2.0	12.0
11	2.0	14.0
12	2.0	14.0
13	2.0	16.0
14	2.0	16.0
15	2.0	18.0

See details for Riprap Outlet Sediment Trap ST-V on Figures 5A.20(1) and 5A.20(2) on pages 5A.43 and 5A.44.

Optional Dewatering Methods

Optional dewatering devices may be designed for use with sediment traps. Included are two methods, which may be used. See Figure 5A.21 on page 5A.45 for details.

Figure 5A.16(1)
Pipe Outlet Sediment Trap: ST-I

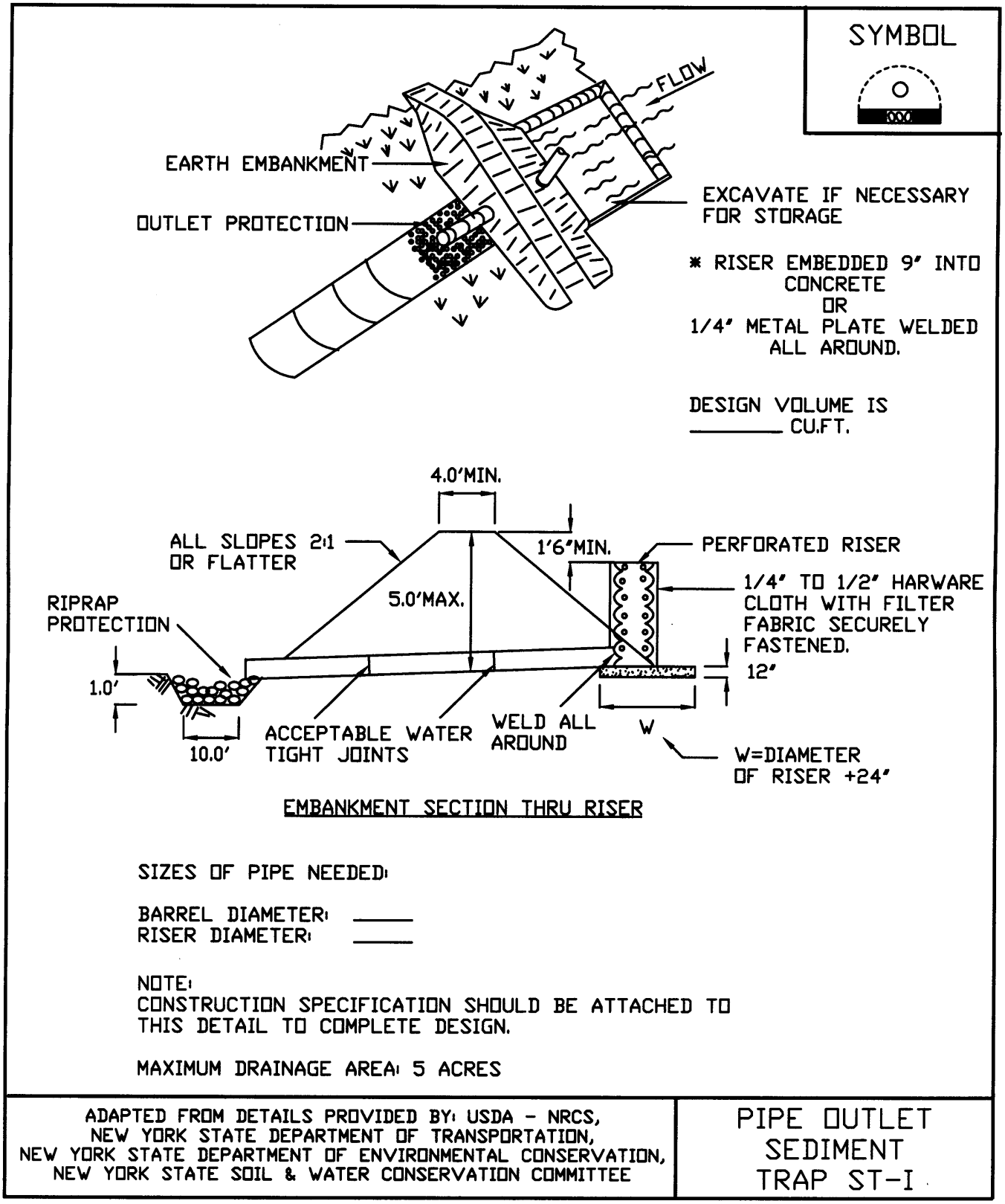


Figure 5A.16(2)
Pipe Outlet Sediment Trap: ST-I—Construction Specifications

SYMBOL

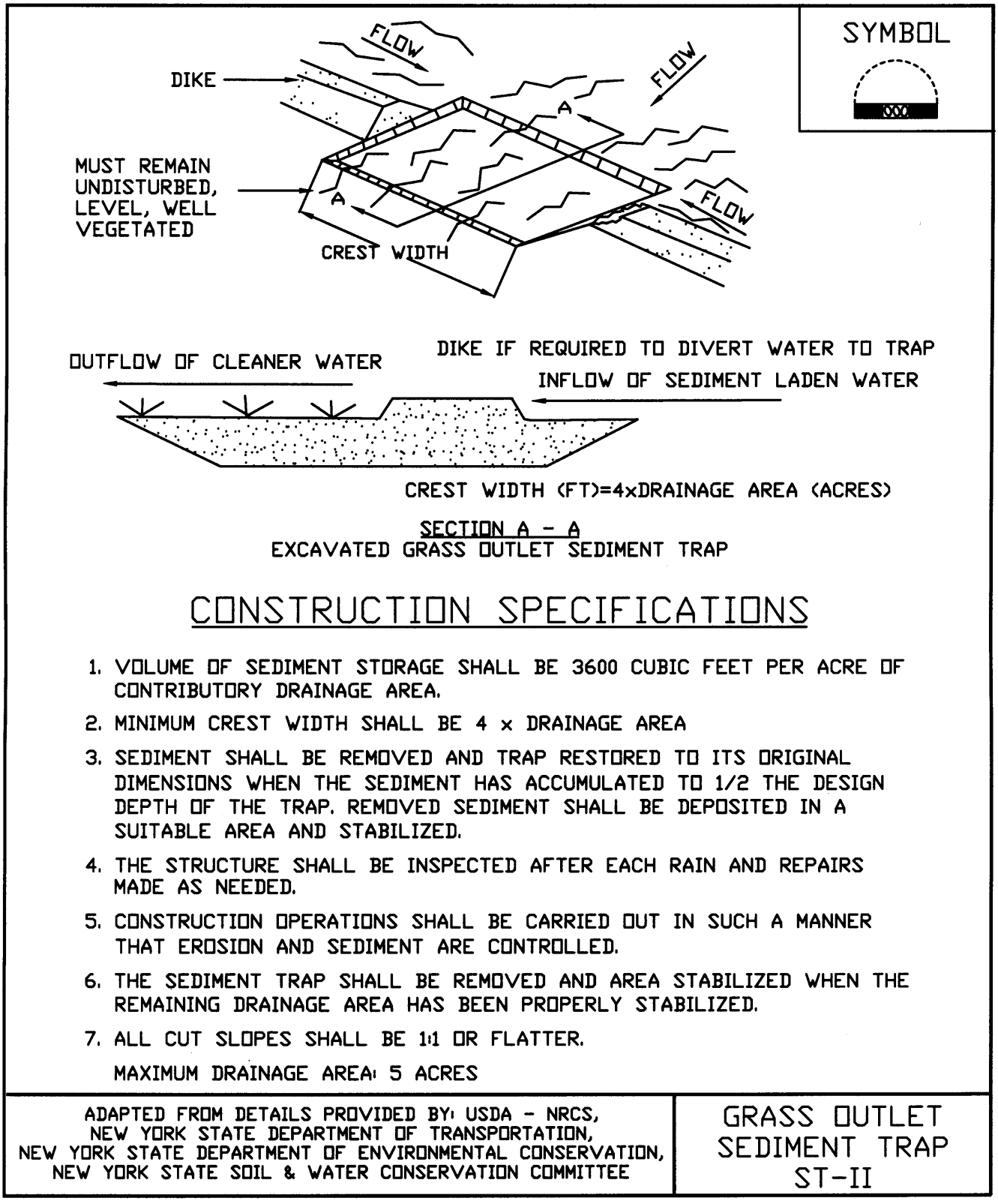


CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
4. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
5. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
6. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
7. THE STRUCTURE SHALL BE REMOVED AND AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
8. ALL FILL SLOPES SHALL BE 2:1 OR FLATTER; CUT SLOPES 1:1 OR FLATTER.
9. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
10. THE TOP 2/3 OF THE RISER SHALL BE PERFORATED WITH ONE (1) INCH DIAMETER HOLES OR SLITS SPACED SIX (6) INCHES VERTICALLY AND HORIZONTALLY AND PLACED IN THE CONCAVE PORTION OF PIPE. NO HOLES WILL BE ALLOWED WITHIN SIX (6) INCHES OF THE HORIZONTAL BARREL.
11. THE RISER SHALL BE WRAPPED WITH 1/4 TO 1/2 INCH HARDWARE CLOTH WIRE THEN WRAPPED WITH FILTER CLOTH (HAVING AN EQUIVALENT SIEVE SIZE OF 40-80). THE FILTER CLOTH SHALL EXTEND SIX (6) INCHES ABOVE THE HIGHEST HOLE AND SIX (6) INCHES BELOW THE LOWEST HOLE. WHERE ENDS OF THE FILTER CLOTH COME TOGETHER, THEY SHALL BE OVER-LAPPED, FOLDED AND STAPLED TO PREVENT BYPASS.
12. STRAPS OR CONNECTING BANDS SHALL BE USED TO HOLD THE FILTER CLOTH AND WIRE FABRIC IN PLACE. THEY SHALL BE PLACED AT THE TOP AND BOTTOM OF THE CLOTH.
13. FILL MATERIAL AROUND THE PIPE SPILLWAY SHALL BE HAND COMPACTED IN FOUR (4) INCH LAYERS. A MINIMUM OF TWO (2) FEET OF HAND COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
14. THE RISER SHALL BE ANCHORED WITH EITHER A CONCRETE BASE OR STEEL PLATE BASE TO PREVENT FLOTATION. FOR CONCRETE BASED THE DEPTH SHALL BE TWELVE (12) INCHES WITH THE RISER EMBEDDED NINE (9) INCHES. A 1/4 INCH MINIMUM THICKNESS STEEL PLATE SHALL BE ATTACHED TO THE RISER BY A CONTINUOUS WELD AROUND THE BOTTOM TO FORM A WATERTIGHT CONNECTION AND THEN PLACE TWO (2) FEET OF STONE, GRAVEL, OR TAMPED EARTH ON THE PLATE.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	PIPE OUTLET SEDIMENT TRAP ST-I

Figure 5A.17
Grass Outlet Sediment Trap: ST-II



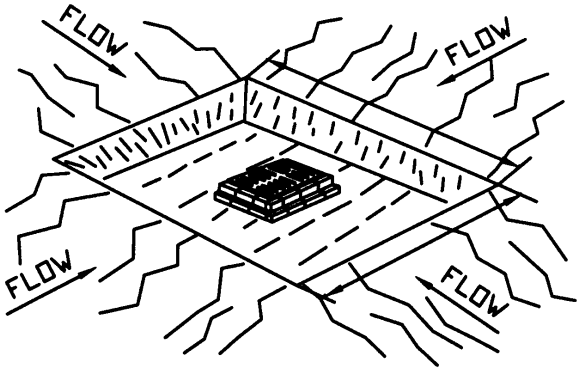
CONSTRUCTION SPECIFICATIONS

1. VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE AREA.
2. MINIMUM CREST WIDTH SHALL BE 4 x DRAINAGE AREA
3. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
4. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
5. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
6. THE SEDIMENT TRAP SHALL BE REMOVED AND AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
7. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

MAXIMUM DRAINAGE AREA: 5 ACRES

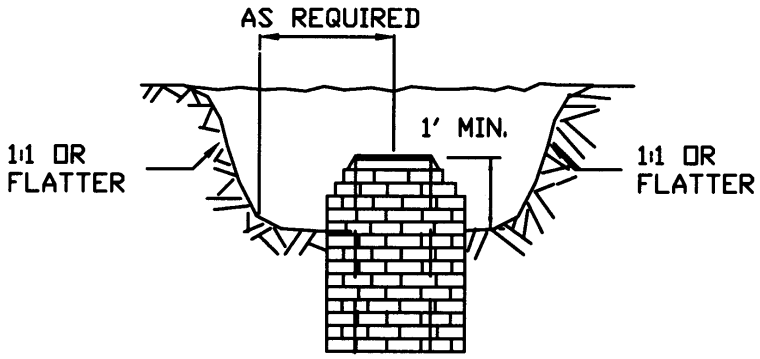
ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	GRASS OUTLET SEDIMENT TRAP ST-II

Figure 5A.18
Catch Basin Sediment Trap: ST-III



SYMBOL

YARD DRAIN



CROSS SECTION

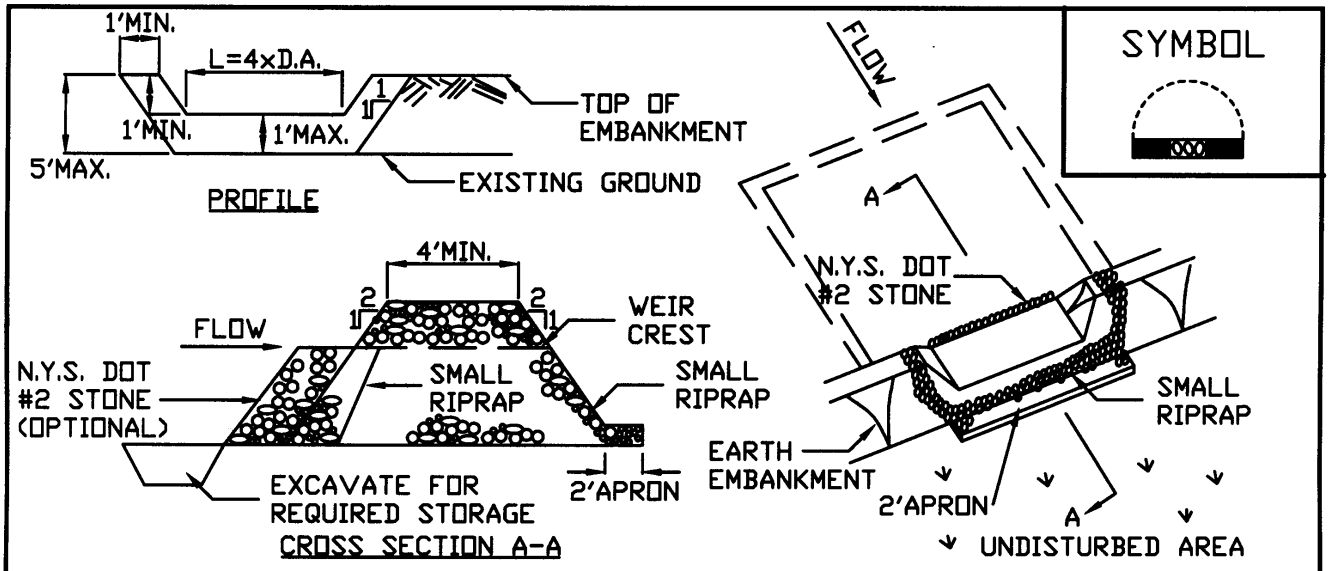
CONSTRUCTION SPECIFICATIONS

1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND STABILIZED.
2. THE VOLUME OF SEDIMENT STORAGE SHALL BE 3600 CUBIC FEET PER ACRE OF CONTRIBUTORY DRAINAGE.
3. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
5. THE SEDIMENT TRAP SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE CONSTRUCTED DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
6. ALL CUT SLOPES SHALL BE 1:1 OR FLATTER.

MAXIMUM DRAINAGE AREA: 3 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	CATCH BASIN SEDIMENT TRAP ST-III

Figure 5A.19
Stone Outlet Sediment Trap: ST-IV



OPTION: A ONE FOOT LAYER OF N.Y.S. DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP INPLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4"-8" ALONG WITH A 1' THICKNESS OF 2" AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

MAXIMUM DRAINAGE AREA 5 ACRES

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STONE OUTLET SEDIMENT TRAP ST-IV

Figure 5A.20(1)
Riprap Outlet Sediment Trap: ST-V

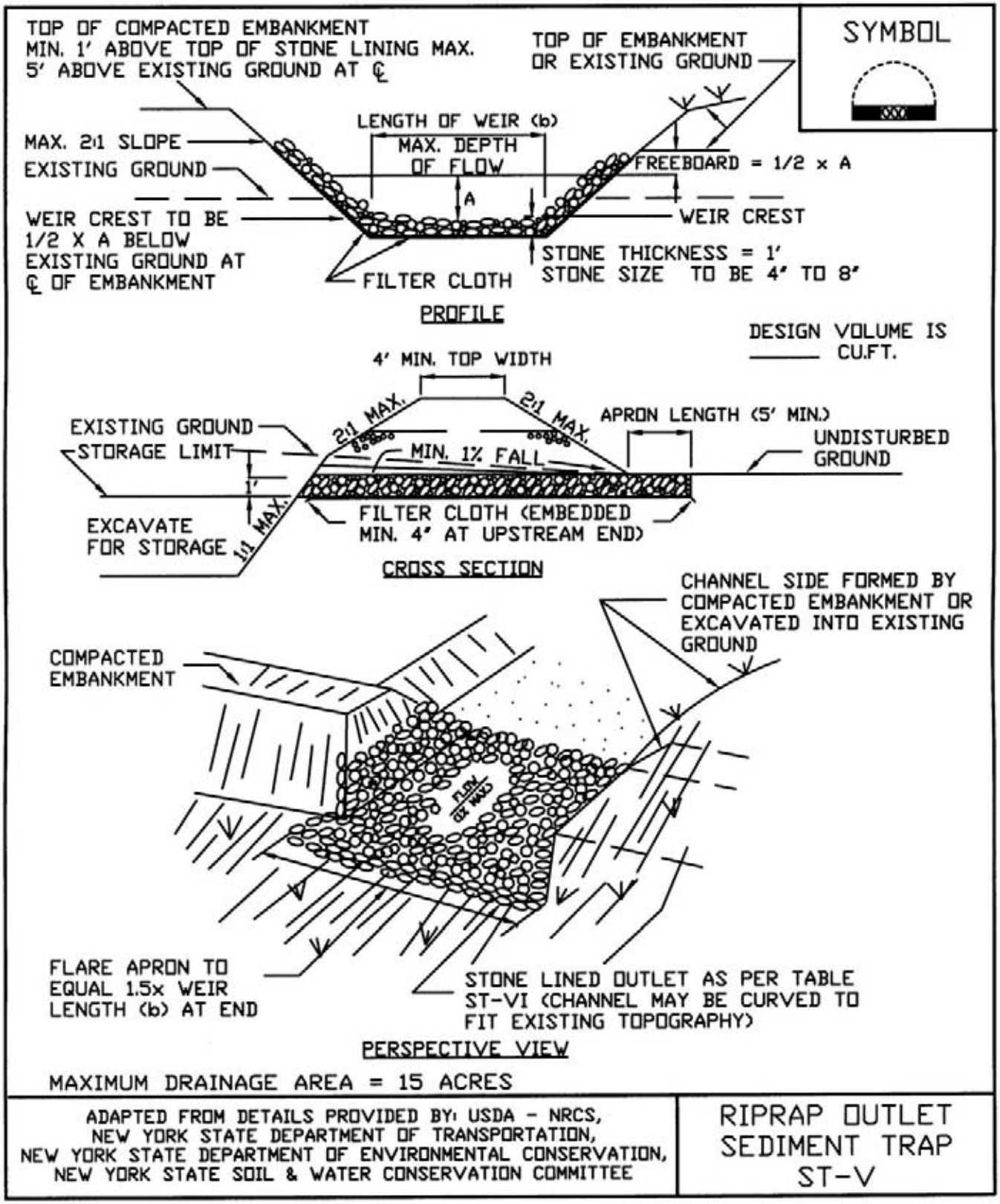


Figure 5A.202)
Riprap Outlet Sediment Trap: ST-V—Construction Specifications

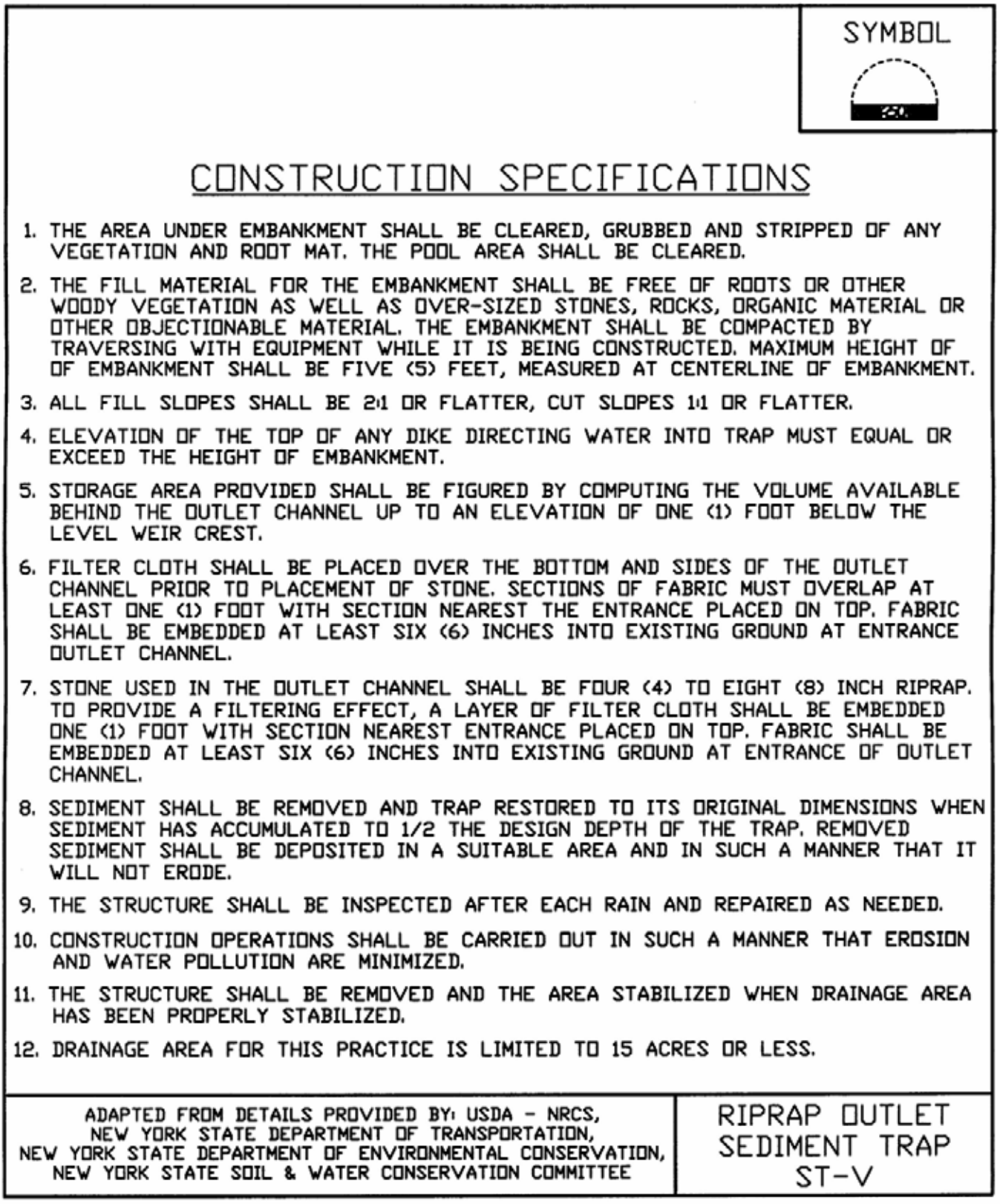
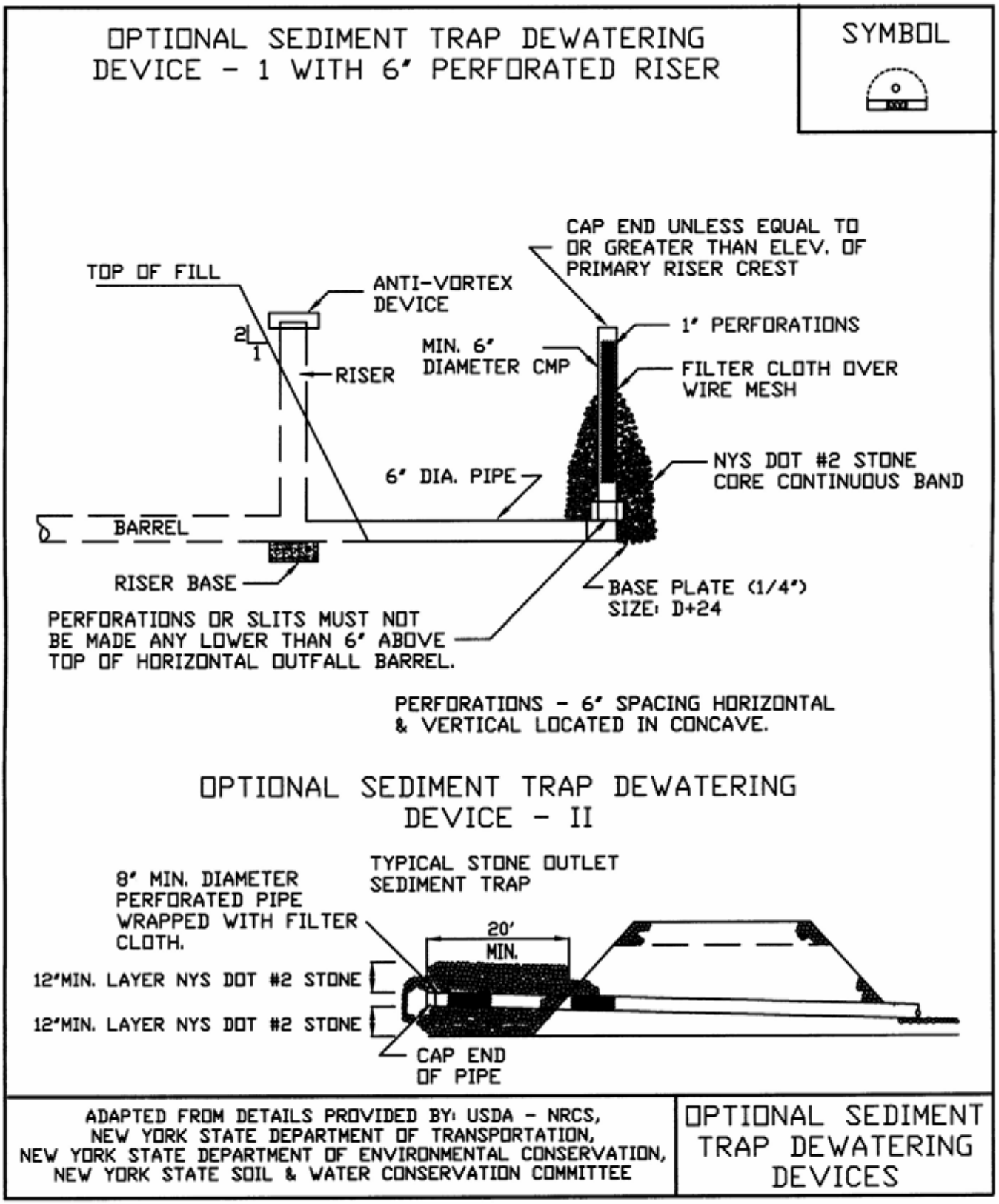


Figure 5A.21
Optional Sediment Trap Dewatering Devices



STANDARD AND SPECIFICATIONS FOR SILT FENCE



Definition

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

Purpose

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

Conditions Where Practice Applies

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

Slope Steepness	Maximum Length (ft.)
2:1	25
3:1	50
4:1	75
5:1 or flatter	100

2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and

3. Erosion would occur in the form of sheet erosion; and

4. There is no concentration of water flowing to the barrier.

Design Criteria

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be shown on the plan. See Figure 5A.8 on page 5A.21 for details.

Criteria for Silt Fence Materials

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

Fabric Properties	Minimum Acceptable Value	Test Method
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682

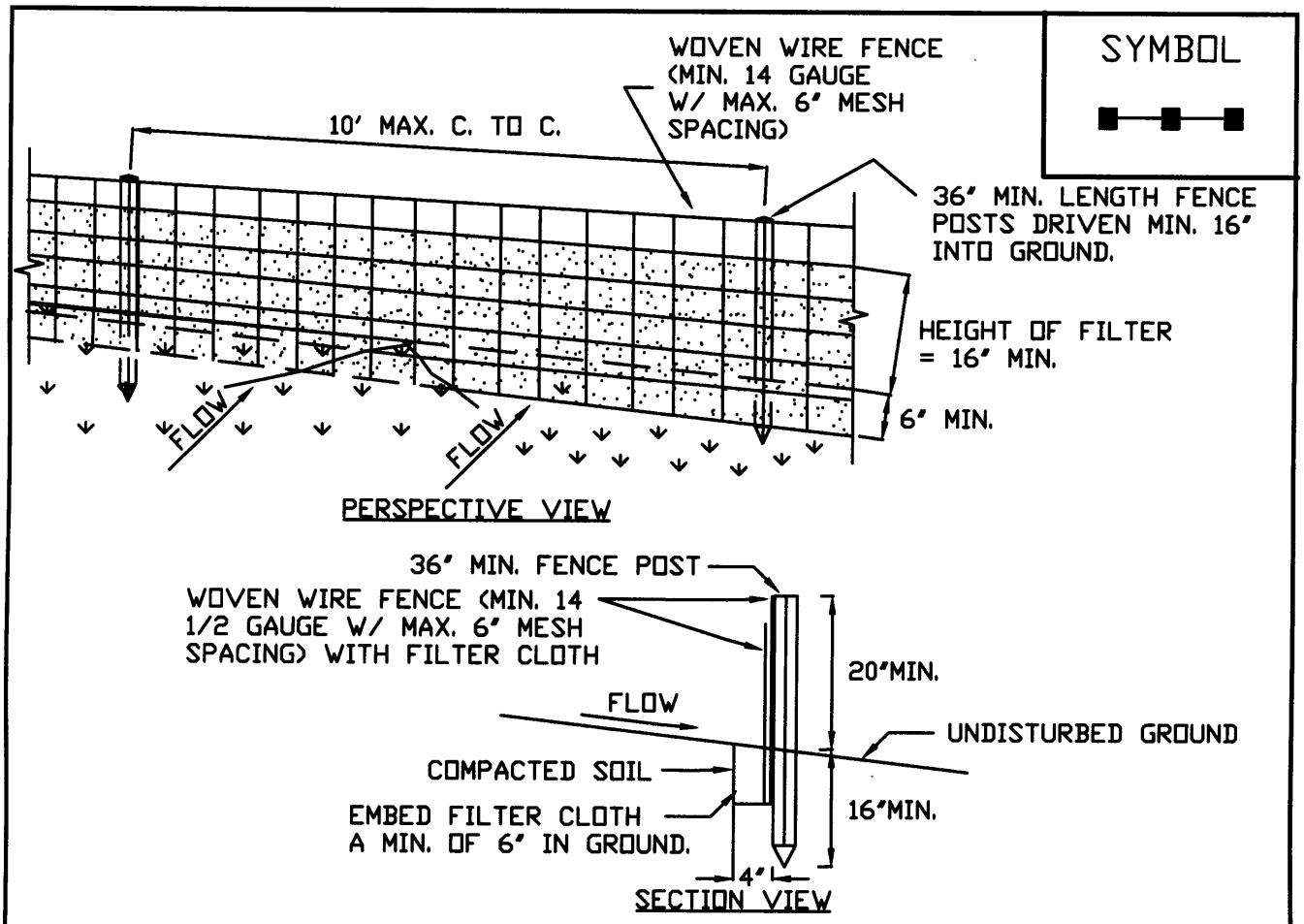
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM G-26

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot.

3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated Units: Envirofence, Geofab, or approved equal, may be used in lieu of the above method providing the unit is installed per details shown in Figure 5A.8.

Figure 5A.8
Silt Fence

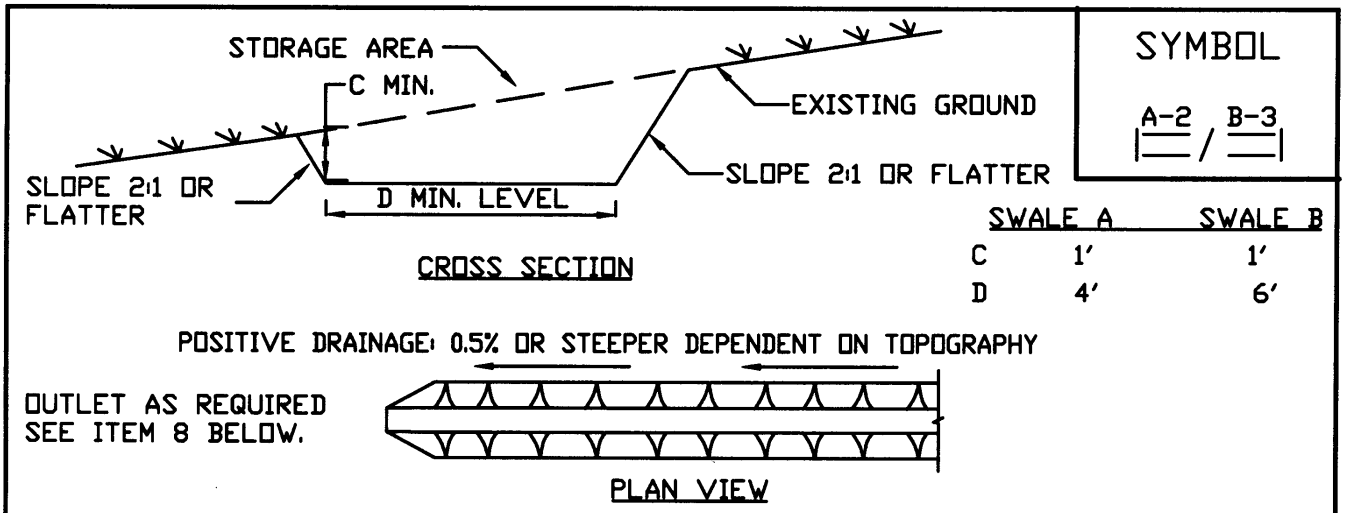


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	SILT FENCE

Figure 5A.2
Temporary Swale



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1-8.0%	SEED AND COVER WITH RECP	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE
4	8.1-20.%	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

TEMPORARY SWALE

STANDARD AND SPECIFICATIONS FOR TEMPORARY SWALE



Definition

A temporary excavated drainage way.

Purpose

The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device.

Conditions Where Practice Applies

Temporary swales are constructed:

1. to divert flows from entering a disturbed area.

2. intermittently across disturbed areas to shorten overland flow distances.

3. to direct sediment laden water along the base of slopes to a trapping device.

4. to transport offsite flows across disturbed areas such as rights-of-way.

Swales collecting runoff from disturbed areas shall remain in place until the disturbed areas are permanently stabilized.

Design Criteria

See Figure 5A.2 on page 5A.5 for details.

	Swale A	Swale B
Drainage Area	<5 Ac	5-10 Ac
Bottom Width of Flow Channel	4 ft	6 ft
Depth of Flow Channel	1 ft	1 ft
Side Slopes	2:1 or flatter	2:1 or flatter
Grade	0.5% Min. 20% Max.	0.5% Min. 20% Max.

For drainage areas larger than 10 acres, refer to the Standard and Specification for Waterways on page 5B.11.

Stabilization

Stabilization of the swale shall be completed within 7 days of installation in accordance with the appropriate standard and specifications for vegetative stabilization or stabilization with mulch as determined by the time of year. The flow channel shall be stabilized as per the following criteria:

Type of Treatment	Channel Grade[1]	Flow Channel A (<5 Ac.)	Flow Channel B (5-10 Ac)
1	0.5-3.0%	Seed & Straw Mulch	Seed & Straw Mulch
2	3.1-5.0%	Seed & Straw Mulch	Seed and cover with RECP, Sod, or lined with plastic or 2 in. stone
3	5.1-8.0%	Seed and cover with RECP, Sod, or line with plastic or 2 in. stone	Line with 4-8 in. or stone or Recycled Concrete Equivalent[2] or geotextile
4	8.1-20%	Line with 4-8 in. stone or Recycled Concrete Equivalent[2] or geotextile	Site Specific Engineering Design

[1] In highly erodible soils, as defined by the local approving agency, refer to the next higher slope grade for type of stabilization.
[2] Recycled Concrete Equivalent shall be concrete broken into the required size, and shall contain no steel reinforcement.

Outlet

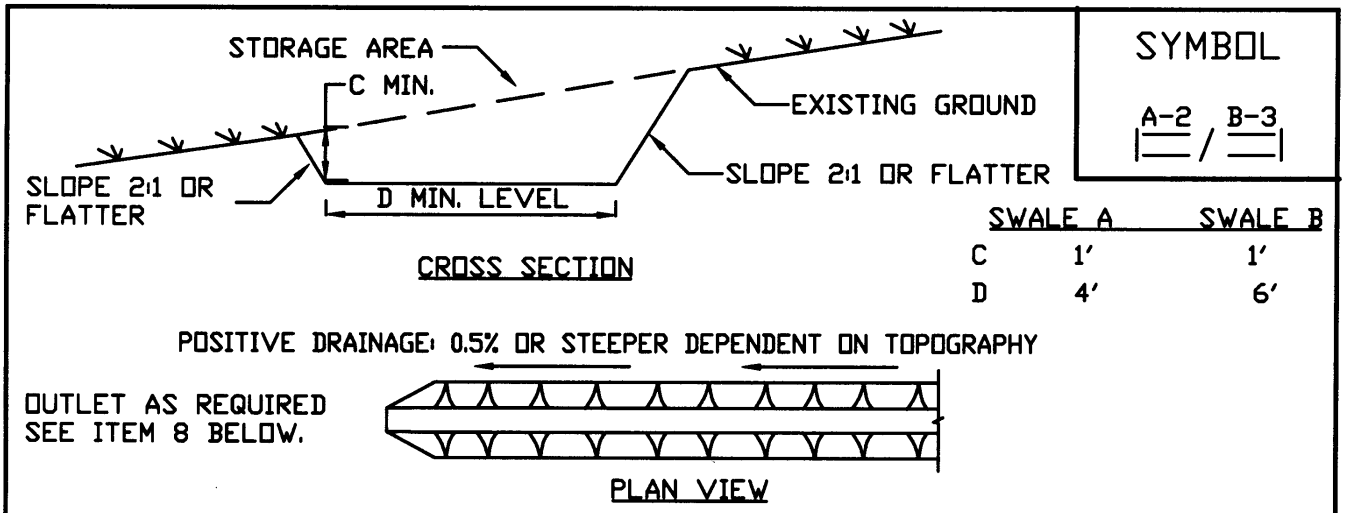
Swale shall have an outlet that functions with a minimum of erosion, and dissipates runoff velocity prior to discharge off the site.

Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin until the drainage area above the swale is adequately stabilized.

The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet condition.

If a swale is used to divert clean water flows from entering a disturbed area, a sediment trapping device may not be needed.

Figure 5A.2
Temporary Swale



CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED FOR CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE FLOW CHANNEL STABILIZATION CHART BELOW:

TYPE OF TREATMENT	CHANNEL GRADE	A(5 AC. OR LESS)	B(5 AC -10AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED AND COVER USING RECP
3	5.1-8.0%	SEED AND COVER WITH RECP	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE
4	8.1-20.%	LINED WITH 4-8" RIP-RAP OR GEOTEXTILE	ENGINEERED DESIGN

9. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS,
NEW YORK STATE DEPARTMENT OF TRANSPORTATION,
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION,
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

TEMPORARY SWALE

STANDARD AND SPECIFICATIONS FOR TOPSOILING



Definition

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas.

Purpose

To provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

Conditions Where Practice Applies

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

Design Criteria

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.

2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established.

3. Refer to USDA Soil Conservation Service (presently Natural Resource Conservation Service) soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

Site Preparation

1. As needed, install erosion control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.

2. Complete rough grading and final grade, allowing for depth of topsoil to be added.

3. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompacted to a minimum depth of 12 inches with a deep ripper or chisel plow prior to topsoiling.

4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

Topsoil Materials

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.

2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.

3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.

4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.

5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.

Application and Grading

1. Topsoil shall be distributed to a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water puddles.

2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by “tracking” with suitable equipment.

3. Apply topsoil in the following amounts:

Site Conditions	Intended Use	Minimum Topsoil Depth
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.

STANDARD AND SPECIFICATIONS FOR WATER BAR



Definition

A ridge or ridge and channel constructed diagonally across a sloping road or utility right-of-way that is subject to erosion.

Purpose

To limit the accumulation of erosive velocity of water by diverting surface runoff at pre-designed intervals.

Conditions Where Practice Applies

Where runoff protection is needed to prevent erosion on sloping access right-of-ways or either long, narrow sloping areas generally less than 100 feet in width.

Design Criteria

Design computations are not required.

1. The design height shall be minimum of 12 inches measured from channel bottom to ridge top.

2. The side slopes shall be 2:1 or flatter, a minimum of 4:1 where vehicles cross.

3. The base width of the ridge shall be six feet minimum.

4. The spacing of the water bars shall be as follows:

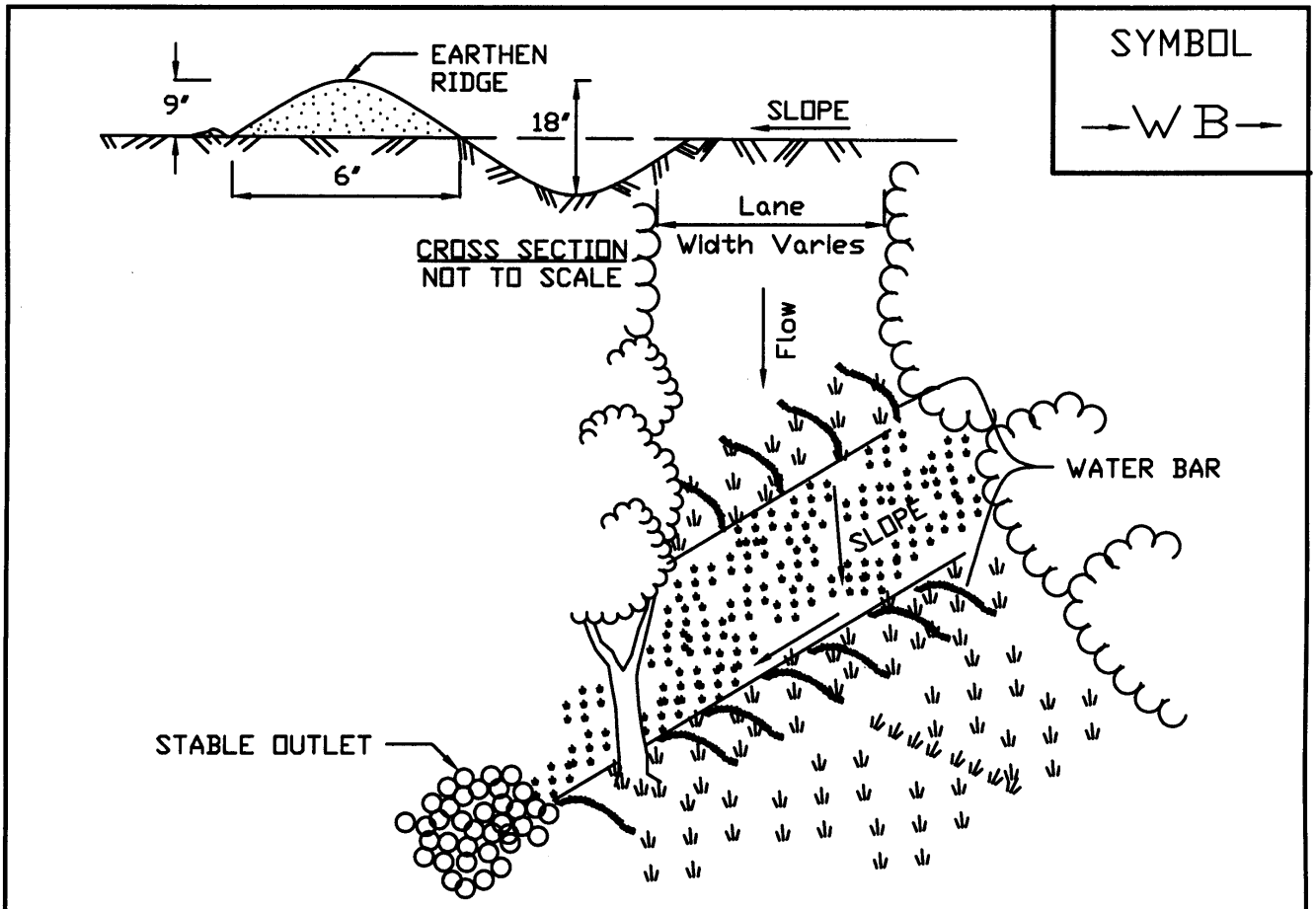
Slope (%)	Spacing (ft)
<5	125
5 TO 10	100
10 TO 20	75
20 TO 35	50
>35	25

5. The positive grade of the water bar shall not exceed 2%. A crossing angle of approximately 60 degrees is preferred.

6. Once diverted, water must be conveyed to a stable system (i.e. vegetated swale or storm sewer system). Water bars should have stable outlets, either natural or constructed. Site spacing may need to be adjusted for field conditions to use the most suitable areas for water disposal.

See Figure 5A.4 for details.

Figure 5A.4
Water Bar



CONSTRUCTION SPECIFICATIONS

1. INSTALL THE WATER BAR AS SOON AS THE RIGHT OF WAY IS CLEARED AND GRADED.
2. DISK OR STRIP THE SOD FROM THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
3. TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
4. THE OUTLET SHALL BE LOCATED ON AN UNDISTURBED AREA. FIELD SPACING WILL BE ADJUSTED TO USE THE MOST STABLE OUTLET AREAS. OUTLET PROTECTION WILL BE PROVIDED WHEN NATURAL AREAS ARE NOT ADEQUATE.
5. VEHICLE CROSSING SHALL BE STABILIZED WITH GRAVEL. EXPOSED AREAS SHALL BE IMMEDIATELY SEEDED AND MULCHED.
6. PERIODICALLY INSPECT WATER BARS FOR EROSION DAMAGE AND SEDIMENT. CHECK OUTLET AREAS AND MAKE REPAIRS AS NEEDED TO RESTORE OPERATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA - NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	WATER BARS

APPENDIX L

EMERGENCY CONTACT LIST

Operator/Owner

Company:
Address:

Emergency Number:
Local Number:
Contact Person:
Email:

Municipal Emergency Agencies

Department:
Address:

Emergency Number: Dial 911
Local Number:
Contact Person:

County Sheriff/Police Authority

Department:
Address:

Emergency Number: Dial 911
Local Number:
Contact Person:

New York Department of Environmental Protection

Regional Office Number:
Contact Person:

United States Environmental Protection Agency

Phone Number: (617) 918-1111
Contact Person:

Additional Contacts or Agency's

Department:
Address:

Emergency Number: Dial 911
Local Number:
Contact Person:

Additional Contacts or Agency's

Department:
Address:

Emergency Number: Dial 911
Local Number:
Contact Person:

STORMWATER POLLUTION PREVENTION PLAN
PLAN CHANGES, AUTHORIZATION AND CHANGE CERTIFICATION

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

REASONS FOR CHANGES:

REQUESTED BY:_____

DATE:_____

AUTHORIZED BY:_____

DATE:_____

CERTIFICATION OF CHANGES:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

SIGNATURE_____DATE_____

APPENDIX M

OPERATIONS AND MAINTENANCE MANUAL

FOR THE DEVELOPMENT OF

SOUTH HAMILTON

CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

PREPARED FOR:
O'NEILL GROUP HAMILTON, LLC
241 HUDSON AVENUE
HACKENSACK, NEW JERSEY 07601

OCTOBER 3, 2023

PREPARED BY:
Arico Associates
1407 Route 9, Bld.2, Suite 6
Clifton Park, New York 12065

ARICO ASSOCIATES PROJECT ID: 22.10



ARICO ASSOCIATES
ENGINEERS LAND PLANNERS & CONSULTANTS

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General

The owner shall overtake and become responsible for all inspecting, monitoring and maintaining erosions control features and drainage structures over the lifetime of the feature. The inspection of on-site stabilization measures will become part of routine and preventive maintenance practices developed by the owner and/or his representatives.

Inspection

The entire site should be inspected regularly for the presence of erosion gullies, cracking and wash-outs caused by heavy storm events. The cause of any irregularities should be identified and addressed in a timely manner. At a minimum, eroded areas should be topsoiled, seeded and mulched, as necessary, depending upon the identified irregularity.

The stormwater management system (i.e. roadway drainage ditches, stormwater management ponds, pipe inlets and outlets, etc.) shall be inspected at least yearly for sediment build-up, debris and structural integrity. Stormwater management pond outlet control structures should be checked more frequently for debris blockages. Vacuum truck services should be secured by the owner for periodic removal of sediment within the pond system, the outlet control structure and drainage structures.

The inspection should include, but not be limited to the following:

- Accumulation of pollutants such as grease and oils
- Stabilization and condition of vegetative ground cover areas
- Cracking, settlement, sliding or gully erosions of embankments
- Sedimentation of downstream water bodies, culvert or swales
- Sedimentation of lawns, pavement areas or catch basin sumps
- Presences of animal borrows, clogging or sedimentation at inlets or outlets
- Erosion or disruption of flow paths from stormwater management areas
- Structural integrity of spillways and obstruction of overflow
- Inlet and outlet riprap for scouring or dislodged stones or obstructions
- Forebays and aquatic benches to ensure proper and structural integrity.

Any sediment build-up should be removed and disposed of utilizing acceptable practices. Care should be exercised to avoid storing snow on any stormwater facilities, including the outfall swale.

Maintenance

The permittee shall at all time properly operate and maintain all facilities and systems of treatment and control, as well as related appurtenances, which are install or to be used by the permittee to achieve compliance with the conditions of this permit and within the requirements of SWPPP's. Maintenance shall occur on a regular basis and should include, but not be limited to the following:

- Mowing of lawn areas at least three times per year to prevent over and vigorous growth

- Mowing of steep slopes, embankments, overflow spillways at least three times per year to prevent overgrowth
- Sweeping common paved areas at least three times per year, especially during early spring to remove excessive deicing material and sediment
- Removing litter and debris that has accumulated during mowing and sweeping operations
- Repairing catch basins, storm sewer components upon immediately addressing and identifying structural deficiency
- Clean catch basin sumps once accumulation is within six inches of the outlet pipe invert
- Repair of riprap lined swales, inlets and outlets, replacing stone where signs of scouring has occurred
- Remove trees and excessive growth from inlets and outlets
- Basins and forebays shall be monitored periodically for sediment accumulations. Once the accumulations have reduced the water quality volume by more that 25% or when 12" has accumulated around the inlets or outlets, sediment shall be removed. Removal of sediment shall be in a manner to re-establish original grades as shown on the original construction plans.

Preventative Measures to Reduce Maintenance Costs

The most effective way to maintain your water quality facility is to prevent the pollutants from entering the facility in the first place. Common pollutants include sediment, trash & debris, chemicals, dog wastes, runoff from stored materials, illicit discharges into the storm drainage system and many others.

- Educate property owners/residents to be aware of how their actions affect water quality, and how they can help reduce maintenance costs.
- Keep properties, streets and gutters, and parking lots free of trash, debris, and lawn clippings.
- Ensure the proper disposal of hazardous wastes and chemicals.
- Plan lawn care to minimize the use of chemicals and pesticides.
- Sweep paved surfaces and put the sweepings back on the lawn.
- Be aware of automobiles leaking fluids. Use absorbents such as cat litter to soak up drippings – dispose of properly.
- Re-vegetate disturbed and bare areas to maintain vegetative stabilization.
- Clean out the upstream components of the storm drainage system, including inlets, storm sewers and outfalls.
- Do not store materials outdoors (including landscaping materials) unless properly protected from runoff.

Access and Easements

All stormwater management facilities located on the site have both a designated access location As well as a maintenance easement. Refer to the Stormwater Facilities Map located in Appendix G for access and easement locations.

Safety

Keep safety considerations at the forefront of inspection procedures at all times. Likely hazards should be anticipated and avoided. Never enter a confined space (outlet structure, manhole, etc) without proper training or equipment. A confined space should never be entered without at least one additional person present. If a toxic or flammable substance is discovered, leave the immediate area and contact the local Sheriff at 911.

Potentially dangerous (e.g., fuel, chemicals, hazardous materials) substances found in the areas must be referred to the local Sheriff's Office immediately for response by the Hazardous Materials Unit. The emergency contact number is 911.

Vertical drops may be encountered in areas located within and around the facility. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within the pond that is greater than 48" in height, make the appropriate note/comment on the maintenance inspection form.

If any hazard is found within the facility area that poses an immediate threat to public safety, contact the local Sheriff's Office immediately.

Field Inspection Equipment

It is imperative that the appropriate equipment is taken to the field with the inspector(s). This is to ensure the safety of the inspector and allow the inspections to be performed as efficiently as possible. Below is a list of the equipment that may be necessary to perform the inspections of all Stormwater Management Facilities:

- Protective clothing and boots.
- Safety equipment (vest, hard hat, confined space entry equipment).
- Communication equipment.
- Operation and Maintenance Manual for the site including stormwater management facility location maps.
- Clipboard.
- Stormwater Facility Maintenance Inspection Forms (See Appendix D).
- Manhole Lid Remover
- Shovel.

Some of the items identified above need not be carried by the inspector (manhole lid remover, shovel, and confined space entry equipment). However, this equipment should be available in the vehicle driven to the site.

Inspection Procedures

All stormwater management facilities are required to be inspected by a qualified individual at a minimum of once per year. Inspections should follow the inspection guidance found in the SOP for the specific type of facility.

Inspection Report

The person(s) conducting the inspection activities shall complete the appropriate inspection report for the specific facility. Inspection reports are located in this Appendix.

The following information explains how to fill out the Inspection Forms:

General Information

This section identifies the facility location, person conducting the inspection, the date and time the facility was inspected, and approximate days since the last rainfall. Property classification is identified as single-family residential, multi-family residential, commercial, or other.

The reason for the inspection is also identified on the form depending on the nature of the inspection. All facilities should be inspected on an annual basis at a minimum. In addition, all facilities should be inspected after a significant precipitation event to ensure the facility is draining appropriately and to identify any damage that occurred as a result of the increased runoff.

Verification of Inspection and Form Submittal

The Stormwater Management Facility Inspection Form provides a record of inspection of the facility. Inspection Forms for each facility type are provided in this appendix. Verification of the inspection of the stormwater facilities, the facility inspection form(s), and Inspector Qualifications shall be provided to the proper authority on an annual basis. The verification and the inspection form(s) shall be reviewed and submitted by the property owner or property manager.

Routine Work

The majority of this work consists of scheduled mowing's and trash and debris pickups for stormwater management facilities during the growing season. This includes items such as the removal of debris/material that may be clogging the outlet structure well screens and trash racks. It also includes activities such as weed control, mosquito treatment, and algae treatment. These activities normally will be performed numerous times during the year.

Restoration Work

This work consists of a variety of isolated or small-scale maintenance and work needed to address Operational problems. Most of this work can be completed by a small crew, with minor tools, and small equipment.

Rehabilitation Work

This work consists of large-scale maintenance and major improvements needed to address failures within the stormwater management facilities. This work requires consultation and may require an Engineering design with construction plans to be prepared for review and approval. This work may also require more specialized maintenance equipment, surveying, construction permits or assistance through private contractors and consultants.

Maintenance Personnel

Maintenance personnel must be qualified to properly maintain stormwater management facilities. Inadequately trained personnel can cause additional problems resulting in additional maintenance costs.

Maintenance Forms

The Stormwater Management Facility Maintenance Form provides a record of maintenance activities. Maintenance Forms for each facility type are provided in this appendix. Maintenance Forms shall be completed by the contractor completing the required maintenance items. The form shall then be reviewed by the property owner or an authorized agent of the property owner and submitted on an annual basis to the proper authority.

ESTIMATED ANNUAL OPERATION AND MAINTENANCE COST

Cost		
6-months	Inspect outlet and inlet control structure openings; Mow extended detention basins	**$3,500.00**
1-year	Inspection & Report by Qualified Professional Groom and repair basin side walls and grass	**$3,500.00**
5-year	Remove and dispose of sediment Repair grass, side slopes and bottom as needed	**$5,500.00**
10-year	Remove and dispose of sediment Repair grass, side slopes and bottom as needed Repair outlet control devices, as needed	**$3,500.00**
30-year	Remove and dispose of sediment Repair grass, side slopes and bottom as needed Repair outlet control devices, misc. repairs as needed	**$4,000.00**

(*****costs are in 2023 dollars. Adjustments should be adjusted for inflation at 3% annually)

October 4, 2023

One Key Development LLC
241 Hudson Street
Attn: George Brandt

RE: Traffic Impact Study for Proposed Multi-Family Residential Building, City of Poughkeepsie, Dutchess County, New York; CM Project No. 123-200

Dear Mr. Brandt:

As requested, Creighton Manning Engineering, LLP (CM) has completed a Traffic Impact Study for the proposed residential development located on South Hamilton Street in the City of Poughkeepsie, Dutchess County, NY. This study is based on traffic engineering industry standards and the Concept Plan prepared by Arico Associates, last revised April 4, 2023, which is included under Attachment A.

1.0 Project Description

The subject site is defined on the Dutchess County Tax Map as Section 6161, Block 30, Lot 151782, and undeveloped. The site has an existing curb cut on South Hamilton Street approximately 80 feet south of Franklin Street. The proposed project consists of the construction of a three-story residential building with 58 units comprised of 29 one-bedroom units and 29 two-bedroom units. The site will be accessed via a 24-foot-wide full-movement driveway at the same location as the existing curb cut and a 17-foot-wide access driveway on Dwight Street. The development will be supported by 102 parking spaces inclusive of six ADA-accessible spaces, which exceeds the City of Poughkeepsie's parking requirements. The proposed development is expected to be completed and occupied by 2026. A map illustrating the site location is shown in Exhibit 1.



Exhibit 1 – Site Location

2.0 Existing Conditions

Roadways Serving the Site

- **Hooker Avenue** is classified as an Urban Minor Arterial roadway and is under the jurisdiction of the City of Poughkeepsie. The roadway runs primarily east-west from NYS Route 376 to South Hamilton Street within the City of Poughkeepsie and neighboring Town of Poughkeepsie. In the vicinity of the site, Hooker Avenue provides one 12-foot-wide travel lane in each direction with on-street parking on some sections of the road. Turn lanes are provided at key intersections. Sidewalks are provided on both sides of the roadway.

- **Montgomery Street** is classified as an Urban Minor Arterial roadway and is under the jurisdiction of the City of Poughkeepsie. The roadway runs primarily east-west from South Clinton Street to Lincoln Avenue (beyond which it continues as Pine Street) within the City of Poughkeepsie. In the vicinity of the site, Montgomery Street provides one 12-foot-wide travel lane in each direction with on-street parking on some sections of the road. Turn lanes are provided at key intersections. Sidewalks are provided on both sides of the roadway.

- **South Hamilton Street** is classified as an Urban Major Arterial roadway and is under the jurisdiction of the City of Poughkeepsie. The roadway runs primarily north-south from Main Street (beyond which it continues as North Hamilton Street) to Livingston Street within the City of Poughkeepsie. In the vicinity of the site, Montgomery Street provides one 12-foot-wide travel lane in each direction with on-street parking on some sections of the road. Turn lanes are provided at key intersections. Sidewalks are provided on both sides of the roadway.

- **Dwight Street** is classified as an Urban Local roadway and is under the jurisdiction of the City of Poughkeepsie. The roadway runs east-west from Hooker Avenue to South Hamilton Street for approximately 1,000 feet. In the vicinity of the site, Dwight Street provides one 12-foot-wide travel lane in each direction with on-street parking on both sides of the road. Sidewalks are provided on both sides of the roadway.

Study Intersections

- **Hooker Avenue/Montgomery Street/South Hamilton Street:** This is a four-leg signalized intersection. The eastbound Montgomery Street approach provides an exclusive left-turn lane and a shared through/right-turn lane. The westbound Hooker Avenue approach provides a shared left-turn/through lane and an exclusive right-turn lane. The northbound South Hamilton Street approach provides a shared left-turn/through/right-turn lane. The southbound South Hamilton Street approach provides a shared left-turn/through/right-turn lane. Marked pedestrian crossings are present on all legs of the intersection. During a field visit to the site, CM found that all the pedestrian signal and countdown timers do not work. The level of service analysis herein was conducted using the traffic signal timings and phasing directive obtained from the City of Poughkeepsie Engineering Department. Exhibit 2 is a Nearmap image that shows the study intersection.



Exhibit 3 – Hooker Avenue/Montgomery Street/ South Hamilton Street Intersection

- **Hooker Avenue/Dwight Street/Hanscom Avenue:** This is a five-leg signalized intersection. The eastbound Dwight Street approach provides a shared left-turn/through/right-turn lane. The westbound Hanscom Avenue approach provides an exclusive left-turn lane and a shared through/right-turn lane. The northbound Hooker Ave approach provides a shared left-turn/through lane. The southbound Hooker Avenue approach provides a shared through/right-turn lane. Marked pedestrian crossings are present on all legs of the intersection. The level of service analysis herein was conducted using the traffic signal timings and phasing directive obtained from the City of Poughkeepsie Engineering Department. Exhibit 3 is a Nearmap image that shows the study intersection.



Exhibit 3 – Hooker Avenue/Dwight Street/Hanscom Avenue Intersection

- **South Hamilton Street/Dwight Street:** This is a three-leg unsignalized intersection operating with stop control on the westbound approach. The westbound Dwight Street approach provides a shared left-turn/right turn. The northbound South Hamilton Street approach provides one shared through/right-turn lane. The southbound South Hamilton Street approach provides a shared left-turn/through lane. Curb ramps are present on the northeast and southeast corners of the intersection. Exhibit 4 depicts the intersection.



Exhibit 4 – South Hamilton Street/Dwight Street Intersection

Data Collection

Turning Movement Counts (TMCs) were conducted on Thursday, July 6, 2023, during the weekday morning (7:00AM - 9:00AM) and weekday evening (4:00PM - 6:00PM) peak periods, and on Saturday July 8, 2023, during the midday (11:00AM - 2:00PM) peak period. These periods coincide with the anticipated peak-hour operation times of the proposed use as well as the adjacent street traffic. The observed peak hours were 8:00AM to 9:00AM and 4:30PM to 5:30PM on the weekday, and 1:00PM to 2:00PM on the Saturday. Counts were performed at the following intersections:

- Hooker Avenue/Montgomery Street/South Hamilton Street
- Hooker Avenue/Dwight Street/Hanscom Avenue

- South Hamilton Street/Dwight Street

Figure 1 shows the 2023 Existing traffic volumes for the study area. The raw TMC data is included under Attachment B.

3.0 Traffic Assessment

Trip Generation

Trip generation determines the quantity of traffic expected to travel to/from a given site. The Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition, is the industry-standard resource used for estimating trip generation for proposed land uses based on data collected at similar uses. Upon review of the *Trip Generation Manual*, Land Use Code (LUC) 220 "Multifamily Housing (Low-Rise)" most accurately describe the proposed use. Table 1 summarizes the trip generation for the weekday AM, weekday PM, and Saturday Midday peak hours.

Table 1 – Trip Generation Summary for Proposed Use

Land Use	Independent Variable	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Multifamily Housing (Low-Rise) – LUC 220	58 Units	10	31	41	29	16	45	15	9	24

Table 1 shows that the project is expected to generate 41 total trips during weekday AM peak hour, 45 total trips during the weekday PM peak hour, and 24 trips during the Saturday midday peak hour. It is important to note that there is no "pass-by" component of the traffic associated with the proposed development. Additionally, the magnitude of the new traffic associated with this development is less than the NYSDOT and ITE threshold of 100-site-generated trips on any one intersection, which is an industry threshold indicating whether a proposed development will have a significant impact on off-site intersections. While the anticipated trip generation falls below that threshold, the study herein analyzes three off-site intersections.

Future Traffic Volumes

To evaluate the impact of the proposed project, traffic projections were prepared for the anticipated year of completion – 2026. Historic traffic volume data on Hooker Avenue and South Hamilton Street indicates that traffic volumes along the roadway have increased by 0.24% annually.[1] In order to conservatively forecast the 2026 traffic volumes, a +0.5% growth rate was applied to the existing traffic volumes and compounded annually for three years. These volumes represent 2026 No-Build conditions. These 2026 No-Build conditions are shown on Figure 2 and represent the expected traffic volumes in 2026 *without* the proposed development.

Traffic generated by the project was distributed on the adjacent roadway network based on existing observed travel patterns in the project area and the likely paths of travel of future residents and visitors. The proximity of the site to US Route 9 and US Route 44/US Route 55 (collectively "The Arterials") are expected to influence trip-making behavior along with the Poughkeepsie Train Station and FDR Mid-Hudson Bridge. The trip distribution of the proposed multifamily residential development is shown on Figure 3. The associated site-generated traffic volumes are shown on Figure 4. The site-generated trips were then added to the 2026 No-Build traffic volumes, resulting in the 2026 Build traffic volumes as shown on Figure 5.

[1] Based on NYSDOT ATR Station ID 828764 |ID 821080 |ID 828768| ID 821002| ID 821084 |. Study years: 2009, 2012, 2015, 2019.

Traffic Operations

Intersection Level of Service (LOS) and capacity analysis relate traffic volumes to the physical characteristics of an intersection. Intersection evaluations were made using Synchro Version 11 software, which automates the procedures contained in the Highway Capacity Manual. Table 2 summarizes the results of the level of service calculations for the Existing, No-Build, and Build conditions during the weekday AM peak hour, weekday PM peak hour, and Saturday Midday peak hour. The detailed level of service analyses are included under Attachment C.

Table 2 – Level of Service Summary

Intersection		Control	Weekday AM Peak Hour			Weekday PM Hour			Saturday Midday Peak Hour		
			2023 Existing	2026 No-Build	2026 Build	2023 Existing	2026 No-Build	2026 Build	2023 Existing	2026 No-Build	2026 Build
Hooker Ave/Montgomery St/S. Hamilton St		S									
Montgomery St, EB	L		A (4.2)	A (4.2)	A (4.2)	A (5.0)	A (5.0)	A (5.2)	A (4.5)	A (4.5)	A (4.6)
	TR		A (4.4)	A (4.4)	A (4.4)	A (5.4)	A (5.4)	A (5.6)	A (4.7)	A (4.7)	A (4.8)
Hooker Ave, WB	LT		A (9.1)	A (9.1)	A (9.1)	B (11.0)	B (11.0)	B (11.1)	A (9.4)	A (9.4)	A (9.4)
	R		A (8.0)	A (8.0)	A (8.1)	A (9.7)	A (9.7)	A (9.9)	A (8.7)	A (8.7)	A (8.7)
S. Hamilton St, NB	LTR		B (13.0)	B (13.1)	B (13.5)	B (10.2)	B (10.2)	B (10.3)	A (10.0)	A (10.0)	A (10.0)
S. Hamilton St, SB	LTR		B (14.2)	B (14.3)	B (14.4)	B (12.1)	B (12.3)	B (12.3)	B (10.8)	B (10.9)	B (10.9)
Overall			A (9.5)	A (9.5)	A (9.7)	A (9.6)	A (9.6)	A (9.7)	A (8.7)	A (8.7)	A (8.7)
Hooker Ave/Dwight St/Crescent Rd/Hanscom Ave		S									
Dwight St, EB	LTR		B (14.4)	B (14.5)	B (15.0)	B (12.3)	B (12.4)	B (12.7)	B (10.7)	B (10.9)	B (11.0)
Hanscom Ave, WB	L		B (12.5)	B (12.5)	B (12.7)	B (12.4)	B (12.5)	B (12.8)	A (9.9)	B (10.0)	B (10.0)
	R		B (12.7)	B (12.7)	B (12.9)	B (12.4)	B (12.5)	B (12.7)	A (9.7)	A (9.8)	A (9.8)
Hooker Ave, NB	LTR		A (6.9)	A (6.9)	A (6.9)	A (7.4)	A (7.3)	A (7.2)	A (8.4)	A (8.3)	A (8.4)
Hooker Ave, SB	LTR		A (6.1)	A (6.1)	A (6.1)	A (7.7)	A (7.6)	A (7.5)	A (8.1)	A (8.0)	A (8.0)
Crescent Rd, SB	LTR		B (13.9)	B (13.9)	B (14.1)	B (15.0)	B (15.1)	B (15.4)	B (11.0)	B (11.1)	B (11.1)
Overall			A (7.6)	A (7.5)	A (7.6)	A (8.3)	A (8.3)	A (8.3)	A (8.6)	A (8.6)	A (8.6)
S. Hamilton St/Dwight St		U									
Dwight St, WB	LR		A (9.6)	A (9.6)	A (9.8)	A (9.6)	A (9.7)	A (9.8)	A (9.4)	A (9.4)	A (9.4)
S. Hamilton St, SB	L		A (7.4)	A (7.4)	A (7.4)	A (7.5)	A (7.5)	A (7.5)	A (7.4)	A (7.4)	A (7.4)
S. Hamilton St/Site Driveway		U									
Site Driveway, WB	LR		--	--	A (9.1)	--	--	A (9.3)	--	--	A (9.1)
S. Hamilton, NB	L		--	--	A (7.4)	--	--	A (7.4)	--	--	A (7.4)

U = Unsignalized intersection
S = Signalized intersection
EB, WB, NB, SB = Eastbound, Westbound, Northbound, and Southbound intersection approaches
L, T, R = Left-turn, Through, and/or Right-turn movements
X (Y.Y) = Level of service (Average delay in seconds per vehicle)

The impact of the project can be described by comparing the analysis of the No-Build and Build operating conditions. The following observation are evident from the analysis:

- **Hooker Avenue/Montgomery Street/S. Hamilton Street:** The level of service analysis indicates that the intersection currently operates at an overall LOS A during all peak hours and will continue to do so in the Build conditions.
- **Hooker Avenue/Dwight Street Crescent Road/Hanscom Avenue:** The level of service analysis indicates that the intersection currently operates at an overall LOS A or better and will continue to do so in the Build conditions.
- **S. Hamilton Street/Dwight Street:** The level of service analysis indicates that the minor approach currently operates at a LOS A and will continue to do so in the Build Condition during the study peak hours.

- **S. Hamilton Street/Site Driveway:** The level of service analysis indicates that the intersection will operate at a LOS A during the study peak hours. The 95th-percentile queue at the driveway exit approach is calculated to be one vehicle during the study peak hours.

4.0 Site Access, Circulation, and Parking

CM reviewed the site access, site circulation and parking as shown on the Concept Plan prepared by Arico Associates, last revised April 4, 2023. The site will be accessed via a full-movement driveway on South Hamilton Street. Vehicles will have a minimum 22-foot-wide drive aisle on site to provide access to the 102 spaces. The site will be supported by 102 parking spaces inclusive of six ADA-accessible spaces. The proposed number of parking spaces meets the City of Poughkeepsie zoning requirements.[2]

Similar to trip generation, the ITE also provides parking generation data in its publication entitled Parking Generation, 5th Edition. Based on the ITE LUC 220, the proposed development would have a peak parking demand of 65 spaces and the 85th percentile demand is 88 spaces. This indicates that the proposed 102 spaces proposed for the residential development would be adequate to accommodate the peak parking demand.

5.0 Conclusion

The subject site is defined on the Dutchess County Tax Map as Section 6161, Block 30, Lot 151782. The proposed project consists of the construction of a three-story residential building with 58 units comprised of 29 one-bedroom units and 29 two-bedroom units. The site will be accessed via a full-movement driveway on South Hamilton Street and a 17-foot-wide driveway that will be accessed via Dwight Street. The development will be supported by 102 spaces inclusive of six ADA-accessible spaces. The following is noted regarding the proposed project:

- Turning movement counts were collected during a typical weekday and typical Saturday at the study intersections.
- Upon review of the *Trip Generation Manual*, Land Use Code (LUC) 220 "Multifamily Housing (Low-Rise)" most closely described the anticipated use on site.
- The development is expected to generate a total of 41 trips during the AM peak hour, a total of 45 trips during the PM peak hour, and a total of 24 trips during the Saturday midday peak hour.
- The level of service analysis indicates that the Build condition of the study intersections will operate at the levels of service consistent with the No-Build conditions. LOS A and LOS B are optimal operating levels and considered acceptable.
- The project is not expected to have a significant adverse impact on the surrounding roadway network.
- The site provides 102 parking spaces and meets the City of Poughkeepsie parking requirements.
- CM recommends that the City of Poughkeepsie investigate the inoperable pedestrian crossing signals and pushbuttons at the intersection of Hooker Avenue/Montgomery Street/South Hamilton Street.
- CM recommends that the site driveway provide a Stop sign (MUTCD R1-1) on exit approach to South Hamilton Street.

Please do not hesitate to call our office if you have any questions or comments, or require additional information.

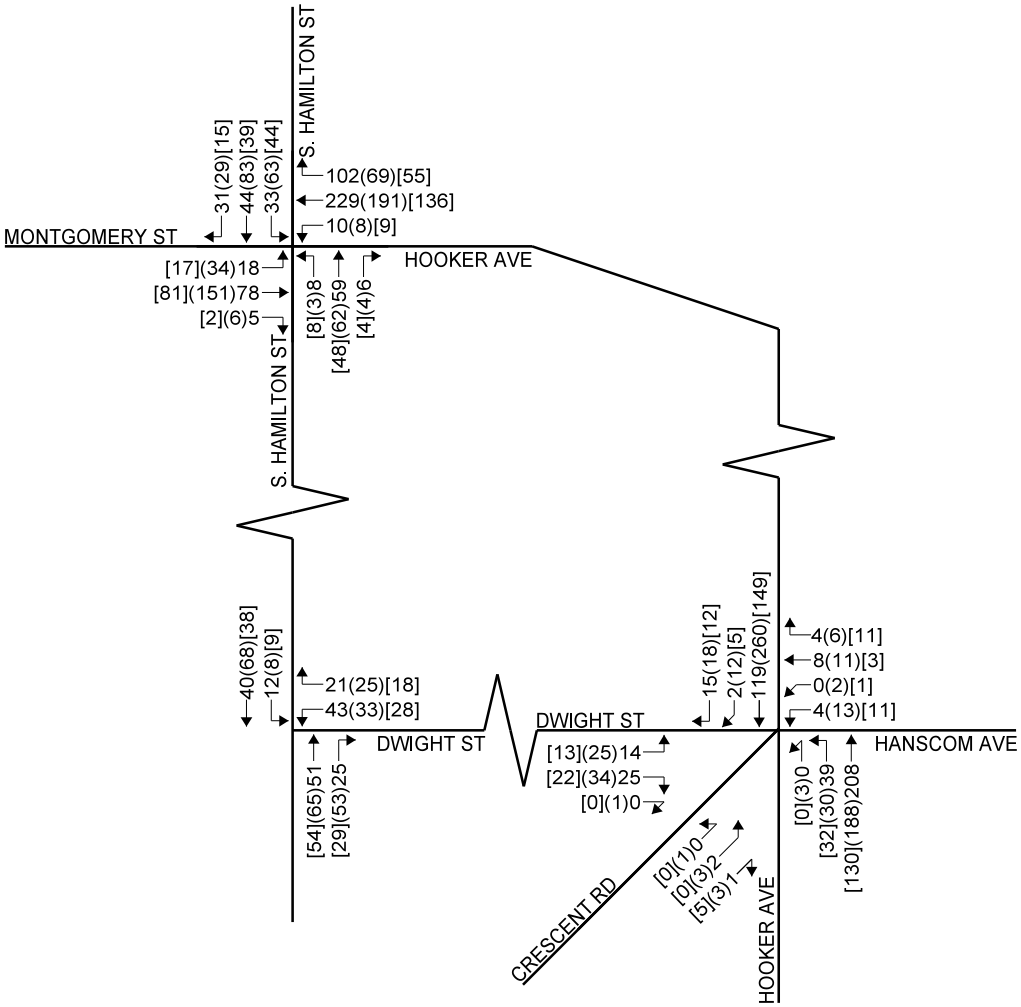
Respectfully submitted,
Creighton Manning Engineering, LLP

[2] Multifamily Dwelling – 1.5 spaces/1-bedroom + 2 spaces/2-bedroom apartment = 1.5*29 + 2 * 29 = 102 spaces required.

Frank A. Filiciotto, PE
Associate

Fior M. Perez, EIT
Assistant Project Engineer

cc:



WEEKDAY AM (WEEKDAY PM) [SATURDAY MIDDAY]

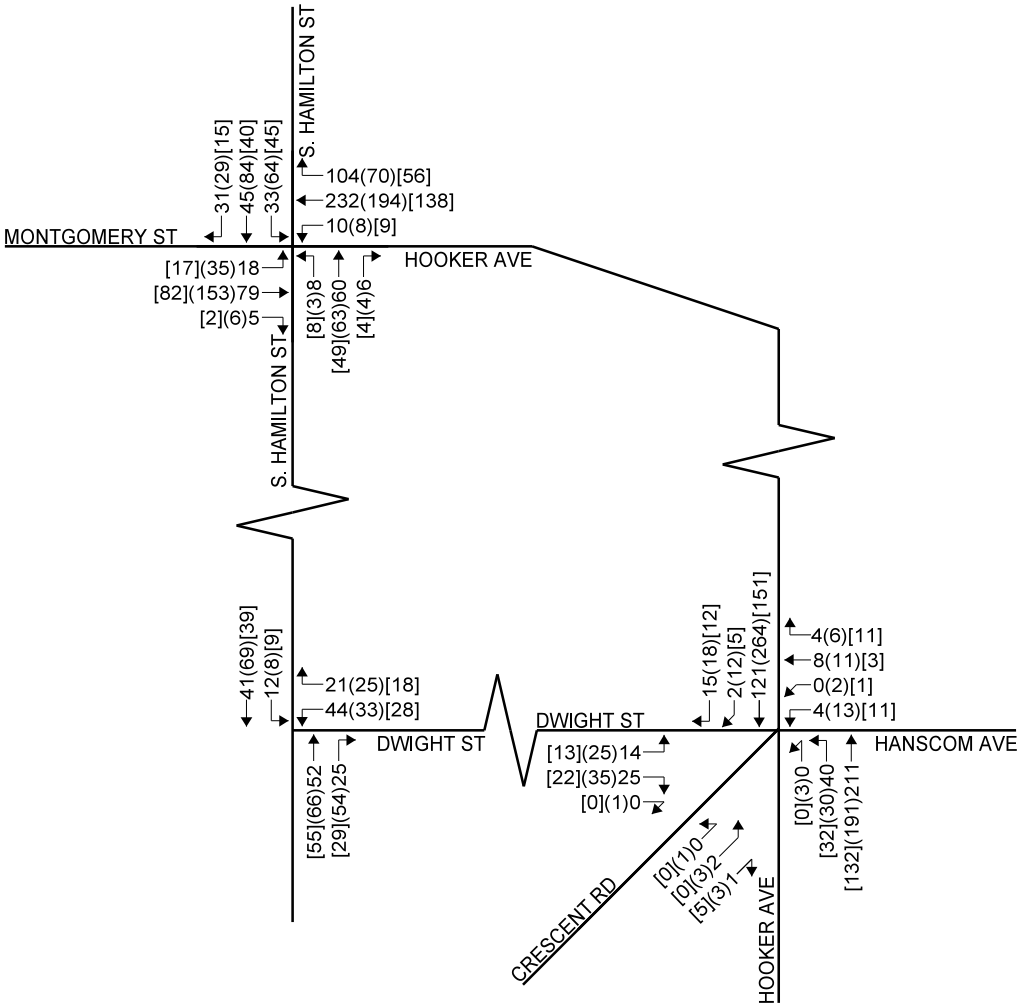
2023 EXISTING
TRAFFIC VOLUMES

ONE KEY DEVELOPMENT, LLC
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

Creighton Manning

PROJECT: 123-200	DATE: 07/2023	FIGURE: 1

N:\Projects\2023\123-200 One Key Development - Poughkeepsie\Working\CADD\dgn\figures\123-200_traf_fig_01.dgn



WEEKDAY AM (WEEKDAY PM) [SATURDAY MIDDAY]

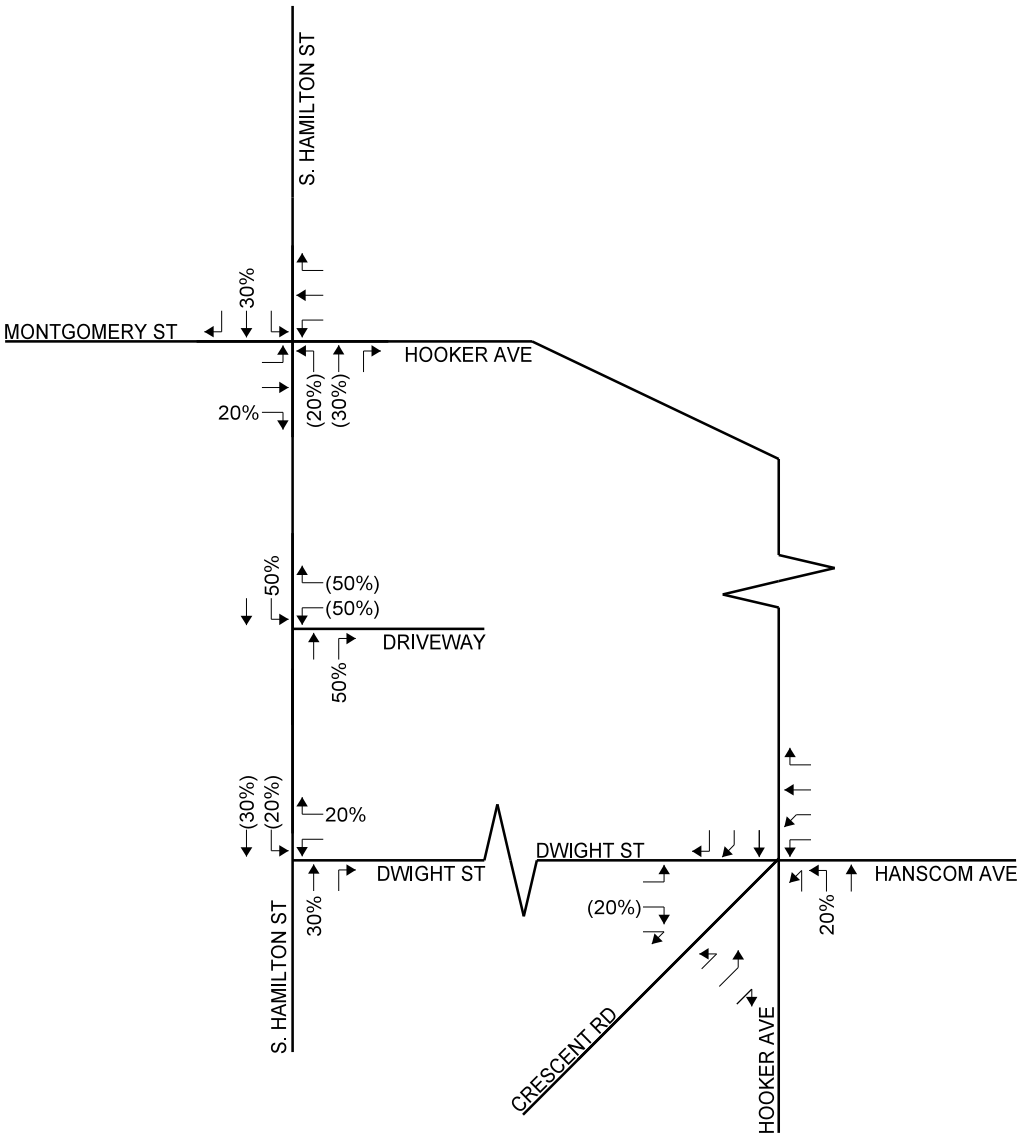
2026 NO-BUILD
TRAFFIC VOLUMES

ONE KEY DEVELOPMENT, LLC
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

Creighton Manning

PROJECT: 123-200	DATE: 07/2023	FIGURE: 2

N:\Projects\2023\123-200 One Key Development - Poughkeepsie\Working\CADD\dgn\figures\123-200_traf_fig_01.dgn



ENTERING(EXITING)

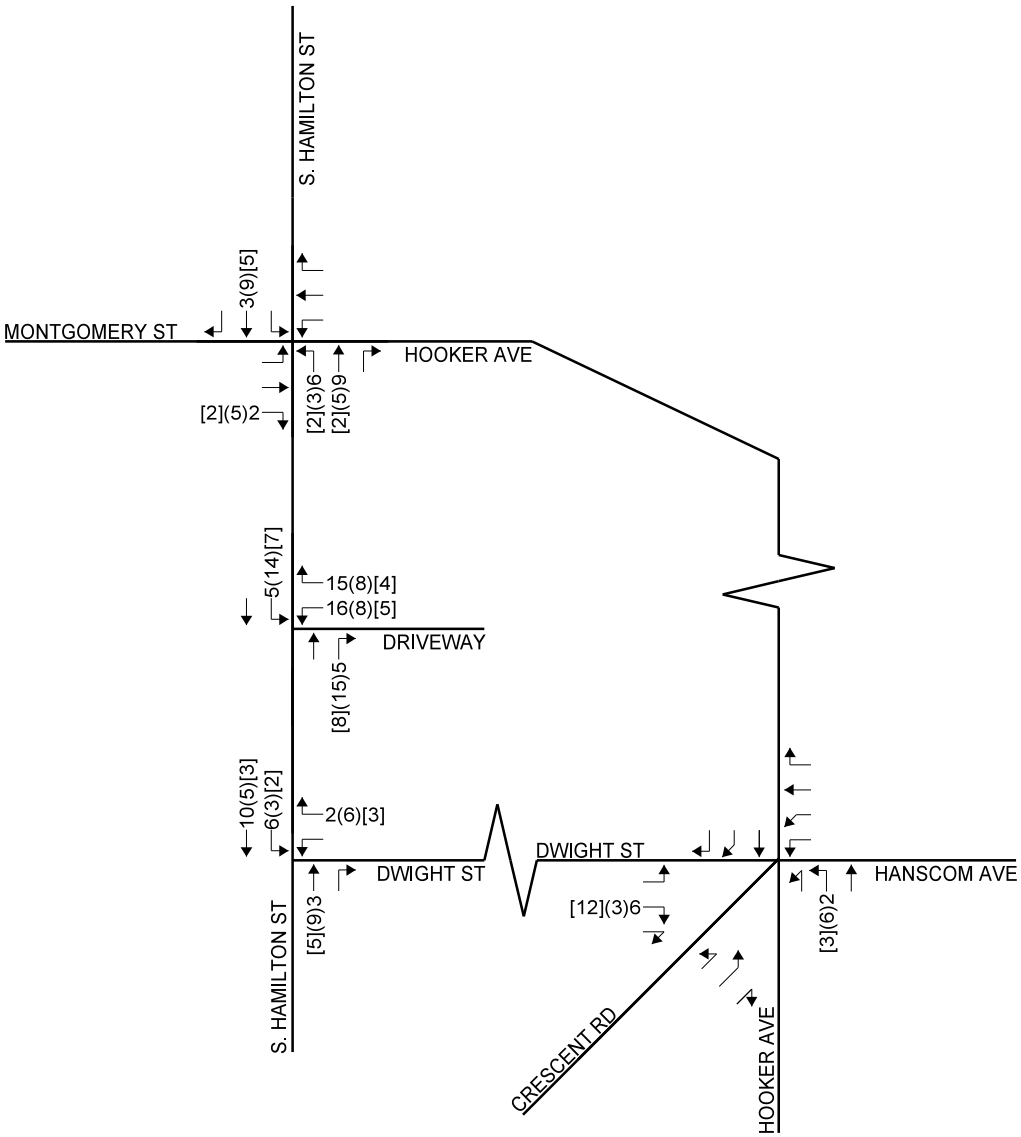
TRIP DISTRIBUTION

ONE KEY DEVELOPMENT, LLC
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

Creighton Manning

PROJECT: 123-200	DATE: 07/2023	FIGURE: 3

N:\Projects\2023\123-200 One Key Development - Poughkeepsie\Working\CADD\dgn\figures\123-200_traf_fig_01.dgn



WEEKDAY AM (WEEKDAY PM) [SATURDAY MIDDAY]

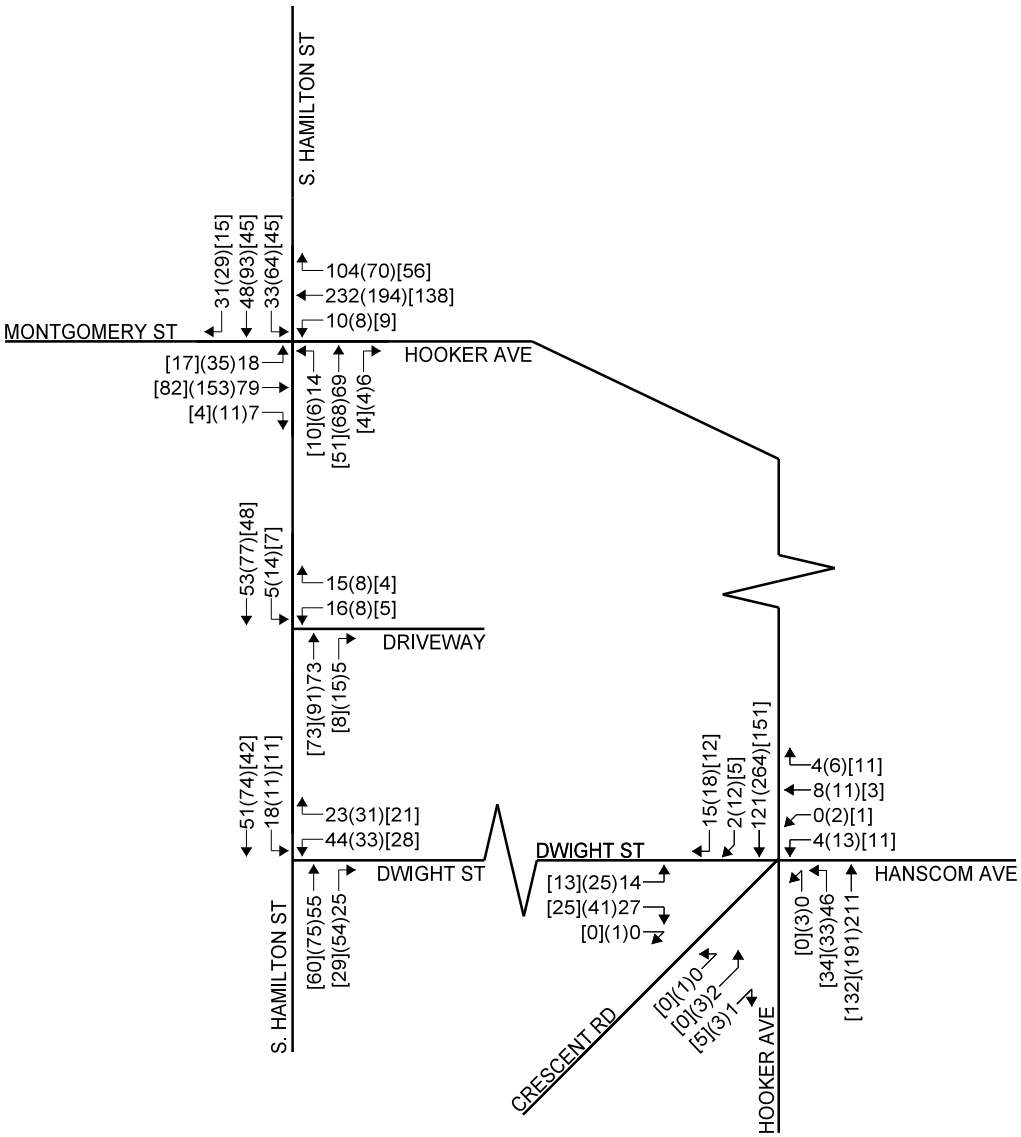
TRIP ASSIGNMENT

ONE KEY DEVELOPMENT, LLC
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

Creighton Manning

PROJECT: 123-200	DATE: 07/2023	FIGURE: 4

N:\Projects\2023\123-200 One Key Development - Poughkeepsie\Working\CADD\dgn\figures\123-200_traf_fig_01.dgn



WEEKDAY AM (WEEKDAY PM) [SATURDAY MIDDAY]

2026 BUILD
TRAFFIC VOLUMES

ONE KEY DEVELOPMENT, LLC
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

Creighton Manning

PROJECT: 123-200	DATE: 07/2023	FIGURE: 5

N:\Projects\2023\123-200 One Key Development - Poughkeepsie\Working\CADD\dgn\figures\123-200_traf_fig_01.dgn

ATTACHMENT A
CONCEPT PLAN

City of Poughkeepsie
Dutchess County, New York

ATTACHMENT B
TURNING MOVEMENT COUNTS

City of Poughkeepsie
Dutchess County, New York

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/6/2023

Data - Total

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	4	0	1	5	0	0	0	0	0	0	11	0	2	0	27
7:15 AM	0	12	3	0	1	10	0	0	0	0	0	0	5	0	5	0	36
7:30 AM	0	17	5	0	2	0	0	0	0	0	0	0	13	0	6	0	43
7:45 AM	0	10	12	0	0	8	0	0	0	0	0	0	18	0	5	0	53
8:00 AM	0	9	5	0	2	5	0	0	0	0	0	0	7	0	4	0	32
8:15 AM	0	16	5	0	1	11	0	0	0	0	0	0	13	0	4	0	50
8:30 AM	0	15	6	0	4	10	0	0	0	0	0	0	14	0	5	0	54
8:45 AM	0	11	9	0	5	14	0	0	0	0	0	0	9	0	8	0	56
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	94	49	0	16	63	0	0	0	0	0	0	90	0	39	0	351
APPROACH %'s :	0.00%	65.73%	34.27%	0.00%	20.25%	79.75%	0.00%	0.00%					69.77%	0.00%	30.23%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	51	25	0	12	40	0	0	0	0	0	0	43	0	21	0	192
PEAK HR FACTOR :	0.000	0.797	0.694	0.000	0.600	0.714	0.000	0.000	0.000	0.000	0.000	0.000	0.768	0.000	0.656	0.000	0.857
		0.905				0.684								0.842			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	18	19	1	0	14	0	0	0	0	0	0	6	0	3	0	61
4:15 PM	0	21	17	0	0	7	0	0	0	0	0	0	6	0	4	0	55
4:30 PM	0	17	16	0	1	24	0	0	0	0	0	0	9	0	6	0	73
4:45 PM	0	11	12	0	3	19	0	0	0	0	0	0	8	0	8	0	61
5:00 PM	0	21	14	0	2	11	0	0	0	0	0	0	7	0	6	0	61
5:15 PM	0	16	11	0	2	14	0	0	0	0	0	0	9	0	5	0	57
5:30 PM	0	14	12	0	3	13	0	0	0	0	0	0	17	0	6	0	65
5:45 PM	0	14	8	0	0	11	0	0	0	0	0	0	7	0	4	0	44
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	132	109	1	11	113	0	0	0	0	0	0	69	0	42	0	477
APPROACH %'s :	0.00%	54.55%	45.04%	0.41%	8.87%	91.13%	0.00%	0.00%					62.16%	0.00%	37.84%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	65	53	0	8	68	0	0	0	0	0	0	33	0	25	0	252
PEAK HR FACTOR :	0.000	0.774	0.828	0.000	0.667	0.708	0.000	0.000	0.000	0.000	0.000	0.000	0.917	0.000	0.781	0.000	0.863
		0.843				0.760								0.906			

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/6/2023

Data - Cars

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	4	0	1	5	0	0	0	0	0	0	11	0	2	0	27
7:15 AM	0	12	3	0	1	9	0	0	0	0	0	0	5	0	5	0	35
7:30 AM	0	17	4	0	2	0	0	0	0	0	0	0	13	0	6	0	42
7:45 AM	0	9	12	0	0	6	0	0	0	0	0	0	18	0	5	0	50
8:00 AM	0	9	4	0	2	5	0	0	0	0	0	0	6	0	4	0	30
8:15 AM	0	14	5	0	1	10	0	0	0	0	0	0	12	0	4	0	46
8:30 AM	0	14	6	0	4	10	0	0	0	0	0	0	13	0	5	0	52
8:45 AM	0	11	8	0	5	14	0	0	0	0	0	0	9	0	6	0	53
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	90	46	0	16	59	0	0	0	0	0	0	87	0	37	0	335
APPROACH %'s :	0.00%	66.18%	33.82%	0.00%	21.33%	78.67%	0.00%	0.00%					70.16%	0.00%	29.84%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	48	23	0	12	39	0	0	0	0	0	0	40	0	19	0	181
PEAK HR FACTOR :	0.000	0.857	0.719	0.000	0.600	0.696	0.000	0.000	0.000	0.000	0.000	0.000	0.769	0.000	0.792	0.000	0.854
		0.888				0.671								0.819			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	18	18	1	0	14	0	0	0	0	0	0	6	0	3	0	60
4:15 PM	0	19	17	0	0	7	0	0	0	0	0	0	6	0	4	0	53
4:30 PM	0	17	16	0	1	24	0	0	0	0	0	0	9	0	6	0	73
4:45 PM	0	11	12	0	3	19	0	0	0	0	0	0	8	0	8	0	61
5:00 PM	0	21	14	0	2	11	0	0	0	0	0	0	7	0	6	0	61
5:15 PM	0	16	11	0	2	14	0	0	0	0	0	0	9	0	5	0	57
5:30 PM	0	14	12	0	3	13	0	0	0	0	0	0	17	0	6	0	65
5:45 PM	0	14	8	0	0	11	0	0	0	0	0	0	7	0	4	0	44
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	130	108	1	11	113	0	0	0	0	0	0	69	0	42	0	474
APPROACH %'s :	0.00%	54.39%	45.19%	0.42%	8.87%	91.13%	0.00%	0.00%					62.16%	0.00%	37.84%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	65	53	0	8	68	0	0	0	0	0	0	33	0	25	0	252
PEAK HR FACTOR :	0.000	0.774	0.828	0.000	0.667	0.708	0.000	0.000	0.000	0.000	0.000	0.000	0.917	0.000	0.781	0.000	0.863
		0.843				0.760								0.906			

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/6/2023

Data - HT

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
8:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0	4
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	3	0	0	4	0	0	0	0	0	0	3	0	2	0	16
APPROACH %'s :	0.00%	57.14%	42.86%	0.00%	0.00%	100.00%	0.00%	0.00%					60.00%	0.00%	40.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	3	2	0	0	1	0	0	0	0	0	0	3	0	2	0	11
PEAK HR FACTOR :	0.000	0.375	0.500	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.250	0.000	0.688
		0.625				0.250								0.625			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%													
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/6/2023

Data - Bikes

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	1	1	0	0	0	0	0	0	0	0	1	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250				0.250												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500
	0.250												0.250				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Project ID: 23-380020-001
Date: 7/6/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	S Hamilton St		S Hamilton St		Dwight St		Dwight St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	1
7:15 AM	1	0	0	0	0	1	0	0	2
7:30 AM	0	0	0	0	0	2	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	1	0	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	0	1
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	1	0	1	1	0	6	0	0	9
APPROACH %'s :	100.00%	0.00%	50.00%	50.00%	0.00%	100.00%			
PEAK HR :	**08:00 AM - 09:00 AM**								TOTAL
PEAK HR VOL :	0	0	1	1	0	2	0	0	4
PEAK HR FACTOR :			0.250	0.250		0.500			0.333
			0.250			0.500			

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	1	0	0	0	2
4:30 PM	0	0	0	0	1	0	0	0	1
4:45 PM	0	0	0	0	0	1	0	0	1
5:00 PM	0	1	0	0	1	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	2	1	0	4	1	0	0	8
APPROACH %'s :	0.00%	100.00%	100.00%	0.00%	80.00%	20.00%			
PEAK HR :	**04:30 PM - 05:30 PM**								TOTAL
PEAK HR VOL :	0	1	0	0	2	1	0	0	4
PEAK HR FACTOR :		0.250			0.500	0.250			0.500
	0.250				0.750				

Prepared by National Data & Surveying Services

S Hamilton St & Dwight St

Peak Hour Turning Movement Count

ID: 23-380020-001
City: Poughkeepsie

Day: Thursday
Date: 7/6/2023

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

CONTROL

1-Way Stop(WB)

	AM	NOON	PM
TEV	192	0	252
PHF	0.86		0.86

SOUTHBOUND (S Hamilton St)

	Left	Thru	Right	U-Turn	Total	
AM	0	40	12	0	72	AM
NOON	0	0	0	0	0	NOON
PM	0	68	8	0	90	PM

EASTBOUND (Dwight St)

	Left	Thru	Right	U-Turn	
AM	0	0	0	0	AM
NOON	0	0	0	0	NOON
PM	0	0	0	0	PM

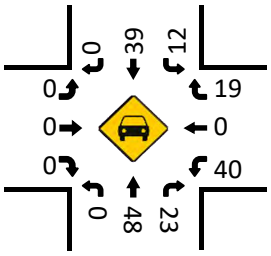
WESTBOUND (Dwight St)

	Left	Thru	Right	U-Turn	
PM	25	0	21	0	PM
NOON	0	0	0	1	NOON
AM	33	0	43	0	AM
	0	0	0	0	
	61	0	37		

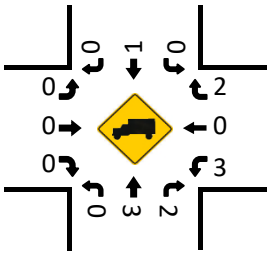
NORTHBOUND (S Hamilton St)

	Left	Thru	Right	U-Turn	Total	
PM	101	0	0	65	53	PM
NOON	0	0	0	0	0	NOON
AM	83	0	0	51	25	AM

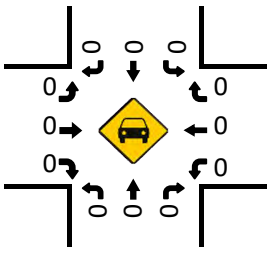
Cars (AM)



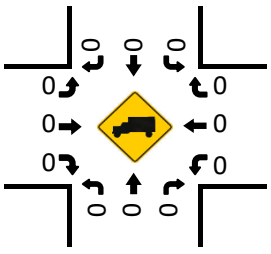
HT (AM)



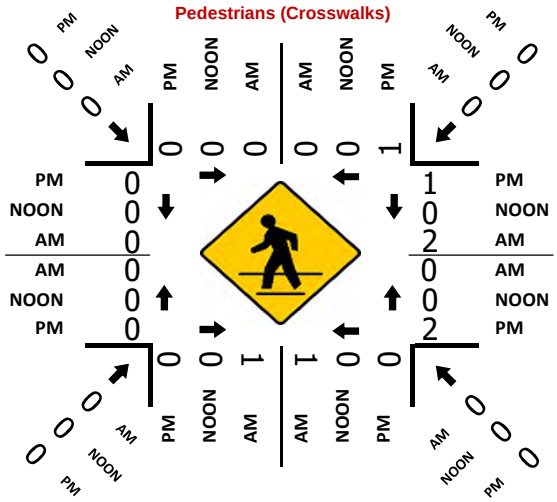
Cars (NOON)



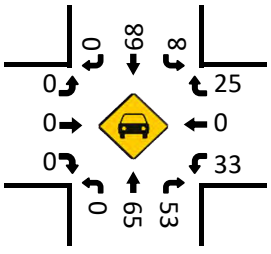
HT (NOON)



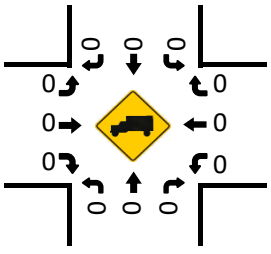
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/6/2023

Data - Total

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2			
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0				
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
7:00 AM	7	28	0	0	0	0	22	5	0	1	3	0	2	0	0	0	2	0	0	0	0	1	1	72
7:15 AM	4	24	0	0	0	0	14	0	0	0	1	0	4	0	0	0	5	0	0	0	0	0	0	52
7:30 AM	8	28	0	0	0	0	24	3	0	0	5	0	3	0	0	0	6	1	0	0	0	1	0	79
7:45 AM	12	34	0	0	1	0	16	8	0	1	4	0	5	0	0	2	5	0	0	0	0	0	4	92
8:00 AM	7	47	0	0	0	0	31	2	0	0	4	0	6	0	0	0	1	0	0	0	0	1	0	99
8:15 AM	11	51	0	0	0	0	28	4	0	0	3	0	2	0	0	0	1	0	0	0	0	1	0	101
8:30 AM	11	57	0	0	0	0	25	4	0	0	3	0	8	0	0	4	4	4	0	0	0	0	0	120
8:45 AM	10	53	0	0	0	0	35	5	0	2	4	0	9	0	0	0	2	0	0	0	0	0	1	121
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	70	322	0	0	1	0	195	31	0	4	27	0	39	0	0	6	26	5	0	0	0	4	6	736
APPROACH %'s :	17.81%	81.93%	0.00%	0.00%	0.25%	0.00%	84.78%	13.48%	0.00%	1.74%	40.91%	0.00%	59.09%	0.00%	0.00%	16.22%	70.27%	13.51%	0.00%	0.00%	0.00%	40.00%	60.00%	
PEAK HR :	08:00 AM - 09:00 AM																							TOTAL
PEAK HR VOL :	39	208	0	0	0	0	119	15	0	2	14	0	25	0	0	4	8	4	0	0	0	2	1	441
PEAK HR FACTOR :	0.886	0.912	0.000	0.000	0.000	0.000	0.850	0.750	0.000	0.250	0.875	0.000	0.694	0.000	0.000	0.250	0.500	0.250	0.000	0.000	0.000	0.500	0.250	
			0.908					0.810					0.750					0.333						0.911

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
4:00 PM	6	44	0	0	1	0	46	3	0	1	7	0	12	0	0	0	0	3	0	0	1	0	1	125
4:15 PM	4	45	0	0	1	0	37	3	0	1	7	0	10	0	0	2	2	5	0	1	1	2	0	121
4:30 PM	9	40	0	0	1	0	64	4	0	0	6	0	10	0	0	7	2	3	0	1	0	0	1	148
4:45 PM	6	55	0	0	1	0	53	5	0	4	5	0	11	0	0	1	5	1	0	0	0	2	2	151
5:00 PM	6	48	0	0	1	0	78	2	0	2	8	0	7	0	1	2	3	2	0	1	1	0	0	162
5:15 PM	9	45	0	0	0	1	64	7	0	1	6	0	6	0	0	3	1	0	0	0	0	1	0	144
5:30 PM	12	46	0	0	0	0	45	6	0	2	4	0	12	0	0	0	3	0	0	0	0	1	0	131
5:45 PM	10	33	0	0	1	0	36	1	0	1	2	0	6	0	0	0	1	0	0	1	0	0	1	93
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	62	356	0	0	6	1	423	31	0	12	45	0	74	0	1	15	17	14	0	4	3	6	5	1075
APPROACH %'s :	14.62%	83.96%	0.00%	0.00%	1.42%	0.21%	90.58%	6.64%	0.00%	2.57%	37.50%	0.00%	61.67%	0.00%	0.83%	30.00%	34.00%	28.00%	0.00%	8.00%	21.43%	42.86%	35.71%	
PEAK HR :	04:30 PM - 05:30 PM																							TOTAL
PEAK HR VOL :	30	188	0	0	3	1	259	18	0	7	25	0	34	0	1	13	11	6	0	2	1	3	3	605
PEAK HR FACTOR :	0.833	0.855	0.000	0.000	0.750	0.250	0.830	0.643	0.000	0.438	0.781	0.000	0.773	0.000	0.250	0.464	0.550	0.500	0.000	0.500	0.250	0.375	0.375	
			0.891					0.869					0.938					0.615						0.934

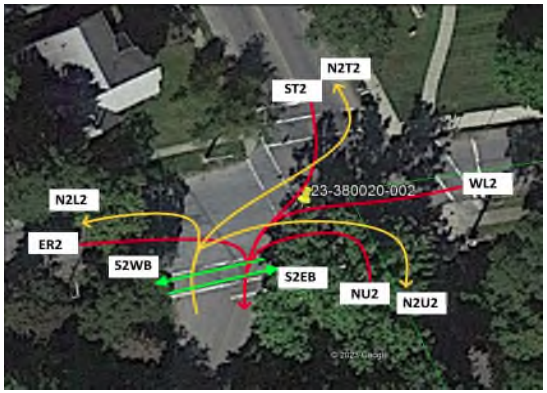
Explanation for extra leg movements

Movements entering the extra leg

ER2	Movements coming from EB on Dwight St entering into the Extra Leg (Crescent Rd)
ST2	Movements coming from SB on Hooker Ave entering into the Extra Leg (Crescent Rd)
WL2	Movements coming from WB on Hanscom Ave entering into the Extra Leg (Crescent Rd)
NU2	Movements coming from NB on Hooker Ave entering into the Extra Leg (Crescent Rd)

Movements exiting the extra leg

N2L2	Movements exiting from Extra Leg (Crescent Rd) entering into Dwight St going WB
N2T2	Movements exiting from Extra Leg (Crescent Rd) entering into Hooker Ave going NB
N2U2	Movements exiting from Extra Leg (Crescent Rd) entering into Hooker Ave going SB



National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/6/2023

Data - Cars

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2			
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
7:00 AM	7	28	0	0	0	0	19	5	0	1	3	0	2	0	0	0	2	0	0	0	0	1	1	69
7:15 AM	4	22	0	0	0	0	13	0	0	0	1	0	4	0	0	0	5	0	0	0	0	0	0	49
7:30 AM	8	28	0	0	0	0	23	3	0	0	4	0	3	0	0	0	6	1	0	0	0	1	0	77
7:45 AM	12	34	0	0	1	0	15	8	0	1	4	0	5	0	0	2	5	0	0	0	0	0	2	89
8:00 AM	6	46	0	0	0	0	27	2	0	0	4	0	5	0	0	0	1	0	0	0	0	1	0	92
8:15 AM	10	51	0	0	0	0	28	4	0	0	3	0	2	0	0	0	1	0	0	0	0	1	0	100
8:30 AM	11	57	0	0	0	0	22	4	0	0	3	0	8	0	0	4	3	4	0	0	0	0	0	116
8:45 AM	9	52	0	0	0	0	34	4	0	2	3	0	9	0	0	0	2	0	0	0	0	0	1	116
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	67	318	0	0	1	0	181	30	0	4	25	0	38	0	0	6	25	5	0	0	0	4	4	708
APPROACH %'s :	17.36%	82.38%	0.00%	0.00%	0.26%	0.00%	84.19%	13.95%	0.00%	1.86%	39.68%	0.00%	60.32%	0.00%	0.00%	16.67%	69.44%	13.89%	0.00%	0.00%	0.00%	50.00%	50.00%	
PEAK HR :	08:00 AM - 09:00 AM																							TOTAL
PEAK HR VOL :	36	206	0	0	0	0	111	14	0	2	13	0	24	0	0	4	7	4	0	0	0	2	1	424
PEAK HR FACTOR :	0.818	0.904	0.000	0.000	0.000	0.000	0.816	0.875	0.000	0.250	0.813	0.000	0.667	0.000	0.000	0.250	0.583	0.250	0.000	0.000	0.000	0.500	0.250	0.914
			0.890					0.794					0.771					0.341						

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
4:00 PM	6	43	0	0	1	0	46	3	0	1	6	0	12	0	0	0	0	3	0	0	1	0	1	123
4:15 PM	4	45	0	0	1	0	35	3	0	1	7	0	10	0	0	2	2	5	0	1	1	2	0	119
4:30 PM	9	38	0	0	1	0	64	4	0	0	6	0	10	0	0	7	2	3	0	1	0	0	1	146
4:45 PM	6	53	0	0	1	0	51	5	0	4	5	0	11	0	0	1	5	1	0	0	0	2	2	147
5:00 PM	6	48	0	0	1	0	78	2	0	2	8	0	7	0	1	2	3	2	0	1	1	0	0	162
5:15 PM	9	44	0	0	0	1	64	7	0	1	6	0	6	0	0	3	1	0	0	0	0	1	0	143
5:30 PM	12	45	0	0	0	0	43	6	0	2	4	0	12	0	0	0	3	0	0	0	0	1	0	128
5:45 PM	10	31	0	0	1	0	36	1	0	1	2	0	6	0	0	0	1	0	0	1	0	0	1	91
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	62	347	0	0	6	1	417	31	0	12	44	0	74	0	1	15	17	14	0	4	3	6	5	1059
APPROACH %'s :	14.94%	83.61%	0.00%	0.00%	1.45%	0.22%	90.46%	6.72%	0.00%	2.60%	36.97%	0.00%	62.18%	0.00%	0.84%	30.00%	34.00%	28.00%	0.00%	8.00%	21.43%	42.86%	35.71%	
PEAK HR :	04:30 PM - 05:30 PM																							TOTAL
PEAK HR VOL :	30	183	0	0	3	1	257	18	0	7	25	0	34	0	1	13	11	6	0	2	1	3	3	598
PEAK HR FACTOR :	0.833	0.863	0.000	0.000	0.750	0.250	0.824	0.643	0.000	0.438	0.781	0.000	0.773	0.000	0.250	0.464	0.550	0.500	0.000	0.500	0.250	0.375	0.375	0.923
			0.900					0.863					0.938					0.615						

National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/6/2023

Data - HT

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2			
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
7:00 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:15 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3
8:00 AM	1	1	0	0	0	0	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
8:45 AM	1	1	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	3	4	0	0	0	0	14	1	0	0	2	0	1	0	0	0	1	0	0	0	0	0	2	28
APPROACH %'s :	42.86%	57.14%	0.00%	0.00%	0.00%	0.00%	93.33%	6.67%	0.00%	0.00%	66.67%	0.00%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
PEAK HR :	08:00 AM - 09:00 AM																							TOTAL
PEAK HR VOL :	3	2	0	0	0	0	8	1	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	17
PEAK HR FACTOR :	0.750	0.500	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.607
			0.625					0.563					0.500					0.250							

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	0	9	0	0	0	0	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	16
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%									
PEAK HR :	04:30 PM - 05:30 PM																							TOTAL
PEAK HR VOL :	0	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
PEAK HR FACTOR :	0.000	0.625	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.438
			0.625					0.250																

National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/6/2023

Data - Bikes

AM

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2			
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	0	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0	6
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%				
PEAK HR :	08:00 AM - 09:00 AM																							TOTAL
PEAK HR VOL :	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.000
			0.500					0.250										0.250						

PM

	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	1	1	1	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7
APPROACH %'s :	33.33%	33.33%	33.33%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	04:30 PM - 05:30 PM																							TOTAL
PEAK HR VOL :	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
			0.250																					

National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Project ID: 23-380020-002
Date: 7/6/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Hooker Ave/Crescent Rd		Hooker Ave/Crescent Rd		Dwight St		Dwight St				
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
7:00 AM	0	0	0	0	1	0	1	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	3	0	0	0	0	0	0	0	4	0	7
8:15 AM	0	0	2	1	0	0	1	1	0	1	6
8:30 AM	0	0	1	0	0	0	1	1	0	0	3
8:45 AM	0	0	0	1	0	0	1	0	0	1	3
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
TOTAL VOLUMES :	3	0	3	2	2	0	4	2	4	2	22
APPROACH %'s :	100.00%	0.00%	60.00%	40.00%	100.00%	0.00%	66.67%	33.33%	66.67%	33.33%	
PEAK HR :	**08:00 AM - 09:00 AM**										TOTAL
PEAK HR VOL :	3	0	3	2	0	0	3	2	4	2	19
PEAK HR FACTOR :	0.250		0.375	0.500			0.750	0.500	0.250	0.500	
	0.250		0.417				0.625		0.375		0.679

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
4:00 PM	0	0	0	0	0	0	1	1	0	1	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	1	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	2	0	2	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	2	0	0	0	2
5:30 PM	0	0	0	1	0	2	1	0	0	1	5
5:45 PM	1	0	0	0	0	0	1	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
TOTAL VOLUMES :	2	1	0	3	0	4	5	2	0	2	19
APPROACH %'s :	66.67%	33.33%	0.00%	100.00%	0.00%	100.00%	71.43%	28.57%	0.00%	100.00%	
PEAK HR :	**04:30 PM - 05:30 PM**										TOTAL
PEAK HR VOL :	1	1	0	2	0	2	2	1	0	0	9
PEAK HR FACTOR :	0.250	0.250		0.250		0.250	0.250	0.250			
	0.500		0.250		0.250		0.375				0.450

Prepared by National Data & Surveying Services

Hooker Ave/Crescent Rd & Dwight St

Peak Hour Turning Movement Count

ID: 23-380020-002
City: Poughkeepsie

Day: Thursday
Date: 7/6/2023

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:30 PM - 05:30 PM

COUNT PERIODS

AM: 7:00 AM - 09:00 AM
NOON: NONE
PM: 4:00 PM - 06:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	436	0	585
PHF	0.91		0.93

SOUTHBOUND (Hooker Ave/Crescent Rd)

	Left	Thru	Right	U-Turn	Total	
AM	15	119	0	0	226	AM
NOON	0	0	0	0	0	NOON
PM	18	259	1	0	219	PM

EASTBOUND (Dwight St)

	Left	Thru	Right	U-Turn
AM	0	14	0	25
NOON	0	0	0	0
PM	0	25	0	34

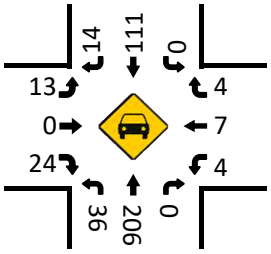
WESTBOUND (Dwight St)

	Left	Thru	Right	U-Turn
AM	0	11	0	8
NOON	0	0	0	0
PM	0	13	0	4

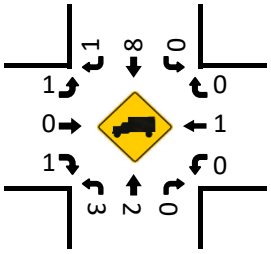
NORTHBOUND (Hooker Ave/Crescent Rd)

	Left	Thru	Right	U-Turn	Total	
AM	148	0	39	208	0	AM
NOON	0	0	0	0	0	NOON
PM	306	0	30	188	0	PM

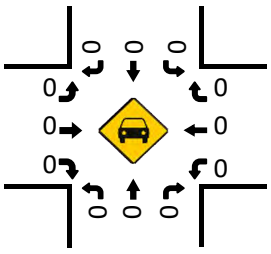
Cars (AM)



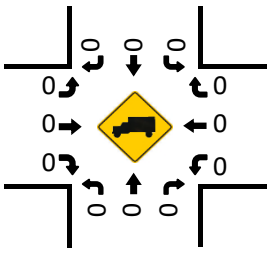
HT (AM)



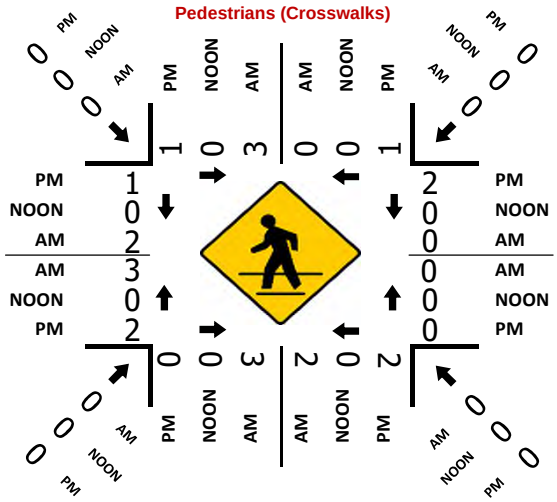
Cars (NOON)



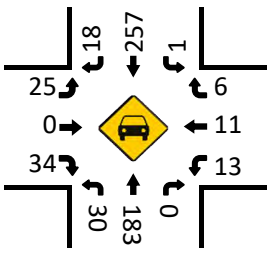
HT (NOON)



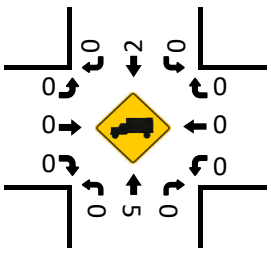
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/6/2023

Data - Total

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	1	0	4	4	1	0	9	11	2	0	1	28	11	0	77
7:15 AM	1	10	2	0	7	8	6	0	4	12	1	0	1	36	7	0	95
7:30 AM	1	20	3	0	3	2	1	0	5	15	1	0	1	35	10	0	97
7:45 AM	3	9	0	0	7	11	2	0	4	20	0	0	0	36	17	0	109
8:00 AM	2	12	2	0	7	5	5	0	1	17	1	0	1	47	24	0	124
8:15 AM	2	12	1	0	9	13	7	0	6	23	1	0	2	54	25	0	155
8:30 AM	3	18	0	0	6	8	8	0	5	14	2	0	3	59	21	0	147
8:45 AM	1	17	3	0	11	18	11	0	6	24	1	0	4	69	32	0	197
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	14	102	12	0	54	69	41	0	40	136	9	0	13	364	147	0	1001
APPROACH %'s :	10.94%	79.69%	9.38%	0.00%	32.93%	42.07%	25.00%	0.00%	21.62%	73.51%	4.86%	0.00%	2.48%	69.47%	28.05%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	8	59	6	0	33	44	31	0	18	78	5	0	10	229	102	0	623
PEAK HR FACTOR :	0.667	0.819	0.500	0.000	0.750	0.611	0.705	0.000	0.750	0.813	0.625	0.000	0.625	0.830	0.797	0.000	0.791
	0.869				0.675				0.815				0.812				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	16	4	0	9	16	7	0	7	21	3	0	3	46	18	0	152
4:15 PM	1	20	4	0	7	9	10	0	5	15	0	0	6	41	15	0	133
4:30 PM	0	18	0	0	15	30	8	0	9	35	1	0	5	42	20	0	183
4:45 PM	1	9	3	0	10	15	6	0	9	34	1	0	1	55	18	0	162
5:00 PM	1	21	0	0	19	17	9	0	9	41	1	0	1	54	18	0	191
5:15 PM	1	14	1	0	19	21	6	0	7	41	3	0	1	40	13	0	167
5:30 PM	1	9	2	0	9	14	10	0	4	23	2	0	4	43	21	0	142
5:45 PM	3	15	1	0	12	20	3	0	5	19	1	0	3	24	15	0	121
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	122	15	0	100	142	59	0	55	229	12	0	24	345	138	0	1251
APPROACH %'s :	6.80%	82.99%	10.20%	0.00%	33.22%	47.18%	19.60%	0.00%	18.58%	77.36%	4.05%	0.00%	4.73%	68.05%	27.22%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	3	62	4	0	63	83	29	0	34	151	6	0	8	191	69	0	703
PEAK HR FACTOR :	0.750	0.738	0.333	0.000	0.829	0.692	0.806	0.000	0.944	0.921	0.500	0.000	0.400	0.868	0.863	0.000	0.920
	0.784				0.825				0.936				0.905				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/6/2023

Data - Cars

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	4	1	0	4	4	1	0	9	9	2	0	1	28	11	0	75
7:15 AM	1	10	2	0	7	8	6	0	3	12	1	0	1	35	5	0	91
7:30 AM	1	20	3	0	3	2	1	0	5	14	1	0	0	32	10	0	92
7:45 AM	3	9	0	0	6	9	2	0	4	20	0	0	0	36	17	0	106
8:00 AM	2	10	2	0	6	4	5	0	1	15	1	0	1	46	24	0	117
8:15 AM	2	12	1	0	9	12	6	0	6	23	1	0	2	53	25	0	152
8:30 AM	2	16	0	0	6	7	8	0	4	12	2	0	3	58	21	0	139
8:45 AM	1	16	3	0	11	18	10	0	6	22	1	0	4	68	32	0	192
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	13	97	12	0	52	64	39	0	38	127	9	0	12	356	145	0	964
APPROACH %'s :	10.66%	79.51%	9.84%	0.00%	33.55%	41.29%	25.16%	0.00%	21.84%	72.99%	5.17%	0.00%	2.34%	69.40%	28.27%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	7	54	6	0	32	41	29	0	17	72	5	0	10	225	102	0	600
PEAK HR FACTOR :	0.875	0.844	0.500	0.000	0.727	0.569	0.725	0.000	0.708	0.783	0.625	0.000	0.625	0.827	0.797	0.000	0.781
	0.838				0.654				0.783				0.810				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	16	4	0	9	16	7	0	7	21	3	0	3	45	18	0	151
4:15 PM	1	20	3	0	7	9	10	0	5	15	0	0	6	41	15	0	132
4:30 PM	0	18	0	0	15	29	8	0	9	34	1	0	5	41	20	0	180
4:45 PM	1	9	3	0	10	15	6	0	9	33	1	0	1	54	18	0	160
5:00 PM	1	21	0	0	19	17	9	0	9	41	1	0	1	54	18	0	191
5:15 PM	1	14	1	0	18	21	6	0	7	41	3	0	1	39	13	0	165
5:30 PM	1	9	2	0	9	14	10	0	4	22	2	0	4	43	20	0	140
5:45 PM	3	15	1	0	12	20	3	0	5	19	1	0	3	24	14	0	120
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	10	122	14	0	99	141	59	0	55	226	12	0	24	341	136	0	1239
APPROACH %'s :	6.85%	83.56%	9.59%	0.00%	33.11%	47.16%	19.73%	0.00%	18.77%	77.13%	4.10%	0.00%	4.79%	68.06%	27.15%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	3	62	4	0	62	82	29	0	34	149	6	0	8	188	69	0	696
PEAK HR FACTOR :	0.750	0.738	0.333	0.000	0.816	0.707	0.806	0.000	0.944	0.909	0.500	0.000	0.400	0.870	0.863	0.000	0.911
	0.784				0.832				0.926				0.908				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/6/2023

Data - HT

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	3	0	0	5
7:45 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
8:00 AM	0	2	0	0	1	1	0	0	0	2	0	0	0	1	0	0	7
8:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	3
8:30 AM	1	2	0	0	0	1	0	0	1	2	0	0	0	1	0	0	8
8:45 AM	0	1	0	0	0	0	1	0	0	2	0	0	0	1	0	0	5
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	5	0	0	2	5	2	0	2	9	0	0	1	8	2	0	37
APPROACH %'s :	16.67%	83.33%	0.00%	0.00%	22.22%	55.56%	22.22%	0.00%	18.18%	81.82%	0.00%	0.00%	9.09%	72.73%	18.18%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	1	5	0	0	1	3	2	0	1	6	0	0	0	4	0	0	23
PEAK HR FACTOR :	0.250	0.625	0.000	0.000	0.250	0.750	0.500	0.000	0.250	0.750	0.000	0.000	0.000	1.000	0.000	0.000	0.719
	0.500				0.750				0.583				1.000				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	1	1	0	0	0	3	0	0	0	4	2	0	12
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	1	1	0	0	0	2	0	0	0	3	0	0	7
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.750	0.000	0.000	0.583
					0.500				0.500				0.750				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/6/2023

Data - Bikes

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	1	1	0	1	1	0	0	0	2	1	0	9
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	50.00%	50.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	1	0	0	0	0	0	1	0	4
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.500
	0.250				0.250				0.250				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	3
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	2	0	1	0	3	0	0	1	0	0	1	3	1	0	12
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	25.00%	0.00%	75.00%	0.00%	0.00%	100.00%	0.00%	0.00%	20.00%	60.00%	20.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.375
	0.250				0.250				0.250								

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St **Project ID:** 23-380020-003
City: Poughkeepsie **Date:** 7/6/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	S Hamilton St		S Hamilton St		Hooker Ave/Montgomery St		Hooker Ave/Montgomery St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	1
7:30 AM	0	1	0	1	0	0	0	0	2
7:45 AM	0	0	0	0	1	0	0	0	1
8:00 AM	1	0	0	0	1	0	0	0	2
8:15 AM	6	0	0	0	0	2	3	0	11
8:30 AM	5	0	5	1	1	0	2	1	15
8:45 AM	4	4	2	1	0	0	1	0	12
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	16	5	8	3	3	2	6	1	44
APPROACH %'s :	76.19%	23.81%	72.73%	27.27%	60.00%	40.00%	85.71%	14.29%	
PEAK HR :	08:00 AM - 09:00 AM								TOTAL
PEAK HR VOL :	16	4	7	2	2	2	6	1	40
PEAK HR FACTOR :	0.667	0.250	0.350	0.500	0.500	0.250	0.500	0.250	0.667
	0.625		0.375		0.500		0.583		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	4	1	0	1	1	2	0	2	11
4:15 PM	1	0	0	0	4	0	0	1	6
4:30 PM	0	2	3	0	1	1	0	0	7
4:45 PM	1	2	2	4	3	3	0	0	15
5:00 PM	2	3	0	0	0	0	2	2	9
5:15 PM	0	1	0	0	0	0	0	0	1
5:30 PM	2	1	0	0	1	0	2	6	12
5:45 PM	1	0	0	0	1	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	11	10	5	5	11	6	4	11	63
APPROACH %'s :	52.38%	47.62%	50.00%	50.00%	64.71%	35.29%	26.67%	73.33%	
PEAK HR :	04:30 PM - 05:30 PM								TOTAL
PEAK HR VOL :	3	8	5	4	4	4	2	2	32
PEAK HR FACTOR :	0.375	0.667	0.417	0.250	0.333	0.333	0.250	0.250	0.533
	0.550		0.375		0.333		0.250		

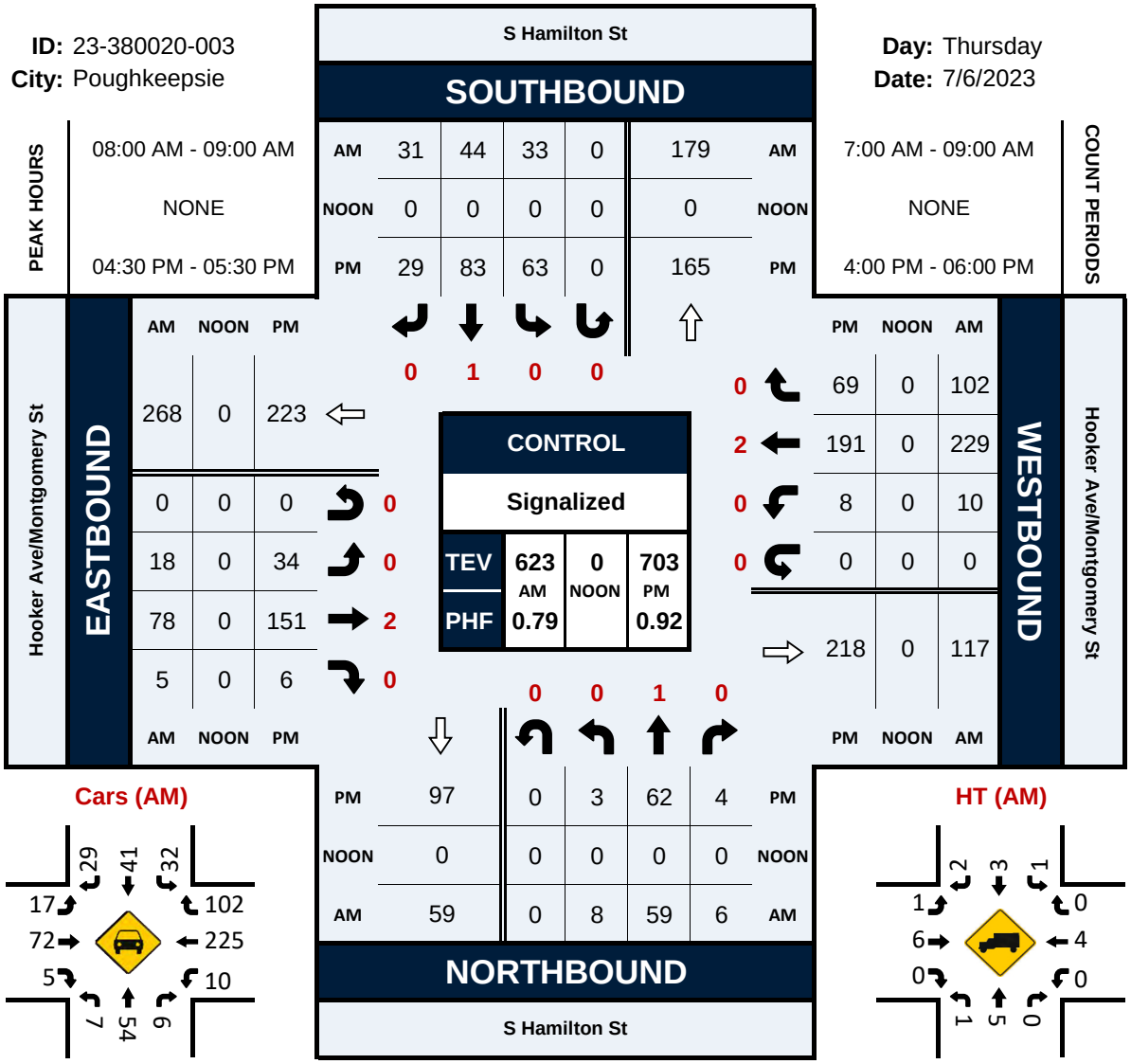
Prepared by National Data & Surveying Services

S Hamilton St & Hooker Ave/Montgomery St

Peak Hour Turning Movement Count

ID: 23-380020-003
City: Poughkeepsie

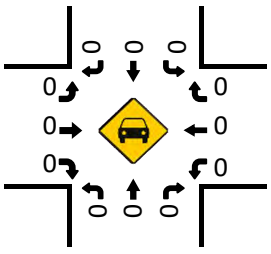
Day: Thursday
Date: 7/6/2023



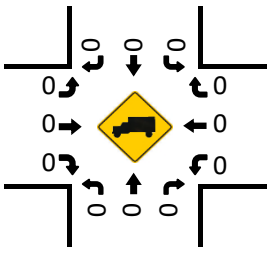
Cars (AM)

HT (AM)

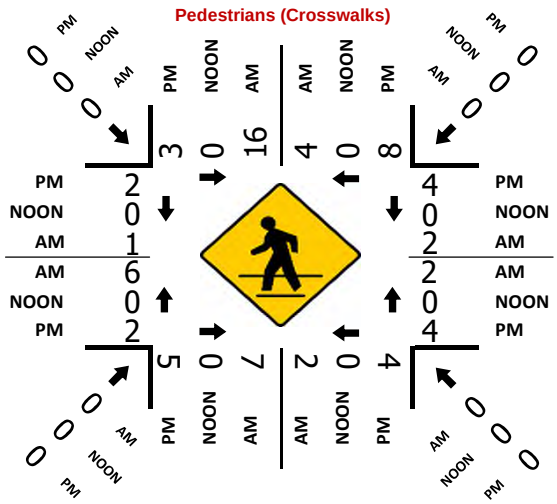
Cars (NOON)



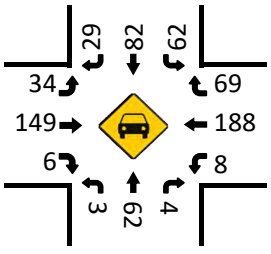
HT (NOON)



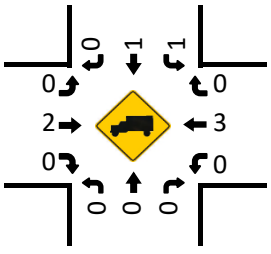
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/8/2023

Data - Total

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	8	8	0	1	3	0	0	0	0	0	0	6	0	3	0	29
11:15 AM	0	10	9	0	2	3	0	0	0	0	0	0	7	0	2	0	33
11:30 AM	0	9	14	0	1	7	0	0	0	0	0	0	10	0	2	0	43
11:45 AM	0	14	7	0	0	8	0	0	0	0	0	0	10	0	3	0	42
12:00 PM	0	9	9	0	0	7	0	0	0	0	0	0	5	0	6	0	36
12:15 PM	0	14	5	0	1	9	0	0	0	0	0	0	14	0	0	0	43
12:30 PM	0	9	7	0	1	2	0	0	0	0	0	0	10	0	6	0	35
12:45 PM	0	8	9	0	1	8	0	0	0	0	0	0	3	0	3	0	32
1:00 PM	0	12	4	1	1	12	0	0	0	0	0	0	7	0	3	0	40
1:15 PM	0	11	8	0	0	8	0	0	0	0	0	0	6	0	3	0	36
1:30 PM	0	14	5	0	7	11	0	0	0	0	0	0	6	0	4	0	47
1:45 PM	0	17	12	0	1	7	0	0	0	0	0	0	9	0	8	0	54
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	135	97	1	16	85	0	0	0	0	0	0	93	0	43	0	470
APPROACH %'s :	0.00%	57.94%	41.63%	0.43%	15.84%	84.16%	0.00%	0.00%					68.38%	0.00%	31.62%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	54	29	1	9	38	0	0	0	0	0	0	28	0	18	0	177
PEAK HR FACTOR :	0.000	0.794	0.604	0.250	0.321	0.792	0.000	0.000	0.000	0.000	0.000	0.000	0.778	0.000	0.563	0.000	0.819
	0.724				0.653								0.676				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/8/2023

Data - Cars

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	8	8	0	1	3	0	0	0	0	0	0	6	0	3	0	29
11:15 AM	0	10	8	0	2	3	0	0	0	0	0	0	7	0	2	0	32
11:30 AM	0	7	14	0	1	7	0	0	0	0	0	0	10	0	2	0	41
11:45 AM	0	14	7	0	0	8	0	0	0	0	0	0	10	0	3	0	42
12:00 PM	0	9	8	0	0	7	0	0	0	0	0	0	5	0	5	0	34
12:15 PM	0	13	5	0	1	9	0	0	0	0	0	0	14	0	0	0	42
12:30 PM	0	8	7	0	1	2	0	0	0	0	0	0	10	0	6	0	34
12:45 PM	0	8	9	0	1	8	0	0	0	0	0	0	3	0	3	0	32
1:00 PM	0	12	4	1	1	12	0	0	0	0	0	0	7	0	3	0	40
1:15 PM	0	11	8	0	0	8	0	0	0	0	0	0	6	0	3	0	36
1:30 PM	0	14	5	0	7	11	0	0	0	0	0	0	6	0	4	0	47
1:45 PM	0	17	12	0	1	7	0	0	0	0	0	0	9	0	8	0	54
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	131	95	1	16	85	0	0	0	0	0	0	93	0	42	0	463
APPROACH %'s :	0.00%	57.71%	41.85%	0.44%	15.84%	84.16%	0.00%	0.00%					68.89%	0.00%	31.11%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	54	29	1	9	38	0	0	0	0	0	0	28	0	18	0	177
PEAK HR FACTOR :	0.000	0.794	0.604	0.250	0.321	0.792	0.000	0.000	0.000	0.000	0.000	0.000	0.778	0.000	0.563	0.000	0.819
	0.724				0.653								0.676				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/8/2023

Data - HT

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	4	2	0	0	0	0	0	0	0	0	0	0	0	1	0	7
APPROACH %'s :	0.00%	66.67%	33.33%	0.00%									0.00%	0.00%	100.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Control: 1-Way Stop(WB)

Project ID: 23-380020-001
Date: 7/8/2023

Data - Bikes

NS/EW Streets:	S Hamilton St				S Hamilton St				Dwight St				Dwight St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%													
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Dwight St
City: Poughkeepsie
Project ID: 23-380020-001
Date: 7/8/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	S Hamilton St		S Hamilton St		Dwight St		Dwight St		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	7	0	0	0	7
12:30 PM	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	1	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	2	0	0	0	2
1:30 PM	0	0	0	0	2	0	0	0	2
1:45 PM	0	0	0	0	0	0	0	0	0
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	0	0	12	0	0	0	12
APPROACH %'s :					100.00%	0.00%			
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	0	0	0	0	4	0	0	0	4
PEAK HR FACTOR :					0.500				0.500
					0.500				

Prepared by National Data & Surveying Services

S Hamilton St & Dwight St

Peak Hour Turning Movement Count

ID: 23-380020-001
City: Poughkeepsie

Day: Saturday
Date: 7/8/2023

PEAK HOURS	COUNT PERIODS
NONE	NONE
01:00 PM - 02:00 PM	11:00 AM - 02:00 PM
NONE	NONE

CONTROL: 1-Way Stop(WB)

	AM	NOON	PM
TEV	0	177	0
PHF		0.82	

SOUTHBOUND (S Hamilton St)

AM	0	0	0	0	0	AM
NOON	0	38	9	0	72	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Dwight St)

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

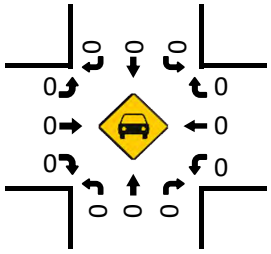
WESTBOUND (Dwight St)

PM	NOON	AM	
0	18	0	0
0	0	0	1
0	28	0	0
0	0	0	0
0	38	0	
PM	NOON	AM	

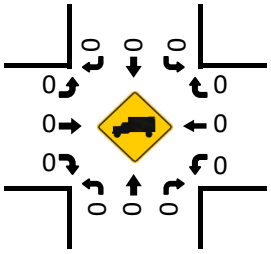
NORTHBOUND (S Hamilton St)

PM	0	0	0	0	0	PM
NOON	67	1	0	54	29	NOON
AM	0	0	0	0	0	AM

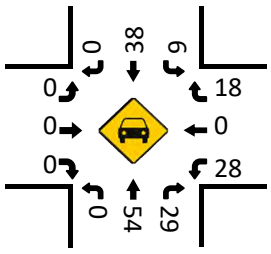
Cars (AM)



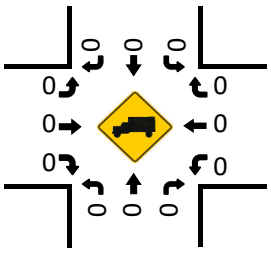
HT (AM)



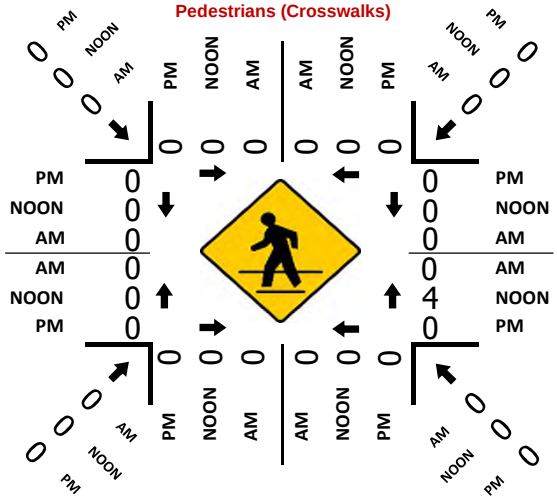
Cars (NOON)



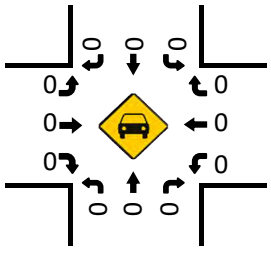
HT (NOON)



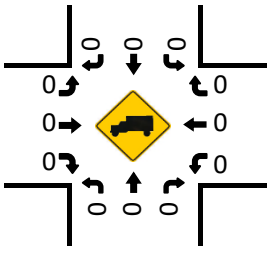
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/8/2023

Data - Total

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
NOON	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
11:00 AM	5	28	0	0	2	0	19	4	0	0	3	0	4	0	0	2	1	0	0	0	0	0	0	68
11:15 AM	4	28	0	0	1	0	19	1	0	1	7	0	6	0	0	3	3	4	0	0	0	0	2	79
11:30 AM	5	27	0	1	0	0	31	3	0	2	8	0	6	0	0	4	4	2	0	0	0	0	0	93
11:45 AM	6	30	0	1	1	0	31	1	0	0	3	0	5	0	0	1	6	2	0	0	0	0	0	87
12:00 PM	7	38	0	2	0	0	41	2	0	0	5	0	3	0	0	2	2	2	0	0	1	0	0	105
12:15 PM	7	31	0	0	0	0	30	6	0	0	5	0	2	0	0	2	2	1	0	1	0	1	1	89
12:30 PM	9	24	0	0	0	0	23	2	0	0	1	0	6	0	0	1	3	2	0	0	0	0	0	71
12:45 PM	2	33	0	0	0	0	24	0	0	2	7	0	4	0	0	2	4	4	0	0	0	0	0	82
1:00 PM	4	26	0	0	0	0	49	6	0	1	1	0	3	0	0	1	0	1	0	0	0	0	3	95
1:15 PM	11	31	0	0	0	0	38	0	0	3	3	0	6	0	0	8	1	6	0	0	0	0	1	108
1:30 PM	5	38	0	0	0	0	27	2	1	1	3	0	8	0	0	2	1	2	0	0	0	0	1	91
1:45 PM	12	35	0	0	0	0	35	4	0	0	6	0	5	0	0	0	1	2	0	1	0	0	0	101
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	77	369	0	4	4	0	367	31	1	10	52	0	58	0	0	28	28	28	0	2	1	1	8	1069
APPROACH %'s :	16.96%	81.28%	0.00%	0.88%	0.88%	0.00%	89.73%	7.58%	0.24%	2.44%	47.27%	0.00%	52.73%	0.00%	0.00%	32.56%	32.56%	32.56%	0.00%	2.33%	10.00%	10.00%	80.00%	
PEAK HR :	01:00 PM - 02:00 PM																							TOTAL
PEAK HR VOL :	32	130	0	0	0	0	149	12	1	5	13	0	22	0	0	11	3	11	0	1	0	0	5	395
PEAK HR FACTOR :	0.667	0.855	0.000	0.000	0.000	0.000	0.760	0.500	0.250	0.417	0.542	0.000	0.688	0.000	0.000	0.344	0.750	0.458	0.000	0.250	0.000	0.000	0.417	
			0.862					0.746					0.795					0.433						0.914

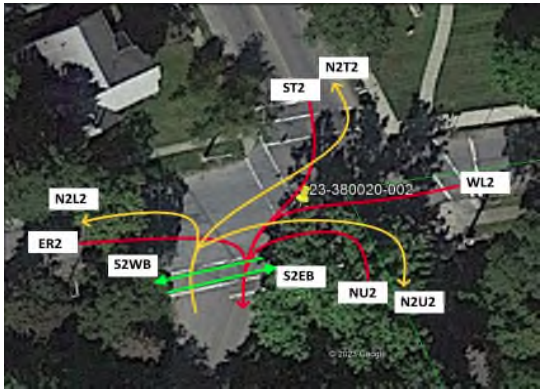
Explanation for extra leg movements

Movements entering the extra leg

ER2	Movements coming from EB on Dwight St entering into the Extra Leg (Crescent Rd)
ST2	Movements coming from SB on Hooker Ave entering into the Extra Leg (Crescent Rd)
WL2	Movements coming from WB on Hanscom Ave entering into the Extra Leg (Crescent Rd)
NU2	Movements coming from NB on Hooker Ave entering into the Extra Leg (Crescent Rd)

Movements exiting the extra leg

N2L2	Movements exiting from Extra Leg (Crescent Rd) entering into Dwight St going WB
N2T2	Movements exiting from Extra Leg (Crescent Rd) entering into Hooker Ave going NB
N2U2	Movements exiting from Extra Leg (Crescent Rd) entering into Hooker Ave going SB



National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/8/2023

Data - Cars

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
NOON	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
11:00 AM	5	28	0	0	2	0	17	4	0	0	3	0	4	0	0	2	1	0	0	0	0	0	0	66
11:15 AM	4	28	0	0	1	0	19	1	0	0	6	0	6	0	0	3	3	4	0	0	0	0	2	77
11:30 AM	5	27	0	1	0	0	30	3	0	2	8	0	6	0	0	4	4	2	0	0	0	0	0	92
11:45 AM	6	30	0	1	1	0	31	1	0	0	3	0	5	0	0	1	6	2	0	0	0	0	0	87
12:00 PM	7	38	0	2	0	0	38	2	0	0	5	0	2	0	0	2	2	2	0	0	0	0	0	100
12:15 PM	7	31	0	0	0	0	29	6	0	0	5	0	2	0	0	2	2	1	0	1	0	1	1	88
12:30 PM	9	24	0	0	0	0	22	2	0	0	1	0	6	0	0	1	3	2	0	0	0	0	0	70
12:45 PM	2	32	0	0	0	0	24	0	0	2	7	0	4	0	0	2	4	4	0	0	0	0	0	81
1:00 PM	4	26	0	0	0	0	49	6	0	1	1	0	3	0	0	1	0	1	0	0	0	0	3	95
1:15 PM	11	31	0	0	0	0	38	0	0	3	3	0	6	0	0	8	1	6	0	0	0	0	1	108
1:30 PM	5	38	0	0	0	0	27	2	1	1	3	0	8	0	0	2	1	2	0	0	0	0	1	91
1:45 PM	12	35	0	0	0	0	35	4	0	0	6	0	5	0	0	0	1	2	0	1	0	0	0	101
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	77	368	0	4	4	0	359	31	1	9	51	0	57	0	0	28	28	28	0	2	0	1	8	1056
APPROACH %'s :	17.00%	81.24%	0.00%	0.88%	0.88%	0.00%	89.75%	7.75%	0.25%	2.25%	47.22%	0.00%	52.78%	0.00%	0.00%	32.56%	32.56%	32.56%	0.00%	2.33%	0.00%	11.11%	88.89%	
PEAK HR :	01:00 PM - 02:00 PM																							TOTAL
PEAK HR VOL :	32	130	0	0	0	0	149	12	1	5	13	0	22	0	0	11	3	11	0	1	0	0	5	395
PEAK HR FACTOR :	0.667	0.855	0.000	0.000	0.000	0.000	0.760	0.500	0.250	0.417	0.542	0.000	0.688	0.000	0.000	0.344	0.750	0.458	0.000	0.250	0.000	0.000	0.417	0.914
			0.862					0.746					0.795					0.433						

National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/8/2023

Data - HT

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
NOON	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
11:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	5
12:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	0	1	0	0	0	0	8	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	13
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	88.89%	0.00%	0.00%	11.11%	50.00%	0.00%	50.00%	0.00%	0.00%						100.00%	0.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																							TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-002
Date: 7/8/2023

Data - Bikes

NS/EW Streets:	Hooker Ave/Crescent Rd					Hooker Ave/Crescent Rd					Dwight St					Dwight St								
	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND								
NOON	0 NL	1 NT	0 NR	0 NU	0 NU2	0 SL	1 ST	0 SR	0 SU	0 ST2	0 EL	1 ET	0 ER	0 EU	0 ER2	0 WL	1 WT	0 WR	0 WU	0 WL2	0 N2L2	0 N2T2	0 N2U2	TOTAL
11:00 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
1:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L2	N2T2	N2U2	TOTAL
TOTAL VOLUMES :	0	3	2	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	9
APPROACH %'s :	0.00%	50.00%	33.33%	0.00%	16.67%	0.00%	50.00%	0.00%	0.00%	50.00%						0.00%	0.00%	100.00%	0.00%	0.00%				
PEAK HR :	01:00 PM - 02:00 PM																							TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.375
			0.250					0.250										0.250						

National Data & Surveying Services Intersection Turning Movement Count

Location: Hooker Ave/Crescent Rd & Dwight St
City: Poughkeepsie

Project ID: 23-380020-002
Date: 7/8/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	Hooker Ave/Crescent Rd		Hooker Ave/Crescent Rd		Dwight St		Dwight St				
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	2	0	0	2	0	0	1	0	0	5
11:30 AM	0	0	4	4	3	0	0	0	4	0	15
11:45 AM	1	0	0	4	1	8	0	0	1	4	19
12:00 PM	1	0	0	0	0	2	0	0	0	0	3
12:15 PM	0	0	0	0	1	1	0	0	0	0	2
12:30 PM	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	1	0	0	0	1	0	0	2
1:00 PM	1	0	3	0	0	2	0	1	1	0	8
1:15 PM	0	0	0	3	0	0	2	0	0	0	5
1:30 PM	1	0	3	1	1	2	0	0	1	0	9
1:45 PM	0	2	0	0	0	0	0	0	0	0	2
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
TOTAL VOLUMES :	4	4	10	13	8	15	2	3	7	4	70
APPROACH %'s :	50.00%	50.00%	43.48%	56.52%	34.78%	65.22%	40.00%	60.00%	63.64%	36.36%	
PEAK HR :	**01:00 PM - 02:00 PM**										TOTAL
PEAK HR VOL :	2	2	6	4	1	4	2	1	2	0	24
PEAK HR FACTOR :	0.500	0.250	0.500	0.333	0.250	0.500	0.250	0.250	0.500		0.667
	0.500		0.625		0.417		0.375		0.500		

Prepared by National Data & Surveying Services

Hooker Ave/Crescent Rd & Dwight St

Peak Hour Turning Movement Count

ID: 23-380020-002
City: Poughkeepsie

Day: Saturday
Date: 7/8/2023

PEAK HOURS	COUNT PERIODS
NONE	NONE
01:00 PM - 02:00 PM	11:00 AM - 02:00 PM
NONE	NONE

CONTROL: Signalized

	AM	NOON	PM
TEV	0	384	0
PHF		0.91	

SOUTHBOUND (Hooker Ave/Crescent Rd)

AM	0	0	0	0	0	AM
NOON	12	149	0	1	155	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Dwight St)

AM	NOON	PM	
0	47	0	
0	0	0	0
0	13	0	0
0	0	0	1
0	22	0	0

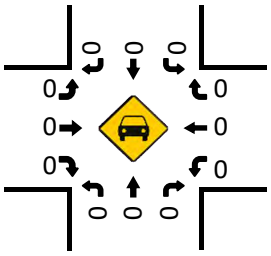
WESTBOUND (Dwight St)

PM	NOON	AM	
0	11	0	0
0	3	0	1
0	11	0	0
0	0	0	0
0	0	0	

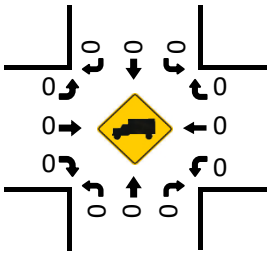
NORTHBOUND (Hooker Ave/Crescent Rd)

PM	0	0	0	0	0	PM
NOON	182	0	32	130	0	NOON
AM	0	0	0	0	0	AM

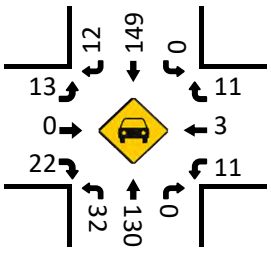
Cars (AM)



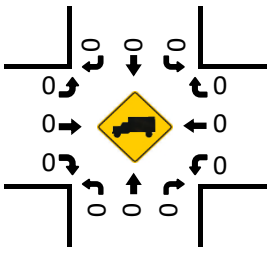
HT (AM)



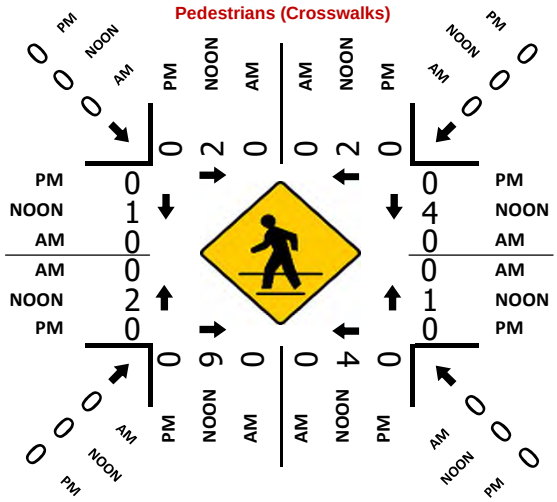
Cars (NOON)



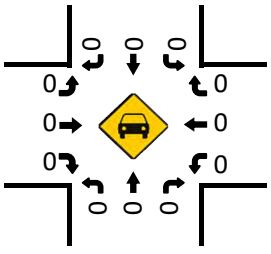
HT (NOON)



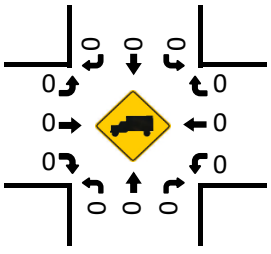
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/8/2023

Data - Total

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	6	1	0	9	11	5	0	3	10	0	0	0	35	8	0	88
11:15 AM	5	6	1	0	3	6	2	0	5	10	0	0	2	30	9	0	79
11:30 AM	1	11	2	0	9	10	2	0	3	17	1	0	5	34	12	0	107
11:45 AM	2	15	4	0	7	10	5	0	9	7	3	0	1	33	12	0	108
12:00 PM	0	6	1	0	6	14	10	0	4	17	0	0	1	40	18	0	117
12:15 PM	1	12	0	0	13	9	4	0	4	13	1	0	3	26	12	0	98
12:30 PM	1	5	1	0	9	13	0	0	3	15	1	0	0	33	8	0	89
12:45 PM	2	10	1	0	2	7	7	0	6	20	0	0	6	22	14	0	97
1:00 PM	2	13	1	0	9	12	3	0	1	28	0	0	2	25	7	0	103
1:15 PM	0	7	2	0	13	8	2	0	4	21	0	0	2	36	19	0	114
1:30 PM	3	17	0	0	11	12	2	0	7	17	2	0	3	43	15	0	132
1:45 PM	3	11	1	0	11	7	8	0	5	15	0	0	2	32	14	0	109
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	20	119	15	0	102	119	50	0	54	190	8	0	27	389	148	0	1241
APPROACH %'s :	12.99%	77.27%	9.74%	0.00%	37.64%	43.91%	18.45%	0.00%	21.43%	75.40%	3.17%	0.00%	4.79%	68.97%	26.24%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	8	48	4	0	44	39	15	0	17	81	2	0	9	136	55	0	458
PEAK HR FACTOR :	0.667	0.706	0.500	0.000	0.846	0.813	0.469	0.000	0.607	0.723	0.250	0.000	0.750	0.791	0.724	0.000	0.867
	0.750				0.942				0.862				0.820				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/8/2023

Data - Cars

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	6	1	0	8	10	4	0	3	9	0	0	0	34	8	0	83
11:15 AM	4	6	1	0	3	6	2	0	5	10	0	0	2	30	9	0	78
11:30 AM	1	9	2	0	9	10	2	0	3	15	1	0	5	33	12	0	102
11:45 AM	2	15	4	0	7	10	4	0	8	7	3	0	1	32	12	0	105
12:00 PM	0	6	1	0	6	14	10	0	4	16	0	0	1	40	18	0	116
12:15 PM	1	11	0	0	13	9	4	0	4	13	1	0	3	26	12	0	97
12:30 PM	1	4	1	0	9	13	0	0	3	13	1	0	0	33	8	0	86
12:45 PM	2	10	1	0	2	7	6	0	6	20	0	0	6	21	14	0	95
1:00 PM	2	13	1	0	9	12	3	0	1	28	0	0	2	25	7	0	103
1:15 PM	0	7	2	0	13	8	2	0	4	21	0	0	2	36	19	0	114
1:30 PM	3	17	0	0	11	12	2	0	7	15	2	0	3	43	15	0	130
1:45 PM	3	11	1	0	11	7	7	0	5	15	0	0	2	32	14	0	108
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	19	115	15	0	101	118	46	0	53	182	8	0	27	385	148	0	1217
APPROACH %'s :	12.75%	77.18%	10.07%	0.00%	38.11%	44.53%	17.36%	0.00%	21.81%	74.90%	3.29%	0.00%	4.82%	68.75%	26.43%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	8	48	4	0	44	39	14	0	17	79	2	0	9	136	55	0	455
PEAK HR FACTOR :	0.667	0.706	0.500	0.000	0.846	0.813	0.500	0.000	0.607	0.705	0.250	0.000	0.750	0.791	0.724	0.000	0.875
	0.750				0.970				0.845				0.820				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/8/2023

Data - HT

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	1	1	1	0	0	1	0	0	0	1	0	0	5
11:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	2	0	0	0	0	0	0	0	2	0	0	0	1	0	0	5
11:45 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	3
12:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
12:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
1:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	4	0	0	1	1	4	0	1	8	0	0	0	4	0	0	24
APPROACH %'s :	20.00%	80.00%	0.00%	0.00%	16.67%	16.67%	66.67%	0.00%	11.11%	88.89%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.375
							0.250				0.250						

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St
City: Poughkeepsie
Control: Signalized

Project ID: 23-380020-003
Date: 7/8/2023

Data - Bikes

NS/EW Streets:	S Hamilton St				S Hamilton St				Hooker Ave/Montgomery St				Hooker Ave/Montgomery St				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
12:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
12:30 PM	1	0	0	0	1	1	0	0	0	1	0	0	0	1	0	0	5
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
1:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	3
1:30 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	4
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	2	0	0	3	2	0	0	2	2	0	0	0	5	4	0	21
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	60.00%	40.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	55.56%	44.44%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	1	0	0	1	1	0	0	1	0	0	0	0	1	4	0	9
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.563
	0.250				0.500				0.250				0.625				

National Data & Surveying Services Intersection Turning Movement Count

Location: S Hamilton St & Hooker Ave/Montgomery St **Project ID:** 23-380020-003
City: Poughkeepsie **Date:** 7/8/2023

Data - Pedestrians (Crosswalks)

NS/EW Streets:	S Hamilton St		S Hamilton St		Hooker Ave/Montgomery St		Hooker Ave/Montgomery St		
NOON	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
11:00 AM	5	3	0	0	3	0	0	0	11
11:15 AM	0	0	0	1	1	0	2	2	6
11:30 AM	0	2	0	1	0	0	1	0	4
11:45 AM	1	1	0	1	1	0	0	1	5
12:00 PM	2	2	0	1	2	0	3	4	14
12:15 PM	3	3	0	0	0	0	0	0	6
12:30 PM	1	1	0	0	0	0	0	3	5
12:45 PM	0	0	0	0	0	0	0	1	1
1:00 PM	0	0	0	0	0	1	0	0	1
1:15 PM	1	2	0	0	0	0	2	4	9
1:30 PM	3	1	0	1	3	0	0	0	8
1:45 PM	0	3	1	0	1	0	1	1	7
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	16	18	1	5	11	1	9	16	77
APPROACH %'s :	47.06%	52.94%	16.67%	83.33%	91.67%	8.33%	36.00%	64.00%	
PEAK HR :	**01:00 PM - 02:00 PM**								TOTAL
PEAK HR VOL :	4	6	1	1	4	1	3	5	25
PEAK HR FACTOR :	0.333	0.500	0.250	0.250	0.333	0.250	0.375	0.313	0.694
	0.625		0.500		0.417		0.333		

Prepared by National Data & Surveying Services

S Hamilton St & Hooker Ave/Montgomery St

Peak Hour Turning Movement Count

ID: 23-380020-003
City: Poughkeepsie

Day: Saturday
Date: 7/8/2023

PEAK HOURS

AM: NONE
NOON: 01:00 PM - 02:00 PM
PM: NONE

COUNT PERIODS

AM: NONE
NOON: 11:00 AM - 02:00 PM
PM: NONE

CONTROL: Signalized

	AM	NOON	PM
TEV	0	458	0
PHF		0.87	

SOUTHBOUND (S Hamilton St)

AM	0	0	0	0	0	AM
NOON	15	39	44	0	120	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Hooker Ave/Montgomery St)

AM	NOON	PM	
0	159	0	
0	0	0	0
0	17	0	0
0	81	0	2
0	2	0	0

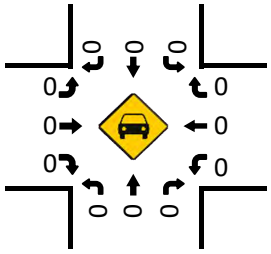
WESTBOUND (Hooker Ave/Montgomery St)

	PM	NOON	AM
0	0	55	0
2	0	136	0
0	0	9	0
0	0	0	0
	0	129	0

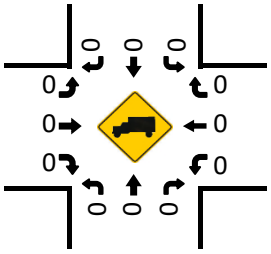
NORTHBOUND (S Hamilton St)

PM	0	0	0	0	0	PM
NOON	50	0	8	48	4	NOON
AM	0	0	0	0	0	AM

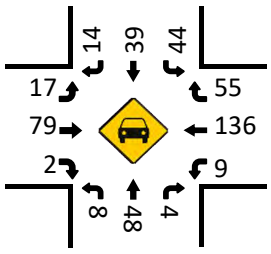
Cars (AM)



HT (AM)



Cars (NOON)



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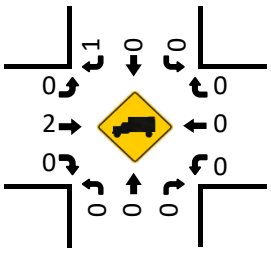
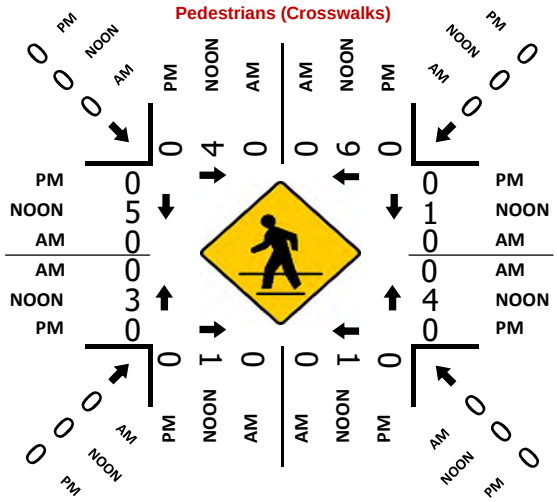
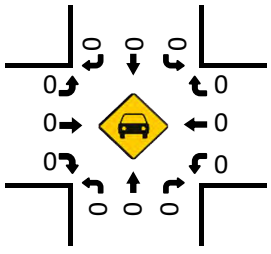


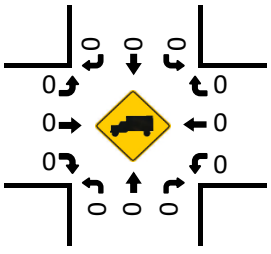
Pedestrians (Crosswalks)



Cars (PM)

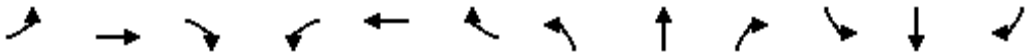


HT (PM)



ATTACHMENT C
LEVEL OF SERVICE ANALYSIS

City of Poughkeepsie
Dutchess County, New York



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	78	5	10	229	102	8	59	6	33	44	31
Future Volume (vph)	18	78	5	10	229	102	8	59	6	33	44	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.96	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1696	1747			1859	1565		1714			1685	
Flt Permitted	0.58	1.00			0.99	1.00		0.95			0.86	
Satd. Flow (perm)	1027	1747			1838	1565		1635			1476	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	23	99	6	13	290	129	10	75	8	42	56	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	23	105	0	0	303	129	0	93	0	0	137	0
Confl. Peds. (#/hr)	9		20	20		9	4		7	7		4
Heavy Vehicles (%)	6%	8%	0%	0%	2%	0%	13%	9%	0%	3%	7%	7%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	19.6	19.6			13.9	13.9		7.4			7.4	
Effective Green, g (s)	19.6	19.6			13.9	13.9		7.4			7.4	
Actuated g/C Ratio	0.53	0.53			0.38	0.38		0.20			0.20	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	556	925			690	587		327			295	
v/s Ratio Prot	0.00	c0.06										
v/s Ratio Perm	0.02				c0.16	0.08		0.06			c0.09	
v/c Ratio	0.04	0.11			0.44	0.22		0.28			0.46	
Uniform Delay, d1	4.2	4.4			8.6	7.9		12.6			13.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.4	0.2		0.5			1.2	
Delay (s)	4.2	4.4			9.1	8.0		13.0			14.2	
Level of Service	A	A			A	A		B			B	
Approach Delay (s)		4.4			8.8			13.0			14.2	
Approach LOS		A			A			B			B	

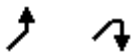
Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	37.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	14	0	25	4	0	8	4	39	208	119	15	2
Future Volume (vph)	14	0	25	4	0	8	4	39	208	119	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0	5.0		
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00		
Frpb, ped/bikes		0.97			1.00	0.99			1.00	1.00		
Flpb, ped/bikes		0.99			0.94	1.00			1.00	1.00		
Frt		0.91			1.00	0.95			1.00	0.98		
Flt Protected		0.98			0.95	1.00			0.99	1.00		
Satd. Flow (prot)		1557			1693	1653			1868	1825		
Flt Permitted		1.00			1.00	1.00			0.93	1.00		
Satd. Flow (perm)		1585			1782	1653			1749	1825		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	15	0	27	4	0	9	4	43	229	131	16	2
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	0	1	0	0
Lane Group Flow (vph)	0	42	0	0	4	9	0	0	272	148	0	0
Confl. Peds. (#/hr)	3		5	5	5		3	5			5	5
Heavy Vehicles (%)	7%	0%	4%	0%	0%	12%	0%	0%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	Perm	NA		Perm	NA	NA		
Protected Phases		1				1			3	3		
Permitted Phases	1			1	1			3				
Actuated Green, G (s)		2.2			2.2	2.2			11.1	11.1		
Effective Green, g (s)		2.2			2.2	2.2			11.1	11.1		
Actuated g/C Ratio		0.08			0.08	0.08			0.38	0.38		
Clearance Time (s)		5.0			5.0	5.0			5.0	5.0		
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		120			135	125			671	700		
v/s Ratio Prot						0.01				0.08		
v/s Ratio Perm		c0.03			0.00				c0.16			
v/c Ratio		0.35			0.03	0.07			0.41	0.21		
Uniform Delay, d1		12.7			12.4	12.4			6.5	6.0		
Progression Factor		1.00			1.00	1.00			1.00	1.00		
Incremental Delay, d2		1.8			0.1	0.3			0.4	0.2		
Delay (s)		14.4			12.5	12.7			6.9	6.1		
Level of Service		B			B	B			A	A		
Approach Delay (s)		14.4				12.6			6.9	6.1		
Approach LOS		B				B			A	A		

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	28.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NEL	NER2
Lane Configurations		
Traffic Volume (vph)	2	1
Future Volume (vph)	2	1
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	0.95	
Frt	0.95	
Flt Protected	0.97	
Satd. Flow (prot)	1639	
Flt Permitted	0.97	
Satd. Flow (perm)	1639	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	2	1
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	5	
Heavy Vehicles (%)	2%	2%
Turn Type	Perm	
Protected Phases		
Permitted Phases	4	
Actuated Green, G (s)	0.6	
Effective Green, g (s)	0.6	
Actuated g/C Ratio	0.02	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	34	
v/s Ratio Prot		
v/s Ratio Perm	c0.00	
v/c Ratio	0.00	
Uniform Delay, d1	13.9	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	13.9	
Level of Service	B	
Approach Delay (s)	13.9	
Approach LOS	B	

Intersection Summary

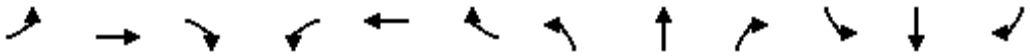
Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	43	21	51	25	12	40
Future Vol, veh/h	43	21	51	25	12	40
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	7	10	6	8	0	3
Mvmt Flow	50	24	59	29	14	47

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	153	76	0	0	90	0
Stage 1	76	-	-	-	-	-
Stage 2	77	-	-	-	-	-
Critical Hdwy	6.47	6.3	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.39	-	-	2.2	-
Pot Cap-1 Maneuver	827	963	-	-	1518	-
Stage 1	934	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	816	961	-	-	1515	-
Mov Cap-2 Maneuver	816	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	924	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	859	1515	-
HCM Lane V/C Ratio	-	-	0.087	0.009	-
HCM Control Delay (s)	-	-	9.6	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	151	6	8	191	69	3	62	4	63	83	29
Future Volume (vph)	34	151	6	8	191	69	3	62	4	63	83	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.98	
Satd. Flow (prot)	1795	1868			1842	1563		1879			1798	
Flt Permitted	0.62	1.00			0.98	1.00		0.98			0.85	
Satd. Flow (perm)	1176	1868			1810	1563		1847			1558	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	164	7	9	208	75	3	67	4	68	90	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	37	171	0	0	217	75	0	74	0	0	190	0
Confl. Peds. (#/hr)	11		9	9		11	8		4	4		8
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	1%	1%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	15.2	15.2			8.6	8.6		7.9			7.9	
Effective Green, g (s)	15.2	15.2			8.6	8.6		7.9			7.9	
Actuated g/C Ratio	0.46	0.46			0.26	0.26		0.24			0.24	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	569	857			470	406		440			371	
v/s Ratio Prot	0.00	c0.09										
v/s Ratio Perm	0.03				c0.12	0.05		0.04			c0.12	
v/c Ratio	0.07	0.20			0.46	0.18		0.17			0.51	
Uniform Delay, d1	5.0	5.3			10.3	9.5		10.0			10.9	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.7	0.2		0.2			1.2	
Delay (s)	5.0	5.4			11.0	9.7		10.2			12.1	
Level of Service	A	A			B	A		B			B	
Approach Delay (s)		5.4			10.7			10.2			12.1	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT
Lane Configurations												
Traffic Volume (vph)	25	0	34	1	2	13	11	6	3	30	188	260
Future Volume (vph)	25	0	34	1	2	13	11	6	3	30	188	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0	5.0				5.0	5.0
Lane Util. Factor		1.00				1.00	1.00				1.00	1.00
Frpb, ped/bikes		0.98				1.00	0.99				1.00	1.00
Flpb, ped/bikes		1.00				0.98	1.00				1.00	1.00
Frt		0.92				1.00	0.95				1.00	0.99
Flt Protected		0.98				0.95	1.00				0.99	1.00
Satd. Flow (prot)		1672				1777	1788				1838	1852
Flt Permitted		0.86				1.00	1.00				0.91	1.00
Satd. Flow (perm)		1463				1871	1788				1687	1852
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	0	37	1	2	14	12	6	3	32	202	280
RTOR Reduction (vph)	0	57	0	0	0	0	5	0	0	0	0	2
Lane Group Flow (vph)	0	8	0	0	0	16	13	0	0	0	237	310
Confl. Peds. (#/hr)	2		2	2	2	2		2	2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	NA
Protected Phases		1					1				3	3
Permitted Phases	1				1	1			3	3		
Actuated Green, G (s)		3.7				3.7	3.7				11.9	11.9
Effective Green, g (s)		3.7				3.7	3.7				11.9	11.9
Actuated g/C Ratio		0.12				0.12	0.12				0.38	0.38
Clearance Time (s)		5.0				5.0	5.0				5.0	5.0
Vehicle Extension (s)		3.0				3.0	3.0				3.0	3.0
Lane Grp Cap (vph)		172				221	211				641	704
v/s Ratio Prot							0.01					c0.17
v/s Ratio Perm		0.01				c0.01					0.14	
v/c Ratio		0.04				0.07	0.06				0.37	0.44
Uniform Delay, d1		12.2				12.3	12.3				7.0	7.2
Progression Factor		1.00				1.00	1.00				1.00	1.00
Incremental Delay, d2		0.1				0.1	0.1				0.4	0.4
Delay (s)		12.3				12.4	12.4				7.4	7.7
Level of Service		B				B	B				A	A
Approach Delay (s)		12.3					12.4				7.4	7.7
Approach LOS		B					B				A	A

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	31.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR	SBR2	NEL2	NEL	NER2
Lane Configurations					
Traffic Volume (vph)	18	12	1	3	3
Future Volume (vph)	18	12	1	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	
Lane Util. Factor				1.00	
Frpb, ped/bikes				0.98	
Flpb, ped/bikes				0.98	
Frt				0.94	
Flt Protected				0.97	
Satd. Flow (prot)				1672	
Flt Permitted				0.97	
Satd. Flow (perm)				1672	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	13	1	3	3
RTOR Reduction (vph)	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	0	0
Confl. Peds. (#/hr)	2	2		2	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%
Turn Type			Perm	Perm	
Protected Phases					
Permitted Phases			4	4	
Actuated Green, G (s)				0.7	
Effective Green, g (s)				0.7	
Actuated g/C Ratio				0.02	
Clearance Time (s)				5.0	
Vehicle Extension (s)				3.0	
Lane Grp Cap (vph)				37	
v/s Ratio Prot					
v/s Ratio Perm				c0.00	
v/c Ratio				0.00	
Uniform Delay, d1				15.0	
Progression Factor				1.00	
Incremental Delay, d2				0.0	
Delay (s)				15.0	
Level of Service				B	
Approach Delay (s)				15.0	
Approach LOS				B	

Intersection Summary

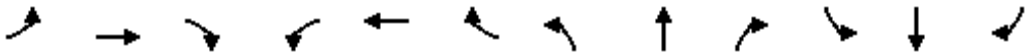
Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	25	65	53	8	68
Future Vol, veh/h	33	25	65	53	8	68
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	38	29	76	62	9	79

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	208	110	0	0	141	0
Stage 1	110	-	-	-	-	-
Stage 2	98	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	785	949	-	-	1455	-
Stage 1	920	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	777	946	-	-	1451	-
Mov Cap-2 Maneuver	777	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	924	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	842	1451	-
HCM Lane V/C Ratio	-	-	0.08	0.006	-
HCM Control Delay (s)	-	-	9.6	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	81	2	9	136	55	8	48	4	44	39	15
Future Volume (vph)	17	81	2	9	136	55	8	48	4	44	39	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1795	1839			1893	1565		1864			1791	
Flt Permitted	0.65	1.00			0.98	1.00		0.94			0.82	
Satd. Flow (perm)	1232	1839			1853	1565		1757			1505	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	93	2	10	156	63	9	55	5	51	45	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	20	95	0	0	166	63	0	69	0	0	113	0
Confl. Peds. (#/hr)	11		9	9		11	8		4	4		8
Heavy Vehicles (%)	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	13.7	13.7			7.9	7.9		6.3			6.3	
Effective Green, g (s)	13.7	13.7			7.9	7.9		6.3			6.3	
Actuated g/C Ratio	0.46	0.46			0.26	0.26		0.21			0.21	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	577	839			487	412		368			316	
v/s Ratio Prot	0.00	c0.05										
v/s Ratio Perm	0.01				c0.09	0.04		0.04			c0.08	
v/c Ratio	0.03	0.11			0.34	0.15		0.19			0.36	
Uniform Delay, d1	4.5	4.7			8.9	8.5		9.7			10.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.4	0.2		0.2			0.7	
Delay (s)	4.5	4.7			9.4	8.7		10.0			10.8	
Level of Service	A	A			A	A		A			B	
Approach Delay (s)		4.7			9.2			10.0			10.8	
Approach LOS		A			A			A			B	

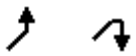
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	30.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	13	0	22	1	11	3	11	32	130	149	12	5
Future Volume (vph)	13	0	22	1	11	3	11	32	130	149	12	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0	5.0		
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00		
Frpb, ped/bikes		0.95			1.00	0.97			1.00	1.00		
Flpb, ped/bikes		0.99			0.90	1.00			1.00	1.00		
Frt		0.91			1.00	0.88			1.00	0.99		
Flt Protected		0.98			0.95	1.00			0.99	1.00		
Satd. Flow (prot)		1614			1616	1616			1834	1850		
Flt Permitted		1.00			1.00	1.00			0.88	1.00		
Satd. Flow (perm)		1643			1701	1616			1638	1850		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	14	0	24	1	12	3	12	35	143	164	13	5
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	2	0	0
Lane Group Flow (vph)	0	38	0	0	13	4	0	0	178	180	0	0
Confl. Peds. (#/hr)	4		10	10	10		4	5			5	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%	0%	0%
Turn Type	Perm	NA		Perm	Perm	NA		Perm	NA	NA		
Protected Phases		1				1			3	3		
Permitted Phases	1			1	1			3				
Actuated Green, G (s)		2.1			2.1	2.1			5.5	5.5		
Effective Green, g (s)		2.1			2.1	2.1			5.5	5.5		
Actuated g/C Ratio		0.09			0.09	0.09			0.24	0.24		
Clearance Time (s)		5.0			5.0	5.0			5.0	5.0		
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		148			153	146			388	438		
v/s Ratio Prot						0.00				0.10		
v/s Ratio Perm		c0.02			0.01				c0.11			
v/c Ratio		0.26			0.08	0.03			0.46	0.41		
Uniform Delay, d1		9.8			9.7	9.6			7.6	7.5		
Progression Factor		1.00			1.00	1.00			1.00	1.00		
Incremental Delay, d2		0.9			0.2	0.1			0.9	0.6		
Delay (s)		10.7			9.9	9.7			8.4	8.1		
Level of Service		B			A	A			A	A		
Approach Delay (s)		10.7				9.8			8.4	8.1		
Approach LOS		B				A			A	A		

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	23.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NEL	NER2
Lane Configurations		
Traffic Volume (vph)	0	5
Future Volume (vph)	0	5
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.87	
Flpb, ped/bikes	1.00	
Frt	0.86	
Flt Protected	1.00	
Satd. Flow (prot)	1424	
Flt Permitted	1.00	
Satd. Flow (perm)	1424	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	0	5
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	4	10
Heavy Vehicles (%)	0%	0%
Turn Type	Perm	
Protected Phases		
Permitted Phases	4	
Actuated Green, G (s)	0.6	
Effective Green, g (s)	0.6	
Actuated g/C Ratio	0.03	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	36	
v/s Ratio Prot		
v/s Ratio Perm	c0.00	
v/c Ratio	0.00	
Uniform Delay, d1	11.0	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	11.0	
Level of Service	B	
Approach Delay (s)	11.0	
Approach LOS	B	

Intersection Summary

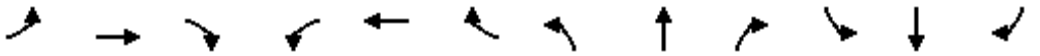
Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	18	54	29	9	38
Future Vol, veh/h	28	18	54	29	9	38
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	34	22	66	35	11	46

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	156	88	0	0	105	0
Stage 1	88	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	840	976	-	-	1499	-
Stage 1	940	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	830	972	-	-	1493	-
Mov Cap-2 Maneuver	830	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	952	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	880	1493	-
HCM Lane V/C Ratio	-	-	0.064	0.007	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	79	5	10	232	104	8	60	6	33	45	31
Future Volume (vph)	18	79	5	10	232	104	8	60	6	33	45	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.96	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	
Satd. Flow (prot)	1696	1747			1859	1565		1714			1686	
Flt Permitted	0.57	1.00			0.99	1.00		0.95			0.86	
Satd. Flow (perm)	1024	1747			1839	1565		1636			1478	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	23	100	6	13	294	132	10	76	8	42	57	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	23	106	0	0	307	132	0	94	0	0	138	0
Confl. Peds. (#/hr)	9		20	20		9	4		7	7		4
Heavy Vehicles (%)	6%	8%	0%	0%	2%	0%	13%	9%	0%	3%	7%	7%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	19.7	19.7			14.0	14.0		7.4			7.4	
Effective Green, g (s)	19.7	19.7			14.0	14.0		7.4			7.4	
Actuated g/C Ratio	0.53	0.53			0.38	0.38		0.20			0.20	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	556	927			693	590		326			294	
v/s Ratio Prot	0.00	c0.06										
v/s Ratio Perm	0.02				c0.17	0.08		0.06			c0.09	
v/c Ratio	0.04	0.11			0.44	0.22		0.29			0.47	
Uniform Delay, d1	4.2	4.3			8.6	7.9		12.6			13.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.5	0.2		0.5			1.2	
Delay (s)	4.2	4.4			9.1	8.0		13.1			14.3	
Level of Service	A	A			A	A		B			B	
Approach Delay (s)		4.4			8.8			13.1			14.3	
Approach LOS		A			A			B			B	

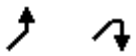
Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	37.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	40.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	14	0	25	4	0	8	4	40	211	121	15	2
Future Volume (vph)	14	0	25	4	0	8	4	40	211	121	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0	5.0		
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00		
Frpb, ped/bikes		0.97			1.00	0.99			1.00	1.00		
Flpb, ped/bikes		0.99			0.94	1.00			1.00	1.00		
Frt		0.91			1.00	0.95			1.00	0.98		
Flt Protected		0.98			0.95	1.00			0.99	1.00		
Satd. Flow (prot)		1557			1693	1653			1868	1826		
Flt Permitted		1.00			1.00	1.00			0.93	1.00		
Satd. Flow (perm)		1585			1782	1653			1747	1826		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	15	0	27	4	0	9	4	44	232	133	16	2
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	0	1	0	0
Lane Group Flow (vph)	0	42	0	0	4	9	0	0	276	150	0	0
Confl. Peds. (#/hr)	3		5	5	5		3	5			5	5
Heavy Vehicles (%)	7%	0%	4%	0%	0%	12%	0%	0%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	Perm	NA		Perm	NA	NA		
Protected Phases		1				1			3	3		
Permitted Phases	1			1	1			3				
Actuated Green, G (s)		2.2			2.2	2.2			11.2	11.2		
Effective Green, g (s)		2.2			2.2	2.2			11.2	11.2		
Actuated g/C Ratio		0.08			0.08	0.08			0.39	0.39		
Clearance Time (s)		5.0			5.0	5.0			5.0	5.0		
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		120			135	125			674	705		
v/s Ratio Prot						0.01				0.08		
v/s Ratio Perm		c0.03			0.00				c0.16			
v/c Ratio		0.35			0.03	0.07			0.41	0.21		
Uniform Delay, d1		12.7			12.4	12.5			6.5	6.0		
Progression Factor		1.00			1.00	1.00			1.00	1.00		
Incremental Delay, d2		1.8			0.1	0.3			0.4	0.2		
Delay (s)		14.5			12.5	12.7			6.9	6.1		
Level of Service		B			B	B			A	A		
Approach Delay (s)		14.5				12.7			6.9	6.1		
Approach LOS		B				B			A	A		

Intersection Summary			
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	29.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NEL	NER2
Lane Configurations		
Traffic Volume (vph)	2	1
Future Volume (vph)	2	1
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	0.95	
Frt	0.95	
Flt Protected	0.97	
Satd. Flow (prot)	1638	
Flt Permitted	0.97	
Satd. Flow (perm)	1638	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	2	1
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	5	
Heavy Vehicles (%)	2%	2%
Turn Type	Perm	
Protected Phases		
Permitted Phases	4	
Actuated Green, G (s)	0.6	
Effective Green, g (s)	0.6	
Actuated g/C Ratio	0.02	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	33	
v/s Ratio Prot		
v/s Ratio Perm	c0.00	
v/c Ratio	0.00	
Uniform Delay, d1	13.9	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	13.9	
Level of Service	B	
Approach Delay (s)	13.9	
Approach LOS	B	

Intersection Summary

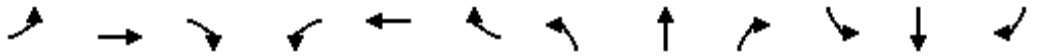
Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	21	52	25	12	41
Future Vol, veh/h	44	21	52	25	12	41
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	7	10	6	8	0	3
Mvmt Flow	51	24	60	29	14	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	155	77	0	0	91	0
Stage 1	77	-	-	-	-	-
Stage 2	78	-	-	-	-	-
Critical Hdwy	6.47	6.3	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.39	-	-	2.2	-
Pot Cap-1 Maneuver	825	962	-	-	1517	-
Stage 1	934	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	814	960	-	-	1514	-
Mov Cap-2 Maneuver	814	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	923	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	856	1514	-
HCM Lane V/C Ratio	-	-	0.088	0.009	-
HCM Control Delay (s)	-	-	9.6	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	153	6	8	194	70	3	63	4	64	84	29
Future Volume (vph)	35	153	6	8	194	70	3	63	4	64	84	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.98	
Satd. Flow (prot)	1795	1868			1843	1563		1880			1798	
Flt Permitted	0.62	1.00			0.98	1.00		0.98			0.85	
Satd. Flow (perm)	1173	1868			1811	1563		1847			1554	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	166	7	9	211	76	3	68	4	70	91	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	38	173	0	0	220	76	0	75	0	0	193	0
Confl. Peds. (#/hr)	11		9	9		11	8		4	4		8
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	1%	1%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	15.3	15.3			8.7	8.7		7.9			7.9	
Effective Green, g (s)	15.3	15.3			8.7	8.7		7.9			7.9	
Actuated g/C Ratio	0.46	0.46			0.26	0.26		0.24			0.24	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	570	860			474	409		439			369	
v/s Ratio Prot	0.00	c0.09										
v/s Ratio Perm	0.03				c0.12	0.05		0.04			c0.12	
v/c Ratio	0.07	0.20			0.46	0.19		0.17			0.52	
Uniform Delay, d1	5.0	5.3			10.3	9.5		10.0			11.0	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.7	0.2		0.2			1.3	
Delay (s)	5.0	5.4			11.0	9.7		10.2			12.3	
Level of Service	A	A			B	A		B			B	
Approach Delay (s)		5.4			10.7			10.2			12.3	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	33.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT
Lane Configurations												
Traffic Volume (vph)	25	0	35	1	2	13	11	6	3	30	191	264
Future Volume (vph)	25	0	35	1	2	13	11	6	3	30	191	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0	5.0				5.0	5.0
Lane Util. Factor		1.00				1.00	1.00				1.00	1.00
Frpb, ped/bikes		0.98				1.00	0.99				1.00	1.00
Flpb, ped/bikes		1.00				0.98	1.00				1.00	1.00
Frt		0.92				1.00	0.95				1.00	0.99
Flt Protected		0.98				0.95	1.00				0.99	1.00
Satd. Flow (prot)		1671				1777	1788				1838	1853
Flt Permitted		0.86				1.00	1.00				0.91	1.00
Satd. Flow (perm)		1464				1870	1788				1689	1853
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	0	38	1	2	14	12	6	3	32	205	284
RTOR Reduction (vph)	0	58	0	0	0	0	5	0	0	0	0	2
Lane Group Flow (vph)	0	8	0	0	0	16	13	0	0	0	240	314
Confl. Peds. (#/hr)	2		2	2	2	2		2	2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	NA
Protected Phases		1					1				3	3
Permitted Phases	1				1	1			3	3		
Actuated Green, G (s)		3.7				3.7	3.7				12.1	12.1
Effective Green, g (s)		3.7				3.7	3.7				12.1	12.1
Actuated g/C Ratio		0.12				0.12	0.12				0.38	0.38
Clearance Time (s)		5.0				5.0	5.0				5.0	5.0
Vehicle Extension (s)		3.0				3.0	3.0				3.0	3.0
Lane Grp Cap (vph)		171				219	210				648	711
v/s Ratio Prot							0.01					c0.17
v/s Ratio Perm		0.01				c0.01					0.14	
v/c Ratio		0.05				0.07	0.06				0.37	0.44
Uniform Delay, d1		12.3				12.4	12.4				7.0	7.2
Progression Factor		1.00				1.00	1.00				1.00	1.00
Incremental Delay, d2		0.1				0.1	0.1				0.4	0.4
Delay (s)		12.4				12.5	12.5				7.3	7.6
Level of Service		B				B	B				A	A
Approach Delay (s)		12.4					12.5				7.3	7.6
Approach LOS		B					B				A	A

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	31.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR	SBR2	NEL2	NEL	NER2
Lane Configurations					
Traffic Volume (vph)	18	12	1	3	3
Future Volume (vph)	18	12	1	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	
Lane Util. Factor				1.00	
Frpb, ped/bikes				0.98	
Flpb, ped/bikes				0.98	
Frt				0.94	
Flt Protected				0.97	
Satd. Flow (prot)				1672	
Flt Permitted				0.97	
Satd. Flow (perm)				1672	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	13	1	3	3
RTOR Reduction (vph)	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	0	0
Confl. Peds. (#/hr)	2	2		2	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%
Turn Type			Perm	Perm	
Protected Phases					
Permitted Phases			4	4	
Actuated Green, G (s)				0.7	
Effective Green, g (s)				0.7	
Actuated g/C Ratio				0.02	
Clearance Time (s)				5.0	
Vehicle Extension (s)				3.0	
Lane Grp Cap (vph)				37	
v/s Ratio Prot					
v/s Ratio Perm				c0.00	
v/c Ratio				0.00	
Uniform Delay, d1				15.1	
Progression Factor				1.00	
Incremental Delay, d2				0.0	
Delay (s)				15.1	
Level of Service				B	
Approach Delay (s)				15.1	
Approach LOS				B	

Intersection Summary

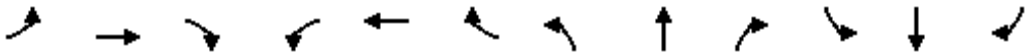
Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	25	66	54	8	69
Future Vol, veh/h	33	25	66	54	8	69
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	38	29	77	63	9	80

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	211	112	0	0	143	0
Stage 1	112	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	782	947	-	-	1452	-
Stage 1	918	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	773	944	-	-	1448	-
Mov Cap-2 Maneuver	773	-	-	-	-	-
Stage 1	915	-	-	-	-	-
Stage 2	923	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	838	1448	-
HCM Lane V/C Ratio	-	-	0.08	0.006	-
HCM Control Delay (s)	-	-	9.7	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	82	2	9	138	56	8	49	4	45	40	15
Future Volume (vph)	17	82	2	9	138	56	8	49	4	45	40	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	1.00			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1795	1839			1894	1565		1865			1792	
Flt Permitted	0.65	1.00			0.98	1.00		0.94			0.82	
Satd. Flow (perm)	1229	1839			1854	1565		1758			1505	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	94	2	10	159	64	9	56	5	52	46	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	20	96	0	0	169	64	0	70	0	0	115	0
Confl. Peds. (#/hr)	11		9	9		11	8		4	4		8
Heavy Vehicles (%)	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	13.7	13.7			7.9	7.9		6.3			6.3	
Effective Green, g (s)	13.7	13.7			7.9	7.9		6.3			6.3	
Actuated g/C Ratio	0.46	0.46			0.26	0.26		0.21			0.21	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	576	839			488	412		369			316	
v/s Ratio Prot	0.00	c0.05										
v/s Ratio Perm	0.01				c0.09	0.04		0.04			c0.08	
v/c Ratio	0.03	0.11			0.35	0.16		0.19			0.36	
Uniform Delay, d1	4.5	4.7			9.0	8.5		9.7			10.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.4	0.2		0.3			0.7	
Delay (s)	4.5	4.7			9.4	8.7		10.0			10.9	
Level of Service	A	A			A	A		B			B	
Approach Delay (s)		4.7			9.2			10.0			10.9	
Approach LOS		A			A			B			B	

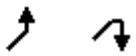
Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	30.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	13	0	22	1	11	3	11	32	132	151	12	5
Future Volume (vph)	13	0	22	1	11	3	11	32	132	151	12	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0	5.0		
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00		
Frpb, ped/bikes		0.95			1.00	0.97			1.00	1.00		
Flpb, ped/bikes		0.99			0.89	1.00			1.00	1.00		
Frt		0.91			1.00	0.88			1.00	0.99		
Flt Protected		0.98			0.95	1.00			0.99	1.00		
Satd. Flow (prot)		1613			1614	1616			1834	1851		
Flt Permitted		1.00			1.00	1.00			0.88	1.00		
Satd. Flow (perm)		1643			1699	1616			1639	1851		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	14	0	24	1	12	3	12	35	145	166	13	5
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	2	0	0
Lane Group Flow (vph)	0	38	0	0	13	4	0	0	180	182	0	0
Confl. Peds. (#/hr)	4		10	10	10		4	5			5	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%	0%	0%
Turn Type	Perm	NA		Perm	Perm	NA		Perm	NA	NA		
Protected Phases		1				1			3	3		
Permitted Phases	1			1	1			3				
Actuated Green, G (s)		2.1			2.1	2.1			5.7	5.7		
Effective Green, g (s)		2.1			2.1	2.1			5.7	5.7		
Actuated g/C Ratio		0.09			0.09	0.09			0.24	0.24		
Clearance Time (s)		5.0			5.0	5.0			5.0	5.0		
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		147			152	145			399	450		
v/s Ratio Prot						0.00				0.10		
v/s Ratio Perm		c0.02			0.01				c0.11			
v/c Ratio		0.26			0.09	0.03			0.45	0.41		
Uniform Delay, d1		9.9			9.8	9.7			7.5	7.4		
Progression Factor		1.00			1.00	1.00			1.00	1.00		
Incremental Delay, d2		0.9			0.2	0.1			0.8	0.6		
Delay (s)		10.9			10.0	9.8			8.3	8.0		
Level of Service		B			B	A			A	A		
Approach Delay (s)		10.9				9.9			8.3	8.0		
Approach LOS		B				A			A	A		

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	23.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NEL	NER2
Lane Configurations		
Traffic Volume (vph)	0	5
Future Volume (vph)	0	5
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.87	
Flpb, ped/bikes	1.00	
Frt	0.86	
Flt Protected	1.00	
Satd. Flow (prot)	1422	
Flt Permitted	1.00	
Satd. Flow (perm)	1422	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	0	5
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	4	10
Heavy Vehicles (%)	0%	0%
Turn Type	Perm	
Protected Phases		
Permitted Phases	4	
Actuated Green, G (s)	0.6	
Effective Green, g (s)	0.6	
Actuated g/C Ratio	0.03	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	36	
v/s Ratio Prot		
v/s Ratio Perm	c0.00	
v/c Ratio	0.00	
Uniform Delay, d1	11.1	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	11.1	
Level of Service	B	
Approach Delay (s)	11.1	
Approach LOS	B	

Intersection Summary

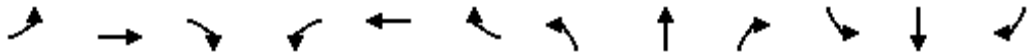
Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	18	55	29	9	39
Future Vol, veh/h	28	18	55	29	9	39
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	34	22	67	35	11	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	159	89	0	0	106	0
Stage 1	89	-	-	-	-	-
Stage 2	70	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	837	975	-	-	1498	-
Stage 1	940	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	827	971	-	-	1492	-
Mov Cap-2 Maneuver	827	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	950	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	878	1492	-
HCM Lane V/C Ratio	-	-	0.064	0.007	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	79	7	10	232	104	14	69	6	33	48	31
Future Volume (vph)	18	79	7	10	232	104	14	69	6	33	48	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			0.99	
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.96	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.99	
Satd. Flow (prot)	1696	1742			1859	1565		1708			1688	
Flt Permitted	0.57	1.00			0.99	1.00		0.92			0.86	
Satd. Flow (perm)	1024	1742			1839	1565		1583			1473	
Peak-hour factor, PHF	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Adj. Flow (vph)	23	100	9	13	294	132	18	87	8	42	61	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	23	109	0	0	307	132	0	113	0	0	142	0
Confl. Peds. (#/hr)	9		20	20		9	4		7	7		4
Heavy Vehicles (%)	6%	8%	0%	0%	2%	0%	13%	9%	0%	3%	7%	7%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	19.8	19.8			14.1	14.1		7.5			7.5	
Effective Green, g (s)	19.8	19.8			14.1	14.1		7.5			7.5	
Actuated g/C Ratio	0.53	0.53			0.38	0.38		0.20			0.20	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	556	924			695	591		318			296	
v/s Ratio Prot	0.00	c0.06										
v/s Ratio Perm	0.02				c0.17	0.08		0.07			c0.10	
v/c Ratio	0.04	0.12			0.44	0.22		0.36			0.48	
Uniform Delay, d1	4.2	4.4			8.7	7.9		12.8			13.2	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.5	0.2		0.7			1.2	
Delay (s)	4.2	4.4			9.1	8.1		13.5			14.4	
Level of Service	A	A			A	A		B			B	
Approach Delay (s)		4.4			8.8			13.5			14.4	
Approach LOS		A			A			B			B	

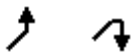
Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	14	0	27	4	0	8	4	46	211	121	15	2
Future Volume (vph)	14	0	27	4	0	8	4	46	211	121	15	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0	5.0		
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00		
Frpb, ped/bikes		0.96			1.00	0.99			1.00	1.00		
Flpb, ped/bikes		0.99			0.94	1.00			1.00	1.00		
Frt		0.91			1.00	0.95			1.00	0.98		
Flt Protected		0.98			0.95	1.00			0.99	1.00		
Satd. Flow (prot)		1553			1692	1653			1866	1826		
Flt Permitted		1.00			1.00	1.00			0.92	1.00		
Satd. Flow (perm)		1578			1781	1653			1728	1826		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	15	0	30	4	0	9	4	51	232	133	16	2
RTOR Reduction (vph)	0	0	0	0	0	4	0	0	0	1	0	0
Lane Group Flow (vph)	0	45	0	0	4	9	0	0	283	150	0	0
Confl. Peds. (#/hr)	3		5	5	5		3	5			5	5
Heavy Vehicles (%)	7%	0%	4%	0%	0%	12%	0%	0%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	Perm	NA		Perm	NA	NA		
Protected Phases		1				1			3	3		
Permitted Phases	1			1	1			3				
Actuated Green, G (s)		2.2			2.2	2.2			11.5	11.5		
Effective Green, g (s)		2.2			2.2	2.2			11.5	11.5		
Actuated g/C Ratio		0.08			0.08	0.08			0.39	0.39		
Clearance Time (s)		5.0			5.0	5.0			5.0	5.0		
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		118			133	124			678	716		
v/s Ratio Prot						0.01				0.08		
v/s Ratio Perm		c0.03			0.00				c0.16			
v/c Ratio		0.38			0.03	0.08			0.42	0.21		
Uniform Delay, d1		12.9			12.6	12.6			6.5	5.9		
Progression Factor		1.00			1.00	1.00			1.00	1.00		
Incremental Delay, d2		2.1			0.1	0.3			0.4	0.1		
Delay (s)		15.0			12.7	12.9			6.9	6.0		
Level of Service		B			B	B			A	A		
Approach Delay (s)		15.0				12.8			6.9	6.0		
Approach LOS		B				B			A	A		

Intersection Summary			
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	29.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NEL	NER2
Lane Configurations		
Traffic Volume (vph)	2	1
Future Volume (vph)	2	1
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	1.00	
Flpb, ped/bikes	0.95	
Frt	0.95	
Flt Protected	0.97	
Satd. Flow (prot)	1637	
Flt Permitted	0.97	
Satd. Flow (perm)	1637	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	2	1
RTOR Reduction (vph)	3	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	5	
Heavy Vehicles (%)	2%	2%
Turn Type	Perm	
Protected Phases		
Permitted Phases	4	
Actuated Green, G (s)	0.6	
Effective Green, g (s)	0.6	
Actuated g/C Ratio	0.02	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	33	
v/s Ratio Prot		
v/s Ratio Perm	c0.00	
v/c Ratio	0.00	
Uniform Delay, d1	14.1	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	14.1	
Level of Service	B	
Approach Delay (s)	14.1	
Approach LOS	B	

Intersection Summary

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	23	55	25	18	51
Future Vol, veh/h	44	23	55	25	18	51
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	7	10	6	8	0	3
Mvmt Flow	51	27	64	29	21	59

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	184	81	0	0	95	0
Stage 1	81	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.47	6.3	-	-	4.1	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.39	-	-	2.2	-
Pot Cap-1 Maneuver	794	957	-	-	1512	-
Stage 1	930	-	-	-	-	-
Stage 2	909	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	780	955	-	-	1509	-
Mov Cap-2 Maneuver	780	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	894	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	1.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	832	1509	-
HCM Lane V/C Ratio	-	-	0.094	0.014	-
HCM Control Delay (s)	-	-	9.8	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

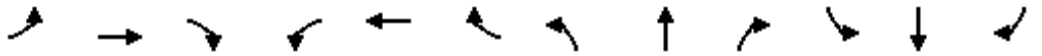
Intersection	
Int Delay, s/veh	1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	15	73	5	5	53
Future Vol, veh/h	16	15	73	5	5	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	7	0	0	2
Mvmt Flow	17	16	79	5	5	58

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	150	82	0	0	84	0
Stage 1	82	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	847	983	-	-	1526	-
Stage 1	946	-	-	-	-	-
Stage 2	960	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	844	983	-	-	1526	-
Mov Cap-2 Maneuver	844	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	906	1526	-
HCM Lane V/C Ratio	-	-	0.037	0.004	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	153	11	8	194	70	6	68	4	64	93	29
Future Volume (vph)	35	153	11	8	194	70	6	68	4	64	93	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		1.00			0.98	
Satd. Flow (prot)	1795	1860			1842	1563		1877			1802	
Flt Permitted	0.62	1.00			0.98	1.00		0.96			0.85	
Satd. Flow (perm)	1173	1860			1811	1563		1808			1561	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	166	12	9	211	76	7	74	4	70	101	32
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	38	178	0	0	220	76	0	85	0	0	203	0
Confl. Peds. (#/hr)	11		9	9		11	8		4	4		8
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	0%	1%	1%	0%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	15.4	15.4			8.8	8.8		8.3			8.3	
Effective Green, g (s)	15.4	15.4			8.8	8.8		8.3			8.3	
Actuated g/C Ratio	0.46	0.46			0.26	0.26		0.25			0.25	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	565	849			472	408		445			384	
v/s Ratio Prot	0.00	c0.10										
v/s Ratio Perm	0.03				c0.12	0.05		0.05			c0.13	
v/c Ratio	0.07	0.21			0.47	0.19		0.19			0.53	
Uniform Delay, d1	5.1	5.5			10.5	9.7		10.0			11.0	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.1	0.1			0.7	0.2		0.2			1.3	
Delay (s)	5.2	5.6			11.2	9.9		10.3			12.3	
Level of Service	A	A			B	A		B			B	
Approach Delay (s)		5.5			10.9			10.3			12.3	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	33.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT
Lane Configurations												
Traffic Volume (vph)	25	0	41	1	2	13	11	6	3	33	191	264
Future Volume (vph)	25	0	41	1	2	13	11	6	3	33	191	264
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0				5.0	5.0				5.0	5.0
Lane Util. Factor		1.00				1.00	1.00				1.00	1.00
Frpb, ped/bikes		0.98				1.00	0.99				1.00	1.00
Flpb, ped/bikes		1.00				0.98	1.00				1.00	1.00
Frt		0.92				1.00	0.95				1.00	0.99
Flt Protected		0.98				0.95	1.00				0.99	1.00
Satd. Flow (prot)		1663				1777	1788				1838	1853
Flt Permitted		0.87				1.00	1.00				0.91	1.00
Satd. Flow (perm)		1472				1870	1788				1679	1853
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	27	0	44	1	2	14	12	6	3	35	205	284
RTOR Reduction (vph)	0	64	0	0	0	0	5	0	0	0	0	2
Lane Group Flow (vph)	0	8	0	0	0	16	13	0	0	0	243	314
Confl. Peds. (#/hr)	2		2	2	2	2		2	2	2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	NA
Protected Phases		1					1				3	3
Permitted Phases	1				1	1			3	3		
Actuated Green, G (s)		3.7				3.7	3.7				12.6	12.6
Effective Green, g (s)		3.7				3.7	3.7				12.6	12.6
Actuated g/C Ratio		0.12				0.12	0.12				0.39	0.39
Clearance Time (s)		5.0				5.0	5.0				5.0	5.0
Vehicle Extension (s)		3.0				3.0	3.0				3.0	3.0
Lane Grp Cap (vph)		170				216	206				661	729
v/s Ratio Prot							0.01					c0.17
v/s Ratio Perm		0.01				c0.01					0.14	
v/c Ratio		0.05				0.07	0.06				0.37	0.43
Uniform Delay, d1		12.6				12.6	12.6				6.9	7.1
Progression Factor		1.00				1.00	1.00				1.00	1.00
Incremental Delay, d2		0.1				0.1	0.1				0.3	0.4
Delay (s)		12.7				12.8	12.7				7.2	7.5
Level of Service		B				B	B				A	A
Approach Delay (s)		12.7					12.7				7.2	7.5
Approach LOS		B					B				A	A

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	32.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	SBR	SBR2	NEL2	NEL	NER2
Lane Configurations					
Traffic Volume (vph)	18	12	1	3	3
Future Volume (vph)	18	12	1	3	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)				5.0	
Lane Util. Factor				1.00	
Frpb, ped/bikes				0.98	
Flpb, ped/bikes				0.98	
Frt				0.94	
Flt Protected				0.97	
Satd. Flow (prot)				1671	
Flt Permitted				0.97	
Satd. Flow (perm)				1671	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	19	13	1	3	3
RTOR Reduction (vph)	0	0	0	7	0
Lane Group Flow (vph)	0	0	0	0	0
Confl. Peds. (#/hr)	2	2		2	2
Heavy Vehicles (%)	0%	0%	0%	0%	0%
Turn Type			Perm	Perm	
Protected Phases					
Permitted Phases			4	4	
Actuated Green, G (s)				0.7	
Effective Green, g (s)				0.7	
Actuated g/C Ratio				0.02	
Clearance Time (s)				5.0	
Vehicle Extension (s)				3.0	
Lane Grp Cap (vph)				36	
v/s Ratio Prot					
v/s Ratio Perm				c0.00	
v/c Ratio				0.00	
Uniform Delay, d1				15.3	
Progression Factor				1.00	
Incremental Delay, d2				0.0	
Delay (s)				15.4	
Level of Service				B	
Approach Delay (s)				15.4	
Approach LOS				B	

Intersection Summary

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	31	75	54	11	74
Future Vol, veh/h	33	31	75	54	11	74
Conflicting Peds, #/hr	1	0	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	38	36	87	63	13	86

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	235	122	0	0	153	0
Stage 1	122	-	-	-	-	-
Stage 2	113	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	758	935	-	-	1440	-
Stage 1	908	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	747	932	-	-	1436	-
Mov Cap-2 Maneuver	747	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	826	1436	-
HCM Lane V/C Ratio	-	-	0.09	0.009	-
HCM Control Delay (s)	-	-	9.8	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

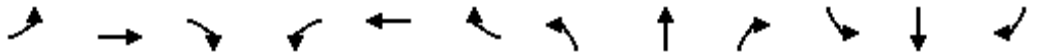
Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	8	91	15	14	77
Future Vol, veh/h	8	8	91	15	14	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	9	9	99	16	15	84

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	221	107	0	0	115	0
Stage 1	107	-	-	-	-	-
Stage 2	114	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	772	953	-	-	1487	-
Stage 1	922	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	764	953	-	-	1487	-
Mov Cap-2 Maneuver	764	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	906	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	848	1487	-
HCM Lane V/C Ratio	-	-	0.021	0.01	-
HCM Control Delay (s)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	82	4	9	138	56	10	51	4	45	45	15
Future Volume (vph)	17	82	4	9	138	56	10	51	4	45	45	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97		1.00			1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00		1.00			1.00	
Frt	1.00	0.99			1.00	0.85		0.99			0.98	
Flt Protected	0.95	1.00			1.00	1.00		0.99			0.98	
Satd. Flow (prot)	1795	1831			1894	1565		1864			1797	
Flt Permitted	0.65	1.00			0.98	1.00		0.93			0.83	
Satd. Flow (perm)	1229	1831			1853	1565		1741			1516	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	20	94	5	10	159	64	11	59	5	52	52	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	20	99	0	0	169	64	0	75	0	0	121	0
Confl. Peds. (#/hr)	11		9	9		11	8		4	4		8
Heavy Vehicles (%)	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%
Turn Type	pm+pt	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	6	1			5			3			3	
Permitted Phases	1			5		5	3			3		
Actuated Green, G (s)	13.7	13.7			7.9	7.9		6.4			6.4	
Effective Green, g (s)	13.7	13.7			7.9	7.9		6.4			6.4	
Actuated g/C Ratio	0.46	0.46			0.26	0.26		0.21			0.21	
Clearance Time (s)	5.0	5.0			5.0	5.0		5.0			5.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	574	833			486	410		370			322	
v/s Ratio Prot	0.00	c0.05										
v/s Ratio Perm	0.01				c0.09	0.04		0.04			c0.08	
v/c Ratio	0.03	0.12			0.35	0.16		0.20			0.38	
Uniform Delay, d1	4.5	4.7			9.0	8.5		9.8			10.1	
Progression Factor	1.00	1.00			1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.0	0.1			0.4	0.2		0.3			0.7	
Delay (s)	4.6	4.8			9.4	8.7		10.0			10.9	
Level of Service	A	A			A	A		B			B	
Approach Delay (s)		4.8			9.2			10.0			10.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	30.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

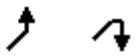
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL2	WBL	WBT	WBR	NBL	NBT	SBT	SBR	SBR2
Lane Configurations												
Traffic Volume (vph)	13	0	25	1	11	3	11	34	132	151	12	5
Future Volume (vph)	13	0	25	1	11	3	11	34	132	151	12	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0			5.0	5.0		
Lane Util. Factor		1.00			1.00	1.00			1.00	1.00		
Frpb, ped/bikes		0.95			1.00	0.97			1.00	1.00		
Flpb, ped/bikes		0.99			0.89	1.00			1.00	1.00		
Frt		0.91			1.00	0.88			1.00	0.99		
Flt Protected		0.98			0.95	1.00			0.99	1.00		
Satd. Flow (prot)		1606			1615	1616			1834	1851		
Flt Permitted		1.00			1.00	1.00			0.88	1.00		
Satd. Flow (perm)		1634			1700	1616			1630	1851		
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	14	0	27	1	12	3	12	37	145	166	13	5
RTOR Reduction (vph)	0	0	0	0	0	11	0	0	0	2	0	0
Lane Group Flow (vph)	0	41	0	0	13	4	0	0	182	182	0	0
Confl. Peds. (#/hr)	4		10	10	10		4	5			5	5
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	3%	1%	0%	0%
Turn Type	Perm	NA		Perm	Perm	NA		Perm	NA	NA		
Protected Phases		1				1			3	3		
Permitted Phases	1			1	1			3				
Actuated Green, G (s)		2.1			2.1	2.1			5.7	5.7		
Effective Green, g (s)		2.1			2.1	2.1			5.7	5.7		
Actuated g/C Ratio		0.09			0.09	0.09			0.24	0.24		
Clearance Time (s)		5.0			5.0	5.0			5.0	5.0		
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0		
Lane Grp Cap (vph)		146			152	145			397	450		
v/s Ratio Prot						0.00				0.10		
v/s Ratio Perm		c0.03			0.01				c0.11			
v/c Ratio		0.28			0.09	0.03			0.46	0.41		
Uniform Delay, d1		9.9			9.8	9.7			7.5	7.4		
Progression Factor		1.00			1.00	1.00			1.00	1.00		
Incremental Delay, d2		1.1			0.2	0.1			0.8	0.6		
Delay (s)		11.0			10.0	9.8			8.4	8.0		
Level of Service		B			B	A			A	A		
Approach Delay (s)		11.0				9.9			8.4	8.0		
Approach LOS		B				A			A	A		

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	23.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NEL	NER2
Lane Configurations		
Traffic Volume (vph)	0	5
Future Volume (vph)	0	5
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.0	
Lane Util. Factor	1.00	
Frpb, ped/bikes	0.87	
Flpb, ped/bikes	1.00	
Frt	0.86	
Flt Protected	1.00	
Satd. Flow (prot)	1422	
Flt Permitted	1.00	
Satd. Flow (perm)	1422	
Peak-hour factor, PHF	0.91	0.91
Adj. Flow (vph)	0	5
RTOR Reduction (vph)	5	0
Lane Group Flow (vph)	0	0
Confl. Peds. (#/hr)	4	10
Heavy Vehicles (%)	0%	0%
Turn Type	Perm	
Protected Phases		
Permitted Phases	4	
Actuated Green, G (s)	0.6	
Effective Green, g (s)	0.6	
Actuated g/C Ratio	0.03	
Clearance Time (s)	5.0	
Vehicle Extension (s)	3.0	
Lane Grp Cap (vph)	36	
v/s Ratio Prot		
v/s Ratio Perm	c0.00	
v/c Ratio	0.00	
Uniform Delay, d1	11.1	
Progression Factor	1.00	
Incremental Delay, d2	0.0	
Delay (s)	11.1	
Level of Service	B	
Approach Delay (s)	11.1	
Approach LOS	B	

Intersection Summary

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	21	60	29	11	42
Future Vol, veh/h	28	21	60	29	11	42
Conflicting Peds, #/hr	0	0	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	34	26	73	35	13	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	172	95	0	0	112	0
Stage 1	95	-	-	-	-	-
Stage 2	77	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	823	967	-	-	1490	-
Stage 1	934	-	-	-	-	-
Stage 2	951	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	812	963	-	-	1484	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	942	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	870	1484	-
HCM Lane V/C Ratio	-	-	0.069	0.009	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	4	73	8	7	49
Future Vol, veh/h	5	4	73	8	7	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	5	4	79	9	8	53

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	153	84	0	0	88	0
Stage 1	84	-	-	-	-	-
Stage 2	69	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	843	981	-	-	1520	-
Stage 1	944	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	839	981	-	-	1520	-
Mov Cap-2 Maneuver	839	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	954	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	897	1520	-
HCM Lane V/C Ratio	-	-	0.011	0.005	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

December 15, 2023

City of Poughkeepsie Planning Board
Attn: Anne Saylor, Chairperson
63 Civic Center Plaza
Poughkeepsie, NY 12601

cc: Joe Donat, Development Director

RE: 2023-041 South Hamilton Lot Development

MASS DESIGN GROUP

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Boston, MA 02116

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Poughkeepsie, NY 12601

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Dear City of Poughkeepsie Planning Board,

The applicant and design team met with Chris Kroner on December 5, 2023 to discuss the proposed project. In attendance were Tyler Maegerle, and Lori Garcia, George Brandt, Fin O'Neill, Lauran O'Neill, and Nabil N. Mijalli. The discussion was a preliminary workshop in nature, and the design team gave an introduction to the project, its intent and constraints to which MASS elevated some clarifying questions for further consideration.

The design team explained how this project was a departure from previous applications at the same site, but had learned some key lessons in the site plan from those previous conversations, and also they have increased the size of the proposed building on this lot. They presented their aesthetic, referencing some context of nearby historical buildings through material color and possibly texture.

This project reflects a 3.4 acre development with 58 units, 3 stories tall at a critical entry point into the city's historic district, and therefore we encourage the public to take an active interest in the project's development.

Neighborhood Integration

We also encourage that each facade of the four main building massings have a bit of variety in character, so that they can be in scalar dialogue with the series of historic homes that we see in the nearby historic district.

Landscape

Acknowledging that the existing trees on Hamilton are much bigger than what was first presented, we appreciate the inclusion of multiple renderings that show both the intended architecture and how the project will fit with the future mature landscape.

We hope the landscape architect can speak to the species selection, and the durations for maturation. Specifically, we see the American Pillar Arborvitae shown in the renderings and plans, and have concerns we have seen about the regional deer population eating the lower portion of these privacy shrubs. Showing foundation shrubbery would also be helpful to understand in the renderings.

Massing

To resist the standard stacking, we hope the development design team might look at extending some localized areas of facade gridwork panels down by a floor.

We also are interested in the design team considering board and batten siding as an alternative to the standard horizontal shiplap, but we remain open to their decision.

While strong corner massings are an interesting choice (usually emphasized with increased stonework), we find the parapets at the corner masses to be large and it is not clear what is necessitating those heights.

Balconies

The planning board has discussed these amenities numerous times since the pandemic as a means of greater access to light and air, as well as adding visual vitality to our historic districts. That said, the roof atop the top floor balcony and the projection of the balconies forward may be causing the building to appear even larger.

Suggestions

We suggest removing the roof from the top floor balconies, and trying darker colored elements on the balcony dividers or creating gaps (in lieu of dividers) to help diminish the presence of the balconies. Ideas that may interlock balconies and spaces might help to create additional visual interest to the facade work.

Handrails

We find the handrails shown as very conventional, and hope to encourage a locally inspired pattern, or even better locally fabricated metal balustrade. Woven architectural metal panels might also be a welcome alternative to the standard pickets shown in the rendering.

Investigate Color Palette

We understand the simple color palette, but acknowledge that the historic south side of Poughkeepsie has a wide variety of historical and victorian color palettes that give neighborhoods additional visual interest and identity. We encourage the development team to consider those in determining the project's proposed appearance.

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Updates

Since that time, MASS received an updated rendering on 12/13/2023 (shown below). A few of the points above (mostly the balconies and a bit of the massing information) has evolved, but we encourage the applicant to review the letter to consider next steps.



Given the scale and location, we look forward to seeing this important anchor project for the south side of Poughkeepsie evolve through upcoming public participation and further conversation.

Sincerely,
Chris Kroner

Principal
ckroner@mass-group.org

- The temporary perimeter controls (silt fences and hay bales) will be installed before any clearing and grading begins.
- Clearing and grading will not occur in an area until it is necessary for construction to proceed.
- Sandbag trench plugs will be placed in sloping open trenches during utility installation.
- The stabilized construction site entrance will be built before clearing and grading begins.
- Once construction ceases permanently in an area, that area will be stabilized with permanent seed and mulch.
- The temporary perimeter controls (silt fencing and hay bales) will not be removed until all construction activities at the site are complete and soils have been stabilized.

6.4 Certification of Compliance with Federal, State and Local Regulations

This SWPPP reflects the EPA, the New York State Department of Environmental Conservation (NYSDEC) regulations, and the City of Poughkeepsie requirements for stormwater management, erosion and sediment control.

7.0 MAINTENANCE & INSPECTION PROCEEDURES

7.1 Inspections

Following the start of construction, site inspections will be conducted by a qualified professional at least every seven (7) days. The inspection will verify that the structural BMPs described in Section 4 of the SWPPP are in good condition and are minimizing erosion. The inspection will also verify that the procedures used to prevent stormwater contamination from construction materials and petroleum products are effective. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built up sediment will be removed from silt fencing when it has reached one-third the height of the fence.
- Silt fences will be inspected for depth of sediment, for tears, to examine if the fabric is securely attached to the fence posts, and to ensure that the fence posts are firmly in the ground.
- Temporary and permanent seeding will be inspected for bare spots, washouts, and healthy growth.
- The stabilized construction entrance will be inspected for sediment tracked on the road, for clean gravel and to make sure that all traffic uses the stabilized entrance when leaving the site.

The maintenance inspection reports will be made after each inspection. Copies of the report forms to be completed by the SWPPP coordinator, or qualified SWPPP team member, are provided in **Appendix C** of this SWPPP. Completed forms will be maintained on site during the entire construction project. Following construction, the completed forms will be retained at the general contractor's office for a minimum of 5 years.

If construction activities or design modifications are made to the site plan which could impact stormwater, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities. The Plan Changes, Authorization and Change Certification is included in **Appendix C**.

7.5 Post-Construction Maintenance

General

The Owner/Operating Manager of O'Neill Group Hamilton LLC shall overtake and become responsible for all inspecting, monitoring and maintaining erosion control features and drainage structures over the lifetime of the feature. Any SMP's that will be located within the city right-of-way or individual parcel of land that will be dedicated to the City of Poughkeepsie. The inspection of on-site stabilization measures will become part of routine and preventive maintenance practices developed by the owner and/or his representatives.

Inspection

The entire site should be inspected regularly for the presence of erosion gullies, cracking and wash-outs caused by heavy storm events. The cause of any irregularities should be identified and addressed in a timely manner. At minimum, eroded areas should be top soiled, seeded and mulched, as necessary, depending upon the identified irregularity.

The stormwater management system (i.e., roadway drainage ditches, stormwater management ponds, pipe inlets and outlets, etc.) shall be inspected at least yearly for sediment build-up, debris and structural integrity. Stormwater management pond outlet control structures should be checked more frequently for debris blockages. Vacuum truck services should be secured by the owner for periodic removal of sediment within the pond system, the outlet control structure and drainage structures.

The inspection should include, but not be limited to the following:

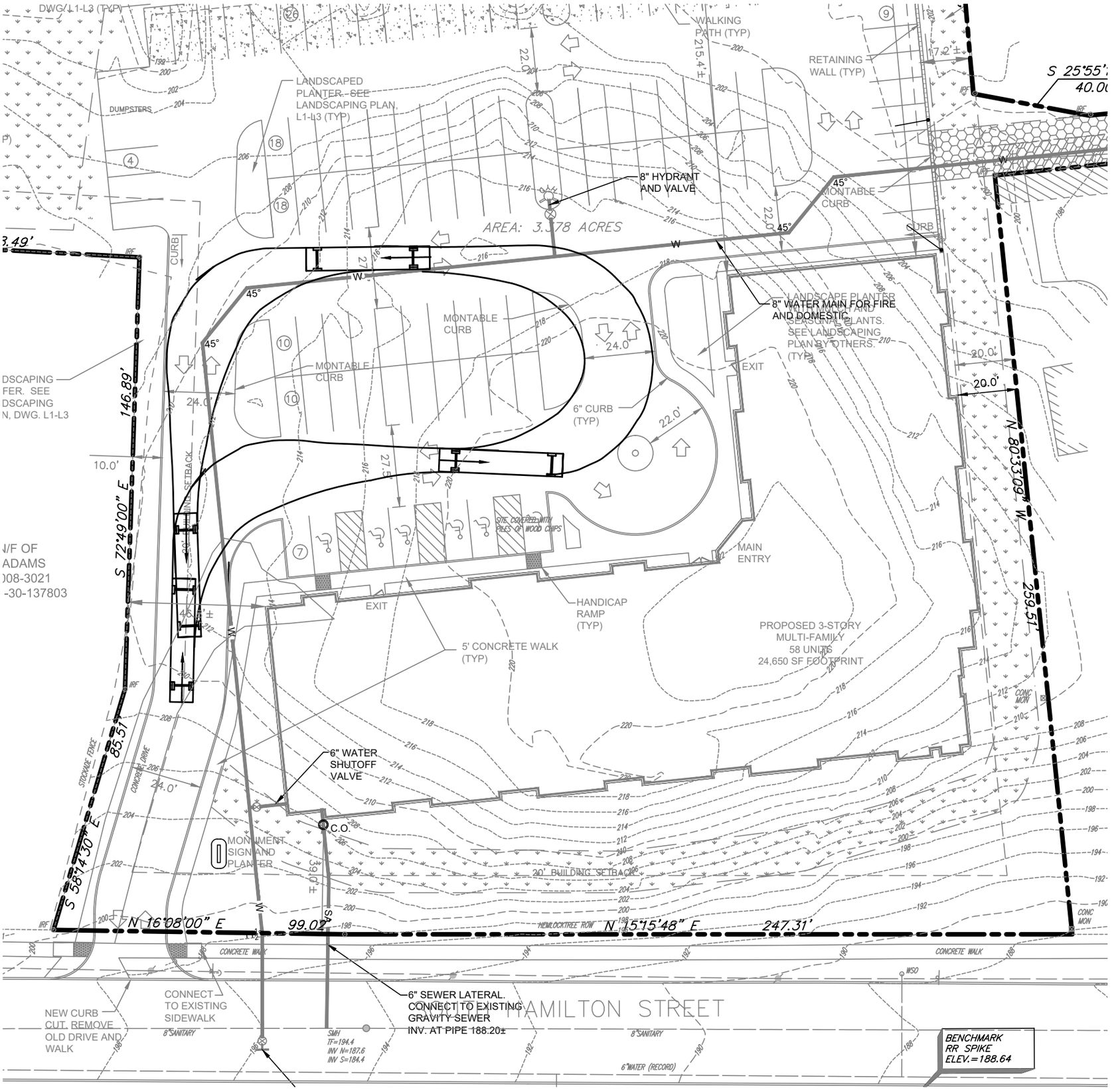
- Accumulation of pollutants such as grease and oils
- Stabilization and condition of vegetative ground cover areas
- Cracking, settlement, sliding or gully erosions of embankments
- Sedimentation of downstream water bodies, culvert or swales
- Sedimentation of lawns, pavement areas or catch basin sumps
- Presences of animal borrows, clogging or sedimentation at inlets or outlets
- Erosion or disruption of flow paths from stormwater management areas
- Structural integrity of spillways and obstruction of overflow
- Inlet and outlet riprap for scouring or dislodged stones or obstructions
- Forebays and aquatic benches to ensure proper and structural integrity.

Any sediment build-up should be removed and disposed of utilizing acceptable practices. Care should be exercised to avoid storing snow on any stormwater facilities, including the outfall swale.

Maintenance

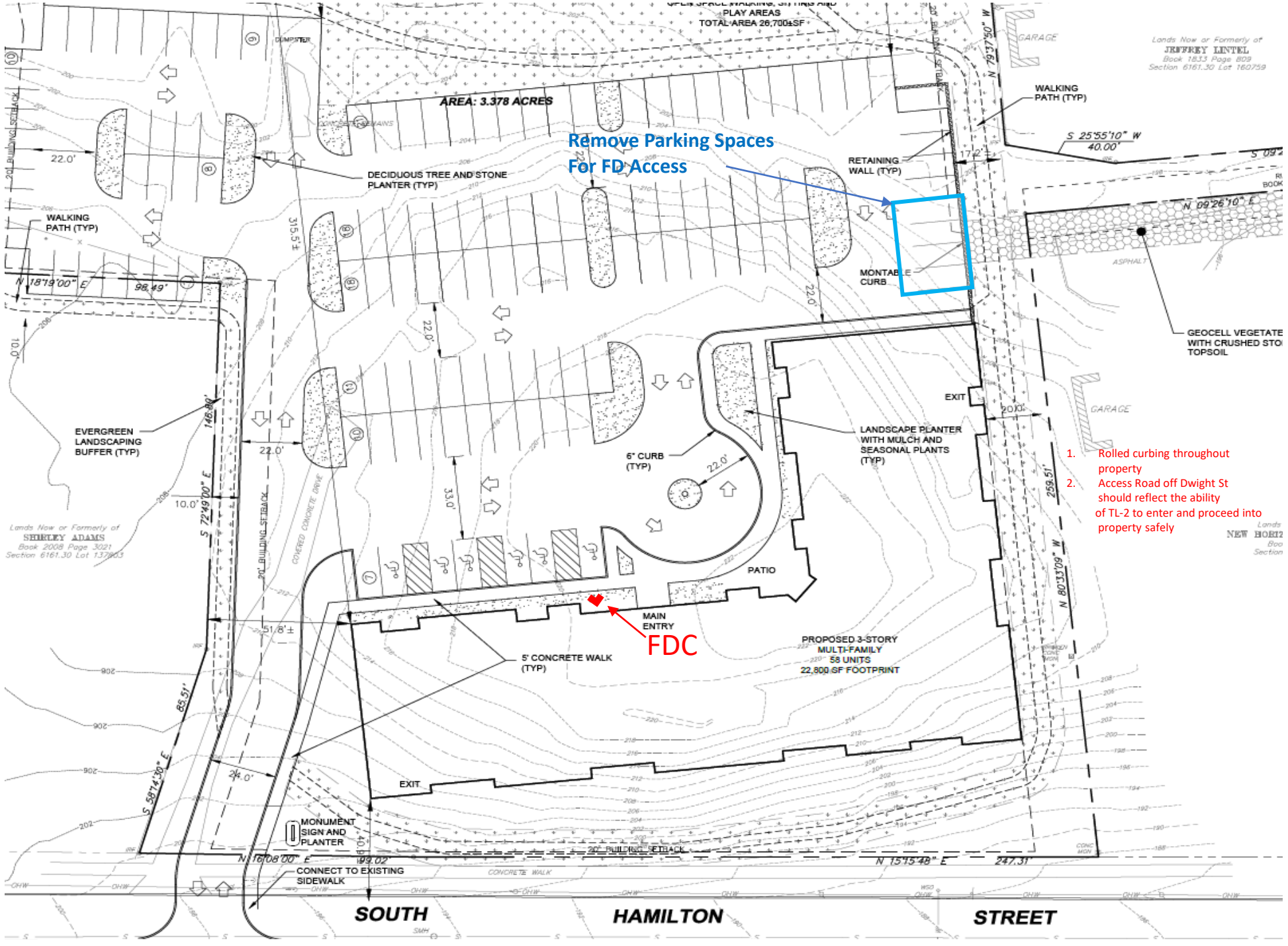
The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control, as well as related appurtenances, which are installed or to be used by the permittee to achieve compliance with the conditions of this permit and within the requirements of the SWPPP. Maintenance shall occur on a regular basis and should include, but not be limited to the following:

- Mowing of lawn areas at least three times per year to prevent over and vigorous growth



EMERGENCY VEHICLE TURNING MOVEMENT

SCALE: 1"= 40'



1. Rolled curbing throughout property
2. Access Road off Dwight St should reflect the ability of TL-2 to enter and proceed into property safely

December 18, 2023

Mr. Joseph Donat
City of Poughkeepsie
Director of Development
62 Civic Center Plaza
Poughkeepsie, New York 12601

RE: 100 S. Hamilton Street
Proposed 58-Unit Residential Building
Project Engineering Review
LaBella Project #2233235

Dear Mr. Donat:

This office is in receipt of the following materials for review:

- Site Plan set (revised October 3, 2023)
- Stormwater Pollution Prevention Plan (dated October 3, 2023, inclusive of corrected pages 16 and 18 received December 14, 2023)
- Subsurface Investigation Report (dated July 6, 2023)
- Poughkeepsie Natural Resource Inventory Conservation Analysis South Hamilton Street Multi-Family Development (dated October 5, 2023)
- Architectural floor plans, elevations and renderings (revised October 3, 2023)

Below please a summary of our comments related to the review of the above-listed submitted project documents.

Site Plans (dated October 3, 2023):

Layout Plan (S1):

1. It's not clear what the intent is for the mountable curbing located at the proposed retaining wall adjacent to the southeast corner of the building and elevated approximately 10' above the geocell vegetated grid surface. Clarify the intent and extents of the mountable portion of the curbing on the plans.
2. Clarify pedestrian & vehicular fall protection shall be provided at the retaining wall.
3. The proposed curb cut on South Hamilton Street, and any revisions to the existing curb cut necessitated by the new curb cut (including the existing utility pole to be relocated), shall be reviewed and approved by the City of Poughkeepsie and Central Hudson Gas & Electric. The utility pole to be relocated shall be labeled on the plan.
4. Show the curbing to be replaced on Dwight Street associated with the proposed drainage improvements.
5. A dumpster enclosure should be provided at the proposed dumpster area and associated detail provided for Planning Board review.
6. It appears there are 3 parking space adjacent to the proposed dumpster area, where the parking count shows 4. Clarify/revise as needed.
7. Provide curb radii at parking spaces to avoid curb strikes and driving over landscaped planters.
8. The Planning Board should consider the open space/recreational amenities proposed. One of the gazebos is located directly adjacent to the dumpsters and is not located on the

walking path or provided with a separate designated access path. The cover letter described play areas. The plans also specify "play" areas, though where the play areas are located is not apparent and should be clarified.

9. Dimension proposed parking spaces and provide a striping detail/notes.
10. The eastern parking lot contains more than 12 parking spaces in a continuous row (without being interrupted by landscaping approved) where City zoning does not permit more than 12 spaces.

Water & Sewer Utility Plan (S2):

11. The City Fire Department should opine on the location of the proposed hydrant.
12. The City Fire Department should determine if the provided aerial apparatus road is sufficient.
13. Will a Fire Department Connection be provided on the exterior of the building? If so, it should be shown on the Utility Plan and reviewed by the Fire Department.
14. The City Fire Department should determine if a secondary emergency access road is warranted.
15. What is the intent of the geocell vegetated grid surface? If it is for emergency access, the Fire Department should review it and understand there is no direct access proposed between the geogrid surface and any building entrances or the proposed parking lot due to the grade difference/retaining wall between the two.
16. Proposed sanitary lateral shall be reviewed and approved by the City of Poughkeepsie.
17. Provide invert elevation for sanitary sewer lateral at building foundation.
18. Provide sanitary sewer lateral length, material and slope information.
19. The proposed water main extension will require review and approval by Dutchess County Department of Behavioral and Community Health and shall be reviewed by the City of Poughkeepsie.
20. Proposed wet taps on Dwight Street and South Hamilton Street shall be reviewed by the City of Poughkeepsie.

Grading & Drainage Plan (S3):

21. Provide a cut-full summary table on the Grading Plan. See Erosion Control Plan (S4) comments related to truck trips/sediment tracking.
22. Revise the proposed grading to account for the proposed walking path.
23. Revise the proposed grading at the site entrance to be less than 2% cross slope at the sidewalk.
24. Proposed drainage improvements within Dwight Street shall be reviewed and approved by the City of Poughkeepsie.
25. Provide a typical retaining wall detail for Planning Board consideration. Include notes indicating that retaining wall design plans, stamped by a New York State licensed professional engineer shall be submitted to the Building Department at the time of Building Permit application.
26. The Subsurface Investigation Report indicates that bedrock removal will be required for the majority of the foundation excavation. A significant portion of the proposed parking lot also appears to require the removal of bedrock. The report further states that portions of the rock were able to be ripped during the on-site investigation and that future excavation work in the building area should be practical using conventional methods without blasting. However, it then states that blasting could be used to facilitate the removal of bedrock. It's our understanding the Applicant has indicated that they will not be performing blasting at the

project site. As such, rock removal notes should be added to the plans stating that all rock removal shall be conducted by mechanical means and that no blasting is permitted.

27. The grading at the parking adjacent to the dumpsters shall be adjusted so this area of asphalt pavement drains towards the porous pavement.
28. Provide pipe size, material, length and slope information for roof drain.
29. Provide invert information for the porous pavement underdrain and outlet pipe. The proposed grading does not appear to match the porous pavement section detail.
30. Revise the grading in the vicinity of CB2 to ensure the intended tributary area will drain to it. The access drive is currently shown graded away from the northern curb line, in conflict with the drainage towards CB2.
31. Provide finished floor information for the secondary building entrances and ensure compatibility with proposed grading shown.

Erosion Control Plan (S4):

32. Provide plan callouts for the proposed erosion and sediment control measures.
33. Provide construction sequencing notes related to erosion and sediment control.
34. Clarify if the proposed stormwater management basin is to be utilized as a sediment trap during construction until the upgradient areas have been stabilized.
35. Provide an earthwork estimate for the project on the Grading and Drainage Plan (see comments above). It appears there is a large amount of export required. The Erosion Control Plan should address vehicle tracking on South Hamilton Street if a large amount of export and associated trucking is proposed. A standard stabilized construction entrance may not be adequate and additional measures should be considered.
36. Provide a detail for inlet protection for structures within areas of pavement and/or subbase where tributary areas have not yet been stabilized.
37. Revise the silt fencing along the southern building façade to maintain a ± separation from the building for construction equipment access/maneuverability.
38. Provide fencing or demonstrate how heavy machinery will be kept off the proposed area of infiltration/porous pavement during construction.

Standard Details (D1-D4):

39. Emergency Vehicle Turning Movement shows a conflict with one of the landscaped planters. Revise movement and/or planter as needed.
40. Provide profile of the emergency vehicle utilized for the turning movement plan.
41. Provide a detail for the proposed walking path.
42. Provide a detail for the proposed mountable curbing.
43. Provide a detail for the proposed asphalt pavement section.
44. The Jellyfish detail provided appears to indicate that the specified model does not have sufficient capacity to treat or convey the tributary area. See additional comments related to the Jellyfish unit sizing in the SWPPP comments.
45. Show the proposed crosswalk on sheet S1 at the site entrance.
46. The catch basin shows 5'0" maximum from rim to bottom of sump where the Grading & Drainage Plan shows deeper catch basins. Revise the detail or Grading & Drainage Plan as needed.
47. Provide a drainage manhole detail and indicate which have solid lids versus grates. It appears STMH2, for example, proposes a grate top.
48. The Porous pavement detail does not match design information provided elsewhere. It conflicts with the gravel reservoir depth provided in the porous pavement WQv/RRv

calculations worksheet in Appendix G of the SWPPP. The proposed grading and underdrain slope also appear to be in conflict (pitched in opposite directions but a consistent gravel reservoir shown). Soil testing is required to support the proposed design & detail.

49. Provide a detail for the proposed outlet control structure within the stormwater management basin.

Landscaping Plan/Details (L1-L2):

50. Much of the plantings on the perimeter of the building footprint, and the slope west of the building, will be planted in areas of rock cut. Update the details, or provide additional details, to account for planting in these areas in addition to the areas with plantings in soil as shown in the current details.
51. City Zoning requires the parking lot be screened from adjacent residential uses by means of landscaping, opaque fence or wall or other means approved by the Planning Board. The Board should discuss the screening proposed and determine if it is sufficient.

Lighting and Photometrics (LP1):

52. Show property lines on the Lighting & Photometric Plan. The Planning Board should discuss light spillage onto adjoining properties, if applicable.
53. Provide a detail for the proposed bollards.
54. Provide labels for individual fixtures in plan view corresponding with the fixtures listed in the lighting schedule.
55. Adjacent photometric levels vary greatly (16.8 fc adjacent to 0.2 fc in one location in particular). Reduce the grid size for the photometrics to no more than 10-ft for a more supportive demonstration of lighting levels, specifically around individual fixtures.
56. Revise lighting levels in the northeast corner (of both the north and east wings) with excessive lighting levels.
57. The lighting statistics table shows a maximum light level of 26.3 fc. While the average value of 1.1 fc is reasonable, the maximum level should be greatly reduced (closer to +/- 5 fc).
58. Clarify bollard and light pole locations on plan view. There are currently bollards shown within the building footprint and light poles within parking areas & drive aisles.
59. Show light poles and bollards on other plan sheets to demonstrate the proposed poles & bollards don't conflict with proposed utilities, landscaping and other proposed site improvements.
60. Will the proposed monument sign be provided with internal and/or external lighting? Clarify on the Lighting Plan.
61. Provide additional information on the lighting plan related to how the lighting will be controlled and whether the lighting will be on all night or turn off at a specific time.

Stormwater Pollution Prevention Plan (dated October 3, 2023):

1. Pretreatment device required prior to the treatment (Jellyfish) unit.
2. Demonstrate how the new site entrance impervious surface will be collected and treated. All areas of new development shall be treated in accordance with NYSDEC requirements and cannot be offset by overtreatment elsewhere. According to the Site Statistics table on the Site Plan Title Sheet, the project contains 1.63 acres of post-development impervious area and 0.05 acres of pre-development impervious area. The project currently provides treatment for 1.54 acres of new development area and none of the redevelopment area.

3. The map reference notes on the Pre-Development and Post-Development Drainage Maps should be updated to reference the source of the additional/supplemental off-site topography.
4. Section 3.5 states the site contains primarily HSG B soils, which matches the Soil Survey of Dutchess County. The Web Soil Survey, however, differentiates Dutchess (HSG B) and Cardigan (HSG C) soils within the soil group. The RRv calculations in Appendix G and hydraulic modeling in Appendix H, however, utilize 100% HSG C soils. Revise so HSG is reported consistently and describe how it was determined the on-site soils are either HSG B or C.
5. The pre-development subcatchments reflect current existing land coverage. However, the pre-development condition should be assumed to be prior to the site having been cleared by the former owner, as it's our understanding the neighboring parcel owners have reported adverse drainage conditions resulting from the site clearing. Using the pre-2021 land coverages for the pre-development condition will help ensure project mitigation for stormwater takes the previous tree clearing into account.
6. Soil testing (deep tests & falling head permeability tests) shall be conducted in accordance with the requirements of the NYSDEC Stormwater Design Manual and provided in the SWPPP in support of the design of the porous pavement.
7. Pipe sizing calculations for the drainage conveyance pipes shall be provided.
8. Update the General Permit reference in Appendix C.
9. Fill out the project Notice of Intent in Appendix E.
10. Update the P value in the WQv calculations to 1.40 due to the geographic location of the project site.
11. Complete the first Porous Pavement Worksheet. A soil infiltration rate has not been provided and the gravel bed depth below the underdrain shall be updated (or the porous pavement section detail on sheet D4 shall be updated) to coincide with each other. Falling head permeability testing is required in support of the soil infiltration rate and deep tests are required in the area of the proposed porous pavement to ensure adequate separation to groundwater & bedrock from the bottom of the proposed porous pavement section.
12. Delete the extra Porous Pavement worksheets (sheets 2-4).
13. Provide sizing calculations for the proposed Jellyfish. Consider coordinating with Contech on the sizing and options for upstream bypass, as the proposed unit doesn't appear to be sized adequately to accommodate subcatchment area DA-1.1B.
14. It appears the orifice is proposed on the outside of the proposed outlet control structure (detail requested in a previous comment). If that is the case, the horizontal top of riser orifice should be routed to the Primary outlet, not to Device 2.
15. Because of the outlet modeling (see comment above), the orifice located at the bottom of the pond isn't receiving any inflow in the model until the pond elevation exceeds the rim elevation at elevation 198. This results in inaccurate peak discharge rates and outflow volumes for all rain events. It also results in the pond not dewatering between rain events past the rim elevation of the outlet control structure. Revise the pond outlet routing accordingly to ensure the pond dewaters between rain events and accuracy of the peak discharge rates and runoff volumes.
16. Section 3.4 states the Channel Protection Volume (CPv) is reduced within the WQv and RRv techniques. However, this doesn't appear to be the case for the RRv techniques and WQv techniques aren't considered for Channel Protection Volume. Provide the calculations to demonstrate CPv requirements are met within the RRv techniques or provide the required CPv within the stormwater management basin.

17. Provide time of concentration flow paths on the Post-Development Drainage Map. In particular, it's not clear why the post-development time of concentration for DA-2 would be longer than the pre-development time of concentration.
18. It appears subcatchment area DA 3.1 drains into STMH2 and ultimately towards POA2. Either update the model routing to reflect this and include the DA 3.1 outflows in the modeling for "TOTAL DA2" or incorporate this area into DA 2 and eliminate DA 3.1 entirely.

Natural Resource Inventory Conservation Analysis (dated October 5, 2023):

1. Section 2.6 states that the project site is not located within a known archaeologically sensitive area. However, the site is in fact shown within a known archaeologically sensitive area in the Cultural Resource Information System (CRIS). The report should be revised accordingly and correspondence with SHPO provided, once available.

Additional technical review comments will be provided as revised and more detailed project design plans and the associated Full SWPPP are submitted. If you should have any questions related to the above comments, please don't hesitate to contact me at kahearn@labellapc.com or (845) 454-3980.

Respectfully submitted,

Kyle Ahearn, PE
Senior Civil Engineer
LaBella Associates

Poughkeepsie Natural Resource Inventory Conservation Analysis South Hamilton Street Multi-Family Development

City of Poughkeepsie
Dutchess County, New York

Issued: October 5, 2023

Prepared for:
O'Neill Group Hamilton, LLC
241 Hudson Street
Hackensack, NJ 07601

Prepared by:
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529 Asharoken Avenue
Northport, NY 11768



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1.0 INTRODUCTION

1.1 Project Summary

The O'Neill Group Hamilton (hereinafter referred to as "The Applicant") is seeking site plan approval from the City of Poughkeepsie, to develop a 58-unit, mid-rise multifamily residential development with surface-level parking (hereinafter referred to as the "Proposed Action"). The Proposed Action is located on an approximately 3.378-acre parcel of vacant land on the west side of South Hamilton Street (Tax Lot 13130-6161-30-151783), (hereinafter referred to as the "Site"). The Proposed Action includes construction of a three-story building with 29 one-bedroom, and 29 two-bedroom apartments supported by 102 off-street parking spaces, stormwater management facilities, utility infrastructure, landscaping and associated site improvements. The perimeter of the Site is wooded, and interior contains predominantly small brush.

The Site is located within the R-4, Medium High Density Zoning District. Multi-family residential development is a permitted principal use within the R-4 zone. Infrastructural improvements include a looped municipal water connection from South Hamilton Street to Dwight Street and a tie-in to the exiting 8" sanitary sewer main on South Hamilton Street. The proposed ground disturbance is approximately 3.00 acres. Since more than 1 acre of ground disturbance will occur, the Proposed Action will also require a SPDES General Permit for stormwater.

1.2 Background

The Site is comprised of approximately 3.378 acres and is zoned to accommodate the Proposed Action. The Site is comprised of one parcel, identified as follows:

- Taxparcel:131300-6161-30-151783 (South Hamilton Street)

Multi-family residential development is classified as a permitted use within the R-4 zone, subject to the applicable requirements. The proposed project will comply with all of the lot, bulk, and design requirements and standards included in ZS 19-3.15(4)(c), ZS 19-3.15(4)(i), ZS 19-4.11(1)(b), ZS 19-4.3(1) and, ZS 19-4.3(5)(a).

1.3 Site and Surrounding Area Description

The Site is currently undeveloped and wooded. The land uses located within 1,000 feet of the project site are characterized by single and multi-family dwellings and a mix of neighborhood retail and small commercial offices.

The Site is not located within a floodway, 100-year floodplain, or 500-year floodplain. The Site is also not located over an aquifer.

1.4 Approvals, Consultations and Referrals

Table 1 provides a list of the approvals/permits that are anticipated for the Proposed Action.

Table 1 Anticipated Approvals and Permits	
City of Poughkeepsie Planning Board	Site Plan Approval
City of Poughkeepsie Department of Public Works	Water and Sewer Hook-Ups
Dutchess County Department of Health	Water
NYS Department of Environmental Conservation	SPDES General Permit GP-0-020-001

2.0 CONSERVATION ANALYSIS

The Proposed Action has been prepared in accordance with §19.64 of the City Code – *Natural Resources.* The Code requires the preparation of a conservation analysis based on the data and information contained in the 2019 Natural Resources Inventory (NRI). The format of this analysis is based on the eight chapters of the NRI; Geology and Soils, Water Resources, Biological Communities and Habitats, Land Use, Recreational Resources, Historical Resources and Climate Change.

2.1 Geology and Soils

Figure 1[1] presents the bedrock geology of the Site, which has been identified as Graywacke, shale (Oag), which is a coarse-grained sandstone.

The Site's surficial geology consists of glacial till deposited over shallow bedrock (Figure 2). Soils on the Site are classified as Dutchess Cardigan Urban Land Complex (Figure 3). This soil unit consists of very deep, well drained loamy soils formed in glacial till. Folded shale bedrock occurs within 20 - 40 inches of the surface. Slope, frost action and variable depth to bedrock are the main limitations of this soil unit.

Table 2
Soil Characteristics

% of Site	Symbol	Soil Type	Erosion Hazard	Permeability	Depth to Water Table	Depth to Bedrock
100%	DxB	Dutchess-Cardigan-Urban Land Complex	Moderate	Moderate	>6'	20" – 60"

The Soil Survey[2] reports that the water table is typically at a depth of six feet or more year-round where these soils are present. Any groundwater encountered during the construction will be pumped from the open excavations and discharged to approved sediment trapping devices in accordance with NYSDEC guidelines.

2.2 Water Resources

As documented in Figure 4 (Surface Water and Watersheds), the Site is located within two watersheds. The majority of the Site is located within the Hudson River Direct Drainage E Watershed, while a small portion of the center of the Site is located within the Fall Kill Watershed. No surface water features are present in or around the Site, and it does not sit atop an aquifer.

Figure 5 (Wetlands) confirms that no wetlands are present on the Site. During the geotechnical investigation of the Site on June 14, 2023, no standing water was observed, which is indicative of the

[1] All maps in this report are reproduced from the Natural resources Inventory City of Poughkeepsie, 2019.
[2] Soil Survey of Dutchess County, New York, US Dept. of Agriculture, Natural Resources Conservation Service.

well-drained on-site soils and topography of the Site. Also, there was no evidence of wetland vegetation in the slight depressions located on the Site.

Figure 6 (Flood Hazard Areas and Riparian Buffer Areas) indicates that no floodplains, flood hazard areas or riparian buffer areas are located on the Site. And finally, Figure 7 (Potential and Known Sources of Pollution) documents that the Site is not constrained by existing sources of water pollution.

The Proposed Action will involve greater than one acre of ground disturbance; therefore, coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities is required. A Stormwater Pollution Prevention Plan (SWPPP) has been prepared in conformance with the most current New York State Stormwater Management Design Manual and New York State Standards and Specifications for Erosion and Sediment Control. With the implementation of the SWPPP, no significant adverse impacts to wetlands and watercourses located off site will occur.

2.3 Biological Communities and Habitat

As depicted on Figure 8 (Significant Habitats), the Site was identified as supporting the Upland Hardwood Forest cover type. The majority of this cover type was removed by a prior owner of the property. Today, the majority of the Site supports cleared meadow.

According to the NYSDEC Environmental Resource Mapper (Figure 9 – Rare and Endangered Animals and Plants), there are known occurrences of the bald eagle in the vicinity of the Site. According to Habitat Assessments conducted by Ecological Solutions, LLC in 2020 and 2023, no habitats that would support bald eagles exist on the Site.

An inquiry to Region 3 NYSDEC Bureau of Wildlife was made on September 28, 2023. The Agency confirmed that the Proposed action would have no impact on bald eagle habitat. The locus for the bald eagle occurrence records is in the vicinity of the Poughkeepsie Rural Cemetery, which is separated from the Site by NYS Route 9 and the intervening development.

Figure 10 (Habitat Envelopes and Potential Corridors) identifies the Site as a "significant habitat area." This designation reflects the characteristics of the Site prior to the clearance of the Upland Hardwood Forest. Absent this cover type, the Site no longer provides significant habitat.

2.4 Land Use

The Site is located within the R-4, Medium Density Zoning District. As set forth in §19-3.15 (1), the purpose of this district is:

> *"…to provide areas for a broad range of housing types with opportunity for appropriate nonresidential uses at a fairly high density commensurate with the scale and characteristics of the city's older neighborhoods; these are areas with access to major*

transportation arteries and a range of community services."

The Proposed Action fully complies with the applicable R-4 zoning district bulk, area, height and dimensional requirements (Table 3).

Table 3
R-4 Medium Density Zoning District – Project Compliance

Zoning Provision	Required	Proposed
Minimum Lot Area	145,000 SqFt	147,145.7 SqFt
Minimum Lot Width	50 Ft	346.3 Ft
Minimum Lot Frontage	30 Ft	346.3 Ft
Front Yard Setback	35 Ft	40.9 Ft
Side Yard Setback	20 Ft	20 Ft (Left Side) 65 Ft (Right Side)
Rear Yard Setback	20 Ft	240 Ft
Usable Open Space	40%	52.2%
Max. Building Height	40 Ft	40 Ft
Lot Coverage	40%	15.4%

As illustrated on Figure 11, the land use surrounding the Site is predominately residential, with the notable exception of a community service use (New Horizons Resources) that is immediately adjacent to the Site.

The Proposed Action's full compliance with the R-4 zoning district requirements, and its conformity with the existing character of the land uses surrounding the Site demonstrates that the Proposed Action is consistent with, and will strengthen and reinforce the City of Poughkeepsie's land use pattern.

2.5 Recreational Resources

While the Site is currently vacant and undeveloped, it is privately owned, and does not currently afford any public recreational opportunities.

The Proposed Action will result in new residents that will result in a proportional increase in the demand for recreational resources. The Proposed Action incorporates an array of new recreational amenities including open spaces, a walking trail around the entire perimeter of the Site, play and sitting areas, totaling 26,700 square feet. These amenities will off-set the demand on public recreational resources.

In addition, the Site is very near to Bartett Park, and is a short walk to other public recreational amenities such as Eastman Park, the Springside Historic Landmark, Hulme Park, among others (Figure 12).

Finally, the Proposed Action will result in a significant increase in taxes, which can be used by the City to support recreational programs and activities.

2.6 Historic Resources

As noted in Figure 13, the Site substantially contiguous to the Dwight Street-Hooker Avenue Historic District. This district was created in 1982 to preserve the architectural integrity of 17 contributing residential buildings that were built between 1895 and 1915, and reflect a variety of revival styles.

The Proposed Action will not physically impact the Historic District, and upon completion, limited views of the new building would be possible from the homes in the northwest corner of the District.

The project site is not located within a known archaeologically sensitive area. A consultation request has been submitted to NYSOPRHP.

2.7 Climate Change

The Proposed Action will convert a vacant formerly wooded site, into a well-designed, fully compliant multi-family development. To mitigate the Proposed Action's impact on climate change, a number of measures have been incorporated. To restore the tree canopy that was removed by the prior owner of the property, a very robust landscaping plan is proposed consisting of the following plantings:

Shade Trees

- Red Maple
- Columnar Hornbeam
- Honey Locust
- London Plane Tree
- Japanese Zelkova

Ornamental Trees

- Shadblow Serviceberry
- River Birch
- Eastern Redbud
- Winter King Hawthorne

Shrubs

- Summersweet
- Ink Berry
- Sea Green Juniper
- Bar Harbor Juniper
- Blue Pfitzer Juniper
- Dwarf Mugo Pine
- Anthony waterer Spirea

The proposed stormwater management plan that has been developed for the Proposed Action, includes several green practices as recommended in the New York State Stormwater Management Design Manual. The building will be constructed to comply with current stringent building code requirements, and

will include measures such as utilizing water efficient fixtures and appliances, such as *EnergyStar*, the utilization of high efficiency heating and air conditioning equipment, the installation of high performing building materials, insulation and windows, and the use of recycled materials when possible. These measures taken collectively, will minimize the Proposed Action's impact on Climate Change.

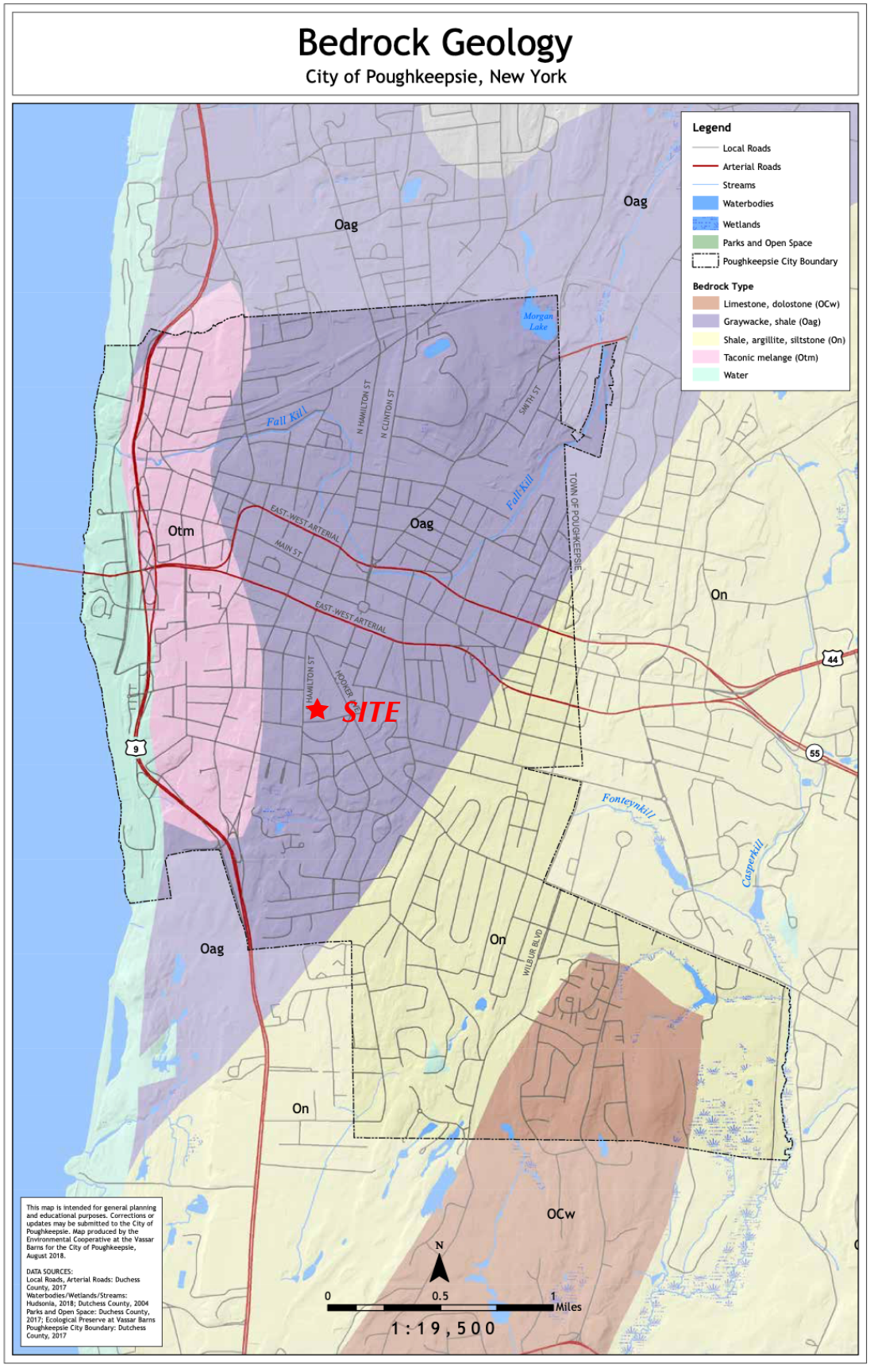
3.0 CONCLUSION

The Site is identified in the Natural Resource Inventory as a property that supports an upland hardwood forest. This forest patch was substantially cleared by the previous owner, and no longer provides the ecological benefits of that cover type.

The proposed project involves the development of a 3.378-acre formerly wooded and undeveloped site, into a 58-unit, 3-story mid-rise multifamily residential development with surface-level parking. The site is zoned for the proposed use and has been modified from its natural condition by the construction of the adjoining uses and roadways and historic district. The Site does not contain wetlands or watercourses and the NYSDEC has been consulted with regard to the bald eagle concern. A consultation with NYSOPRHP is underway. For these reasons, the Proposed Action is consistent with the policy objectives of the Natural Resources Inventory for the City of Poughkeepsie.

FIGURES

Figure 1


Bedrock Geology
City of Poughkeepsie, New York
Legend
Local Roads
Arterial Roads
Streams
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
Bedrock Type
Limestone, dolostone (OCw)
Graywacke, shale (Oag)
Shale, argillite, siltstone (On)
Taconic melange (Otm)
Water
Oag
Otm
On
OCw
SITE
Morgan Lake
Fall Kill
N HAMILTON ST
N CLINTON ST
SMITH ST
EAST-WEST ARTERIAL
MAIN ST
HAMILTON ST
HOOVER
TOWN OF POUGHKEEPSIE
WILBUR BLVD
Fonteynkill
Casperkill
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This map is intended for general planning and educational purposes. Corrections or updates may be submitted to the City of Poughkeepsie. Map produced by the Environmental Cooperative at the Vassar Barns for the City of Poughkeepsie, August 2018.
DATA SOURCES:
Local Roads, Arterial Roads: Duchess County, 2017
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Parks and Open Space: Duchess County, 2017; Ecological Preserve at Vassar Barns
Poughkeepsie City Boundary: Dutchess County, 2017
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Figure 2

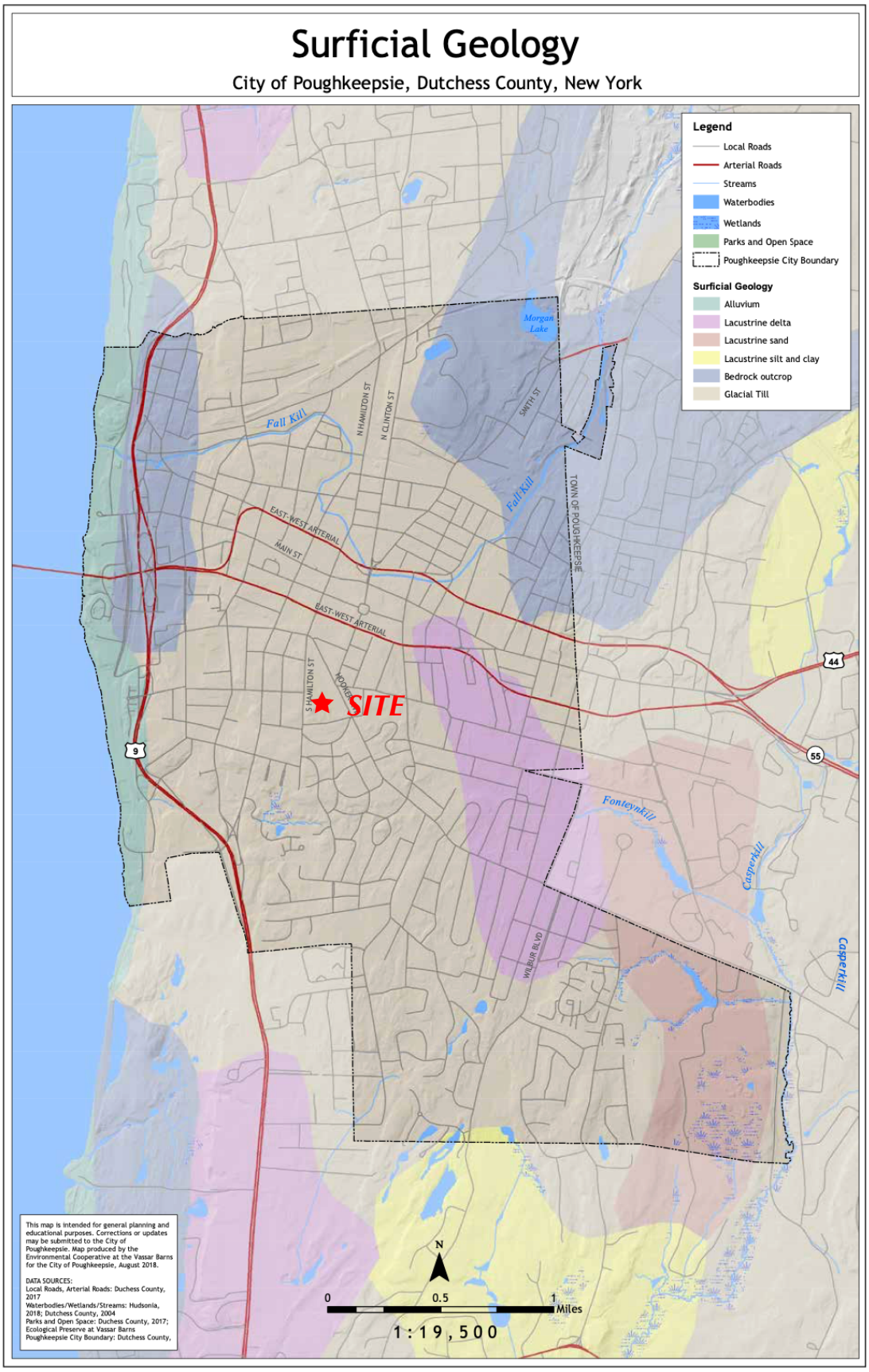
Surficial Geology
City of Poughkeepsie, Dutchess County, New York
Legend
Local Roads
Arterial Roads
Streams
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
Surficial Geology
Alluvium
Lacustrine delta
Lacustrine sand
Lacustrine silt and clay
Bedrock outcrop
Glacial Till
Morgan Lake
Fall Kill
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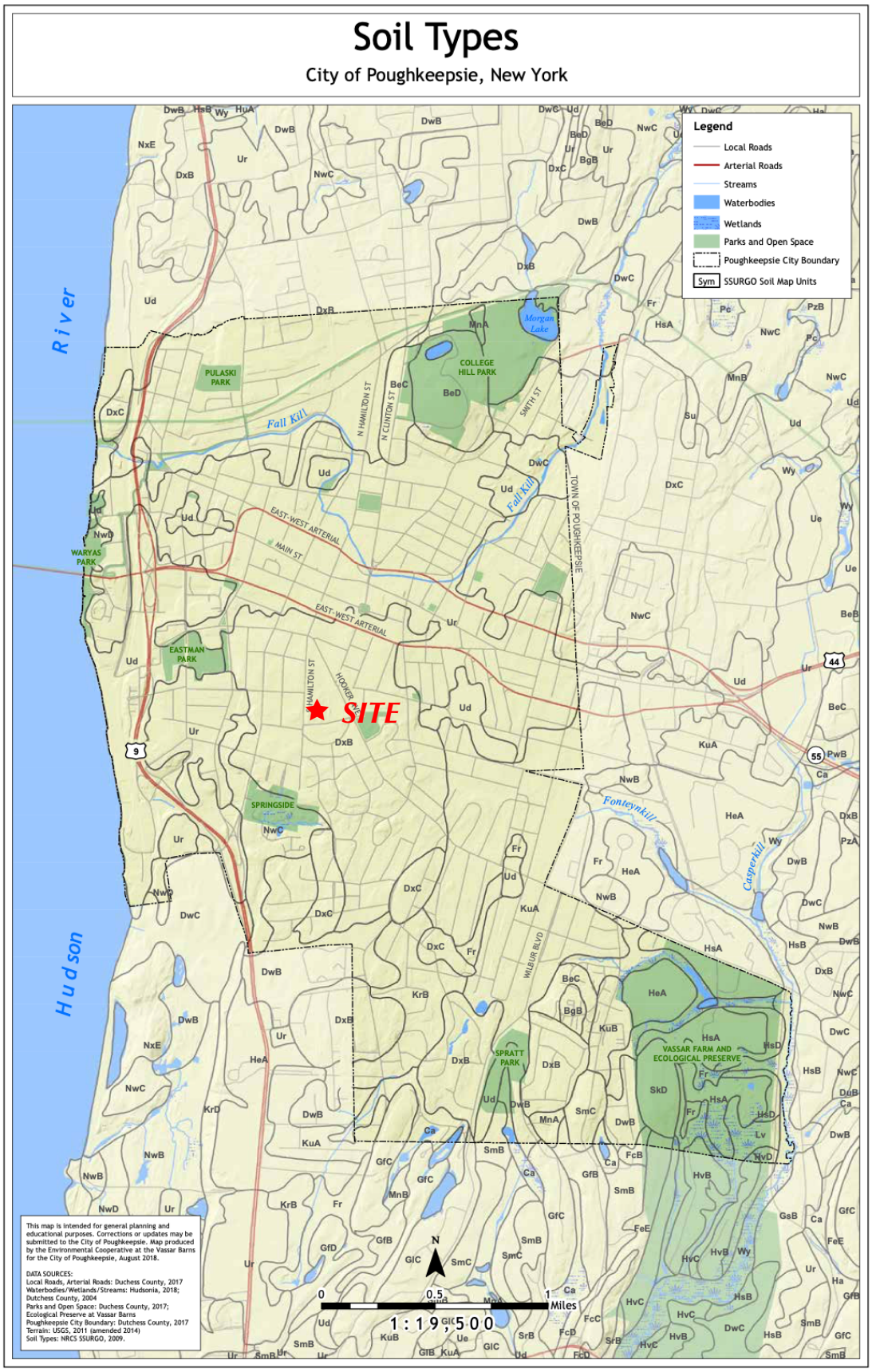
Figure 3


Soil Types
City of Poughkeepsie, New York
Legend
Local Roads
Arterial Roads
Streams
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
Sym SSURGO Soil Map Units
SITE
Hudson River
Fall Kill
Fonteynkill
Casperkill
Morgan Lake
COLLEGE HILL PARK
PULASKI PARK
WARYAS PARK
EASTMAN PARK
SPRINGSIDE
SPRATT PARK
VASSAR FARM AND ECOLOGICAL PRESERVE
EAST-WEST ARTERIAL
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Terrain: USGS, 2011 (amended 2014)
Soil Types: NRCS SSURGO, 2009.
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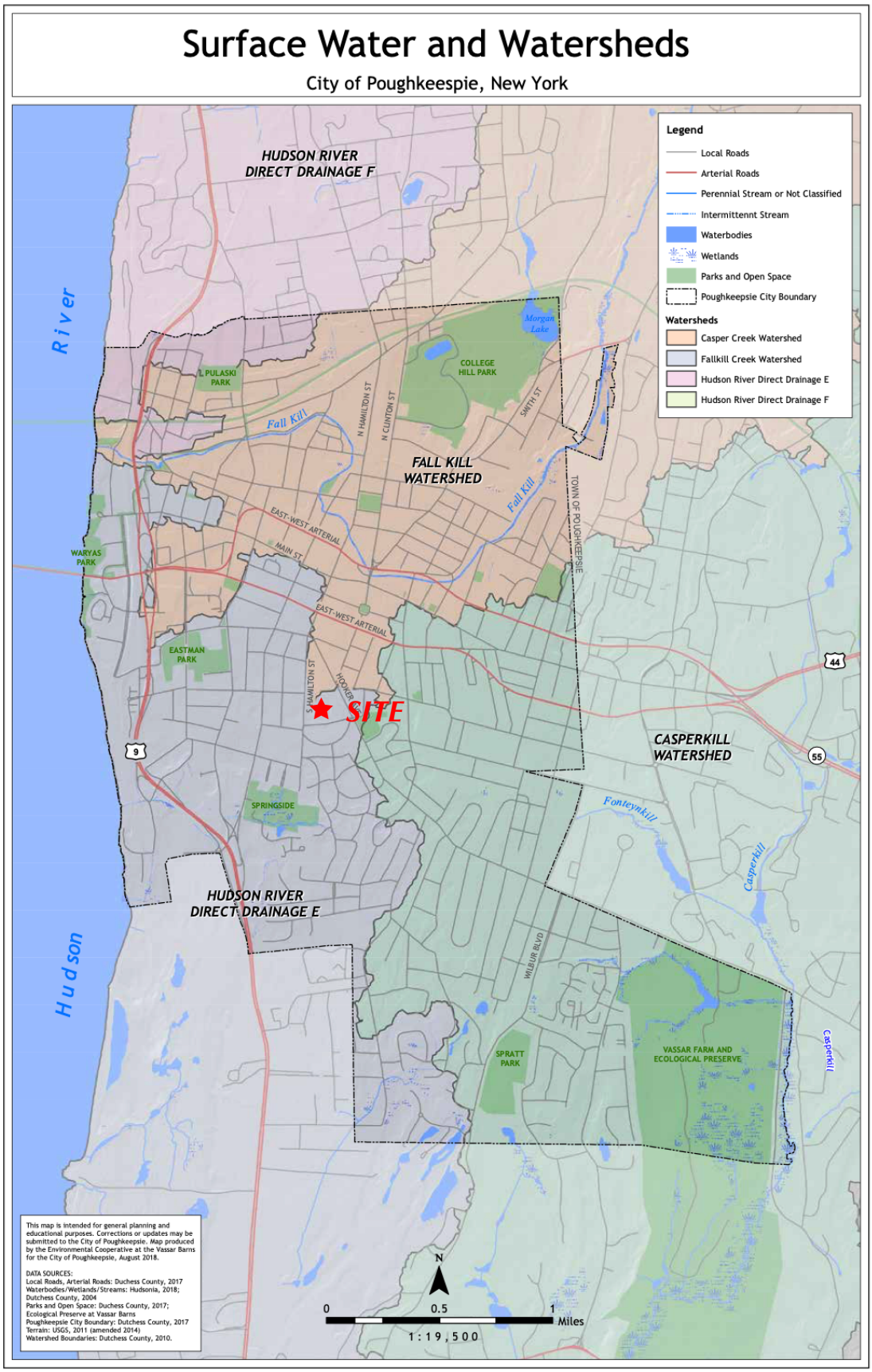
Figure 4


Surface Water and Watersheds
City of Poughkeepsie, New York
Legend
Local Roads
Arterial Roads
Perennial Stream or Not Classified
Intermittennt Stream
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
Watersheds
Casper Creek Watershed
Fallkill Creek Watershed
Hudson River Direct Drainage E
Hudson River Direct Drainage F
HUDSON RIVER DIRECT DRAINAGE F
FALL KILL WATERSHED
CASPERKILL WATERSHED
HUDSON RIVER DIRECT DRAINAGE E
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Hudson River
Fall Kill
Morgan Lake
Fonteynkill
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Watershed Boundaries: Dutchess County, 2010.
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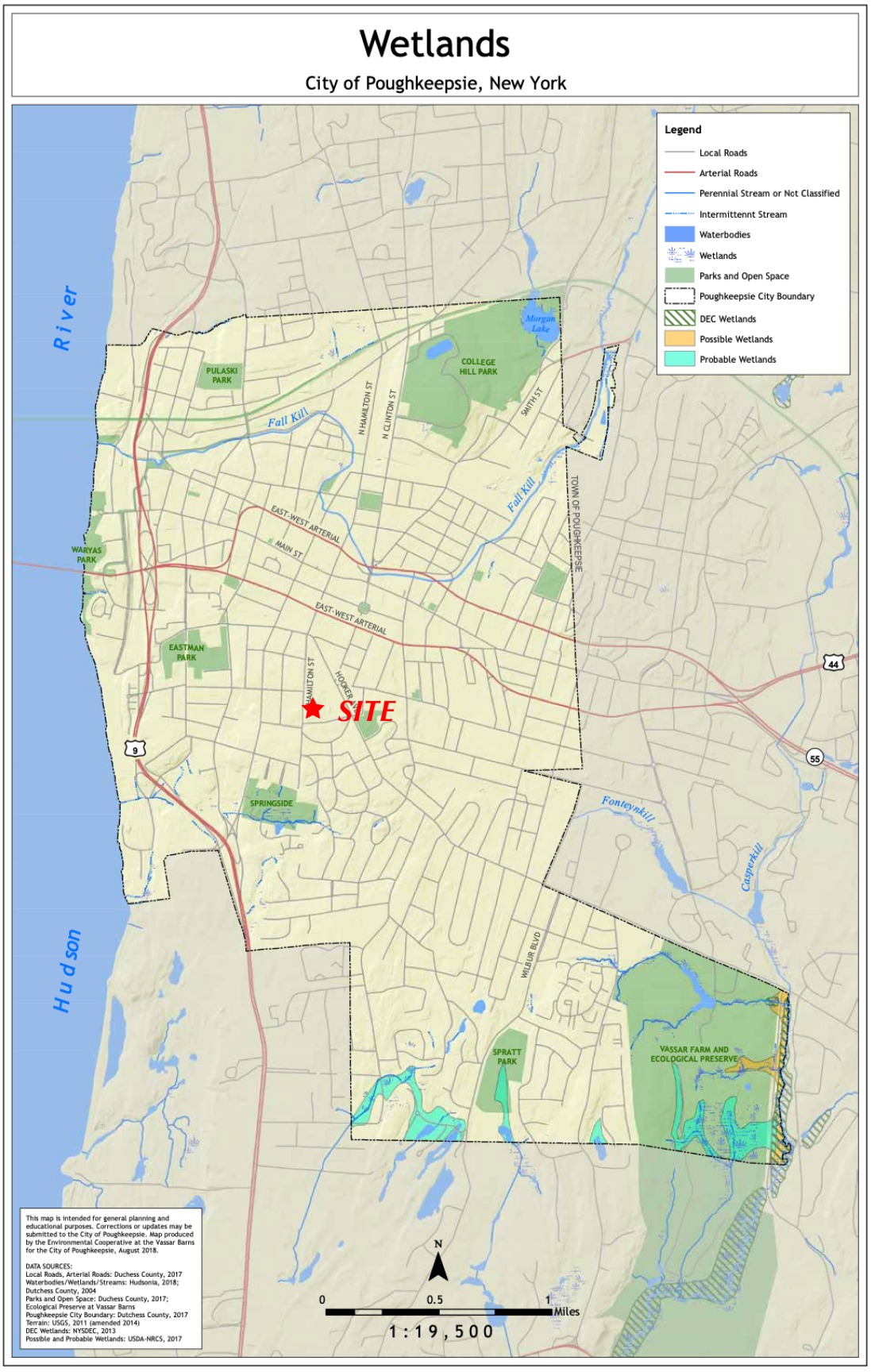
Figure 5


Wetlands
City of Poughkeepsie, New York
Legend
Local Roads
Arterial Roads
Perennial Stream or Not Classified
Intermittennt Stream
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
DEC Wetlands
Possible Wetlands
Probable Wetlands
Hudson River
Morgan Lake
COLLEGE HILL PARK
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Terrain: USGS, 2011 (amended 2014)
DEC Wetlands: NYSDEC, 2013
Possible and Probable Wetlands: USDA-NRCS, 2017
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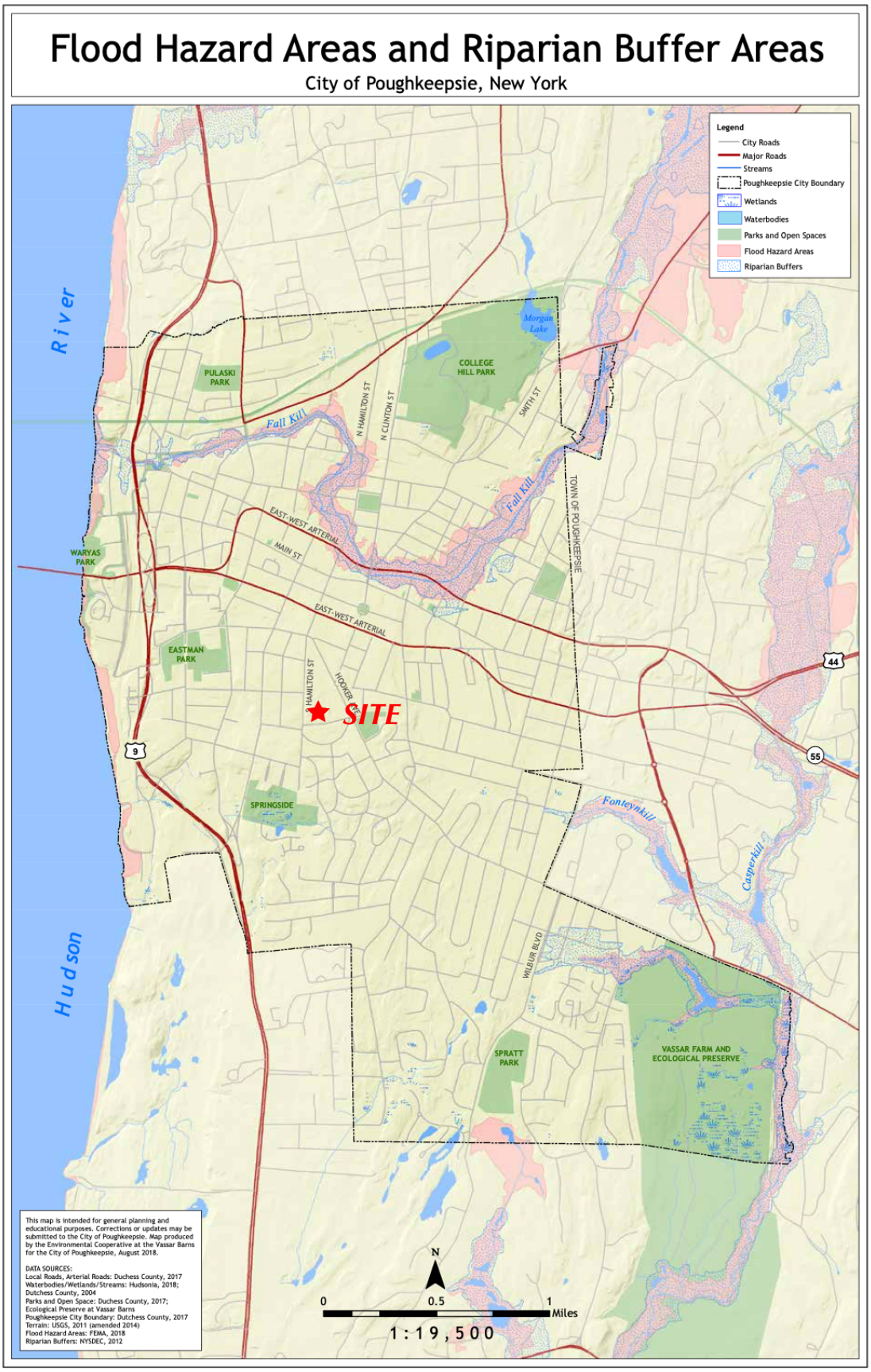
Figure 6


Flood Hazard Areas and Riparian Buffer Areas
City of Poughkeepsie, New York
Legend
City Roads
Major Roads
Streams
Poughkeepsie City Boundary
Wetlands
Waterbodies
Parks and Open Spaces
Flood Hazard Areas
Riparian Buffers
Hudson River
PULASKI PARK
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Morgan Lake
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SMITH ST
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Terrain: USGS, 2011 (amended 2014)
Flood Hazard Areas: FEMA, 2018
Riparian Buffers: NYSDEC, 2012
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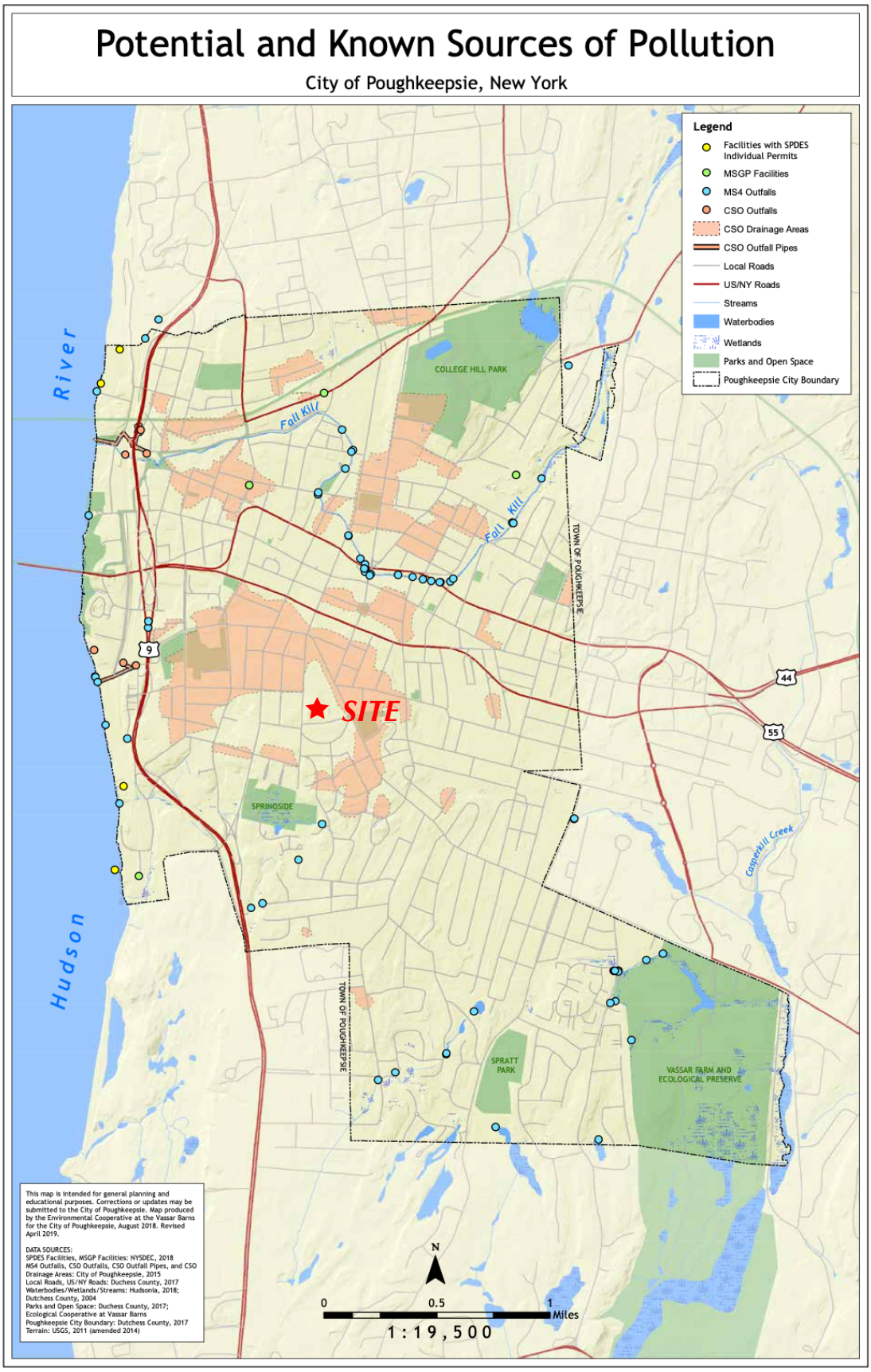
Figure 7


Potential and Known Sources of Pollution
City of Poughkeepsie, New York
Legend
Facilities with SPDES Individual Permits
MSGP Facilities
MS4 Outfalls
CSO Outfalls
CSO Drainage Areas
CSO Outfall Pipes
Local Roads
US/NY Roads
Streams
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
Hudson River
COLLEGE HILL PARK
Fall Kill
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DATA SOURCES:
SPDES Facilities, MSGP Facilities: NYSDEC, 2018
MS4 Outfalls, CSO Outfalls, CSO Outfall Pipes, and CSO Drainage Areas: City of Poughkeepsie, 2015
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Figure 8

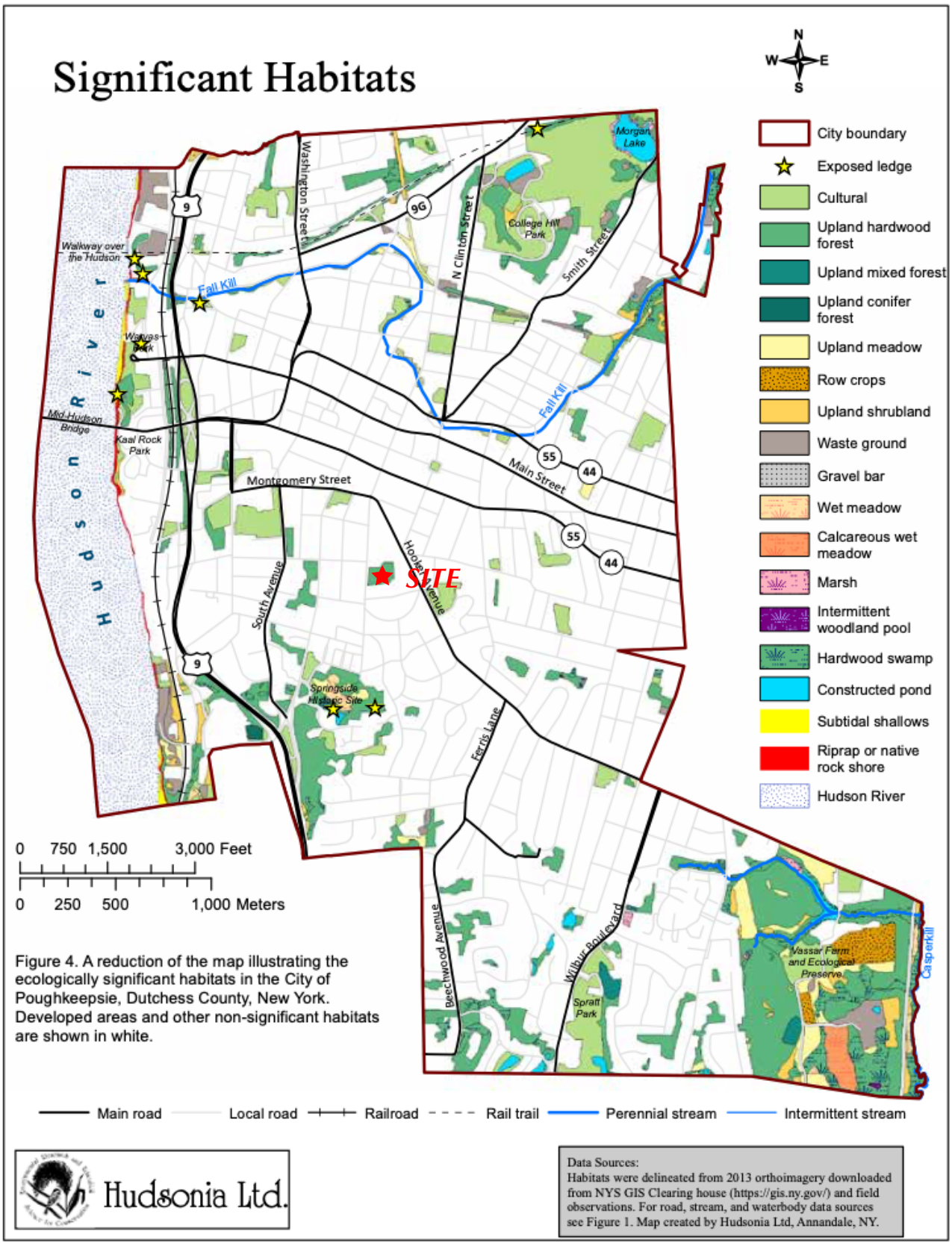
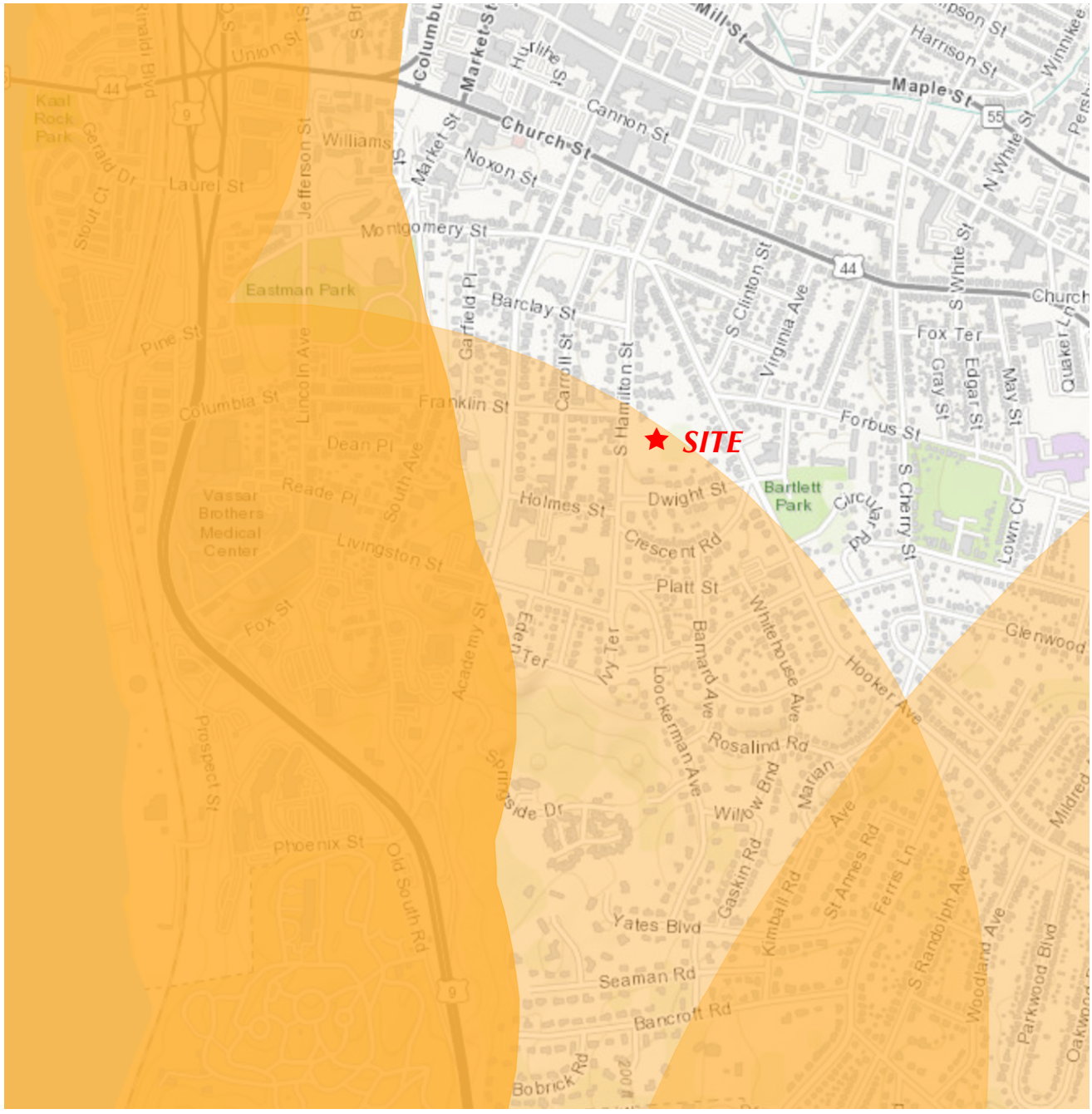


Figure 4. A reduction of the map illustrating the ecologically significant habitats in the City of Poughkeepsie, Dutchess County, New York. Developed areas and other non-significant habitats are shown in white.

Figure 9
Rare Plants and Animals



Source: NYSDEC Environmental Resource Mapper

Figure 10

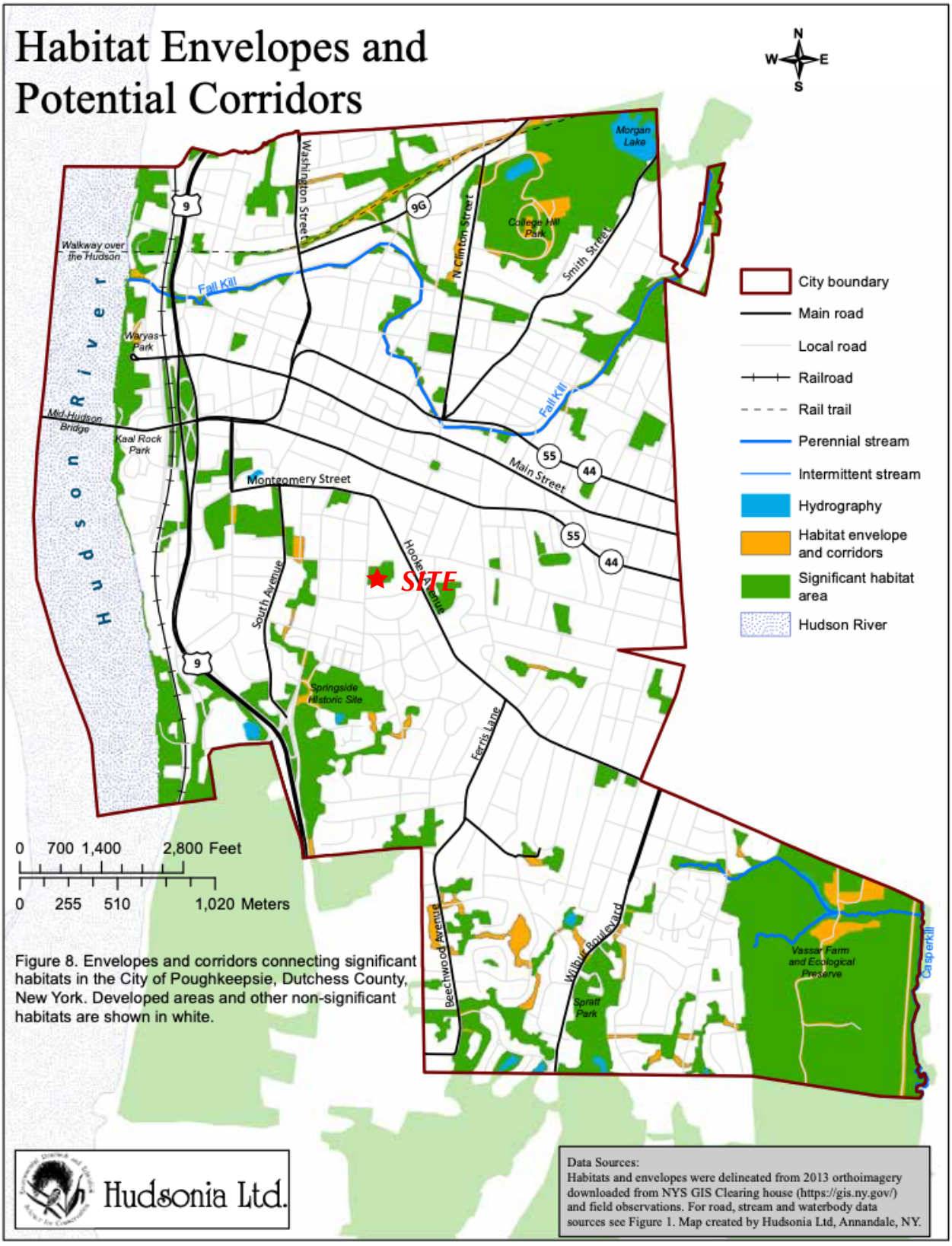
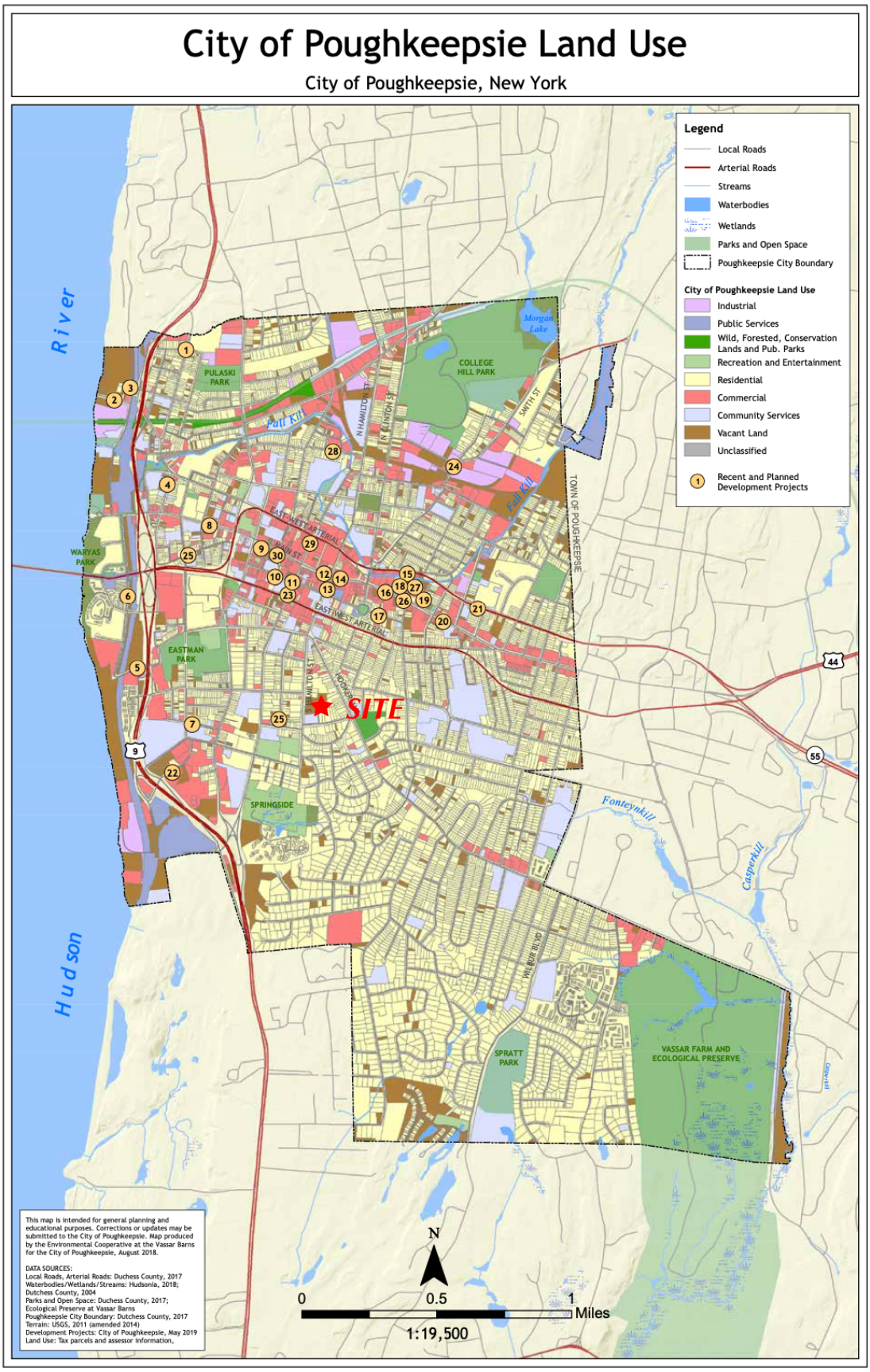


Figure 8. Envelopes and corridors connecting significant habitats in the City of Poughkeepsie, Dutchess County, New York. Developed areas and other non-significant habitats are shown in white.

Figure 11


City of Poughkeepsie Land Use
City of Poughkeepsie, New York
Legend
Local Roads
Arterial Roads
Streams
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
City of Poughkeepsie Land Use
Industrial
Public Services
Wild, Forested, Conservation Lands and Pub. Parks
Recreation and Entertainment
Residential
Commercial
Community Services
Vacant Land
Unclassified
Recent and Planned Development Projects
SITE
Hudson River
Fonteynkill
Casperkill
Morgan Lake
Fall Kill
PULASKI PARK
COLLEGE HILL PARK
WARYAS PARK
EASTMAN PARK
SPRINGSIDE
SPRATT PARK
VASSAR FARM AND ECOLOGICAL PRESERVE
TOWN OF POUGHKEEPSIE
EAST WEST ARTERIAL
MAIN ST
N HAMILTON ST
N CLINTON ST
SMITH ST
MILL ST
WOODWARD AVE
WILBUR BLVD
44
55
9
This map is intended for general planning and educational purposes. Corrections or updates may be submitted to the City of Poughkeepsie. Map produced by the Environmental Cooperative at the Vassar Barns for the City of Poughkeepsie, August 2018.
DATA SOURCES:
Local Roads, Arterial Roads: Duchess County, 2017
Waterbodies/Wetlands/Streams: Hudsonia, 2018; Dutchess County, 2004
Parks and Open Space: Duchess County, 2017; Ecological Preserve at Vassar Barns
Poughkeepsie City Boundary: Dutchess County, 2017
Terrain: USGS, 2011 (amended 2014)
Development Projects: City of Poughkeepsie, May 2019
Land Use: Tax parcels and assessor information,
N
0
0.5
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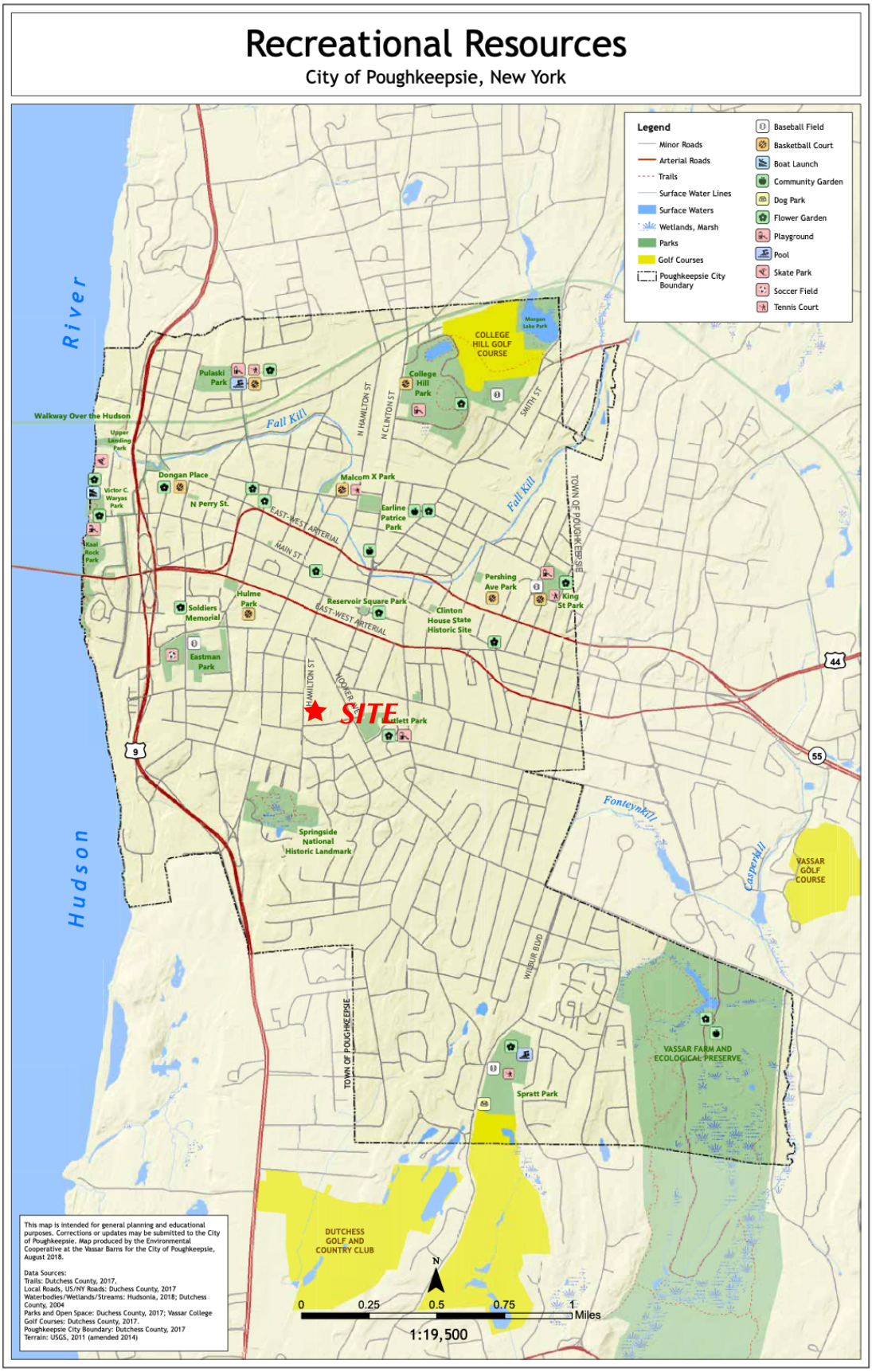
Miles
1:19,500

Figure 12


Recreational Resources
City of Poughkeepsie, New York
Legend
Minor Roads
Arterial Roads
Trails
Surface Water Lines
Surface Waters
Wetlands, Marsh
Parks
Golf Courses
Poughkeepsie City Boundary
Baseball Field
Basketball Court
Boat Launch
Community Garden
Dog Park
Flower Garden
Playground
Pool
Skate Park
Soccer Field
Tennis Court
Hudson River
Walkway Over the Hudson
Upper Landing Park
Pulaski Park
College Hill Park
COLLEGE HILL GOLF COURSE
Morgan Lake Park
Fall Kill
N HAMILTON ST
N CLINTON ST
SMITH ST
Dongan Place
Victor C. Waryas Park
N Perry St.
Malcom X Park
Earline Patrice Park
EAST-WEST ARTERIAL
MAIN ST
Kaal Rock Park
Pershing Ave Park
King St Park
TOWN OF POUGHKEEPSIE
Soldiers Memorial
Hulme Park
Reservoir Square Park
Clinton House State Historic Site
Eastman Park
HAMILTON ST
HOOVER
SITE
Tutlett Park
9
44
55
Springside National Historic Landmark
Fonteynkill
Casperkill
VASSAR GOLF COURSE
WILBUR BLVD
TOWN OF POUGHKEEPSIE
VASSAR FARM AND ECOLOGICAL PRESERVE
Spratt Park
DUTCHESS GOLF AND COUNTRY CLUB
This map is intended for general planning and educational purposes. Corrections or updates may be submitted to the City of Poughkeepsie. Map produced by the Environmental Cooperative at the Vassar Barns for the City of Poughkeepsie, August 2018.
Data Sources:
Trails: Dutchess County, 2017.
Local Roads, US/NY Roads: Duchess County, 2017
Waterbodies/Wetlands/Streams: Hudsonia, 2018; Dutchess County, 2004
Parks and Open Space: Duchess County, 2017; Vassar College
Golf Courses: Dutchess County, 2017.
Poughkeepsie City Boundary: Dutchess County, 2017
Terrain: USGS, 2011 (amended 2014)
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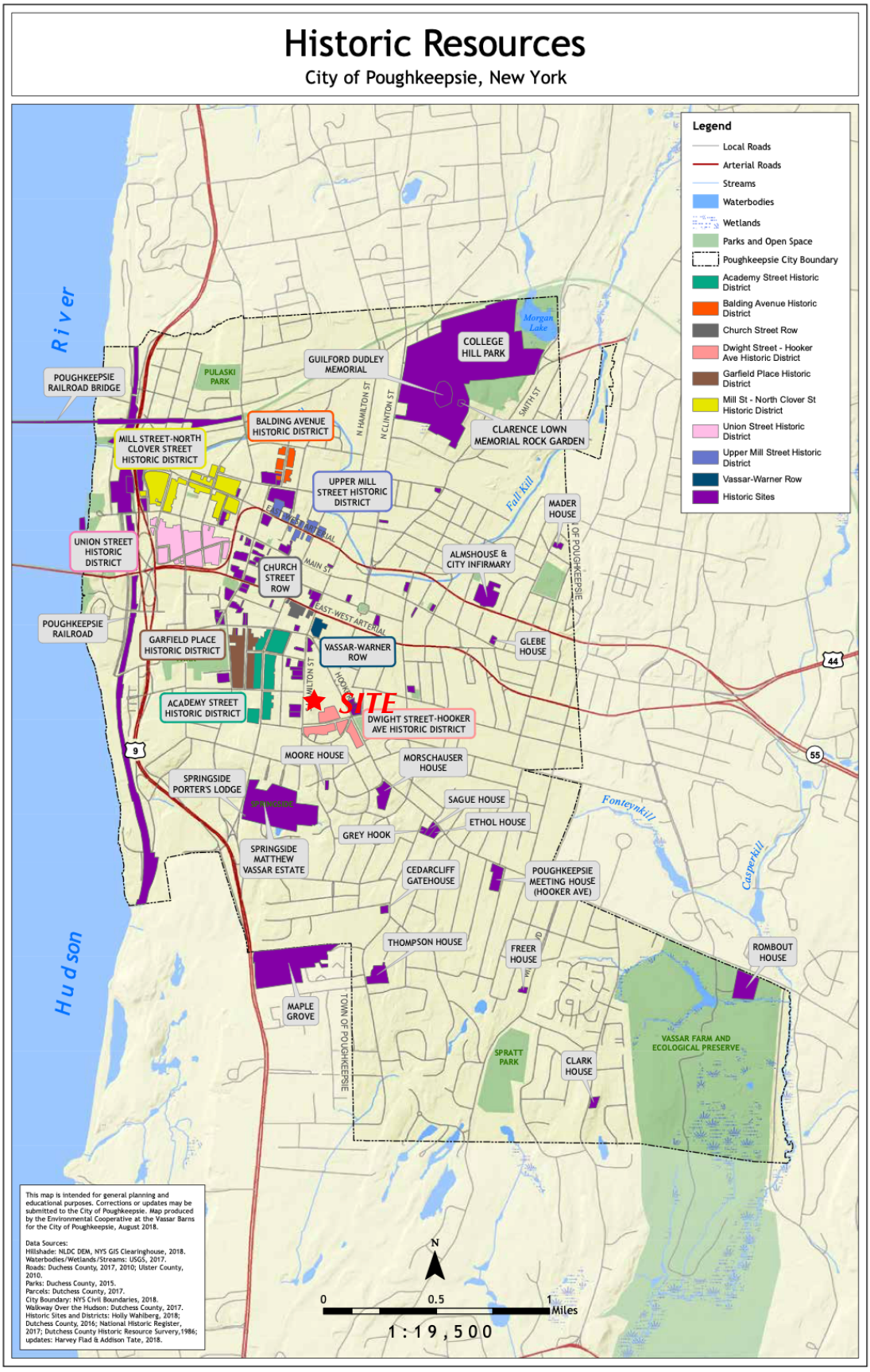
Miles
1:19,500

Figure 13


Historic Resources
City of Poughkeepsie, New York
Legend
Local Roads
Arterial Roads
Streams
Waterbodies
Wetlands
Parks and Open Space
Poughkeepsie City Boundary
Academy Street Historic District
Balding Avenue Historic District
Church Street Row
Dwight Street - Hooker Ave Historic District
Garfield Place Historic District
Mill St - North Clover St Historic District
Union Street Historic District
Upper Mill Street Historic District
Vassar-Warner Row
Historic Sites
Hudson River
POUGHKEEPSIE RAILROAD BRIDGE
PULASKI PARK
GUILFORD DUDLEY MEMORIAL
COLLEGE HILL PARK
Morgan Lake
BALDING AVENUE HISTORIC DISTRICT
MILL STREET-NORTH CLOVER STREET HISTORIC DISTRICT
CLARENCE LOWN MEMORIAL ROCK GARDEN
UPPER MILL STREET HISTORIC DISTRICT
Fall Kill
MADER HOUSE
UNION STREET HISTORIC DISTRICT
CHURCH STREET ROW
ALMSHOUSE & CITY INFIRMARY
POUGHKEEPSIE RAILROAD
GARFIELD PLACE HISTORIC DISTRICT
VASSAR-WARNER ROW
GLEBE HOUSE
ACADEMY STREET HISTORIC DISTRICT
SITE
DWIGHT STREET-HOOKER AVE HISTORIC DISTRICT
MOORE HOUSE
MORSCHAUSER HOUSE
SPRINGSIDE PORTER'S LODGE
SAGUE HOUSE
ETHOL HOUSE
GREY HOOK
Fonteynkill
SPRINGSIDE MATTHEW VASSAR ESTATE
CEDARCLIFF GATEHOUSE
POUGHKEEPSIE MEETING HOUSE (HOOKER AVE)
Casperkill
THOMPSON HOUSE
FREER HOUSE
ROMBOUT HOUSE
MAPLE GROVE
TOWN OF POUGHKEEPSIE
SPRATT PARK
CLARK HOUSE
VASSAR FARM AND ECOLOGICAL PRESERVE
This map is intended for general planning and educational purposes. Corrections or updates may be submitted to the City of Poughkeepsie. Map produced by the Environmental Cooperative at the Vassar Barns for the City of Poughkeepsie, August 2018.
Data Sources:
Hillshade: NLDC DEM, NYS GIS Clearinghouse, 2018.
Waterbodies/Wetlands/Streams: USGS, 2017.
Roads: Duchess County, 2017, 2010; Ulster County, 2010.
Parks: Duchess County, 2015.
Parcels: Dutchess County, 2017.
City Boundary: NYS Civil Boundaries, 2018.
Walkway Over the Hudson: Dutchess County, 2017.
Historic Sites and Districts: Holly Wahlberg, 2018; Dutchess County, 2016; National Historic Register, 2017; Dutchess County Historic Resource Survery,1986; updates: Harvey Flad & Addison Tate, 2018.
N
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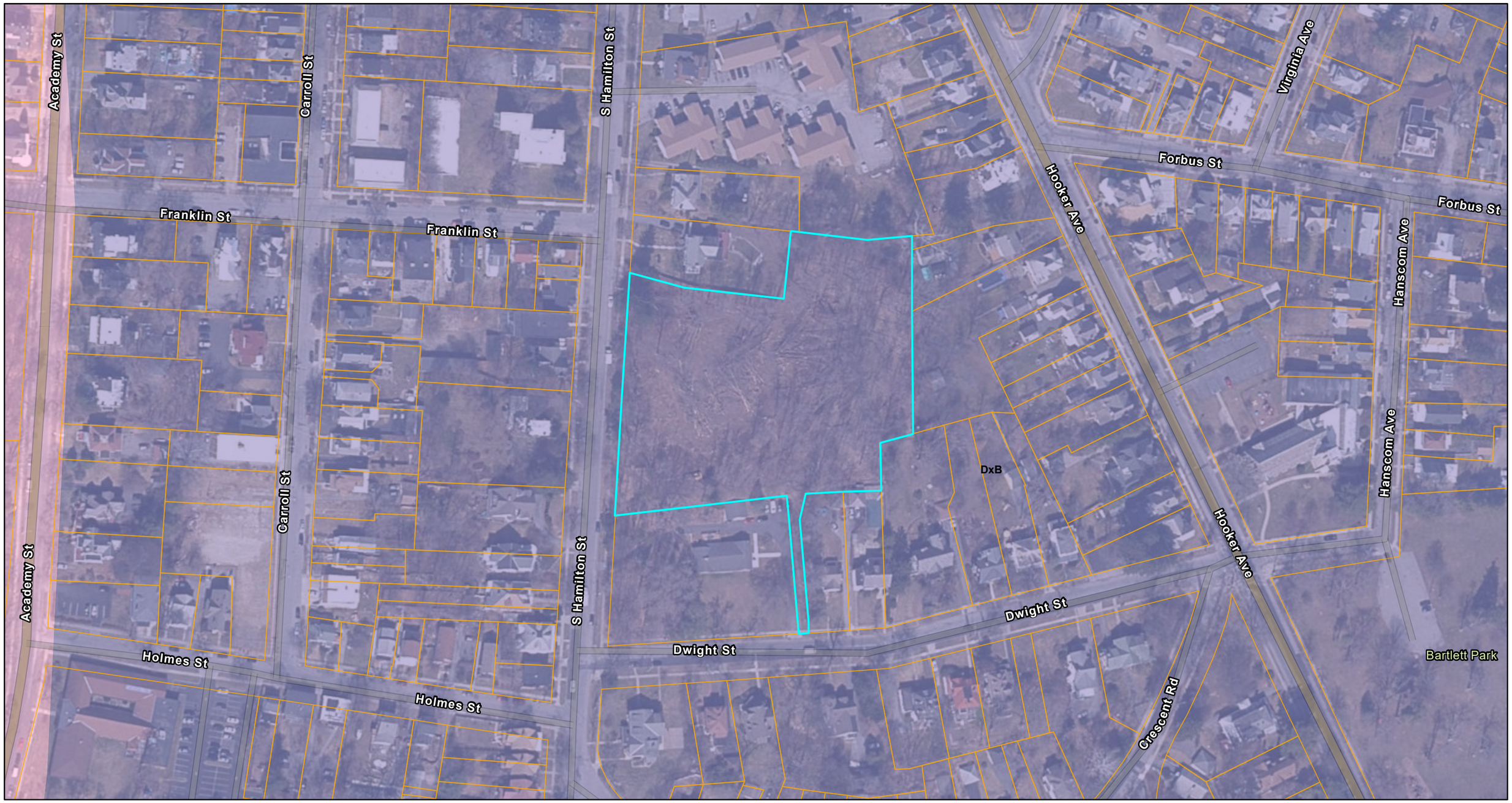
Miles
1:19,500

Poughkeepsie NRI Map: Geology and Soils



6/20/2023, 9:58:45 AM

City of Poughkeepsie Boundary

Parcel Boundaries

Soils

Bedrock Geology

Graywacke, shale (Oag)

Taconic melange (Otm)

1:2,257

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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New York State, Maxar, Microsoft | NYS Museum | Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA |

Poughkeepsie NRI Map: Habitats



6/20/2023, 9:34:54 AM

Parcel Boundaries

City of Poughkeepsie Boundary

Hudsonia Habitats

Developed

Cultural

Upland hardwood forest

1:2,257

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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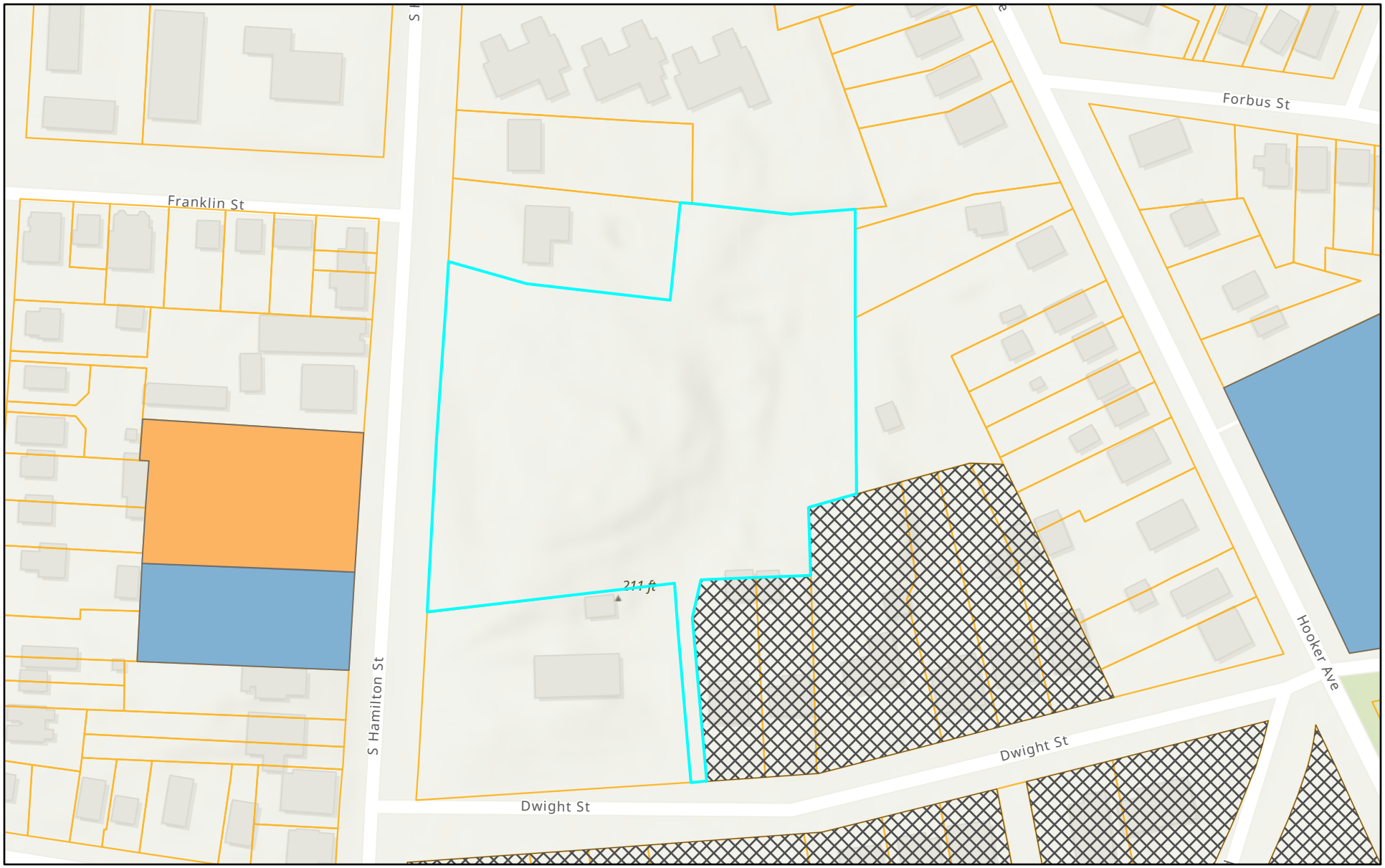
New York State, Maxar, Microsoft | Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA |

NRI Map: Historic Resources



6/20/2023, 9:47:30 AM

Parcel Boundaries

Historic Districts (2021)

Local, State and National

Historic Sites (2021)

Local, State, and National

State and National

City of Poughkeepsie Boundary

1:2,257

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.09 km

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ArcGIS Web AppBuilder

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Poughkeepsie NRI Map: Recreation Resources



6/20/2023, 9:49:52 AM

Parcel Boundaries

City of Poughkeepsie Boundary

Parks and Open Spaces

1:2,257

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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New York State, Maxar, Microsoft | Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA |

Applicant

Poughkeepsie NRI Map: Water Resources



6/20/2023, 9:41:56 AM

Parcel Boundaries

City of Poughkeepsie Boundary

1:2,257

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

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New York State, Maxar, Microsoft | New York Natural Heritage Program | Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA |

The O'Neill Group
A Real Estate Development Company
241 Hudson Street / Hackensack, NJ 07601
Phone: 201.488.4455 / Fax: 201.488.8283
www.theoneillgroup.us

~~October 5, 2023~~
Revised October 9, 2023

City of Poughkeepsie Planning Board
62 Civic Center Plaza, 2nd Floor.
Poughkeepsie, NY 12601
Attention: Lori Garcia

Re: S. Hamilton Street (151783) proposed construction of a 58-unit multifamily building.

Dear Ms. Garcia:

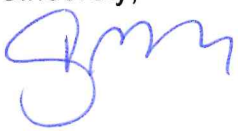
Enclosed please find a thumb drive containing the following:

1. Site Plan Set prepared by Arico Associates Engineering revised October 3, 2023. In response to Board comments, a Boundary and Topographic Survey prepared by Vincent Ausfeld, PLS dated September 28, 2023, which highlights existing conditions is added to the plan set. A Landscape Plan prepared by The Michael Boice Collaboration dated September 27, 2023, is included. Two gazebo gathering spaces and four benches have been added to the landscape plan in response to comments from the Board. Landscape and Lighting plans are separate plan sheets at the request of the board. A Lighting and Photometric Plan is added to the plan set in response to comments. In addition, the Grading and Drainage plan is now a separate sheet as is the Water and Sewer Utility plan. An Erosion Control Plan is added to the plan set. Several sheets of construction details and notes are added to the plan set in response to Board comments.
2. Stormwater Pollution Prevention Plan (SWPPP) prepared by Arico Associates Engineering dated October 3, 2023.

3. Floor Plans & Elevations by Mija Architecture revised October 3, 2023. The entrance lobby was shifted to the center of the two building wings. The stairway columns were relocated to the front of the building and the access doors that were previously located in the rear of the building now open to the front. Line of site perspectives are added to the drawing set in response to comments.
4. Color Renderings prepared by Mija Architecture and dated October 3, Brick is proposed in place of brick that was shown on previous rendering. In response to comments balcony partitions and railings are revised and proposed landscaping is depicted in the renderings.
5. Subsurface Investigation Report prepared by Kevin L. Patton, P.E. dated July 6, 2023.
6. Traffic Impact Study prepared by Creighton Manning Engineering LLP Dated July 6, 2023. The study concludes that the Build condition of the study intersections will operate at the same levels of service consistent with the No-Build conditions.
7. Poughkeepsie Natural Resource Inventory Conservation Analysis Prepared by Cleary Consulting dated October 5, 2023. Based on the Analysis, the Action is consistent with the policy objectives of the Natural Resources Inventory for the City of Poughkeepsie

We look forward to our appearance before the Board on November 21st.

Sincerely,



George Brandt
gbrandt@onekeyllc.com
(201) 488-4455 ext. 122

THE CITY OF POUGHKEEPSIE
FIRE DEPARTMENT

505 MAIN STREET
POUGHKEEPSIE, NY 12601
TEL: 845-451-4079 FAX: 845-451-4191
FIRE CHIEF JOSEPH FRANCO

Date: 18 December 2023

To: Planning Board

From: Fire Chief

Subj: 100 South Hamilton project

On drawing dated 10-03-23, the provided specs for Tower Ladder 2 shows intrusion into island(s).

** Please cut back all inside radius on parking lot islands using spec formula so we do not intrude into the mountable curbing. Conditions will vary and I'd rather not enter the islands unless absolutely necessary.

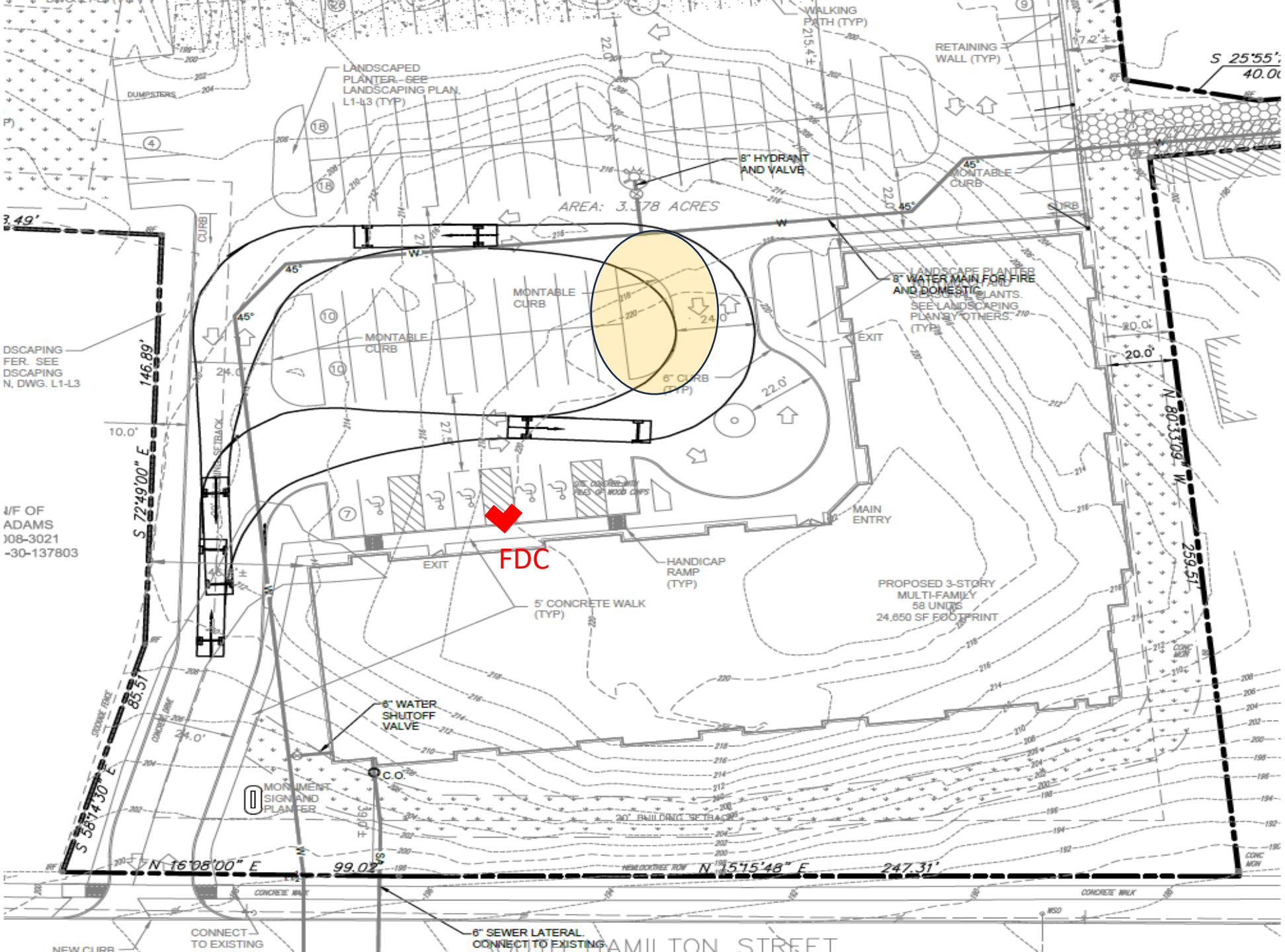
FDC and Fire hydrant locations have already been worked out. A continuous fire main will go from Dwight St thru project to South Hamilton for maximum hydrant flows.

Please refer to mark-up diagram attached.

R,

Joseph Franco

Fire Chief


LANDSCAPED PLANTER. SEE LANDSCAPING PLAN, L1-L3 (TYP)
WALKING PATH (TYP)
RETAINING WALL (TYP)
DUMPSTERS
8" HYDRANT AND VALVE
AREA: 3.378 ACRES
MONTABLE CURB
45°
CURB
8" WATER MAIN FOR FIRE AND DOMESTIC
EXIT
6" CURB (TYP)
FDC
MAIN ENTRY
HANDICAP RAMP (TYP)
EXIT
5' CONCRETE WALK (TYP)
PROPOSED 3-STORY MULTI-FAMILY 58 UNITS 24,650 SF FOOTPRINT
6" WATER SHUTOFF VALVE
C.O.
MONUMENT SIGN AND PLANTER
30' BUILDING SETBACK
6" SEWER LATERAL. CONNECT TO EXISTING
CONNECT TO EXISTING
NEW CURB
HAMILTON STREET
S 72°49'00" E
146.89'
S 58°14'30" E
85.51'
N 16°08'00" E
99.02'
N 15°15'48" E
247.31'
N 80°33'09" W
259.51'
S 25°55'
40.0
20.0'
24.0'
22.0'
10.0'

December 15, 2023

City of Poughkeepsie Planning Board
Attn: Anne Saylor, Chairperson
63 Civic Center Plaza
Poughkeepsie, NY 12601

cc: Joe Donat, Development Director

RE: 2023-041 South Hamilton Lot Development

MASS DESIGN GROUP

1 Chandler Street Suite 101
Boston, MA 02116

289 Main Street Suite 101
Poughkeepsie, NY 12601

hello@massdesigngroup.org
+1 857 233 5788
+1 845 473 4003

massdesigngroup.org

Dear City of Poughkeepsie Planning Board,

The applicant and design team met with Chris Kroner on December 5, 2023 to discuss the proposed project. In attendance were Tyler Maegerle, and Lori Garcia, George Brandt, Fin O'Neill, Lauran O'Neill, and Nabil N. Mijalli. The discussion was a preliminary workshop in nature, and the design team gave an introduction to the project, its intent and constraints to which MASS elevated some clarifying questions for further consideration.

The design team explained how this project was a departure from previous applications at the same site, but had learned some key lessons in the site plan from those previous conversations, and also they have increased the size of the proposed building on this lot. They presented their aesthetic, referencing some context of nearby historical buildings through material color and possibly texture.

This project reflects a 3.4 acre development with 58 units, 3 stories tall at a critical entry point into the city's historic district, and therefore we encourage the public to take an active interest in the project's development.

Neighborhood Integration

We also encourage that each facade of the four main building massings have a bit of variety in character, so that they can be in scalar dialogue with the series of historic homes that we see in the nearby historic district.

Landscape

Acknowledging that the existing trees on Hamilton are much bigger than what was first presented, we appreciate the inclusion of multiple renderings that show both the intended architecture and how the project will fit with the future mature landscape.

We hope the landscape architect can speak to the species selection, and the durations for maturation. Specifically, we see the American Pillar Arborvitae shown in the renderings and plans, and have concerns we have seen about the regional deer population eating the lower portion of these privacy shrubs. Showing foundation shrubbery would also be helpful to understand in the renderings.

Massing

To resist the standard stacking, we hope the development design team might look at extending some localized areas of facade gridwork panels down by a floor.

We also are interested in the design team considering board and batten siding as an alternative to the standard horizontal shiplap, but we remain open to their decision.

While strong corner massings are an interesting choice (usually emphasized with increased stonework), we find the parapets at the corner masses to be large and it is not clear what is necessitating those heights.

Balconies

The planning board has discussed these amenities numerous times since the pandemic as a means of greater access to light and air, as well as adding visual vitality to our historic districts. That said, the roof atop the top floor balcony and the projection of the balconies forward may be causing the building to appear even larger.

Suggestions

We suggest removing the roof from the top floor balconies, and trying darker colored elements on the balcony dividers or creating gaps (in lieu of dividers) to help diminish the presence of the balconies. Ideas that may interlock balconies and spaces might help to create additional visual interest to the facade work.

Handrails

We find the handrails shown as very conventional, and hope to encourage a locally inspired pattern, or even better locally fabricated metal balustrade. Woven architectural metal panels might also be a welcome alternative to the standard pickets shown in the rendering.

Investigate Color Palette

We understand the simple color palette, but acknowledge that the historic south side of Poughkeepsie has a wide variety of historical and victorian color palettes that give neighborhoods additional visual interest and identity. We encourage the development team to consider those in determining the project's proposed appearance.

MASS DESIGN GROUP

1 Chandler Street Suite 101
Boston, MA 02116

289 Main Street Suite 101
Poughkeepsie, NY 12601

hello@massdesigngroup.org
+1 857 233 5788
+1 845 473 4003

massdesigngroup.org

Updates

Since that time, MASS received an updated rendering on 12/13/2023 (shown below). A few of the points above (mostly the balconies and a bit of the massing information) has evolved, but we encourage the applicant to review the letter to consider next steps.



Given the scale and location, we look forward to seeing this important anchor project for the south side of Poughkeepsie evolve through upcoming public participation and further conversation.

Sincerely,
Chris Kroner

Principal
ckroner@mass-group.org

APPLICATION TO THE PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

Application for Site Plan, Special Permit & Facade Approval

OFFICE USE ONLY
CODE: PLSF
ID #_____
FEE: _____ Total, from: $500, plus $_____ ($150 per 1000 square feet of floor area), plus $_____ ($35 per number of required parking spaces), plus $_____ ($500 for special permit, if applicable)

I. **PROPERTY ADDRESS:** 357 HOOKER AVENUE

II. **PROPERTY OWNER:** HIGHWAY DISPLAYS, INC.
ADDRESS: 404 MAPLE ST.
POUGHKEEPSIE
N.Y. 12601 (state and zip code)
PHONE NUMBER: 845-452-2121 (include area code)

III. **NAME OF APPLICANT:** TERRICIENA A. BROWN
ADDRESS: 4 BALDING AVENUE
POUGHKEEPSIE
N.Y. 12601 (state and zip code)
PHONE NUMBER: 845-416-3921 (include area code)
EMAIL ADDRESS: TERRICIENA146@YAHOO.COM

(If applicant is NOT the owner, proof of owner's consent to the application MUST be provided.)

IV. **CONSULTANT:** CIRO INTERRANTE ARCHITECT, P.C.
ADDRESS: 25 MARKET STREET, SUITE 3
POUGHKEEPSIE
N.Y. 12601 (state and zip code)
PHONE NUMBER: 845-473-7572 (include area code)

V. **PROPOSED USE or FAÇADE CHANGE** (Summarize proposed use or uses): EXISTING RESTAURANT USE TO REMAIN UNCHANGED. REPLACE FRONT WINDOW WITH OVERHEAD DOOR. DEVELOP OUT DOOR DINING AT REAR OF BUILDING AND FRONT PATIO

VI. **ZONING DISTRICT:** C-1 NEIGHBORHOOD COMMERCIAL

(Proceed to XVII for special permit & facade approval only)

Revised January 2018: Previous Editions Obsolete

REVISED - 11/3/23

PROJECT INFORMATION

New construction: _____(yes) X (no)

Change of use: _____ (yes) X (no)

Expansion/addition: _____ (yes) X (no)

Alteration: X (yes) _____ (no)

Cost of Construction: $ 25,000 ±

LOT AND BULK INFORMATION:

Lot area: 0.60 (acres) 26,136 (square feet)

Building Footprint: 0 (proposed square feet for new construction)

0 (existing square feet for change of use/expansion)

0 (additional proposed square feet for expansion)

2,580 (total building footprint, square feet)

Lot Coverage: 9.8 % (percentage, building coverage only)

Gross Floor Area: 0 (proposed square feet for new construction)

0 (existing square feet for change of use/expansion)

0 (additional proposed square feet for expansion)

2,580 (total gross floor area, square feet)

Building Height: 1 (stories) 22' (feet)

Floor Area Ratio: 9.8 % (ratio of gross floor area divided by lot area)

VIII. **PROJECT PARKING INFORMATION**

A) Number of Off-Street Parking Spaces required: 25

B) Number of Off-Street Parking Spaces provided: 48

C) Waiver Requested: _____ (Yes) X (No)

Is municipal parking available within 600 feet? _____ (Yes) X (No)

If yes, name all such municipal facilities: N/A

(If a waiver is requested based on proximity to municipal facilities, a written request for such waiver, addressed to the City Planning Staff and the Chairman of the Planning Board, must be submitted with the application.)

If a private parking facility is to be utilized, is such facility within 600 feet?

N/A _____(Yes) _____(No)

If yes, provide the address of the facility, name of the property owner, number of spaces in the lot, number of spaces available for lease, and length of lease. Attach copy of lease. Additional information may be required by the Planning Board):

IX. RESIDENTIAL PROPOSALS N/A

A) Type of Development: _____
(Townhouse, condominium, multiple residence rental, etc.)

B) Unit Breakdown:

Number of efficiency or "studio" units: _____

Number of one (1) bedroom units: _____

Number of two (2) bedroom unit's _____

Number with three or more bedrooms: _____

Total number of units: _____

C) Is funding public? ____ Yes ____ No
If yes, describe funding source: _____

X. OFFICE PROPOSALS (____ Medical/Dental ____ Professional ____ Business)

N/A A) Number of Employees: _____
B) Number of doctors/dentists/medical practitioners: _____
C) Days/Hours of Operation: _____

XI. **SERVICE BUSINESS PROPOSALS** N/A

A) Specify Business: _____
(e.g., laundromat, drycleaner, beauty parlor, travel agency, banks)

B) Number of Employees: _____

C) Number of Washing Machines (for laundromat): _____

D) Days/Hours of Operation: _____

XII. **MERCANTILE PROPOSALS** (Retail ____ Wholesale ____) N/A

A) Type of Mercantile (specify): _____

B) Number of Employees: _____

C) Days/Hours of Operation: _____

XIII. **STANDARD RESTAURANT/FAST FOOD RESTAURANT/COFFEE SHOP/DONUT SHOP/NIGHTCLUB/DISCOTHEQUE/BAR PROPOSALS**

A) Specify Use: RESTAURANT

B) Number of seats (excluding bar stools and outdoor seating): 102

C) Meals served (i.e., breakfast, lunch, dinner): LUNCH & DINNER

D) Type of Menu: BAR BE QUE

E) Days/Hours of Operation: SEE SITEPLAN

F) Entertainment (live and/or recorded): YES F,S 4-8 PM

G) Will the restaurant contain a bar/lounge?: X Yes ____ No

H) If yes, how many seats at the bar? 12

I) Is a drive-through window proposed? NO

J) Is a walk-up window proposed? NO

K) Is an outdoor seating area proposed? YES

L) If yes, how many seats are proposed? 32

M) If yes, is outdoor cooking proposed? YES

N/A XIV. **INDUSTRIAL/COMMERCIAL PROPOSALS** (Automobile repair, taxi, motor vehicle sales, warehouse, manufacturing, animal hospital, research facilities, etc.)

A) Specify Use: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

E) Number of work bays (if automobile repair): _____

F) Days/Hours of operation: _____

REVISED - 11/3/23

Ciro Interrante Architect, P.C.
25 Market Street, 3rd floor
Poughkeepsie, New York 12601 (845) 473-7572

February 7, 2024

Planning Board
City of Poughkeepsie
PO Box 300
Poughkeepsie, NY 12602

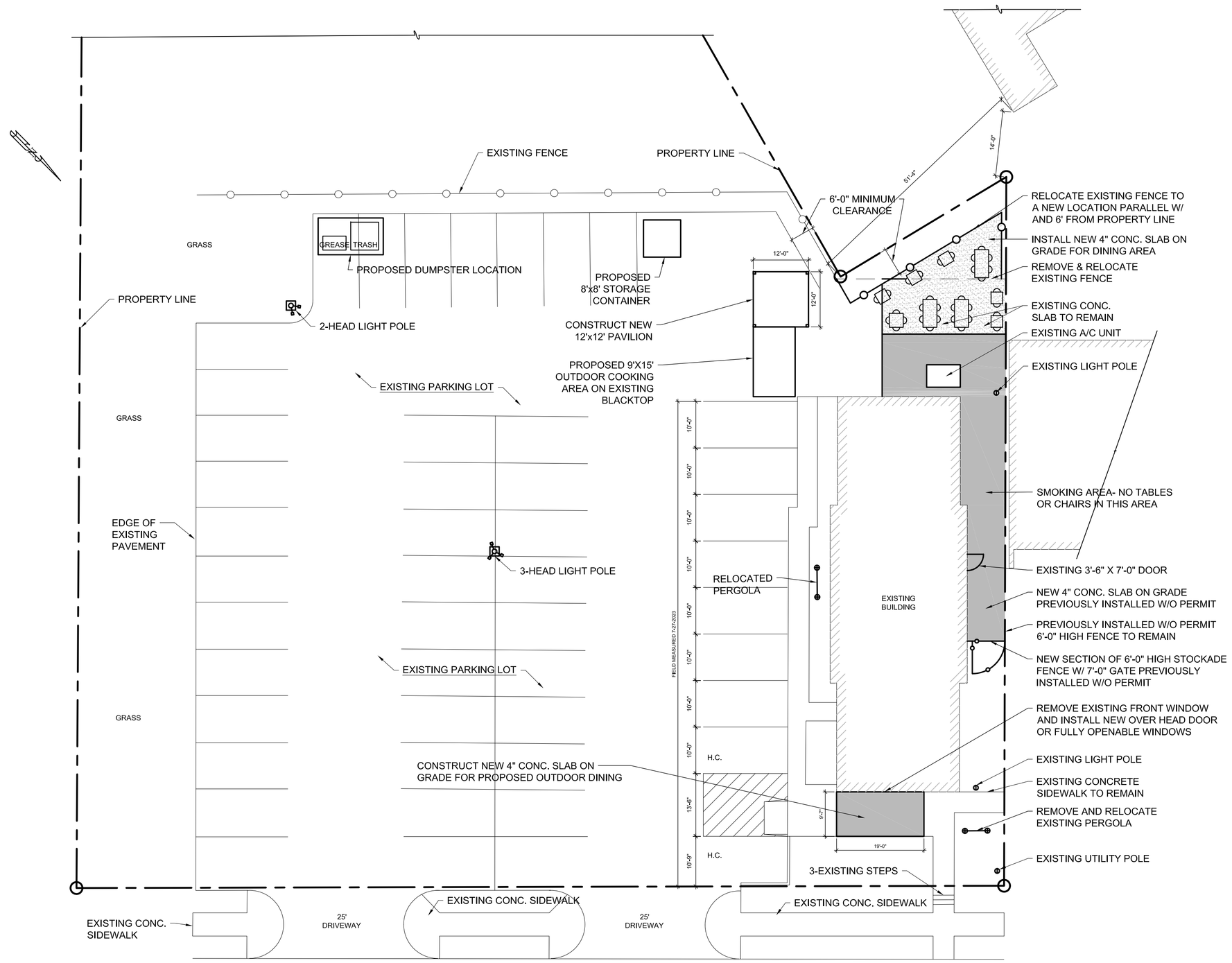
RE: 357 Hooker Avenue
Poughkeepsie, New York 12601

Dear Planning Board,

At the last planning board meeting, the board members suggested that the following notes be added to the site plan drawing. "Music is to occur exclusively inside the building". Chapter 13 ½ of the City of Poughkeepsie zoning code regulates noise. "Landscaping would be added at the restaurant operators' discretion". The board also requested some details regarding the outdoor lighting (included with this letter) and that a dimension from the nearest house to the property line is shown on the site plan.
In addition, the City of Poughkeepsie building department made comments as well. The building department recommends that a dumpster enclosure be large enough to house a trash dumpster and grease storage container. It was also recommended that outdoor dining and cooking have limited hours that do not extend into the late evening. The building department also repeated the concern of the planning board regarding music into late hours of the evening. All of these concerns from the planning board and the building department have been addressed on the site plan with revisions or notes on the site plan drawing. We will review all of these requested items at the next planning board meeting.

Very truly yours,

Ciro Interrante, Architect

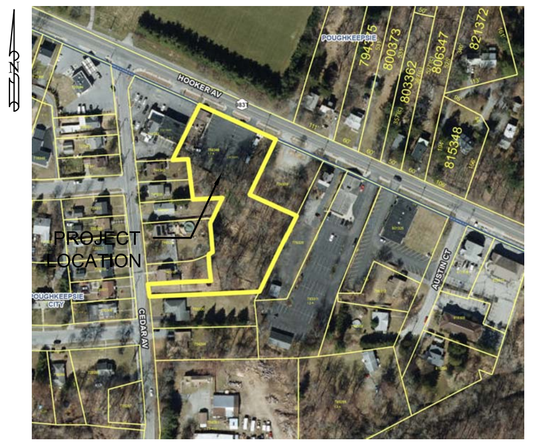


GRAPHIC SCALE

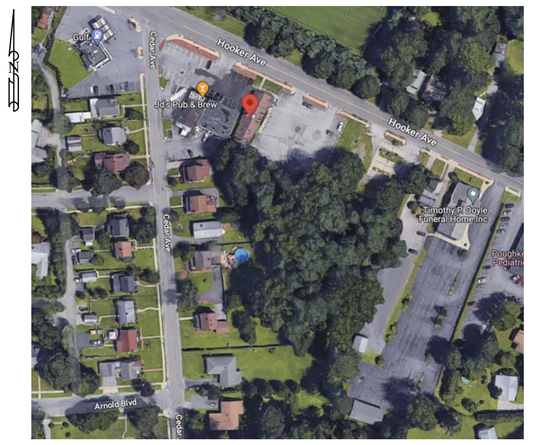
15 0 5 15 30 60

(IN FEET)
1 inch = 15 ft.

1 SP1 SITE PLAN
SCALE: 1" = 16'-0"



3 SP1 PARCEL MAP
SCALE: N.T.S.



4 SP1 GOOGLE MAP
SCALE: N.T.S.



5 SP1 GOOGLE STREET VIEW
SCALE: N.T.S.



2 SP1 EXISTING FRONT ELEVATION
SCALE: 1/4"=1'-0"

PLANNING BOARD REQUIRED NOTES

1. LANDSCAPING/ FLOWER POTS WILL BE DISPLAYED SEASONAL PER THE RESTAURANT OPERATORS DISCRETION.
2. ALL MUSIC WILL BE PERFORMED INSIDE THE RESTAURANT BUILDING. MUSIC WILL BE IN ACCORDANCE WITH SECTION 13 1/2-6 & 13 1/2-11 OF THE CITY OF POUGHKEEPSIE ZONING ORDINANCE.
3. A STRING OF OUTDOOR LED LIGHTS WILL BE ATTACHED TO THE TOP OF THE FENCE BORDERING THE OUTDOOR COOKING AND SEATING AREA AT THE REAR OF THE BUILDING. (SAMPLE SUBMITTED).
4. NO OUTDOOR FOOD SERVICE WILL BE PROVIDED AFTER 11PM. NO OUTDOOR COOKING WILL TAKE PLACE AFTER 10PM.

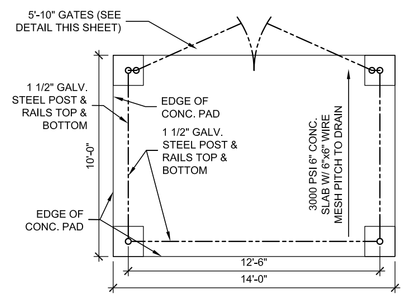
HOURS OF OPERATION

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
CLOSED	11-10	11-10	11-12	11-1AM	11-1AM	11-10
				LIVE MUSIC - BLUES MUSIC		

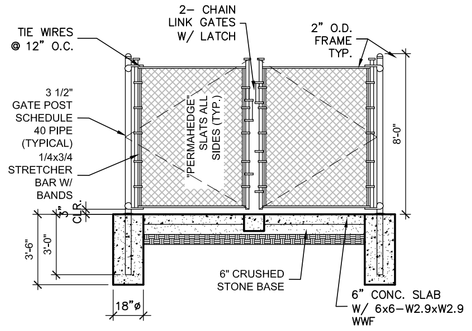
SEATING CAPACITY

INTERIOR: 70 CHAIRS & TABLES (INCLUDING 12 @ BAR)

EXTERIOR: 32 CHAIRS & TABLES



DUMPSTER PAD PLAN



DUMPSTER PRIVACY SCREEN DETAIL

6 SP1 DUMPSTER ENCLOSURE DETAILS
SCALE: N.T.S.

Revisions

No.	Date:	Description:
NO. 1	08/01/23	ZONING REPLY
NO. 2	09/19/23	PLANNING COMMENTS
NO. 3	10/11/23	ZONING COMMENTS
NO. 4	11/20/23	REMOVE LANDSCAPING
NO. 5	02/07/24	PLANNING COMMENTS

CIA
"IN THE SPIRIT OF COOPERATION"

CIRO INTERRANTE ARCHITECT P.C.
25 MARKET STREET
POUGHKEEPSIE, NEW YORK 12601
(845) 473-7572 Office (845) 473-7525 Fax

DRAWN BY: S.T.T. | CHECKED BY: C.I. | ISSUED DATE: 06-09-2023

REGISTERED ARCHITECT CIRO INTERRANTE 14579 STATE OF NEW YORK

IMAGE OF SITE PLAN

PROPOSED SITE PLAN FOR:
GENEVA'S BLUES HOUSE
SOUTHERN BARBEQUE
357 HOOKER AVENUE
POUGHKEEPSIE, NY 12601

Project Number. 23-16

SHEET NO.
SP1
SITE PLAN

W:\DWG\CLOUD\Public\CIA-Projects Folder\2023 Drawings Folder\23-16 357 HOOKER AVENUE\SITE PLAN\Hooker Ave_SITE PLAN 11-20-23.dwg, 2/8/2024 10:16:58 AM, Adobe PDF, 1:1

617.20
Appendix B
Short Environmental Assessment Form

Instructions for Completing

Part 1 - Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 - Project and Sponsor Information

Name of Action or Project:
357 HOOKER AVENUE

Project Location (describe, and attach a location map):
2/10 MILE WEST OF RAYMOND AVE. ON SOUTH SIDE OF HOOKER AVE.

Brief Description of Proposed Action:
OPERATE AN EXISTING RESTAURANT AND MAKE MINOIR IMPROVEMENTS AND ALTERATIONS TO IMPROVE SERVICE AND VARIETY OF FOOD PRODUCT.

Name of Applicant or Sponsor:	Telephone: 845-416-3921
TERRICIENA A. BROWN	E-Mail: TERRICIENA146@YAHOO.COM

Address:
4 BALDING AVENUE

City/PO:	State:	Zip Code:
POUGHKEEPSIE	NY	12601

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other governmental Agency? If Yes, list agency(s) name and permit or approval: PLANNING BOARD - SITE PLAN APPROVAL	☐	☑

3.a. Total acreage of the site of the proposed action? 0.6 acres
b. Total acreage to be physically disturbed? 0 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.6 acres

4. Check all land uses that occur on, adjoining and near the proposed action.
☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☐ Residential (suburban)
☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____
☐ Parkland

	NO	YES	N/A
5. Is the proposed action, a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☐	☐
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify: _____	☑	☐	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐	
b. Are public transportation service(s) available at or near the site of the proposed action?	☐	☑	
c. Are any pedestrian accommodations or bicycle routes available on or near site of the proposed action?	☐	☑	
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies:	☐	☑	
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water: _____	☐	☑	
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: _____	☐	☑	
12. a. Does the site contain a structure that is listed on either the State or National Register of Historic Places?	☑	☐	
b. Is the proposed action located in an archeological sensitive area?	☑	☐	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____	☑	☐	

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:
☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional
☐ Wetland ☑ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100 year flood plain?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes, a. Will storm water discharges flow to adjacent properties? ☑ NO ☐ YES	☐	☑
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)? If Yes, briefly describe: ☐ NO ☑ YES		

	NO	YES
18. Does the proposed action include construction or other activities that result in the impoundment of water or other liquids (e.g. retention pond, waste lagoon, dam)? If Yes, explain purpose and size: _____	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____	☑	☐

I AFFIRM THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor name: CIRO TERRANTE, ARCHITECT Date: 6-15-23

Signature: _____

Part 2 - Impact Assessment. The Lead Agency is responsible for the completion of Part 2. Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☐	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☐	☐
3. Will the proposed action impair the character or quality of the existing community?	☐	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☐	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☐	☐
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	☐	☐
7. Will the proposed action impact existing: a. public / private water supplies?	☐	☐
b. public / private wastewater treatment utilities?	☐	☐
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☐	☐
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☐	☐

	No, or small impact may occur	Moderate to large impact may occur
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☐	☐
11. Will the proposed action create a hazard to environmental resources or human health?	☐	☐

Part 3 - Determination of significance. The Lead Agency is responsible for the completion of Part 3. For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT

Commercial Grade Light String

Installation instructions for **C**andelabra**, I**ntermediate**, M**edium **light string product for permanent installation**

WARNING: *These products may represent a possible shock or fire hazard if improperly installed or attached in any way. Products should be installed in accordance with these instructions; and current electrical codes and/or the current National Electric Code (NEC).*

CAUTION – To reduce the risk of fire, electric shock or injury to persons:

1. Commercial Grade Light String is intended for installation by trained, qualified electrical contractors.
2. Light string can be supported by steel guide cables, with zip ties and eyebolts. Proper diameter cabling must be used for the maximum span distance between supports according to local building codes. See chart on for maximum span distances between supports.
3. Suspend strings properly by attaching suspension cable (not provided) to solid support structures, such as joists, beams or wall studs.
4. Light sockets must be suspended so that bulbs are facing down ONLY.
5. Keep combustible material clear of bulbs with a minimum of 3" space from the nearest object.
6. Do not cluster the bulbs.
7. Not intended for installation in ceilings, soffits, cabinets or other enclosed spaces.
8. Do NOT secure light string using nails, staples or other sharp, conducting materials.
9. Periodically inspect wire and sockets for degradation due to weather, UV light or other damage. Promptly replace worn out light string.
10. **DO NOT MOUNT THE LIGHT STRINGS WITH SOCKETS FACING UPWARD**
11. **DO NOT OVERLOAD ANY SOCKET'S MAXIMUM WATTAGE RATING**
12. **DO NOT OVERLOAD MAXIMUM WATTAGE CAPACITY IN ANY RUN (see wattage chart)**
13. **DO NOT HANG FROM MOULDED END CAPS.**

WARNING – RISK OF ELECTRIC SHOCK

Disconnect power at source prior to wiring, re-lamping or servicing in any way.

LIGHT STRING SETS WITH POLARIZED PLUG

1. Do not connect the light string to any other string.
2. The plug-in light string sets are supplied with an attached polarized plug that will only fit into a polarized outlet. If it does not fit, reverse the plug. If it still does not fit, contact a qualified electrician. Do not alter the plug.
3. **DO NOT EXCEED THE MAXIMUM WATTAGE FOR LIGHT STRING SETS WITH ATTACHED PLUG:**

600 WATTS MAXIMUM FOR 48 FOOT PLUG-IN LIGHT STRING SETS
1250 WATTS MAXIMUM FOR 100 FOOT PLUG-IN LIGHT STRING SETS

Installation instructions for **C**andelabra**, I**ntermediate**, M**edium socket light strings for permanent installation

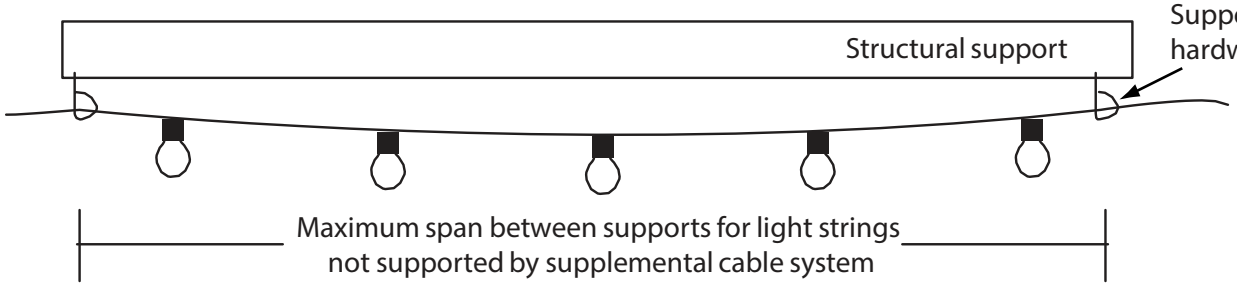
SUSPENDING LIGHT STRINGS

1. Light string must be securely attached to a support structure at each end of each span. See chart below for maximum span distances:

MODEL #	**Max. span between supports**
Medium socket 24" spacing between sockets	10 sockets or 20'
Intermediate socket with 15" spacing between	15 sockets or 19'
Candelabra with 12" spacing between bulbs	20 sockets or 20'

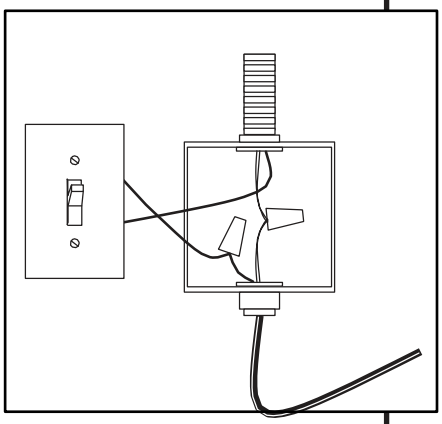
2. Secure light string to supporting hardware (eyebolts, brackets, etc., not provided) using cable ties (not included). See Figure 1.

Figure 1



3. For spans exceeding the above, use properly rated cable support system and cable ties (both not provided) and follow local codes for suspended structures and loads.

CONNECTING LIGHT STRINGS TO A POWER SOURCE



WARNING – RISK OF ELECTRIC SHOCK - Disconnect power at source prior to wiring and follow any required lock-out/tag-out procedures. These wiring instructions are intended for use by qualified and licensed electrical contractor.

1. Located power source in properly rated junction box (not supplied) for indoor or outdoor application. See Figure 2.
2. Thread light string end through strain relief fitting (indoor installations) or water tight strain relief fitting (outdoor installations) and into junction box.
3. Connect light string to power source: On the **flat style** corded light string the smooth wire (hot) goes to black (hot) wire in electrical box; ribbed edge wire (neutral) goes to white (neutral) wire in electrical box.
   On the **round jacketed style** corded light string the black wire (hot) goes to black (hot) wire in electrical box; the white wire (neutral) goes to white (neutral) wire in electrical box.
4. Ensure that no bare wires are exposed outside the electrical connections.
5. Power source may be switched with properly rated switch or dimmer control (not provided). For maximum run distances, see Table 1 on following page.

www.OOGALIGHTS.com

Commercial Grade Light String

Lamp and Re-Lamp instructions for Candelabra**, I**ntermediate**, M**edium **light string product for permanent installation**

RE-LAMPING LIGHT STRINGS

WARNING – RISK OF ELECTRIC SHOCK - Disconnect power at source prior to re-lamping light strings. For outdoor light strings, do NOT re-lamp light strings during rain or other inclement weather conditions.

1. Re-lamp light strings only during dry and calm weather conditions.
2. Unscrew existing lamps by lightly holding the socket in one hand and twisting the lamp counter-clockwise. Lamps may be tight in the sockets. This is normal to prevent moisture from getting into the socket.
3. Replace with proper wattage and type lamps according to the following chart.

MODEL #	Maximum Load in Watts (per socket type)	Maximum Load in Watts	
		Plug-in (48'/100')	Hardwire
M	25 (medium base)	600/1250*	1800**
I	10 (intermediate base)	N/A	1200**
C	10 (candelabra base)	N/A	1200**

*Maximum run for 48 foot plug-in sets is 600 watts, based on 24 sockets at 25 watts each maximum
Maximum run for 100 foot plug-in sets is 1250 watts, based on 50 sockets at 25 watts each maximum.

**Use 14AWG for hardwire connection to 120V power source. Check local electrical codes for variations before installing or lamping light string.

COMMERCIAL GRADE LIGHT STRINGS SPECIFICATIONS

Specifications	LS-C Series	LS-I Series	LS-M Series	LS-MS Series
Socket Type	Candelabra Base	Intermediate Base	Medium Base	Medium Base
Max Bulb Wattage	10 watts	10 watts	25 watts	25 watts
Max Amperage Load	10 Amps	10 Amps	15 Amps	15 Amps
Socket Spacing	12 inches	15 inches	24 inches	24 inches
Maximum Run	1200 watts†	1200 watts†	1800 watts†	1800 watts†

†Maximum run for **C**andelabra and **I**ntermediate base bulk reels is 1200 watts, based on 10 amps allowed for 16AWG wire;

Maximum run for **M**edium base bulk reels is 1800 watts, based on 15 amps allowed on 14AWG wire.

THE CITY OF POUGHKEEPSIE
FIRE DEPARTMENT

505 MAIN STREET
POUGHKEEPSIE, NY 12601
TEL: 845-451-4079 FAX: 845-451-4191
FIRE CHIEF JOSEPH FRANCO
JFRANCO@CITYOFPOUGHKEEPSIE.COM

SITE PLAN REVIEW FORM

TO: Planning Board

FROM: Fire Chief Joseph Franco

DATE: February 12, 2024

ADDRESS: 357 Hooker Ave

_X___ The site plan is acceptable and will be signed without conditions.

____ The site plan is acceptable and will be signed without conditions:

Joseph Franco, Fire Chief

2/12/2024
Date

BUILDING DEPARTMENT

CITY OF POUGHKEEPSIE
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4007 Fax: (845) 451-4006

Eric Philipp
Building Inspector

SITE PLAN REVIEW

DATE: 2-5-24

PROJECT ADDRESS: 357 Hooker Ave

PROJECT NAME: Geneva's House of Blues

OWNER: Highway Displays, INC

ENGINEER/ARCHITECT: Ciro Interante Architect P.C.

☐ **The site plan is acceptable and will be signed with no conditions.**

☑ **The site plan cannot be approved as submitted. The following comments must be addressed or conditions satisfied:**

This location has already been operating and the building department has received complaints of loud noise/music after late at night. Additionally we are getting complaints of the trash overflowing and outside of the dumpsters at this location and they have been cited for in the past.
Two recommendations to be added tot he site plan, first is a restriction of how late the outside dinning and cooking areas can be used until as this building is close to many residential homes. The second is to require an enclosure for the dumpster/ trash and the grease storage containers that are shown in the parking lot.

Eric Philipp
Building Inspector

THE CITY OF POUGHKEEPSIE

DEPARTMENT OF PUBLIC WORKS & ENGINEERING

SITE PLAN REVIEW
Form #1

1. Date: February 9, 2024
2. Name of Site Plan: Geneva's Blues House Southern Barbeque
3. Address or Location: 357 Hooker Avenue
4. Owner: Highway Displays
5. Engineer/ Architect: Ciro Interrante
6. Yes ☐ No ☐ The site plan as forwarded by the Planning Department is acceptable and will be signed off on with no condition(s).
7. Yes ☐ No ☐ The site plan as forwarded by the Planning Department is acceptable and has been signed off on with no condition(s).
8. Yes ☒ No ☐ The applicant should be notified that the Dept. of Public Works/Engineering requires the following comment(s) be addressed:

    1. Provide survey/boundary information including found monuments. Of particular concern is the western property line.
    2. Provide adjoiner information on site plan.
    3. Scales listed for plan view conflict.
    4. Show and label Hooker Avenue on the site plan.
    5. Show on site plan parking lot drainage structures and discharge location on site plan.
    6. How will fats, oil and grease from outdoor cooking area be prevented from dispensing into storm drainage system.
    7. Show City owned utilities at Hooker Avenue on site plan.
    8. Show water and sewer services on site plan. This information is required to ascertain service connections and/ or site utilities are not crossing or encroaching lot lines.
    9. Has an adequately sized grease trap or oil / water separator been provided for food preparation. Provide grease trap information and maintenance schedule.
    10. Post development stormwater run-off rates shall not exceed predevelopment rates. Provide brief stormwater report verifying. Describe how run-off from newly constructed permeable surfaces will be handled.
    11. Show contour lines on the site plan or spot elevations at a minimum.
    12. Provide estimate for site work for bond or lette of credit.

Joseph A. Chenier, Jr. CPESC, CPMSM
Assistant Civil Engineer

THE CITY OF POUGHKEEPSIE
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

Richard L. DuPilka, P.E. | City Engineer
Email: engineeringdepartment@cityofpoughkeepsie.com

62 Civic Center Plaza
Poughkeepsie, New York 12601
(845) 451-4192 (p) | (845) 451-4101 (f)

February 9, 2024

Highway Displays Inc
404 Maple St
Poughkeepsie, NY 12601

Re: Notice of Violation – Local Law Prohibiting Illicit Discharges, Activities and Connections Regarding the Separate Storm Sewer System (LL-07-01)

Property Address:
357 Hooker Avenue
Poughkeepsie, NY 12601

Dear Property Owner:

The City of Poughkeepsie is writing this letter to inform you that a violation of the City's Illicit Discharge ordinance occurred on or about January 28, 2024. An illicit discharge is any direct or indirect non-stormwater discharge to the MS4 (Municipal Separate Storm Sewer System). The MS4 is owned and operated by the City of Poughkeepsie. It is used for collecting stormwater (rainwater, surface runoff, snowmelt and drainage).

The City of Poughkeepsie observed paper and residual material behind the restaurant at 357 Hooker Avenue. The observed material resembled toilet paper. The material was transported by rainwater to a parking lot drainage inlet. See attached photos. Only stormwater is permitted in storm sewer systems.

Please retain a copy of this written record of the discharge and plan to prevent recurrence. Tenants and their employees should be trained and policy established to prevent stormwater pollution. The storm sewer system should receive only rainwater, surface runoff, snowmelt and groundwater. Any further violations of this ordinance could result in a $350 to $1000 fine or imprisonment for a period not to exceed 15 days. If you have any questions or comments do not hesitate to contact me at the above number.

Very truly yours,

Joseph A. Chenier, CPESC, CPMSM
Stormwater Management Officer


BUD LIGHT
Meadow Creek
EXCELLENCE IN BARBECUE
SINCE 1988
GENEVA'S
BLUES HOUSE
ALLIED





DocuSign Envelope ID: 3643E76A-5A50-47B2-AE3E-D99CB73774C5

Apt# 133/10

Office Use Only
PLSD
ID#: PB2023-070
FEE:

CITY OF POUGHKEEPSIE, NY
REQUEST FOR SUBDIVISION APPROVAL
(Please type or print legibly)

I) PROPERTY ADDRESS: 120 South Hamilton Avenue, Poughkeepsie, NY 12601

II) PROPERTY OWNERSHIP:

RECEIVED
SEP 01 2023
By

Name of Owner: Brenda Lee Blasini
Address: 120 South Hamilton Avenue
Poughkeepsie, NY
12601 (zip code)
Telephone: (917) 340-7950

III) APPLICANT INFORMATION (If different from above. If the applicant is not the owner of the property, a letter of authorization from the owner must be submitted):

PAID
$ 250
SEP 01 2023
✓ 6792

Name of Applicant: Brenda Lee Blasini
Address: 120 South Hamilton Avenue
Poughkeepsie, NY
12601 (zip code)
Telephone: (917) 340-7950

IV) CONSULTANT INFORMATION (If different from above)
Name : Michael A. Dalbo, Land Surveyor, P.C.
Address: 19 Shadow Lane
Pougkeepsie, NY
12601 (zip code)
Telephone: (845) 229-9383

V) ZONING DISTRICT: R-1 Low Density Residence

VI) SUBDIVISION DESCRIPTION

a) Type of Subdivision (Choose One):
Lot Line Adjustment: ✓ Subdivision (new lots created): _____

b) For Subdivisions only, please note the number of lots created: _____

c) Description of project: Conveying a portion of 120 South Hamilton Street to 41 Crescent Road identified in the survey attached.

VII) The applicant hereby affirms that all information contained herein is accurate and complete as of the date of application.

DocuSigned by:
Brenda Lee Blasini
BC12C1CD410A441...
Signature of applicant

8/31/2023
Date

Print name: Brenda Lee Blasini

Revised February 2012: Previous Editions Obsolete

DocuSign Envelope ID: 3643E76A-5A50-47B2-AE3E-D99CB73774C5

The applicant understands that any changes requested in the requirements of the subdivision regulations, or any request for waivers of those requirements, must be placed in writing with an itemized explanation to substantiate the request.

IMPROVEMENTS REQUIRED
(Check each item indicating whether compliance is proposed or a waiver requested)

Item		Compliance	Waiver Requested	Explanation of Waiver
1	Permanent monuments on ROW			
2	Sanitary Sewers			
3	Water Mains			
4	Gas Mains			
5	Electric Lines			
6	Storm Sewers			
7	Grading Plans			
8	Streets (grading and paving)			
9	Curbs or Curbs and Gutters			
10	Sidewalks			
11	Street Lights			
12	Street Trees			
13	Street Signs			
14	Fire Protection Systems			
15	Public Open Spaces			

FIVE FULL SIZE COPIES OF SUBDIVISION PLAN MUST ACCOMPANY THE APPLICATION FORM, ALONG WITH **TEN** 11"X 17" COPIES OF THE SUBDIVISION PLAN.

MACKEY
BUTTS &
WHALEN
LLP

ATTORNEYS AT LAW

August 31, 2023

Robert R. Butts
Robert B. Dietz
Joshua E. Mackey
Ian S. MacDonald
Cara A. Whalen

Christina A. Mazzarella
Pedro Medina, Jr
Lita M. Ward

Emily Abrahams
Tyrone Brown
Roderick J. MacLeod
R. Keith Salisbury

Via Email & Hand Delivery
Lori Garcia
City of Poughkeepsie
Historical Society
62 Civic Center Plaza
Poughkeepsie, New York 12601

RE: Brenda Lee Blasini
Historical Society Application for Lot Line Adjustment
Premise: 120 South Hamilton Street, Poughkeepsie
File No: 6547.0001

Dear Ms. Garcia,

As you may recall this firm represents Ms. Brenda Lee Blasini in connection with the Lot Line Adjustment for 120 South Hamilton Street in Poughkeepsie. Ms. Blasini will be conveying a portion of her property to her neighbors, Masooma Saba Zaidi & Jose Lugay of 41 Crescent Road in Poughkeepsie.

Enclosed herewith please find six total copies of the City of Poughkeepsie Request for Subdivision Approval and The Historical District and Landmarks Preservation Commission Application along with the following:

- A check in the amount of $250.00;
- Copies of a Parcel Access Map of the Property;
- Photographs of the area being conveyed;
- Copies of the Parcel Access Property Card;
- Copies of the survey of 41 Crescent Road - the property the land will be conveyed to – 8.5 x 11 & 10 copies of 11x17; and
- Copies of the Deed of 120 South Hamilton Street.

Reply to:

☐ 3208 Franklin Avenue
Millbrook, NY 12545
P 845.677.6700
F 845.677.2202

☐ 319 Mill Street
Poughkeepsie, NY 12601
P 845.452.4000
F 845.454.4966

☐ 81 Main Street
P.O. Box 308
Sharon, CT 06069
P 860.364.6232
F 860.364.6429

www.mbwlawyers.com

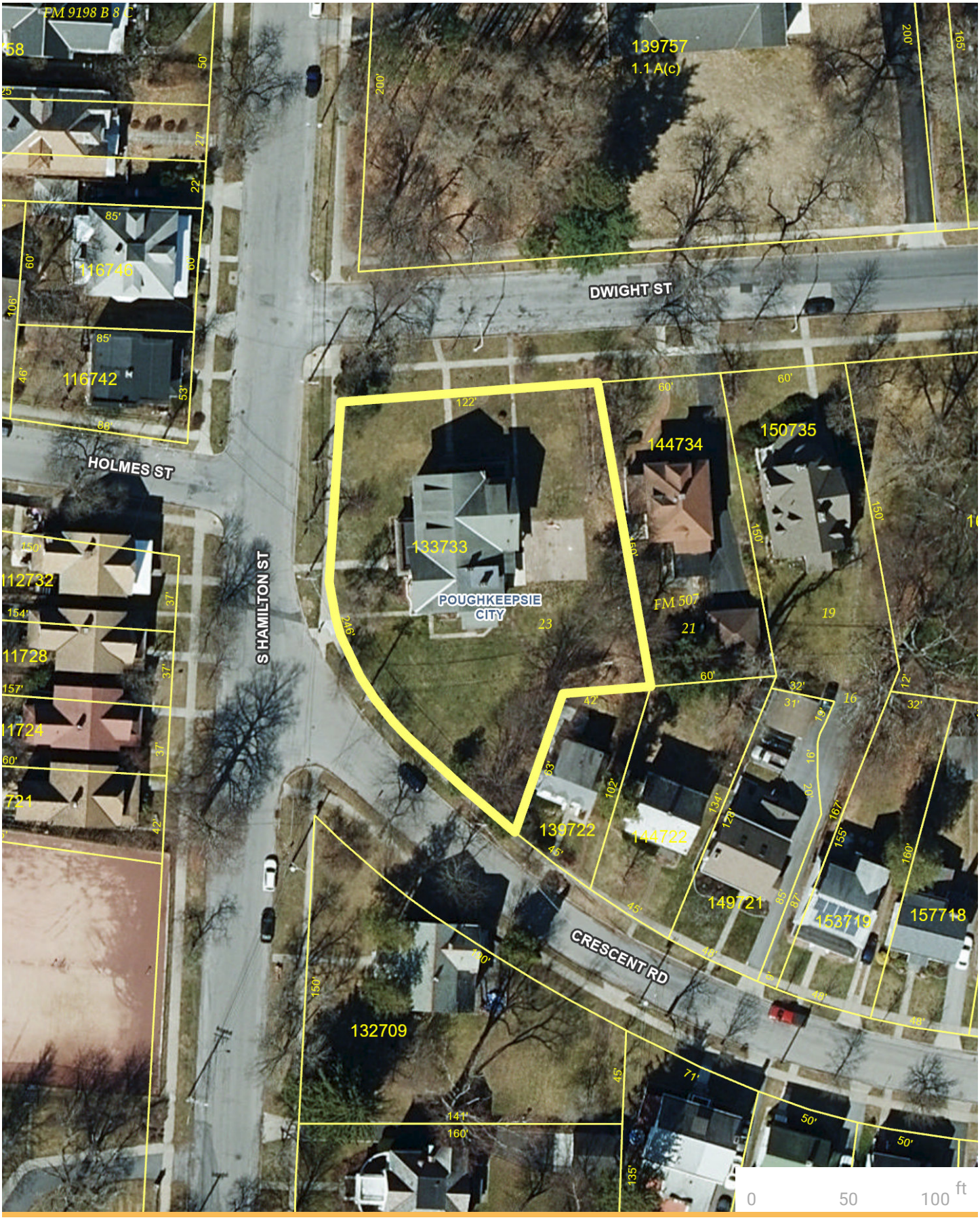
Please accept the enclosed submission to be heard at the next Historical District and Landmark Preservation Commission Meeting currently scheduled for September 14, 2023, at 6:00 pm.

Thank you in advance for your assistance in this matter.

Very truly yours,

MACKEY BUTTS & WHALEN, LLP

Maria Simmons
Paralegal



Dutchess County
New York

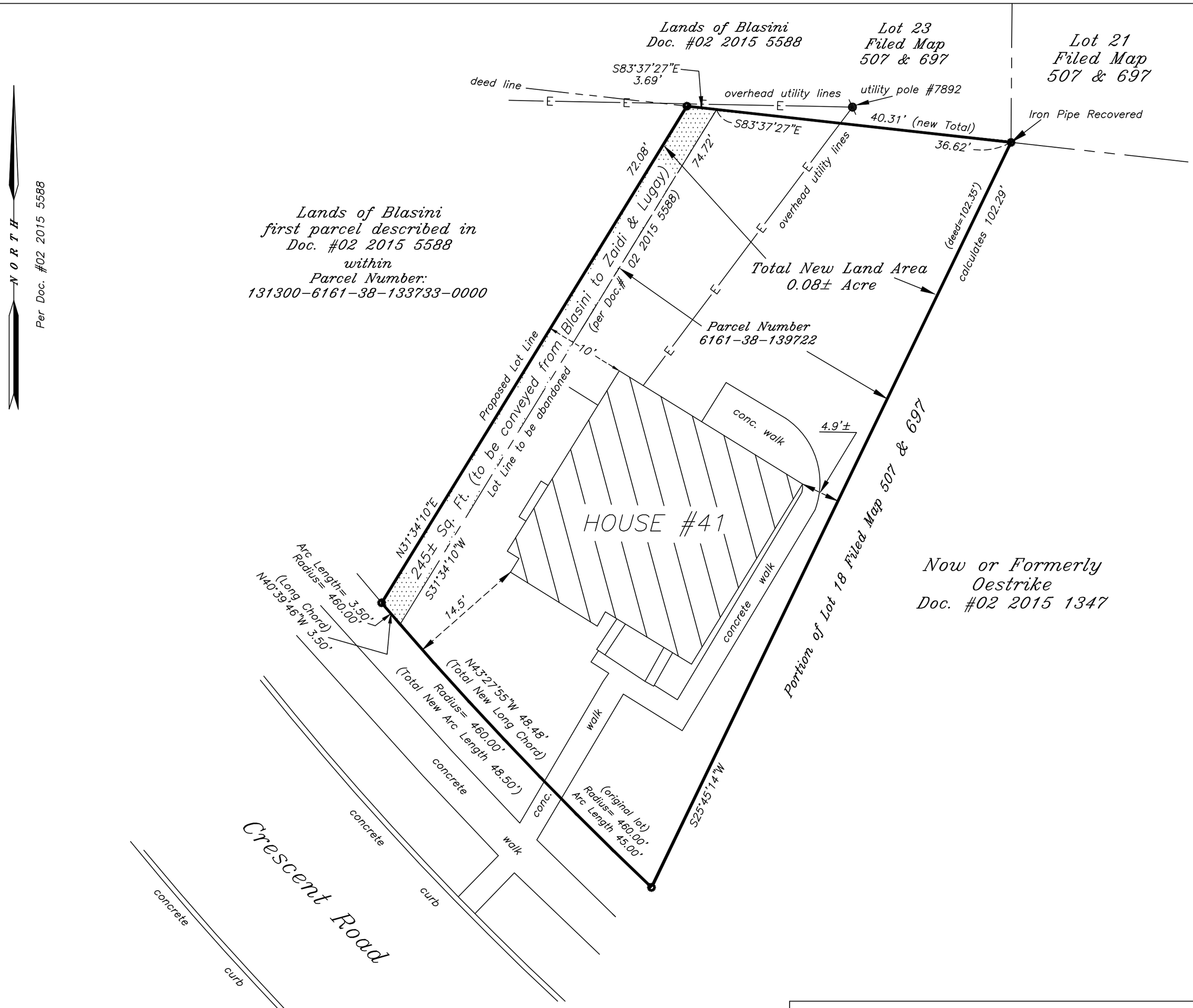
Parcel Lines

Dutchess County, NY

Printed By:
ParcelAccess

N

ParcelAccess
8/31/2023



Prepared By:

MICHAEL A. DALBO
Land Surveyor, P.C.
19 Shadow Lane
Poughkeepsie, N.Y. 12601
Tel. (845) 229-9383

File: 4296 @ 41 Crescent Rd.

STATE OF NEW YORK
MICHAEL A. DALBO
049311
LICENSED LAND SURVEYOR

Michael A. Dalbo

Title Report Note:

This survey was prepared without the benefit of a title search. Therefore it is subject to any facts that an up to date and accurate title search would reveal.

Copies of this map not bearing the original seal and original signature of the licensed land surveyor who prepared it are not to be considered true or valid reproductions.

It is a violation of the NYS State Education Law for any person(s) to alter this survey map or any item shown hereon in any way, unless they are acting under the direction supervision of a currently registered N.Y. State Licensed Land Surveyor.

This survey map is hereby certified to:

Saba Zaidi & Jose Lugay

Certifications indicated hereon shall run only to the person(s), company or corporation for whom this survey was prepared, and on their behalf only to the title company, mortgagor and/or lending institution(s) listed hereon. Certifications are not transferable to or on behalf of subsequent owners, title insurance companies, mortgagors and/or lending institutions.

Survey For

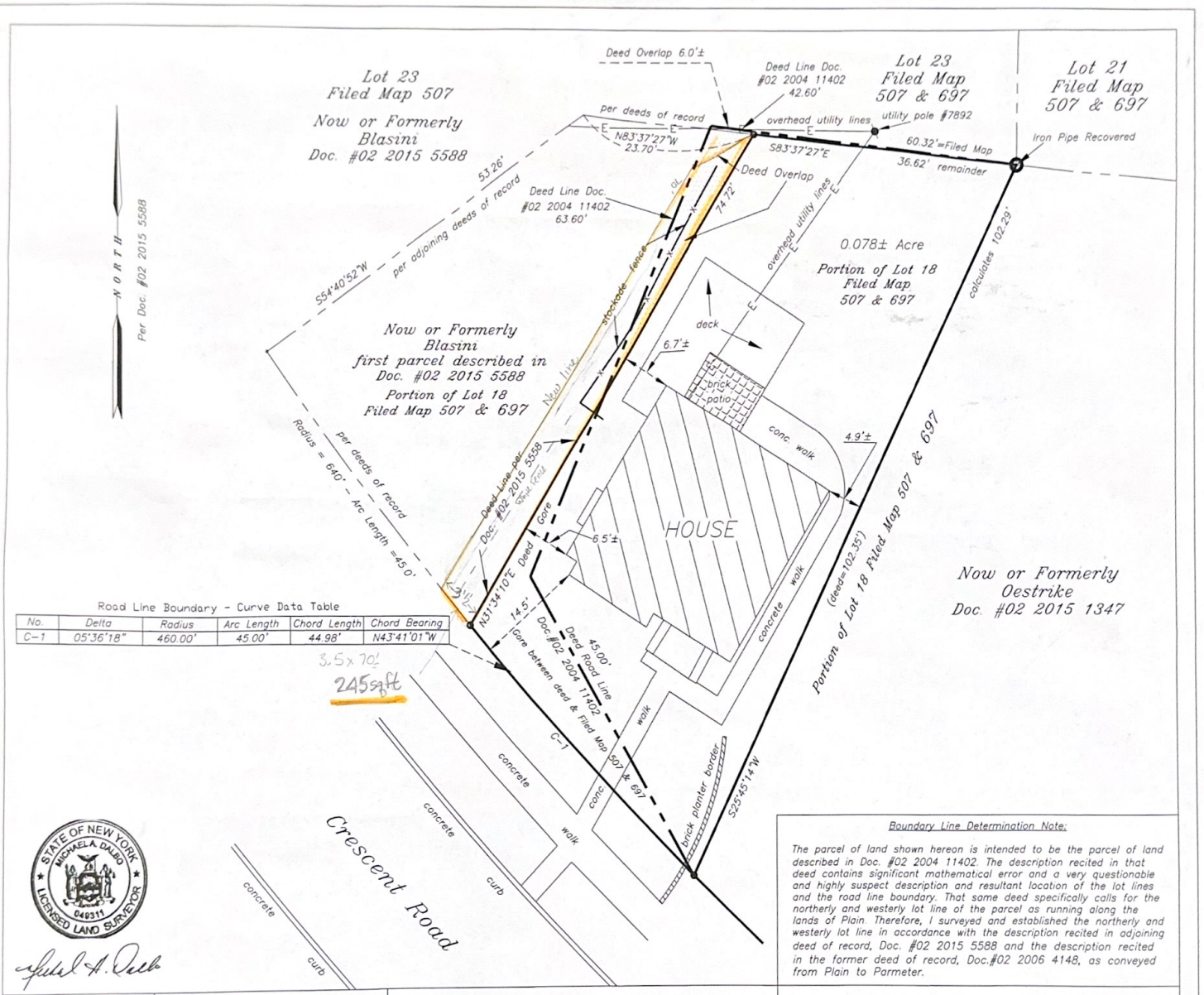
Saba Zaidi & Jose Lugay

City of Poughkeepsie
Dutchess County, N.Y.

Scale: 1"=10' July 09, 2020
Revised: 11-09-2023
(proposed lot line change)

Involved Parcel Numbers:

6161-38-133733-0000 & 6161-38-139722-0000



Road Line Boundary - Curve Data Table

No.	Delta	Radius	Arc Length	Chord Length	Chord Bearing
C-1	05°36'18"	460.00'	45.00'	44.98'	N43°41'01"W

STATE OF NEW YORK
MICHAEL A. DALBO
040311
LICENSED LAND SURVEYOR

Boundary Line Determination Note:

The parcel of land shown hereon is intended to be the parcel of land described in Doc. #02 2004 11402. The description recited in that deed contains significant mathematical error and a very questionable and highly suspect description and resultant location of the lot lines and the road line boundary. That same deed specifically calls for the northerly and westerly lot line of the parcel as running along the lands of Plain. Therefore, I surveyed and established the northerly and westerly lot line in accordance with the description recited in adjoining deed of record, Doc. #02 2015 5588 and the description recited in the former deed of record, Doc.#02 2006 4148, as conveyed from Plain to Parmeter.

Prepared By:

MICHAEL A. DALBO
Land Surveyor, P.C.
19 Shadow Lane
Poughkeepsie, N.Y. 12601
Tel. (845) 229-9383

File: 4296-41 Crescent Rd.

Parcel Number:

131300-6161-38-139722-0000

Parcel Address: 41 Crescent Road

Title Report Note:

This survey was prepared without the benefit of a title search. Therefore it is subject to any facts that an up to date and accurate title search would reveal.

Copies of this map not bearing the original seal and original signature of the licensed land surveyor who prepared it are not to be considered true or valid reproductions.

It is a violation of the NYS State Education Law for any person(s) to alter this survey map or any item shown hereon in any way, unless they are acting under the direction supervision of a currently registered N.Y. State Licensed Land Surveyor.

This survey map is hereby certified to:

Saba Zaidi & Jose Lugay,
and on their behalf only to;

Estate of Clifford A. Rodd;

WFC National Title Insurance Company

Certifications indicated hereon shall run only to the person(s), company or corporation for whom this survey was prepared, and on their behalf only to the title company, mortgagor and/or lending institution(s) listed hereon. certifications are not transferable to or on behalf of subsequent owners, title insurance companies, mortgagors and/or lending institutions.

Survey For

Saba Zaidi & Jose Lugay

City of Poughkeepsie
Dutchess County, N.Y.

Scale: 1"=10' July 09, 2020

Protected by Copyright © 2020

ParcelAccess | Property Details

FINAL ROLL

Parcel Number
131300-6161-38-133733-0000

Parcel Location
120 S Hamilton St

Municipality
Poughkeepsie City

Owner Name
Blasini, Brenda Lee *(P)*

Primary Owner Mailing Address
10 Sills Ct
Warwick, NY 10990



Parcel Details

Lot Size (acres):	0.53 Ac	**Split Town:**	-
Filed Map:	-	**Agri. District:**	None
File Lot #:	-	**School District:**	(131300) Poughkeepsie City SD
Land Use Class:	(220) 2 Family Res		

Assessment Information (Current)

Land:	Total:	County Taxable:	Town Taxable:	School Taxable:	Village Taxable:
$69,300	$595,200	$595,200	$595,200	$595,200	$0

Tax Code:	Roll Section:	Uniform %:	Full Market Value:
H (Homestead)	1 (Taxable)	100	$595,200

Tentative Roll:	Final Roll:	Valuation Date:
5/1/2023	7/1/2023	7/1/2022

Last Sale / Transfer

Sale Price:	Sale Date:	Deed Book:	Deed Page:	Sale Condition:	No. Parcels:
$165,000	8/28/2015	22015	5588	D	1

Site Information

Site 1

Water Supply:	Sewer Type:	Desirability:	Zoning Code:	Used As:
(3) Comm/public	(3) Comm/public	(2) Typical		-

Residential Building Information

Site 1

Year Built:	Year Remodeled:	Building Style:	No. Stories:	SFLA:	Overall Condition:
1900	-	(14) Other style	2.5	6,418	(3) Normal
No. Bedrooms:	**No. Full Baths:**	**No. Half Baths:**	**No. Kitchens:**	**No. Fireplaces:**	**Basement Type:**
6	3	2	2	0	(4) Full
Central Air:	**Heat Type:**	**Fuel Type:**	**First Story:**	**Second Story:**	**Additional Story:**
No	(3) Hot wtr/stm	(4) Oil	2,520	2,212	0
Half Story:	**3/4 Story:**	**Fin. Over Garage:**	**Fin. Attic:**	**Unfin. Half Story:**	**Unfin. 3/4 Story:**
1,686	0	0	0	0	0
Fin. Basement:	**Fin. Rec Room:**	**No. Rooms:**	**Grade:**	**Grade Adj. Pct.:**	
0	0	14	(C) Average	0	

Improvements

Site 1, Improvement 1

Structure Code:	Dim. 1:	Dim. 2:	Quantity:
(RP2) Porch-coverd	0	0	1
Year Built:	**Condition:**	**Grade:**	**Sq. Ft.:**
1900	(3) Normal	C	300

Site 1, Improvement 2

Structure Code:	Dim. 1:	Dim. 2:	Quantity:
(RP2) Porch-coverd	0	0	1
Year Built:	**Condition:**	**Grade:**	**Sq. Ft.:**
1900	(3) Normal	C	240

Special District Information

Special District: GP000

Special District Name:	Primary Units:	Ad Valorem Value:
Greater Pok Lib Dist	0	$595,200

ABSOLUTELY NO ACCURACY OR COMPLETENESS GUARANTEE IS IMPLIED OR INTENDED. ALL INFORMATION ON THIS MAP IS SUBJECT TO CHANGE BASED ON A COMPLETE TITLE SEARCH OR FIELD SURVEY.

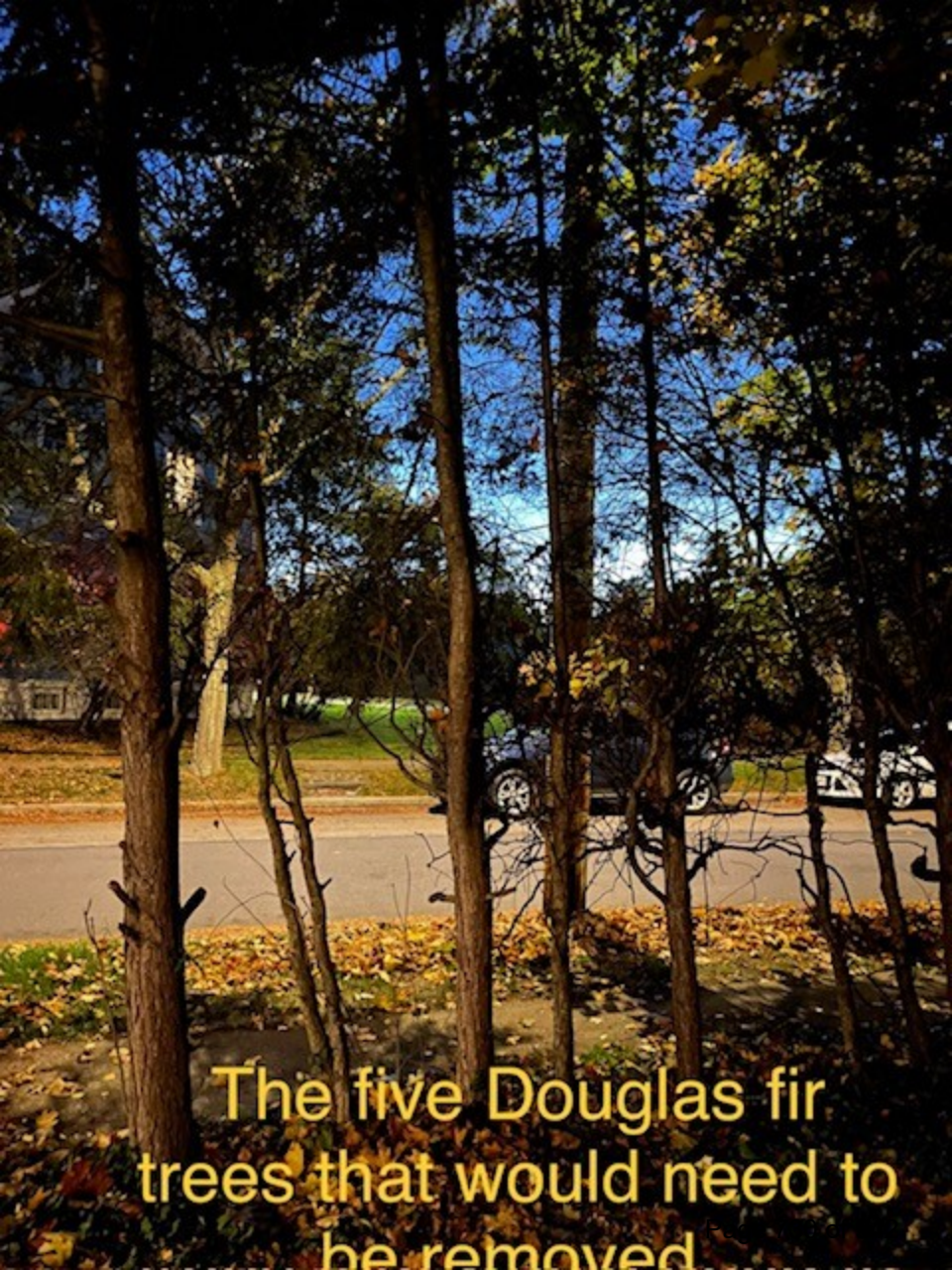
This report was produced using ParcelAccess on 8/30/2023. Developed and maintained by OCIS - Dutchess County, NY.


77"




The five Douglas fir trees


This first panel of the fence can be removed to create more space.


The five Douglas fir
trees that would need to
be removed

Michael A. Dalbo
Land Surveyor, P.C.
19 Shadow Lane
Poughkeepsie, N.Y. 12601

Nov. 14, 2023

Survey Description
for
Saba Zaidi & Jose Lugay
Parcel to be acquired from Blasini

All that parcel of land situate in the City of Poughkeepsie, County of Dutchess and State of New York, bounded and described as follows:

Beginning at a point on the northeasterly line of Crescent Road, marking the southernmost corner of the herein described parcel and the southernmost corner of the first parcel of land conveyed to Blasini in Doc. #02 2015 5588; thence running along the northeasterly line of Crescent Road, along a curve to the right having a radius of 460.00' and a long chord of N40°39'46"W 3.50', for a distance along the arc of 3.50' to a point marking the westernmost corner of the herein described parcel; thence running into, across and through the lands of Blasini, along a new division line, N31°34'10"E 72.08' to the northwest corner of the herein described parcel and S83°37'27"E 3.69' to the northwest corner of the lands conveyed to Saba Zaidi & Jose Lugay described in Doc.# 02 2020 4264; thence running along the westerly line of the last mentioned parcel of land, S31°34'10"W 74.72' to the point of beginning.

Containing 245 square feet of land more or less.

The parcel of land described above is the easterly portion of the first parcel of land conveyed to Blasini in Doc. #02 2015 5588

Michael A. Dalbo
Land Surveyor, P.C.
19 Shadow Lane
Poughkeepsie, N.Y. 12601

Nov. 14, 2023

Survey Description
for
Saba Zaidi & Jose Lugay
(New Combined Parcel)

All that parcel of land situate in the City of Poughkeepsie, County of Dutchess and State of New York, bounded and described as follows:

Beginning at a point on the northeasterly line of Crescent Road, marking the southernmost corner of the herein described parcel and the southwest corner of the lands now or formerly of Oestrike described in Doc. #02 2015 1347;thence running along the northeasterly line of Crescent Road, along a curve to the right having a radius of 460.00' and a long chord of N43°27'55"W 48.48', for a distance along the arc of 48.50' to the westernmost corner of the herein described parcel and the westernmost corner of a 245 square foot parcel of land recently conveyed from Blasini to Zaidi & Lugay; thence running along the westerly line of said parcel, N31°34'10"E 72.08' to the northwest corner of the herein described parcel; thence continuing along the southerly line of the lands now or formerly of Blasini, S83°37'27"E 40.31' to an iron pipe recovered, marking the common rear corner of the herein described parcel and the aforementioned lands of Oestrike described in Doc. #02 2015 1347; thence running along the division line between the herein described parcel and the lands of Oestrike, S25°45'14"W 102.29' to the point of beginning.

Containing 0.08 Acre of land more or less.

DEVELOPMENT DEPARTMENT

CITY OF POUGHKEEPSIE
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845) 451-4006

CITY OF POUGHKEEPSIE
CITY CHARTER
2023 SEP 15 AM 9:57

HISTORIC DISTRICT & LANDMARKS PRESERVATION COMMISSION
CERTIFICATE OF APPROPRIATENES

Meeting date:
09/14/2023

Owner
BRENDA LEE BLASINI
10 Sills Court
Warwick, NY 10990

Applicant
BRENDA LEE BLASINI
10 Sills Court
Warwick, NY 10990

File # PD-2023-080

Tax Parcel ID # 6161-38-133733-0000
ID# 133110

Location
120 S Hamilton St
POUGHKEEPSIE, NY 12601-0000

Project Description:
Lot Line Adjustment of 3 1/2 feet to be removed on the south east side of the porperty located at 120 South Hamilton and added to the adjoining property at 41 Crescent Drive.

HISTORIC DISTRICT & LANDMARKS PRESERVATION COMMISSION ACTION:

The HDLPC hereby certifies that this application meet the criteria for issuance of a certificate of appropriates as set forth in Section 19-4.5(6) of the Zoning Ordinance but is further subject to approval granted that it meets all applicable local zoning and state building codes. Certificates of appropriateness shall be valid for a concurrent period of time with the building permit required to complete the work approved by the certificate of appropriateness or for one year if no building permit is required

Conditions: None

Motion: Brian Hooper

Second: Elisa Li

Votes: Ayes: 4 Nays: 0 Abstentions: 0

Lori L Garcia
Lori Garcia, Board Administrative Assistant

CUDDY +FEDER LLP

300 Westage Business Center, Suite 380
Fishkill, New York 12524
T 845 896 2229
F 845 896 3672
cuddyfeder.com

Alec R. Gladd, Esq.
agladd@cuddyfeder.com

January 16, 2024

BY EMAIL & FEDEX

Hon. Anne Saylor, Chair
And Member of the Planning Board
City of Poughkeepsie
62 Civic Center Plaza, 3rd Floor
Poughkeepsie, New York 12601

Re: Request for Extension of Site Plan and Subdivision Approval
Admiral Halsey II
Premises: 135 Main Street (Tax ID: 6062-76-911183)

Dear Chair Saylor and Members of the Planning Board:

On behalf of Paths Development LLC (formerly Omni New York, LLC) (Applicant), we are writing to request a one-year extension of the Planning Board's two-lot Subdivision and Site Plan Approval (collectively the "Approvals") granted on February 22, 2023 to permit the construction of 72 income restricted senior dwelling units. The Planning Board Approval Letter Packet and the two-lot Subdivision Approval Extension granted on August 15, 2023 are attached for ready reference.

The Applicant is diligently pursuing the conditions of approval and is still waiting on funding from the State of New York for this affordable senior housing development. The Applicant should receive notice sometime this spring. Given the delay from the State, we respectfully submit this request for of the Approvals to be extended to February 22, 2025.

We request this matter be placed on the Planning Board's next available agenda for consideration. In the meantime, should the Planning Board or City Staff have any questions or comments with regard to the foregoing, please do not hesitate to contact me.

Thank you in advance for your consideration in this matter.

Very truly yours,

Alec Gladd

Alec R. Gladd

Enc.

5927260.v2

THE CITY OF POUGHKEEPSIE
NEW YORK
PLANNING & ZONING
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845)451-4006

CITY OF POUGHKEEPSIE
CITY CHAMBERS
2023 AUG 28 AM 10:25

August 15, 2023

135 MAIN STREET: MULTIFAMILY RESIDENTIAL SUBDIVISON

Applications for Site Plan Review and Subdivision for subdivision of 135 Main Street into two lots of record and construction of a new building containing 72 dwelling units on the new lot with the original lot containing an existing 119 unit multiple dwelling, including reconfiguration of off-street parking and open space. Owner: Omni New York; Applicant: Tinkleman Architecture; Consultant: Ken Casamento/LRC Group; Grid #6062-76-911183; Zone: Urban Density Residence (R-6) District; File #2021-037 and 2021-038

Originally approved on 2/22/2023

Dear Applicant,

This letter is to inform you of the action taken at the August 15, 2023 meeting of the Planning Board regarding your request for two (2) ninety-day extensions of validity of the Subdivision approval originally granted on February 22, 2023.

Please be advised that the Planning Board voted unanimously to grant the extension for a period of two (2), ninety-day periods from the expiration of the original approval. This extension is valid until February 22, 2024, for the purposes of resolving the conditions of approval and the receipt of funding from New York State for the affordable senior housing development.

If you have any questions regarding this decision letter, please do not hesitate to contact me.

Sincerely,

Lori L Garcia

Lori L. Garcia
Board Administrative Assistant
Development Department
City of Poughkeepsie
(845) 451-4263

THE CITY OF POUGHKEEPSIE
NEW YORK
PLANNING BOARD
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4623 Fax: (845) 451-4006

March 9, 2023

Tinkelman Architecture
25 Van Wagner Road
Poughkeepsie, NY 12603

RE: **135 MAIN STREET: MULTIFAMILY RESIDENTIAL SUBDIVISION**
Applications for Site Plan Review and Subdivision for subdivision of the property at 135 Main Street into two lots of record and construction of a new building containing 72 dwelling units on the new lot with the original lot containing an existing multiple dwelling with 119 units, including reconfiguration of off-street parking and open space. Owner: Omni New York; Applicant: Tinkleman Architecture; Consultant: Ken Casamento/LRC Group; Grid #6062-76-911183; Zoning District: Urban Density Residence (R-6) District; File #2021-037 and 2021-038

Dear Applicant:

This letter is to inform you of the action taken at the Planning Board meeting held on February 22, 2023, relative to the application for site plan approval referenced above. The Board granted approval of the application in accordance with the attached resolution, with the following conditions:

- Section 19-6.1 of the Zoning Ordinance provides that if the cost of improvements is anticipated to be in excess of $30,000, a performance bond will be established to cover the cost of improvements, based on advice from the City Engineer: following the recommendations of the Engineering Department, a performance bond will be established.

- Upon completion of the project, prior to the issuance of the final certificate of occupancy, an as-built site plan set shall be submitted to the Planning Department for certification of compliance with Planning Board approval

- Comments 1-6 noted on a letter from the engineering department dated 2/7/2023 shall be addressed to the satisfaction of that department.

Please note, all conditions should be written the site plan approval block as well as an index outlining each site plan page with revision date must be located on the cover page of the final plans.

Submit two full size copies of the plans to the Development Department in order to obtain the Planning Board stamp of approval and all required City Department Head sign-offs. One set will be retained by the Development Department and the other set will be returned to you to copy as necessary and apply for any required permits.

Pursuant to section 19-6.1(k)(3)(a), site plan approval by the Planning Board is valid for a period of one year for purposes of obtaining any necessary building permits. Failure to obtain a permit within the time-period shall cause the approval to become null and void. Upon an application requesting an extension, for good cause, the Planning Board may extend the validity of the approval, one time, for a period not to exceed one year.

Please feel free to contact us if you have any questions in this regard.

Sincerely,

Lori L Garcia

Lori Garcia
Board Administrative Assistant

CITY OF POUGHKEEPSIE
CITY CHAMBERS
2023 MAR 10 AM 9:12

Resolution of the City of Poughkeepsie Planning Board
Site Plan Review for Admiral Halsey II, Subdivision & New Construction
135 Main Street
Date: February 22, 2023

Present		**Excused**
Anne Saylor, Chair	Robert Mallory	Marjorie Smith
Paul Ackerman	Brian Veltre	Nick DeLucca
Sean O'Donnell	Rosaura Andújar-McNeil	

WHEREAS, the Planning Board has received applications for the property located at 135 Main Street from Omni New York, LLC, for Site Plan and two-lot Subdivision approval to permit the construction of a new multifamily building, Admiral Halsey II (the "Project"), consisting of 72 income restricted senior dwelling units on a new lot with the original lot containing the existing 13-story Admiral Halsey I multifamily building which consists of 119 income restricted senior dwelling units, and includes reconfigured off-street parking and usable open space which is shared between the two lots and designed to operate as a single-integrated development; and,

WHEREAS, the Project is located in the Urban Density Residence Zoning District (R-6), which district is intended to provide areas for very intense residential development; and,

WHEREAS, the Applications were first presented to the City of Poughkeepsie Planning Board September 21, 2021; and

WHEREAS, the applications were accompanied by the Site Plan prepared by Rodney E. Morrison, LPE, LRC Group, last revised February 3, 2023, and Subdivision Plat prepared by Rodney E. Morrison, LPE, LRC Group, last revised February 3, 2023 and supplemental materials as fully set forth in the attached "Application Materials and Review History"; and,

WHEREAS, the Applications are an Unlisted Action under the State Environmental Quality Review Act ("SEQRA"); and,

WHEREAS, the Planning Board declared its intent to serve as SEQRA Lead Agency and conduct a coordinated review on September 21, 2021; and,

WHEREAS, the Planning Board circulated the Full Environmental Assessment Form and application and plans to all interested and involved agencies; and,

WHEREAS, the Zoning Board of Appeals, at its August 9, 2022 meeting, consented to the Planning Board serving as lead agency for the purposes of SEQRA; and,

WHEREAS, at the September 20, 2022 meeting the Planning Board as Lead Agency of the coordinated SEQRA review adopted a Negative Declaration in accordance with Article 8 of the Environmental Conservation Law and 6 NYCRR 617 and City Code §§ 19-6.4 and 19-4.17; and,

WHEREAS, the Applicant submitted to the New York State Historic Preservation Office (SHPO) and receive a letter stating "No Adverse Effect" dated November 17, 2020 and, after resubmitting changes, again on October 12, 2022; and,

WHEREAS, at the December 22, 2022 meeting of the Zoning Board of Appeals the requested variances were unanimously approved after duly noticed public hearings were held on February 9, 2022, March 8, 2022, May 10, 2022, August 9, 2022, and November 8, 2022; and,

WHEREAS, the Planning Board opened a public hearing on this application on March 15, 2022, and, as the City returned to in-person meetings, re-noticed and re-opened the hearing for the first time on May 17, 2022 and asked the applicant to re-notice the hearing for the second time for the Planning Board's September 20, 2022 meeting due to the length of time between the May and September hearing, which was continued on November 15, 2022, December 20, 2022 and January 18, 2023 when the hearing was closed; and

WHEREAS, the Applicant has developed a robust record in support of the project as set forth in the attached "Application Materials and Review History" incorporated herein by reference, taking into consideration comments of the Planning Board, the Zoning Board of Appeals and the public.

NOW THEREFORE BE IT FURTHER RESOLVED that the City of Poughkeepsie Planning Board hereby grants the following approvals:

1. Final Subdivision approval to 135 Main Street for the creation two lots of record as shown on the subdivision plat dated 6/17/2021, with last revision date of 2/3/2023; and

2. Site Plan approval as shown on the plan dated 11/29/2022, with last revision date of 2/3/2023, for the construction of a new building, Admiral Halsey II, containing 72 dwelling units and 33 off street parking spaces on the new lot as detailed in the above referenced application, and

3. These approvals are subject to the following conditions:

- Section 19-6.1 of the Zoning Ordinance provides that if the cost of improvements is anticipated to be in excess of $30,000, a performance bond will be established to cover the cost of improvements, based on advice from the City Engineer: following the recommendations of the Engineering Department, a performance bond will be established.

- Upon completion of the project, prior to the issuance of the final certificate of occupancy, an as-built site plan set shall be submitted to the Planning Department for certification of compliance with Planning Board approval

- Comments 1-6 noted on a letter from the engineering department dated 2/7/2023 shall be addressed to the satisfaction of that department.

Motion to Approve
Motion: Robert Mallory
Second: Sean O'Donnell
Carried: 6 0 0
Aye Nay Abstention

Lori L. Garcia
Lori L. Garcia
Board Clerk
Planning Board

City of Poughkeepsie Planning Board
Site Plan Review for Admiral Halsey II, Subdivision & New Construction
135 Main Street
Date February 22, 2023

APPLICATION MATERIALS AND REVIEW HISTORY

Date	Description	Author
6/17/21	Subdivision application	Steven Tinkelman, AIA Tinkelman Architecture
6/18/21	Materials Submission	Steven Tinkelman, AIA Tinkelman Architecture
6/22/21	Materials Submission	Steven Tinkelman, AIA Tinkelman Architecture
8/24/21	Zoning Review Letter	Judith Knauss, Deputy Zoning Director
9/21/21	Escrow Established	Planning Board
10/5/21	Materials Submission	Steven Tinkelman, AIA Tinkelman Architecture
10/19/21	Materials Submission	Steven Tinkelman, AIA Tinkelman Architecture
12/2/21	Full EAF Assessment Form Part I	Ken Spillberg
122/21	Materials Submission	Steven Tinkelman, AIA Tinkelman Architecture
12/14/21	Police Department Comments	Agent of Chief Pape
12/16/21	Architectural review letter	Chris Kroner, MASS Design Group
1/3/22	Building Comments	Eric Philipp, Building Inspector
1/19/22	Engineering Form #1	Joseph T. Kane, City Assistant Civil Engineer
2/8/22	Public Comment Letter	Bridge Park Management, LLC
3/1/22	Materials Submission	Tinkelman Architecture and LRC Group
3/22/22	Materials Submission	Tinkelman Architecture and LRC Group
3/15/22	Public Hearing	Public Comments Heard
4/15/22	Detailed evaluation of parking	Philip Grealy, PH.D, PE Colliers Engineering and Design
4/26/22	Materials Submission	Tinkelman Architecture
5/4/22	Materials Submission	Anthony Juliano, Project Architect
5/17/22	Public Hearing	Public Comments Heard
7/20/22	Parking Analysis	Philip Grealy, Colliers
7/26/22	Public Comment Letter	Mary Linge, Hudson River Housing
7/26/22	Materials Submission	Tinkelman Architecture
8/11/22	Materials Submission	Tinkelman Architecture
9/2/22	Materials Submission	Kenneth Casamento, LRC Engineering & Surveying
9/7/22	Fire Department Comments	Joe Franco, Fire Chief
9/9/22	Soil & Materials Management Plan	LRC Group
9/16/22	Fire Department Comments	Joe Franco, Fire Chief
9/20/22	Negative SEQRA Declaration	
9/20/22	Public Hearing	Public Comments Heard
11/29/22	Site Plans	LRC Engineering & Surveying
11/29/22	SWPPP	LRC Engineering & Surveying
12/6/22	Materials Submission	Robert Turner, Tinkelman Architecture
12/19/22	Public Comment Letter	Holy Light Pentecostal Ministries
12/20/22	Public Comment Letter	Dutchess Count Chamber of Commerce

APPLICATION MATERIALS AND REVIEW HISTORY (cont.)

12/20/22	Public Comment Letter	Tim McQueen, McQueen & Associates and VP of Business Outreach & Development at Community Capital New York, Inc.
12/20/22	Public Hearing	Public Comments Heard
12/21/22	Fire Department Comments	Joe Franco, Fire Chief
1/4/23	Materials Submission	LRC Engineering & Surveying
1/10/23	Fire Department Comments	Joe Franco, Fire Chief
1/18/23	Materials Submission	Tinkelman Architecture
1/18/23	Public Hearing	Public Comments Heard
2/7/23	Engineering Form #2	Joseph T. Kane, City Assistant Civil Engineer
2/8/23	Materials Submission	Tinkelman Architecture

THE CITY OF POUGHKEEPSIE

DEPARTMENT OF PUBLIC WORKS & ENGINEERING

SITE PLAN REVIEW
Form #2

1. Date: February 7, 2023
2. Name of Site Plan: Admiral Halsey II
3. Address or Location: 135 Main Street
4. Owner: Omni New York
5. Engineer/ Architect: The LRC Group – Ken Casamento
6. Yes ☐ No ☐ The site plan as forwarded by the Planning Department is acceptable and will be signed off on with no condition(s).
7. Yes ☐ No ☐ The site plan as forwarded by the Planning Department is acceptable and has been signed off on with no condition(s).
8. Yes ☒ No ☐ The applicant should be notified that the Dept. of Public Works/Engineering requires the following comment(s) be addressed:

1. Coordinate with City Fire and City Engineering on final location of new hydrant prior to installation.
2. New hydrant to be American Darling B-62-B-5. No substitutions or exceptions.
3. Provide results of investigation that storm sewer for Admiral Halsey I is connected to storm sewer in Main Street and method of determination.
4. Please provide updated utility report. Utility report provided at resubmission is preliminary and does not reflect all changes made to site plan utilities and/ or previous comments provided on 01/19/2022.
5. Provide updated SWPPP Appendix E – Drainage Area Map to facilitate review.
6. Provide an estimate of costs for site work.

Joseph T. Kane, P.E.
Assistant Civil Engineer

3 PARCELS

TAX ID's : 6061-51-847527
6061-59-788513
6061-59-785480

APPLICATION TO THE PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

Application for Site Plan, Special Permit & Facade Approval

I. **PROPERTY ADDRESS:** 70,72-78 Prospect St & 4 Sunfish Cove Rd

II. **PROPERTY OWNER:** AC Aggregates, LLC
ADDRESS: 228 Myers Corners Road
Wappingers Falls
NY, 12590 (state and zip code)
PHONE NUMBER: (845) 225-8252 (include area code)

III. **NAME OF APPLICANT:** Brian K. Dreeland
ADDRESS: 228 Myers Corners Road
Wappingers Falls
NY, 12590 (state and zip code)
PHONE NUMBER: (845) 225-8252 (include area code)
EMAIL ADDRESS: office@ac-agg.com

(If applicant is NOT the owner, proof of owner's consent to the application MUST be provided.)

IV. **CONSULTANT:** Caesar Engineering D.P.C.
ADDRESS: 367 Windsor Highway 3411
New Windsor
NY, 12553 (state and zip code)
PHONE NUMBER: (845) 275-0230 (include area code)

V. **PROPOSED USE or FAÇADE CHANGE** (Summarize proposed use or uses): 24/7 Material
Yard Storage and Distribution Operations

VI. **ZONING DISTRICT:** I-2

OFFICE USE ONLY

CODE: PLSF

ID #_____

FEE: _____
Total, from:
$500, plus
$_____
($150 per 1000 square feet of floor area), plus
$_____
($35 per number of required parking spaces), plus
$_____
($500 for special permit, if applicable)

(Proceed to XVII for special permit & façade approval only)

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Revised January 2018: Previous Editions Obsolete

3 SEPARATE PARCELS INVOLVED IN OPERATION

PROJECT INFORMATION

New construction: _____(yes) X (no)

Change of use: X (yes) _____ (no)

Expansion/addition: _____ (yes) X (no)

Alteration: _____ (yes) X (no)

Cost of Construction: $ N/A

SEE SITE PLAN

PARCEL 1 – 1.8 Ac
1 Ex. BLDG – ± 3000 SF
LOT COVERAGE – .03
(BLDGS ONLY)

PARCEL 2 – 6.4 Ac
3 Ex. BLDGS – ± 23,827 SF
LOT COVERAGE – .08

PARCEL 3 – 3.5 Ac
VACANT – NO Ex. BLDGS

LOT AND BULK INFORMATION:

Lot area: 11.7 (net) (acres) 509652 (square feet)

Building Footprint: N/A (proposed square feet for new construction)

26,770 (net) (existing square feet for change of use/expansion)

N/A (additional proposed square feet for expansion)

26,770 (net) (total building footprint, square feet)

Lot Coverage: 0.05% (net) (percentage, building coverage only)

Gross Floor Area: N/A (proposed square feet for new construction)

N/A (existing square feet for change of use/expansion)

_____ (additional proposed square feet for expansion)

_____ (total gross floor area, square feet)

Building Height: 9 STORIES (stories) N/A (feet) → PARCEL 2 BLDG VACANT 9 STORY BLDG

Floor Area Ratio: .08 & .03 (ratio of gross floor area divided by lot area)

VIII. PROJECT PARKING INFORMATION

A) Number of Off-Street Parking Spaces required: 4 — 6 ON PARCEL 1

B) Number of Off-Street Parking Spaces provided: 11 → 5 ON PARCEL 2

C) Waiver Requested: _____ (Yes) X (No)

Is municipal parking available within 600 feet? _____ (Yes) X (No)

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If yes, name all such municipal facilities: _____

_____

_____

(If a waiver is requested based on proximity to municipal facilities, a written request for such waiver, addressed to the City Planning Staff and the Chairman of the Planning Board, must be submitted with the application.)

If a private parking facility is to be utilized, is such facility within 600 feet?

_____ (Yes) X (No)

If yes, provide the address of the facility, name of the property owner, number of spaces in the lot, number of spaces available for lease, and length of lease. Attach copy of lease. Additional information may be required by the Planning Board):

_____

_____

_____

_____

IX. RESIDENTIAL PROPOSALS

A) Type of Development: N/A
(Townhouse, condominium, multiple residence rental, etc.)

B) Unit Breakdown:

Number of efficiency or "studio" units: _____

Number of one (1) bedroom units: _____

Number of two (2) bedroom unit's _____

Number with three or more bedrooms: _____

Total number of units: _____

C) Is funding public? ____ Yes ____ No

If yes, describe funding source: _____

X. OFFICE PROPOSALS (____ Medical/Dental ____ Professional ____ Business)

A) Number of Employees: N/A

B) Number of doctors/dentists/medical practitioners: _____

C) Days/Hours of Operation: _____

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XI. SERVICE BUSINESS PROPOSALS

A) Specify Business: N/A
(e.g., laundromat, drycleaner, beauty parlor, travel agency, banks)

B) Number of Employees: _____

C) Number of Washing Machines (for laundromat): _____

D) Days/Hours of Operation: _____

XII. MERCANTILE PROPOSALS (Retail _____ Wholesale _____)

A) Type of Mercantile (specify): N/A

B) Number of Employees: _____

C) Days/Hours of Operation: _____

XIII. STANDARD RESTAURANT/FAST FOOD RESTAURANT/COFFEE SHOP/DONUT SHOP/NIGHTCLUB/DISCOTHEQUE/BAR PROPOSALS

A) Specify Use: N/A

B) Number of seats (excluding bar stools and outdoor seating): _____

C) Meals served (i.e., breakfast, lunch, dinner): _____

D) Type of Menu: _____

E) Days/Hours of Operation: _____

F) Entertainment (live and/or recorded): _____

G) Will the restaurant contain a bar/lounge?: _____ Yes _____ No

H) If yes, how many seats at the bar? _____

I) Is a drive-through window proposed? _____

J) Is a walk-up window proposed? _____

K) Is an outdoor seating area proposed? _____

L) If yes, how many seats are proposed? _____

M) If yes, is outdoor cooking proposed? _____

XIV. INDUSTRIAL/COMMERCIAL PROPOSALS (Automobile repair, taxi, motor vehicle sales, warehouse, manufacturing, animal hospital, research facilities, etc.)

A) Specify Use: Aggregate Storage & Distribution by Conveyors, and Trucks

B) Number of shifts (if any): 3

C) Number of employees: 4
(If shifts are proposed, list number of employees per shift)

E) Number of work bays (if automobile repair): N/A

F) Days/Hours of operation: 24/7

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XV. EDUCATIONAL/INSTITUTIONAL/RECREATIONAL PROPOSALS (e.g., Museums, Theatres, Conference Centers, Hotels, Motels, Hospitals, Nursing Homes, Assisted Living Facilities, Nursery Schools, Private Schools, Day Care Centers, Places of Worship, Marinas, Membership Clubs, etc.)

A) Specify: N/A

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

D) Number of beds (hospitals, nursing homes, etc): _____

E) Number of seats in largest assembly space: _____

F) Number of classrooms (schools): _____

G) Number of rental units (hotels, motels, etc.) _____

H) Number of boat slips/courts (e.g., tennis, handball, etc.), alleys: _____

I) Days/Hours of Operation: _____

XVI. PROPOSALS NOT MENTIONED ABOVE (Please be specific):

Temporary lights used throughout site via portable trailers

Portable toilets deployed at work sites as shown on site plan

Non-permentant truck scale, 40 foot, and 20 foot construction trailers deployed

Use of barge at the dock, conveyors, and trucks to conduct sand pile operations.

Three foot by four foot sign at entrance to the work site w/ all safety requirements

XVII. APPLICANT CERTIFICATION

I, NMJ CAESAR, P.E, certify that the this application has addressed the objectives outlined in the Zoning Ordinance with consideration given to the public health, safety and welfare; the comfort and convenience of the public in general or the residents or users of the proposed development and of the immediate neighborhood.

The applicant certifies that all information contained herein is accurate and complete as of the date of this application.

Signature of Applicant

16 MAR 23
Date

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MAR 17 2023

* SEE OWNERS AUTHORIZATION FORM DATED 17 MAR 2023

Project P187: Prospect St. Site Plan

Date: 17MAR23

Caesar Engineering D.P.C.

367 Windsor Highway #411
New Windsor, New York, 12553
845.275.0230
contact@caesarengineering.work
www.caesarengineering.work

To: City of Poughkeepsie Building, Planning, Zoning

From: Nicholas Caesar, P.E., Project Engineer
on behalf of AC Aggregates, LLC, Project Sponsor

Members of the board,

Our firm is submitting a site plan approval application on behalf of our client and the project sponsor, AC Aggregates, LLC for a material storage and distribution operation on their existing property. This location comprises three parcels as shown in the attached site plan. Those parcels are contiguous and their addresses are 70 Prospect St., 72-78 Prospect St, and 4 Sunfish Cove Rd., which are all located in Poughkeepsie, NY, zip code 12601.

In summary, our client wishes to operate a temporary material and distribution operation with the intent to ship in aggregate material and distribute it to local and regional customers. The current site currently has no activity occurring besides routine property management functions.The site has been predominantly industrial in most of its active history and remains zoned industrial to this day (Zoning District I-2). The project sponsor intends to conduct operations with temporary equipment to allow for flexible operation of the site with a reduced footprint. As such there are no permanent features proposed as a part of this application package. Aggregate material will be shipped in via barge . Material will be offloaded using material conveyors to a predefined material confinement area. At the location of storage, aggregates will be loaded onto truck transport intended for delivery to local and regional customers. Before leaving the site, the trucks will be weighed on a portable truck scale located at the entrance to the site. We are ready and able to answer any questions you may have and we look forward to working with your office on this request.

Thank you for your time and effort,

Very respectfully,

NMJ Caesar, P.E

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MAR 17 2023

DATED 17 MARCH 2023
NC

Please see the below photos of the existing site conditions:

Figure 1: Existing dock location on 72-78 Prospect St.. Facing NW

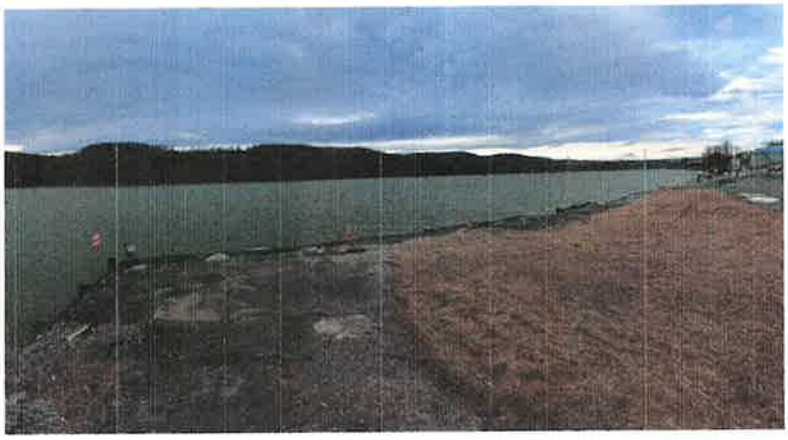

Figure 2: Proposed location of sand storage and loading operation. Facing South.



Figure 3: Shjowing proposed location of portable truck scale at site entrance. Facing North



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Caesar Engineering D.P.C.
367 Windsor Highway #411
New Windsor, New York, 12553
845.275.0230
contact@caesarengineering.work
www.caesarengineering.work

To: City of Poughkeepsie Departments & Boards

From: Nathaniel Gooden, P.E., Project Engineer
on behalf of AC Aggregates, LLC, Project Sponsor

Subject: AC Aggregates Industrial Site Plan Update Letter

January 10th, 2024

Dear City Officials, Board Members, and Department Heads,

Our firm is submitting an updated site plan for approval on behalf of our client and the project sponsor, AC Aggregates, LLC for a building material storage and distribution operation. The attached site plan dated 10JAN24 is a revision to the previously submitted site plan and materials dated 03OCT23. This revision is due to the project sponsor receiving feedback from the City of Poughkeepsie Zoning Department. Since the project sponsor's last appearance before the planning board on July 18th, 2023, the project's development team has met with the City of Poughkeepsie Waterfront Advisory Committee, the New York State Department of Environmental Conservation (DEC), the City of Poughkeepsie's Department of Zoning, and other stakeholders. This cover letter is intended to provide an update following those meetings.

As stated before, the project sponsor wishes to operate a building material distribution operation with the intent to receive and store approved building materials and distribute them to local and regional customers. The proposed site plan encompasses three contiguous parcels in the City of Poughkeepsie, specifically 70 Prospect St. (Tax ID: 6061-51-827527), 72-78 Prospect St (Tax ID: 6061-51-788513), and 4 Sunfish Cove Rd. (Tax ID: 6061-59-785480). A point of emphasis to be made is that the project sponsor fully intends to store approved building materials as of right per the City of Poughkeepsie zoning regulation 19-3.30(2). It has been and continues to be communicated that clean sand aggregate is the primary building material to be distributed, however, the project sponsor intends to store other approved building materials as of right per zoning regulations.

Due to the constraints of the site and that part of its location is in the Hudson River floodplain, the project sponsor is planning to pursue this project in two phases. The benefit is that it allows the project sponsor to determine economic feasibility early on before pursuing more capital-intensive investments (in Phase 2). As shown in the attached site plan, Phase I entails receiving material via

a barge or similar (transiting via the Hudson River) and storing it at a location above the 100-year flood plain. One notable change since the last submission on 03OCT23 is that the project sponsor does not intend to use a continuously anchored spud barge in Phase 1. This is because the primary supplier of building materials has informed the client that they will use their own barges with self-offloading capabilities (via onboard crane). Therefore the use of the spud barge should no longer be considered in Phase 1. Phase 2 (the main course of action) involves improving the portions of the site by raising it out of the 100-year flood plain and offloading materials from barges using material conveyors. Doing so makes the operation more cost-effective and efficient in the long run. The project sponsor may use a spud barge or similar platform in Phase 2 if desired. If that is the case, the project sponsor will apply for the applicable permits from relevant authorities (i.e. DEC, USACE).

It is expected that more capital and time will be required to meet the resource and regulatory needs for Phase 2. As such, the project sponsor requests approval for Phase 1 first (which proposes no physical changes to the site). The project sponsor would also like to obtain a vote on conditional approval for Phase 2 once the requirements for floodplain development and the DEC are met. The intent is to facilitate a more streamlined process and avoid repeated applications to save time and resources for the project sponsor and city staff. Being that the submitted document is a site plan only, the project sponsor intends to work closely with the building department, DPW, and the project's design team to execute the more technical requirements of this phase.

The project development team met with the DEC on October 23, 2023, the DEC has indicated that an MSGP permit (SWPPP) would not be applicable upon initial review (particularly for Phase 1 as there is no change in any physical features or impervious surfaces of the site). However, the DEC has indicated that Phase 2 would require a Docking, Moorings, and Platforms permit. Additionally, no hazardous materials or waste outside of approved building materials are proposed to be stored at the site so the project sponsor does not intend to apply for coverage for those activities. The United States Army Corps of Engineers (USACE) NY District has also provided feedback as of 16NOV23, communicating that a permit and/or review would be needed if any work is templated to be below the Hudson River High Water/Tide marks, a new dock is constructed, or long term use of a spud barge is proposed. At this time the project sponsor does not intend to perform any work, improvements, or changes to areas below the Hudson River High Water/Tide marks. However, the project sponsor will request a review for the long-term use of a spud barge in Phase 2 if they choose to use one.

As a point of summary, the project sponsor estimates that there will be approximately 3 barges per month and approximately 25 truck trips per day to/from the site. As such it is reasonable to determine that the increase in traffic is not significant using Table 1 in the Full Form Environmental Assessment Form Workbook under SEQRA. The primary truck routes will utilize route 9D which

bypasses local roads. A traffic diagram dated 03OCT23 is provided as an attachment for reference. Operations are intended to be 24 hours/day, however, operations in the evening hours will be limited to the core function of offloading vessels (barges) that deliver materials throughout the night. The operation will employ upwards of 4 employees during the largest shift. Loading and trucking will take place during regular daytime business hours. There is adequate space on the site to receive and temporarily hold trucks as they await their respective shipping loads. A site supervisor will be present to manage operations and traffic on the site.

As a part of this latest submission, you will find a revised response letter to comments received to date which should offer more information on the intended actions for this site plan. You can contact our office if you have any questions. Our firm can be reached via the information provided on the front page of this letter. You can reach the project sponsor via the contact information below:

AC Aggregates, LLC
228 Myers Corners Road
Wappingers Falls, NY 12590
Ph: 845-225-8252
Email: office@ac-agg.com

We look forward to discussing this plan with you for approval.

Thank you for your time and effort,



Nathaniel Gooden, P.E.

Please see aerial photos of the site below:

Figure 1: 70 Prospect St. (TAX ID: 6061-51-827527) Facing N

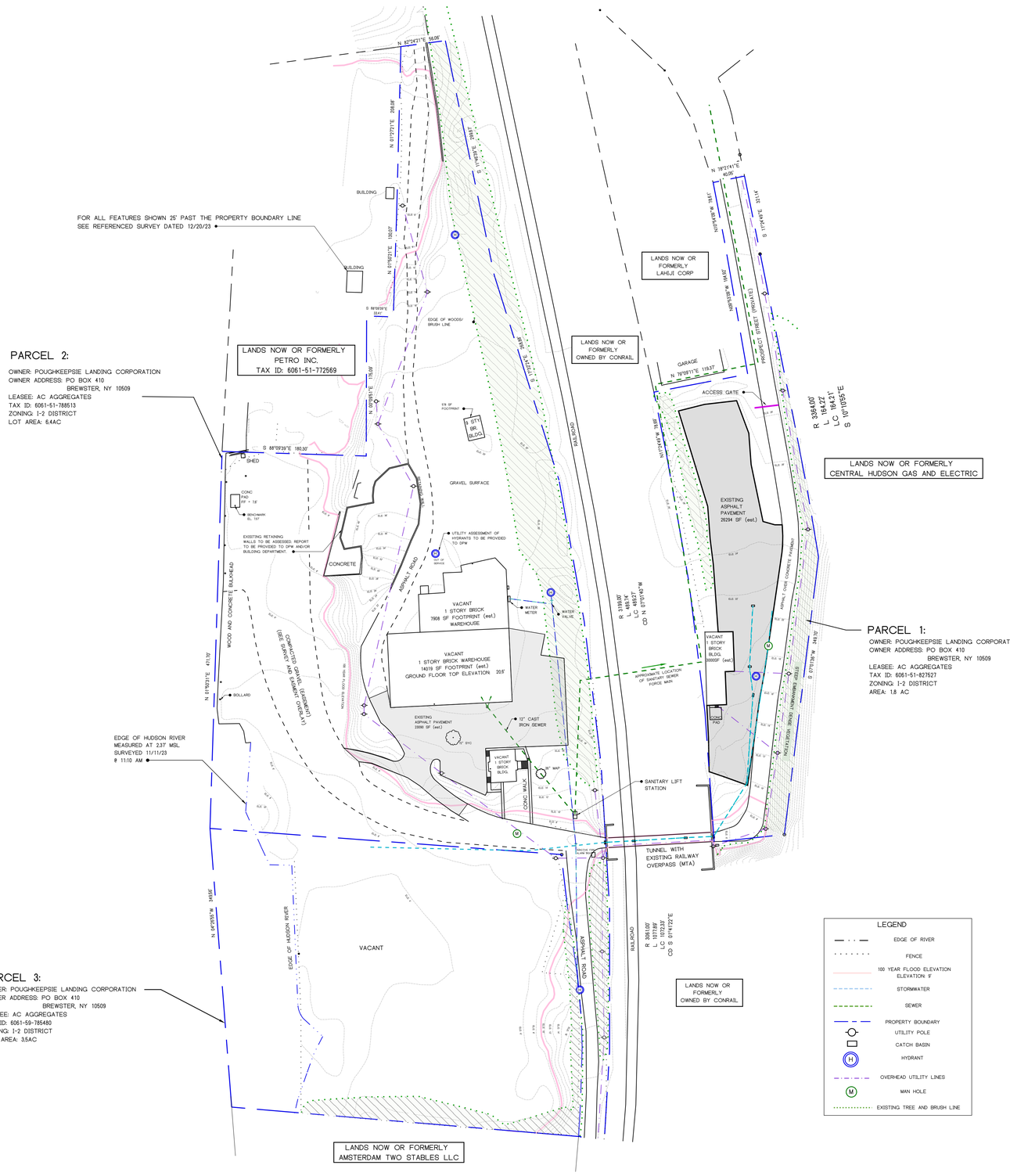


Figure 2: 72-78 Prospect St. (TAX ID:6061-51-788513) Facing NE



A1 EXISTING CONDITIONS & UTILITIES OVERVIEW





SCALE: 1" = 70'

00 01 02 04

Know what's below. Call before you dig.

VICINITY MAP

SHOWING: DUTCHESS COUNTY TAX MAP SECTION 6061.51 & 6061.59



ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12601

ZONING: I-2

OWNER: POUGHKEEPSIE LANDING CORPORATION
OWNER ADDRESS OF ALL SUBJECT PARCELS:
PO BOX 410
BREWSTER, NY 10509

PROPERTY SURVEY NOTES: SURVEY DATA WAS TRANSCRIBED FROM A PROPERTY SURVEY THAT WAS SUPPLIED BY THE OWNER. THIS SURVEY WAS PERFORMED BY A LICENSED LAND SURVEYOR REGISTERED AND ACTIVE IN NEW YORK STATE AT THE TIME OF THE SURVEY. THIS PROPERTY SURVEY WAS REPLICATED AND ASSUMPTIONS MADE FROM THIS SURVEY HAVE DIRECT REFLECTIONS IN THIS DESIGN. REFERENCE SHALL BE MADE TO ORIGINAL SURVEY FOR VERIFICATION OR CONFIRMATOIN OF SITE FEATURES OR BOUNDARIES.

SURVEY PERFORMED ON DATE: DECEMBER 20, 2023
SURVEY PERFORMED BY: CARNEY RHINEVAULT LIC NO. 49097
CARNEY RHINEVAULT SURVEYING

GENERAL NOTES:

1. ALL EXISTING BUILDINGS ON THE THREE PARCELS IN FOCUS ARE VACANT AND WILL REMAIN VACANT AND SECURED AS PART OF THIS SITE PLAN. ANY FUTURE ALTERATIONS TO THESE BUILDINGS WILL FOLLOW MUNICIPAL REGULATIONS AS REQUIRED. THE PROPOSED PLAN DOES NOT INCLUDE A CHANGE IN OCCUPATION OR USE OF ANY OF THE EXISTING BUILDINGS ON THE SITE.

2. SEE REFERENCED SURVEY FOR FEATURES 25' BEYOND THE PROPERTY LINES, ISOLATED TREES, OR OTHER PERTINENT INFORMATION.

3. EXISTENCE AND LOCATION OF UTILITIES SHOWN IS FOR REFERENCE ONLY. NO CHANGE TO UTILITIES ARE PROPOSED. UTILITIES MAY HAVE BEEN ALTERED OR CHANGED SINCE THE DATE OF THE INITIAL SURVEY. THE PROJECT SPONSOR SHOULD CONSULT THE APPROPRIATE PROFESSIONAL TO PERFORM A DEDICATED UTILITY SURVEY IF ALTERATIONS OR IMPROVEMENTS SHOULD BE MADE.

4. NO EASEMENTS, DEED RESITRICTIONS, PUBLIC AREAS, CONVENANTS, ETC. ARE PROPOSED IN THIS SITE PLAN. PLEASE SEE REFERENCE SURVEY DATED 20DEC23 FOR EXISTING EASEMENTS.

WARNING: IT IS A VIOLATION OF NEW YORK STATE EDUCATIONAL LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATIONAL LAW SECTION 7209.2

ONLY MAPS OR DRAWINGS WITH EMBOSSED OR TRUE INK SEALS WITH THE SIGNATURE AND DATE OF THE PROFESSIONAL ENGINEER ARE GENUINE COPIES OF THE ORIGINAL WORK AND OPINION. MAPS NOT BEARING EMBOSSED OR TRUE INK SEALS WITH A CORRELATED SIGNATURE SHOULD NOT BE RELIED UPON SINCE OTHER COPIES MAY CONTAIN UNAUTHORIZED AND UNDETECTABLE MODIFICATIONS, DELETIONS, ADDITIONS, AND OR CHANGES.

NO ONE EXCEPT THE ENGINEER WHOSE NAME AND SIGNATURE THAT HAVE BEEN AFFIXED TO THIS DOCUMENT OR SET OF DOCUMENTS MAY MAKE ANY ALTERATION WITHOUT EXPRESS WRITTED CONSENT OF THIS INDIVIDUAL.

OWNERSHIP OF DOCUMENTS: THE ENGINEER IN THIS TRANSACTION PROVIDES A SERVICE TO THE OWNER OR CLIENT NOT A PRODUCT OR WORK FOR HIRE. THESE AND OTHER DOCUMENTS ARE PRODUCED IN CONVEYANCE OF INFORMATION AND ARE INSTRUMENTS OF THAT SERVICE PROVIDED. THE CLIENT OR OWNER DOES NOT OWN THE DOCUMENTS NOR ARE THEY TO BE USED WITHOUT EXPRESS CONSENT AND CONSULTATION OF THE ENGINEER. ALL INSTRUMENTS OF SERVICE ARE ALL RIGHTS RESERVED BY THE ENGINEER.

ANYONE WHO CHOOSES TO HAVE THESE DOCUMENTS ALTERED IN ANY WAY WITHOUT THE CONSENT OF THE ENGINEER WILL BE PROSECUTED TO THE FULLEST EXTENT OF THE LAW.

COMMON ABBREVIATIONS REFERENCED	
IAW: IN ACCORDANCE WITH IVO IN THE VICINITY OF P.T. : PRESSURE TREATED P.C. PUMP CHAMBER SF: SQUARE FOOT CF: CUBIC FOOT CL: CENTER LINE SCH SCHEDULE T.A. : TRIBUTARY AREA E.O.R. : ENGINEER OF RECORD	CY: CUBIC YARD O.C. : ON CENTER W/: WITH W/O WITH OUT CLF: CHAIN LINK FENCE est.: ESTIMATED MSL: MEAN SEA LEVEL

PAGE #	SHEET INDEX	SHEET NAME
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2	A2	PROPOSED CONDITIONS PHASE 1
3	A3	PROPOSED CONDITIONS PHASE 2
4	A4	70 PROSPECT ST. SITE PLAN PHASE 1 AND 2
5	A5	72-78 PROSPECT ST. SITE PLAN PHASE 1 AND 2
6	A6	4 SUNFISH COVE RD. SITE PLAN PHASE 2
7	A7	PROPOSED EQUIPMENT & DETAILS 1
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9	A9	

NATHANIEL GOODEN, P.E.
LIC. NO. 106240
REGISTERED THRU 31JUL'25
FIRM AUTHORIZATION# 0020128

NOT FOR CONSTRUCTION

COMPANY: CAESAR ENGINEERING D.P.C.	DATE: 10JAN24	PROJECT SPONSOR NUMBER: 845.225.8252
CONTACT: 845.275.0230 contact@caesarengineering.work	DESIGNED BY: NG / NC	PROJECT SPONSOR: AC AGGREGATES, LLC.
BUSINESS ADDRESS: 367 WINDSOR HWY #411 NEW WINDSOR, NY, 12553	DRAWN BY: NG / NC	PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590
PROJECT: AC AGGREGATES INDUSTRIAL SITE PLAN	PROJECT NUM: P187	PROJECT ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12601

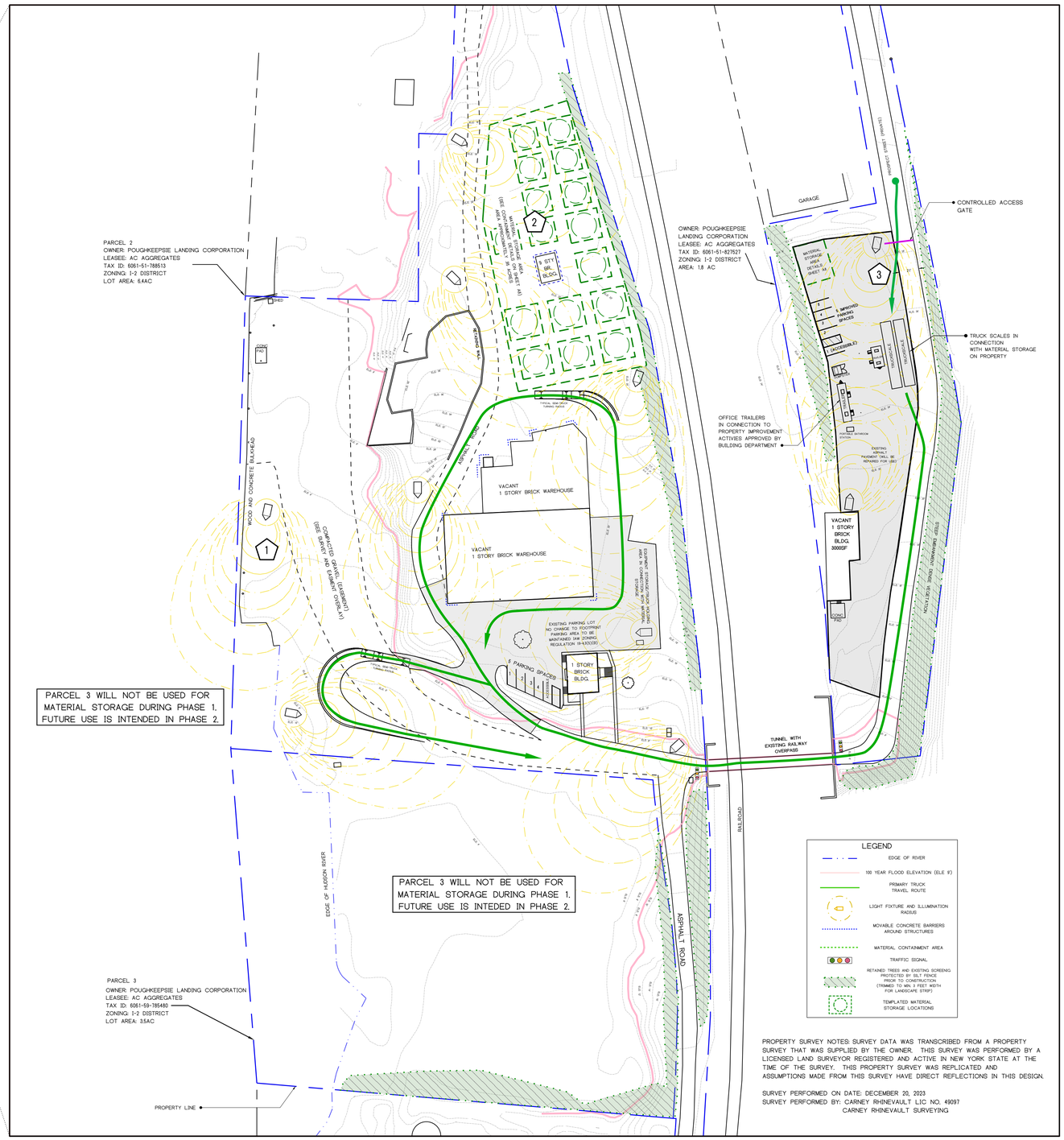
DATE	REVISION DESCRIPTION	REV #

SHEET IDENTIFICATION
A1
EXISTING CONDITIONS & UTILITIES OVERVIEW
SHEET 1 OF X TOTAL SHEETS

A2 PROPOSED CONDITIONS PHASE 1

SHOWING OVERVIEW OF PROPOSED CONDITIONS (ALL PARCELS - PHASE 1)

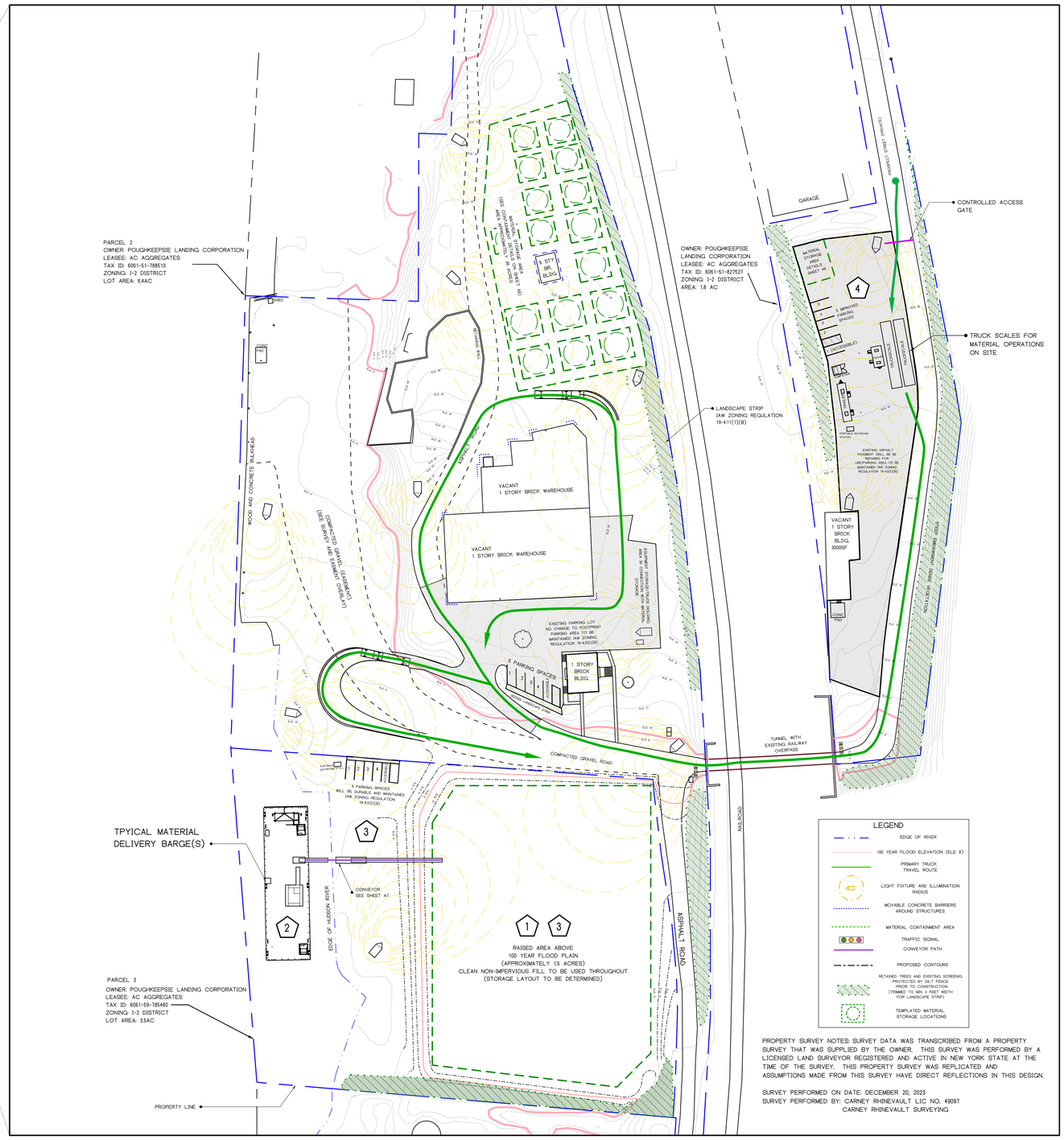
SCALE: 1" = 60'


PARCEL 2
OWNER: POUGHKEEPSIE LANDING CORPORATION
LEASEE: AC AGGREGATES
TAX ID: 6061-51-788513
ZONING: I-2 DISTRICT
LOT AREA: 6.4AC
SHED
CONC PAD
WOOD AND CONCRETE BULKHEAD
CONCRETE GRAVEL (ELEVATED) (SEE SECTIONS AND ELEVATIONS OVER A1)
VACANT
1 STORY BRICK WAREHOUSE
VACANT
1 STORY BRICK WAREHOUSE
EXISTING PARKING LOT NO CHANGE TO FOOTPRINT PARKING AREA TO BE MAINTAINED SAW ZONING REGULATION 19-4.6(D)(8)
1 STORY BRICK BLDG.
5 PARKING SPACES
1 STORY BRICK BLDG.
1 STORY BRICK BLDG.
ASPHALT ROAD
PARCEL 3 WILL NOT BE USED FOR MATERIAL STORAGE DURING PHASE 1. FUTURE USE IS INTENDED IN PHASE 2.
PARCEL 3 WILL NOT BE USED FOR MATERIAL STORAGE DURING PHASE 1. FUTURE USE IS INTEDED IN PHASE 2.
EDGE OF HUDSON RIVER
PARCEL 3
OWNER POUGHKEEPSIE LANDING CORPORATION
LEASEE: AC AGGREGATES
TAX ID: 6061-59-785480
ZONING: I-2 DISTRICT
LOT AREA: 3.5AC
PROPERTY LINE
OWNER: POUGHKEEPSIE LANDING CORPORATION
LEASEE: AC AGGREGATES
TAX ID: 6061-51-827527
ZONING: I-2 DISTRICT
AREA: 1.8 AC
GARAGE
CONTROLLED ACCESS GATE
MATERIAL STORAGE AS DETAILED SHEET A5
5 IMPROVED PARKING SPACES
SCALE
PORTABLE BATHROOM STATION
EXISTING ASPHALT PAVEMENT TO BE REPAIRED FOR USE
TRUCK SCALES IN CONNECTION WITH MATERIAL STORAGE ON PROPERTY
OFFICE TRAILERS IN CONNECTION TO PROPERTY IMPROVEMENT ACTIVIES APPROVED BY BUILDING DEPARTMENT
VACANT
1 STORY BRICK BLDG.
30000SF
CONC PAD
TUNNEL WITH EXISTING RAILWAY OVERPASS
RAILROAD
EXISTING CHAIN LINK FENCE
EXISTING ASPHALT PAVEMENT TO BE REPAIRED FOR US

A3 PROPOSED CONDITIONS PHASE 2

SHOWING OVERVIEW OF PROPOSED CONDITIONS (ALL PARCELS - PHASE 2)

SCALE: 1" = 60'



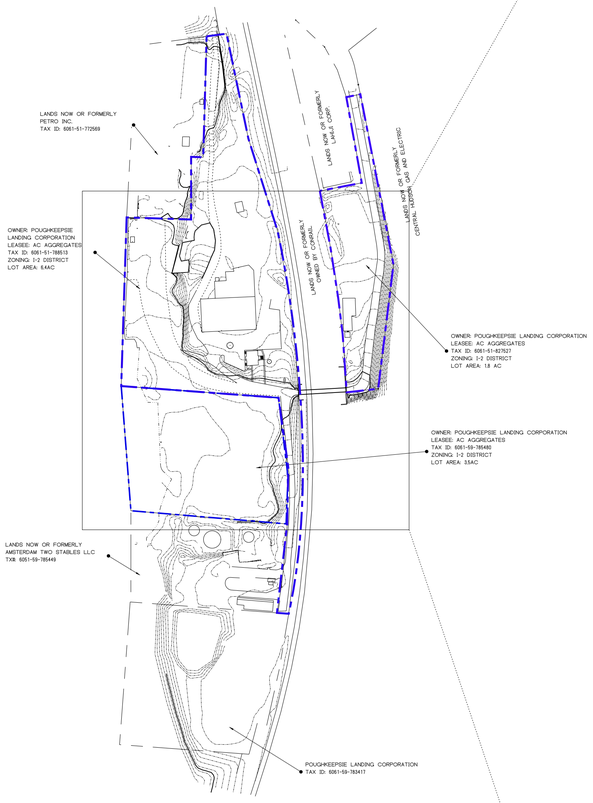
PROPERTY SURVEY NOTES: SURVEY DATA WAS TRANSCRIBED FROM A PROPERTY SURVEY THAT WAS SUPPLIED BY THE OWNER. THIS SURVEY WAS PERFORMED BY A LICENSED LAND SURVEYOR REGISTERED AND ACTIVE IN NEW YORK STATE AT THE TIME OF THE SURVEY. THIS PROPERTY SURVEY WAS REPLICATED AND ASSUMPTIONS MADE FROM THIS SURVEY HAVE DIRECT REFLECTIONS IN THIS DESIGN.

SURVEY PERFORMED ON DATE: DECEMBER 20, 2023
SURVEY PERFORMED BY: CARNEY RHINEVAULT LIC NO. 49097
CARNEY RHINEVAULT SURVEYING

SCALE: SEE VIEWS

00 01 02 03

PROSPECT STREET SITE MAP



SCALE: 1" = 200'

KEYED NOTES

1. CLEAN FILL MATERIAL IS POSITIONED ON SITE TO RAISE A PORTION OF LAND (APPROXIMATELY 1.5 ACRES) ON PARCEL# 6061-59-785480 OUT OF THE 100 YEAR FLOOD PLAIN TO ELEVATION 10 AS SHOWN. THIS PORTION OF LAND WILL THEN BE USED TO STORE PPROVED BUILDING MATERIAL.
2. OFFLOADING OF APPROVED BUILDING MATERIAL FROM A DELIVERY BARGE. DELIVERY BARGE WILL HAVE OWN OFFLOADING CAPABILITIES. SEE SHEET A8 FOR TYPICAL BARGE.
3. MATERIAL IS CONVEYED UP TO NEWLY CREATED ELEVATION 10 ON PARCEL# 6061-59-785480 WHERE IT IS CONFINED IN STOCKPILES. STOCKPILES SHALL NOT EXCEED HEIGHT OF SCREENING. TRUCK TRANSPORTS TO BE LOADED WITH MATERIAL FOR DELIVERY TO CUSTOMERS OFF SITE. SEE SHEET A8 FOR MATERIAL CONFINEMENT DETAILS.
4. A PORTABLE TRUCK SCALE, SCALE HOUSE, AND OFFICE WILL BE SET UP TO EXECUTE WEIGHING AND OPERATIONAL CONTROL FOR BUILDING MATERIAL STORAGE. CONSTRUCTION TRAILERS WILL BE USED IN CONNECTION WITH PARCEL IMPROVEMENT ACTIONS AS APPROVED BY BUILDING DEPARTMENT.

GENERAL NOTES:

1) THE PROJECT SPONSOR WISHES TO EXECUTE APPROVED MATERIAL STORAGE AND DISTRIBUTION OPERATIONS WITHIN THEIR CURRENT CONTIGUOUS PARCEL(S) (TAX IDS: 6061-51-827527; 6061-51-788513; AND 6061-59-785480). THE PROPOSED ACTION IS PROPOSED TO BE SPLIT INTO 2 PHASES. THIS SHEET SHOWS OPERATIONS DURING PHASE 2. DURING PHASE 2 ALL PARCELS WILL BE UTILIZED FOR OPERATIONS. OPERATIONS WILL CONSIST OF BRINGING IN APPROVED BUILDING MATERIAL VIA OFFSHORE VESSEL AND OFFLOADING AND MOVING IT VIA PORTABLE MECHANICAL CONVEYORS TO MATERIAL STOCK PILES. THE MATERIAL WILL THEN BE HAULED OFF-SITE FOR DELIVERY TO CUSTOMERS. MATERIAL CONFINEMENT WILL BE ACHIEVED BY MOVABLE PRE-CAST CONCRETE BLOCK WALLS (SEE SHEET A8).
2) A PORTION OF PARCEL #6061-59-785480 (4 SUNFISH COVE RD) WILL BE RAISED OUT OF THE 100-YEAR FLOOD PLAIN TO ELEVATION 10.ad THIS NEW HIGHER AREA WILL SUPPORT THE MATERIAL STOCKPILES PROPOSED AND MITIGATE THE EFFECTS OF FLOODING EVENTS AT OR BELOW THE 100-YEAR STORM.
3) OPERATIONS WILL BE 24/7 CONSISTING OF 4 PERSONNEL. OFF-STREET PARKING WILL BE AVAILABLE AS SHOWN. TRUCK LOADING AND DELIVERY WILL TAKE PLACE DURING DAYTIME OPERATING HOURS. CONDITIONS/OPERATIONS PORTABLE RESTROOMS WILL BE DEPLOYED AT WORK LOCATIONS FOR PERSONNEL AND DRIVERS.
4) SITE LIGHTING USED THROUGHOUT. SEE DETAIL ON SHEET A7 FOR POWER AND TIME OF USE.
5) PORTABLE RESTROOMS WILL BE DEPLOYED AT WORK LOCATIONS FOR PERSONNEL AND DRIVERS.
6) THE LOCATIONS OF ALL PROPOSED ITEMS ON THE ABOVE PLAN ARE BASED ON THE MOST LIKELY BUSINESS SCENARIO AND SHOULD BE TAKEN AS IDEAL. HOWEVER, THE NATURE OF ALL OF THE ITEMS PROPOSED IS THAT THEY ARE FULLY PORTABLE AND WILL LIKELY BE MOVED AROUND THE SITE TO ACCOMPLISH THE MOST OPTIMIZED SETUP FOR THE INTENDED OPERATIONS. ALL ITEMS CAN BE MOVED, IF REQUIRED, AND WILL LIKELY BE MOVED MANY TIMES THROUGHOUT THE DURATION OF THE PROJECT SPONSOR'S OCCUPATION OF THIS SITE. THE EQUIPMENT AND MACHINES PROVIDED ARE INTENDED TO SHOW HOW THE SITE WILL BE USED ON A TYPICAL TRANSACTION, HOWEVER ADDITIONAL EQUIPMENT AND ADDITIONAL TYPES OF EQUIPMENT WILL BE BROUGHT TO AND USED ON THE SITE.
7) AT THIS TIME, THIS PLAN DOES NOT INCLUDE A CHANGE IN THE UTILIZATION OF ANY OF THE EXISTING BUILDINGS ON THE SITE. BUILDINGS SHALL REMAIN VACANT, BE SECURED, AND CLOSED OFF TO UNAUTHORIZED PARTIES. NO NEW BUILDINGS ARE PROPOSED.
8) ALL DISTURBED AREAS SHALL BE SEEDED WITH GRASS TO PREVENT EROSION IAW ZONING REGULATION 19-4.11(1)(B). A 3-FOOT WIDE LANDSCAPE BUFFER CONSISTING OF EXISTING VEGETATION WILL BE MAINTAINED ALONG ALL MAJOR VISUAL BOUNDARIES AS SHOWN ON THE SITE PLAN.

BULK TABLE NOTES:

I-2 ZONING PERMITTED USES: No building or premises shall be used, in whole or in part, for any purpose except those listed below:

Uses permitted by right:
1. ... Terminals and building material storage and sale, but excluding storage of coal, coke, fuel oil or junk.

MINIMUM PARKING REGULATIONS:

INDUSTURIAL AND HEAVY COMMERCIAL USE: 1 SPACE FOR EACH EMPLOYEE ON THE LARGEST SHIFT.

NUMBER OF EMPLOYEES ON LARGEST SHIFT: 4

MINIMUM NUMBER OF PROVIDED OFF STREET PARKING SPACES FOR ALL PARCELS: 5 (4 STANDARD & 1 ACCESSIBLE)

ZONING DISTRICT I-2
BULK TABLE REQUIREMENTS: PARCEL 1
TAX ID: 6061-51-827527

ITEM	REQUIRED	EXISTING	PROPOSED
LOT AREA	NONE	1.8 AC	NO CHANGE
REAR YARD	20'	153'	NO CHANGE
FRONT YARD	15'	560'	NO CHANGE
SIDE YARD	10'	3.3' ***	NO CHANGE
FAR	2.0	.03	NO CHANGE
LOT COVERAGE (BLDGS ONLY)	80%	3%	NO CHANGE
LOT COVERAGE (FULL IMPERV)	-	60%	NO CHANGE
LOT FRONTAGE	50'	45.5' ***	NO CHANGE

ZONING DISTRICT I-2
BULK TABLE REQUIREMENTS: PARCEL 2
TAX ID: 6061-51-788513

ITEM	REQUIRED	EXISTING	PROPOSED
LOT AREA	NONE	6.4 AC	NO CHANGE
REAR YARD	20'	695'	NO CHANGE
FRONT YARD	15'	470'	NO CHANGE
SIDE YARD	10'	72.4'	NO CHANGE
FAR	2.0	0.08	NO CHANGE
LOT COVERAGE (BLDGS ONLY)	80%	8%	NO CHANGE
LOT COVERAGE (FULL IMPERV)	-	16%	NO CHANGE
LOT FRONTAGE	50'	0' LOT FRONTAGE***	NO CHANGE

ZONING DISTRICT I-2
BULK TABLE REQUIREMENTS: PARCEL 3
TAX ID: 6061-59-785480

ITEM	REQUIRED	EXISTING	PROPOSED
LOT AREA	NONE	3.5 AC	NO CHANGE
REAR YARD	20'	VACANT	NO CHANGE
FRONT YARD	15'	VACANT	NO CHANGE
SIDE YARD	10'	VACANT	NO CHANGE
FAR	2.0	VACANT	NO CHANGE
LOT COVERAGE	80%	VACANT	NO CHANGE
LOT FRONTAGE	50'	0' LOT FRONTAGE ***	NO CHANGE

*** EXISTING NON-CONFORMING USE. THE PROPOSED USE DOES NOT INCREASE THE NON-CONFORMITY AND ALL OF THE PROPOSED USES ARE TEMPORARY IN NATURE.

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK
SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:
OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

Fire Chief
Police Chief
Building Inspector
City Engineer
Commissioner of Public Works

STATE OF NEW YORK — LICENSED PROFESSIONAL ENGINEER
NATHANIEL GOODEN, P.E.
LIC. NO. 106240
REGISTERED THRU 31JULY25
FIRM AUTHORIZATION® 0020128
NOT FOR CONSTRUCTION

COMPANY: CAESAR ENGINEERING D.P.C.
CONTACT: 845.275.0230 contact@caesarengineering.work
BUSINESS ADDRESS: 367 WINDSOR HWY #411 NEW WINDSOR, NY, 12553
PROJECT: AC AGGREGATES INDUSTRIAL SITE PLAN
DATE: 10JAN24
DESIGNED BY: NG / NC
DRAWN BY: NG / NC
PROJECT NUM: P187
PROJECT SPONSOR NUMBER: 845.225.8252
PROJECT SPONSOR: AC AGGREGATES, LLC.
PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590
PROJECT ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12601

CAESAR ENGINEERING

DATE	REVISION DESCRIPTION	REV #

SHEET IDENTIFICATION: A3 — PROPOSED CONDITIONS PHASE 2
SHEET 3 OF X TOTAL SHEETS

811 Know what's below. Call before you dig.

A4 70 PROSPECT ST. SITE PLAN PHASE 1 AND 2

TAX LOT 6061-51-827527 PROPOSED CONDITIONS

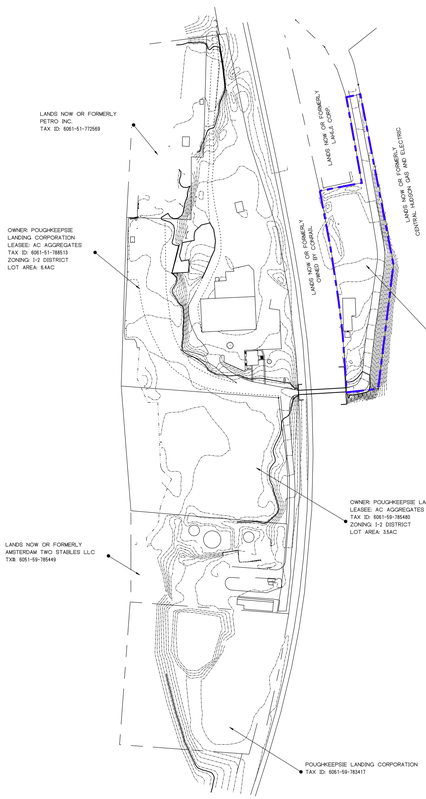
TRUE NORTH

PROJECT NORTH

PROSPECT STREET SITE MAP

EXISTING CONDITIONS

SCALE: 1" = 200'



PROPERTY SURVEY NOTES: SURVEY DATA WAS TRANSCRIBED FROM A PROPERTY SURVEY THAT WAS SUPPLIED BY THE OWNER. THIS SURVEY WAS PERFORMED BY A LICENSED LAND SURVEYOR REGISTERED AND ACTIVE IN NEW YORK STATE AT THE TIME OF THE SURVEY. THIS PROPERTY SURVEY WAS REPLICATED AND ASSUMPTIONS MADE FROM THIS SURVEY HAVE DIRECT REFLECTIONS IN THIS DESIGN. REFERENCE SHALL BE MADE TO ORIGINAL SURVEY FOR VERIFICATION OR CONFIRMATOIN OF SITE FEATURES OR BOUNDARIES.

SURVEY PERFORMED ON DATE: DECEMBER 20, 2023
SURVEY PERFORMED BY: CARNEY RHINEVAULT LIC NO. 49097
CARNEY RHINEVAULT SURVEYING

WARNING: IT IS A VIOLATION OF NEW YORK STATE EDUCATIONAL LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATIONAL LAW SECTION 7209.2

ONLY MAPS OR DRAWINGS WITH EMBOSSED OR TRUE INK SEALS WITH THE SIGNATURE AND DATE OF THE PROFESSIONAL ENGINEER ARE GENUINE COPIES OF THE ORIGINAL WORK AND OPINION. MAPS NOT BEARING EMBOSSED OR TRUE INK SEALS WITH A CORRELATED SIGNATURE SHOULD NOT BE RELIED UPON SINCE OTHER COPIES MAY CONTAIN UNAUTHORIZED AND UNDETECTABLE MODIFICATIONS, DELETIONS, ADDITIONS, AND OR CHANGES.

NO ONE EXCEPT THE ENGINEER WHOSE NAME AND SIGNATURE THAT HAVE BEEN AFFIXED TO THIS DOCUMENT OR SET OF DOCUMENTS MAY MAKE ANY ALTERATION WITHOUT EXPRESS WRITTED CONSENT OF THIS INDIVIDUAL.

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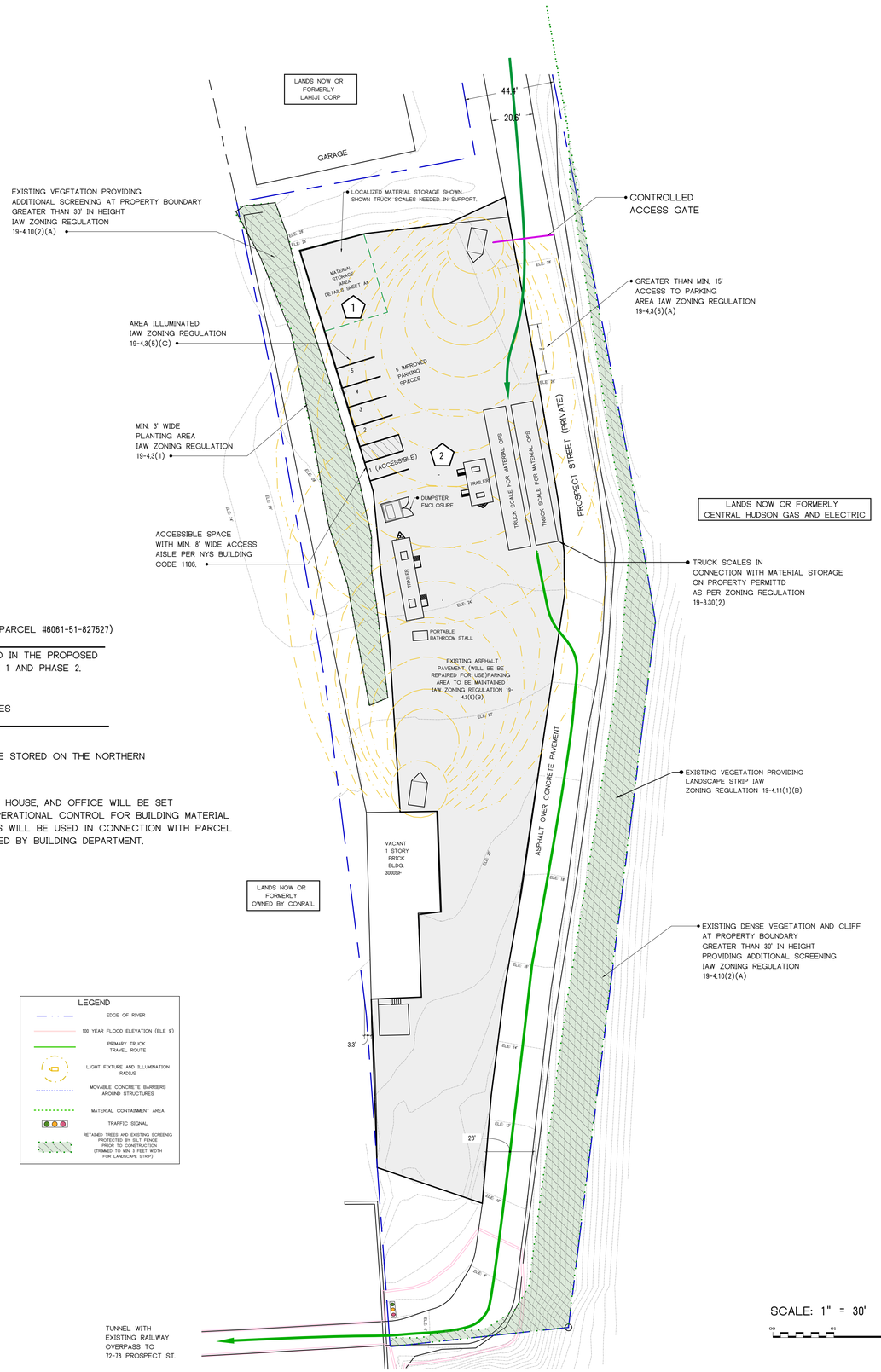
ANYONE WHO CHOOSES TO HAVE THESE DOCUMENTS ALTERED IN ANY WAY WITHOUT THE CONSENT OF THE ENGINEER WILL BE PROSECUTED TO THE FULLEST EXTENT OF THE LAW.

PHASE 1 AND 2 SUMMARY (PARCEL #6061-51-827527)

THIS PARCEL WILL BE USED IN THE PROPOSED CONDITIONS FOR PHASE 1 AND PHASE 2.

KEYED NOTES

1. APPROVED BUILDING MATERIALS ARE STORED ON THE NORTHERN END OF THE SITE.
2. A PORTABLE TRUCK SCALE, SCALE HOUSE, AND OFFICE WILL BE SET UP TO EXECUTE WEIGHING AND OPERATIONAL CONTROL FOR BUILDING MATERIAL STORAGE. CONSTRUCTION TRAILERS WILL BE USED IN CONNECTION WITH PARCEL IMPROVEMENT ACTIONS AS APPROVED BY BUILDING DEPARTMENT.



LEGEND

- EDGE OF RIVER
- 100 YEAR FLOOD ELEVATION (ELE 9')
- PRIMARY TRUCK TRAVEL ROUTE
- LIGHT FIXTURE AND ILLUMINATION RADIUS
- MOVABLE CONCRETE BARRIERS AROUND STRUCTURES
- MATERIAL CONTAINMENT AREA
- TRAFFIC SIGNAL
- RETAINED TREES AND EXISTING SCREENING PROTECTED BY SILT FENCE PRIOR TO CONSTRUCTION (TRIMMED TO MIN. 5 FEET WIDTH FOR LANDSCAPE STRIP)

SCALE: 1" = 30'

00 01 02 04

811 Know what's below. Call before you dig.

VICINITY MAP

SHOWING: DUTCHESS COUNTY TAX MAP SECTION 6061.51 & 6061.59



ADDRESS: 70 PROSPECT ST.

ZONING: I-2

ZONING DISTRICT I-2
BULK TABLE REQUIREMENTS
TAX ID: 6061-51-827527

ITEM	REQUIRED	EXISTING	PROPOSED
LOT AREA	NONE	1.8 AC	NO CHANGE
REAR YARD	20'	153'	NO CHANGE
FRONT YARD	15'	560'	NO CHANGE
SIDE YARD	10'	3.3' ***	NO CHANGE
FAR	2.0	.03	NO CHANGE
LOT COVERAGE (BLDGS ONLY)	80%	3%	NO CHANGE
LOT COVERAGE (FULL IMPERV)	-	60%	NO CHANGE
LOT FRONTAGE	50'	45.5' ***	NO CHANGE

*** EXISTING NON-CONFORMING USE. THE PROPOSED USE DOES NOT INCREASE THE NON-CONFORMITY AND ALL OF THE PROPOSED USES ARE TEMPORARY IN NATURE.

BULK TABLE NOTES:

I-2 ZONING PERMITTED USES: No building or premises shall be used, in whole or in part, for any purpose except those listed below:

Uses permitted by right:
1. _ Terminals and building material storage and sale, but excluding storage of coal, coke, fuel oil or junk.

MINIMUM PARKING REGULATIONS:

INDUSTURIAL AND HEAVY COMMERCIAL USE: 1 SPACE FOR EACH EMPLOYEE ON THE LARGEST SHIFT.

NUMBER OF EMPLOYEES ON LARGEST SHIFT: 4

MINIMUM NUMBER OF PROVIDED OFF STREET PARKING SPACES FOR ALL PARCELS: 5 (4 STANDARD & 1 ACCESSIBLE)

GENERAL NOTES:

1) THE PROJECT SPONSOR WISHES TO EXECUTE MATERIAL STORAGE AND DISTRIBUTION OPERATIONS WITHIN THEIR CURRENT CONTIGUOUS PARCEL(S) (TAX IDS: 6061-51-827527; 6061-51-788513; AND 6061-59-785480). THE PROPOSED ACTION IS PROPOSED TO BE SPLIT INTO 2 PHASES. THIS PARCEL (6061-51-827527) WILL BE UTILIZED TO STORE APPROVED MATERIALS, CONTROL, SITE ACCESS, AND PERFORM TRUCK WEIGHING OPERATIONS FOR MATERIAL OPERATIONS. SEE SHEETS A2 AND A3 FOR PROPOSED CONDITIONS OF ALL PARCELS IN BOTH PHASE 1 AND PHASE 2. NO NEW GRADES ARE PROPOSED IN PHASE 1.
2) OPERATIONS WILL BE 24/7 CONSISTING OF 4 PERSONNEL. OFF-STREET PARKING WILL BE AVAILABLE AS SHOWN BUT THE SITE HAS AVAILABLE SPACE FOR MORE IF REQUIRED BY SITE CONDITIONS/OPERATIONS.
3) SITE LIGHTING USED THROUGHOUT. SEE DETAIL ON SHEET A7 FOR POWER AND TIME OF USE.
4) PORTABLE RESTROOMS WILL BE DEPLOYED AT WORK LOCATIONS FOR PERSONNEL AND DRIVERS.
5) PRIOR TO THE START OF CONSTRUCTION OR EXCAVATION, TREES TO BE RETAINED SHALL BE PROTECTED BY SILT FENCE, SNOW FENCE, CONSTRUCTION FENCE, OR EQUAL, WHICH WILL BE PLACED AT THE DRIP LINE OR SEVERAL FEET BEYOND. HOWEVER, THE FENCING SHALL NOT CROSS PUBLIC SIDEWALKS. NO STORAGE OR STOCKPILING OF CONSTRUCTION MATERIALS, DEBRIS, OR EQUIPMENT SHALL OCCUR WITHIN THE FENCED AREA.
6) AT THIS TIME, THIS PLAN DOES NOT INCLUDE A CHANGE IN THE UTILIZATION OF ANY OF THE EXISTING BUILDINGS ON THE SITE. BUILDINGS SHALL REMAIN VACANT, BE SECURED, AND CLOSED OFF TO UNAUTHORIZED PARTIES. NO NEW BUILDINGS ARE PROPOSED.
7) ALL DISTURBED AREAS SHALL BE SEEDED WITH GRASS TO PREVENT EROSION IAW ZONING REGULATION 19-4.11(1)(B). A 3-FOOT WIDE LANDSCAPE BUFFER CONSISTING OF EXISTING VEGETATION WILL BE MAINTAINED ALONG ALL MAJOR VISUAL BOUNDARIES AS SHOWN ON THE SITE PLAN.
8) NO SIGNS ARE PROPOSED AT THIS TIME.

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK
SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:
OFFICIALLY APPROVED at the Planning Board meeting held the _____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

STATE OF NEW YORK — NATHANIEL GOODEN — LICENSED PROFESSIONAL ENGINEER

NATHANIEL GOODEN, P.E.
LIC. NO. 106240
REGISTERED THRU 31JULY25
FIRM AUTHORIZATION# 0020128

NOT FOR CONSTRUCTION

COMPANY: CAESAR ENGINEERING D.P.C.	DATE: 10JAN24	PROJECT SPONSOR NUMBER: 845.225.8252	
CONTACT: 845.275.0230 contact@caesarengineering.work	DESIGNED BY: NG / NC	PROJECT SPONSOR: AC AGGREGATES, LLC.	
BUSINESS ADDRESS: 367 WINDSOR HWY #411 NEW WINDSOR, NY, 12553	DRAWN BY: NG / NC	PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590	
PROJECT: AC AGGREGATES INDUSTRIAL SITE PLAN	PROJECT NUM: P187	PROJECT ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12603	

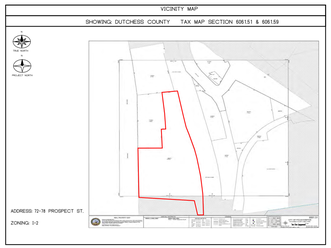
CAESAR ENGINEERING

DATE	REVISION DESCRIPTION	REV #

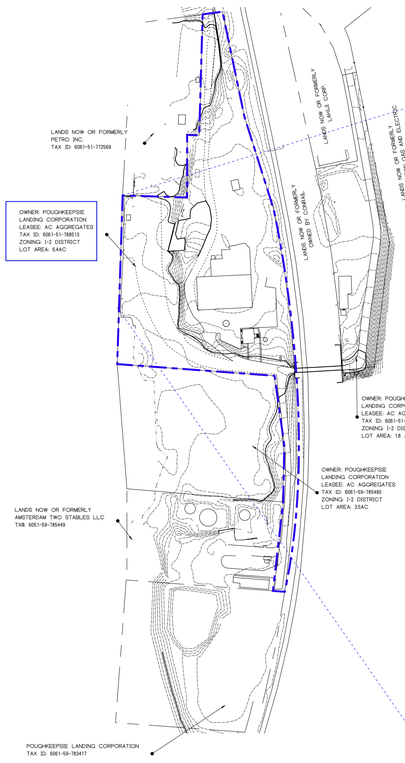
SHEET IDENTIFICATION
A4
70 PROSPECT ST. SITE PLAN PHASE 1 AND 2
SHEET A OF X TOTAL SHEETS

A5 72-78 PROSPECT ST. SITE PLAN PHASE 1 AND 2

TAX LOT 6061-51-788513 PROPOSED CONDITIONS



PROSPECT STREET SITE MAP
EXISTING CONDITIONS
SCALE: 1" = 200'



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SURVEY PERFORMED ON DATE: DECEMBER 20, 2023
SURVEY PERFORMED BY: CARNEY RHINEVAULT LIC NO. 49097
CARNEY RHINEVAULT SURVEYING

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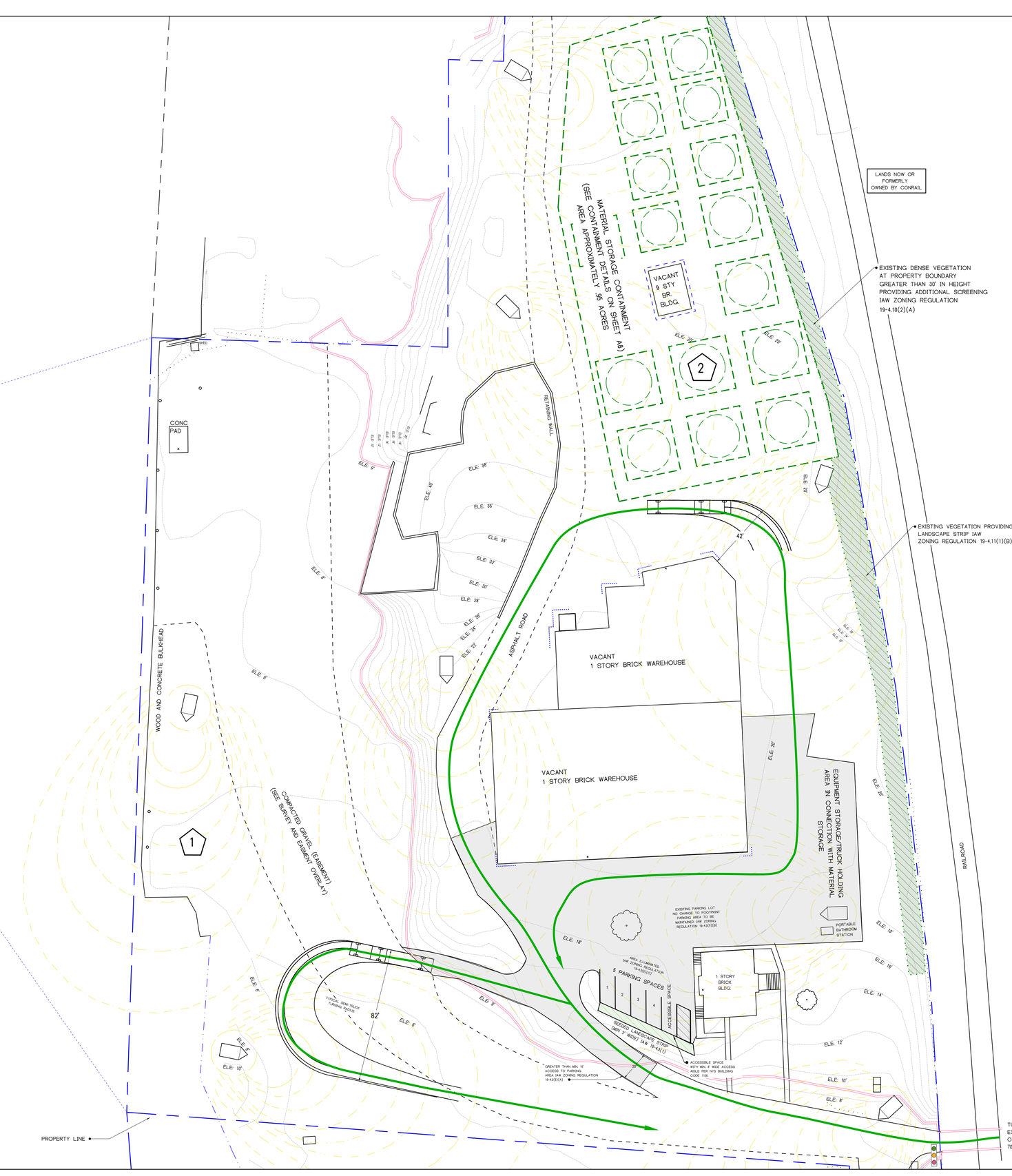

SUMMARY (PARCEL #6061-51-788513)

IN PHASES 1 AND 2, THE PROJECT SPONSOR WISHES TO RECEIVE APPROVED BUILDING MATERIALS (AS OF RIGHT PER ZONING) VIA BARGE AND STORE THE MATERIAL ON THE NORTHERN END OF PARCEL #6061-51-788513. MATERIAL WILL THEN BE TRUCKED OFF SITE FOR DELIVERY TO VARIOUS CUSTOMERS.

KEYED NOTES

1. OFFLOADING OF APPROVED BUILDING MATERIAL FROM A DELIVERY BARGE. DELIVERY BARGE WILL HAVE OWN OFFLOADING CAPABILITIES. SEE SHEET A8 FOR TYPICAL BARGE.
2. MATERIAL IS MOVED UP TO ELEVATION 20 AT THE NORTHERN END OF PARCEL #6061-51-788513 WHERE IT IS CONFINED IN STOCKPILES. DELIVERY TRUCKS TO BE LOADED WITH MATERIAL FOR DELIVERY TO CUSTOMERS OFF SITE.

GENERAL NOTES:

1) THE PROJECT SPONSOR WISHES TO EXECUTE APPROVED MATERIAL STORAGE AND DISTRIBUTION OPERATIONS WITHIN THEIR CURRENT CONTIGUOUS PARCEL(S) (TAX IDS: 6061-51-827527; 6061-51-788513; AND 6061-59-785480). THE PROPOSED ACTION IS PROPOSED TO BE SPLIT INTO 2 PHASES. THIS PARCEL (6061-51-788513) WILL BE UTILIZED TO RECEIVE, STORE, AND DISTRIBUTE APPROVED MATERIALS. SEE SHEETS A2 AND A3 FOR PROPOSED CONDITIONS OF ALL PARCELS IN BOTH PHASE 1 AND PHASE 2. MATERIALS WILL BE STORED ABOVE THE 100-YEAR FLOOD PLAIN TO PREVENT AND MITIGATE POTENTIAL FLOOD HAZARDS. NO NEW GRADES ARE PROPOSED IN PHASE 1.
2) OPERATIONS WILL BE 24/7 CONSISTING OF 4 PERSONNEL. OFF-STREET PARKING WILL BE AVAILABLE AS SHOWN BUT THE SITE HAS AVAILABLE SPACE FOR MORE IF REQUIRED BY SITE CONDITIONS/OPERATIONS.
3) SITE LIGHTING USED THROUGHOUT. SEE DETAIL ON SHEET A7 FOR POWER AND TIME OF USE.
4) PORTABLE RESTROOMS WILL BE DEPLOYED AT WORK LOCATIONS FOR PERSONNEL AND DRIVERS.
5) PRIOR TO THE START OF CONSTRUCTION OR EXCAVATION, TREES TO BE RETAINED SHALL BE PROTECTED BY SILT FENCE, SNOW FENCE, CONSTRUCTION FENCE, OR EQUAL, WHICH WILL BE PLACED AT THE DRIP LINE OR SEVERAL FEET BEYOND. HOWEVER, THE FENCING SHALL NOT CROSS PUBLIC SIDEWALKS. NO STORAGE OR STOCKPILING OF CONSTRUCTION MATERIALS, DEBRIS, OR EQUIPMENT SHALL OCCUR WITHIN THE FENCED AREA.
6) AT THIS TIME, THIS PLAN DOES NOT INCLUDE A CHANGE IN THE UTILIZATION OF ANY OF THE EXISTING BUILDINGS ON THE SITE. BUILDINGS SHALL REMAIN VACANT, BE SECURED, AND CLOSED OFF TO UNAUTHORIZED PARTIES. NO NEW BUILDINGS ARE PROPOSED.
7) ALL DISTURBED AREAS SHALL BE SEEDED WITH GRASS TO PREVENT EROSION IAW ZONING REGULATION 19-4.11(1)(B). A 3-FOOT WIDE LANDSCAPE BUFFER CONSISTING OF EXISTING DENSE TREE VEGETATION WILL BE MAINTAINED ALONG ALL MAJOR VISUAL BOUNDARIES PROVIDING SCREENING IAW ZONING REGULATION 19-4.10(2)(A)

BULK TABLE NOTES:

I-2 ZONING PERMITTED USES: No building or premises shall be used, in whole or in part, for any purpose except those listed below:

Uses permitted by right:
1. ... Terminals and building material storage and sale, but excluding storage of coal, coke, fuel oil or junk.

MINIMUM PARKING REGULATIONS:

INDUSTURIAL AND HEAVY COMMERCIAL USE: 1 SPACE FOR EACH EMPLOYEE ON THE LARGEST SHIFT.

NUMBER OF EMPLOYEES ON LARGEST SHIFT: 4

MINIMUM NUMBER OF PROVIDED OFF STREET PARKING SPACES FOR ALL PARCELS: 5 (4 STANDARD & 1 ACCESSIBLE)

LEGEND

- EDGE OF RIVER
- 100 YEAR FLOOD ELEVATION (ELE 9')
- PRIMARY TRUCK TRAVEL ROUTE
- LIGHT FIXTURE AND ILLUMINATION RADIUS
- MOVABLE CONCRETE BARRIERS AROUND STRUCTURES
- MATERIAL CONTAINMENT AREA
- TRAFFIC SIGNAL
- RETAINED TREES AND EXISTING SCREENING PROTECTED BY SILT FENCE PRIOR TO CONSTRUCTION (TRIMMED TO MIN 3 FEET WIDTH FOR LANDSCAPE STRIP)
- TEMPLATED MATERIAL STORAGE LOCATIONS

ZONING DISTRICT I-2
BULK TABLE REQUIREMENTS: PARCEL 2
TAX ID: 6061-51-788513

ITEM	REQUIRED	EXISTING	PROPOSED
LOT AREA	NONE	6.4 AC	NO CHANGE
REAR YARD	20'	695'	NO CHANGE
FRONT YARD	15'	470'	NO CHANGE
SIDE YARD	10'	72.4'	NO CHANGE
FAR	2.0	0.08	NO CHANGE
LOT COVERAGE (BLDGS ONLY)	80%	8%	NO CHANGE
LOT COVERAGE (FULL IMPERV)	-	16%	NO CHANGE
LOT FRONTAGE	50'	0' LOT FRONTAGE***	NO CHANGE

*** EXISTING NON-CONFORMING USE. THE PROPOSED USE DOES NOT INCREASE THE NON-CONFORMITY AND ALL OF THE PROPOSED USES ARE TEMPORARY IN NATURE.

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK
SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:
OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____, 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

SCALE: 1" = 30'

00 01 02 04

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NATHANIEL GOODEN, P.E.
LIC. NO. 110240
REGISTERED THRU 31JULY25
FIRM AUTHORIZATION# 0020128

NOT FOR CONSTRUCTION

COMPANY: CAESAR ENGINEERING D.P.C.	DATE: 10JAN24	PROJECT SPONSOR NUMBER: 845.225.8252
CONTACT: 845.275.0230 contact@caesarengineering.work	DESIGNED BY: NG / NC	PROJECT SPONSOR: AC AGGREGATES, LLC.
BUSINESS ADDRESS: 367 WINDSOR HWY #411 NEW WINDSOR, NY, 12553	DRAWN BY: NG / NC	PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590
PROJECT: AC AGGREGATES INDUSTRIAL SITE PLAN	PROJECT NUM: P187	PROJECT ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12601

DATE	REVISION DESCRIPTION	REV #

SHEET IDENTIFICATION
A5
72-78 PROSPECT ST. SITE PLAN PHASE 1 AND 2
SHEET 5 OF X TOTAL SHEETS

A6 4 SUNFISH COVE RD. SITE PLAN PHASE 2

6061-59-785480 PROPOSED CONDITIONS (PHASE 2)

CHANGES ARE ONLY PROPOSED IN PHASE 2 AS SHOWN.
NO CHANGES/USES ARE PROPOSED IN PHASE 1 FOR THIS PARCEL

TRUE NORTH

PROJECT NORTH

VICINITY MAP

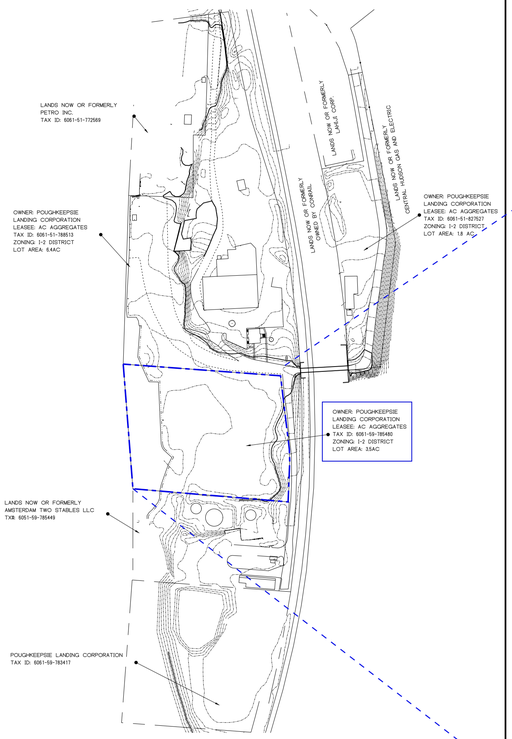
SHOWING DUTCHESS COUNTY TAX MAP SECTION 6061.51 & 6061.59



ADDRESS 72-78 PROSPECT ST.

ZONING: I-2

PROSPECT STREET SITE MAP
EXISTING CONDITIONS
SCALE: 1" = 200'



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SURVEY PERFORMED ON DATE: DECEMBER 20, 2023
SURVEY PERFORMED BY: CARNEY RHINEVAULT, LIC NO. 49097
CARNEY RHINEVAULT SURVEYING

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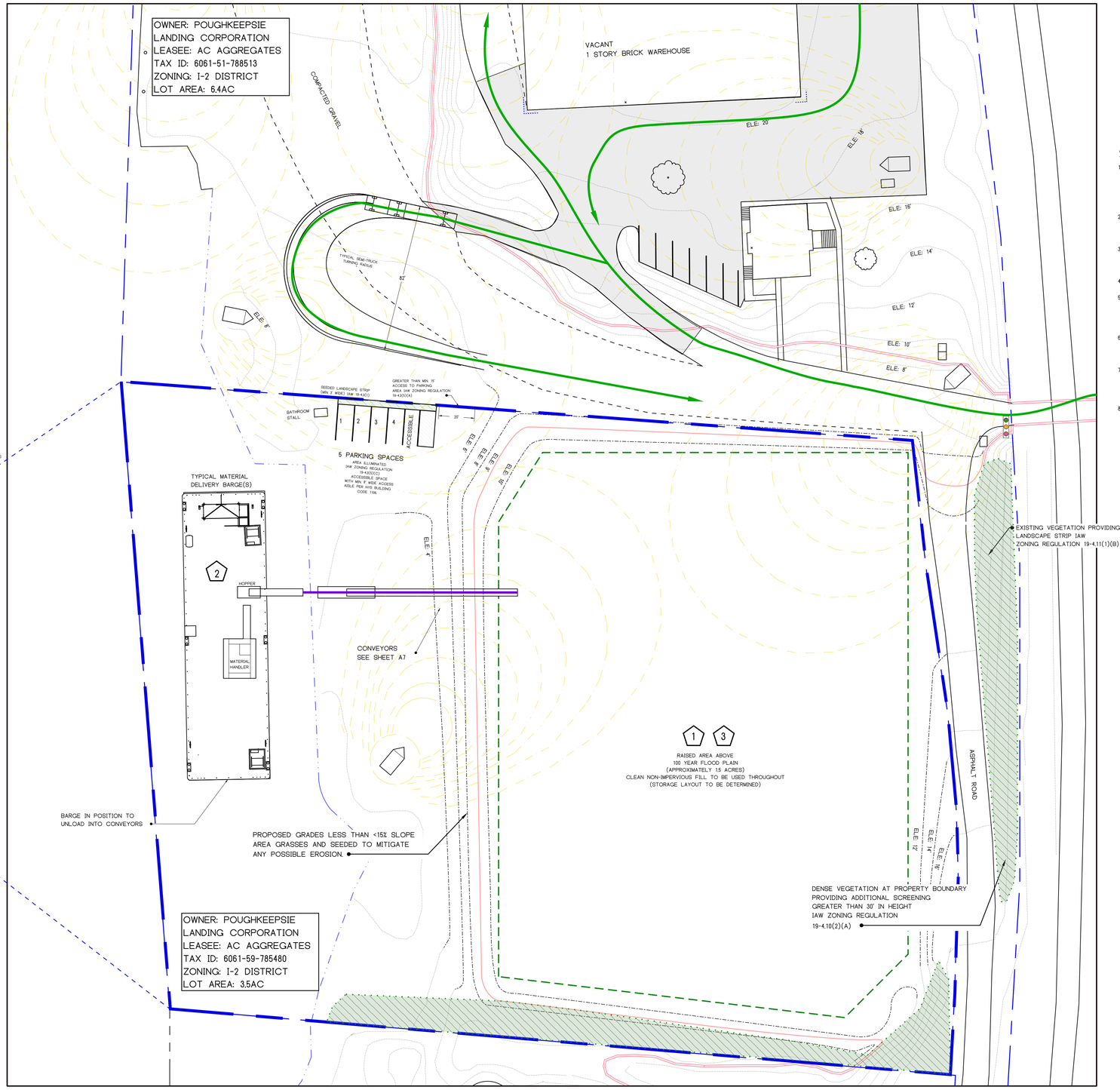

PHASE 2 SUMMARY (PARCEL #6061-59-785480)

PROJECT SPONSOR WISHES TO RAISE A PORTION OF LAND ON PARCEL# 6061-59-785480 OUT OF THE 100 YEAR FLOOD PLAIN TO ELEVATION 10. PROJECT SPONSOR WISHES TO RECEIVE APPROVED BUILDING MATERIALS (AS OF RIGHT PER ZONING) VIA BARGE AND STORE THE MATERIAL ON THE NEW RAISED PORTION OF LAND AT ELEVATION 10 ON THIS SITE. MATERIAL WILL THEN BE TRUCKED OFF SITE FOR DELIVERY TO VARIOUS CUSTOMERS.

KEYED NOTES

1. CLEAN FILL MATERIAL IS POSITIONED ON SITE TO RAISE A PORTION OF LAND (APPROXIMATELY 1.5 ACRES) ON PARCEL# 6061-59-785480 OUT OF THE 100 YEAR FLOOD PLAIN TO ELEVATION 10 AS SHOWN. THIS PORTION OF LAND WILL THEN BE USED TO STORE APPROVED BUILDING MATERIAL.
2. OFFLOADING OF APPROVED BUILDING MATERIAL FROM A DELIVERY BARGE. DELIVERY BARGE WILL HAVE OWN OFFLOADING CAPABILITIES. SEE SHEET A8 FOR TYPICAL BARGE.
3. MATERIAL IS CONVEYED UP TO NEWLY CREATED ELEVATION 10 ON PARCEL# 6061-59-785480 WHERE IT IS CONFINED IN STOCKPILES. STOCKPILES SHALL NOT EXCEED HEIGHT OF SCREENING. TRUCK TRANSPORTS TO BE LOADED WITH MATERIAL FOR DELIVERY TO CUSTOMERS OFF SITE. SEE SHEET A8 FOR CONFINEMENT DETAILS.

GENERAL NOTES:

1) THE PROJECT SPONSOR WISHES TO EXECUTE MATERIAL STORAGE AND DISTRIBUTION OPERATIONS WITHIN THEIR CURRENT CONTIGUOUS PARCEL(S) (TAX IDS: 6061-51-827527;6061-51-788513; AND 6061-59-785480). THE PROPOSED ACTION IS PROPOSED TO BE SPLIT INTO 2 PHASES. THIS PARCEL (6061-59-785480) WILL BE UTILIZED TO RECEIVE, STORE, AND DISTRIBUTE APPROVED MATERIALS IN PHASE 2 ONLY. SEE SHEETS A2 AND A3 FOR PROPOSED CONDITIONS OF ALL PARCELS IN BOTH PHASE 1 AND PHASE 2. NO NEW GRADES ARE PROPOSED IN PHASE 1. ONLY IN PHASE 2 AS SHOWN.
2) IN PHASE 2, CLEAN FILL MATERIAL WILL BE BROUGHT IN TO RAISE THE EXISTING AVERAGE ELEVATION OF THIS PARCEL (6061-59-785480) ABOVE THE 100-YEAR FLOOD PLAIN. THIS WILL INVOLVE RAISING THE FINISHED GRADE TO AT/ABOVE ELEVATION 10, WHICH WILL MITIGATE THE EFFECTS OF FLOODING ON ALL STORE MATERIALS.
3) OPERATIONS WILL BE 24/7 CONSISTING OF 4 PERSONNEL. OFF-STREET PARKING WILL BE AVAILABLE AS SHOWN BUT THE SITE HAS AVAILABLE SPACE FOR MORE IF REQUIRED BY SITE CONDITIONS/OPERATIONS. PORTABLE RESTROOMS WILL BE DEPLOYED AT WORK LOCATIONS FOR PERSONNEL AND DRIVERS.
4) SITE LIGHTING USED THROUGHOUT. SEE DETAIL ON SHEET A7 FOR POWER AND TIME OF USE.
5) PRIOR TO THE START OF CONSTRUCTION OR EXCAVATION, TREES TO BE RETAINED SHALL BE PROTECTED BY SILT FENCE, SNOW FENCE, CONSTRUCTION FENCE, OR EQUAL, WHICH WILL BE PLACED AT THE DRIP LINE OR SEVERAL FEET BEYOND. HOWEVER, THE FENCING SHALL NOT CROSS PUBLIC SIDEWALKS. NO STORAGE OR STOCKPILING OF CONSTRUCTION MATERIALS, DEBRIS, OR EQUIPMENT SHALL OCCUR WITHIN THE FENCED AREA.
6) AT THIS TIME, THIS PLAN DOES NOT INCLUDE A CHANGE IN THE UTILIZATION OF ANY OF THE EXISTING BUILDINGS ON THE SITE. BUILDINGS SHALL REMAIN VACANT, BE SECURED, AND CLOSED OFF TO UNAUTHORIZED PARTIES. NO NEW BUILDINGS ARE PROPOSED.
7) ALL DISTURBED AREAS SHALL BE SEEDED WITH GRASS TO PREVENT EROSION IAW ZONING REGULATION 19-4.11(1)(B). A 3-FOOT WIDE LANDSCAPE BUFFER CONSISTING OF EXISTING DENSE TREE VEGETATION WILL BE MAINTAINED ALONG ALL MAJOR VISUAL BOUNDARIES PROVIDING SCREENING IAW ZONING REGULATION 19-4.10(2)(A)
8) NO NEW STORMWATER RUNOFF IS ANTICIPATED AS NO NEW IMPERVIOUS SURFACES ARE PROPOSED. THE SITE IS WELL DRAINED ACCORDING TO USDA SOIL WEB SURVEY AND CLEAN WELL-DRAINING FILL SHALL BE USED TO ESTABLISH A NEW GRADE. THE PROJECT SPONSOR SHALL CONTACT AND APPLY TO THE RELEVANT AGENCIES AS APPLICABLE IN PHASE 2 TO MEET OTHER ESTABLISHED REGULATIONS CONCERNING THE PROPOSED ACTIVITY OR IF STORMWATER INFRASTRUCURE WILL BE ALTERED.

BULK TABLE NOTES:

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INDUSTURIAL AND HEAVY COMMERCIAL USE: 1 SPACE FOR EACH EMPLOYEE ON THE LARGEST SHIFT.

NUMBER OF EMPLOYEES ON LARGEST SHIFT: 4

MINIMUM NUMBER OF PROVIDED OFF STREET PARKING SPACES FOR ALL PARCELS: 5 (4 STANDARD & 1 ACCESSIBLE)

LEGEND

- EDGE OF RIVER
- 100 YEAR FLOOD ELEVATION (ELE 9')
- PRIMARY TRUCK TRAVEL ROUTE
- LIGHT FIXTURE AND ILLUMINATION RADIUS
- MOVABLE CONCRETE BARRIERS AROUND STRUCTURES
- MATERIAL CONTAINMENT AREA
- TRAFFIC SIGNAL
- CONVEYOR PATH
- PROPOSED CONTOURS
- RETAINED TREES AND EXISTING SCREENING PROTECTED BY SILT FENCE PRIOR TO CONSTRUCTION (TRIMMED TO MIN. 3 FEET WIDTH FOR LANDSCAPE STRIP)

ZONING DISTRICT I-2
BULK TABLE REQUIREMENTS: PARCEL 3
TAX ID: 6061-59-785480

ITEM	REQUIRED	EXISTING	PROPOSED
LOT AREA	NONE	3.5 AC	NO CHANGE
REAR YARD	20'	VACANT	NO CHANGE
FRONT YARD	15'	VACANT	NO CHANGE
SIDE YARD	10'	VACANT	NO CHANGE
FAR	2.0	VACANT	NO CHANGE
LOT COVERAGE	80%	VACANT	NO CHANGE
LOT FRONTAGE	50'	0' LOT FRONTAGE ***	NO CHANGE

*** EXISTING NON-CONFORMING USE. THE PROPOSED USE DOES NOT INCREASE THE NON-CONFORMITY AND ALL OF THE PROPOSED USES ARE TEMPORARY IN NATURE.

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK
SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
PROJECT LOCATION:
APPLICANT:
OFFICIALLY APPROVED at the Planning Board meeting held the ____ day of _____ 2____
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

Fire Chief
Police Chief
Building Inspector
City Engineer
Commissioner of Public Works

SCALE: 1" = 30'

00 01 02 04

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NATHANIEL GOODEN, P.E.
LIC. NO. 108240
REGISTERED THRU 31JUL'25
FIRM AUTHORIZATION# 0020128

NOT FOR CONSTRUCTION

COMPANY: CAESAR ENGINEERING D.P.C.	DATE: 10JAN24	PROJECT SPONSOR NUMBER: 845.225.8252
CONTACT: 845.275.0230 contact@caesarengineering.work	DESIGNED BY: NG / NC	PROJECT SPONSOR: AC AGGREGATES, LLC.
BUSINESS ADDRESS: 367 WINDSOR HWY #411 NEW WINDSOR, NY, 12553	DRAWN BY: NG / NC	PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590
PROJECT: AC AGGREGATES INDUSTRIAL SITE PLAN	PROJECT NUM: P187	PROJECT ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12601

DATE	REVISION DESCRIPTION	REV #

SHEET IDENTIFICATION
A6
4 SUNFISH COVE RD. SITE PLAN PHASE 2
SHEET 6 OF X TOTAL SHEETS

811 Know what's below. Call before you dig.

A7 PROPOSED EQUIPMENT & DETAILS 1

AERIAL PHOTO OF EXISTING SITE
TAKEN JULY 2023
FOR GENERAL ORIENTATION PURPOSES ONLY (LOOKING NORTH EAST)



1 SHEET A7 EXAMPLE CONSTRUCTION TRAILER



NOTES:

CONSTRUCTION TRAILERS ARE TEMPLATED ON-SITE TO PROVIDE OVERSIGHT AND MANAGE SITE IMPROVEMENT ACTIVITIES THAT THE PROJECT SPONSOR PLANS TO EXECUTE IN CONNECTION WITH THIS SITE PLAN. APPLICABLE IMPROVEMENT ACTIVITIES WILL BE PERMITTED WITH THE CITY BUILDING DEPARTMENT.

THE TRAILER DEPICTED IS FOR REPRESENTATION PURPOSES ONLY. FINAL SELECTION MAY BE DIFFERENT BUT WILL BE SIMILAR IN NATURE. MANUFACTURER TO PROVIDE ALL SPECS FOR ANY APPLICABLE CODE REQUIREMENTS.

2 SHEET A7 EXAMPLE WATER TRUCK FOR DUST SUPPRESSION

Curry Supply Co — ONE OF AMERICA'S LARGEST MANUFACTURERS OF COMMERCIAL SERVICE VEHICLES, SINCE 1932



NOTES:

WATER TRUCKS WILL BE USED FOR DAILY DUST SUPPRESSION AS REQUIRED. WATER WILL BE PROVIDED EITHER ON-SITE OR OFF-SITE AT THE DISCRETION OF THE PROJECT SPONSOR.

THE WATER TRUCKS DEPICTED ARE FOR REPRESENTATION PURPOSES ONLY. FINAL SELECTION MAY BE DIFFERENT BUT WILL BE SIMILAR IN NATURE. THE MANUFACTURER TO PROVIDE ALL SPECS AS REQUESTED.

3 SHEET A7 TRAFFIC LIGHT SYSTEM
N.T.S.



4 SHEET A7 CAT FRONT LOADER



Cat 980M Wheel Loader

Engine		
Engine Model	Cat C13 ACERT	
Max Gross Power @ 1,700 rpm – SAE J1995	317 kW	425 hp
Max Gross Power @ 1,700 rpm – SAE J1995 (metric)		431 hp
Max Gross Power @ 1,700 rpm – ISO 14396	313 kW	420 hp
Max Gross Power @ 1,700 rpm – ISO 14396 (metric)		426 hp
Max Net Power @ 1,700 rpm – SAE J1349	288 kW	386 hp
Max Net Power @ 1,700 rpm – SAE J1349 (metric)		392 hp
Max Net Power @ 1,700 rpm – ISO 9249	288 kW	386 hp
Max Net Power @ 1,700 rpm – ISO 9249 (metric)		392 hp
Peak Gross Torque (1,200 rpm) – SAE J1995	2206 N·m	1,627 lbf-ft
Peak Gross Torque (1,200 rpm) – ISO 14396	2182 N·m	1,609 lbf-ft
Maximum Net Torque (1,100 rpm)	2085 N·m	1,538 lbf-ft
Displacement	12.5 L	763 in³

Weights		
Operating Weight	30 090 kg	66,197 lb

• Weight based on a machine configuration with Michelin 29.5R25 XLDD1 L4 radial tires, full fluids, operator, standard counterweight, cold start, roading fenders, Product Link, open differential axles (front/rear), secondary steering, sound suppression, and a 5.4 m³ (7.1 yd³) general purpose bucket with BOCE.

Bucket Capacities		
Bucket Range	4.2-12.2 m³	5.25-16.0 yd³

Operating Specifications		
Static Tipping Load – Full 40° Turn – with Tire Deflection	19 565 kg	43,121 lb
Static Tipping Load – Full 40° Turn – No Tire Deflection	20 796 kg	45,834 lb
Breakout Force	224 kN	50,466 lbf

• For a machine configuration as defined under "Weight."
• Full compliance to ISO 143971:2007 Sections 1 thru 6, which requires 2% verification between calculations and testing.

Transmission		
Forward 1	6.9 km/h	4.2 mph
Forward 2	13.3 km/h	8.1 mph
Forward 3	23.5 km/h	14.3 mph
Forward 4	40.0 km/h	24.4 mph
Reverse 1	7.8 km/h	4.8 mph
Reverse 2	15.2 km/h	9.3 mph
Reverse 3	26.9 km/h	16.4 mph
Reverse 4	40.0 km/h	24.4 mph

• Maximum travel speed in standard vehicle with empty bucket and standard L4 tires with 933 mm (37 in) roll radius.

Service Refill Capacities		
Fuel Tank	441 L	116.5 gal
DEF tank	21 L	5.5 gal
Cooling System	52 L	13.7 gal
Crankcase	37 L	9.8 gal
Transmission	77 L	20.3 gal
Differentials and Final Drives – Front	84 L	22.2 gal
Differentials and Final Drives – Rear	84 L	22.2 gal
Hydraulic Tank	180 L	48 gal

Hydraulic System		
Implement Pump Type	Variable Displacement Piston	
Implement System:		
Maximum Pump Output (2,250 rpm)	445 L/min	118 gal/min
Maximum Operating Pressure	34 300 kPa	4,975 psi
Hydraulic Cycle Time – Total	10.1 Seconds	

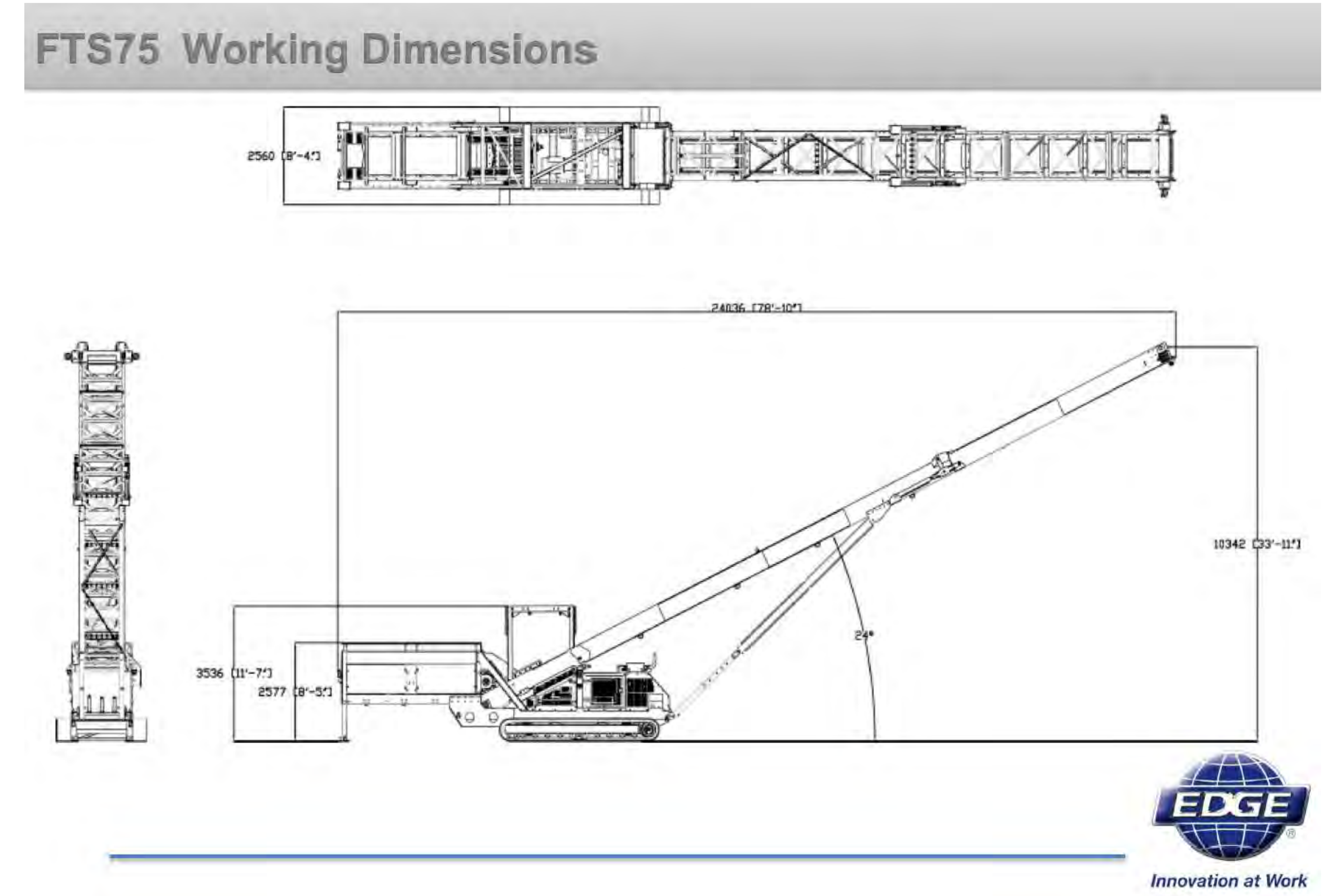
Sound	
With Cooling Fan Speed at Max Value:	
Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)
Exterior Sound Power Level (ISO 6395:2008)	112 dB(A)
Exterior Sound Power Level (SAE J88:2013)*	78 dB(A)
With Cooling Fan Speed at 70% of Max Value:	
Operator Sound Pressure Level (ISO 6396:2008)	72 dB(A)
European Union Directive 2000/14/EC as amended by 2005/88/EC:	
Exterior Sound Power Level (ISO 6395:2008)	109 L_{WA}

*Distance of 15 m (49.2 ft), moving forward in second gear ratio.

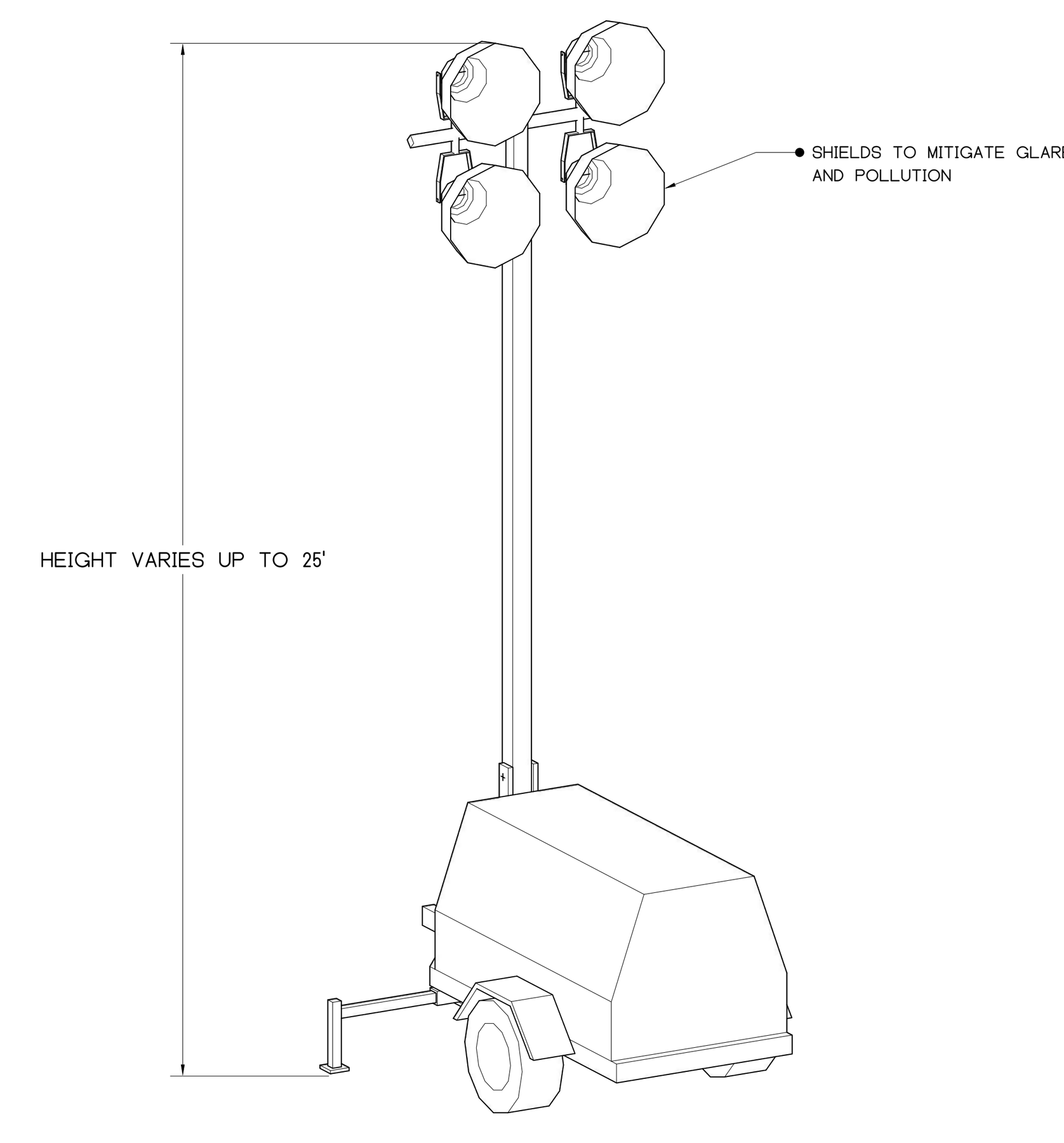
Dimensions	Standard Lift		High Lift	
Height to Top of Hood	3110 mm	10'2"	3110 mm	10'2"
Height to Top of Exhaust Pipe	3746 mm	12'3"	3746 mm	12'3"
Height to Top of ROPS	3813 mm	12'6"	3813 mm	12'6"
Ground Clearance	453 mm	1'5"	453 mm	1'5"
Center Line of Rear Axle to Edge of Counterweight	2469 mm	8'1"	2590 mm	8'6"
Center Line of Rear Axle to Hitch	1900 mm	6'2"	1900 mm	6'2"
Wheelbase	3800 mm	12'5"	3800 mm	12'5"
Overall Length (without bucket)	7964 mm	26'1"	8164 mm	26'9"
Hinge-Pin Height at Maximum Lift	4539 mm	14'10"	4760 mm	15'7"
Hinge-Pin Height at Carry	621 mm	2'0"	678 mm	2'2"
Lift Arm Clearance at Maximum Lift	3795 mm	12'5"	4041 mm	13'3"
Rack Back at Maximum Lift	61 degrees		61 degrees	
Rack Back at Carry Height	48 degrees		48 degrees	
Rack Back at Ground	40 degrees		39 degrees	
Maximum Width over Tires	3265 mm	10'8"	3265 mm	10'8"
Tread Width	2440 mm	8'0"	2440 mm	8'0"

• All dimensions are approximate and based on Michelin 29.5R25 XLDD1 L4 radial tires.

5 SHEET A7 FT S75 MATERIAL CONVEYOR



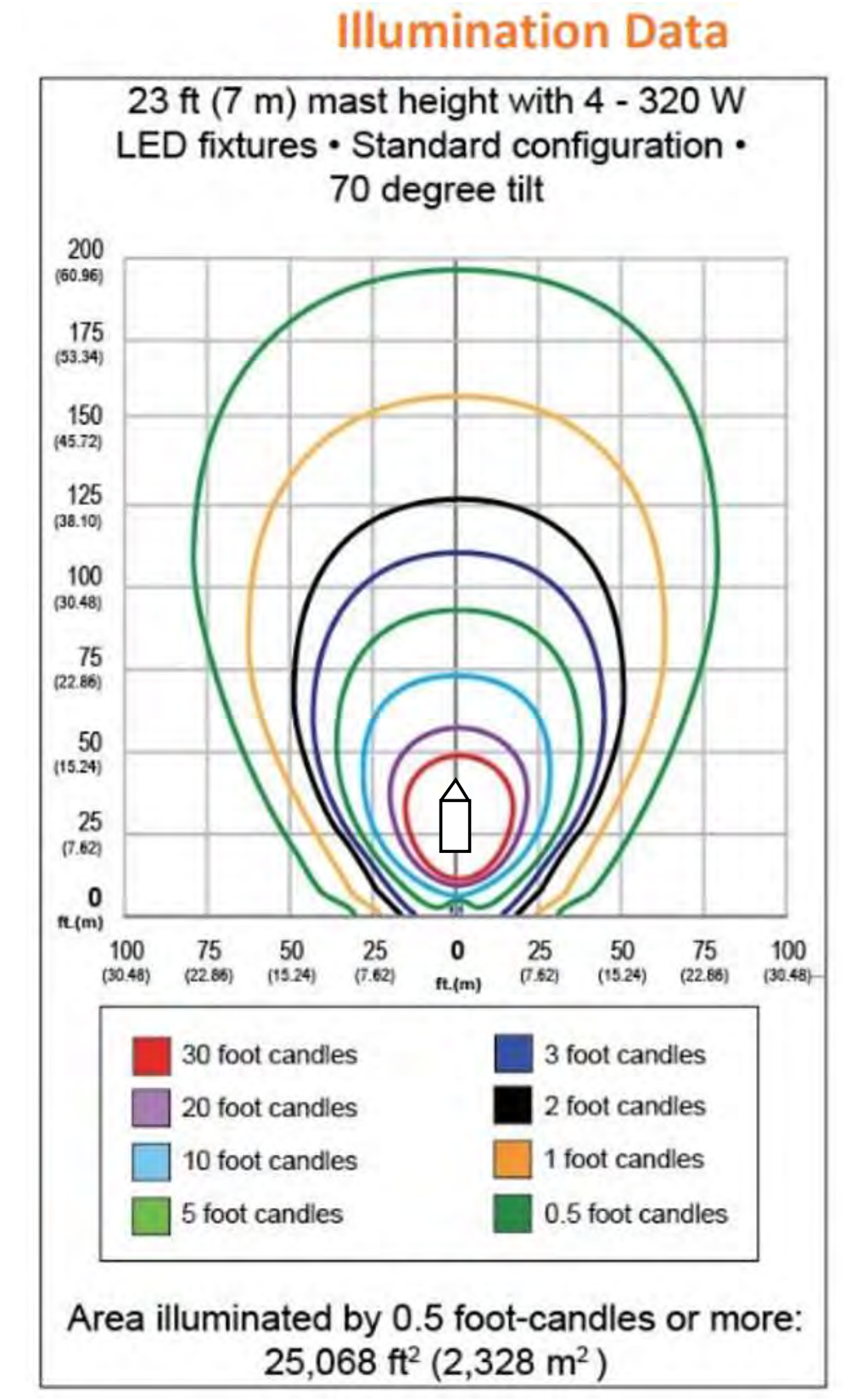
6 SHEET A7 TYPICAL TEMP. LIGHT TRAILER TOWER
SCALE: 1" = 3.0'



NOTES:

- FIXED TRAILER LIGHTING SYSTEMS WILL BE UTILIZED THROUGHOUT THE SITE FOR THE PURPOSE OF LIGHTING TO SUPPORT THE PROPOSED USE. LIGHT WILL USE POWER FROM GENERATOR. TIME OF USE WILL BE FROM SUNSET TO SUNRISE TO PROVIDE SITE ILLUMINATION AND SECURITY.

Illumination Data



SITE PLAN REPRESENTATION



7 SHEET A7 MATERIAL LOADER

870E Hybrid Technical data, equipment R

MACHINE TYPE	
Model (type)	870

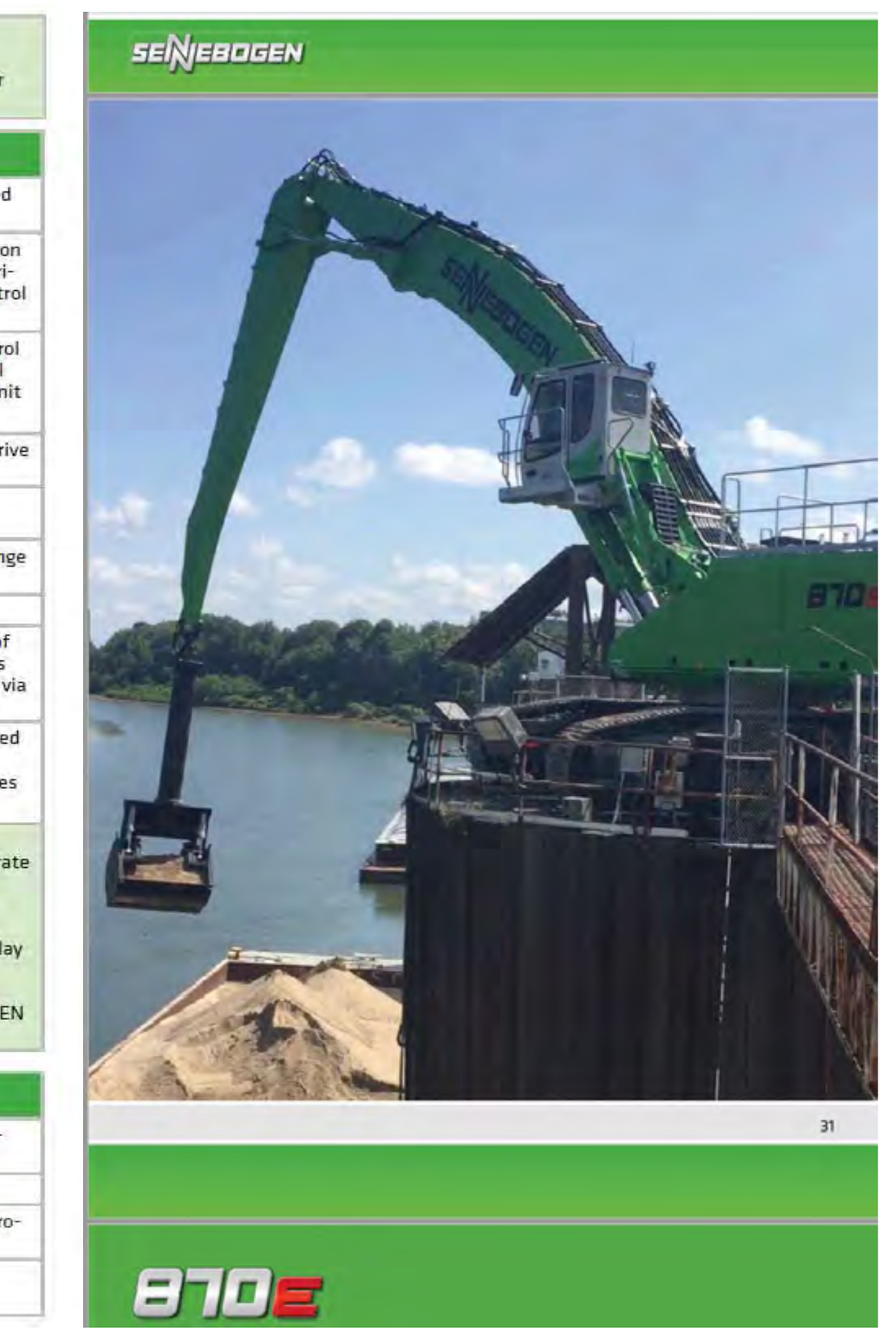
ENGINE	
Power	Stage V: 261 kW at 1800 min⁻¹; Stage IIIa: 268 kW at 1800 min⁻¹
Model	Cummins 12 (Stage V); Cummins 11 (Stage IIIa); Direct injection, turbo charged, intercooling, reduced-emission, ECO mode, idle automation, automatic stop/start, fuel preheating
Cooling	Water-cooled, cooling fans change direction
Diesel filter	with water separator and heater
Air filter	Dry filter with integrated pre-separator, automatic dust discharge, main element and safety element, contamination indicator
Fuel tank	1000 l
DEF tank	100 l
Electr. system	24 V
Batteries	2 x 180 Ah, battery disconnect switch
Options	▪ Engine block heater ▪ Electric fuel pump ▪ Jump start pole

UPPERCARRIAGE	
Design	Torsion-resistant box design, precision crafted, steel bushings for boom mounting. Very service-friendly design, engine installed in the longitudinal direction
Central lubrication	Automatic central lubrication for equipment and live ring track
Electro	Central electrical distributor, battery disconnect switch
Cooling system	3-circuit cooling system with high cooling output, thermostatically regulated fan drive for oil cooler and water cooler, fan reversal for cleaning
Options	▪ Swing bearing brake via foot pedal ▪ LED lighting packages ▪ Fire extinguisher ▪ Sea climate resistant coating as corrosion protection ▪ Electric heater for hydraulic tank

Options	▪ SENtrack DS telematic system ▪ Low temperature package ▪ Hydraulically-driven magnetic generator 25 kW / 33 kW

HYDRAULIC SYSTEM	
Load-sensing/ LUDV hydraulic system, hydraulically operated work functions, load limit control	
Pump type	Swash plate-type variable-displacement piston pump, load pressure-independent flow distribution for simultaneous, independent control of work functions
Pump control	Zero-stroke control, on-demand flow control – the pumps only pump as much oil as will actually be used, pressure purging, load limit control
Flow rate	2x 475 l/min and 1x 274 l/min for rotary drive in the closed circuit
Operating pressure	up to 350 bar
Filtration	High-performance filtration with long change interval
Hydraulic tank	900 l
Control system	Proportional, precision hydraulic actuation of work movements, 2 hydraulic servo joysticks for the work functions, additional functions via switches and foot pedals
Safety	Hydraulic circuits with safety valves, secured emergency lowering of the equipment at engine standstill, pipe fracture safety valves for lift cylinder and stick cylinder
Options	▪ Bio-oil – environmentally friendly ▪ Tool Control for programming pressure/rate of up to 10 tools ▪ Supplementary hydraulic circuit for shear attachment ▪ Load moment warning with capacity display ▪ Overload safeguard with shutdown ▪ 60 µm pressure filter for attachments ▪ 3 µm hydraulic micro-filter - SENNEBOGEN HydroClean

ROTARY DRIVE	
Gearbox	Compact planetary gear with bent-axis hydraulic engine, integrated brake valves
Parking brake	Spring-loaded multi-disk brake
Slewing ring	Externally geared slewing ring with 360° protection and pinion lubrication
Slewing speed	0-5 min⁻¹, variable



CAB maXcab	
Cab elevation	E270, hydraulically elevating cab
Cab equipment	Sliding door inc. sliding pane, vibration damped, tinted safety glass, front pane can be openend, roof window, windscreen wiper for front pane, radio preparation, air-suspended comfort seat, joystick steering, SENNEBOGEN SENCON control & diagnosis system
Options	▪ 30 ° tiltable cab ▪ Cab elevation E300/260, can be elevated and moved forward hydraulically ▪ Cab elevation Skylift 700/900 ▪ Mastercab (Large-capacity port cab) ▪ Maxcab Industry ▪ Armored-glass windshield ▪ Armored-glass sunroof ▪ Safety side window and rear window ▪ Windscreen wiper for front window/skylight ▪ Rolling shade for roof window and windshield ▪ FOPS protective roof guard ▪ Protective front guard ▪ Charcoal filter for circulating and outside air ▪ Auxiliary heating ▪ Climatic seat ▪ Radio ▪ Electric cool box

EQUIPMENT	
Design	Decade-long experience, most advanced computer simulation, the greatest degree of stability and longest service life, large-scale mounting points and precision-crafted sealed low-maintenance special bushings, quick change couplings for connecting/removing/turning grabs
Cylinders	Hydraulic cylinders with high-quality sealing and guide elements, end position damping, sealed bearing points
Options	▪ Ball valves in the hydraulic lines for quick and easy grab switching ▪ Sea climate resistant coating ▪ Sea climate resistant coating of all cylinders, nickel-plated and chrome-plated ▪ Equipment floating position ▪ Adjustable stroke limiter / stick limiter ▪ LED lighting ▪ Stick mounted camera

UNDERCARRIAGE	
Design	Wide-gauge crawler undercarriage in stable, torsionally rigid box construction.
Drive	Hydraulic travel drive, integrated in the traveling gear frame for each traveling gear side through an axial piston engine via compact planetary gear.
Parking brake	Spring-loaded, hydraulically ventilated disk brakes. Hydraulic brake valves protect the drive engines when moving downhill.
Traveling gear	R83-450 telescopic crawler undercarriage with 2.8 – 4.5 m mechanical track adjustment and maintenance-free B8b crawler track (63 links, 7,000 mm long) with 800 mm canted triple grouser shoes.
Speed	0 - 1.6 km/h Stage I, 0 - 3 km/h Stage II
Options	▪ Maintenance-free B8b crawler track with 900 mm rounded flat track shoes ▪ Maintenance-free B8b crawler track with 900 mm canted triple grouser shoes ▪ R90-550 special undercarriage with integrated 2 m pylon ▪ P136-585 crawler gantry with 5 m vertical clearance

ELECTRIC DRIVE eGREEN	
Option	▪ Power: 250 kW / 400 V / 50 Hz Total connected load 410 kVA, machine side fuse 500 A (alternatively 630 A with magnet system) for 400 V - star-delta connection engine start ▪ Advantages: lowest operating costs, low-noise and virtually vibration-free work, long service life of the hydraulic components

OPERATING WEIGHT	
Mass	approx. 104,000 kg Basic 870 R machine with K18 equipment and 3000 l orange peel grab
Note	The operating weight varies depending on the equipment.

SCALE: SEE VIEWS
00 01 02 04

811 Know what's below. Call before you dig.

NATHANIEL GOODEN, P.E. LIC. NO. 106240 REGISTERED THRU 31JULY25 FIRM AUTHORIZATION# 0020128 NOT FOR CONSTRUCTION	COMPANY: CAESAR ENGINEERING D.P.C.	DATE: 10JAN24	PROJECT SPONSOR NUMBER: 845.225.8252
	CONTACT: 845.275.0230 contact@caesarengineering.work	DESIGNED BY: NG / NC	PROJECT SPONSOR: AC AGGREGATES, LLC.
	BUSINESS ADDRESS: 367 WINDOSR HWY #411 NEW WINDSOR, NY, 12553	DRAWN BY: NG / NC	PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590
	PROJECT: AC AGGREGATES INDUSTRIAL SITE PLAN	PROJECT NUM: P187	PROJECT ADDRESS: 70 PROSPECT ST., 72-78 PROSPECT ST., 4 SUNFISH COVE RD., POUGHKEEPSIE, NY 12601

DATE	REVISION DESCRIPTION	REV #

SHEET IDENTIFICATION
A7
PROPOSED EQUIPMENT & DETAILS 1
SHEET 7 OF 8 TOTAL SHEETS

A8 PROPOSED EQUIPMENT & DETAILS 2

8 SHEET A8 — PORTABLE TRUUCK SCALE
N.T.S.



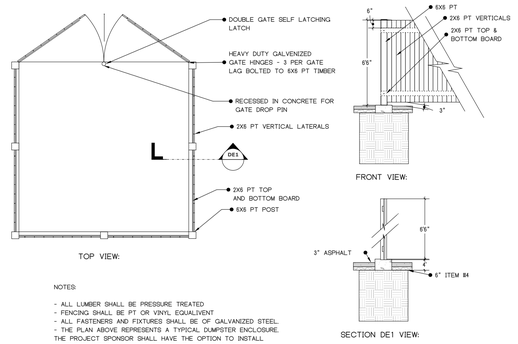


NOTES:

TWO PORTABLE TRUCK SCALES WILL BE USED ON SITE AS DEPICTED IN THE PROPOSED SITE PLANS. TRUCK SCALES WILL BE USED IN CONNECTION WITH BUILDING MATERIAL STORAGE OPERATIONS.

THE SCALE DEPICTED IS FOR REPRESENTATION PURPOSES ONLY. FINAL SELECTION MAY BE DIFFERENT BUT WILL BE SIMILAR IN NATURE. MANUFACTURER TO PROVIDE ALL SPECIFICATIONS AS NEEDED.

10 SHEET A8 — TYPICAL DUMPSTER ENCLOSURE DETAIL AS REQUIRED
NOT TO SCALE



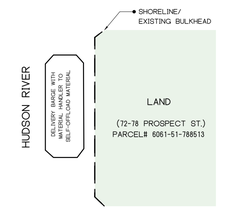
NOTES:

- ALL LUMBER SHALL BE PRESSURE TREATED
- FENCING SHALL BE PT OR VINYL, EQUALIVENT
- ALL FASTENERS AND FIXTURES SHALL BE OF GALVANIZED STEEL.
- THE PLAN ABOVE REPRESENTS A TYPICAL DUMPSTER ENCLOSURE. THE PROJECT SPONSOR SHALL HAVE THE OPTION TO INSTALL A FEATURE MEETING SIMILAR REQUIREMENTS AND IS EQUAL IN PERFORMANCE, BUT CAN BE OF AN ALTERNATE DESIGN OR MATERIALS.

12 SHEET A8 — TYPICAL MATERIAL DELIVERY BARGE



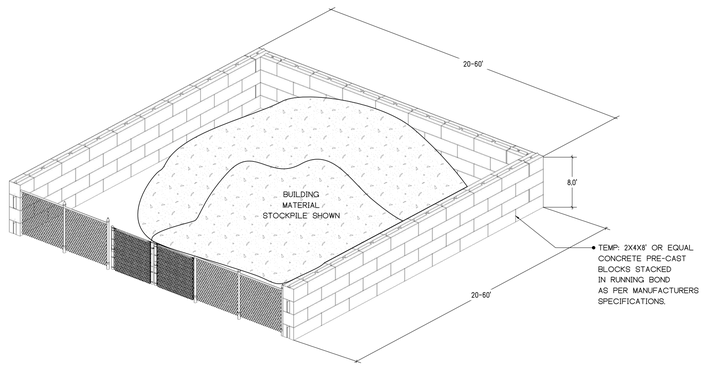
SIMPLIFIED DOCKING DIAGRAM



NOTES:

- DELIVERY BARGES WILL CONTAIN THEIR OWN SELF-OFFLOADING CAPABILITIES USING AN E-CRANE OR SIMILAR AS DEPICTED. BARGE WILL ONLY BE ON SITE TO PERFORM LOGISTICS OPERATIONS. ONCE OPERATIONS ARE COMPLETE, BARGE WILL DEPART SITE.

11 SHEET A8 — TYPICAL BUILDING MATERIAL CONFINEMENT
SCALE: 1" = 10'



NOTES:

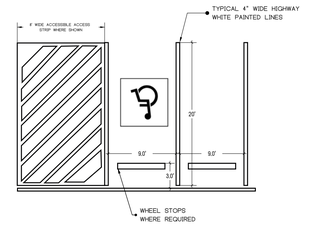
- MATERIAL CONFINEMENT WILL BE ACHIEVED VIA UTILIZATION OF PRE-CAST CONCRETE BLOCKS STACKED IN RUNNING BOND PATTERN AROUND THE VICINITY OF THE MATERIAL STOCKPILE. CONTROLLED ACCESS TO THE MATERIAL STOCK PILE WILL BE PROVIDED WITH A FENCE AS SHOWN WITH A GATE THAT CAN BE SECURED BUT WILL ALLOW FOR CONSTRUCTION EQUIPMENT TO ENTER AND EXIT AS REQUIRED. THE ABOVE CONFIGURATION IS A VERSION OF WHAT CAN BE INSTALLED ON SITE IF ALTERNATE OPTIONS ACHIEVE THE SAME PERFORMANCE STATE OF CONFINING THE MATERIAL AND SECURING ACCESS.

- THE INTENT OF THE MATERIAL STOCKPILE CONTAINMENT IS TO PROVIDE A FULLY TEMPORARY, NON-PERMENANT STRUCTURE THAT ALLOWS FOR THE STRUCTURED AND SAFE STORAGE OF UNCONFINED APPROVED BUILDING MATERIALS SUCH AS SAND AGGREGATE.

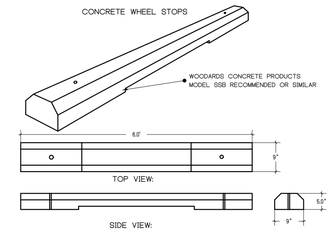
- THIS CONFINEMENT MECHANISM SHALL BE SITUATED SO THAT IT CAN BE ALTERED TO MEET THE NEEDS OF THE MATERIALS IMPORTED. THE MATERIAL STOCKPILE WILL REMAIN AT OR BELOW THE REQUIRED 8' SCREENING AS REGULATED IAW ZONING REGULATION 19-4.10(2)(A).

- ALL MATERIALS BROUGHT IN AND STORED ON SITE WILL BE BUILDING MATERIALS OF AN APPROVED USE AS ZONING REGULATION 19-3.30-2(A)(1) WILL BE OF A SELECT GRADE, AND WILL BE ABSENT UN-APPROVED MATERIALS SUCH AS COAL, COKE, FUEL, OR JUNK.

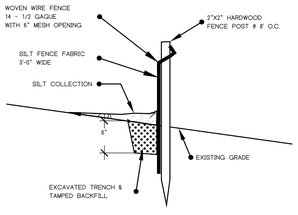
13 SHEET A8 — TYPICAL PARKING SPACES & STRIPING DETAIL
SCALE: 1" = 10'

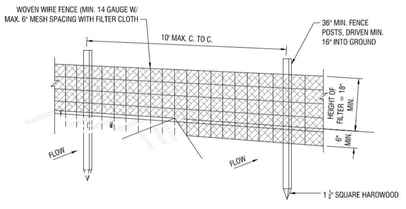


CONCRETE WHEEL STOPS



19 SHEET A8 — SILT FENCE





SCALE: SEE VIEWS
00 01 02 04

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NATHANIEL GOODEN, P.E. LIC. NO. 106240 REGISTERED THRU 31JUL'25 FIRM AUTHORIZATION# 002039 NOT FOR CONSTRUCTION	COMPANY: CAESAR ENGINEERING D.P.C.	DATE: 10JAN24	PROJECT SPONSOR NUMBER: 845.225.8252
	CONTACT: 845.275.0230 contact@caesarengineering.work	DESIGNED BY: NG / NC	PROJECT SPONSOR: AC AGGREGATES, LLC.
	BUSINESS ADDRESS: 367 WINDSOR HWY #411 NEW WINDSOR, NY, 12553	DRAWN BY: NG / NC	PROJECT SPONSOR ADDRESS: 228 MYERS CORNERS ROAD WAPPINGER FALLS, NY 12590
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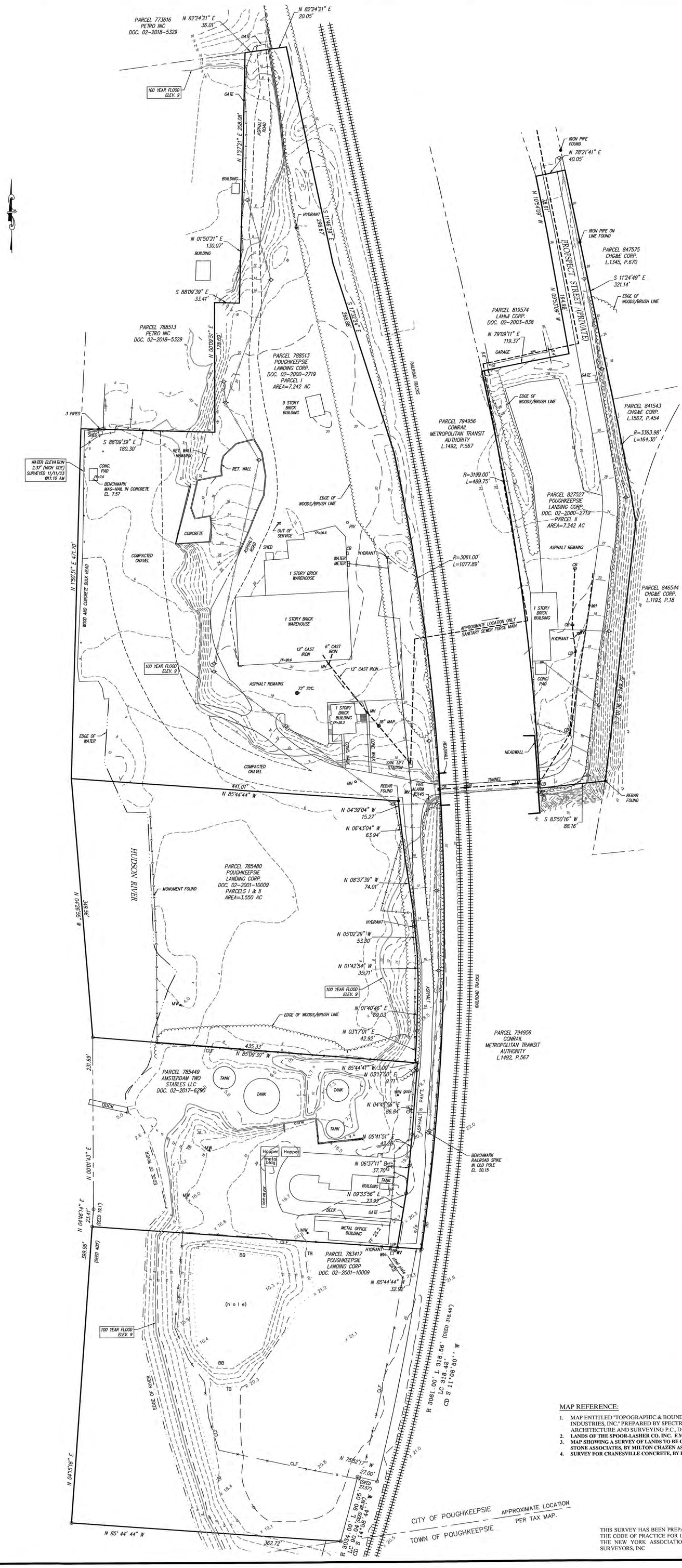
DATE	REVISION DESCRIPTION	REV #

SHEET IDENTIFICATION: A8 — PROPOSED EQUIPMENT & DETAILS 2 — SHEET 8 OF 9 TOTAL SHEETS



LEGEND

- IRON PIPE/STEEL REBAR
- FIRE HYDRANT
- WV WATER VALVE
- CB CATCH BASIN
- MH MANHOLE
- SAN SANITARY
- UTILITY POLE
- OVERHEAD WIRE
- CHAIN LINK/WIRE FENCE
- EDGE OF RIVER

50 0 50 100

SCALE : 1" = 50'

L.1406 P.338

1.INGRESS/EGRESS THROUGH UNDERPASS UNDER TRACKS.
2.RIPARIAN RIGHTS.
3.ALL RAILROAD TRACKS & BLDGS.
4.TO USE UTILITY LINES ADJACENT TO OR ACROSS PREMISES. 5.MORE EASEMENTS TO & FROM PROSPECT STREET.
6.TAP THE WAYER LINE.
7.RAILROAD SIDING.
8.LOCATION OF DOLPHIN.
9.CONSTRUCT DOCK BOLLARD AND DOLPHIN.
10.ENTER VARIOUS RIGHTS OF WAY TO SERVICE LINES.

L.345 P.51
REFERENCE TO BRIDGE No. 192, WIDTH, HEADROOM, EXCAVATION & FILL.

L.556 P.467
USE OF ROADWAY FROM PROSPECT STREET.
NECESSARY DOLPHINS, DOCK & BOLLARD.
BOAT DOCKING & OVERLAP.
LOAD/UNLOAD FROM RAILROAD SIDING.

L.505 P.164
RIPARIAN RIGHTS.
30' RIGHT OF WAY TO MAINTAIN UTILITIES TO & FROM PROSPECT STREET.

L.362 P.434
GRADE TO ELEV. 16.
CONSTRUCT SIDE TRACKS
CONSTRUCT & MAINTAIN SLOPES OF ITS EMBANKMENT.
CONSTRUCT & MAINTAIN RETAINING WALL.

L.556 P.467
A. PERPETUAL USE OF CONCRETE ROADWAY.
B. RIGHT OF WAY OVER MACADAM ROAD, A DISTANCE OF 200 FEET.
C. TELEPHONE , WATER & POWER LINES.
D. DOLPHINS, TEMPORARY DOCK & BOLLARD
E. WHARFAGE FEE OF $25, MAY BE CANCELED.
F. DOCKING OVERLAP EITHER NORTH OR SOUTH
G. LOAD & UNLOAD FROM RAILROAD SIDING.
H. RESTRICT CONCRETE, MASON OR BLDG MATERIAL
I. GRANTEE SHALL INCLUDE ITS SUCCESSORS & ASSIGNS.

NOTES:

UNDERGROUND UTILITIES OR STRUCTURES, IF ANY, NOT SHOWN.

NO PHYSICAL BOUNDS UNLESS OTHERWISE SPECIFIED.

100 YEAR FLOOD LINE PER "FIRM" FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL NUMBER 3602220002B, DATED JAN. 5, 1984.

GENERAL NOTES:

1. SUBJECT TO ANY AND ALL ENFORCEABLE COVENANTS, CONDITIONS, EASEMENTS, RESTRICTIONS AND AGREEMENT OF RECORD.
2. VERTICAL DATUM REFERENCED TO NAVD88.

MAP REFERENCE:

1. MAP ENTITLED "TOPOGRAPHIC & BOUNDARY SURVEY FOR O & G INDUSTRIES, INC." PREPARED BY SPECTRA ENGINEERING, ARCHITECTURE AND SURVEYING P.C., DATED APRIL 7, 2005.
2. **LANDS OF THE SPOOR-LASHER CO. INC. F.M. No. 1540.**
3. **MAP SHOWING A SURVEY OF LANDS TO BE CONVEYED TO SAND AND STONE ASSOCIATES, BY MILTON CHAZEN ASSOCIATES.**
4. **SURVEY FOR CRANESVILLE CONCRETE, BY RICHARD G. BARGER.**

THIS SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH THE CODE OF PRACTICE FOR LAND SURVEYS ADOPTED BY THE NEW YORK ASSOCIATION OF PROFESSIONAL LAND SURVEYORS, INC

STATE OF NEW YORK
CARNEY RHINEVAULT
LICENSED LAND SURVEYOR
No. 49097

CARNEY RHINEVAULT NYSLS No. 49097

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

MAP OF PROPERTIES OF

POUGHKEEPSIE LANDING CORP.

TAX PARCEL NUMBERS 785480, 788513 & 785480
SITUATE AT
PROSPECT STREET
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK

SURVEYED BY CARNEY RHINEVAULT

6 Main Street
Hyde Park, NY 12538
TEL (845) 229-8225

12/20/2023	SCALE: 1"=50'	PROJ NO. 23-207	SHEET 1 OF 1

GEOGRAPHIC INDEX 41–41–19.8 –73–56–15.7

T.M. : MULTI

Drawn by NTK

Spell checked by NTK

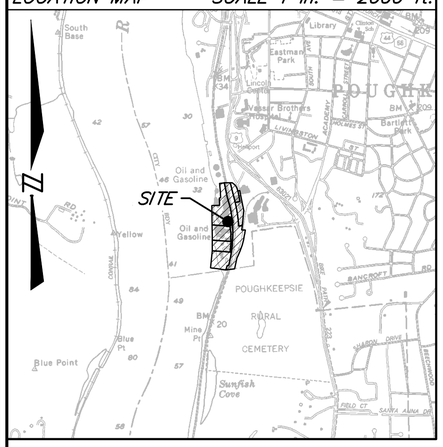
Checked by SRM

W.O. No. 26758

Layout: MAP

Drawing Name: S:\26758__R01_V22.DWG

LOCATION MAP SCALE 1 in. = 2000 ft.



N

HUDSON RIVER

Reciprocal rights to bollards, dolphins and dock construction and use
(See Liber 505 cp 164, Liber 556 cp 467, Liber 558 cp 347 and Liber 1406 cp 338)

Shore Line

Perpetual Right of Way to Petro, Inc;
right to connect to utilities
(See Liber 558 cp 347)

Now or formerly Petro Inc.
Tax Parcel No. 6061–51–772569

Now or formerly
Poughkeepsie Landing Corp.
Tax Parcel No. 6061–59–783417

Now or formerly
Amsterdam Two Stables LLC.
Tax Parcel No. 6061–59–795449

Now or formerly
Poughkeepsie Landing Corp.
Tax Parcel No. 6061–59–785480

Reciprocal rights to tracks and sidings
(Liber 505 cp 164, Liber 556 cp 467 and Liber 1406 cp 338)

Now or formerly
Poughkeepsie Landing Corp.
Tax Parcel No. 6061–51–788513

Easement for ingress, egress and utilities; right to connect to and extend utilities
(Liber 505 cp 164, 556 cp 467 and 1406 cp 338)

Agreement for construction of
embankment and trackage
(See Liber 362 cp 434)

Now or formerly Conrail (MTA)
Tax Parcel No. 6061–27–794956

Bridge 192
(See Liber 345 cp 51)

Pole Easement
(See Liber 820 cp 307)

Now or formerly Conrail (MTA)
Tax Parcel No. 6061–27–794956

Agreement for construction of
embankment and trackage
(See Liber 362 cp 434)

Now or formerly Lahiji Corp.
Tax Parcel No. 6061–51–819574

PROSPECT STREET

FOX STREET

Now or formerly
Poughkeepsie Landing Corp.
Tax Parcel No. 6061–51–827527

PROSPECT STREET (Private)

Easement for ingress, egress and utilities in favor
of parcels located West of railroad.
(See Liber 505 cp 164, Liber 556 cp 467 and
Liber 1406 cp 338)

Notes

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2. Unauthorized alteration or addition to a document prepared by a licensed land surveyor is a violation of Section 7209, Subdivision 2 of the New York State Education Law.
3. This map is NOT a BOUNDARY SURVEY and should NOT be used for title purposes.
4. The purpose of this map is to show the location of various easements, rights and convenants associated with a site plan for AC Aggregates, LLC. The shaded areas hereon represent the parcels which are the subject of the site plan
5. The base mapping hereon is taken from the Dutchess County Parcel Access and a site plan prepared for AC Aggregates, LLC, prepared by Casear Engineering D.P.C.
6. This map was prepared without benefit of a title report. Easements noted are taken from those deeds referenced hereon and obtained from the Dutchess County Clerk. Users are cautioned that other documents may exist which may affect the premises.

BADEY & WATSON
Surveying & Engineering, D.P.C.
3063 Route 9
Cold Spring, NY 10516
www.Badey-Watson.com
845.265.9217
877. 3.141593 (Toll Free)

PRINTED
April 4, 2023
BADEY & WATSON
Surveying & Engineering, D.P.C.

MAP OF EASEMENTS
PREPARED FOR
AC AGGREGATES, LLC
SITUATE IN THE
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY
NEW YORK

SCALE 1 in. = 80 ft. APRIL 4, 2023

FILE No. 23–112

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: AC Aggregates, LLC Material Distrbritution		
Project Location (describe, and attach a general location map): 70 Prospect St., 72-78 Prospect St., 4 Sunfish Cove. Rd., Poughkeepsie, NY 12601		
Brief Description of Proposed Action (include purpose or need): The project sponsor wishes to execute material storage and distribution operations within their current contiguous parcel(s) (Dutchess County Tax IDs: 6061-51-827527; 6061-51-788513; and 6061-59-785480). The proposed action is proposed to be split into 2 phases. During Phase 1, only parcels 6061-51-827527 and 6061-51-788513 will be utilized for operations which will consist of bringing in approved building materials via barges and stockpiling the material on site before being loaded onto trucks that will haul the material off-site and deliver it to prospective customers. During Phase 2, operations will expand to parcel 6061-59-785480. A portion of land on parcel 6061-59-785480 will be raised out of the 100-year flood plain using clean fill during Phase 2 in order to mitigate the effects of flooding and erosion on stored material. Light clearing of the site will be conducted at the location of the proposed storage areas. AC Aggregates LLC is the project sponsor and their contact information is listed below. Please note that as requested by the City of Poughkeepsie, the parcels are being considered as one contiguous parcel for the purposes of this Full Form EAF. Please see sponsor details below:		
Name of Applicant/Sponsor: AC Aggregates, LLC	Telephone: 845-225-8252 E-Mail: office@ac-agg.com	
Address: 228 Myers Corners Road		
City/PO: Wappingers Falls	State: NY	Zip Code: 12590
Project Contact (if not same as sponsor; give name and title/role): Nathaniel Gooden, P.E.	Telephone: 845-275-03825 E-Mail: Contact@caesarengineering.work	
Address: 30 3rd St.		
City/PO: Troy	State: NY	Zip Code: 12180
Property Owner (if not same as sponsor): Poughkeepsie Landing Corporation	Telephone: E-Mail:	
Address: PO BOX 410		
City/PO: Brewster	State: NY	Zip Code: 10509

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes ☑No		
b. City, Town or Village Planning Board or Commission ☑Yes ☐No		
c. City, Town or Village Zoning Board of Appeals ☐Yes ☐No	Will apply as directed by City Of Poughkeepsie and Dutchess County.	
d. Other local agencies ☐Yes ☐No	Will apply as directed by City Of Poughkeepsie and Dutchess County.	
e. County agencies ☐Yes ☐No	Will apply as directed by City Of Poughkeepsie and Dutchess County.	
f. Regional agencies ☐Yes ☑No		
g. State agencies ☐Yes ☐No	As applicable, will apply to relevant agencies (i.e. New York State DEC).	
h. Federal agencies ☐Yes ☐No	If applicable, will apply to relevant agencies (i.e. USACE).	

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☑Yes ☐No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☑Yes ☐No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☑Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☑No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

_____

_____

_____

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
I-2 Industrial

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site?

C.4. Existing community services.

a. In what school district is the project site located? Poughkeepsie City School District

b. What police or other public protection forces serve the project site?
City of Poughkeepsie Police Department

c. Which fire protection and emergency medical services serve the project site?
City of Poughkeepsie Fire Department

d. What parks serve the project site?
N/A.

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Industrial

b. a. Total acreage of the site of the proposed action? 11.7 acres
b. Total acreage to be physically disturbed? 1.5 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 11.7 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☑ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☑ Yes ☐ No
i. If No, anticipated period of construction: _____ months
ii. If Yes:
- Total number of phases anticipated 2
- Anticipated commencement date of phase 1 (including demolition) 2 month 2024 year
- Anticipated completion date of final phase 12 month 2024 year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases:

During Phase 1, only parcels 6061-51-827527 and 6061-51-788513 will be used to store and distribute materials. Phase 2 will only commence if operations during Phase 1 are economically viable. Phase 2 involves expanding storage operations to parcel 6061-59-785480 and raising it out of the flood plain.

f. Does the project include new residential uses? ☐Yes ☑No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☐Yes ☑No

If Yes,

i. Total number of structures _____

ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length

iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes ☑No

If Yes,

i. Purpose of the impoundment: _____

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐Other specify:

_____

iii. If other than water, identify the type of impounded/contained liquids and their source.

_____

iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres

v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐Yes ☑No

If Yes:

i .What is the purpose of the excavation or dredging?

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

_____

_____

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No

If yes, describe. _____

_____

v. What is the total area to be dredged or excavated? _____acres

vi. What is the maximum area to be worked at any one time? _____ acres

vii. What would be the maximum depth of excavation or dredging? _____ feet

viii. Will the excavation require blasting? ☐Yes ☐No

ix. Summarize site reclamation goals and plan: _____

_____

_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____

_____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:

_____

_____

_____

_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☑ No

If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☑ No

If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____

_____

- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

_____

c. Will the proposed action use, or create a new demand for water? ☑ Yes ☐ No

If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☑ Yes ☐ No

If Yes:

- Name of district or service area: City of Poughkeepsie Water
- Does the existing public water supply have capacity to serve the proposal? ☑ Yes ☐ No
- Is the project site in the existing district? ☑ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☑ No
- Do existing lines serve the project site? ☑ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☑ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☑ No

If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☑ No

If Yes:

i. Total anticipated liquid waste generation per day: 2 gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

The only sanitary waste will be generated by portable toilets and wash stations. Sanitary waste management will be handled and disposed of by third party services.

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☑ No

If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

- Do existing sewer lines serve the project site? ☑ Yes ☐ No
- Will a line extension within an existing district be necessary to serve the project? ☐ Yes ☑ No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐ Yes ☑ No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑ Yes ☐ No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

0 Square feet or 0 acres (impervious surface)

0 Square feet or 0 acres (parcel size)

ii. Describe types of new point sources. _____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

The proposed disturbance raises the existing land with clean fill. No impervious surfaces and/or permanent structures are proposed. Any storm water will continue to drain to groundwater or existing storm water features on site. Please see attached site plan.

- If to surface waters, identify receiving water bodies or wetlands: _____

The Hudson River is within the property boundary. No impervious surfaces are being proposed. Please see attached site plan.

- Will stormwater runoff flow to adjacent properties? ☐ Yes ☑ No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑ Yes ☐ No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☑ Yes ☐ No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

Heavy Equipment (Front Loaders, Dump trucks, Pick up Trucks), Service Trucks

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

Generators for site lighting. Material Conveyors.

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐ Yes ☑ No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐ Yes ☐ No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☑No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☑Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

Grid local/Utility. Small Generators for _____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☑No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 00:00 - 23:59
- Saturday: 00:00 - 23:59
- Sunday: 00:00 - 23:59
- Holidays: None

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☑ No

If yes:

i. Provide details including sources, time of day and duration:

Noise from equipment, machinery, and vehicles will be emitted during operations, however these noise levels reflect the ambient noise of the I-2 District. All adjacent parcels are zoned I-2 or R&D (see zoning map). The parcel also abuts an active MTA line, the Hudson River, and Route 9 that operate 24/7.

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe: Existing natural barriers will be trimmed back in accordance with applicable zoning regulations per the City of Poughkeepsie (sec. 19-4.11).

n. Will the proposed action have outdoor lighting? ☑ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

See Attached Site Plan for lighting plan. No residential zoned properties abut parcel. Nearest "occupied" structure is Vasser Brothers Medical Center.

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☑ No

Describe: Existing natural barriers will be trimmed back in accordance with applicable zoning regulations per the City of Poughkeepsie (sec. 19-4.11). Natural barriers (i.e. trees/brush/cliffs) are greater than 30' in height.

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities: _____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____
- Operation: _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____
- Operation: _____

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☑ Industrial ☐ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☐ Forest ☐ Agriculture ☑ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

Industrial in/around project site. Hudson River is major aquatic feature to west of project site.

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	6.5	6.5	0
• Forested	0	0	00
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	1	1	0
• Agricultural (includes active orchards, field, greenhouse etc.)	0	0	0
• Surface water features (lakes, ponds, streams, rivers, etc.)	.95	.95	0
• Wetlands (freshwater or tidal)	Same area as surface waters	Same area as surface water	0
• Non-vegetated (bare rock, earth or fill)	4.2	4.2	0
• Other Describe: _____			0

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No

i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No

If Yes,

i. Identify Facilities:

_____

_____

e. Does the project site contain an existing dam? ☐ Yes ☑ No

If Yes:

i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____

iii. Provide date and summarize results of last inspection:

_____

_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____

_____

iii. Describe any development constraints due to the prior solid waste activities: _____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____

_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☑ Yes ☐ No

If Yes:

i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☑ Yes ☐ No

☑ Yes – Spills Incidents database — Provide DEC ID number(s): 0007189, 0007290

☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____

☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____

_____

_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☑ Yes ☐ No

If yes, provide DEC ID number(s): B00190, 546031

iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

DEC Spill Incident # 0007189 was closed on 7/7/2014. DEC Spill Incident # 0007290 was closed on 12/30/2003.

_____

v. Is the project site subject to an institutional control limiting property uses? ☑ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): See attached survey and easement overlay
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☑ No
- Explain: _____

See attached survey and easement overlay. Access easements will not be altered as part of this proposed action.

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >6.5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site:

Udorthents	99.9 %
	%
	%

d. What is the average depth to the water table on the project site? Average: 4.5 feet

e. Drainage status of project site soils:

☑	Well Drained:	99.9 % of site
☐	Moderately Well Drained:	% of site
☐	Poorly Drained	% of site

f. Approximate proportion of proposed action site with slopes:

☑	0-10%:	90 % of site
☐	10-15%:	% of site
☑	15% or greater:	10 % of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters, Federal Waters, Federal Waters Approximate Size Hudson River
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☑ Yes ☐ No

If yes, name of impaired water body/bodies and basis for listing as impaired:
Name - Pollutants - Uses:Hudson River (Class A) – Priority Organics – Fish Consumption

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☑ Yes ☐ No

k. Is the project site in the 500-year Floodplain? ☑ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site:
Woodland animals in urban/suburban
Aquatic wildlife of Hudson River
See E.2.O for any endangered species.

n. Does the project site contain a designated significant natural community? ☑ Yes ☐ No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation): Limestone Woodland
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: 6.25 acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☑ Yes ☐ No
If Yes:
i. Species and listing (endangered or threatened): Atlantic Sturgeon, Bald Eagle, Shortnose Sturgeon

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No
If Yes:
i. Species and listing:

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☑ No
If Yes, provide county plus district name/number:

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☑ No
i. If Yes: acreage(s) on project site?
ii. Source(s) of soil rating(s):

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☑ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☑ Yes ☐ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☑ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☑ Yes ☐ No

If Yes:

i. Identify resource: Hudson River

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): National River

iii. Distance between project and resource: 0 miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

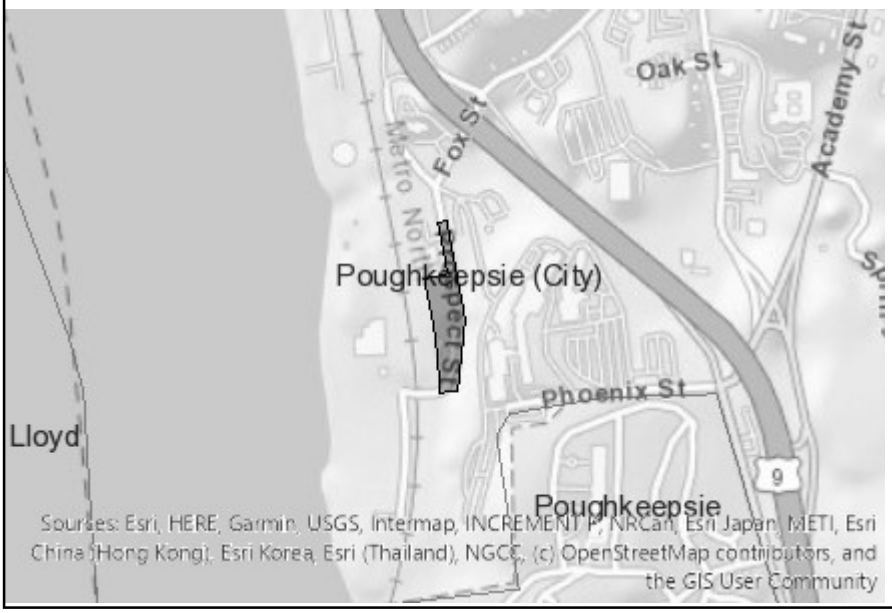
G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name BRIAN K DREELAND Date JAN 8, 2024

Signature Brian K Dreeland Title MANAGING MEMBER

PRINT FORM



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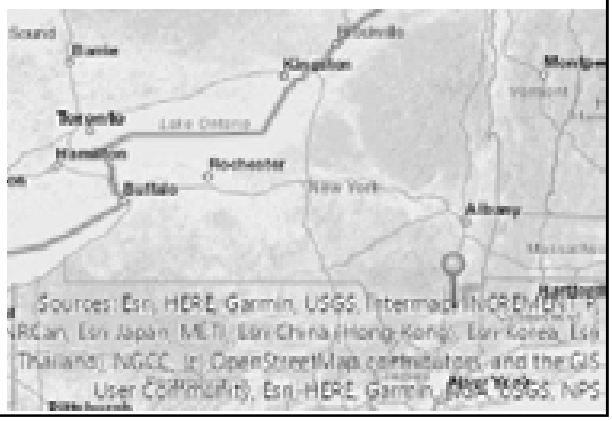
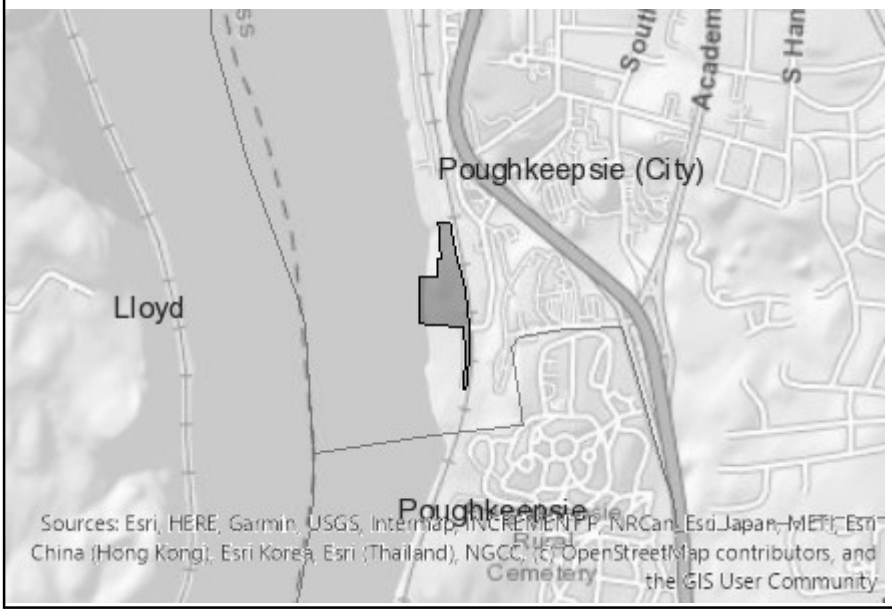


B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	Yes
E.1.h.iii [Within 2,000' of DEC Remediation Site - DEC ID]	B00190, 546031
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	No
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	No
E.2.k. [500 Year Floodplain]	No
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	Yes
E.2.n.i [Natural Communities - Name]	Limestone Woodland

E.2.n.i [Natural Communities - Acres]	6.25
E.2.o. [Endangered or Threatened Species]	Yes
E.2.o. [Endangered or Threatened Species - Name]	Atlantic Sturgeon, Bald Eagle, Shortnose Sturgeon
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No



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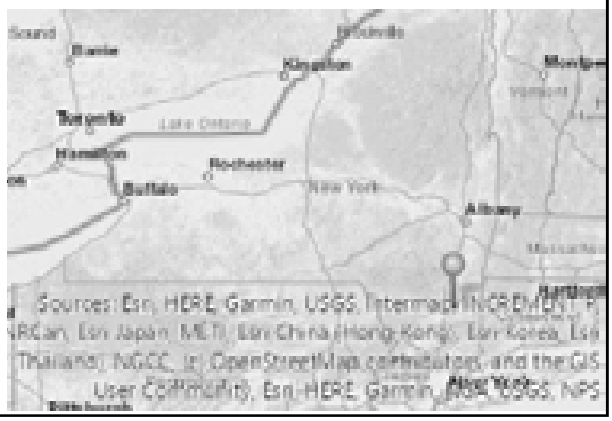

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E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	Yes
E.2.h.v [Impaired Water Bodies - Name and Basis for Listing]	Name - Pollutants - Uses:Hudson River (Class A) – Priority Organics – Fish Consumption
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes

E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	Yes
E.2.n.i [Natural Communities - Name]	Limestone Woodland
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E.2.o. [Endangered or Threatened Species]	Yes
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E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
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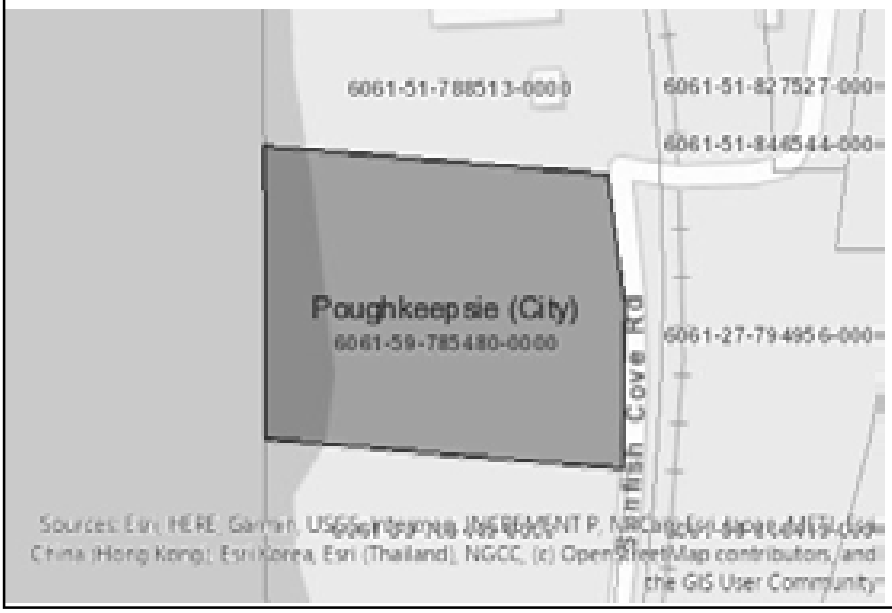

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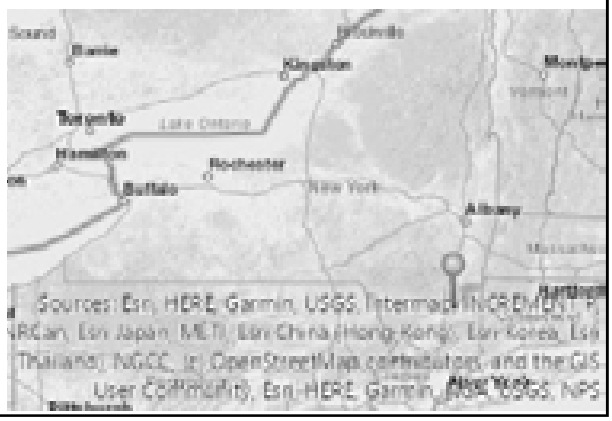

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E.2.h.v [Impaired Water Bodies]	Yes
E.2.h.v [Impaired Water Bodies - Name and Basis for Listing]	Name - Pollutants - Uses:Hudson River (Class A) – Priority Organics – Fish Consumption
E.2.i. [Floodway]	No
E.2.j. [100 Year Floodplain]	Yes
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E.2.l. [Aquifers]	No
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E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

THE CITY OF POUGHKEEPSIE
NEW YORK
DEVELOPMENT DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845) 451-4006

MEMORANDUM

To: City of Poughkeepsie Planning Board

From: Tyler Maegerle, Junior Planner

Date: 1/31/2024

Re: 70 Prospect Street

Upon review of project materials provided by the applicant, including Short EAF Part 1 and site plan application, it is my understanding that the proposed action to be undertaken includes a 24/7 material yard storage and distribution operation.

Based on the above description it is the determination of the planning division staff that the proposed action is classified as an Unlisted Action with regards to SEQRA, and therefore is subject to an uncoordinated or coordinated (optional) environmental review. This determination was made due to the fact that the proposed action was not expressly listed in 6 NYCRR Section 617.4 (Type I Actions) or 617.5 (Type II Actions).

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NEW YORK
DEVELOPMENT DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845) 451-4006

MEMORANDUM

To: City of Poughkeepsie Planning Board

From: Tyler Maegerle, Junior Planner

Date: 1/31/2024

Re: 72-78 Prospect Street

Upon review of project materials provided by the applicant, including Short EAF Part 1 and site plan application, it is my understanding that the proposed action to be undertaken includes a 24/7 material yard storage and distribution operation.

Based on the above description it is the determination of the planning division staff that the proposed action is classified as an Unlisted Action with regards to SEQRA, and therefore is subject to an uncoordinated or coordinated (optional) environmental review. This determination was made due to the fact that the proposed action was not expressly listed in 6 NYCRR Section 617.4 (Type I Actions) or 617.5 (Type II Actions).

Caesar Engineering D.P.C.
367 Windsor Highway #411
New Windsor, New York, 12553
845.275.0230
contact@caesarengineering.work
www.caesarengineering.work

To: City of Poughkeepsie and Dutchess County Departments & Boards

From: Nathaniel Gooden, P.E., Project Engineer
on behalf of AC Aggregates, LLC, Project Sponsor

Subject: AC Aggregates Industrial Site Plan Comment Response Letter

October 4th, 2023

Dear Officials, Board Members, and Stakeholders,

This letter is intended to formally address comments received on the AC Aggregates Site Plan dated 07JUN23 concerning 70 Prospect St., 72-78 Prospect St., and 4 Sunfish Cove Rd. in Poughkeepsie, NY (please be advised that an updated site plan has been submitted to the City of Poughkeepsie Planning Department as of 03OCT23). Within this letter are snippets of the comments and our responses to those comments received to date from various departments, agencies, and boards. The intent of this letter is to provide a response to the comments received and update the pertinent stakeholders on the status project overall. I ask that the readers of this document keep in mind that this is a "working" document and as such is not yet comprehensive. The responses so far only reflect the information and feedback received to date. Responses from key agencies such as the DEC are still incoming. Please see the below:

1. **City of Poughkeepsie Building Department (comments received 26JUN23)**
    a. **Comment:** *Required Flood Plain Permit with USACE review*
        i. **Response:** If required, the project sponsor intends to submit a formal flood plain development permit utilizing the form that was provided by the City of Poughkeepsie. Our firm has reached out to the U.S. Army Corps of Engineers (USACE) and was informed that a permit by USACE would be required if the project is below the Mean High Water (MHW) mark or the Spring High Tide (SHT) mark of the Hudson River. If it is determined that the project is outside of those marks, then a USACE permit will not be needed. The project sponsor will work with an appropriate professional to identify where the project is in relation to those markers and compliance with the guidance received from USACE.

2. **City of Poughkeepsie Waterfront Advisory Committee (comments received 27JUN23)**

   a. **Comment:** *Need for NRI Conservation Analysis… [comment summarized]*

      i. **Response:** Completed and submitted on 17JUL23.

   b. **Comment:** *Use of spud barge in shoreline/riverine habitat…[comment summarized]:*

      i. **Response:** After our discussion at the WAC meeting on 27JUN23 and planning board meeting on 16MAY23, it was understood that the best authority to review the use and/or impact of the operations on the marine environment (including use of the spud barge) is the DEC. As such our firm has sent over a copy of the most recent site plan to the DEC for review and commentary. It is expected that feedback will be received from the DEC to discuss the overall impact of the operation and applicable permits needed to operate in the Hudson River. Our firm will comply with the feedback from the DEC and forward the relevant information to the planning board regarding the impact/requirements of the spud barge.

   c. **Comment:** *Consider if a Stormwater Pollution Prevention Plan/and or Flood Plain Development Permit is required… [comment summarized]:*

      i. **Response:** Our firm has sent over a copy of the most recent site plan to the DEC for review and commentary. It is expected that feedback will be received from the DEC to discuss the need for a Stormwater Pollution Prevention Plan. Please see response 1.a.i in regard to the need for a flood plain development permit.

   d. **Comment:** *Consider the potential traffic impact on proximate local roads/communities… [comment summarized]:*

      i. **Response:** Using the Short Environmental Assessment Form (SEAF) Workbook, as a light industrial/warehousing land use that is less than 180,000 square feet (4 acres) in gross area (the project calls for no more than 2 acres to be used for material stockpiling), the project will generate less than 100 peak hour trips as defined in Table 1 (please see site plan dated 03OCT23 for reference). As such the impact on traffic is not a substantial increase according to the workbook. The project sponsor estimates that approximately 3 barges will visit the site per month and there will be around 25 truck trips from the site per day which is substantially below 100 peak hour trips. The trucks will also primarily use State Route 9 as the primary means of accessing the site as shown in the traffic diagram provided 3OCT23.

3. **City of Poughkeepsie Department of Public Works (comments received 14JUL23)**

    a. **Comment:** *Label contours on the site plan**.***
        i. **Response:** Completed. Please see the site plan dated 03OCT23

    b. **Comment:** *During a 7/11/2023 site visit with the applicant and their engineer, it was mentioned an access agreement exists for the Petro Inc.-owned parcel to the northwest of the site. Please show the easement on-site plan and provide a copy.*
        i. **Response:** See easement overlay attachment dated 4APR23. 3 additional copies were submitted to the City of Poughkeepsie planning department on 3OCT23.

    c. **Comment:** *Will a dust suppression system be used? If so, will water be needed? Provide details for water service if necessary.*
        i. **Response:** Dust suppression will be used on site. Details of the dust suppression system and water supply will be provided once a service conditions report on the water situation is performed.

    d. **Comment:** *A transportation corporation may need to be established for the 8" cast iron water service as it appears to serve multiple properties...[comment summarized]:*
        i. **Response:** Please see the easement overlay dated 4APR23. The adjoining properties mentioned have easement rights to establish their own service connection to the relevant supplier (i.e. City of Poughkeepsie Water). Please see the easement overlay for more details including the references to the relevant deed pages.

    e. **Comment:** *Show on the Site Plan all utilities, including overhe*ad.
        i. **Response:** Completed. Please see the site plan dated 03OCT23

    f. **Comment:** *All on-site hydrants are to be flow tested. Submit results to the City Engineering Department and City Fire Department for review.*
        i. **Response:** Will comply.

    g. **Comment:** *Inoperable hydrants are to be replaced with American Darling B-62-B-5 City Standard Hydrant(s).*
        i. **Response:** It is unknown which hydrants are operable/inoperable until a flow test and conditions report is completed. Once complete, inoperable hydrants that are required by the fire department for compliance or are relevant to the project will be replaced as needed.

h. **Comment:** *The project engineer shall certify existing private 8" cast iron water service has adequate capacity for the proposed use and all users. This includes fire flow.*

i. **Response:** Due to the proposed use of the site (stockpiling dry sand aggregate), there is no critical requirement for water use. As such the client does not foresee full utilization of the existing water lines. A conditions report will be conducted to determine the water service conditions on-site. Based on the results of that report, the project sponsor will develop and propose the most practical solution to meet water needs for the site (i.e. dust suppression and fire requirements as stipulated by the City of Poughkeepsie Fire Department, etc.).

i. **Comment:** *Locate and exercise all on-site water gate valves to ensure a full range of operation. Provide findings in the condition report. Include a discussion on the methodology of testing to support determination.*

i. **Response:** See response 3.h.i.

j. **Comment:** *Show on Site Plan owner to replace or repair any out-of-service or partially operable water gate valves identified in the condition report.*

i. **Response:** See response 3.h.i.

k. **Comment:** *Coordinate with City Fire regarding the adequacy of fire flow and demonstrate what is being requested is achieved.*

i. **Response:** See response 3.h.i.

l. **Comment:** *The retaining walls on-site appear to be in various states of deterioration. Provide condition and structural stability analysis certified by a NYS licensed Professional Engineer on all existing or proposed retaining walls. Provide a rehab plan for existing retaining walls as necessary.*

i. **Response:** Will comply.

m. **Comment:** *Contact the Army Corps of Engineers for review, comment, and necessary permitting related to operations, temporary equipment and storage of bulk material located within the flood zone.*

i. **Response:** See response 1.a.i.

n. **Comment:** *How will industrial and commercial truck traffic be managed through the single-lane site access tunnel? Will there be added lighting or signalization? The existing configuration provides limited sight distance for oncoming traffic.*

i. **Response:** Traffic signals will be used at both ends of the tunnels. Please see the site plan dated 03OCT23 for details and location.

4. **Dutchess County Department of Planning and Development (comments received 27JUL23)**

    a. **Comment:** *Information related to any and all additional reviews/requirements by other departments/agencies such as, but not limited to, the City of Poughkeepsie's Building Department, Engineering Department, and Waterfront Advisory Committee, the NYS Department of Transportation, the Army Corps of Engineers, etc;*

        i. **Response:** Comments have been received from the City of Poughkeepsie Planning Board (16MAY23 & 18JUL23), Building Department (26JUN23), Department of Public Works (14JUL23), Waterfront Advisory Committee (27JUN23), Fire Department (27JUN23), and Police Department (2JUL23). Please contact those departments for their comments. We have received initial feedback from USACE as of 3AUG23 however we are coordinating those comments with the DEC. We are awaiting comments from the DEC. A pre-application meeting with the DEC has been requested as of 14SEP23.

    b. **Comment:** *Information on the frequency and potential impacts of the proposed barge and truck traffic, including a traffic study if one is requested by the City*

        i. **Response:** Please see response 2.d.i.

    c. **Comment:** *Question 2 – Applicant answered "no" but it appears additional permits/approvals will be required from other government agencies.*

        i. **Response:** Please see the updated SEAF dated 14SEP23

    d. **Comment:** *Question 3b – Applicant indicates only 0.18-acre will be disturbed by this action. Given just the initial and future materials storage areas indicated for the southernmost parcel, this number may be low.*

        i. **Response:** Please see the updated SEAF dated 14SEP23. The project is proposed to be split into 2 phases. Phase 1 will affect less than 1 acre as indicated in the updated SEAF, however, phase 2 will be approximately 2 acres. A meeting with the DEC is planned to refine this number. As such an updated SEAF should be expected.

    e. **Comment:** *Question 8a – The applicant answered "no" but no information was included to indicate the expected number and frequency of vehicle trips to and from the site. Given that the materials unloaded from a single barge are stated to equal 125 truckloads, the traffic impacts from this project could be significant.*

        i. **Response:** Please see response 2.d.i.

f. **Comment:** *Question 16 – The applicant answered "no" but portions of the affected parcels, including the majority of the area proposed for material storage, are within the 100-year floodplain for the Hudson River.*

i. **Response:** Please see the updated SEAF dated 14SEP23.

5. **City of Poughkeepsie Fire Department (comments received 27JUN23)**

a. **Comment:** *The fire hydrants on the property shall be functional and tested. Hydrants shall be capable of flowing sufficient water for fire suppression operations.*

i. **Response:** Please see response 3.h.i

I encourage you to review the accompanying site plan for your reference. You can contact our office if you have any questions. Our firm can be reached via the information provided on the front page of this letter. You can reach the project sponsor via the contact information below:

AC Aggregates, LLC
228 Myers Corners Road
Wappingers Falls, NY 12590
Ph: 845-225-8252
Email: office@ac-agg.com

Thank you for your time and effort,



Nathaniel Gooden, P.E.

Caesar Engineering D.P.C.
367 Windsor Highway #411
New Windsor, New York, 12553
845.275.0230
contact@caesarengineering.work
www.caesarengineering.work

To: City of Poughkeepsie and Dutchess County Departments & Boards

From: Nathaniel Gooden, P.E., Project Engineer
on behalf of AC Aggregates, LLC, Project Sponsor

Subject: AC Aggregates Industrial Site Plan Comment Response Letter

January 10th, 2024

Dear Officials, Board Members, and Stakeholders,

This letter is intended to formally address comments received on the AC Aggregates Site Plan dated 07JUN23 concerning 70 Prospect St., 72-78 Prospect St., and 4 Sunfish Cove Rd. in Poughkeepsie, NY (please be advised that an updated site plan has been submitted to the City of Poughkeepsie Planning Department as of 10JAN24). Within this letter are snippets of the comments and our responses to those comments received to date from various departments, agencies, and boards. This letter intends to provide a response to the comments received and update the pertinent stakeholders on the status of the project overall. I ask that the readers of this document keep in mind that this is a "working" document and as such is not comprehensive. The responses so far only reflect the information and feedback received to date. Please see the below:

1. **City of Poughkeepsie Building Department (comments received 26JUN23)**
    - ***a.*** **Comment:** *Required Flood Plain Permit with USACE review*
        - ***i.*** **Response:** As required, the project sponsor intends to submit a formal flood plain development permit utilizing the form that was provided by the City of Poughkeepsie. The Army Corps of Engineers regulates activities that include dredging or construction activities in or over any navigable waters of the United States, the placement of any dredged or fill material in any waters of the United States (including coastal or inland wetlands) or the accomplishment of any work affecting the course, location, condition, or capacity of such areas. Though portions of the site are below the 100-year flood plain, only certain portions are actually "Federal Waters" under the jurisdiction of USACE as mentioned above (i.e. the Hudson River). The United States Army Corps of Engineers (USACE) NY District has

also provided feedback as of 16NOV23, communicating that a permit and/or review would be needed if any work is templated to be below the Hudson River High Water/Tide marks, a new dock is constructed, or long term use of a spud barge is proposed. At this time the project sponsor does not intend to perform any work, improvements, or changes to areas below the Hudson River High Water/Tide marks. However, the project sponsor will request a review for the long-term use of a spud barge in Phase 2 if they choose to use one.

2. **City of Poughkeepsie Waterfront Advisory Committee (comments received 27JUN23)**

   a. **Comment:** *Need for NRI Conservation Analysis… [comment summarized]*
      i. **Response:** Completed and submitted on 17JUL23.
   b. **Comment:** *Use of spud barge in shoreline/riverine habitat…[comment summarized]:*
      i. **Response:** After our discussion at the WAC meeting on 27JUN23 and planning board meeting on 16MAY23, it was understood that the best authority to review the use and/or impact of the operations on the marine environment (including use of the spud barge) is the DEC. The DEC has indicated that Phase 2 would require a Docking, Moorings, and Platforms permit for the long-term use of a spud barge.
   c. **Comment:** *Consider if a Stormwater Pollution Prevention Plan/and or Flood Plain Development Permit is required… [comment summarized]:*
      i. **Response:** The project sponsor and engineer met with the DEC on October 23, 2023. The DEC has indicated that an MSGP permit (SWPPP) would not be applicable upon initial review (particularly for Phase 1 as there is no change in any physical features or impervious surfaces of the site). However, the DEC has indicated that Phase 2 would require a Docking, Moorings, and Platforms permit. Additionally, no hazardous materials or waste outside of approved building materials are proposed to be stored at the site so the project sponsor does not intend to apply for coverage for those activities.
   d. **Comment:** *Consider the potential traffic impact on proximate local roads/communities… [comment summarized]:*
      i. **Response:** Using the Full Form Environmental Assessment Form (FEAF) Workbook, as a light industrial/warehousing land use that is less than 180,000 square feet (4 acres) in gross area (the project calls for no more than 1.5 acres on any parcel to be used for material stockpiling), the project will generate less than 100 peak hour trips as defined in Table 1 (please

see site plan dated 10JAN24 for reference). As such the impact on traffic is not a substantial increase according to the workbook. The project sponsor estimates that approximately 3 barges will visit the site per month and there will be around 25 truck trips from the site per day which is substantially below 100 peak hour trips. The trucks will also primarily use State Route 9 as the primary means of accessing the site as shown in the traffic diagram dated 3OCT23.

3. **City of Poughkeepsie Department of Public Works (comments received 14JUL23)**

   a. **Comment:** *Label contours on the site plan.*
      i. **Response:** Completed. Please see the site plan dated 10JAN24.
   b. **Comment:** *During a 7/11/2023 site visit with the applicant and their engineer, it was mentioned an access agreement exists for the Petro Inc.-owned parcel to the northwest of the site. Please show the easement on-site plan and provide a copy.*
      i. **Response:** See easement overlay attachment dated 4APR23. 3 additional copies were submitted to the City of Poughkeepsie planning department on 3OCT23.
   c. **Comment:** *Will a dust suppression system be used? If so, will water be needed? Provide details for water service if necessary.*
      i. **Response:** Dust suppression will be used on site. Please see the attached site plan for water truck details. The project sponsor may use onsite resources only after a utility conditions report has been performed.
   d. **Comment:** *A transportation corporation may need to be established for the 8" cast iron water service as it appears to serve multiple properties...[comment summarized]:*
      i. **Response:** Please see the easement overlay dated 4APR23. The adjoining properties mentioned have easement rights to establish their own service connection to the relevant supplier (i.e. City of Poughkeepsie Water). Please see the easement overlay for more details including the references to the relevant deed pages.
   e. **Comment:** *Show on the Site Plan all utilities, including overhe*ad.
      i. **Response:** Completed. Please see the site plan dated 10JAN24.
   f. **Comment:** *All on-site hydrants are to be flow tested. Submit results to the City Engineering Department and City Fire Department for review.*
      i. **Response:** Will comply.
   g. **Comment:** *Inoperable hydrants are to be replaced with American Darling B-62-B-5 City Standard Hydrant(s).*
      i. **Response:** See response 3.h.i.

h. **Comment:** *The project engineer shall certify existing private 8" cast iron water service has adequate capacity for the proposed use and all users. This includes fire flow.*

- ***i.*** **Response:** The project sponsor is standing by to conduct a utility conditions report. After the project sponsor has completed the site plan approval process, a conditions report will be conducted to determine the water service conditions on-site. Based on the results of that report, the project sponsor will develop and propose the most practical solution to meet water needs for the site and what infrastructure needs updating to satisfy DPW and/or Fire Department requirements (i.e. fire requirements as stipulated by the City of Poughkeepsie Fire Department, etc.).

i. **Comment:** *Locate and exercise all on-site water gate valves to ensure a full range of operation. Provide findings in the condition report. Include a discussion on the methodology of testing to support determination.*

- ***i.*** **Response:** See response 3.h.i.

j. **Comment:** *Show on Site Plan owner to replace or repair any out-of-service or partially operable water gate valves identified in the condition report.*

- ***i.*** **Response:** See response 3.h.i.

k. **Comment:** *Coordinate with City Fire regarding the adequacy of fire flow and demonstrate what is being requested is achieved.*

- ***i.*** **Response:** See response 3.h.i.

l. **Comment:** *The retaining walls on-site appear to be in various states of deterioration. Provide condition and structural stability analysis certified by a NYS licensed Professional Engineer on all existing or proposed retaining walls. Provide a rehab plan for existing retaining walls as necessary.*

- ***i.*** **Response:** Will comply during building permit submission process.

m. **Comment:** *Contact the Army Corps of Engineers for review, comment, and necessary permitting related to operations, temporary equipment and storage of bulk material located within the flood zone.*

- ***i.*** **Response:** See response 1.a.i.

n. **Comment:** *How will industrial and commercial truck traffic be managed through the single-lane site access tunnel? Will there be added lighting or signalization? The existing configuration provides limited sight distance for oncoming traffic.*

- ***i.*** **Response:** Traffic signals will be used at both ends of the tunnels. Please see the site plan dated 10JAN24 for details and location.

4. **Dutchess County Department of Planning and Development (comments received 27JUL23)**

    a. **Comment:** *Information related to any and all additional reviews/requirements by other departments/agencies such as, but not limited to, the City of Poughkeepsie's Building Department, Engineering Department, and Waterfront Advisory Committee, the NYS Department of Transportation, the Army Corps of Engineers, etc;*

        i. **Response:** Comments have been received from the City of Poughkeepsie Planning Board (16MAY23 & 18JUL23), Building Department (26JUN23), Department of Public Works (14JUL23), Waterfront Advisory Committee (27JUN23), Fire Department (27JUN23), and Police Department (2JUL23). Please contact those departments for their comments. We have received initial feedback from the DEC as of 23OCT23 and USACE as of 16NOV23. Please see the relevant responses noted in this letter.

    b. **Comment:** *Information on the frequency and potential impacts of the proposed barge and truck traffic, including a traffic study if one is requested by the City*

        i. **Response:** Please see response 2.d.i.

    c. **Comment:** *Question 2 – Applicant answered "no" but it appears additional permits/approvals will be required from other government agencies.*

        i. **Response:** Please see the updated Full Form EAF dated 08JAN24.

    d. **Comment:** *Question 3b – Applicant indicates only 0.18-acre will be disturbed by this action. Given just the initial and future materials storage areas indicated for the southernmost parcel, this number may be low.*

        i. **Response:** Please see the updated Full Form EAF dated 08JAN24. The project is proposed to be split into 2 phases. Phase 1 will not affect any acres, however, phase 2 will affect approximately 1.5 acres.

    e. **Comment:** *Question 8a – The applicant answered "no" but no information was included to indicate the expected number and frequency of vehicle trips to and from the site. Given that the materials unloaded from a single barge are stated to equal 125 truckloads, the traffic impacts from this project could be significant.*

        i. **Response:** Please see response 2.d.i.

    f. **Comment:** *Question 16 – The applicant answered "no" but portions of the affected parcels, including the majority of the area proposed for material storage, are within the 100-year floodplain for the Hudson River.*

        i. **Response:** Please see the updated Full Form EAF dated 08JAN24.

5. **City of Poughkeepsie Fire Department (comments received 27JUN23)**

    a. **Comment:** *The fire hydrants on the property shall be functional and tested. Hydrants shall be capable of flowing sufficient water for fire suppression operations.*

        i. **Response:** Please see response 3.h.i

6. **City of Poughkeepsie Zoning Department Comments (comments received 12OCT23)**

    a. **Response:** All comments received from the Zoning Department were responded to during an in-person meeting between the project development team and zoning department officials (Joseph O'Brien and Judith Knauss) on 18OCT23. Please contact the zoning department for a comment list. The updated site plan dated 10JAN24 addresses those comments.

I encourage you to review the accompanying site plan dated 10JAN24 for reference. You can contact our office if you have any questions. Our firm can be reached via the information provided on the front page of this letter. You can reach the project sponsor via the contact information below:

AC Aggregates, LLC
228 Myers Corners Road
Wappingers Falls, NY 12590
Ph: 845-225-8252
Email: office@ac-agg.com

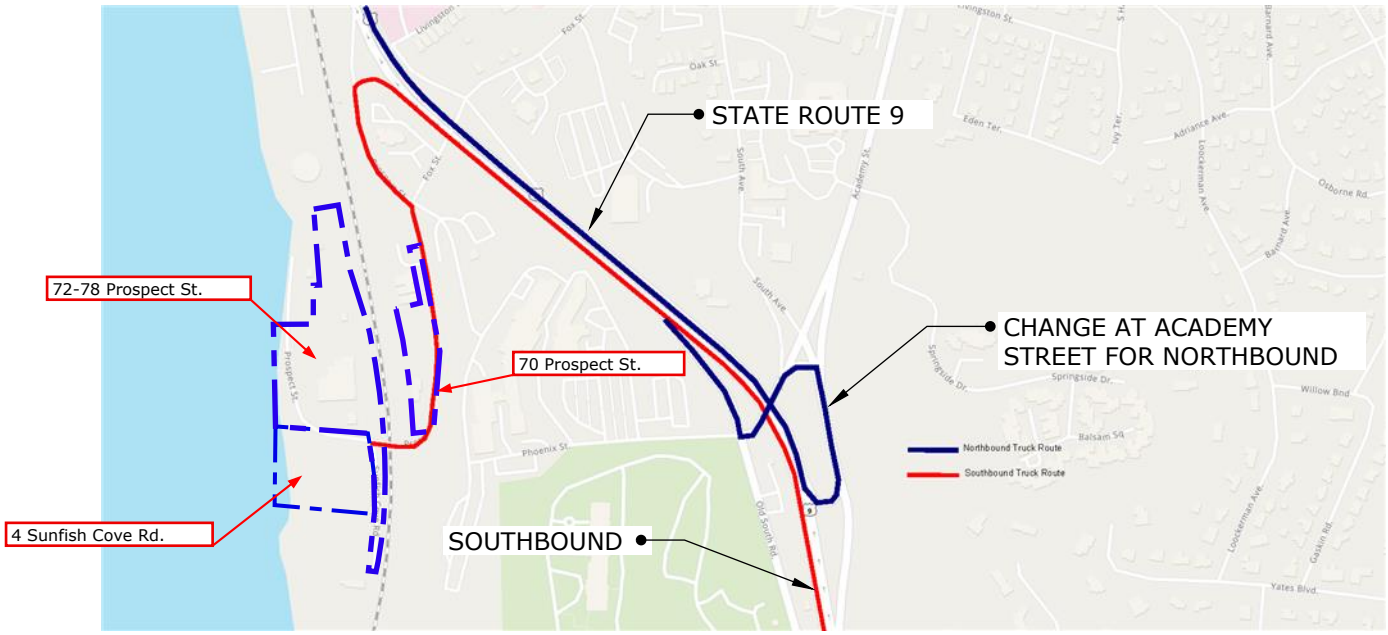
Thank you for your time and effort,



Nathaniel Gooden, P.E.

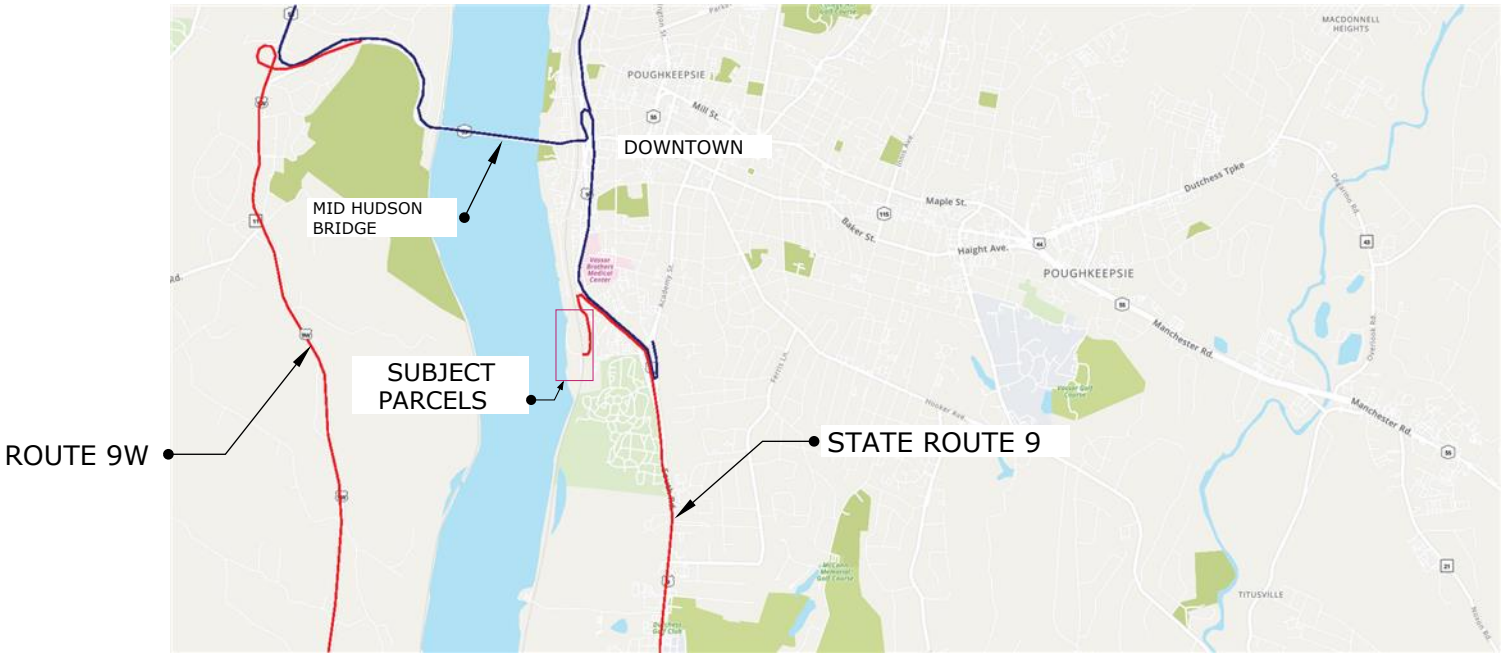
SITE/AREA TRAFFIC OVERVIEW FOR AC AGGREGATES PROSPECT ST. SITE PLAN (03OCT23)

TRAFFIC TO/FROM SITE



NOTES: TRAFFIC FLOW WILL PRIMARILY USE MULTI-LANE ROADS/HIGHWAYS/STATE ROUTES FOR OPERATIONS

TRAFFIC TO/FROM IMMEDIATE REGION



Caesar Engineering D.P.C.
367 Windsor Highway #411
New Windsor, New York, 12553
845.275.0230
contact@caesarengineering.work
www.caesarengineering.work

To: City of Poughkeepsie Planning Board

From: Nathaniel Gooden, P.E., Project Engineer
on behalf of AC Aggregates, LLC, Project Sponsor

Subject: AC Aggregates Industrial Site Plan WAC Supplementary Letter

July 17, 2023

Dear Board Members,

Please see the attached NRI Conversation Supplement as a part of our submission package for your review. Additionally, we are providing the following comments to accompany the findings of the NRI.

1. The project site lies within the habitat overlay of three significant animal species (the Atlantic Sturgeon, Bald Eagle, and Shortnose Sturgeon) as identified in the Environmental Resource Mapper and substantiated by the habitats in the NRI. In response, there is no significant disturbance planned on the site which removes or alters the existing land characteristics. We have reached out to the DEC to understand if there are any other additional considerations.

2. A portion of the project site lies within the 100-year flood plan due to its proximity to the Hudson River. We plan to implement erosion prevention measures for the sand aggregate and will also outline an alternate storage location above the flood plain. We are preparing a floodplain development permit per the feedback from the city's building department.

3. The site is adjacent to the Metro-North rail corridor which is listed as a historical site. The corridor is actively used and maintained by the railway authority for commuter trains. The proposed operation will not alter this site or encroach onto the property.

In conclusion, I encourage you to review our site plan submittals for your reference. You can contact our office if you have any questions. Our firm can be reached via the information provided on the front page of this letter. You can reach the project sponsor via the contact information below:

AC Aggregates, LLC
228 Myers Corners Road
Wappingers Falls, NY 12590
Ph: 845-225-8252
Email: office@ac-agg.com

We look forward to discussing this plan with you for your feedback.

Thank you for your time and effort,



Nathaniel Gooden, P.E.

Appendices:

1. City of Poughkeepsie NRI Printout as of 17JUL23

Prospect Street Site Plan Geology and Soils (NRI)



7/17/2023, 9:41:32 AM

City of Poughkeepsie Boundary

Parcel Boundaries

Soils

Bedrock Geology

Graywacke, shale (Oag)

Taconic melange (Otm)

Water

1:2,257

0 0.02 0.04 0.07 mi

0 0.03 0.06 0.12 km

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Prospect St. Surface Soils (NRI)



7/17/2023, 9:58:47 AM

1:4,018

0 0.03 0.05 0.1 mi

0 0.04 0.08 0.16 km

Parcel Boundaries

City of Poughkeepsie Boundary

Wetlands

Streams

Intermittennt

Elevation (10ft Countour Lines)

10 FT

50 FT

Surficial Geology

Alluvium

Glacial Till

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Applicant

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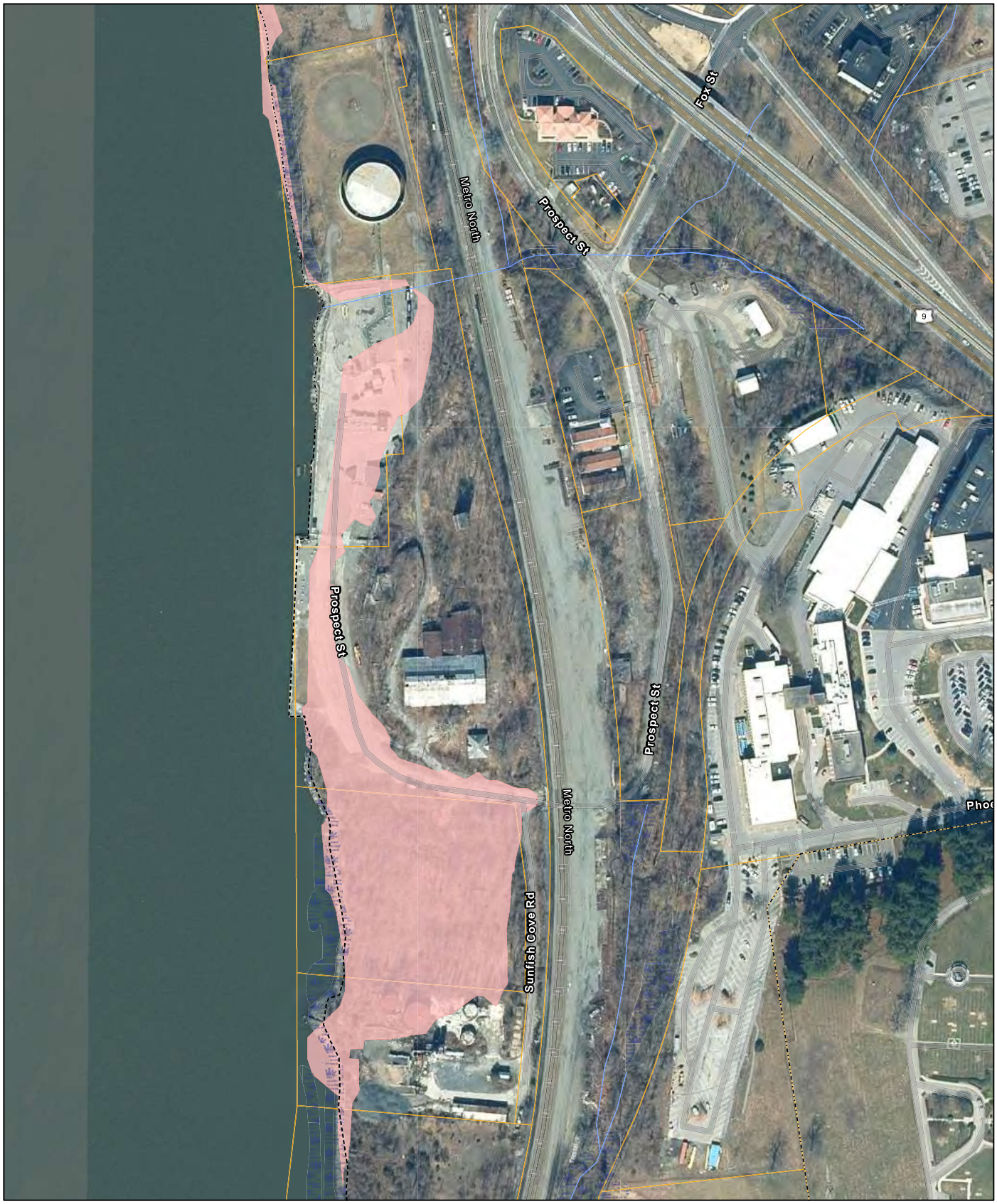
Prospect St. Water Resources Map (NRI)



7/17/2023, 9:59:47 AM

Parcel Boundaries

City of Poughkeepsie Boundary

Wetlands

Streams

Intermittennt

Flood Hazard Areas

1:2,762

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

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Prospect St. Habitats (NRI)



7/17/2023, 9:46:48 AM

- Parcel Boundaries
- City of Poughkeepsie Boundary
- Wetlands

Hudsonia Streams

- Intermittennt

Hudsonia Habitats

- Developed
- Cultural
- Hardwood swamp
- Hudson River
- Subtidal shallows
- Estuarine rocky shore
- Upland shrubland
- Wet meadow
- Upland meadow
- Upland hardwood forest
- Waste ground

1:2,762

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

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Prospect St. Historical Sites (NRI)



7/17/2023, 9:48:51 AM

Parcel Boundaries

Historic Sites (2021)

State and National

City of Poughkeepsie Boundary

1:2,762

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

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ArcGIS Web AppBuilder
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Prospect St. Land Use (NRI)



7/17/2023, 9:50:42 AM

City of Poughkeepsie Boundary

Land Use by Parcel

Commercial

Community Services

Industrial

Public Services

Residential

Vacant Land

1:2,762

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

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ArcGIS Web AppBuilder

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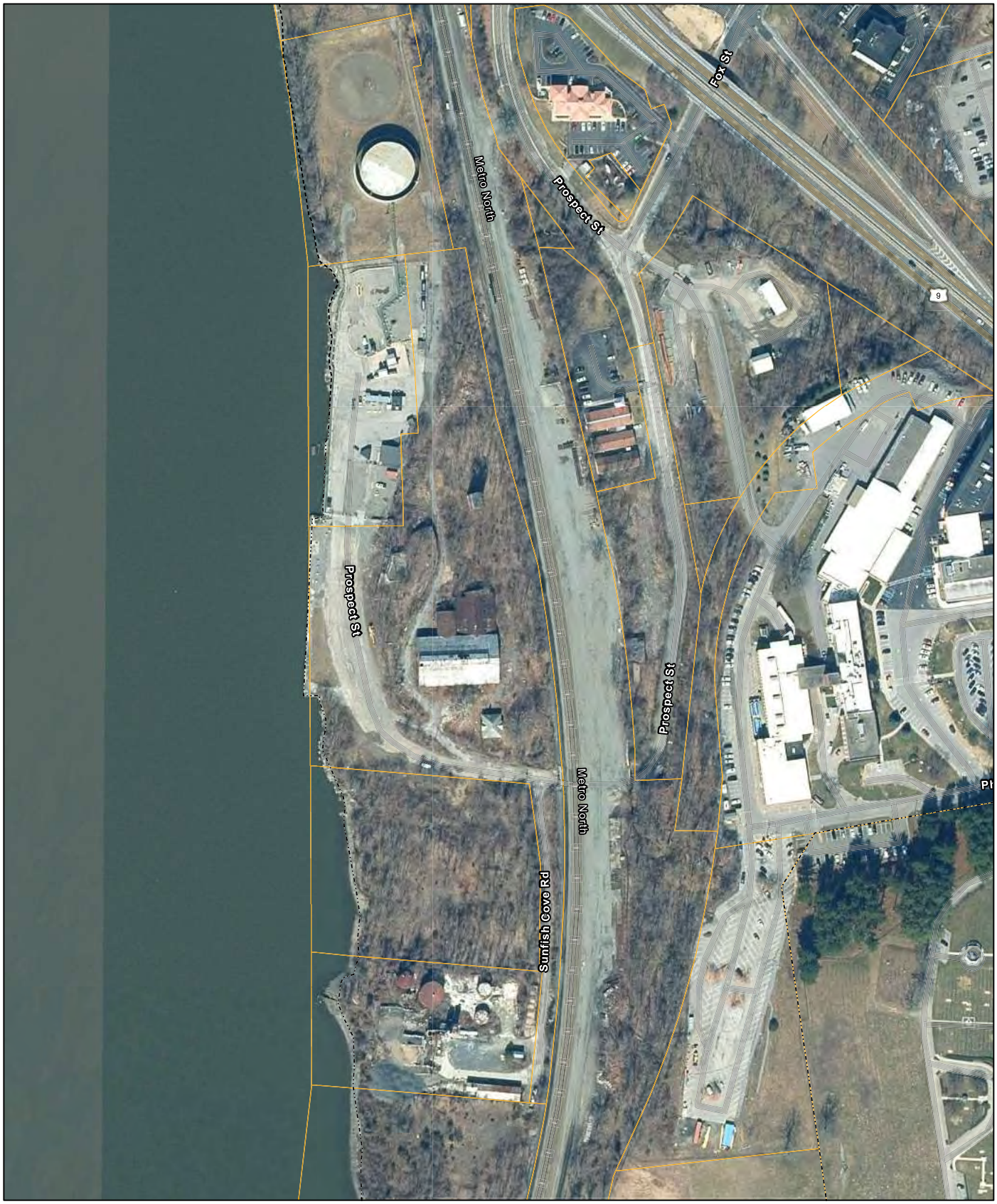
Prospect St. Recreational Map (NRI)



7/17/2023, 9:51:52 AM

Parcel Boundaries

City of Poughkeepsie Boundary

1:2,762

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

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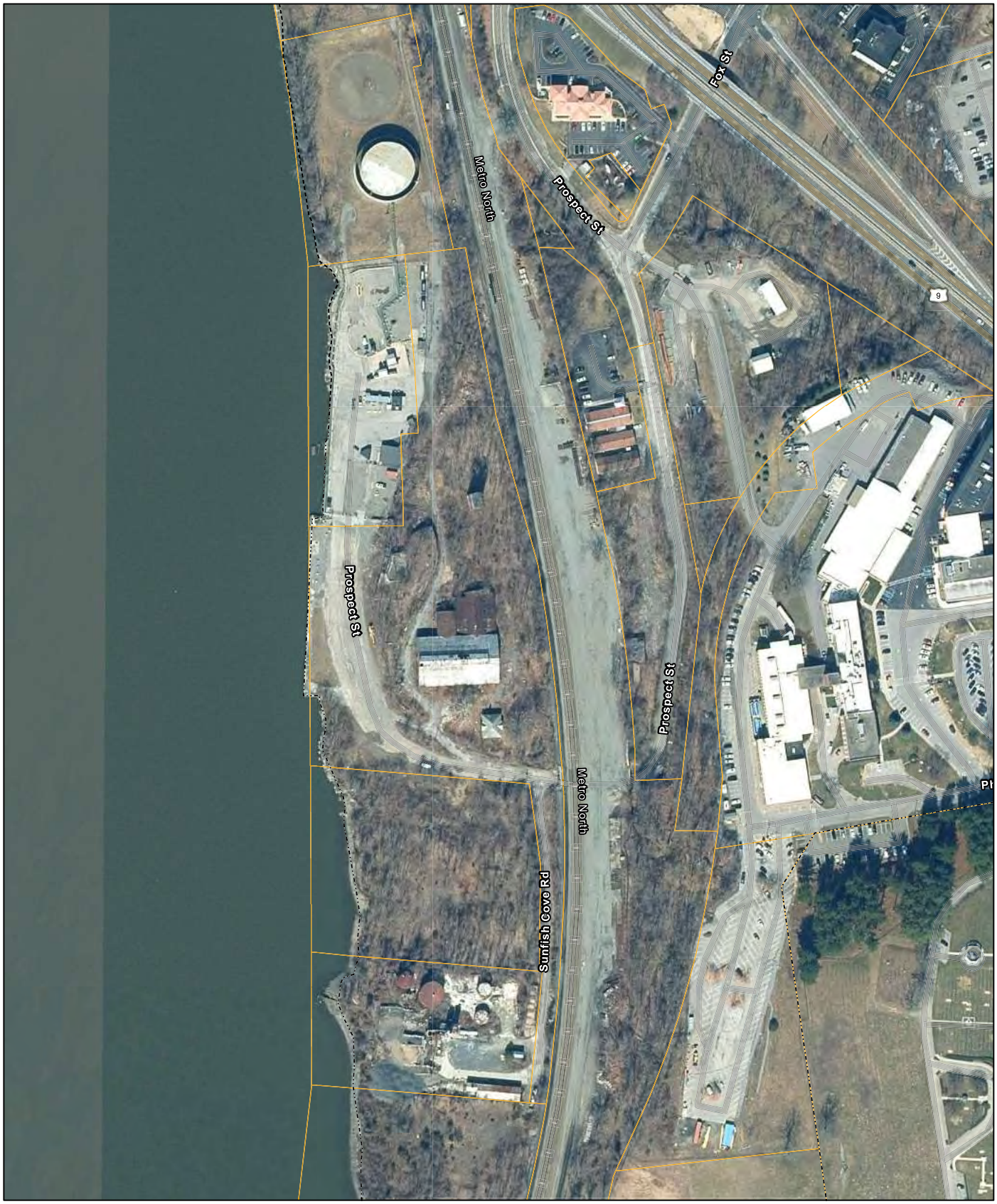
Prospect St. Pollinator Pathways (NRI)



7/17/2023, 9:51:52 AM

Parcel Boundaries

City of Poughkeepsie Boundary

1:2,762

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.15 km

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APPLICATION TO THE PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

Application for Site Plan, Special Permit & Facade Approval

OFFICE USE ONLY

CODE: PLSF

ID #_____

FEE: _____
Total, from:
$500, plus
$_____
($150 per 1000 square feet of floor area), plus
$_____
($35 per number of required parking spaces), plus
$_____
($500 for special permit, if applicable)

I. PROPERTY ADDRESS: 149 North Hamilton Street

II. PROPERTY OWNER: RC Home & Office Solutions, Inc.
ADDRESS: 46 Morningside Drive
Patterson
NY 12563 (state and zip code)
PHONE NUMBER: (914) 837-5690 (include area code)

III. NAME OF APPLICANT: Mr. Roy Campbell
ADDRESS: (Owner of RC Home & Office Solutions Inc.)
same as above
_____ (state and zip code)
PHONE NUMBER: _____ (include area code)
EMAIL ADDRESS: royc8159@gmail.com

(If applicant is NOT the owner, proof of owner's consent to the application MUST be provided.)

IV. CONSULTANT: Paul Tirums, P.E.
ADDRESS: 16 Friendship Lane
Poughkeepsie
NY 12601 (state and zip code)
PHONE NUMBER: (914) 490-3269 (include area code)

V. PROPOSED USE or FAÇADE CHANGE (Summarize proposed use or uses): None

VI. ZONING DISTRICT: R-3A

(Proceed to XVII for special permit & façade approval only)

PROJECT INFORMATION

New construction: _____(yes)__XX____ (no)

Change of use:_____ (yes) __XX____ (no)

Expansion/addition:_____ (yes) __XX____ (no)

Alteration:__XX____ (yes) _____ (no)

Cost of Construction: $__New Asphalt = $12,000_____

LOT AND BULK INFORMATION:

Lot area: 0.234 _____ (acres) 10,193 _____ (square feet)

Building Footprint: 0 _____ (proposed square feet for new construction)

0 _____ (existing square feet for change of use/expansion)

0 _____ (additional proposed square feet for expansion)

Exist.= _____ (total building footprint, square feet)

Lot Coverage: 10.64% _____ (percentage, building coverage only)

Gross Floor Area: 0 _____ (proposed square feet for new construction)

0 _____ (existing square feet for change of use/expansion)

0 _____ (additional proposed square feet for expansion)

2,536 SF _____ (total gross floor area, square feet)

Building Height: 3 _____ (stories) 35 _____ (feet)

Floor Area Ratio: 2,536/10,193=0.25 _____ (ratio of gross floor area divided by lot area)

VIII. PROJECT PARKING INFORMATION

A) Number of Off-Street Parking Spaces required: 7.5 _____

B) Number of Off-Street Parking Spaces provided: 9 _____

C) Waiver Requested: _____ (Yes) No _____ (No)

Is municipal parking available within 600 feet? _____ (Yes) _____ (No)

If yes, name all such municipal facilities: _____

_____

_____

(If a waiver is requested based on proximity to municipal facilities, a written request for such waiver, addressed to the City Planning Staff and the Chairman of the Planning Board, must be submitted with the application.)

If a private parking facility is to be utilized, is such facility within 600 feet?

_____ (Yes) _____ (No)

If yes, provide the address of the facility, name of the property owner, number of spaces in the lot, number of spaces available for lease, and length of lease. Attach copy of lease. Additional information may be required by the Planning Board): _____

_____

_____

_____

IX. RESIDENTIAL PROPOSALS

A) Type of Development: Paved Parking Area & Driveway for Exist. (4) Unit Building
(Townhouse, condominium, multiple residence rental, etc.)

B) Unit Breakdown:

Number of efficiency or "studio" units: _____

Number of one (1) bedroom units: Existing Bldg. = (1)

Number of two (2) bedroom unit's Existing Bldg. = (1)

Number with three or more bedrooms: Existing Bldg. = (2)

Total number of units: 4

C) Is funding public? ____ Yes XX No

If yes, describe funding source: _____

X. OFFICE PROPOSALS (____ Medical/Dental ____ Professional ____ Business)

A) Number of Employees: _____

B) Number of doctors/dentists/medical practitioners: _____

C) Days/Hours of Operation: _____

XI. SERVICE BUSINESS PROPOSALS

A) Specify Business: _____
(e.g., laundromat, drycleaner, beauty parlor, travel agency, banks)

B) Number of Employees: _____

C) Number of Washing Machines (for laundromat): _____

D) Days/Hours of Operation: _____

XII. MERCANTILE PROPOSALS (Retail _____ Wholesale _____)

A) Type of Mercantile (specify): _____

B) Number of Employees: _____

C) Days/Hours of Operation: _____

XIII. STANDARD RESTAURANT/FAST FOOD RESTAURANT/COFFEE SHOP/DONUT SHOP/NIGHTCLUB/DISCOTHEQUE/BAR PROPOSALS

A) Specify Use: _____

B) Number of seats (excluding bar stools and outdoor seating):_____

C) Meals served (i.e., breakfast, lunch, dinner): _____

D) Type of Menu: _____

E) Days/Hours of Operation: _____

F) Entertainment (live and/or recorded):_____

G) Will the restaurant contain a bar/lounge?: _____ Yes _____ No

H) If yes, how many seats at the bar? _____

I) Is a drive-through window proposed? _____

J) Is a walk-up window proposed? _____

K) Is an outdoor seating area proposed? _____

L) If yes, how many seats are proposed? _____

M) If yes, is outdoor cooking proposed? _____

XIV. INDUSTRIAL/COMMERCIAL PROPOSALS (Automobile repair, taxi, motor vehicle sales, warehouse, manufacturing, animal hospital, research facilities, etc.)

A) Specify Use: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

E) Number of work bays (if automobile repair): _____

F) Days/Hours of operation: _____

XV. EDUCATIONAL/INSTITUTIONAL/RECREATIONAL PROPOSALS (e.g., Museums, Theatres, Conference Centers, Hotels, Motels, Hospitals, Nursing Homes, Assisted Living Facilities, Nursery Schools, Private Schools, Day Care Centers, Places of Worship, Marinas, Membership Clubs, etc.)

A) Specify: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

D) Number of beds (hospitals, nursing homes, etc): _____

E) Number of seats in largest assembly space: _____

F) Number of classrooms (schools): _____

G) Number of rental units (hotels, motels, etc.) _____

H) Number of boat slips/courts (e.g., tennis, handball, etc.), alleys: _____

I) Days/Hours of Operation: _____

XVI. PROPOSALS NOT MENTIONED ABOVE (Please be specific):

_____

The purpose of this Application is for the asphalt paving performed recently for the

_____

driveway and rear parking area for the residential building located at

_____

149 North Hamilton Street.

_____

_____

XVII. APPLICANT CERTIFICATION

I, Roy Campbell _____, certify that the this application has addressed the objectives outlined in the Zoning Ordinance with consideration given to the public health, safety and welfare; the comfort and convenience of the public in general or the residents or users of the proposed development and of the immediate neighborhood.

The applicant certifies that all information contained herein is accurate and complete as of the date of this application.

_____ _____

Signature of Applicant Date

Paul Tirums, P.E.
Consultant Engineer

16 Friendship Lane
Poughkeepsie, N.Y. 12601 Cell (914) 490-3269

August 29, 2023

The City of Poughkeepsie Building, Planning & Zoning Department
ATTN: Ms. Judith Knauss, Deputy Zoning Administrator
62 Civic Center Plaza
Poughkeepsie, N.Y. 12601

Project: Campbell – Asphalt Paved Driveway
RC Home & Office Solutions, Inc.
Mr. Roy Campbell
149 North Hamilton Street
Poughkeepsie, N.Y. 12603

RE: Site Plan Submittal (Revised)

Dear Judith,

This transmittal is for the City's review of the application package that has been revised based on our initial appearance in front of the Planning Board on Tuesday, August 16th. Mr. Campbell was required to submit a Site Plan for the fact that he placed new asphalt pavement for his property's driveway and rear parking area.

Attached is a Site Plan submission for the City's review and approval of the asphalt driveway and rear parking area for his existing (4) unit apartment building at Mr. Campbell's property at 149 North Hamilton Street. Included in this submission are:

1. "Updated" Site Plan Sheet
2. Short Environmental Assessment Form
3. Site Plan Application
4. Statement from Mr. Campbell saying that I can represent him in this application
5. Current Site photos

In this updated submittal we addressed the comments received from the Planning Board:

- The Parking Spaces were in creased from 18' in length to 20' in length.
- Added dimensions for the driveway widths were added to the Site Plan.
- When Mr. Campbell repainted and newly sided the Building a couple of years ago he removed the Bail Bondsman sign. Since he became Owner in 2020 there has bever been a Bail Bondsman renter within the Building.
- The curb cut for the driveway was pre-existing as indicated in the photos provided.
- We will be submitting a Variance Application for the September ZBA Meeting based on Judith Knauss's comments.

Please place us on the September Planning Board Meeting. If there are any questions please contact me.

Sincerely,

Paul Tirums, P.E.

Paul Tirums, P.E.
Consultant Engineer

16 Friendship Lane
Poughkeepsie, N.Y. 12601 Cell (914) 490-3269

November 09, 2023

The City of Poughkeepsie Building, Planning & Zoning Department
ATTN: Ms. Judith Knauss, Deputy Zoning Administrator
62 Civic Center Plaza
Poughkeepsie, N.Y. 12601

Project: Campbell – Asphalt Paved Driveway
RC Home & Office Solutions, Inc.
Mr. Roy Campbell
149 North Hamilton Street
Poughkeepsie, N.Y. 12603

RE: Site Plan Submittal (Revised)

Dear Judith,

This transmittal is for the City's review of the application package that has been revised based on the comments received from the Engineering Department (MEMO from Joseph Cheneir) and the Building Department (MEMO from Eric Philip). Mr. Campbell was required to submit a Site Plan for the fact that he placed new asphalt pavement for his property's driveway and rear parking area.

Attached is a Site Plan submission for the City's review and approval of the asphalt driveway and rear parking area for his existing (4) unit apartment building at Mr. Campbell's property at 149 North Hamilton Street. Included in this submission are:

1. "Updated" Site Plan Sheet
2. Stormwater/Drainage Report

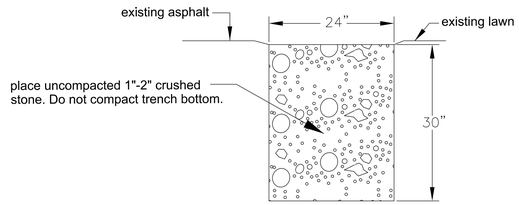
In this updated submittal we addressed the comments received from the Engineering (2) and Building (1) Departments:

- The Licensed Surveyor returned to the site to provide spot elevations and 1' topography lines as requested. The property is relatively flat in grade so there are only (2) topography lines.
- Added stormwater mitigation measures (stone infiltration trench and rain barrels) to the Site Plan. Also, attached is the Drainage Report.
- Added note to replace the section of sidewalk with a concrete section that Mr. Campbell previously filled in with asphalt due to the broken and hazardous nature of the existing sidewalk when he purchased the property.
- When Mr. Campbell repainted and newly sided the Building a couple of years ago he removed the Bail Bondsman sign. Since he became Owner in 2020 there has bever been a Bail Bondsman renter within the Building.

Please place us on the November Planning Board Meeting. If there are any questions please contact me.

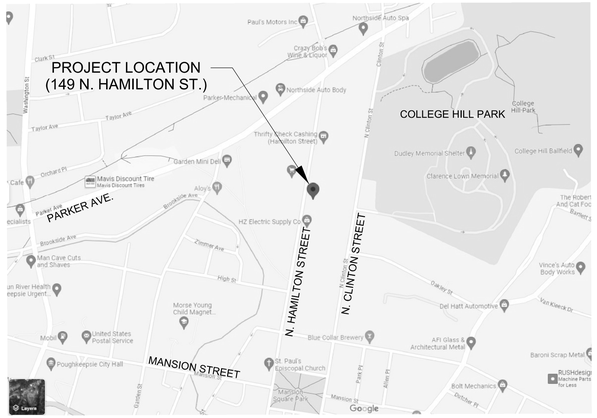
Sincerely,

Paul Tirums, P.E.



STONE INFILTRATION TRENCH

LEGEND:
- recovered 1/2" rebar
- recovered iron pipe
- utility pole
- light post
- chain link fence
- contour line
- water valve
- bollard
- infiltration trench



North per deed
Doc ID# 02-2022-50176

Replace macadam placed in sidewalk area back with a new 5" thick concrete panel to match existing sidewalk.

found 1/2" rebar
S 75°-30'-34" E 0.17'

house clears
0.1'±

N/F Green
Doc. ID No. 02-2012-748

(9) Total Parking spaces indicated (9' x 20' each) Typical

Install 150 L.F. of solid green slats in existing 3' high chain link fence or along entire property line.

Stone Infiltration Trench (30 LF)

Install 60 gallon rain barrels @ each rear gutter downspout

S80°50'57"E
210.00'

N.T.S.

North Hamilton St.

concrete sidewalk

macadam

1 story frame
house clears
2.3'±

3-Story Brick
(4) Unit Apart. Bldg.
(2,536 GSF)
43.25' long

21.4' wide

porch
(8' x 20')

① ② ③ ④ ⑤ ⑥ ⑦

concrete

172.62'

172.72'

172.33'

concrete

171.16'

171.38'

⑧

N9°35'32"E
47.25'

20.5'

171.54'

172.44'

11.2'

171.33'

171.52'

172

paved asphalt driveway limits
18.8'

172.21'

172.44'

172.82'

N80°05'55"W
210.00'

found 1/2" rebar
N 28°-03'-54" E 0.31'

S9°35'32"W
50.00'

Tax Map # 131300-6162-63-275350
= 0.234± Acres.

N/F Dugger
L 1900 P 95

N/F Reid
Doc. ID No. 02-2007-502

house clears
1.5'±

Install 150 L.F. of solid green slats in existing 3' high chain link fence.

N/F Rogers
L 1706 P 852

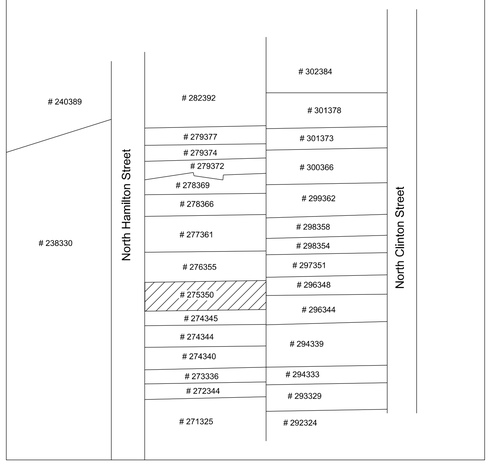
Stone Infiltration Trench (55 LF)

found iron pipe
0.2' ± south of line

found 1/2" rebar
N 09°-44'-58" E 0.51'

GRAPHIC SCALE
10 0 5 10 25
1 inch = 10 ft.

TAX MAP IDENTIFICATION



TAX MAP NUMBER	ADDRESS	OWNER
# 240389	N. Hamilton Street	County of Dutchess
# 238330	150 N. Hamilton Street	County of Dutchess
# 282392	183 N. Hamilton Street	Urban/Gerlach Realty LLC
# 279377	165 N. Hamilton Street	City of Poughkeepsie
# 279374	163 N. Hamilton Street	Westney, Saleesha
# 279372	161 N. Hamilton Street	Hooper, Alexis D.
# 278369	159 N. Hamilton Street	White, Joyce E.
# 278366	157 N. Hamilton Street	Walden, D W.
# 277361	155 N. Hamilton Street	Green, Roberta J.
# 276355	151 N. Hamilton Street	Green, William Earl Sr.
# 274345	147 N. Hamilton Street	Rogers, Judith
# 274344	145 N. Hamilton Street	Rojas, Sabas
# 274340	143 N. Hamilton Street	Williams, Jannette D.
# 273336	141 N. Hamilton Street	Margulies, Ira Joseph
# 272344	139 N. Hamilton Street	Klein, Tzvi A.
# 271325	135 N. Hamilton Street	North Hamilton LLC
# 302384	172-174 N. Clinton Street	Walkway Properties LLC
# 301378	168 N. Clinton Street	168 N Clinton LLC
# 301373	166 N. Clinton Street	Shell, Curtis
# 300366	162 N. Clinton Street	Gray, Lloyd E.
# 299362	160 N. Clinton Street	Greene, Sheldon R.
# 298358	158 N. Clinton Street	Dittus, Daniel
# 298354	156 N. Clinton Street	Maresco, Anthony J.
# 297351	154 N. Clinton Street	Maresco, Anthony J.
# 296348	152 N. Clinton Street	Dugger, John W. Jr
# 296344	150 N. Clinton Street	Reid, Jaime
# 294339	148 N. Clinton Street	Stubbs, Erik R.
# 294333	146 N. Clinton Street	Rodriguez, Ariel
# 293329	144 N. Clinton Street	Ulutas, Ahmet
# 292324	140 N. Clinton Street	Kirnon, Eon L.

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK
SITE PLAN APPROVAL
FILE NO:
PROJECT NAME:
pROJECT LOCATION:
APPLICANT:
OFFICIALLY APPROVED at the Planning Board meeting held the ___ day of _____ 202_
PLANNING CHAIR:
DESIGNEE:
DATE SIGNED:
CONDITION(S):

Boundary Survey by:
MICHAEL J. PARRELLA, PLS
Licensed Land Surveyor
NY License No. 050162
MAY 2023
168 SCHULTZ HILL ROAD
STAATSBURG, NY 12580
(845) 876-4163

OWNER INFORMATION:
RC Home & Office Solutions Inc.
Mr. Roy Campbell
46 Morningside Drive
Patterson, N.Y. 12563
(914) 837-5690

SITE PLAN
DRIVEWAY IMPROVEMENTS
PREPARED FOR
RC HOME & OFFICE SOLUTIONS INC.
MR. ROY CAMPBELL

149 N. HAMILTON STREET
CITY OF POUGHKEEPSIE
COUNTY OF DUTCHESS, N.Y.

BY: *PAUL TIRUMS, P.E.*
16 FRIENDSHIP LANE
POUGHKEEPSIE, NY 12601

SCALE : 1" = 30'
DATE: 08/24/2023
PAGE 1 OF 1

Modified 11-6 and 12-07-2023

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

RC Home & Office Solutions, Inc.; Mr. Roy Campbell

Name of Action or Project:
Asphalt Paving of Driveway @ 149 N. Hamilton St.

Project Location (describe, and attach a location map):
149 N. Hamilton St., Poughkeepsie, NY 12603

Brief Description of Proposed Action:
Owner had driveway newly asphalt paved & parking area behind the building. The building is an existing (4) unit Apartment building.

Name of Applicant or Sponsor:	Telephone: (914) 837-5690
Mr. Roy Campbell	E-Mail: royc8159@gmail.com

Address: 46 Morningside Drive

City/PO:	State:	Zip Code:
Patterson	NY	12563

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☒	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: City of Poughkeepsie Planning Board	☐	☒

3. a. Total acreage of the site of the proposed action? 0.234 acres
   b. Total acreage to be physically disturbed? 0.08 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.234 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☒ Urban ☐ Rural (non-agriculture) ☐ Industrial ☒ Commercial ☐ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☒	☐
b. Consistent with the adopted comprehensive plan?	☐	☒	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☒

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☒	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☒	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☒
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☒

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies:	☐	☒

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: (connection already exists)	☐	☒

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: (connection already exists)	☐	☒

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☒	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☒	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☒	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☒	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☒ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☒	☐
16. Is the project site located in the 100-year flood plan?	☒	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☒	☐
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☒	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☒	☐
If Yes, briefly describe: _____		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☒	☐
If Yes, explain the purpose and size of the impoundment: _____		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☒	☐
If Yes, describe: _____		
20.Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☒	☐
If Yes, describe: _____		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: _____ Date: _____

Signature: _____ Title: _____

PRINT FORM

THE CITY OF POUGHKEEPSIE
NEW YORK
DEVELOPMENT DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845) 451-4006

MEMORANDUM

To: Roy Campbell

From: Tyler Maegerle, Junior Planner

Date: 8/14/2023

Re: 149 North Hamilton Street

Upon review of project materials provided by the applicant, including Short EAF Part 1 and site plan application, it is my understanding that the proposed action to be undertaken includes paving of a parking area behind a four-unit residence.

Based on the above description it is the determination of the planning division staff that the proposed action is classified as an Unlisted Action with regards to SEQRA, and therefore is subject to an uncoordinated or coordinated (optional) environmental review. This determination was made due to the fact that the proposed action was not expressly listed in 6 NYCRR Section 617.4 (Type I Actions) or 617.5 (Type II Actions).






NO PARKING










2
HOUR
PARKING
8AM - 6PM



DRAINAGE REPORT
for 149 North Hamilton Street

This report is to compare the site's stormwater runoff pre and post asphalt driveway paving. Then the calculations for the stormwater practices that shall be installed to mitigate the increased stormwater runoff.

Rational Method: **Q = c *i* A**

i = rainfall intensity; use 10 year rainstorm from NOAA data for Fairview/Poughkeepsie weather station.

i = 1.69 inches/hour (4.92 inches/24 hour period)

A = area = 10,200 SF = 0.234 acres

Run-off coefficients used:

House/Roof = 0.85

Grass/Lawn Area = 0.18

Concrete Walks = 0.80

Compacted Gravel Driveway = 0.40

Asphalt Driveway = 0.80

Assumption for Property @ 149 N.Hamilton Street – The land is relatively flat in topography as well as the adjoining properties and therefore the run-off calculations are based on the run-off generated within the lot's 0.234 acres.

Pre-Driveway Paving calculation:

Areas – House coverage = 1,305 SF (0.03 acres)

- Grass coverage = 4,200 SF (0.096 acres)
- Concrete Walk = 394 SF (0.009 acres)
- Compacted Gravel Driveway = 4,301 SF (0.099 acres)

Weighted average run-off coefficient = 0.384

Q = 0.384 (1.69) 0.234 = 0.152 cubic feet per second

0.152 cfs X 448.83 = 68.22 gallons per minute

Post-Driveway Paving calculation:

Areas – House coverage = 1,305 SF (0.03 acres)

- Grass Coverage = 4,200 SF (0.096 acres)
- Concrete Walk = 394 SF (0.009 acres)
- Asphalt Driveway = 4,301 SF (0.099 acres)

Weighted average run-off coefficient = 0.553

Q = 0.553 (1.69) 0.234 = 0.219 cubic feet per second

0.219 cfs X 448.83 = 98.29 gallons per minute

Difference in stormwater run-off = 98.29 gpm - 68.22 gpm = 30.07 gpm

1-hour period = 1,804.2 gallons/hour = additional stormwater runoff

PROPOSED MITIGATION MEASURES

Proposed Drainage Infiltration Trench (crushed stone backfill)

(85' long) x (2' wide) x (2'-6" deep) = 425 cubic feet x 7.481 gallons/cubic ft.
= 3,179.42 gallons

3,179.42 gallons x 35% voids = 1,112.80 gallons of storage in trench

Assume percolation rate of 1" water/ 10 minutes = 6 inches of water total in 1 hour, therefore:

(85' long) x (2' wide) x (6" deep) = 85.00 cubic feet x 7.481 gallons/cubic feet
= 635.90 gallons

Proposed Rain Barrels

Place (2) – 60 gallon rain barrels [1 located @ each rear gutter downspout]
= 120 gallons

Total gallons of water that are being diverted

= 1,112.80 + 635.90 + 120.00 = 1,868.70 gallons

1,868.70 gallons > 1,804.20 gallons

THE CITY OF POUGHKEEPSIE

DEPARTMENT OF PUBLIC WORKS & ENGINEERING

SITE PLAN REVIEW

Form #2

1. Date: January 30, 2024

2. Name of Site Plan: Driveway Improvements

3. Address or Location: 149 North Hamiton Street

4. Owner: RC Home & Office Solutions, Inc.

5. Engineer/ Architect: Paul Tirums, P.E.

6. Yes ☐ No ☐ The site plan as forwarded by the Planning Department is acceptable and will be signed off on with no condition(s).

7. Yes ☐ No ☐ The site plan as forwarded by the Planning Department is acceptable and has been signed off on with no condition(s).

8. Yes ☒ No ☐ The applicant should be notified that the Dept. of Public Works/Engineering requires the following comment(s) be addressed:

    1. Provide maintenance schedule and plan for infiltration trench and rain barrels. Include note on site plan that maintenance records for practices are to be submitted to the engineering department on a biannual basis.

Joseph A. Chenier, Jr. CPESC, CPMSM
Assistant Civil Engineer

CITY OF POUGHKEEPSIE POLICE DEPARTMENT

SITE PLAN REVIEW

DATE 09/15/2023

PROJECT NAME: 149 N. Hamilton Street

PROJECT ADDRESS: 149 N. Hamilton Street

☒ **THE SITE PLAN IS ACCEPTABLE AND WILL BE SIGNED WITH NO CONDITIONS**

☐ **THE SITE PLAN IS UNACCEPTABLE.**

CONDITIONS:

APPROVED BY CHIEF THOMAS PAPE OR AGENT:	DATE:
Sgt E #112 SGT. E. ACKEN #112	9/15/2023

BUILDING DEPARTMENT

CITY OF POUGHKEEPSIE
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4007 Fax: (845) 451-4006

Eric Philipp
Building Inspector

SITE PLAN REVIEW

DATE: 10-2-23

PROJECT ADDRESS: 149 N. Hamilton St.

PROJECT NAME: Parking area

OWNER: RC Home & Office Solutions

ENGINEER/ARCHITECT: Paul Tirums, P.E.

☐ **The site plan is acceptable and will be signed with no conditions.**

☑ **The site plan cannot be approved as submitted. The following comments must be addressed or conditions satisfied:**

The section of sidewalk that has the macadam should be changed to concrete

Eric Philipp
Building Inspector

Dutchess County Department of Planning and Development

Fax Info Only		
To	Date	#pgs
Co./Dept.	From	
Fax #	Phone #	

239 Planning/Zoning Referral - Exemption Communities

Please Fill in this section

Municipality: **City of Poughkeepsie**

Referring Agency: **Planning Board**

Tax Parcel Numbers(s): **2753500000**

Project Name: **Driveway**

Applicant: **Roy Campbell**

Address of Property: **149 Hamilton St, Poughkeepsie, NY 12601**

**Exempt Actions:*
239 Review is NOT Required**

- Administrative Amendments (fees, procedures, penalties, etc.)
- Special Permits for residential uses (accessory apts, home occupations, etc.)
- Use Variances for residential uses
- Area Variances for residential uses
- Renewals/Extension of Site Plans or Special Permits that have no changes from previous approvals

No Authority to review these Actions

- Subdivisions / Lot Line Adjustments
- Interpretations

☐ Exempt Action submitted for informal review

Actions Requiring 239 Review

- ☐ Comprehensive/Master Plans
- ☐ Zoning Amendments (standards, uses, definitions, district regulations, etc.)
- ☐ Other Local Laws associated with zoning (wetlands, historic preservation, affordable housing, architectural review, etc.)
- ☐ Rezonings involving all map changes
- ☐ Architectural Review
- ☑ Site Plans (all)
- ☐ Special Permits for all non-residential uses
- ☐ Use Variances for all non-residential uses
- ☐ Area Variances for all non-residential uses
- ☐ Other (Describe):

Parcels within 500 feet of:

- ☐ State Road:
- ☐ County Road:
- ☐ State Property (with recreation area or public building)
- ☑ County Property (with recreation area or public building)
- ☐ Municipal Boundary
- ☐ Farm operation in an Agricultural District

Date Response Requested: **9/15/2023**

Entered By: **Garcia, Lori**

These actions are only exempt in municipalities that signed an intermunicipal agreemment with Dutchess County to that effect.

For County Office Use Only

Response From Dutchess County Department of Planning and Development

No Comments:

- ☑ Matter of Local Concern
- ☐ No Jurisdiction
- ☐ No Authority
- ☐ Withdrawn
- ☐ Incomplete - municipality must resubmit to County
- ☐ Exempt from 239 Review
- ☐ None

Comments Attached:

- ☐ Local Concern with Comments
- ☐ Conditional
- ☐ Denial
- ☐ Incomplete with Comments- municipality must resubmit to County
- ☐ Informal Comments Only (Action Exempt from 239 Review)

Date Submitted: **9/13/2023**	Notes:	☐ Major Project
Date Received: **9/13/2023**		Referral #: **ZR23-267**
Date Requested: **9/15/2023**		
Date Required: **10/12/2023**	☐ Also mailed hard copy	Reviewer: Heather M. LaV
Date Transmitted: **9/14/2023**		

APPLICATION TO THE PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

Application for Site Plan, Special Permit & Facade Approval

OFFICE USE ONLY

CODE: PLSF

ID #_____

FEE: _____
Total, from:
$500, plus
$_____
($150 per 1000 square feet of floor area), plus
$_____
($35 per number of required parking spaces), plus
$_____
($500 for special permit, if applicable)

I. PROPERTY ADDRESS: 110 S Grand Ave

II. PROPERTY OWNER: Faith Apostolic Ministries Inc
ADDRESS: _____
110 S. Grand Ave
Poughkeepsie, NY 12603 (state and zip code)

PHONE NUMBER: _____ (include area code)

III. NAME OF APPLICANT: Faith Apostolic Ministries Inc

ADDRESS: 110 S Grand Ave
_____
Poughkeepsie, NY 12603 (state and zip code)

PHONE NUMBER: _____ (include area code)

EMAIL ADDRESS: _____

(If applicant is NOT the owner, proof of owner's consent to the application MUST be provided.)

IV. CONSULTANT: Michael R. Berta, AIA Architecture & Planning

ADDRESS: 7 Robert Road
_____
Poughkeepsie, NY 12603 (state and zip code)

PHONE NUMBER: 845-489-1638 (include area code)

V. PROPOSED USE or FAÇADE CHANGE (Summarize proposed use or uses): Phase I Church sanctuary addition, meeting rooms, church offices and related facilities. Phase II Youth center renovation

VI. ZONING DISTRICT: R2

(Proceed to XVII for special permit & façade approval only)

PROJECT INFORMATION

New construction: _____(yes)__X__ (no)

Change of use:_____ (yes) __X__ (no)

Expansion/addition:__X__ (yes) _____ (no)

Alteration:__X__ (yes) _____ (no)

Cost of Construction: $__1.5 mil.__

LOT AND BULK INFORMATION:

Lot area: __6.39__ (acres) __278,336.39__ (square feet)

Building Footprint: _____ (proposed square feet for new construction)

_____ (existing square feet for change of use/expansion)

__4,295__ (additional proposed square feet for expansion)

__39,431__ (total building footprint, square feet)

Lot Coverage: __7.1%__ (percentage, building coverage only)

Gross Floor Area: _____ (proposed square feet for new construction)

_____ (existing square feet for change of use/expansion)

__4,295__ (additional proposed square feet for expansion)

__47,315__ (total gross floor area, square feet)

Building Height: __2__ (stories) __31'-6"__ (feet)

Floor Area Ratio: __0.17__ (ratio of gross floor area divided by lot area)

VIII. PROJECT PARKING INFORMATION

A) Number of Off-Street Parking Spaces required: __211__

B) Number of Off-Street Parking Spaces provided: __218__

C) Waiver Requested: _____ (Yes) __X__ (No)

Is municipal parking available within 600 feet? _____ (Yes) __X__ (No)

If yes, name all such municipal facilities: _____

_____

_____

(If a waiver is requested based on proximity to municipal facilities, a written request for such waiver, addressed to the City Planning Staff and the Chairman of the Planning Board, must be submitted with the application.)

If a private parking facility is to be utilized, is such facility within 600 feet?

_____ (Yes) _____ (No)

If yes, provide the address of the facility, name of the property owner, number of spaces in the lot, number of spaces available for lease, and length of lease. Attach copy of lease. Additional information may be required by the Planning Board): _____

_____

_____

_____

IX. RESIDENTIAL PROPOSALS

A) Type of Development: _____
(Townhouse, condominium, multiple residence rental, etc.)

B) Unit Breakdown:

Number of efficiency or "studio" units: _____

Number of one (1) bedroom units: _____

Number of two (2) bedroom unit's _____

Number with three or more bedrooms: _____

Total number of units: _____

C) Is funding public? ____ Yes ____ No

If yes, describe funding source: _____

X. OFFICE PROPOSALS (____ Medical/Dental ____ Professional ____ Business)

A) Number of Employees: _____

B) Number of doctors/dentists/medical practitioners: _____

C) Days/Hours of Operation: _____

XI. SERVICE BUSINESS PROPOSALS

A) Specify Business: _____
(e.g., laundromat, drycleaner, beauty parlor, travel agency, banks)

B) Number of Employees: _____

C) Number of Washing Machines (for laundromat): _____

D) Days/Hours of Operation: _____

XII. MERCANTILE PROPOSALS (Retail _____ Wholesale _____)

A) Type of Mercantile (specify): _____

B) Number of Employees: _____

C) Days/Hours of Operation: _____

XIII. STANDARD RESTAURANT/FAST FOOD RESTAURANT/COFFEE SHOP/DONUT SHOP/NIGHTCLUB/DISCOTHEQUE/BAR PROPOSALS

A) Specify Use: _____

B) Number of seats (excluding bar stools and outdoor seating):_____

C) Meals served (i.e., breakfast, lunch, dinner): _____

D) Type of Menu: _____

E) Days/Hours of Operation: _____

F) Entertainment (live and/or recorded):_____

G) Will the restaurant contain a bar/lounge?: _____ Yes _____ No

H) If yes, how many seats at the bar? _____

I) Is a drive-through window proposed? _____

J) Is a walk-up window proposed? _____

K) Is an outdoor seating area proposed? _____

L) If yes, how many seats are proposed? _____

M) If yes, is outdoor cooking proposed? _____

XIV. INDUSTRIAL/COMMERCIAL PROPOSALS (Automobile repair, taxi, motor vehicle sales, warehouse, manufacturing, animal hospital, research facilities, etc.)

A) Specify Use: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

E) Number of work bays (if automobile repair): _____

F) Days/Hours of operation: _____

XV. EDUCATIONAL/INSTITUTIONAL/RECREATIONAL PROPOSALS (e.g., Museums, Theatres, Conference Centers, Hotels, Motels, Hospitals, Nursing Homes, Assisted Living Facilities, Nursery Schools, Private Schools, Day Care Centers, Places of Worship, Marinas, Membership Clubs, etc.)

A) Specify: Place of Worship

B) Number of shifts (if any): _____

C) Number of employees: 5
(If shifts are proposed, list number of employees per shift)

D) Number of beds (hospitals, nursing homes, etc): _____

E) Number of seats in largest assembly space: 760 Sanctuary Seats

F) Number of classrooms (schools): 5

G) Number of rental units (hotels, motels, etc.) N/A

H) Number of boat slips/courts (e.g., tennis, handball, etc.), alleys: N/A

I) Days/Hours of Operation: Evenings and weekends

XVI. PROPOSALS NOT MENTIONED ABOVE (Please be specific):

_____

_____

_____

_____

_____

XVII. APPLICANT CERTIFICATION

I, Michael R Berta, AIA, certify that the this application has addressed the objectives outlined in the Zoning Ordinance with consideration given to the public health, safety and welfare; the comfort and convenience of the public in general or the residents or users of the proposed development and of the immediate neighborhood.

The applicant certifies that all information contained herein is accurate and complete as of the date of this application.



_____ August 28, 2023

Signature of Applicant Date

Michael R. Berta. AIA
Architecture & Planning

August 28, 2023

Planning Department
City of Poughkeepsie
62 Civic Center Plaza, 2nd Floor
Poughkeepsie, NY 12601

Re: 110 S. Grand Avenue
Planning Board Application

Chairperson and Members of the Board

Thank you for your time and we look forward to working with the board on the proposed project.

The proposed project is being completed in two phases which are as follows;

Phase I

Will consist of a 60' x 40' addition to the existing sanctuary and a mezzanine addition to be able to accommodate 760 parishioners. The existing pool area locker rooms will be renovated into additional restrooms, the baptismal room will be relocated & enlarged, a choir practice room and two classrooms will be added. A café area will be created in the main building lobby. This phase will include all site work to expand the parking area and landscaping.

Phase II

The former pool area will be converted into a youth center. The center will have activity space, a conversation area and youth ministry.

The above is a brief description of what each phase contains, we look forward to discussing them further at the upcoming meeting.

Thank you again for your time and I look forward to working with you on the project with you.

Sincerely Yours.

Michael R. Berta, AIA
Architect

7 Robert Road Poughkeepsie, New York 12603 (845) 489-1638 fax (845) 483-9887
E-Mail mike@bertaarchitects.com Web Site www.bertaarchitects.com

Proposed Addition / Alteration To For



Faith Apostolic Ministries Inc

110 South Grand Ave

Poughkeepsie, New York

Drawings Index

Cover	Cover Page
Reder-1	Proposed Site Plan Rendering
Render-2	Renderings From S. Grand Ave
Render-3	Proposed Interior Renderings
Pre-1	Proposed Elevations
Pre-2	Proposed First Floor Plan
Pre-3	Proposed Second Floor Plan
EX-1	Existing Survey
SP-1	Proposed Site Plan
SP-2	Landscape Plan and Details

Architectural Abbreviations Key

ARCH.	ARCHITECTURAL	DR.	DOOR	HVAC	HEATING, VENTILATING & AIR CONDITIONING	NAT.	NATURAL	REV	REVISION
A.F.F.	ABOVE FINISHED FLOOR	DN.	DOWN	HT.	HEIGHT	N.I.C	NOT IN CONTRACT	R.D.	ROOF DRAIN
A.C.	AIR CONDITIONING	DWG.	DRAWING	HORIZ.	HORIZONTAL	N.T.S	NOT TO SCALE	RM.	ROOM
ALT.	ALTERNATE	EA.	EACH	HB	HOSE BIB	NO.	NUMBER	R.O.	ROUGH OPENING
ALUM.	ALUMINUM	ELEC.	ELECTRIC(AL)	H.W	HOT WATER	O.C	ON CENTER	RWC	RAIN WATER CONDUCTOR
MTL.	METAL	ELEV.	ELEVATION	HR.	HOUR	OPN'G	OPENING	SD.	SMOKE DETECTOR
APPROX.	APPROXIMATE	EQ.	EQUAL	INC.	INCLUDED	OPT.	OPTIONAL	SECT.	SECTION
AUTO	AUTOMATIC	EXIST'G	EXISTING	INSUL.	INSULATE(D)(ION)	PNL.	PANEL	SIM.	SIMILAR
BSMT.	BASEMENT	EXT.	EXTERIOR	INT.	INTERIOR	PVMT.	PAVEMENT	SPEC.	SPECIFICATIONS
BP	BEAM POCKET	E.I.F.S	EXTERIOR INSULATTION AND FINISH SYSTEM	JT	JOINT	PL.	PLATE	SQ.	SQUARE
BD.	BOARD	FIN.	FINISH(ED)	KIT.	KITCHEN	PLMB.	PLUMBING	ST. STL.	STAINLESS STEEL
BOTT.	BOTTOM	F.P.	FIRE PROOFING	LAM.	LAMINATED	PLY'WD	PLYWOOD	STD	STANDARD
BLDG.	BUILDING	FLR.	FLOOR	LT.	LIGHT	P.T.	PRESSURE TREATED	STL.	STEEL
CAB.	CABINET	F.D.	FLOOR DRAIN	M.H	MAN HOLE	PT.	POINT	STRUCT.	STRUCTURAL
CLG.	CEILING	FT.	FOOT	MFTR.	MANUFACTURER	PCF	POUNDS PER CUBIC FEET	SYM.	SYMMETRICAL
CLO.	CLOSET	FTG.	FOOTING	MAS.	MASONRY	PSI	POUNDS PER SQUARE INCH	TEL.	TELEPHONE
COL.	COLUMN	FND.	FOUNDATTION	MAX.	MAXIMUM	PSF.	POUNDS PER SQUARE FOOT	TEMP.	TEMPERATURE
CONC.	CONCRETE	FUR.	FURRING	MECH.	MECHANICAL	PCP	PRECAST CONCRETE PANEL	T&G	TONGUE AND GROOVE
CMU	CONCRETE MASONRY UNIT	GALV.	GALVANIZED	MC.	MEDICINE CABINET	QTY.	QUANTITY	T.O.	TOP OF
CONST.	CONSTRUCTION	GA.	GAGE	MEMB.	MEMBRANE	RAD.	RADIUS	TYP.	TYPICAL
CONT.	CONTINUOUS	G.C.	GENERAL CONTRACTOR	MIN.	MINIMUM	RE:	REFER TO	V.I.F.	VERIFY IN FIELD
CONTR.	CONTRACTOR	GL.	GLASS	MR.	MIRROR	REF.	REFRIGERATOR	VERT.	VERTICAL
DET.	DETAIL	GYP. BD.	GYPSUM WALL BOARD	MISC.	MISCELLANEOUS	REINF.	REINFORCE(D)(ING)	WC.	WATER CLOSET
DIAM.	DIAMETER	HTR.	HEATER	MULL	MULLION	REQ'D	REQUIRED	W/	WITH
						RET.	RETURN	W/O	WITH OUT
								WD.	WOOD

EXST'G MATERIAL TO BE REMOVED

GYPSUM BOARD PARTITION ON WD STUDS (SMALL SCALE)

CONC. MASONRY UNIT BLOCK

STEEL

STEEL REINFORCING

WOOD BLOCKING

GYPSUM BOARD (LARGE SCALE)

CONCRETE

CRUSHED STONE BASE

GROUT/MORTAR

BATT INSULATION

RIGID INSULATION

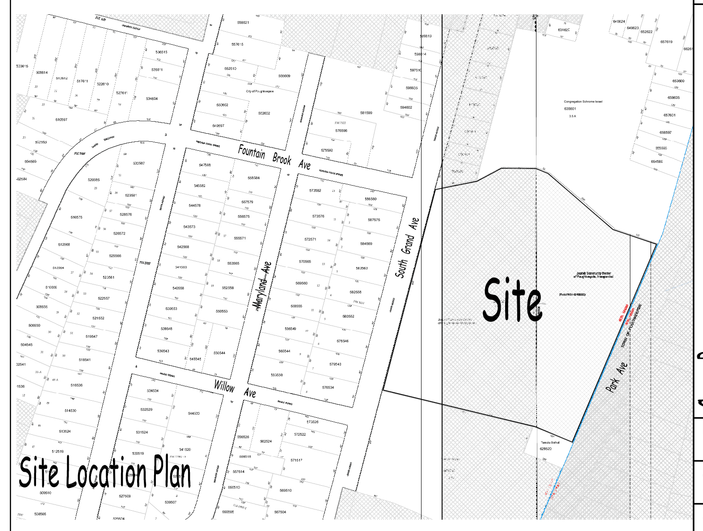
GYP BD CEILING

COMPACTED FILL

TOP SOIL

SOLID WOOD TRIM

ENGINEER LUMBER



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Do Not Scale Prints

Date	Revision

Cover Page

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date: February 6, 2023
Job No: 2023-001
Scale: 1/8" = 1'-0"
Drawing: Cover
Of: One

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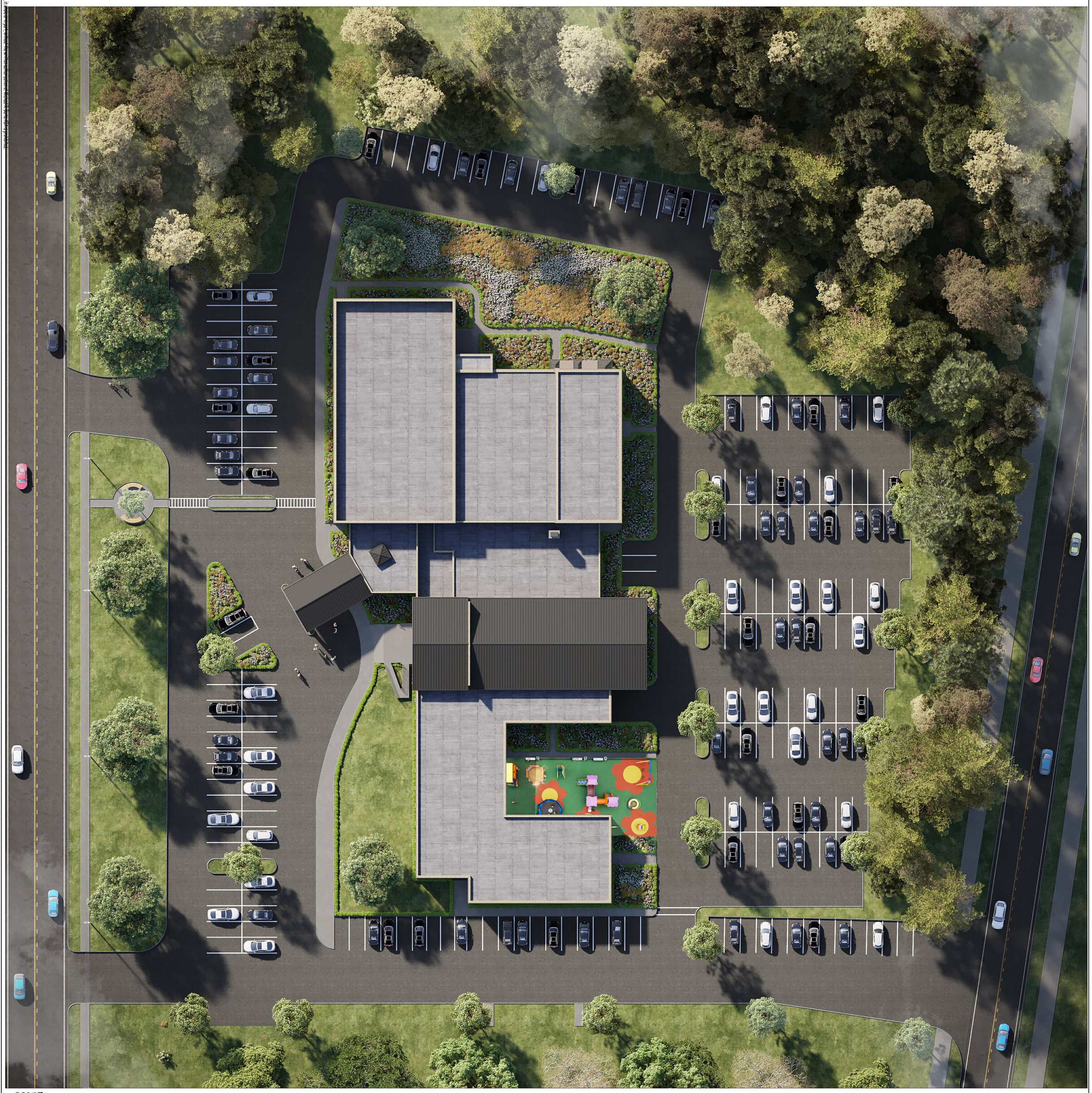

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Drawing Render-1 Of Three

Scale None

Job No 2023-001

Date August 28, 2023

Proposed Site Rendering

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date

Revision

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Date	Revision

Proposed Front Renderings

Proposed Addition / Alteration For:
Faith Apostolic Ministries Inc
1101 South Grand Ave
Poughkeepsie, New York

Date August 28, 2023

Job No 2023-001

Scale None

Drawing Render-2
Of Three

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Date	Revision

Proposed Interior Renderings

Proposed Addition / Alteration For:
Faith Apostolic Ministries Inc
110 South Grand Ave.
Poughkeepsie, New York

Date: August 28, 2023
Job No: 2023-001
Scale: None
Drawing: Render-3
Of: Three

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7. Subject to the findings of a current title search.

8. Subject to covenants, easements, restrictions, conditions and agreements of record.

9. Subject to any right, title or interest the public may have for highway use.

10. Bearings and North shown hereon are referenced to NAD 83-NY East using NYSNET RTN GPS.

11. Contour interval is 1/2 foot. Elevations shown hereon are referenced to NAVD 88 using NYSNET RTN GPS.

DEED REFERENCE

Doc. #02 2020 4591
Hudson Valley Community Center, Inc.
To
Faith Apostolic Ministries, Inc.
November 12, 2020

TAX PARCEL NUMBER

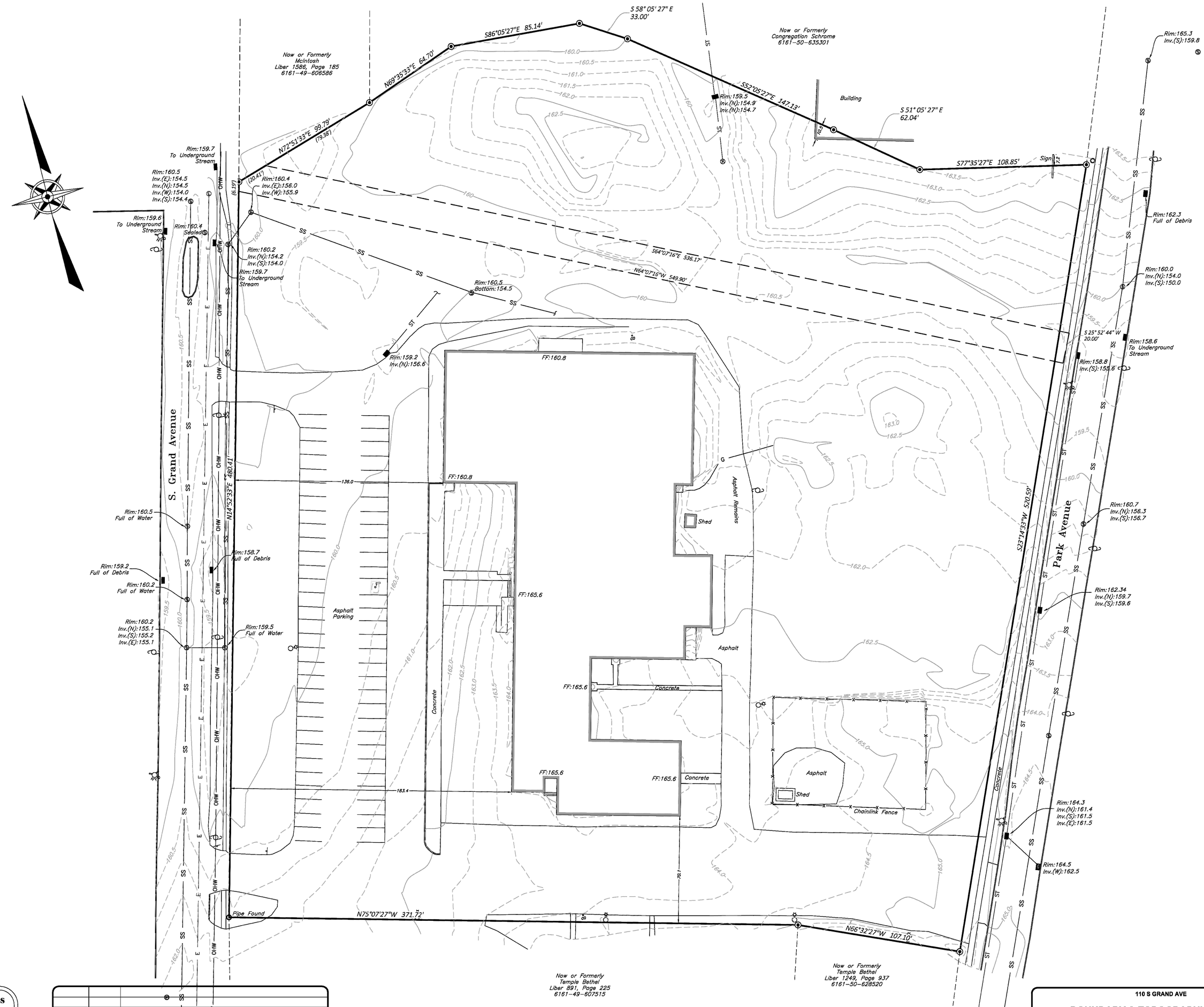
City of Poughkeepsie, Dutchess County, New York
6161-49-620556

AREA

278,334 Square Feet
6.390 Acres

DATE OF SURVEY

Field Completion: May 4, 2023



JOHNSON SURVEYING

BRENDAN JOHNSON, PLS
10 Meadow Lane
Pleasant Valley, NY 12569
Phone No. (845) 380-0528
johnsonboundaries@gmail.com

Copyright 2014

rev.	date	description

tax id 6161-49-620556
address 110 S GRAND AVE
date 5/8/2023 drawn BJ
scale 1"=30' checked BJ
project no. 23-063
project name 110 S GRAND AVE
sheet 1 OF 1

110 S GRAND AVE

BOUNDARY & TOPOGRAPHIC SURVEY PREPARED FOR FAITH APOSTOLIC MINISTRIES, INC

CITY OF POUGHKEEPSIE, COUNTY OF DUTCHESS, STATE OF NEW YORK

BRENDAN JOHNSON, P.L.S.
P.L.S. No. 50919

Michael R. Berta, AIA
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Date	Revision

Existing Survey

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date August 28, 2023

Job No 2023-001

Scale 1" = 30'-0"

Drawing EX-1

Of One

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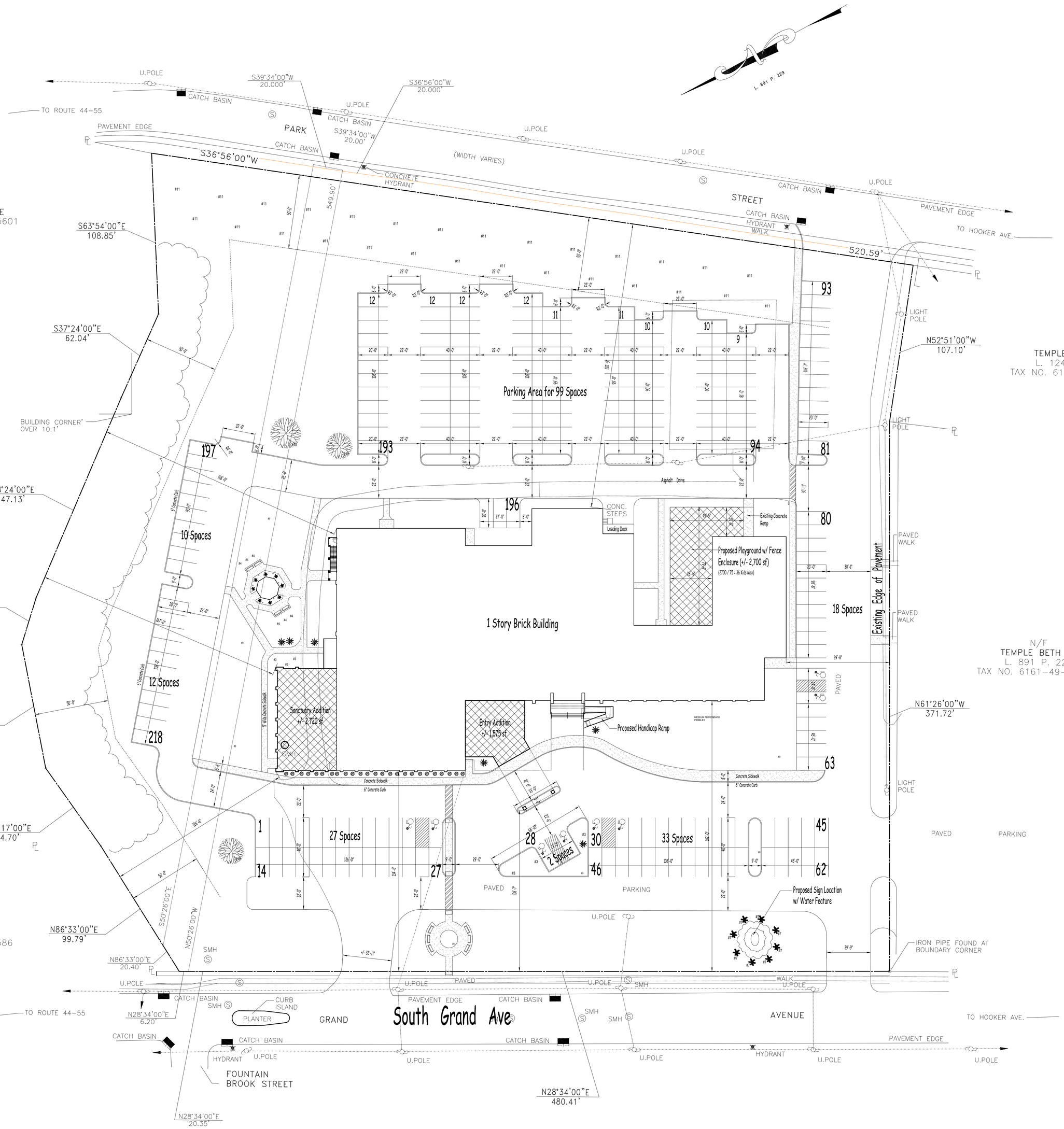
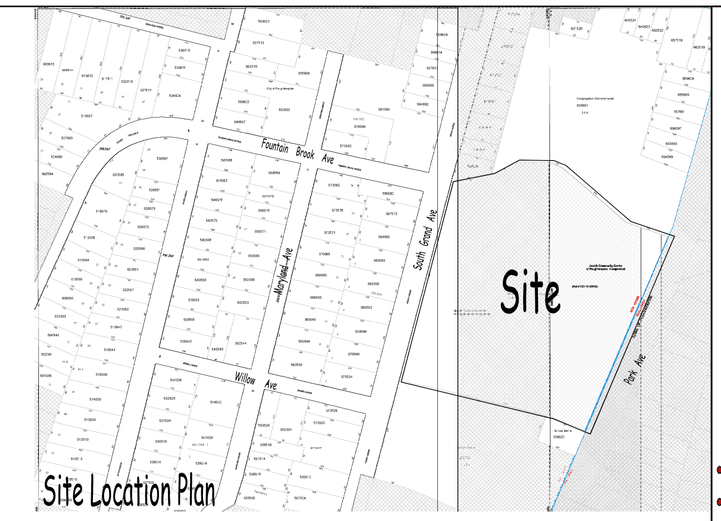


Site Plan
Scale: 1" = 30'-0"



Site Location Plan

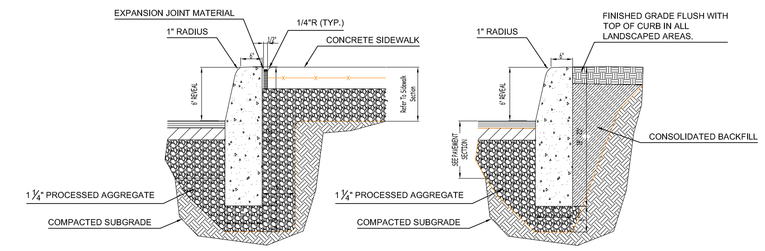
Site Data

Tax Map No	131300-6161-49-620556-0000	
Zone	R-2 (Medium Low Density Residence)	
Use	Mixed Use (Church & Daycare)	
	Required	**Provided**
Lot Area	10,000 SF	6.39 ac (278,336.39 sf)
Min Lot Dimensions		
Frontage	30'	287.77'
Width	50'	287.77'
Setbacks		
Front	20'	108.58' (Adition)
Side	10'	126.50' (Addition)
Side	10'	69.90' (Existing)
Rear	15% of Lot Depth = 82.5' (Not Less Than 15')	194.42' (Existing)
Building Hgt (Height / Stories)	35' / 2 1/2	28' / 1 story (Existing)
Maximum Lot Coverage	30 % 278,336.39 sf x .30 = 83,500.90 sf	22 % Provided 61,235 sf

Off Street Parking

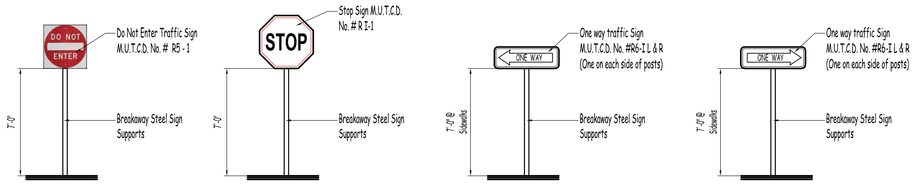
Church	1 Space per 4 seats	760 Seats / 4	= 190 Spaces
Daycare	1 Space per Staff Member	16 Staff Members	= 16 Spaces
Classroom	1 Space per Classroom	5 Classrooms	= 5 Spaces
			= 211 Spaces Required

218 Spaces Provided
(Includes 8 Handicapped Spaces)



CONCRETE CURB SHALL BE 4,500 PSI CAST-IN-PLACE, AND IN ACCORDANCE WITH NYSDOT STANDARD SPECIFICATIONS SECTIONS 500 AND 608

EXPANSION JOINTS OF 11/16" CELLULOSE OR SIMILAR MATERIAL SHALL BE PLACED AT 8 FOOT INTERVALS IN ACCORDANCE WITH NYSDOT SECTION 609



Typical Site Signs
Scale: None

City Planning Board
City of Poughkeepsie, New York

Site Plan Approval
File No:
Project Name: Proposed Addition / Alteration For Faith Apostolic Ministries Inc
Project Location: 103 S Grand Ave Poughkeepsie, New York 12602
Applicant: Faith Apostolic Ministries Inc

Officially **approved** at the planning board meeting held the _____ day of _____, _____
Planning Chair:
Designee
Date Signed
Condition(s):

Fire Chief

Police Chief

Building Inspector

City Engineer

Commissioner of Public Works

Note:
This plans are not valid for a building permit unless an original signed and sealed by the architect

Note:
Site Construction of the site improvements shall be strictly under the direction of a licensed professional engineer. The engineer shall be responsible for all aspects of the construction and shall certify to the best of his knowledge, information and belief that the work was performed in accordance with the approved site plan and all applicable laws, codes, rules and regulations.

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Date	Revision

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Architecture & Planning
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(845) 489-1638
www.bertaarchitects.com mike@bertaarchitects.com

Proposed Site Plan

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
103 South Grand Ave
Poughkeepsie, New York

Date: August 28, 2023
Job No: 2023-001
Scale: As Noted
Drawing: SP-1
Of

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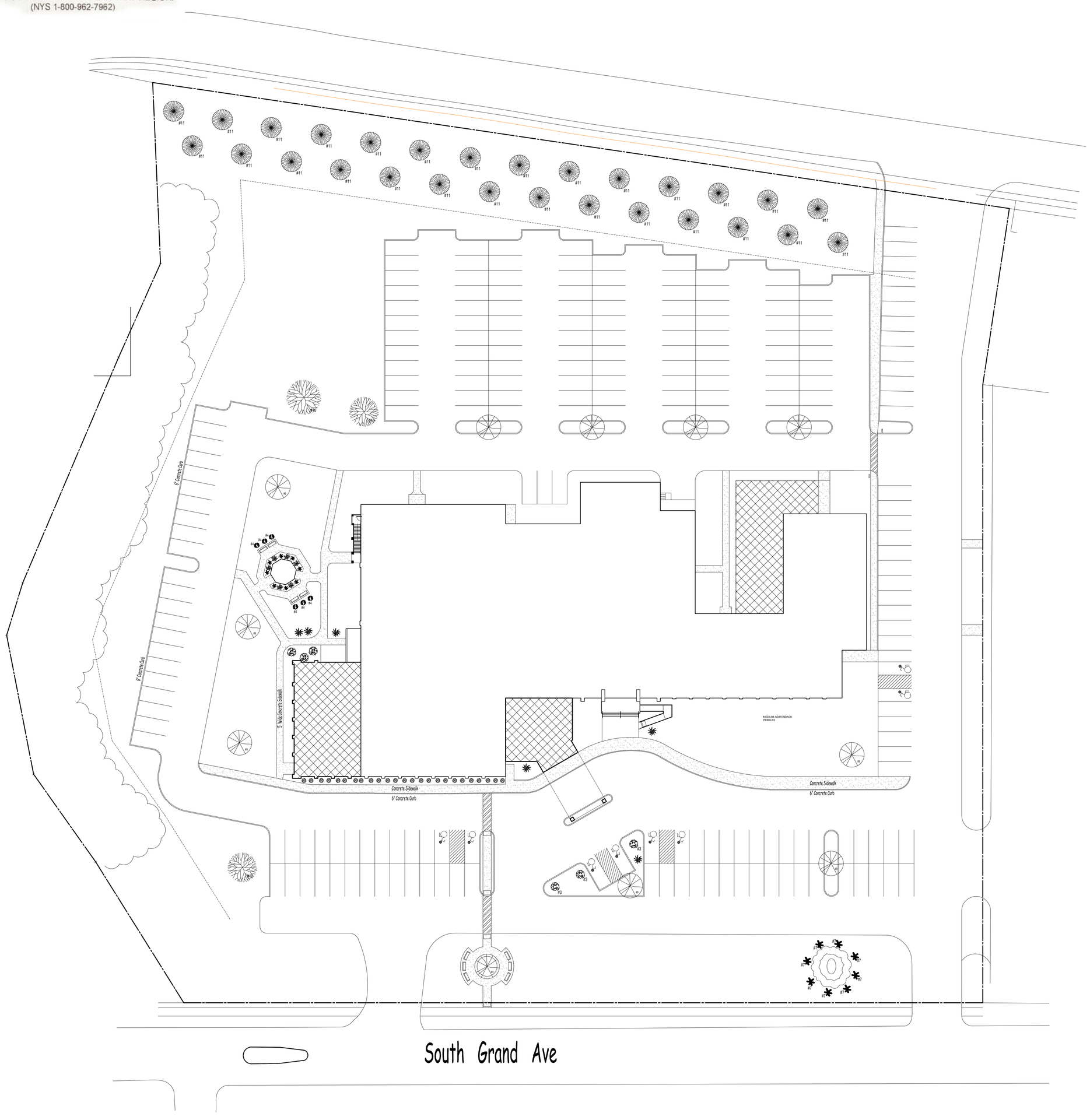
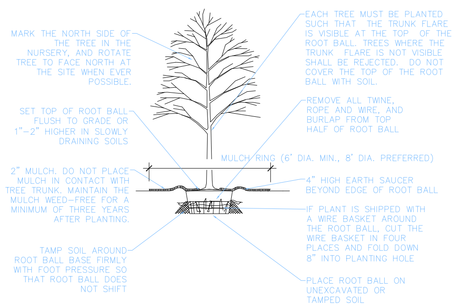
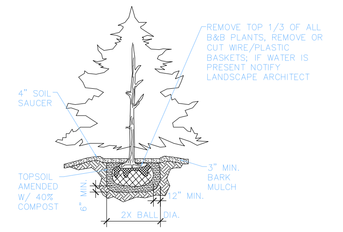


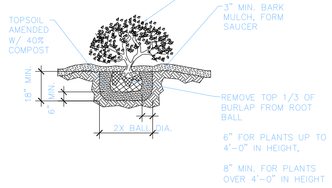
Landscapping Plan
Scale: 1" = 30'-0"



Deciduous Planting Detail
Scale: None



Conifer Planting Detail
Scale: None



Shrub Planting Detail
Scale: None

GENERAL LANDSCAPE NOTES

1. THE CONTRACTOR IS CAUTIONED TO VERIFY ALL LAYOUT, GRADES AND OTHER EXISTING FEATURES AND TO CHECK ALL MEASUREMENTS AT THE SITE PRIOR TO ORDERING MATERIALS OR COMMENCING WORK.
2. IF AND WHENEVER PLANT MATERIAL CANNOT BE LOCATED AS INDICATED DUE TO UNDERGROUND UTILITIES OR OTHER SUBSURFACE OBSTRUCTIONS, SUCH LOCATIONS SHALL BE ADJUSTED IN THE FIELD BY THE ARCHITECT.
3. AREAS FOR STOCKPILING MATERIALS, STORING EQUIPMENT AND PARKING EMPLOYEE VEHICLES WILL BE ONLY IN THOSE AREAS AS APPROVED BY THE ARCHITECT OR OWNER.

PLANTING SPECIFICATIONS ALL TREE PITS, SHRUBS PITS AND GROUND COVER AREAS SHALL BE EXCAVATED AS FOLLOWS:
a. TREE PITS SHALL BE TWO (2) TIMES AS WIDE AS THE BALL. TREE PITS SHALL BE SIX (6) INCHES DEEPER THAN THE DEPTH OF THE BALL.
b. FOR SHRUBS THE PIT SHALL BE TWO (2) TIMES THE WIDTH OF THE BALL OR SPREAD OF THE ROOTS AND SIX (6) INCHES DEEPER THAN THE DEPTH OF THE BALL OR ROOTS.
c. FOR GROUND COVER AREAS THE EXCAVATION SHALL BE SIX (6) INCHES DEEP.
d. ALL TREES AND SHRUBS SHALL BE PLANTED TWO (2) INCHES HIGHER THAN THE ORIGINAL GROWING DEPTH.
e. ALL EXCESS EXCAVATION SHALL BE REMOVED FROM THE SITE OR DISPOSED OF AS DIRECTED BY THE LANDSCAPE ARCHITECT.

TOPSOIL FURNISHED AND PLACED ALL MATERIAL SHALL BE NATURAL LOAM TOPSOIL, FREE FROM SUBSOIL, SOD, STONES OVER TWO (2) INCHES IN GREATEST DIMENSION AND ANY OTHER UNDESIRABLE MATERIAL. TOPSOIL SHALL CONTAIN NOT LESS THAN FIVE (5) PERCENT ORGANIC MATTER AND SHALL HAVE A PH OF BETWEEN 5.5 AND 7.0. TOPSOIL SHALL BE FRIABLE WITH A LOW CLAY CONTENT.

TOPSOIL SHALL BE PLACED AS FOLLOWS: BACKFILL FOR ALL TREE PITS, SHRUB PITS AND GROUND COVER AREAS AND SHALL BE COMPACTED TO FILL THE EXCAVATION AS DESCRIBED ABOVE. HUMUS SHALL BE INCORPORATED WITH TOPSOIL AS FOLLOWS:

HUMUS HUMUS SHALL BE REED PEAT, SEDGE PEAT OR NATURAL HUMUS. IT SHALL BE FREE FROM HARD LUMPS, STICKS, STONES AND OTHER UNDESIRABLE MATERIAL. THE ACIDITY RANGE SHALL BE 5.5 PH TO 7.0 PH AND THE ORGANIC CONTENT SHALL NOT BE LESS THAN 85 % AS DETERMINED BY LOSS ON IGNITION. HUMUS SHALL BE INCORPORATED AS FOLLOWS:
a. BACKFILL OF TREE AND SHRUB PITS AT ONE (1) PART HUMUS TO FOUR (4) PARTS TOPSOIL.
b. IN GROUND COVER BEDS SPREAD THREE (3) INCHES THICK AND INCORPORATED INTO UPPER SIX (6) INCHES OF SOIL.

IRRIGATION DESIGN / BUILD

MULCH MULCH SHALL BE SHREDDED BARK FREE OF LARGE PEELINGS, INORGANIC DEBRIS, STONES, LOGS OR ANY MATERIAL WHICH AFFECTS ITS APPEARANCE OR FUNCTION. A SAMPLE SHALL BE SUBMITTED TO ABACA, FOR APPROVAL PRIOR TO DELIVERY TO THE SITE. MUCH SHALL BE SPREAD IN ALL BEDS THREE (3) INCHES IN DEPTH. A COMMERCIAL FERTILIZER WITH A 10 - 6 - 4 RATIO SHALL BE SPREAD ON SOIL AT THE RATE OF 10 POUNDS PER 1000 SQ. FEET PRIOR TO SPREADING OF MULCH. GROUND COVER AREAS SHALL BE MULCHED WITH 1" - 1 1/2" OF SHREDDED BARK.

PLANT MATERIAL AND PLANTING PLANT MATERIALS SHALL BE AS DESCRIBED IN THE PLANT SCHEDULE. ABACA, RESERVES THE RIGHT TO INSPECT ALL PLANT MATERIAL BEFORE DELIVERY. LOCATION OF ALL TREES AND SHRUBS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY ABACA, PRIOR TO PLANTING. CALIPER OF TREES SHALL BE MEASURED SIX (6) INCHES ABOVE GROUND. BALL SIZES FOR PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMAN.

STAKING AND GUYING IMMEDIATELY AFTER PLANTING ALL TREES OVER 10' IN HEIGHT, SHALL BE EITHER STAKED OR GUYED AS APPROVED BY ABACA.

WATERING ALL PLANT MATERIAL SHALL BE THOROUGHLY WATERED DURING PLANTING AND AS MANY TIMES AS NEEDED UNTIL THE FORMAL ACCEPTANCE OF THE PROJECT BY THE OWNER.

SPECIAL NOTES
1. AREAS SCHEDULED FOR TREE, SHRUB, PERENNIAL OR GROUND COVER BEDS, AND WHICH ARE PRESENTLY IN TURF, SHALL BE SPRAYED WITH A 2 1/2 % SOLUTION OF "ROUNDUP" BY MONSANTO, TEN (10) DAYS PRIOR TO PLANTING.
2. ALL LEUCOTHOE SPECIES SHALL BE SPRAYED WITH A SOLUTION OF "BENOMYL" FUNGICIDE WITHIN FIVE (5) DAYS AFTER PLANTING AND AGAIN AFTER A TEN (10) DAY PERIOD. THE LANDSCAPE ARCHITECT SHALL WITNESS BOTH THESE PROCEDURES.
3. ALL EVERGREEN TREES AND SHRUBS SHALL BE SPRAYED WITH AN ANTI-TRANSPIRANT SUCH AS "WILT-PRUF" OR "ENVI" THE FIRST DECEMBER AFTER PLANTING, AND AGAIN DURING A TIME IN FEBRUARY WHEN TEMPERATURES ARE 40 DEGREES OR HIGHER.
4. ALL PLANTING BEDS, SHRUB BEDS, GROUND COVER BEDS AND TREE PITS SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE SUCH AS "TREFLAN" OR "SURFLAN" OR AN APPROVED EQUAL. PRIOR TO SPREADING OF MULCH AND AS DIRECTED BY THE ARCHITECT.
5. ALL BETULA SPECIES SHALL BE SPRAYED WITH A SOLUTION OF "LINDANE" THE FIRST MAY AFTER PLANTING.

GUARANTEE AND REPLACEMENT THE CONTRACTOR SHALL GUARANTEE AND REPLACE ALL PLANT MATERIAL PLANTED BY HIM FOR ONE (1) YEAR. THE ONE (1) YEAR PERIOD SHALL COMMENCE AT THE TIME ALL MATERIAL IS PLANTED AND FORMALLY ACCEPTED BY THE ARCHITECT. THE CONTRACTOR SHALL REPLACE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS ANY TREES, SHRUBS, PERENNIALS AND GROUND COVER PLANTS THAT ARE DEAD OR, IN THE OPINION OF THE ARCHITECT, ARE UNHEALTHY OR UNSIGHTLY CONDITION

CLEAN-UP THE CONTRACTOR SHALL "CLEAN-UP" AND REMOVE FROM THE SITE ALL RUBBISH, DEBRIS AND SURPLUS MATERIAL AS FAST AS IT ACCUMULATES AND SHALL NOT PERMIT IT TO BE SCATTERED ABOUT THE SITE.

PLANTING SCHEDULE

NUMBER	SYMBOL	BOTANICAL/COMMON NAME	QUANTITY	SIZE	REMARKS
#1		GREEN VELVET BOXWOOD (BUXUS GREEN VELVET)		2 GALLON CONTAINER	24" SPACING AS SHOWN
#2		HETZ MIDGET ARBORVITAE (THUJA OCCIDENTALLIS HETZ MIDGET)	5	4 GALLON CONTAINER	30" SPACING AS SHOWN
#3		BLACK KNIGHT BUTTERFLY BUSH (BUDDLEJA DAVIDII BLACK KNIGHT)	15	4 GALLON CONTAINER	
#4		BLOOMERANG PURPLE REBLOOMING LILAC SHRUB (SYRINGA 'SMSJBP7')	5	4 GALLON CONTAINER	30" SPACING AS SHOWN
#5		AMERICAN BOXWOOD SHRUB (BUXUS SEMPERVIRENS)	15	4 GALLON CONTAINER	24" SPACING AS SHOWN
#6		PARDON ME DAYLILLY (HEMEROCALLIS 'PARDON ME')		VARIES	MIX DIFFERENT COLORS
#7		AVALANCHE FEATHER REED GRASS		SPECIMEN	
#8		BURNING BUSH (EUONYMOUS ALATUS)	12	30" TALL	5'-0" SPACING
#9		EASTERN REDBUD (CERCIS CANADENSIS)	1	5'-6" TALL	4 INCH CALIPER
#10		Norway Maple (Acer Platanoides)	1	8' TALL	4 INCH CALIPER
#11		White Pines, Colorado Blue Spruce or Norway Spruce	1	6' TALL	4 INCH CALIPER

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Date	Revision

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This set is disclosed at the time the permit, unless otherwise stated by the architect in writing, is issued. Any changes made to the plans after the permit is issued, the attorney-at-record and the architect is dismissed, the attorney-at-record and the architect will cease to be the responsible party for compliance. Failure by the owner to implement & address all such attorney-at-record changes will be the responsibility of the owner.

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Proposed Site Plan

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
1101 South Grand Ave.
Poughkeepsie, New York

Date: August 28, 2023
Job No: 2023-001
Scale: As Noted
Drawing: SP-2
Of

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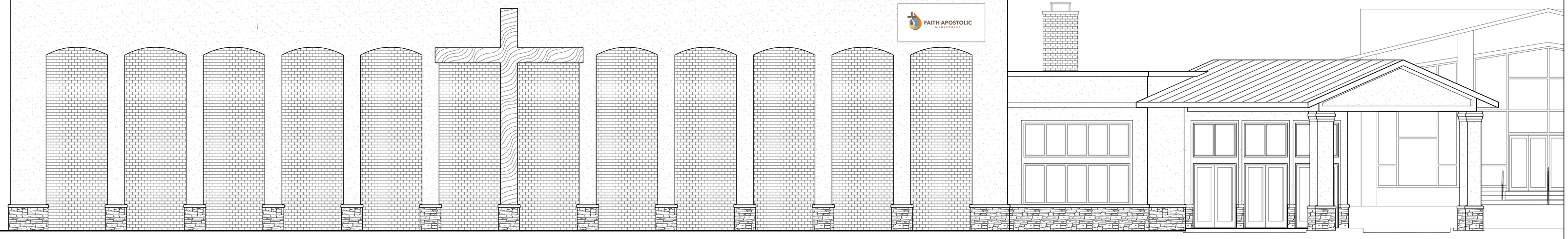
Phase II







1 TYPICAL SOUTH ELEVATION
SCALE: 3/16" = 1'-0"

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Date	Revision

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Proposed Front & Left Side Elevations

Proposed Addition / Alteration For:
Faith Apostolic Ministries Inc
110 South Grand Ave.
Poughkeepsie, New York

Date	August 28, 2023
Job No	2023-001
Scale	As Noted
Drawing	Pre-1
Of	Two

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Addition

Proposed Choir Loft
44 Seats

Proposed Stage
36" Raised Platform

Wheelchair Lift

80 Seats
109 Seats
89 Seats
20 Seats
55 Seats
30 Seats
23 Seats
54 Seats
36 Seats

Proposed Sanctuary
8,162 sf
528 Seats

Line of Mezzanine Above

Existing Building To Remain

Proposed Baptismal Room
510 sf

Dressing Rm
Dressing Rm
Dressing Rm
Dressing Rm

Proposed Classroom
794 sf

Laundry
Washer
Dryer

Men's Toilet
Women's Toilet

Proposed Classroom
839 sf

Toilet

Janitor Closet

Sound Booth

Production Room

Proposed Entry Lobby
1,340 sf

Water Feature w/ Seating Wall

Reception

Main Building Lobby
Ceiling Height: 13'-8"
Finish Floor Elevation: 0'-0"

Line of Marque Above

48" High Kneewall w/ Shelves Under

Refrig
Mitrro

Cafe
225 sf

ADA Compliant Counter
Supplies
Coffee Station
Mixing Station
Closet

Existing Office
To Remain

Existing Office
To Remain

Corridor
Ceiling Height: 12'-8"
Finish Floor Elevation: 0'-0"

ROOM #13
MAIN FLOOR
EL. 0'-0"

ROOM #14
MAIN FLOOR
EL. 0'-0"

ROOM #15
MAIN FLOOR
EL. 0'-0"

Phase II

Proposed Classroom
794 sf

Proposed Stage
12" Raised Platform

Stadium Telescopic Bleacher Seating

Line of Mezzanine Above

Proposed Choir Practice Rm
930 sf

Proposed Youth Center
2,575 sf

Baptistmal

Ramp Down

Do Not Scale Prints

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Proposed First Floor Plan

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date: August 28, 2023
Job No: 2023-001
Scale: 1/8" = 1'-0"
Drawing: Pre-2
Of: Four

Date
Revision

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Phase II

Upper Part of Sanctuary

65'-4"

Dark Floor Mezzanine

Seating Loft
122 Seats

Youth Center Game Room
875 sf

75" TV Location

Dark

Upper Part of Youth Center

Do Not Scale Prints

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Drawing Pre-3 Of Three

Scale 1/8" = 1'-0"

Job No 2023-001

Date August 28, 2023

Proposed Second Floor Plan

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date									
Revision									

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LEGEND

EXISTING PROPERTY LINE	PROPOSED BUILDING ADDITION
EXISTING BUILDING	PROPOSED CONTOUR
EXISTING CONTOUR	PROPOSED STORM PIPE
EXISTING STORM PIPE	PROPOSED CATCH BASIN WITH TOP OF RIM
EXISTING CATCH BASIN	PROPOSED STORM WATER TREATMENT CHAMBERS WITH OBSERVATION PORTS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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PE REGISTRATION 069634 CERT 0405443 EXPIRE ON 04-30-25
LS REGISTRATION 049745 CERT 1255930 EXPIRE ON 04-30-24
COA FOR PE AND LS CERT 0018252 AND 0018253

STATE OF NEW YORK — JOHN PAUL BERGER — 049745 — LICENSED PROFESSIONAL ENGINEER

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Date	Revision
August 24, 2023	Stormwater Design
March 1, 2023	Misc Revision per Owner
February 28, 2023	Misc Revision per Owner
February 10, 2023	Misc Revision per Owner

PROPOSED STORMWATER PLAN

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date	February 6, 2023
Job No	2023-001
Scale	1" = 30'
Drawing	C-1
Of	-

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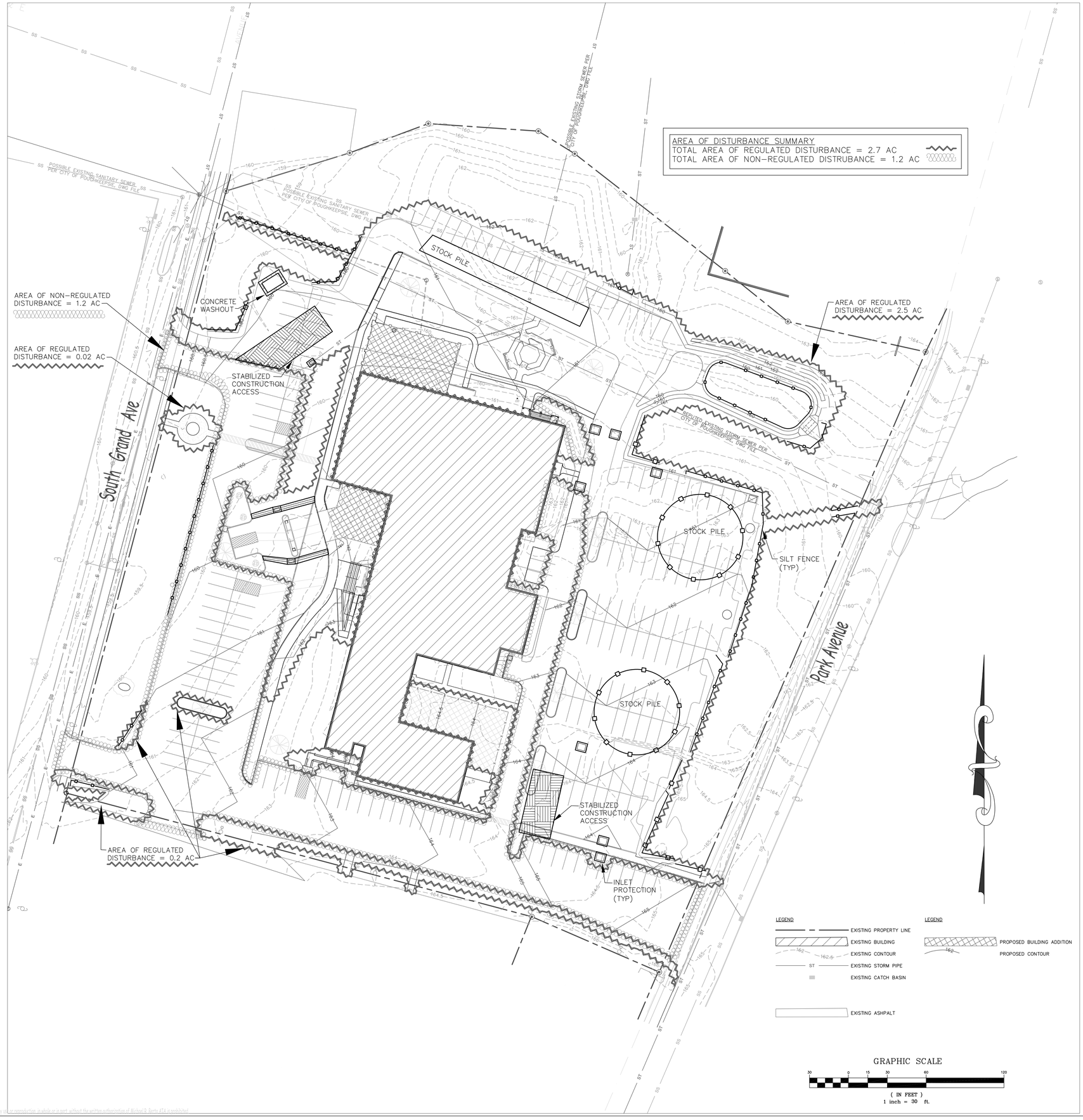

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Date	Revision
August 24, 2023	Stormwater Design
March 1, 2023	Misc Revision per Owner
February 28, 2023	Misc Revision per Owner
February 17, 2023	Misc Revision per Owner

PROPOSED EROSION AND SEDIMENT CONTROL PLAN

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date February 6, 2023

Job No 2023-001

Scale 1" = 30'

Drawing C-2

Of -

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GENERAL NOTES FOR EROSION AND SEDIMENT CONTROL

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL SEDIMENT AND EROSION CONTROL PRACTICES. THE SEDIMENT AND EROSION CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.

2. TIMELY MAINTENANCE OF SEDIMENT CONTROL STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL STRUCTURES SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES. THE SEDIMENT LEVEL IN ALL SILT FENCES SHALL BE CLOSELY MONITORED AND SHALL BE REMOVED PROMPTLY WHEN MAXIMUM LEVELS ARE REACH OR WHEN ORDERED BY THE ENGINEER. ALL SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED ON A REGULAR BASIS, AND AFTER EACH HEAVY RAIN TO INSURE PROPER OPERATION AS DESIGNED.

3. THE LOCATION AND INSTALLATION TIMES OF THE SEDIMENT CAPTURING DEVICES SHALL BE ORDERED BY THE ENGINEER, AND IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THIS PLAN.

4. ALL TOPSOIL NOT TO BE USED FOR FINAL GRADING SHALL BE REMOVED FROM THE SITE IMMEDIATELY AND PLACED IN A STABILIZED STOCKPILE OR FILL AREA. ALL TOP SOIL THAT IS REQUIRED FOR FINAL GRADING AND STORED ON THE SITE SHALL BE LIMED, FERTILIZED, AND TEMPORARILY SEEDED AND MULCHED WITHIN 14 DAYS.

5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THEN 21 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE TEMPORARY SEEDING; MULCH SHALL BE USED IF THE SEASON PREVENTS THE ESTABLISHMENT OF COVER. DISTURBED AREAS SHALL BE LIMED AND FERTILIZED PRIOR TO TEMPORARY SEEDING.

6. THE CONTRACTOR SHALL KEEP THE ROADWAYS WITHIN THE PROJECT AREA CLEAR OF SOIL AND DEBRIS AND IS RESPONSIBLE FOR ANY STREET CLEANING NECESSARY DURING THE COURSE OF THE PROJECT.

7. SEDIMENT AND EROSION CONTROL DEVICES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED BY PERMANENT MEASURES.

8. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

EROSION CONTROL SEQUENCE:

BEFORE CONSTRUCTION
1. THE SITE OWNER OR OPERATOR SHALL HIRE A PROFESSIONAL ENGINEER OR CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL TO PERFORM ALL INSPECTIONS DURING CONSTRUCTION AS REQUIRED BY NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES "GP 0-20-001": ANY CHANGES IN DESIGN DURING CONSTRUCTION MUST BE DONE BY A PROFESSIONAL ENGINEER.
2. CONDUCT A PRE-CONSTRUCTION MEETING WITH CLIENT, CONTRACTOR AND SITE CIVIL ENGINEER OR QUALIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL AND TOWN REPRESENTATIVES INCLUDING TOWN ENGINEER TO REVIEW THE SITE AND THE EROSION CONTROL PLAN AS WELL AS SEQUENCE OF WORK AS IT PERTAINS TO APPLICABLE EROSION CONTROL MEASURES.
3. ALL CONTRACTORS AND SUB CONTRACTORS MUST SIGN THE CONTRACTOR CERTIFICATION FORM PRIOR TO THE START OF CONSTRUCTION BY ANY CONTRACTOR AND SUB CONTRACTORS WHEN NEW START DURING CONSTRUCTION AND PRIOR TO ANY EARTHWORK/DISTURBANCE AS APPLICABLE THROUGHOUT CONSTRUCTION INCLUDING NEW CONTRACTORS AND SUBCONTRACTORS.
4. CONTACT SITE CIVIL ENGINEER OR CPESC FOR INSPECTION OF EROSION CONTROL MEASURES BEFORE STARTING ANY CLEARING AND OR SITE CONSTRUCTION.
5. ESTABLISH LIMITS OF DISTURBANCE FOR PROPOSED CLEARING AND GRADING. INSTALL ORANGE CONSTRUCTION FENCE AS APPLICABLE.

THE CONSTRUCTION SHALL FOLLOW THE SEQUENCE OF WORK AS OUTLINED BELOW:

CONTRACTOR SHALL PERFORM DAILY INSPECTION AND REPAIR OF EROSION AND SEDIMENT CONTROL PRACTICES. WEEKLY INSPECTION OF SITE BY A CERTIFIED PROFESSIONAL WITH ALL RECOMMENDATIONS IMPLEMENTED IMMEDIATELY.
1. INSTALL CONSTRUCTION ACCESS AS FIRST ITEM OF WORK TO PREVENT DUST AND DEBRIS FROM BEING TRACKED ONTO THE SURROUNDING ROADS AND DRIVES.
2. INSTALLATION OF SILT FENCE AS SHOWN OR NEEDED TO CAPTURE SEDIMENT FROM PROPOSED CONSTRUCTION. SILT FENCE SHALL BE INSTALLED PER THE ACCEPTED EROSION AND SEDIMENT CONTROL PLAN AS WELL AS IN LOCATIONS DEEMED NECESSARY DURING CONSTRUCTION INSPECTIONS OF THE SITE. SILT FENCE SHALL BE INSTALLED ALONG THE CONTOURS.
3. PROTECT PROPOSED INFILTRATION BASIN AND UNDERGROUND INFILTRATION AREAS FROM CONSTRUCTION ACTIVITIES AS MUCH AS POSSIBLE TO REDUCE THE AMOUNT OF SOIL RESTORATION REQUIRED IN COMPLETING AREAS.
4. PERFORM GRADING, EXCAVATION AND RELATED CONSTRUCTION. TOPSOIL SHALL BE REMOVED AND STORED AT APPLICABLE LOCATIONS SO AS NOT TO INTERFERE WITH THE CONSTRUCTION OPERATIONS. POSSIBLE LOCATIONS FOR TOPSOIL STOCKPILES ARE SHOWN ON THE EROSION CONTROL PLAN.
5. ONCE AN AREA IS CUT OR FILLED, IT SHALL BE STABILIZED BY SEEDING AND MULCHING.
6. INSTALL WATER, SANITARY, ELECTRIC, PHONE, CABLE, OTHER UTILITIES AND BUILDING IN COORDINATION WITH OTHER SITE WORK.
7. CONSTRUCT UNDERGROUND INFILTRATION AFTER OTHER EARTH DISTURBANCE WORK IS COMPLETE.
8. SURFACE INFILTRATION BASIN SHALL NOT BE CONSTRUCTED UNTIL THE REMAINDER OF THE EARTH DISTURBANCE IN UPSTREAM AREAS IS COMPLETE AND PERMANENTLY STABILIZED TO KEEP SEDIMENT FROM ENTERING MEDIA.
9. AS CONSTRUCTION PROCEEDS, ALL DISTURBED AREAS SHALL BE PAVED, SEEDED, OR PLANTED AS SPECIFIED ON THE PLANS IN A TIMELY MANNER TO PREVENT UNNECESSARY EROSION.
10. RESTORE SOIL IN DISTURBED AREAS WHERE PERVIOUS FINISH COVER IS PROPOSED; ESPECIALLY SURFACE AND SUBSURFACE INFILTRATION AREAS. INTENSIVE RESTORATION METHODS MAY BE REQUIRED IF EXCESS COMPACTION OCCURRED DURING CONSTRUCTION. COMPACTION MAY BE CAUSED BY CONSTRUCTION EQUIPMENT, STOCKPILES, STORAGE OF PALLETS, PERSONAL VEHICLES, CONSTRUCTION TRAILERS, ETC. SOIL RESTORATION WILL BE DONE TO THE SATISFACTION OF THE INSPECTING ENGINEER.
11. INSTALLATION OF SURFACE INFILTRATION BASIN.
12. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, UPON STABILIZATION OF SITE SOILS, AND UPON FINAL APPRO
13. VAL BY THE SITE INSPECTOR AND MUNICIPAL ENGINEER TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED.

EROSION CONTROL INSTALLATION AND MAINTENANCE

I. INTRODUCTION
THE PURPOSE OF THIS PLAN IS TO OUTLINE PROCEDURES FOR MAINTAINING THE EROSION CONTROL STRUCTURES CONSTRUCTED ON THE SITE. THE TYPE OF STRUCTURES FOR THIS SITE WILL BE TEMPORARY FOR USE DURING CONSTRUCTION,

II EROSION CONTROL STRUCTURES
SILT FENCE STRUCTURES WILL BE USED TO MINIMIZE SOIL EROSION DURING THE CONSTRUCTION PHASE OF THE PROJECT. IN ORDER FOR THE EROSION CONTROL STRUCTURES TO WORK PROPERLY THEY MUST BE INSTALLED PROPERLY AND MAINTAINED. INSPECTIONS SHALL BE PERFORMED PERIODICALLY AS STATED BELOW AND SHALL BE PERFORMED AFTER ANY MAJOR STORM EVENT. SILT FENCE TO BE INSTALLED PARALLEL WITH CONTOURS.

III INSTALLATION GUIDELINES

IN ORDER TO ASSURE THAT THE EROSION CONTROL STRUCTURES WILL WORK THERE MUST BE AN ASSURANCE THAT THEY ARE INSTALLED PROPERLY. IN ORDER TO ACCOMPLISH THIS ALL EROSION CONTROL MUST BE INSTALLED AS PER THE DETAILS ON THIS PLAN. THE EROSION CONTROL SHALL BE INSPECTED BY BY A PROFESSIONAL ENGINEER OR CERTIFIED PROFESSIONAL. NO WORK SHALL BE STARTED ON THE SITE UNTIL THE EROSION CONTROL IS IN PLACE AND ACCEPTED.

IV. MAINTENANCE PLAN FOR EROSION CONTROL DEVICES
1. TEMPORARY EROSION CONTROL DEVICES
THESE STRUCTURES SHALL INCLUDE ALL EROSION CONTROL DEVICES THAT WILL BE INSTALLED AND UTILIZED DURING THE CONSTRUCTION OF THE SITE. THESE SHALL INCLUDE DEVICES SUCH AS SILT FENCES, ROCK PIPE OUTLETS, AND CHECK DAMS.
2. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT.
3. BUILT UP SEDIMENT WILL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE
4. SILT FENCE WILL BE INSPECTED FOR DEPTH OF SEDIMENT , TEARS, TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POST, AND TO SEE THAT THE FENCE POST ARE FIRMLY IN THE GROUND.
5. TEMPORARY SEEDING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
6. ALL INDIVIDUALS PERFORMING THE SITE INSPECTION SHALL BE FAMILIAR WITH THE EROSION CONTROL PLAN AND BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING CONDITION.

SEEDING AND MULCHING

ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THAN 21 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE SEEDING AND MULCHING. DISTURBED AREAS SHALL BE LIMITED AND BE COVER WITH A LAYER OF TOPSOIL PRIOR TO SEEDING. SEEDING WILL BE INSPECTED FOR BARE SPOTS, WASH OUTS, AND HEALTHY GROWTH. IF REQUIRED ADDITIONAL SEEDING SHALL BE PERFORMED. THE SEED MIX SPECIFIED FOR THIS SITE IS FROM THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, TABLE 3.2 (SITE CHOICE 1A) WHICH IS AS FOLLOWS:

SPECIES (% by weight)	Pure Live Seed Values lbs/1000SF	lbs/acre
50% perennial ryegrass	1.5 – 2.0	65 – 87
50% Kentucky bluegrass blend	1.5 – 2.0	65 – 88
	3.0 – 4.0	130 – 175

OR USE SEED MIX SPECIFIED BY SITE ARCHITECT OR LANDSCAPE ARCHITECT.

POST CONSTRUCTION STORMWATER OPERATION AND MAINTENANCE

A. PRETREATMENT

CHAMBERS

THE FIRST 1/4 ROWS OF CHAMBERS WILL PROVIDE PRETREATMENT. SEDIMENT WILL DROP OUT AND BE HELD ON IMPERVIOUS LAYER FOR REMOVAL.

MAINTENANCE: MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. DEBRIS SHOULD BE REMOVED REGULARLY. FULL INSPECTIONS SHALL TAKE PLACE YEARLY. COMPONENTS SHOULD BE REPAIRED OR REPLACED WHEN NEEDED. REMOVE SEDIMENT WHEN 3 INCHES THICK OR REACHES INLETS TO INFILTRATION PORTION OF CHAMBERS. FULL INSPECTIONS INVOLVE CHECKING ALL COMPONENTS THOROUGHLY. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED IN A TIMELY FASHION.

PLUNGE POOL

SHALLOW BASIN TO ALLOW SEDIMENT TO DROP OUT AND BE HELD FOR REMOVAL.

MAINTENANCE: MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. DEBRIS SHOULD BE REMOVED REGULARLY. GRASS LINING SHALL BE MAINTAINED TO 4" TO 6" DEPTH. FULL INSPECTIONS SHALL TAKE PLACE YEARLY. COMPONENTS SHOULD BE REPAIRED OR REPLACED WHEN NEEDED. REMOVE SEDIMENT WHEN 3 INCHES THICK. FULL INSPECTIONS INVOLVE CHECKING ALL COMPONENTS THOROUGHLY. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED IN A TIMELY FASHION.

B.INFILTRATION

STORMWATER SYSTEMS CAPTURE AND TEMPORARILY STORE THE WATER QUALITY VOLUME TO ALLOW TIME FOR IT TO INFILTRATE INTO THE GROUND. OVERFLOW OUTLETS ARE PROVIDED FOR LARGE EVENTS.

INFILTRATION RUNOFF REDUCTION CAPACITY FOR THIS PRACTICE IS 100% IN AREAS WITH HSG A AND B SOILS.

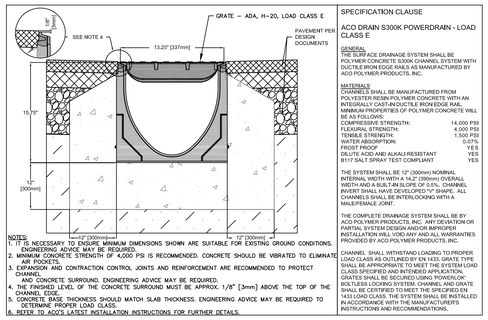
LANDSCAPING: SURFACE INFILTRATION TO HAVE GRASS COVER. UNDERGROUND INFILTRATION WILL HAVE COVER PER PLANS.

MAINTENANCE: MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. GRASS TO BE MAINTAINED AT 4" TO 6" HEIGHT.

FULL INSPECTIONS SHALL TAKE PLACE TWCE YEARLY; ONE IN THE SPRING AND ONE IN LATE SUMMER. FULL INSPECTIONS INVOLVE CHECKING ALL COMPONENTS OF THE INFILTRATION THOROUGHLY, REMOVE DEBRIS AND SEDIMENT WHEN OBSERVED. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED IN A TIMELY FASHION.

C.SOIL RESTORATION (NYSDEC SMDM 5.1.6)

SOIL RESTORATION IS REQUIRED WHERE SOILS HAVE BEEN DISTURBED AND WILL BE VEGETATED. FOR THIS PROJECT, THE MAJORITY OF THE HEAVY TRAFFIC DISTURBANCE WILL BE IN AREAS THAT WILL BE BUILDING OR PAVEMENT. MINIMAL SOIL DISTURBANCE WILL OCCUR IN PROPOSED VEGETATED AREAS. THE COMMON PRACTICE IN PREPARING AN AREA FOR LANDSCAPE IS TO LOOSEN THE SOIL AND APPLY TOPSOIL. THE NATIVE SOIL IN INFILTRATION AREAS IS REMOVED AND REPLACED WITH STONE AS ORDERED BY ENGINEER. THE NEED FOR FULL SOIL RESTORATION IS NOT WARRANTED FOR THE DISTURBED, PROPOSED VEGETATED AREAS. IF EXCESSIVE COMPACTION OCCURS DURING CONSTRUCTION, MITIGATION INCLUDING, BUT NOT LIMITED TO DEEP RIPPING AND DE-COMPACTION AS OUTLINED IN THE NYSDEC STORMWATER MANUAL, SECTION 5.1.6, MAY BE ORDERED BY THE SITE ENGINEER.



TRENCH DRAIN
NO TO SCALE

SPECIFICATION CLAUSE

ACO DRAIN S300K POWERDRAIN - LOAD CLASS E

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE S300K CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. THE PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
SILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 12" (300mm) NOMINAL INTERNAL WIDTH WITH A 14.2" (390mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

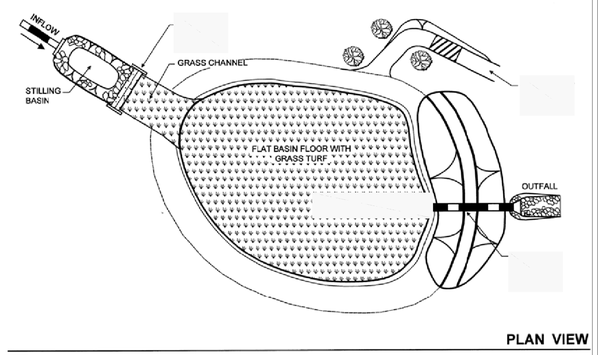
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE SELECTED BASED ON THE PROPER LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING POWERLOK BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

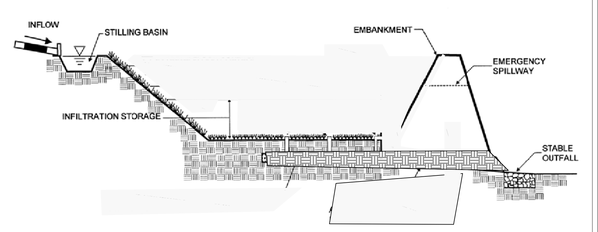
New York State Stormwater Management Design Manual

Chapter 6: Performance Criteria
Section 6.3 Stormwater Infiltration

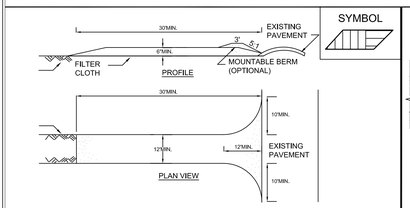
Figure 6.12 Infiltration Basin (I-2)



PLAN VIEW



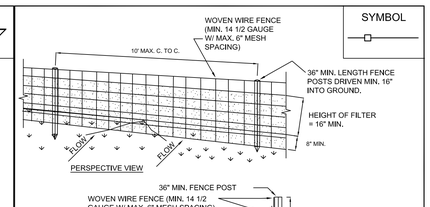
PROFILE



CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH

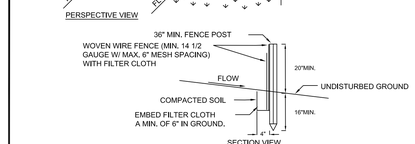
STABILIZED CONSTRUCTION ACCESS



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE

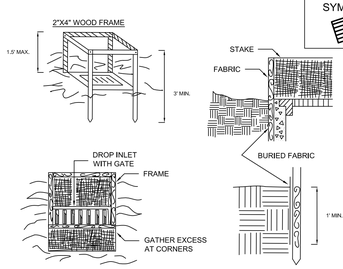


CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED, IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

FILTER FABRIC DROP INLET PROTECTION



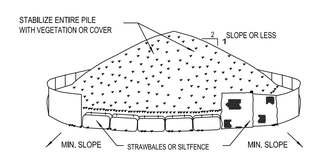
CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS".
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL,
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS,
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING SPECIFICATIONS

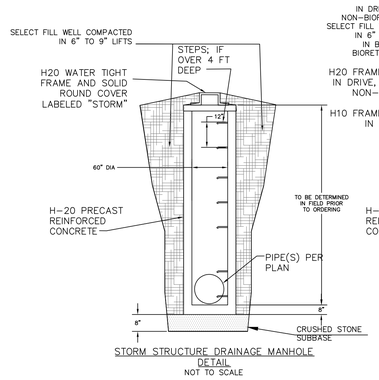
SYMBOL
SP



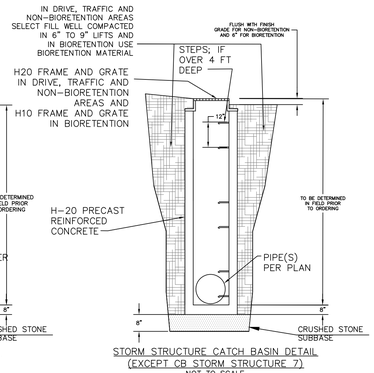
INSTALLATION NOTES

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS (THIS MANUAL) FOR INSTALLATION OF SILTFENCE.

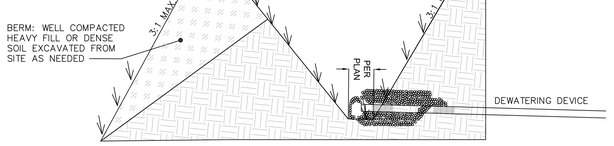
STOCK PILE



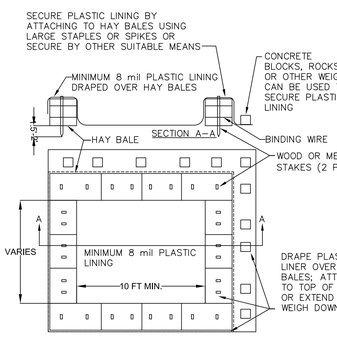
STORM STRUCTURE DRAINAGE MANHOLE DETAIL
NOT TO SCALE



STORM STRUCTURE CATCH BASIN DETAIL (EXCEPT CB STORM STRUCTURE 7)
NOT TO SCALE



TYPICAL PRETREATMENT BASIN



CONCRETE WASHOUT AREA

NYS SPILL HOTLINE
1-800-457-7362

NOTE: POST SIGN AT WASHOUT AREA

NOTE:
PORTABLE CONCRETE WASHOUT AREAS SUCH AS CONCRETE DUMPSTERS OR THOSE MANUFACTURED BY OUTPAK MAYBE SUBSTITUTED PROVIDED THE CAPACITY IS NOT EXCEEDED. LOCATION RESTRICTIONS MUST BE MET.

ONSITE TEMPORARY CONCRETE WASHOUT FACILITY, TRANSIT TRUCK WASHOUT PROCEDURES:
1. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 100 FT FROM WETLANDS.
2. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
   – APPROXIMATELY 7 G

CULTEC RECHARGER® 150XLHD SPECIFICATIONS

GENERAL
CULTEC RECHARGER® 150XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 150XLHD SHALL BE 18.5 INCHES (470 mm) TALL, 33 INCHES (838 mm) WIDE AND 11 FEET (3.35 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 150XLHD SHALL BE 10.25 FEET (3.12 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 12 INCHES (300 mm) HDPE OR 15" (375 mm) SMOOTH-WALL PVC.
8. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL SHALL BE 8.5 INCHES (216 mm) HIGH BY 12 INCHES (304 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 10.25 INCHES (260 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV® FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (615 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 150XLHD CHAMBER SHALL BE 2.650 FT³ / FT (0.246 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 150XLHD SHALL BE 27.16 FT3 / UNIT (0.77 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 150XLHD CHAMBER SHALL HAVE THIRTY DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 150XLHD CHAMBER SHALL HAVE 20 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 150XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE ENDWALLS.
16. THE RECHARGER 150XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
17. THE RECHARGER 150XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
18. THE RECHARGER 150XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV® FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE RECHARGER 150XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
24. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
25. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
26. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATION OF NSAI IRISH AGREEMENT BOARD CERTIFICATE FOR CULTEC ATTENUATION AND INFILTRATION.
27. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 150XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 MM) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT3 / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

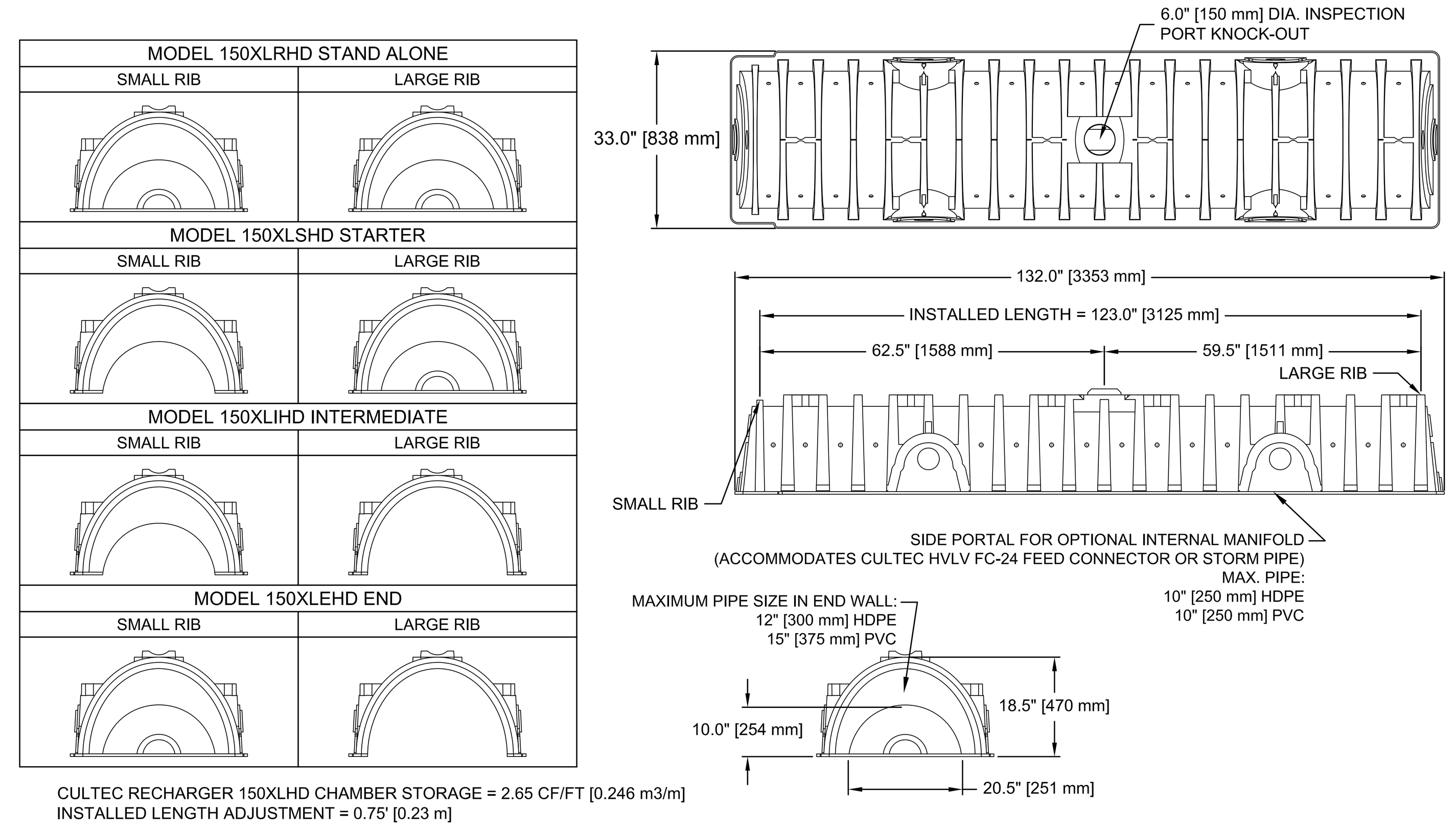
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

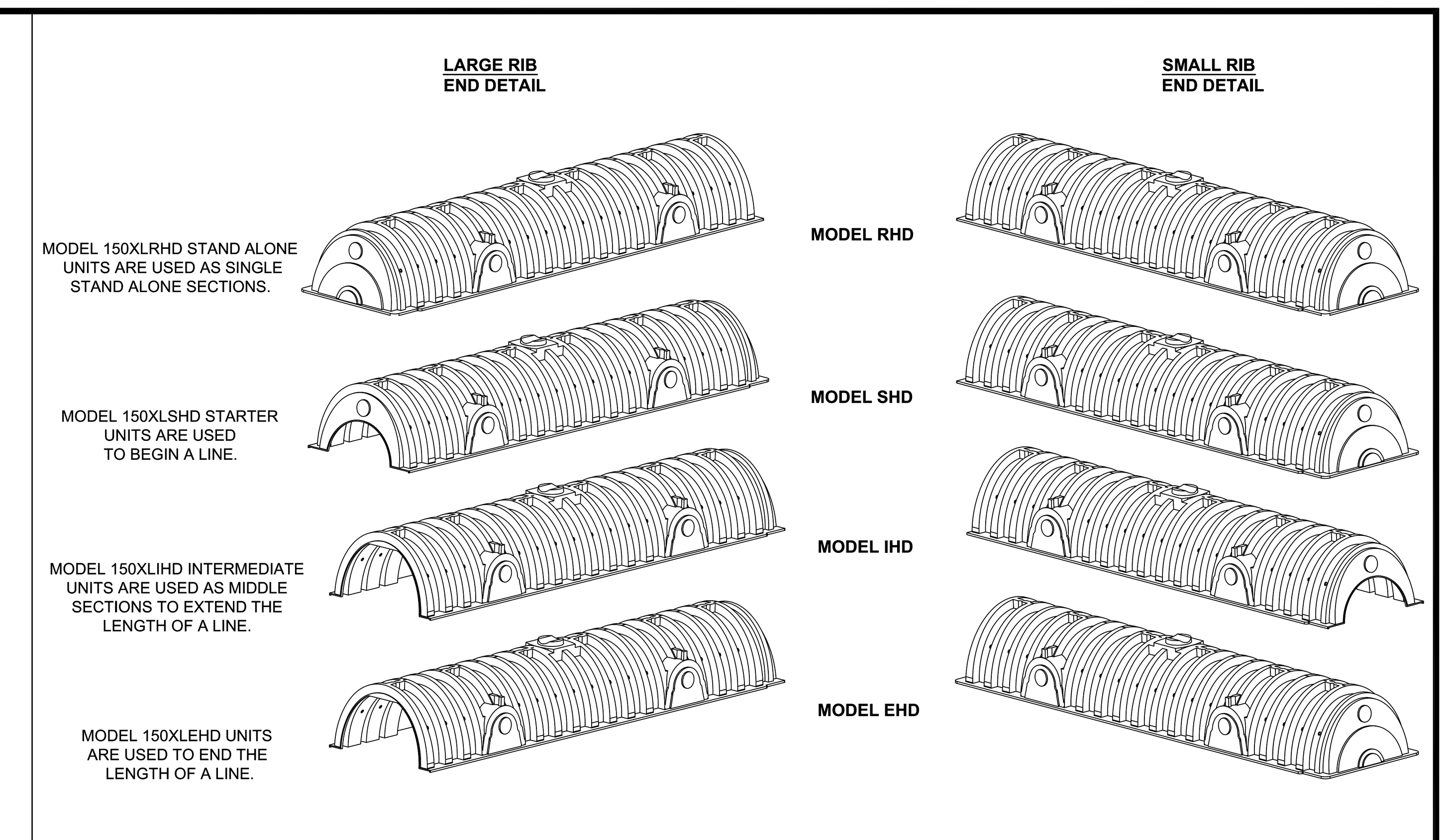
CULTEC NO. 4800™ WOVEN GEOTEXTILE
CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2, 740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

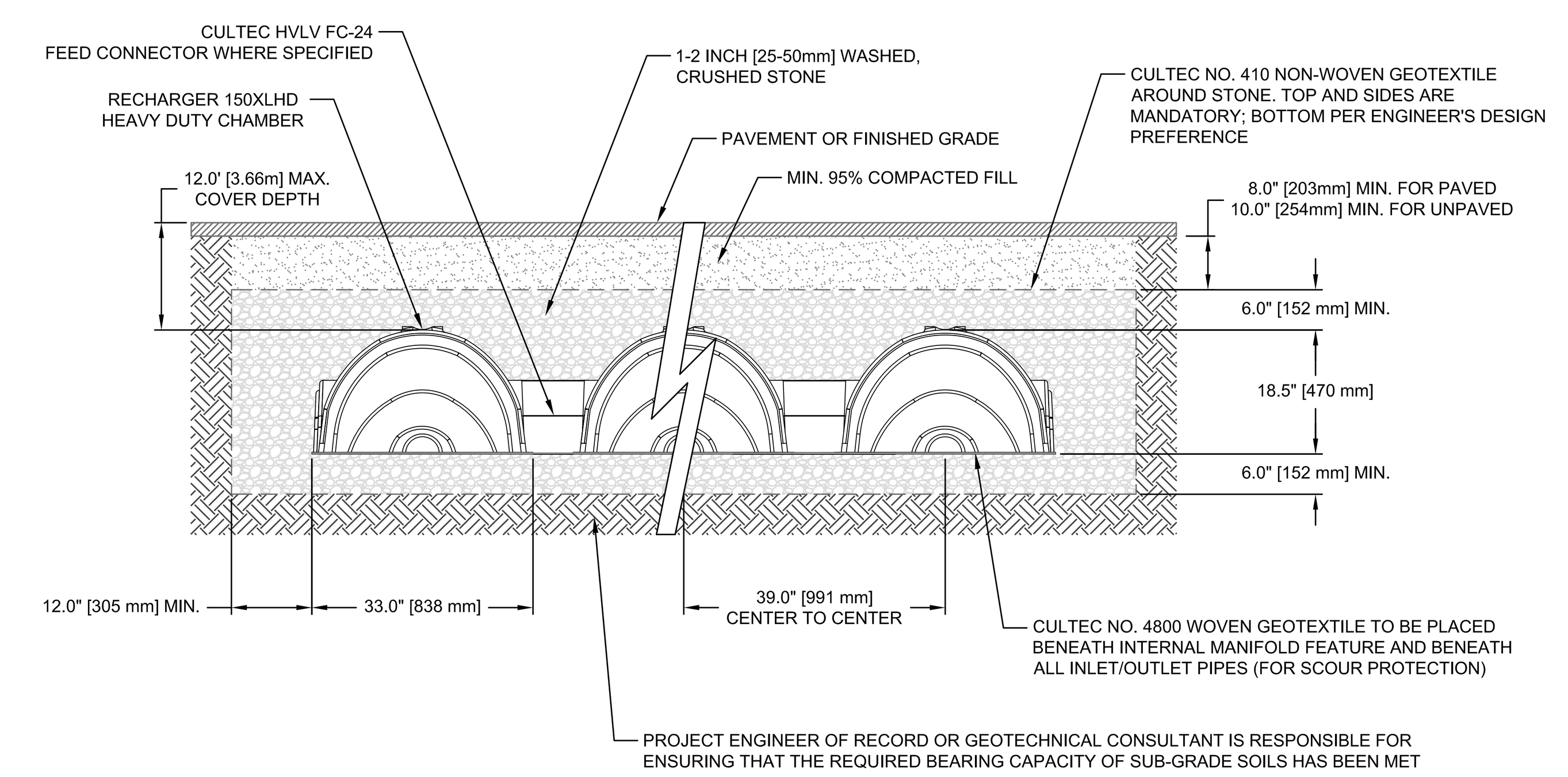
150XLHD 1.0 — **GENERAL NOTES**



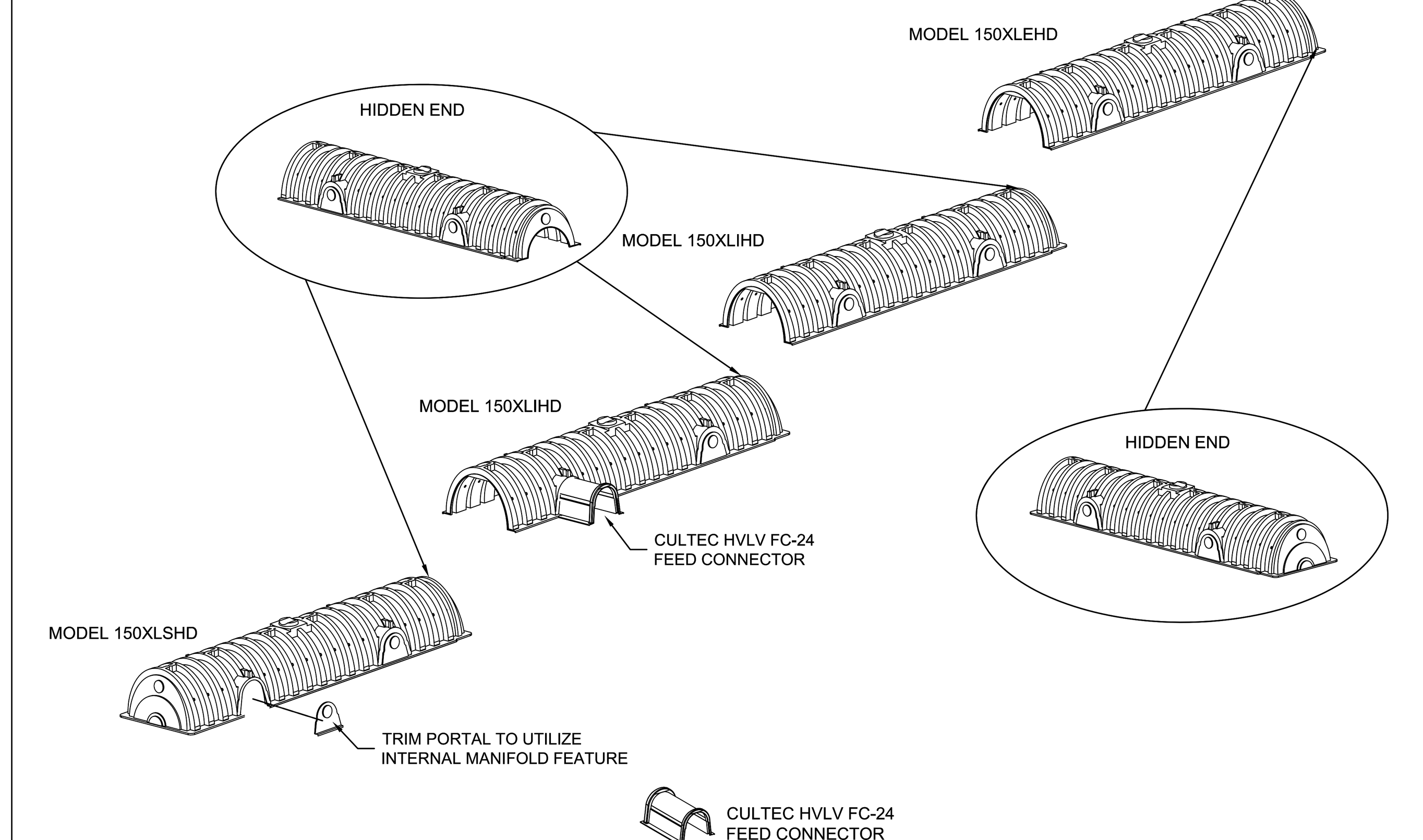
150XLHD 2.0 — **CULTEC RECHARGER 150XLHD HEAVY DUTY THREE VIEW**



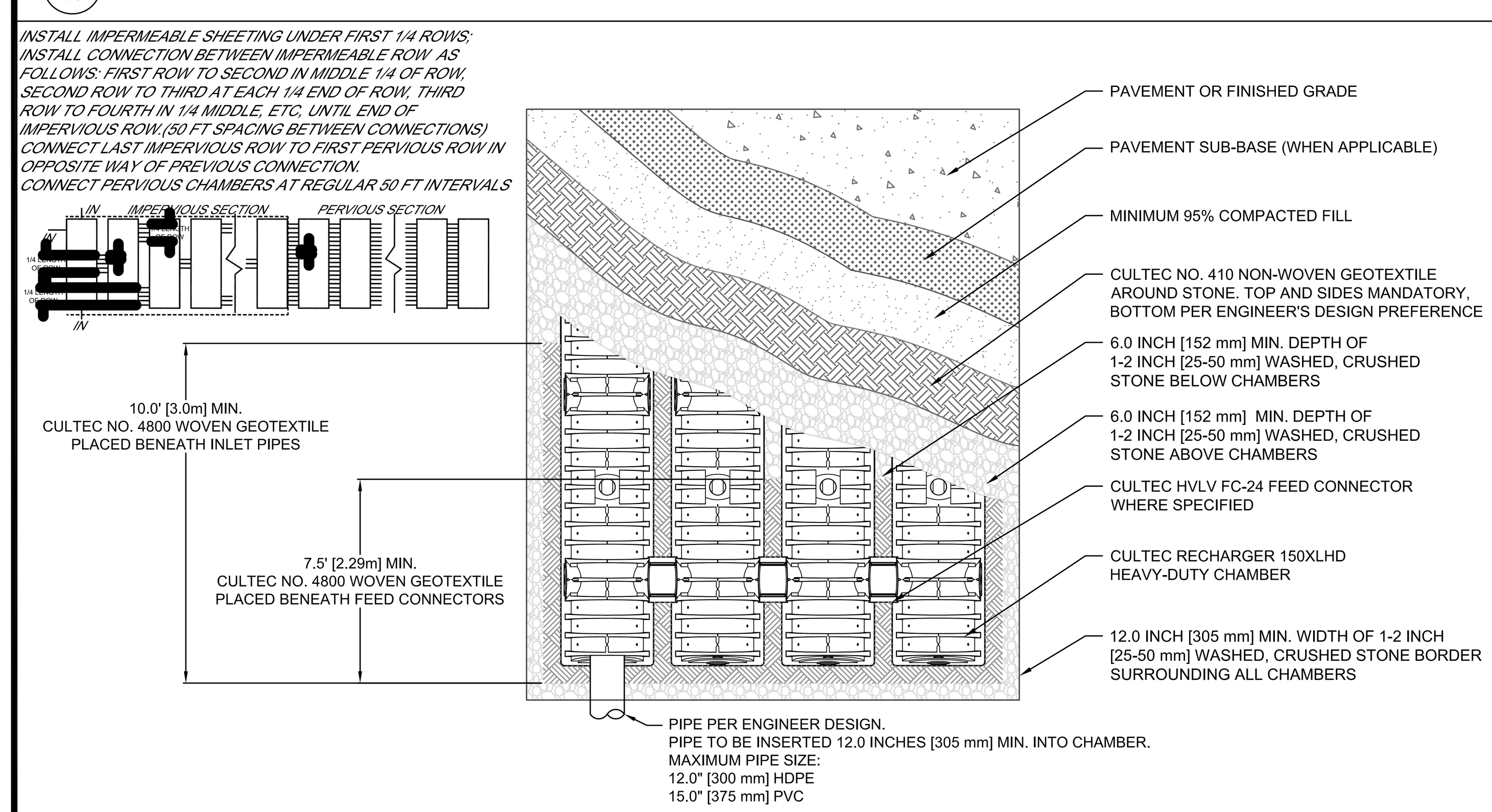
150XLHD 3.0 — **CULTEC RECHARGER 150XLHD HEAVY DUTY END DETAIL INFORMATION**



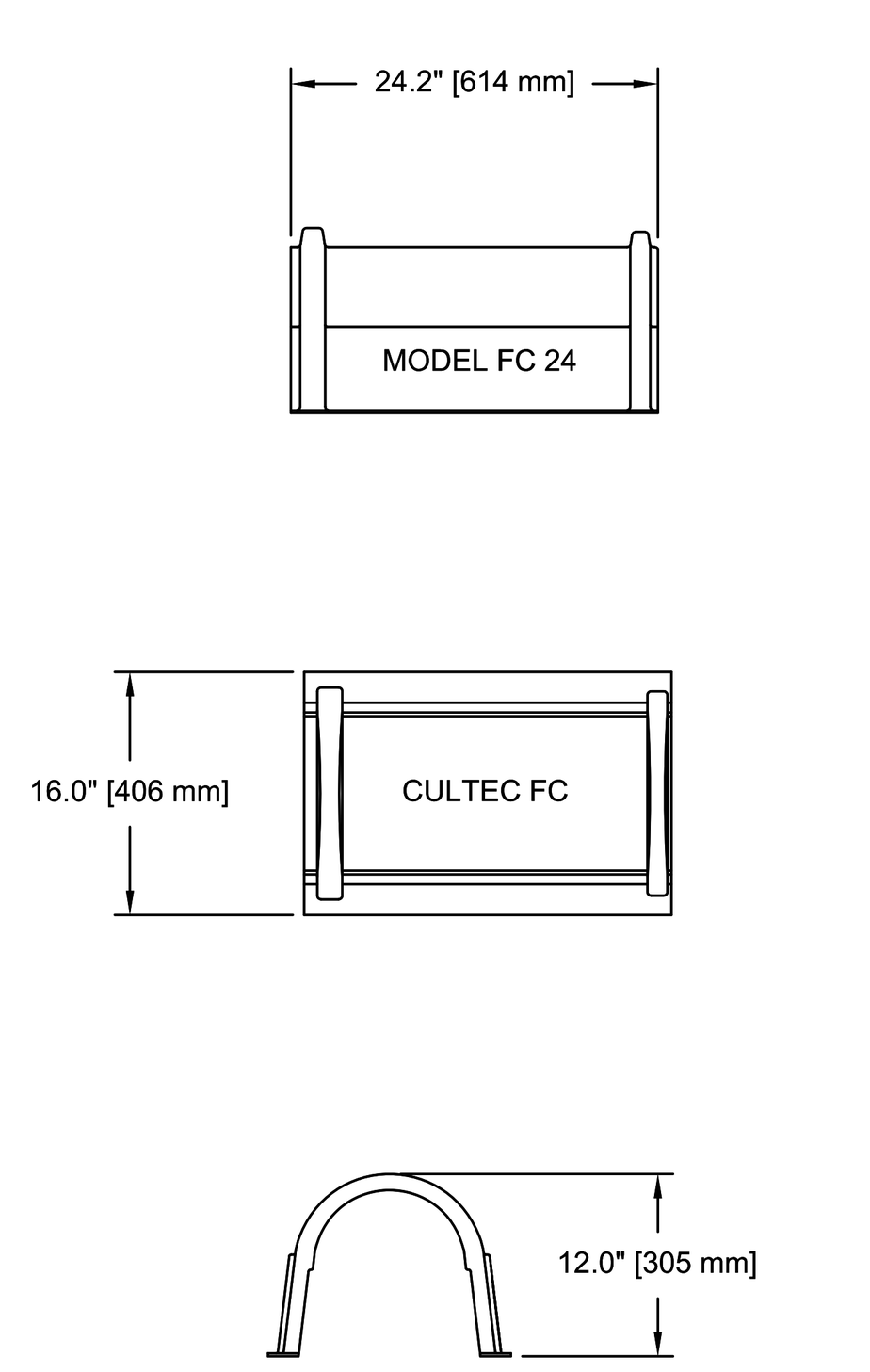
150XLHD 5.0 — **CULTEC RECHARGER 150XLHD HEAVY DUTY CROSS SECTION**



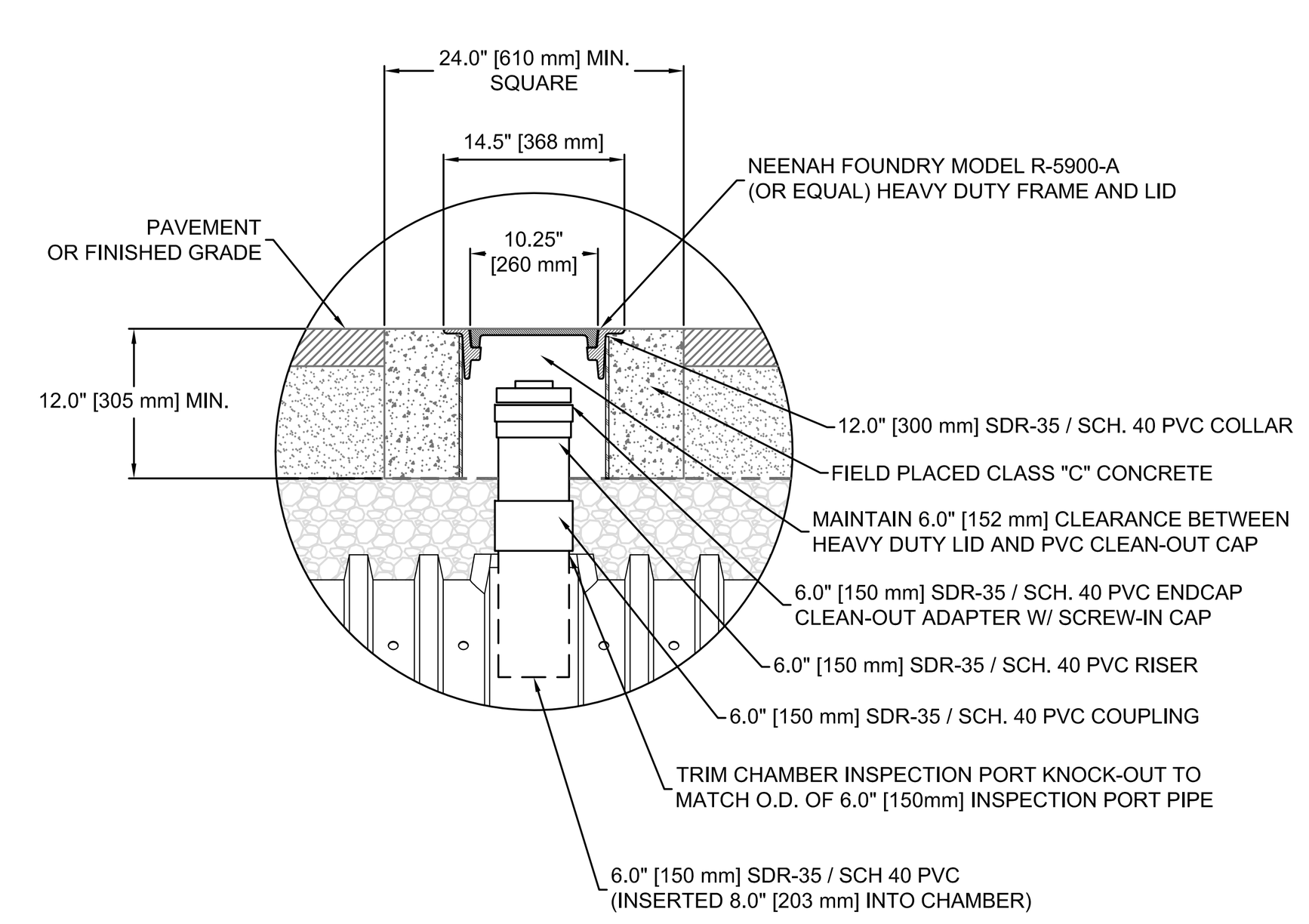
150XLHD 6.0 — **CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL INTERLOCK**



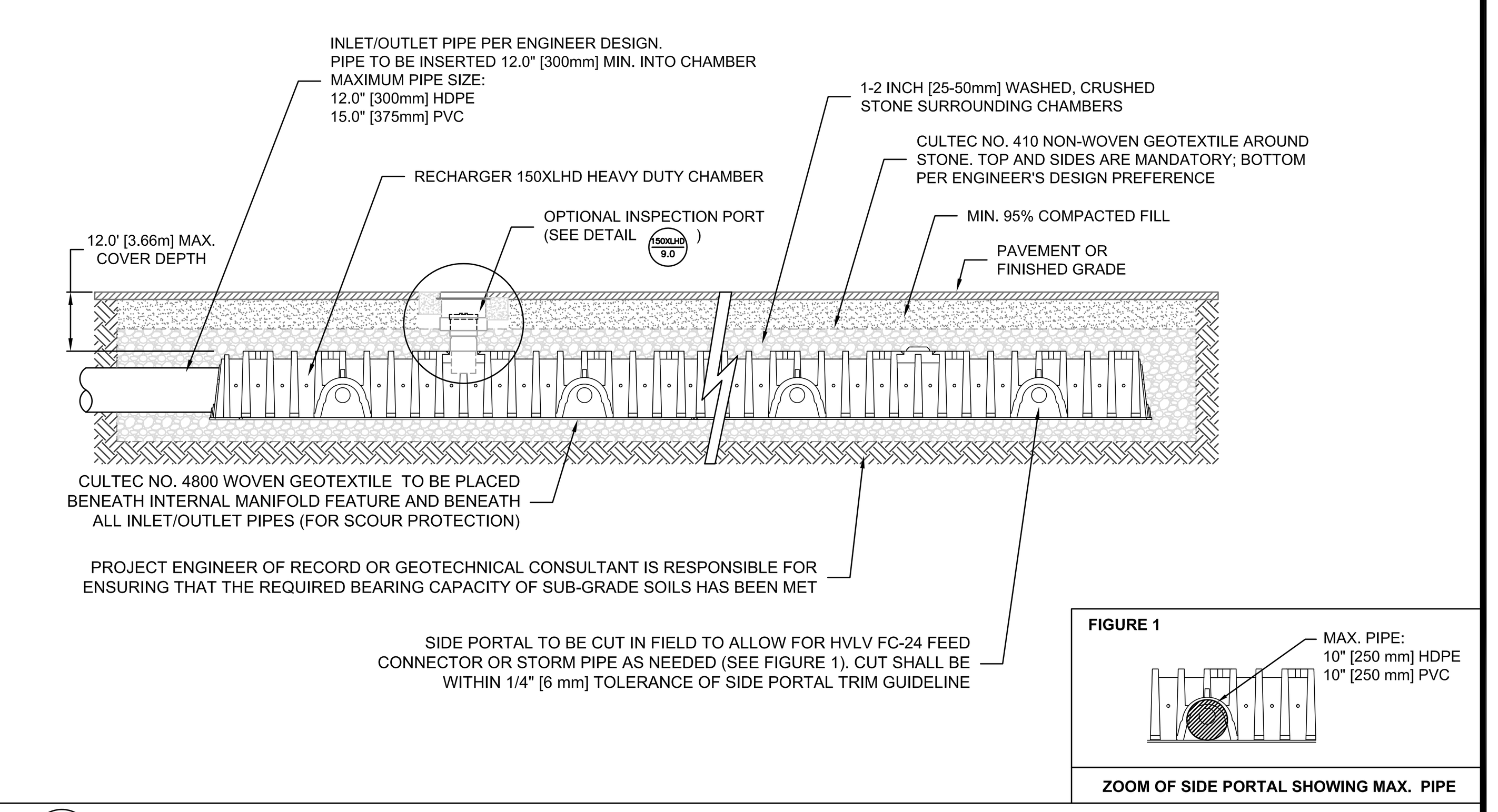
150XLHD 7.0 — **CULTEC RECHARGER 150XLHD HEAVY DUTY PLAN VIEW**



150XLHD 8.0 — **CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW**



150XLHD 9.0 — **OPTIONAL INSPECTION PORT - ZOOM DETAIL**



150XLHD 10.0 — **CULTEC INTERNAL MANIFOLD - OPTIONAL INSPECTION PORT DETAIL**

CULTEC, Inc.
Subsurface Stormwater Management Systems
P.O. Box 280
878 Federal Road
Brookfield, CT 06804
www.cultec.com
PH: (203) 775-4416
PH: (800) 4-CULTEC
FX: (203) 775-1462
tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

RECHARGER 150XLHD
DETAIL SHEET
TRAFFIC APPLICATION

CULTEC STORMWATER CHAMBER			
PROJECT NO:		DATE:	2019
DESIGNED BY:	CULTEC, INC	DRAWN BY:	TECH
SCALE:	N.T.S.	SHEET NO:	1 OF 1

BERGER ENGINEERING AND SURVEYING
100 FULTON AVE.
POUGHKEEPSIE N.Y. 12603
(845) 471 - 7383
bergerengr@gmail.com
PE REGISTRATION 069634 CERT 0405443 EXPIRE ON 04-30-25
LS REGISTRATION 049745 CERT 1255930 EXPIRE ON 04-30-24
COA FOR PE AND LS CERT 0018252 AND 0018253

STATE OF NEW YORK · JOSEPH PAUL BERGER · No. 069634 · LICENSED PROFESSIONAL ENGINEER

Michael R. Berta. AIA
Architecture & Planning
7 Robert Rd. Poughkeepsie, NY 12603
(845) 489-1638
www.bertaarchitects.com - mike@bertaarchitects.com

Date	Revision
August 24, 2023	Stormwater Design
March 1, 2023	Misc Revision per Owner
February 28, 2023	Misc Revision per Owner
February 11, 2023	Misc Revision per Owner

PROPOSED STORMWATER CHAMBER DETAILS

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date	February 6, 2023
Job No	2023-001
Scale	AS SHOWN
Drawing	CD-2
Of	4

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Proposed Addition / Alteration For Faith Apostolic Ministries Inc

Project Location (describe, and attach a location map):
110 S. Grand Ave Poughkeepsie, New York 12603

Brief Description of Proposed Action:
Proposed santuary & front entry addition. New parking areas and landscapping.

Name of Applicant or Sponsor:	Telephone: 845.489.1638
Michael R. Berta, AIA Architecture & Planning	E-Mail: mike@bertaarchitects.com

Address:
7 Robert Road

City/PO:	State:	Zip Code:
Poughkeepsie	New York	12603

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☑	☐

3. a. Total acreage of the site of the proposed action? 6.39 acres
   b. Total acreage to be physically disturbed? 2.5 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 1.9 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:
   ☑ Urban ☐ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☐ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☐	☑
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	☐	☑

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____ _____	☐	☑

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____ _____	☐	☑

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____ _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☑ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☐
If Yes, briefly describe: Colletction system is being designed and overflow will go into the existing storm water system		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment:	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	☑	☐
20.Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe:	☑	☐

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Michael R. Berta, AIA Date: August 28, 2023

Signature: _____ Title: Architect

PRINT FORM

THE CITY OF POUGHKEEPSIE
NEW YORK
DEVELOPMENT DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4263 Fax: (845) 451-4006

MEMORANDUM

To: Faith Apostolic Ministries Inc

From: Tyler Maegerle, Junior Planner

Date: 9/5/23

Re: 110 South Grand Avenue

Upon review of project materials provided by the applicant, including Short EAF Part 1 and site plan application, it is my understanding that the proposed action to be undertaken includes construction of an addition to a church and renovation of a youth center.

Based on the above description it is the determination of the planning division staff that the proposed action is classified as an Unlisted Action with regards to SEQRA, and therefore is subject to an uncoordinated or coordinated (optional) environmental review. This determination was made due to the fact that the proposed action was not expressly listed in 6 NYCRR Section 617.4 (Type I Actions) or 617.5 (Type II Actions).

110 SOUTH GRAND AVENUE
CITY OF POUGHKEEPSIE
DUTCHESS COUNTY, NEW YORK
TAX PARCEL: 131300-6161-49-620556-0000

FAITH APOSTOLIC MINISTRIES REDEVELOPMENT

STORMWATER POLLUTION PREVENTION PLAN

Prepared for:

FAITH APOSTOLIC MINISTRIES INC
110 S Grand Ave
Poughkeepsie, NY 12603

Prepared by:

BERGER ENGINEERING AND SURVEYING, PLLC
100 FULTON AVENUE
POUGHKEEPSIE NY 12603



August 24, 2023

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SECTION	TOPIC	PAGE
I	INTRODUCTION	2
II	SITE DESCRIPTION	3
III	PROJECT DESCRIPTION	5
IV	PROPOSED STORM WATER MANAGEMENT PLAN	6
V	PROPOSED PHASE II WATER QUALITY TREATMENT	8
VI	PROPOSED EROSION AND SEDIMENT CONTROL PLAN	10
VII	CONCLUSION	14

APPENDICES

APPENDIX 1 SITE INFORMATION

Location Map
NYSDEC Runoff Reduction Planning Table
Flood Plain Map – FEMA
DEC-Environmental Resource Map
NRCS Soil Information
NYS Archeological CRIS Map
Watershed Map - Pre Development
Watershed Map - Post Development

APPENDIX 2 STORMWATER, EROSION & SEDIMENT CONTROL PLAN AND DETAILS

SH # C-1	Proposed Stormwater Plan
SH # C-2	Proposed Erosion and Sediment Control Plan
SH # CD-1	Proposed Erosion & Sediment Control and Stormwater Details
SH # CD-2	Proposed Stormwater Chamber Details

APPENDIX 3 WATER QUALITY & RUNOFF REDUCTION AND CHANNEL PROTECTION CALCULATIONS

APPENDIX 4 HYDROCAD OUTPUT

I INTRODUCTION

BACKGROUND

According to the New York State Department of Environmental Conservation website, http://www.dec.ny.gov/;

> New York State has a state program which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwater as well as surface waters.

On January 29th, 2020, NYSDEC issued a new Stormwater Phase II permit. Proposed construction projects that involve one acre or more of land disturbance must obtain SPDES permit coverage through either an individual permit or the new General Construction Permit (GP 0-20-001).

This general permit is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this general permit by submitting a Notice of Intent ("NOI") to the Department. The NOI provides information to NYSDEC on the project, assures that a Stormwater Pollution Prevention Plan has been prepared, and is in place in accordance with the requirements of GP 0-20-001. Under GP-0-20-001 no more than five acres of land disturbance may occur at any time without written approval from the NYSDEC.

Retention of Records is mandatory for five (5) years. SWPPP and associated construction logbook must remain on-site and available for review by regulatory personnel at all times during normal business hours.

Prior submitting a Notice of Termination ("NOT") at the end of construction, the owner or operator has a mechanism in place that requires operation and maintenance of the stormwater practices in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record per the General Permit.

OBJECTIVES

> *The purpose of this report is to perform a comprehensive drainage analysis of the site in compliance with GP 0-20-001 utilizing the "**New York State Standards and Specifications for Erosion & Sediment Control"** and the "**New York State Stormwater Management Design Manual"** to determine if any adverse offsite effects are caused by the construction of this proposed project. The report shall also recommend specific stormwater management practices that will mitigate these impacts, provide the required **Phase II Storm Water Quality Treatment**, and propose **Best Management Practices** to minimize soil erosion from the proposed construction.*

Proposed Erosion and sediment control mitigating measures include practices such as seeding and mulching, silt fence, stabilized construction entrance, stock piles, dust control and daily inspection and maintenance. Upon implementation of these mitigating measures as outlined in this report and the "***New York State Standards and Specifications for Erosion & Sediment Control***", the existing properties and adjoining owners are protected during construction.

> *The proposed stormwater mitigation for this redevelopment project is provided by above ground and underground infiltration. These practices shall be designed to provide runoff reduction, treat and control the stormwater runoff rate prior to reaching the surrounding properties.*

PROJECT OVERVIEW

This project is the redevelopment of an existing commercial/religious building with parking located between the east side of South Grand Avenue and west side of Park Avenue in the City of Poughkeepsie, Dutchess County, New York. The tax parcel 131300-6161-49-620556-0000 has an area of 6.4 +/- with one existing building with asphalt driveways and parking. The site is on municipal sewer and water. The project site is located in a section of the City of Poughkeepsie with separate storm and sanitary.

The redevelopment are small additions to the building, increased parking with drives and repaving the existing parking and driveways.

The area of work will include NYSDEC Regulated Disturbance and Non-regulated Disturbance. Regulated Disturbance is disturbance of soil. Non-regulated Disturbance is disturbance of existing impervious cover to a depth above the underlying soil. The Non-regulated Disturbance will be the milling, minor grading and repaving of the existing parking lot and driveway with the milling and grading depth not greater than existing gravel base depth.

The Regulated Disturbance is 2.7 acres (1.9 acres of new development and 0.8 acres of redevelopment). The Non-regulated Disturbance is 1.2 acres.

The following are the geographic coordinates for the project from NYSDEC Stormwater Interactive Mapper of Longitude of 73.908°W and Latitude of 41.689°N. The lot has approximately 480 +/- feet of frontage along South Grand Avenue, approximately 520 +/- feet along Park Avenue and lot width of approximately 500 +/- feet. See location map in Appendix 1

The proposed above ground and under ground infiltration will provide treatment, runoff reduction and control of storm water runoff rate. To protect the site from erosion and sediment during construction seeding and mulching, silt fence, stabilized construction entrance, stock piles, dust control, and daily inspection and maintenance will all be implemented.

The various runoff reduction techniques were evaluated to determine which were applicable to this project. See Appendix 1, for summary.

II SITE DESCRIPTION

The 6.4 +/- acre project site is situated between South Grand Avenue and Park Avenue in the City of Poughkeepsie. The site is an existing building, driveway and parking with lawn and light woods. Topography is flat. The site drains in five directions. The majority of the runoff from the site flows west and east to the two bounding roads. Most flows west in the road side closed municipal stormwater collection system, some flows east in the road side closed municipal stormwater collection system. A small portion of the site flows north to the adjoining property. The western South Grand Avenue closed system drains to the eastern Park Avenue closed system via a 78” RCP that crosses the property in an easement per City record drawings.

There are residential lots, religious buildings and commercial around the site area. See location map in Appendix 1.

FLOOD PLAIN

FEMA has established a national standard for flood protection. The standard is the 1-percent annual chance (100-year) flood. According to the FEMA Map Number 36027C0358E, Effective Date May 2, 2012, the site is in “Area of Minimal Flood Hazard, Zone X”. Appendix 1

STREAMS

There are no streams on site.

WATERBODIES

There are no water bodies on the site.

WETLANDS

There are no wetlands on the site.

CRITICAL ENVIRONMENTAL AREA

The site is not in a state listed Critical Environmental Area

HISTORIC PLACES

The project site is not in an Archeologically Sensitive Area. There are no historic buildings on the site. Map per the CRIS website is in Appendix 1.

SOILS WITHIN WATERSHED

The soils found on the site and in the proposed development area per USDA NRCS Web Soil Survey is Knickerbovkrt-Urban land complex (KuA). The USDA does not ascribe a Hydraulic Soil Group to this soil. Appendix 1.

Soils have different soil parameters pertaining to erosion and there susceptibility thereto. These parameters are referred to as soil erosion factors or K. The soil Erosion Factor (K) indicates the susceptibility of a soil to sheet and rill erosion by water. For all other factors being equal, the higher the K value the more susceptible the soil is to sheet and rill erosion by water. The rock free K value for the majority of soil on the site have no ascribed K Factor

All soils in the ounty are at some level susceptible to erosion and as such projects will include erosion and sediment control measures. The erosion and sediment control practices for this project are outlined in section VI Proposed Erosion and Sediment Control Plan later in this report.

WATERSHED DESCRIPTIONS

The area of development drains in five (5) discharge directions. Design Point One (DP-1) is easterly to Park Avenue and its existing catch basins. Design Point Two (DP-2) is in the north center to an existing catch basin located on the project property. Design Point Three (DP-3) is a low are in the northwest corner with overflow to the adjacent property. Design Point Four (DP-4) is and existing catch basin in the parking lot near the northwest corner of the building. Design Point Five (DP-5) is westerly to South Grand Avenue and its existing catch basins.

PRE-DEVELOPMENT WATERSHEDS

Map in Appendix 1

The Pre-development watershed is comprised of five (5) subsheds.

Pre-1 is 1.9 acres of on-site drainage on the east side of the building. The subshed contains existing asphalt drives and play area, open lawn and woods. The subshed drains east and northeast to the closed storm system along Park Avenue, DP-1.

Pre-2 is 0.2 acres of on-site drainage in the north central protion of the property flowing north to an existing on-site catch basin. The subshed contains existing woods. Over flow from the catch basin with runoff overland to the property to the north, DP-2.

Pre-3 is 0.3 acres of on-site drainage in the northwest corner of the property flowing to a low area. The subshed contains existing woods. The low area overflows to the property to the northwest, DP-3.

Pre-4 is 2.8 acres of on-site drainage on the west/northwest side of the building. The subshed contains existing asphalt drives and parking, the existing building roof, open lawn and woods. The subshed drains to an existing catch basin on the edge of the existing parking lot, DP-4. The discharge pipe from the catch basin goes north off the property to an unknown outlet location.

Pre-5 is 1.7 acres of on-site drainage on the south and west side of the building. The subshed contains existing asphalt drives and parking, a portion of the existing building roof and open lawn. The subshed drains west to the closed storm system along South Grand Avenue, DP-5.

III PROJECT DESCRIPTION

Proposed is redevlopment includes adding additions the existing structure, adding parking, milling the existing asphalt and constructing surface and subsurface infiltration facilities.

POST-DEVELOPMENT WATERSHEDS

Map in Appendix 1

The Post-development watershed is comprised of six (6) subsheds and five (5) design points.

Pst-1 is a total of 3.2 acres broken into 2 subsheds:

> Pst-1A is 1.7 acres of existing drives, new parking lot, and existing eastern building roof (redirected to the east rather than the existing route draining around the building to the existing site catch basin on the west side). This redirection increases the size of the Pst-1 watershed. The runoff will be captured and directed to subsurface infiltration chambers. The discharge rate will be controlled before release to the closed storm system along Park Avenue, DP-1.
>
> Pst-1B is 1.5 acres of existing drives, new parking, open lawn and woods. The existing drive and new parking will be treated in a surface infiltration basin. The overflow from the basin and the remaineder of the subshed will drain to the east to the closed system along Park Avenue, DP-1.

Pst-2 is 0.2 acres of on-site drainage in the north central protion of the property flowing north to an existing on-site catch basin. The subshed contains existing woods. Over flow from the catch basin with runoff overland to the property to the north, DP-2.

Pst-3 is 0.3 acres of on-site drainage in the northwest corner of the property flowing to a low area. The subshed contains existing woods. The low area overflows to the property to the northwest, DP-3.

Pst-4 is 1.5 acres of on-site drainage on the west/northwest side of the building. The subshed contains existing asphalt drives and parking, the existing building roof, the proposed addition roofs, new parking open lawn and woods. The subshed drains to an existing catch basin now in the new parking lot, DP-4. The discharge pipe from the catch basin goes north off the property to an unknown outlet location. The subshed is smaller than Pre-4 as it no longer will receive runoff from the the eastern portions of the existing building roof.

Pst-5 is 1.7 acres of on-site drainage on the south and west side of the building. The subshed contains existing asphalt drives and parking, a portion of the existing building roof and open lawn. The existing asphalt will be milled and repaved. The subshed drains west to the closed storm system along South Grand Avenue, DP-5.

IV STORM WATER MANAGEMENT PLAN

Planning and Selection

Step 1: Site Planning - See Planning Table in Appendix 1 – The project is the redevelopment of an existing site with additons to the existing building, expansion of the parking lot and reuse of the existing drives and parking.

Step 2: Water Quality Volume (WQv) – The required water quality volume is calculated to be 0.17af. The Total WQv and Runoff Reduction provided by the Bioretention is 0.17 af.

The water quality volume for this redevelopment site is based on the amount of additional new impervious plus the existing impervious draining to the treatment facility. This total is greater than the minimum required of 100% new plus 25% redevelopment. Redevelopment treatment is only required for regulated disturbed areas and not non-regulated areas.

The toatal area of impervious draining to DP-4 is being decreased by 21% even though some of the expanded parking is in the subshed. A portion of existing roof will be directed to Pst-1A and will be 100% treated.

The first rows of the underground chambers will be pretreatment. The surface infiltration will have a plunge pool for pretreatment.

Step 5: Standard Practices to Address Remaining Water Quality Volume – The entire required water quality volume is met by the infiltration practices and therefore not additional standard practices are required.

Step 6: Peak Rate Control – The post development runoff rates are the same or less without control for subsheds DP-2, DP-3, DP-4 and DP-5. The underground infiltration chambers will detain runoff for peak rate control.

In order to evaluate the proposed project properly and to develop a storm water management plan a hydrologic analysis was undertaken. The site was evaluated by reviewing aerial maps of the area, onsite topography and county maps. The watershed areas for both the existing and post developed site were determined and evaluated. The watershed limits and the path of stormwater runoff are shown on the maps in Appendix 1

Once the watershed areas are determined the peak stormwater runoff from both the pre-developed and post developed site are calculated and compared. The pre/post values are only a comparison proposed development and do not include off-site areas draining to the road.

The goal of stormwater management is to develop a plan to mitigate the change in stormwater flow and to minimize the potential for soil erosion associated with the proposed project. Watersheds were described previously in detail within section II and III of this report and are shown on the maps included within Appendix 1. Tabular information by sub-catchment, including but not limited to acres of total impervious area, acres of pervious area, times of concentrations, and curve numbers is provided in the attached Hydro CAD summary reports in Appendix 4.

CRITERIA:

DESIGN STORM	1, 10 and 100 year, 24-hour storm event
RAINFALL DATA	For Dutchess County Type III storms (see Appendix 4)

1 year - 24 hour storm 2.8 inches

10 year - 24 hour storm 5.0 inches
100 year - 24 hour storm 8.0 inches

METHODOLOGY:

- Software program utilized to model the storm runoff was HydroCAD version 10
  - NRCS Curve Number procedure to calculate storm runoff from the proposed site
  - NRCS TR 20 procedure to calculate Storm Runoff Hydrograph from proposed site
  - NRCS procedure for calculating time of concentration (TR 55 worksheet 3)

DISCUSSION OF RESULTS

The runoff model results for both pre and post conditions can be found in Appendix 4. The hydrologic analysis performed showed that development of this site would not increase the peak discharge offsite.

The following table displays the comparison of the peak discharges offsite for pre-development and post-development conditions of the evaluation.

PRE - POST COMPARISON						
PRE-DEVELOPMENT						
SUBSHED	AREA	CN	Tc	1-YR	10-YR	100-YR
	AC		MINUTES	CFS	CFS	CFS
PRE-1-EAST	1.9	61	8.4	0	3	7
PRE-2-NORTH CENTER	0.2	61	6.0	0	0	1
PRE-3-NORTH	0.3	61	6.0	0	1	1
PRE-4-NORTH WEST	2.8	79	10.5	3	8	15
PRE-5-SOUTH WEST	1.7	83	11.5	2	5	10
PRE-TOTAL	**7.0**			**5**	**16**	**34**
POST DEVELOPMENT						
SUBSHED	AREA	CN	Tc	1-YR	10-YR	100-YR
	AC		MINUTES	CFS	CFS	CFS
PST-1A-EAST	1.7	90	6.0	3	7	12
PST-1B-EAST	1.5	66	8.4	0	3	7
PST-1: DP 1 *	3.3			1	3	7
PST-2-NORTH CENTER	0.2	61	6.0	0	0	1
PST-3-NORTH	0.3	61	6.0	0	1	1
PST-4-NORTH WEST	1.5	57	6.0	3	6	11
PST-5-SOUTH WEST	1.7	82	10.1	1	3	9
POST-TOTAL	**6.9**			**4**	**13**	**29**
* ADDITIONAL REDUCTION THROUGH INIFILTRATION BASIN WHICH IS NOT INCLUDED IN THE MODEL						

TREATMENT & DETENTION						
UNDERGROUND INFILTRATION CHAMBERS				TOP ELEVATION		160.5
				PLANTING BED ELEVATION		159.0
				BOTTOM CHAMBER		157.0
	1-YR	10-YR	100-YR	BOTTOM CHAMBER STONE		156.0
PEAK ELEVATION	157.2	158.0	160.1	OVER FLOW WEIR	50 FT	160.0
FREEBOARD	3.3	2.5	0.4	FLOW STRUCTURE	2-10" CULVERTS	157.5
OUTFLOW	0	0	2	EXFILTRATION		156.0

a. STREAM BANK PROTECTION (Cp)
This criterion is designed to protect stream channels from erosion by providing 24-hour extended detention of the one-year, 24-hour storm event.

The required Channel Protection Volume required for the new impervious is 0.2 af. This volume is provided by the runoff reduction and water quality volume and 1-year storage of in the chambers and is 0.3 af. See Appendix 3. ***CRITERIA MET TO STANDARD***

b. OVER BANK PROTECTION (Qp)
This criterion is intended to prevent an increase in the frequency and magnitude of out of bank flooding generated by urban development. This criterion requires storage to attenuate the post development flow for the 10-year 24-hour peak discharge rate to predevelopment rates.
See Peak Discharge Table above ***CRITERIA MET TO STANDARD***

c. EXTREME FLOOD CONDITION (Qf)
The intent of this criterion is to prevent an increase of the risk of flooding from large storm events, maintain the boundaries of the 100-year floodplain and protect the physical integrity of Stormwater management practices. The criterion requires that storage be provided to attenuate the 100-year 24-hour peak discharge rate to pre-developed rates.
See Peak Discharge Table above ***CRITERIA MET TO STANDARD***

V PROPOSED PHASE II WATER QUALITY TREATMENT

On January 29, 2020, NYSDEC issued a new Stormwater Phase II permit for construction activity. Proposed construction projects that involve one acre or more of land disturbance must obtain SPDES permit coverage through either an individual permit or the new General Construction Permit (GP 0-20-001). To obtain coverage under the General Permit, the operator of construction activity must file a completed Notice of Intent with the NYSDEC. The project has been developed to meet the design criteria needed to file a NOI and a Stormwater Pollution Prevention Plan (SWPPP), which is the purpose and intent of this report.

Under the general permit, a project shall be designed in accordance with the following manuals:

"New York State Stormwater Management Design Manual"
"New York State Standards and Specifications for Erosion & Sediment Control"

To comply with requirements for stormwater quality treatment, unified stormwater sizing criteria were used and a list of acceptable Stormwater management practices were developed and provided in accordance with the *"New York State Stormwater Management Design Manual"*.

The NOI provides information to NYSDEC on the project, assures that a Stormwater Pollution Prevention Plan has been prepared, and is in place in accordance with the requirements of GP 0-20-001. The electronic submission NOI form (eNOI) can be found at www.dec.ny.gov/chemical/43133html#Forms

Storm water shall be treated as specified on page 8 in the permit as stated below:

Maintaining Water Quality- It shall be a violation of this general permit and the Environmental Conservation Law ("ECL") for any discharge to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and regulations of the State of New York such as:

1. *There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions.*
2. *There shall be no increase in suspended, colloidal and settable solids that will cause deposition or impair the waters for their best usages; and*
3. *There shall be no residue from oil and floating substances, or visible oil film, or globules of grease.*

This section of the report will address the water quality treatment from the site after the construction phase of the project is concluded. Erosion and sediment control during construction will be discussed in section VI.

ACCEPTABLE STORMWATER MANAGEMENT PRACTICES

"*New York State Stormwater Management Design Manual*" provides a list of management practices which are acceptable means of treatment and runoff reduction. The following management practices will be utilized in this design to achieve the require water quality treatment.

A. Pretreatment

Chambers

The first 1/4 rows of chambers will provide pretreatment. Sediment will drop out and be held on impervious layer for removal.

Maintenance: Maintenance shall be the responsibility of the owner. Debris should be removed regularly. Full inspections shall take place yearly. Components should be repaired or replaced when needed. Remove sediment when 3 inches thick or reaches inlets to infiltration portion of chambers. Full inspections involve checking all components thoroughly. If a repair is necessary, it shall be initiated in a timely fashion.

Plunge Pool

Shallow basin to allow sediment to drop out and be held for removal.

Maintenance: Maintenance shall be the responsibility of the owner. Debris should be removed regularly. Grass lining shall be maintained to 4" to 6" depth. Full inspections shall take place yearly. Components should be repaired or replaced when needed. Remove sediment when 3 inches thick. Full inspections involve checking all components thoroughly. If a repair is necessary, it shall be initiated in a timely fashion.

B. Infiltration

Stormwater systems capture and temporarily store the water quality volume to allow time for it to infiltrate into the ground. Overflow outlets are provided for large events.

Infiltration runoff reduction capacity for this practice is 100% in areas with HSG A and B soils.

Landscaping: Surface infiltration to have grass cover. Underground infiltration will have cover per plans.

Maintenance: Maintenance shall be the responsibility of the owner. Grass to be maintained at 4" to 6" height.

Full inspections shall take place twice yearly; one in the spring and one in late summer. Full inspections involve checking all components of the infiltration thoroughly. Remove debris and sediment when observed. If a repair is necessary, it shall be initiated in a timely fashion.

C. Soil restoration (NYSDEC SMDM 5.1.6)

Soil restoration is required where soils have been disturbed and will be vegetated. For this project, the majority of the heavy traffic disturbance will be in areas that will be building or pavement. Minimal soil disturbance will occur in proposed vegetated areas. The common practice in

preparing an area for landscape is to loosen the soil and apply topsoil. The native soil in infiltration areas is removed and replaced with stone as ordered by engineer. The need for full soil restoration is not warranted for the disturbed, proposed vegetated areas. If excessive compaction occurs during construction, mitigation including, but not limited to deep ripping and de-compaction as outlined in the NYSDEC Stormwater Manual, Section 5.1.6, may be ordered by the site engineer.

VI PROPOSED SEDIMENT AND EROSION CONTROL PLAN

An erosion and sediment control plan has been developed for this project and can be found in Appendix 2 of this report. The purpose of this plan is to outline procedures for installing and maintaining the erosion and sediment control structures to be constructed on this site. The type of structures and practices for this site will be seeding and mulching, silt fence, stabilized construction entrance, stock piles, dust control, and daily inspection and maintenance.

The proposed project has the potential for soil erosion due to vegetation being removed and soil cut and fill operations. Soils are moderately susceptible to detachment and they produce moderate runoff. All soils in Dutchess County are at some level susceptible to erosion and as such projects should include erosion and sediment control measures. The erosion and sediment control practices for this project are outlined below.

EROSION AND SEDIMENT CONTROL PRACTICES

During construction erosion control devices will be constructed and used to minimize soil erosion during each phase of the project. In order for the erosion control structures to work properly, they must be installed properly and maintained. Regular inspection and maintenance of erosion control devices is also essential to the efficiency of the entire system. Daily inspection and maintenance of all erosion and sediment control practices shall be performed by the contractor. Inspections shall also be performed once a week by a qualified person. The proposed practices for this site are described below. The Erosion and Sediment Control Plan and Details can be found in Appendix 2.

Stabilized construction access: To collect sediment from trucks exiting the site. A construction entrance shall be installed off the existing shared access drive.

Silt Fence Barriers: Silt fence shall be placed on slopes immediately downstream of all construction areas Silt fence are to be placed parallel with contours.

Stock Piles: Topsoil will be placed in a location that will not interfere with construction and will be protected with a silt fence placed around its perimeter. The topsoil shall be stabilized by covering with tarps or seed and hay when not in use.

Daily Inspection: Daily inspection and maintenance of the erosion and sediment control structures as listed in this section is essential to insuring their continued functionality. Each practice must be inspected and maintained on a daily basis by the contractor to keep all of the structures in working order.

Dust Control: To control the amount of dust produced by construction at the site dust control measures such as watering will be implemented.

Sediment Trap: A sediment trap is a shallow depression created to pool water from construction sites. The water is stored temporarily giving the sediment time to settle out prior to over flowing the high flow weir and entering downstream waters. Sediment traps are not proposed and can be ordered by engineer during construction if necessary.

Additional Practices: Other erosion and sediment control practices may be required during construction. These additional practices shall be per *"New York State Standards and Specifications for Erosion and Sediment Control"*, most current edition and as ordered by the engineer.

In addition to the above mentioned practices the following will be done:

Construction equipment and supplies will be staged in an area so designated. The area will be protected by placing appropriate silt fencing and additional erosion control devices as needed to minimize erosion. Construction chemicals shall be stored in secured areas so that they will not be spilled and become a source of ground water pollution. A spill response plan shall be developed by the contractor to address the case of an incidental spill. This plan shall include prevention and cleanup. The NYS Spill Hotline is 1-800-457-7362.

To control litter from the site the contractor shall police the area every day and pick up all litter that blows onto the construction area. Litter brought onto the site by the contactor shall be placed in appropriate garbage containers and emptied as needed. To further reduce the migration of litter into the adjoining property a silt fence will be installed as the first item of work.

Top soil and other materials excavated shall either be stockpiled and protected by seeding and mulching within seven days or removed from the site immediately. The stockpiles shall also have silt fence barriers or tubular sediment control devices (if placed in paved areas) around the entire foot print. Stockpiles shall be located in areas where they will not affect construction nor the adjoining area.

Seeding and mulching all disturbed areas as soon as possible. In areas where soil disturbance activities has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven days from the date the soil disturbance activities ceased. Seed mix for this site can be found on the Erosion and Sediment Control Plan.

Materials that may be used and temporarily stored onsite as the project is constructed may include, but are not limited to the following:

- Crushed stone
- Select back fill
- Sand
- Ductile Iron Pipe
- Corrugated Metal Pipe
- Reinforced Concrete Pipe
- High Density Polyethylene Pipe
- PVC Pipe
- Concrete mix
- Pre cast concrete structures
- Brick
- Wood
- Silt fence material
- Filtrexx Silt Soxx material
- Geotextile Fabric
- Construction equipment
- Trucks
- Asphalt
- Construction Materials

INSTALLATION GUIDELINES

In order to assure that the erosion control structures will work there must be an assurance that they are installed properly. In order to accomplish this all erosion control must be installed as per the final erosion control plan and in accordance with the project Engineer. A certified professional shall inspect the erosion control. No work shall be started on the site until the erosion control is in place and accepted.

The sequence of erosion and sediment control for this project will be installed as follows:

Before Construction

1. The site owner or operator shall hire a professional engineer or certified professional in erosion and sediment control to perform all inspections during construction as required by NYSDEC SPDES General Permit for Stormwater Discharges from construction activities "GP 0-20-001". Any changes in design during construction must be done by a Professional Engineer.
2. Conduct a pre-construction meeting with client, contractor and site Civil Engineer or qualified professional in erosion and sediment control and Town Representatives including Town Engineer to review the site and the erosion control plan as well as sequence of work as it pertains to applicable erosion control measures.
3. All contractors and sub contractors must sign the contractor certification form prior to the start of construction by any contractor and sub contractors when new start during construction and prior to any earthwork/disturbance as applicable throughout construction including new contractors and subcontractors.
4. Contact site Civil Engineer or CPESC for inspection of erosion control measures before starting any clearing and or site construction.
5. Establish limits of disturbance for proposed clearing and grading. Install orange construction fence as applicable.

The construction shall follow the sequence of work as outlined below:

Contractor shall perform daily inspection and repair of erosion and sediment control practices. Weekly inspection of site by a certified professional with all recommendations implemented immediately.

1. Install construction acess as first item of work to prevent dust and debris from being tracked onto the surrounding roads and drives.
2. Installation of silt fence as shown or needed to capture sediment from proposed construction. Silt fence shall be installed per the accepted erosion and sediment control plan as well as in locations deemed necessary during construction inspections of the site. Silt fence shall be installed along the contours.
3. Protect proposed infiltration basin and underground infiltration areas from construction activities as much as possible to reduce the amount of soil restoration required in completing areas.
4. Perform grading, excavation and related construction activities. Topsoil shall be removed and stored at applicable locations so as not to interfere with the construction operations. Possible locations for topsoil stockpiles are shown on the erosion control plan.
5. Once an area is cut or filled, it shall be stabilized by seeding and mulching.
6. Install water, sanitary, electric, phone, cable, other utilities and building in coordination with other site work.
7. Construct underground infiltration after other earth disturbance work is complete.
8. Surface infiltration basin shall not be constructed until the remainder of the earth disturbance in upstream areas is complete and permanently stabilized to keep sediment from entering media.
9. As construction proceeds, all disturbed areas shall be paved, seeded, or planted as specified on the plans in a timely manner to prevent unnecessary erosion.
10. Restore soil in disturbed areas where pervious finish cover is proposed; especially surface and subsurface infiltration areas. Intensive restoration methods may be required if excess compaction occurred during construction. Compaction may be caused by construction equipment, stockpiles, storage of pallets, personal vehicles, construction trailers, etc. Soil restoration will be done to the satisfaction of the inspecting engineer.
11. Installation of surface infiltration basin.
12. Upon completion of construction activities, upon stabilization of site soils, and upon final approval by the site inspector and municipal engineer temporary erosion control devices shall be removed

MAINTENANCE PLAN FOR EROSION CONTROL DEVICES

Temporary Erosion Control Devices

These structures shall include all erosion control devices that will be installed and utilized during the construction of the site. These shall include devices such as silt fences, diversions swales, stabilized construction entrances, sediment basins, and all other temporary erosion and sediment control measures as outlined in this SWPPP or requested by the project Engineer.

Erosion control devices shall be installed in accordance with the schedule of installation. Once the devices are installed and inspected to assure that they are installed properly, the devices must be maintained in order to assure that they will continue to function properly. In order to do so the following list of procedures shall be followed during the construction phase of the project:

- Daily inspection and maintenance shall be performed by the site contractor.
- All erosion control devices shall be inspected at least once a week by a certified professional and within one business day notify the owner or operator and contractor of any corrective actions needed. The contractor must start implementing corrective actions within one business day and complete them in a reasonable time frame per NYSDEC permit GP 0-20-001.
- All erosion control devices shall be maintained in good working order. If a repair is necessary, it will be initiated within 24 hours of report.
- Silt fence will be inspected for depth of sediment, tears, to see if the outer mesh is securely attached to the fence post, no gaps under the siltsoxx, and to see that the fence post are firmly in the ground. Built up sediment will be removed when it reaches one-third the height.
- Temporary seeding will be inspected for bare spots, washouts, and healthy growth. If required additional seeding shall be performed. Acceptable coverage is defined as 80% coverage over the entire pervious area per Appendix A of GP 0-20-001.
- A maintenance report will be prepared by the qualified professional once a week and kept on file at the site.
- All individuals performing the site inspection shall be familiar with the erosion control plan and be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working condition.

Temporary erosion and sediment control devices shall be inspected and maintained by both the contractor and the owner.

PHASE PLAN

Under GP 0-20-001 no more than five acres of land disturbance may occur at any time without written approval from the NYSDEC. The total area of disturbance is less than 5 acres therefore a phasing plan is not required.

VII CONCLUSION

The construction of this development will require several mitigation measures be implemented in order to mitigate both stormwater runoff rates and erosion and sediment control.

Erosion Control During Construction
The mitigating measures are the erosion control devices such as seeding and mulching, silt fence, stock piles, dust control, construction entrance and daily inspection and maintenance. Upon implementation of these mitigating measures as outlined in this SWPPP and the "***New York State Standards and Specifications for Erosion & Sediment Control***", the adjoining owners are protected during construction.

Stormwater Treatment After Construction
Proposed stormwater treatment practices will treat the water quality volume as required by GP 0-20-001. To comply with requirements for stormwater quality and unified stormwater sizing criteria a list of acceptable Stormwater management practices were developed and provided in accordance with the ***"New York State Stormwater Management Design Manual"***. Utilized for this site are surface and underground infiltration.

The use of proposed treatment practices will provide the water quality treatment volume for the proposed redeveloped disturbed area. Upon completion of construction, these measures will meet or exceed the pollutant removal standards required by the phase II stormwater permit prior to any discharge to the existing storm sewer systems.

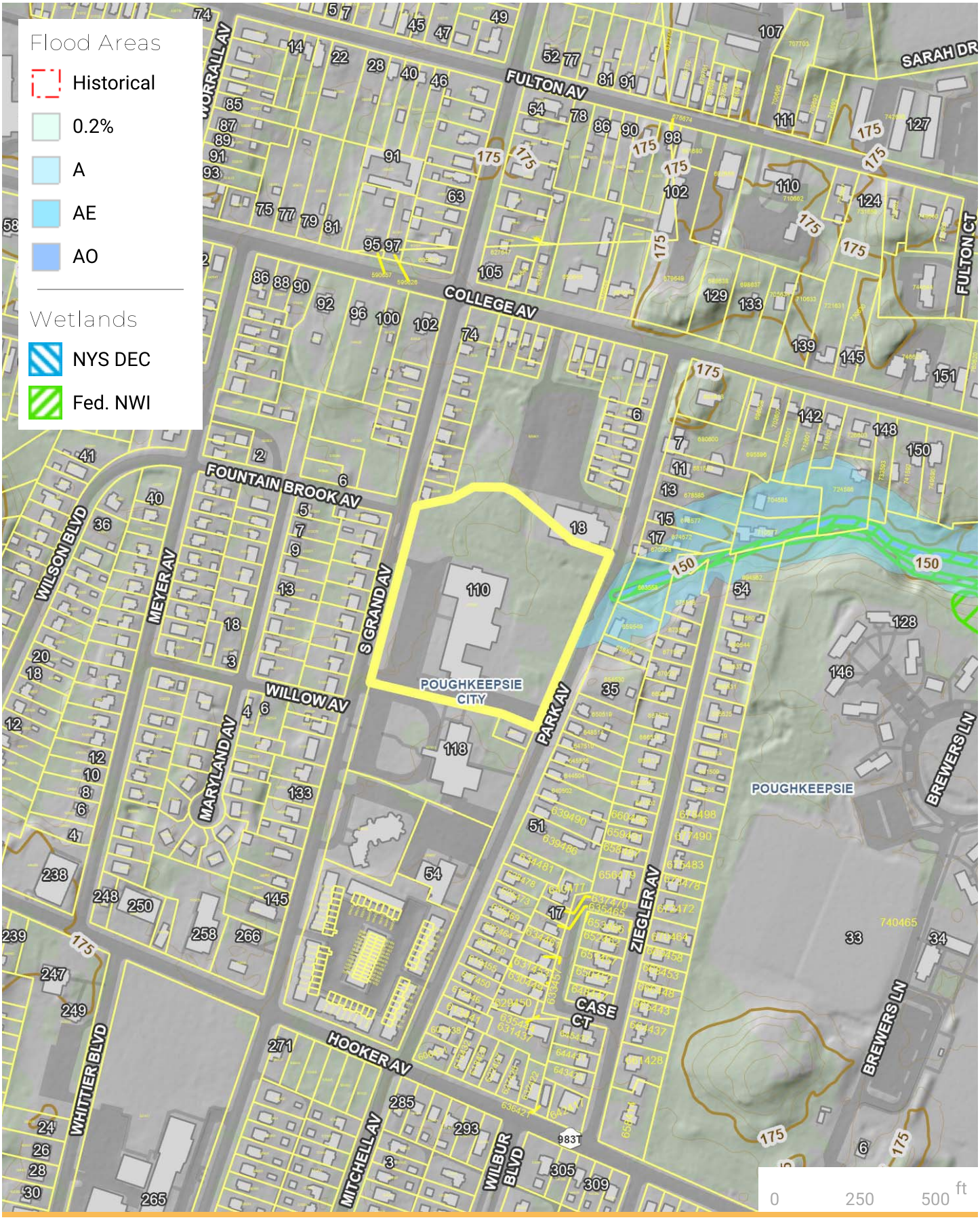
The runoff rate will be controlled by the proposed stormwater treatment practices.

Utilizing the proposed erosion and sediment control measures and stormwater treatment practices, will result in this project complying with the NYSDEC GP 0-20-001 permit requirements and will protect the adjoining property owners.

APPENDIX 1

SITE INFORMATION

Location Map
NYSDEC Runoff Reduction Planning Table
Flood Plain Map – FEMA
DEC-Environmental Resource Map
NRCS Soil Information
NYS Archeological CRIS Map
Watershed Map- Pre-Development
Watershed Map- Post Development



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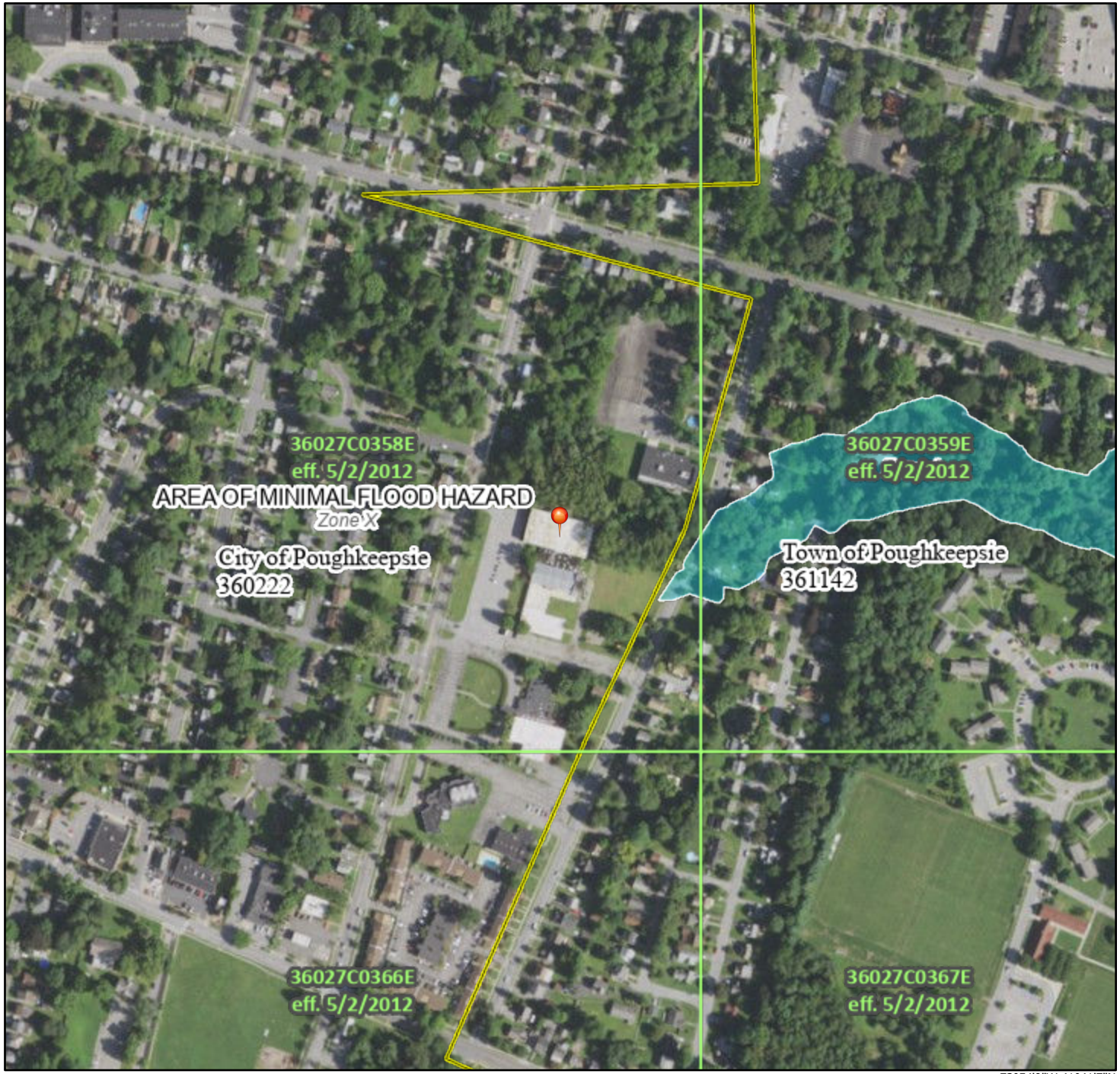
Planning

Practice	Description	Application
Preservation of Undisturbed Areas	Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain.	Considered & Not Applied
Preservation of Buffers	Define, delineate and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands.	N/A
Reduction of Clearing and Grading	Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities.	Considered & Applied
Locating Development in Less Sensitive Areas	Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact.	N/A
Open Space Design	Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources.	N/A
Soil Restoration	Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices.	Considered & Applied
Roadway Reduction	Minimize roadway widths and lengths to reduce site impervious area	N/A
Sidewalk Reduction	Minimize sidewalk lengths and widths to reduce site impervious area	Considered & Applied
Driveway Reduction	Minimize driveway lengths and widths to reduce site impervious area	Considered & Applied
Cul-de-sac Reduction	Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious cover.	N/A
Building Footprint Reduction	Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio.	Considered & Applied
Parking Reduction	Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate.	Considered & Applied

National Flood Hazard Layer FIRMette

FEMA

73°54'46"W 41°41'34"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

73°54'9"W 41°41'7"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

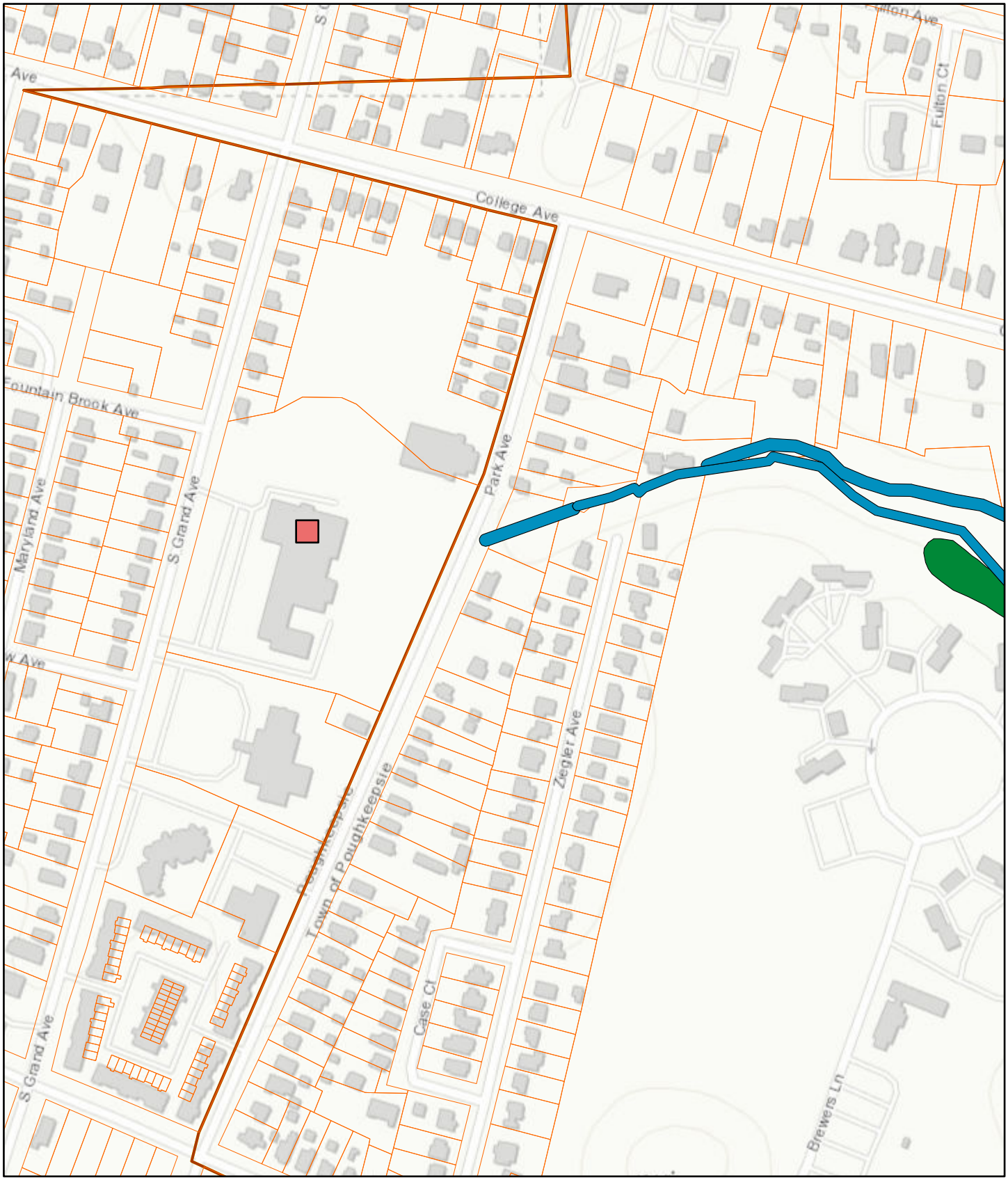
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/8/2023 at 12:54 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

FAITH APOSTOLIC, 110 S Grand, C/Poughkeepsie, Dutchess County



August 8, 2023

1:4,514

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.18 km

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, EPA, USDA

NYS Department of Environmental Conservation

Not a legal document

Soil Map—Dutchess County, New York
(110 S GRAND, Poughkeepsie)



Map Scale: 1:1,690 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 19, Sep 10, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

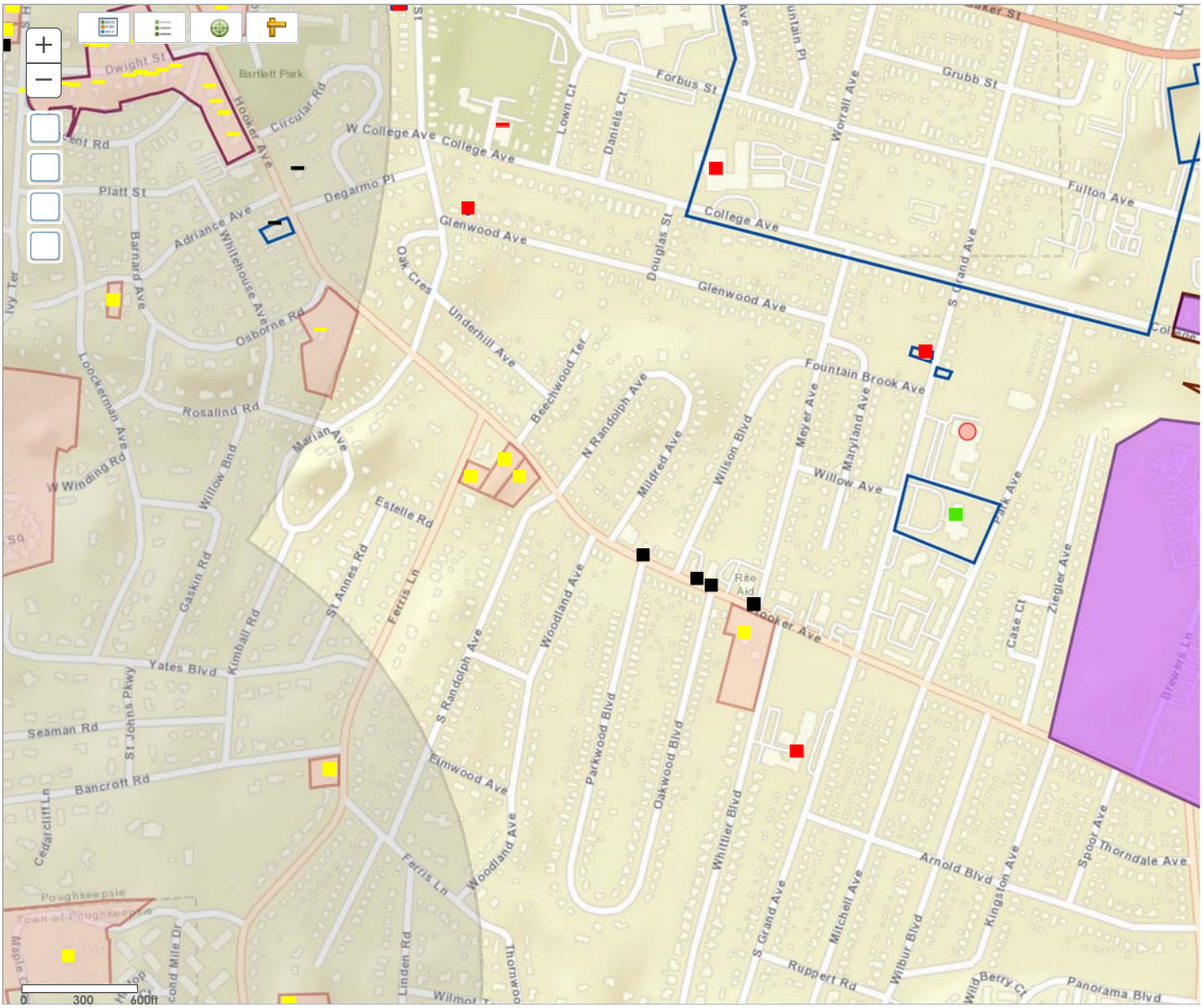
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

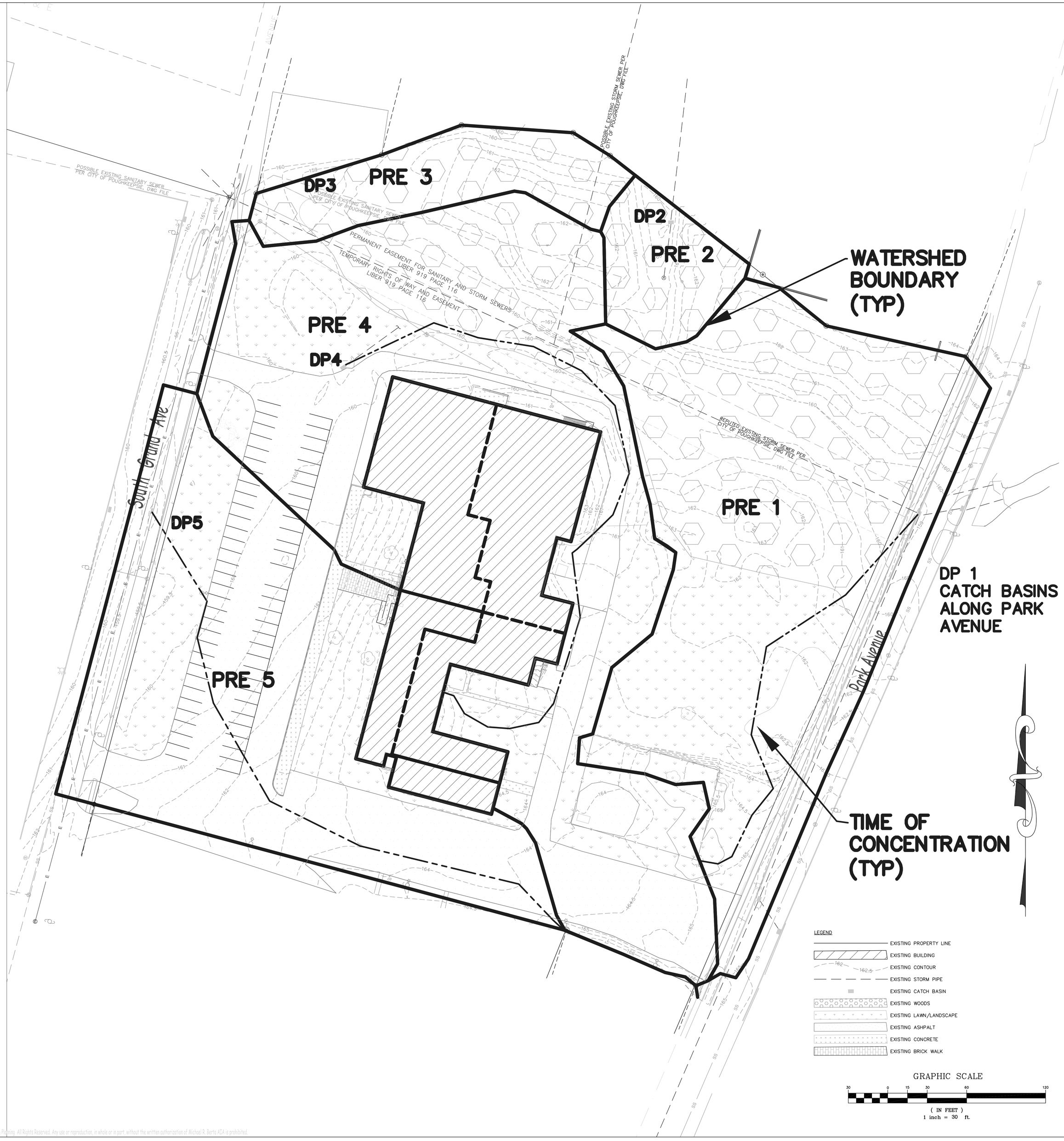
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KuA	Knickerbocker-Urban land complex, nearly level	6.4	100.0%
Totals for Area of Interest		**6.4**	**100.0%**

CRIS NYS Cultural Resource Information System

HOME SUBMIT SEARCH COMMUNICATE



© 2023 New York State Office of Parks, Recreation & Historic



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Do Not Scale Prints

August 24, 2023	Stormwater Design
March 1, 2023	Misc Revision per Owner
February 28, 2023	Misc Revision per Owner
February 10, 2023	Misc Revision per Owner
Date	Revision

WATERSHED MAP - PRE DEVELOPMENT

Proposed Addition / Alteration For:
Faith Apostolic Ministries Inc
100 South Grand Ave
Poughkeepsie, New York

Date	February 6, 2023
Job No	2023-001
Scale	1" = 30'
Drawing	G
Of	One

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PE REGISTRATION 069634 CERT 0405443 EXPIRE ON 04-30-25
LS REGISTRATION 049745 CERT 1255930 EXPIRE ON 04-30-24
COA FOR PE AND LS CERT 0018252 AND 0018253

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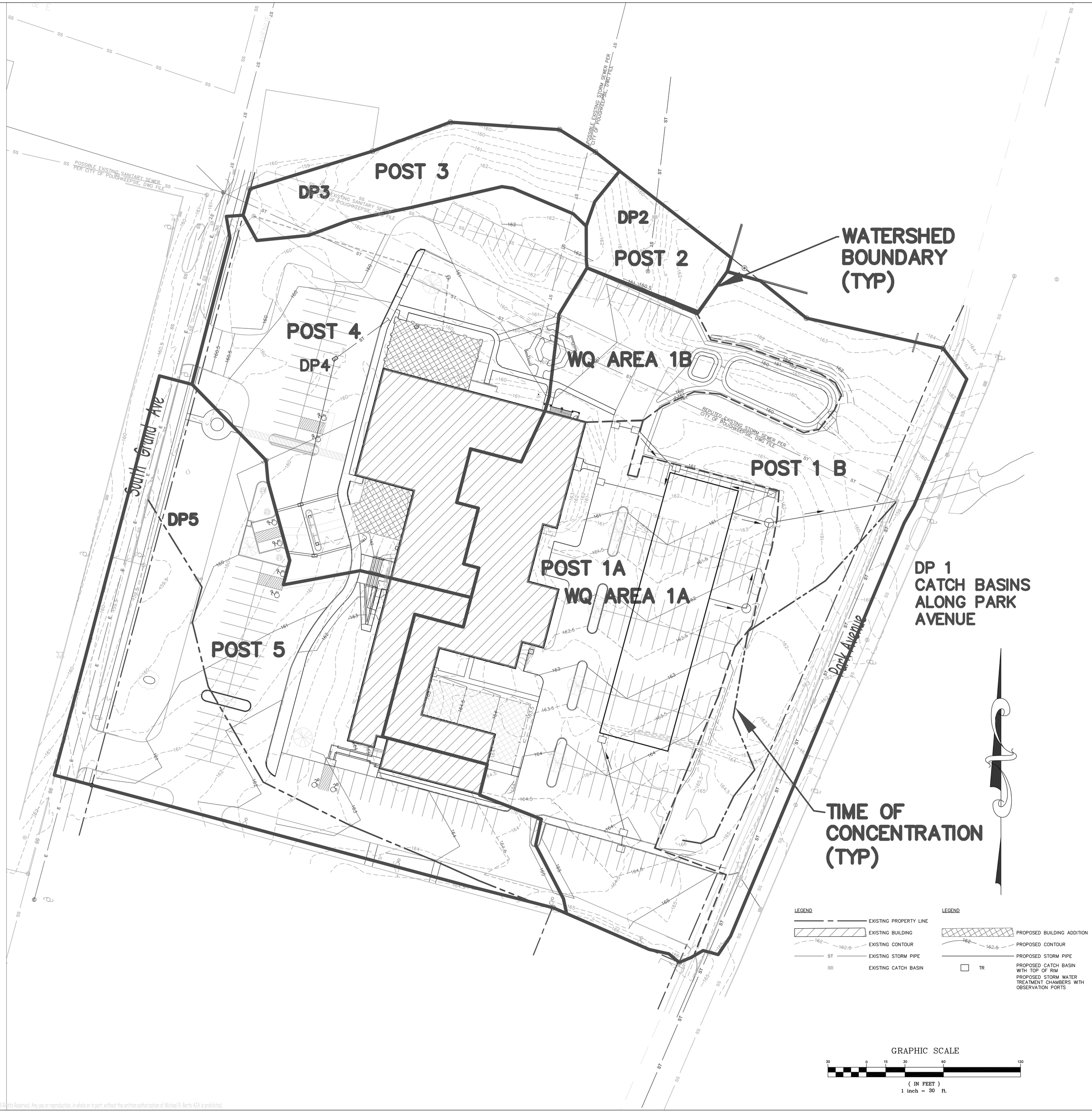

LEGEND

- EXISTING PROPERTY LINE
- EXISTING BUILDING
- EXISTING CONTOUR
- EXISTING STORM PIPE
- EXISTING CATCH BASIN

LEGEND

- PROPOSED BUILDING ADDITION
- PROPOSED CONTOUR
- PROPOSED STORM PIPE
- PROPOSED CATCH BASIN WITH TOP OF RIM
- PROPOSED STORM WATER TREATMENT CHAMBERS WITH OBSERVATION PORTS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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WATERSHED MAP - POST DEVELOPMENT

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date February 6, 2023
Job No 2023-001
Scale 1" = 30'
Drawing H
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STATE OF NEW YORK — JOSHUA S. BERGER — LICENSED PROFESSIONAL ENGINEER

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APPENDIX 2

STORMWATER, EROSION AND SEDIMENT CONTROL PLAN AND DETAILS



LEGEND

- EXISTING PROPERTY LINE
- EXISTING BUILDING
- EXISTING CONTOUR
- EXISTING STORM PIPE
- EXISTING CATCH BASIN

LEGEND

- PROPOSED BUILDING ADDITION
- PROPOSED CONTOUR
- PROPOSED STORM PIPE
- PROPOSED CATCH BASIN WITH TOP OF RIM
- PROPOSED STORM WATER TREATMENT CHAMBERS WITH OBSERVATION PORTS

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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Date	Revision
August 24, 2023	Stormwater Design
March 1, 2023	Misc Revision per Owner
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February 10, 2023	Misc Revision per Owner

PROPOSED STORMWATER PLAN

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date	February 6, 2023
Job No	2023-001
Scale	1" = 30'
Drawing	C-1
Of	-

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AREA OF DISTURBANCE SUMMARY
TOTAL AREA OF REGULATED DISTURBANCE = 2.7 AC
TOTAL AREA OF NON-REGULATED DISTRUBANCE = 1.2 AC

AREA OF NON-REGULATED DISTURBANCE = 1.2 AC

AREA OF REGULATED DISTURBANCE = 0.02 AC

CONCRETE WASHOUT

STABILIZED CONSTRUCTION ACCESS

STOCK PILE

AREA OF REGULATED DISTURBANCE = 2.5 AC

SILT FENCE (TYP)

STOCK PILE

STABILIZED CONSTRUCTION ACCESS

INLET PROTECTION (TYP)

AREA OF REGULATED DISTURBANCE = 0.2 AC

POSSIBLE EXISTING SANITARY SEWER PER CITY OF POUGHKEEPSIE, DWG FILE

POSSIBLE EXISTING STORM SEWER PER CITY OF POUGHKEEPSE, DWG FILE

REPUTED EXISTING STORM SEWER PER CITY OF POUGHKEEPSE, DWG FILE

South Grand Ave

Park Avenue

LEGEND

EXISTING PROPERTY LINE
EXISTING BUILDING
EXISTING CONTOUR
EXISTING STORM PIPE
EXISTING CATCH BASIN
EXISTING ASHPALT

LEGEND

PROPOSED BUILDING ADDITION
PROPOSED CONTOUR

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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February 17, 2023	Misc Revision per Owner

PROPOSED EROSION AND SEDIMENT CONTROL PLAN

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date February 6, 2023
Job No 2023-001
Scale 1" = 30'
Drawing C-2
Of -

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GENERAL NOTES FOR EROSION AND SEDIMENT CONTROL

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL SEDIMENT AND EROSION CONTROL PRACTICES. THE SEDIMENT AND EROSION CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
2. TIMELY MAINTENANCE OF SEDIMENT CONTROL STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. ALL STRUCTURES SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES. THE SEDIMENT LEVEL IN ALL SILT FENCES SHALL BE CLOSELY MONITORED AND SHALL BE REMOVED PROMPTLY WHEN MAXIMUM LEVELS ARE REACH OR WHEN ORDERED BY THE ENGINEER. ALL SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED ON A REGULAR BASIS, AND AFTER EACH HEAVY RAIN TO INSURE PROPER OPERATION AS DESIGNED.
3. THE LOCATION AND INSTALLATION TIMES OF THE SEDIMENT CAPTURING DEVICES SHALL BE ORDERED BY THE ENGINEER, AND IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THIS PLAN.
4. ALL TOPSOIL NOT TO BE USED FOR FINAL GRADING SHALL BE REMOVED FROM THE SITE IMMEDIATELY AND PLACED IN A STABILIZED STOCKPILE OR FILL AREA. ALL TOP SOIL THAT IS REQUIRED FOR FINAL GRADING AND STORED ON THE SITE SHALL BE LIMED, FERTILIZED, AND TEMPORARILY SEEDED AND MULCHED WITHIN 14 DAYS.
5. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THEN 21 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE TEMPORARY SEEDING, MULCH SHALL BE USED IF THE SEASON PREVENTS THE ESTABLISHMENT OF COVER. DISTURBED AREAS SHALL BE LIMED AND FERTILIZED PRIOR TO TEMPORARY SEEDING.
6. THE CONTRACTOR SHALL KEEP THE ROADWAYS WITHIN THE PROJECT AREA CLEAR OF SOIL AND DEBRIS AND IS RESPONSIBLE FOR ANY STREET CLEANING NECESSARY DURING THE COURSE OF THE PROJECT.
7. SEDIMENT AND EROSION CONTROL DEVICES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED BY PERMANENT MEASURES.
8. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF "NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".

EROSION CONTROL SEQUENCE:

BEFORE CONSTRUCTION
1. THE SITE OWNER OR OPERATOR SHALL HIRE A PROFESSIONAL ENGINEER OR CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL TO PERFORM ALL INSPECTIONS DURING CONSTRUCTION AS REQUIRED BY NYSDEC SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES "GP 0-20-001": ANY CHANGES IN DESIGN DURING CONSTRUCTION MUST BE DONE BY A PROFESSIONAL ENGINEER.
2. CONDUCT A PRE-CONSTRUCTION MEETING WITH CLIENT, CONTRACTOR AND SITE CIVIL ENGINEER OR QUALIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL AND TOWN REPRESENTATIVES INCLUDING TOWN ENGINEER TO REVIEW THE SITE AND THE EROSION CONTROL PLAN AS WELL AS SEQUENCE OF WORK AS IT PERTAINS TO APPLICABLE EROSION CONTROL MEASURES.
3. ALL CONTRACTORS AND SUB CONTRACTORS MUST SIGN THE CONTRACTOR CERTIFICATION FORM PRIOR TO THE START OF CONSTRUCTION BY ANY CONTRACTOR AND SUB CONTRACTORS WHEN NEW START DURING CONSTRUCTION AND PRIOR TO ANY EARTHWORK/DISTURBANCE AS APPROPRIATE THROUGHOUT CONSTRUCTION INCLUDING NEW CONTRACTORS AND SUBCONTRACTORS.
4. CONTACT SITE CIVIL ENGINEER OR CPESC FOR INSPECTION OF EROSION CONTROL MEASURES BEFORE STARTING ANY CLEARING AND OR SITE CONSTRUCTION.
5. ESTABLISH LIMITS OF DISTURBANCE FOR PROPOSED CLEARING AND GRADING. INSTALL ORANGE CONSTRUCTION FENCE AS APPLICABLE.

THE CONSTRUCTION SHALL FOLLOW THE SEQUENCE OF WORK AS OUTLINED BELOW:

CONTRACTOR SHALL PERFORM DAILY INSPECTION AND REPAIR OF EROSION AND SEDIMENT CONTROL PRACTICES. WEEKLY INSPECTION OF SITE BY A CERTIFIED PROFESSIONAL WITH ALL RECOMMENDATIONS IMPLEMENTED IMMEDIATELY.
1. INSTALL CONSTRUCTION ACCESS AS FIRST ITEM OF WORK TO PREVENT DUST AND DEBRIS FROM BEING TRACKED ONTO THE SURROUNDING ROADS AND DRIVES.
2. INSTALLATION OF SILT FENCE AS SHOWN OR NEEDED TO CAPTURE SEDIMENT FROM PROPOSED CONSTRUCTION. SILT FENCE SHALL BE INSTALLED PER THE ACCEPTED EROSION AND SEDIMENT CONTROL PLAN AS WELL AS IN LOCATIONS DEEMED NECESSARY DURING CONSTRUCTION INSPECTIONS OF THE SITE. SILT FENCE SHALL BE INSTALLED ALONG THE CONTOURS.
3. PROTECT PROPOSED INFILTRATION BASIN AND UNDERGROUND INFILTRATION AREAS FROM CONSTRUCTION ACTIVITIES AS MUCH AS POSSIBLE TO REDUCE THE AMOUNT OF SOIL RESTORATION REQUIRED IN COMPLETING AREAS.
4. PERFORM ROUGH GRADING, EXCAVATION AND RELATED CONSTRUCTION. TOPSOIL SHALL BE REMOVED AND STORED AT APPLICABLE LOCATIONS SO AS NOT TO INTERFERE WITH THE CONSTRUCTION OPERATIONS. POSSIBLE LOCATIONS FOR TOPSOIL STOCKPILES ARE SHOWN ON THE EROSION CONTROL PLAN.
5. ONCE AN AREA IS CUT OR FILLED, IT SHALL BE STABILIZED BY SEEDING AND MULCHING.
6. INSTALL WATER, SANITARY, ELECTRIC, PHONE, CABLE, OTHER UTILITIES AND BUILDING IN COORDINATION WITH OTHER SITE WORK.
7. CONSTRUCT UNDERGROUND INFILTRATION AFTER OTHER EARTH DISTURBANCE WORK IS COMPLETE.
8. SURFACE INFILTRATION BASIN SHALL NOT BE CONSTRUCTED UNTIL THE REMAINDER OF THE EARTH DISTURBANCE IN UPSTREAM AREAS IS COMPLETE AND PERMANENTLY STABILIZED TO KEEP SEDIMENT FROM ENTERING MEDIA.
9. AS CONSTRUCTION PROCEEDS, ALL DISTURBED AREAS SHALL BE PAVED, SEEDED, OR PLANTED AS SPECIFIED ON THE PLANS IN A TIMELY MANNER TO PREVENT UNNECESSARY EROSION.
10. RESTORE SOIL IN DISTURBED AREAS WHERE PERVIOUS FINISH COVER IS PROPOSED; ESPECIALLY SURFACE AND SUBSURFACE INFILTRATION AREAS. INTENSIVE RESTORATION METHODS MAY BE REQUIRED IF EXCESS COMPACTION OCCURRED DURING CONSTRUCTION. COMPACTION MAY BE CAUSED BY CONSTRUCTION EQUIPMENT, STOCKPILES, STORAGE OF PALLETS, PERSONAL VEHICLES, CONSTRUCTION TRAILERS, ETC. SOIL RESTORATION WILL BE DONE TO THE SATISFACTION OF THE INSPECTING ENGINEER.
11. INSTALLATION OF SURFACE INFILTRATION BASIN.
12. UPON COMPLETION OF CONSTRUCTION ACTIVITIES, UPON STABILIZATION OF SITE SOILS, AND UPON FINAL APPRO
13. VAL BY THE SITE INSPECTOR AND MUNICIPAL ENGINEER TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED.

EROSION CONTROL INSTALLATION AND MAINTENANCE

1. INTRODUCTION
THE PURPOSE OF THIS PLAN IS TO OUTLINE PROCEDURES FOR MAINTAINING THE EROSION CONTROL STRUCTURES CONSTRUCTED ON THE SITE. THE TYPE OF STRUCTURES FOR THIS SITE WILL BE TEMPORARY FOR USE DURING CONSTRUCTION,

II EROSION CONTROL STRUCTURES
SILT FENCE STRUCTURES WILL BE USED TO MINIMIZE SOIL EROSION DURING THE CONSTRUCTION PHASE OF THE PROJECT. IN ORDER FOR THE EROSION CONTROL STRUCTURES TO WORK PROPERLY THEY MUST BE INSTALLED PROPERLY AND MAINTAINED. INSPECTIONS SHALL BE PERFORMED PERIODICALLY AS STATED BELOW AND SHALL BE PERFORMED AFTER ANY MAJOR STORM EVENT. SILT FENCE TO BE INSTALLED PARALLEL WITH CONTOURS.

III INSTALLATION GUIDELINES

IN ORDER TO ASSURE THAT THE EROSION CONTROL STRUCTURES WILL WORK THERE MUST BE AN ASSURANCE THAT THEY ARE INSTALLED PROPERLY. IN ORDER TO ACCOMPLISH THIS ALL EROSION CONTROL MUST BE INSTALLED AS PER THE DETAILS ON THIS PLAN. THE EROSION CONTROL SHALL BE INSPECTED BY BY A PROFESSIONAL ENGINEER OR CERTIFIED PROFESSIONAL. NO WORK SHALL BE STARTED ON THE SITE UNTIL THE EROSION CONTROL IS IN PLACE AND ACCEPTED.

IV. MAINTENANCE PLAN FOR EROSION CONTROL DEVICES
1. TEMPORARY EROSION CONTROL DEVICES
THESE STRUCTURES SHALL INCLUDE ALL EROSION CONTROL DEVICES THAT WILL BE INSTALLED AND UTILIZED DURING THE CONSTRUCTION OF THE SITE. THESE SHALL INCLUDE DEVICES SUCH AS SILT FENCES, ROCK OUTLET PIPE, AND CHECK DAMS.
2. ALL EROSION CONTROL DEVICES SHALL BE MAINTAINED IN GOOD WORKING ORDER; IF A REPAIR IS NECESSARY, IT WILL BE INITIATED WITHIN 24 HOURS OF REPORT.
3. BUILT UP SEDIMENT WILL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE
4. SILT FENCE WILL BE INSPECTED FOR DEPTH OF SEDIMENT , TEARS, TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POST, AND TO SEE THAT THE FENCE POST ARE FIRMLY IN THE GROUND.
5. TEMPORARY SEEDING WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.
6. ALL INDIVIDUALS PERFORMING THE SITE INSPECTION SHALL BE FAMILIAR WITH THE EROSION CONTROL PLAN AND BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING CONDITION.

SEEDING AND MULCHING

ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED FOR MORE THAN 21 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, SHALL IMMEDIATELY RECEIVE SEEDING AND MULCHING. DISTURBED AREAS SHALL BE LIMITED AND BE COVER WITH A LAYER OF TOPSOIL PRIOR TO SEEDING. SEEDING WILL BE INSPECTED FOR BARE SPOTS, WASH OUTS, AND HEALTHY GROWTH. IF REQUIRED ADDITIONAL SEEDING SHALL BE PERFORMED. THE SEED MIX SPECIFIED FOR THIS SITE IS FROM THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, TABLE 3.2 (SITE CHOICE 1A) WHICH IS AS FOLLOWS:

SPECIES (% by weight)	Pure Live Seed Values lbs/1000SF	lbs/acre
50% perennial ryegrass	1.5 – 2.0	65 – 87
50% Kentucky bluegrass blend	1.5 – 2.0	65 – 88
	3.0 – 4.0	130 – 175

OR USE SEED MIX SPECIFIED BY SITE ARCHITECT OR LANDSCAPE ARCHITECT.

POST CONSTRUCTION STORMWATER OPERATION AND MAINTENANCE

A. PRETREATMENT

CHAMBERS

THE FIRST 1/4 ROWS OF CHAMBERS WILL PROVIDE PRETREATMENT. SEDIMENT WILL DROP OUT AND BE HELD ON IMPERVIOUS LAYER FOR REMOVAL.

MAINTENANCE: MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. DEBRIS SHOULD BE REMOVED REGULARLY. FULL INSPECTIONS SHALL TAKE PLACE YEARLY. COMPONENTS SHOULD BE REPAIRED OR REPLACED WHEN NEEDED. REMOVE SEDIMENT WHEN 3 INCHES THICK OR REACHES INLETS TO INFILTRATION PORTION OF CHAMBERS. FULL INSPECTIONS INVOLVE CHECKING ALL COMPONENTS THOROUGHLY. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED IN A TIMELY FASHION.

PLUNGE POOL

SHALLOW BASIN TO ALLOW SEDIMENT TO DROP OUT AND BE HELD FOR REMOVAL.

MAINTENANCE: MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. DEBRIS SHOULD BE REMOVED REGULARLY. GRASS LINING SHALL BE MAINTAINED TO 4" TO 6" DEPTH. FULL INSPECTIONS SHALL TAKE PLACE YEARLY. COMPONENTS SHOULD BE REPAIRED OR REPLACED WHEN NEEDED. REMOVE SEDIMENT WHEN 3 INCHES THICK. FULL INSPECTIONS INVOLVE CHECKING ALL COMPONENTS THOROUGHLY. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED IN A TIMELY FASHION.

B.INFILTRATION

STORMWATER SYSTEMS CAPTURE AND TEMPORARILY STORE THE WATER QUALITY VOLUME TO ALLOW TIME FOR IT TO INFILTRATE INTO THE GROUND. OVERFLOW OUTLETS ARE PROVIDED FOR LARGE EVENTS.

INFILTRATION RUNOFF REDUCTION CAPACITY FOR THIS PRACTICE IS 100% IN AREAS WITH HSG A AND B SOILS.

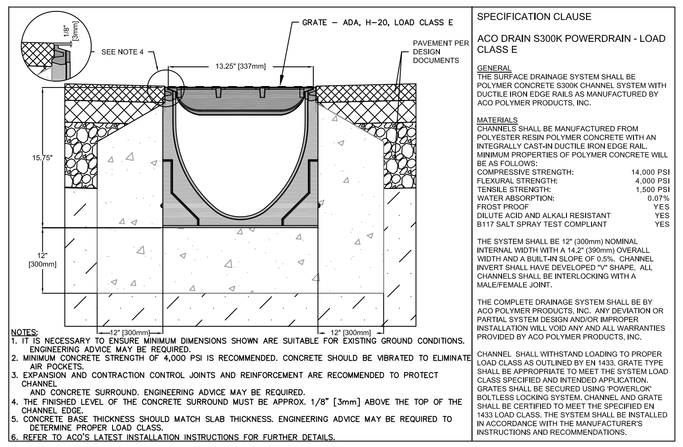
LANDSCAPING: SURFACE INFILTRATION TO HAVE GRASS COVER. UNDERGROUND INFILTRATION WILL HAVE COVER PER PLANS.

MAINTENANCE: MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. GRASS TO BE MAINTAINED AT 4" TO 6" HEIGHT.

FULL INSPECTIONS SHALL TAKE PLACE TWCE YEARLY; ONE IN THE SPRING AND ONE IN LATE SUMMER. FULL INSPECTIONS INVOLVE CHECKING ALL COMPONENTS OF THE INFILTRATION THOROUGHLY, REMOVE DEBRIS AND SEDIMENT WHEN OBSERVED. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED IN A TIMELY FASHION.

C.SOIL RESTORATION (NYSDEC SMDM 5.1.6)

SOIL RESTORATION IS REQUIRED WHERE SOILS HAVE BEEN DISTURBED AND WILL BE VEGETATED. FOR THIS PROJECT, THE MAJORITY OF THE HEAVY TRAFFIC DISTURBANCE WILL BE IN AREAS THAT WILL BE BUILDING OR PAVEMENT. MINIMAL SOIL DISTURBANCE WILL OCCUR IN PROPOSED VEGETATED AREAS. THE COMMON PRACTICE IN PREPARING AN AREA FOR LANDSCAPE IS TO LOOSEN THE SOIL AND APPLY TOPSOIL. THE NATIVE SOIL IN INFILTRATION AREAS IS REMOVED AND REPLACED WITH STONE AS ORDERED BY ENGINEER. THE NEED FOR FULL SOIL RESTORATION IS NOT WARRANTED FOR THE DISTURBED, PROPOSED VEGETATED AREAS. IF EXCESSIVE COMPACTION OCCURS DURING CONSTRUCTION, MITIGATION INCLUDING, BUT NOT LIMITED TO DEEP RIPPING AND DE-COMPACTION AS OUTLINED IN THE NYSDEC STORMWATER MANUAL, SECTION 5.1.6, MAY BE ORDERED BY THE SITE ENGINEER.



TRENCH DRAIN
NO TO SCALE

SPECIFICATION CLAUSE

ACO DRAIN S300K POWERDRAIN - LOAD CLASS E

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE S300K CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
SILUTE ACID AND ALKALI RESISTANT	YES
8117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 12" (300mm) NOMINAL INTERNAL WIDTH WITH A 14.2" (390mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

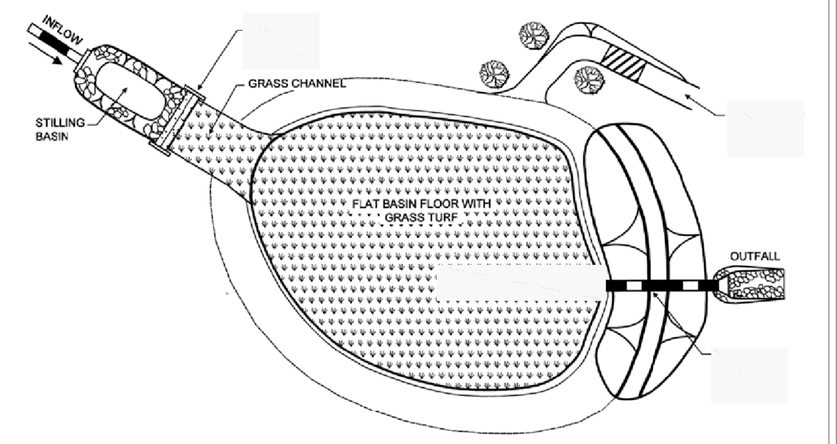
THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433, GRATE TYPE AND LOAD CLASS SHALL BE AS SHOWN ON PLANS. LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING POWERLOK BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

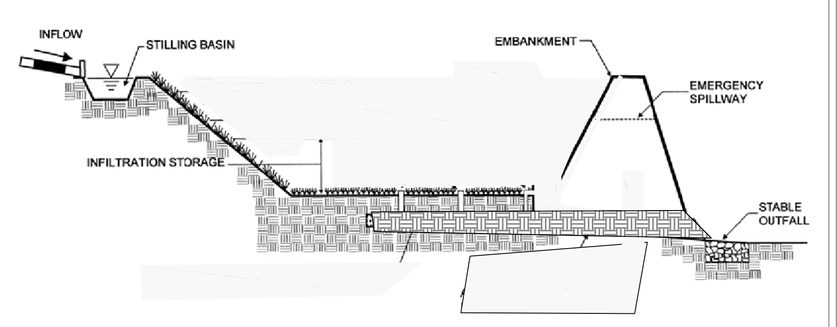
New York State Stormwater Management Design Manual

Chapter 6: Performance Criteria
Section 6.3 Stormwater Infiltration

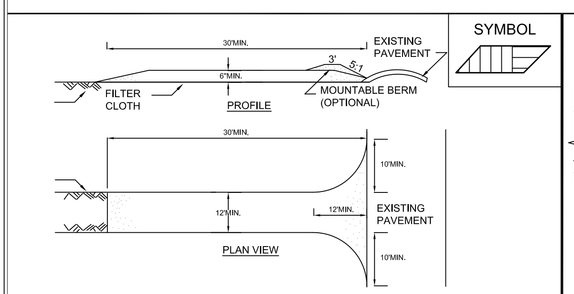
Figure 6.12 Infiltration Basin (I-2)



PLAN VIEW



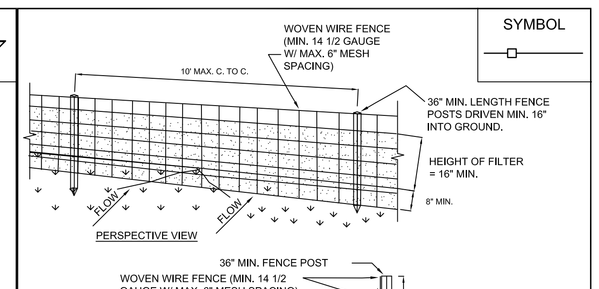
PROFILE

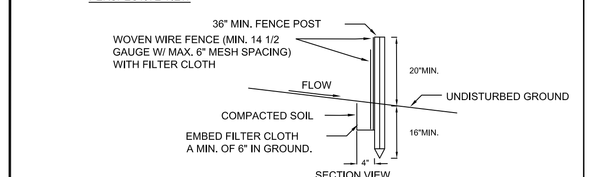


CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH

STABILIZED CONSTRUCTION ACCESS



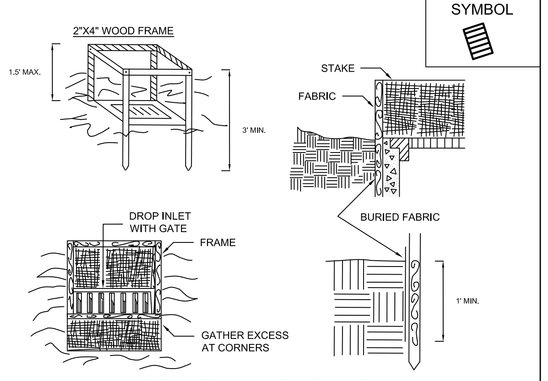


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SILT FENCE

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT. METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED, IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUM DRAINAGE AREA 1 ACRE

FILTER FABRIC DROP INLET PROTECTION

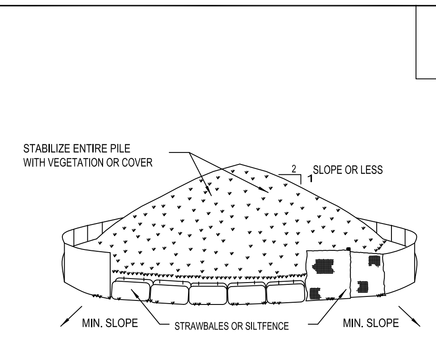
CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS".
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

LANDGRADING SPECIFICATIONS

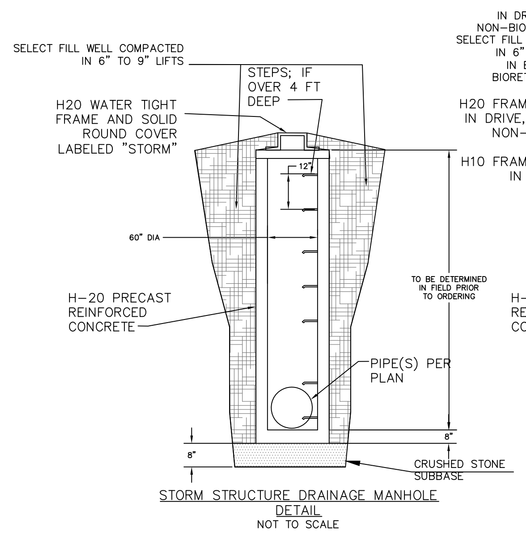
SYMBOL



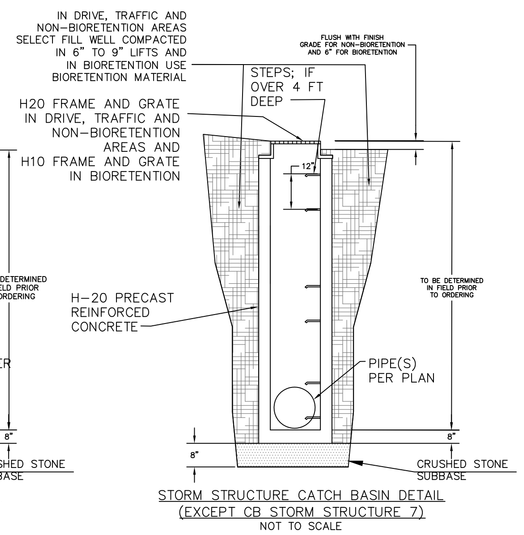
INSTALLATION NOTES

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES, THEN STABILIZED WITH VEGETATION OR COVERED.
4. SEE SPECIFICATIONS (THIS MANUAL) FOR INSTALLATION OF SILTFENCE.

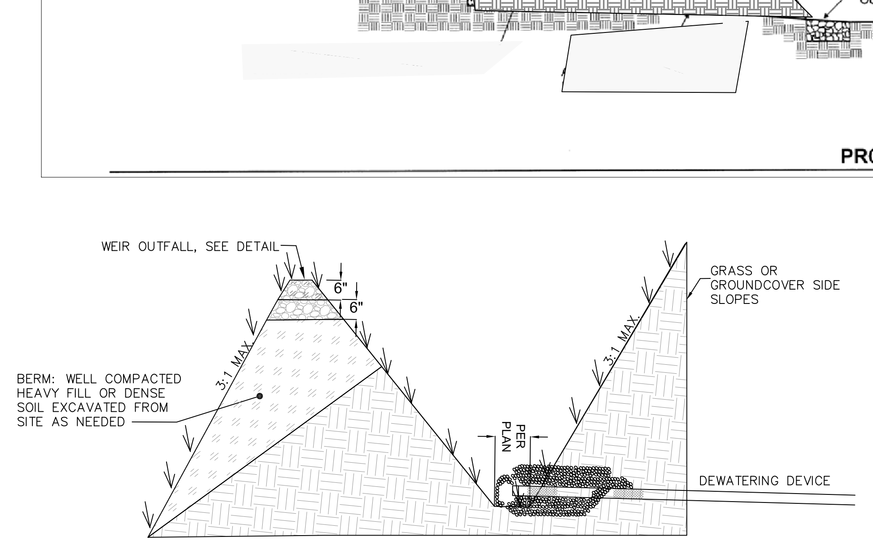
STOCK PILE



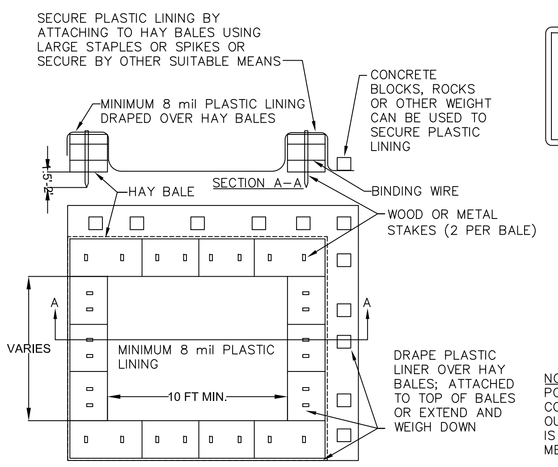
STORM STRUCTURE DRAINAGE MANHOLE DETAIL
NOT TO SCALE

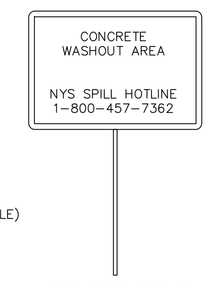


STORM STRUCTURE CATCH BASIN DETAIL
(EXCEPT CB STORM STRUCTURE 7)
NOT TO SCALE



TYPICAL PRETREATMENT BASIN





NOTE: POST SIGN AT WASHOUT AREA

ONSITE TEMPORARY CONCRETE WASHOUT FACILITY, TRANSIT TRUCK WASHOUT PROCEDURES:
1. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 100 FT FROM WETLANDS.
2. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
   – APPROXIMATELY 7 GALLONS OF WASH

CULTEC RECHARGER® 150XLHD SPECIFICATIONS

GENERAL
CULTEC RECHARGER® 150XLHD CHAMBERS ARE DESIGNED FOR UNDERGROUND STORMWATER MANAGEMENT. THE CHAMBERS MAY BE USED FOR RETENTION, RECHARGING, DETENTION OR CONTROLLING THE FLOW OF ON-SITE STORMWATER RUNOFF.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE CHAMBER SHALL BE JOINED USING AN INTERLOCKING OVERLAPPING RIB METHOD. CONNECTIONS MUST BE FULLY SHOULDERED OVERLAPPING RIBS, HAVING NO SEPARATE COUPLINGS OR SEPARATE END WALLS.
6. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC RECHARGER 150XLHD SHALL BE 18.5 INCHES (470 mm) TALL, 33 INCHES (838 mm) WIDE AND 11 FEET (3.35 m) LONG. THE INSTALLED LENGTH OF A JOINED RECHARGER 150XLHD SHALL BE 10.25 FEET (3.12 m).
7. MAXIMUM INLET OPENING ON THE CHAMBER ENDWALL IS 12 INCHES (300 mm) HDPE OR 15" (375 mm) SMOOTH-WALL PVC.
8. THE CHAMBER SHALL HAVE TWO SIDE PORTALS TO ACCEPT CULTEC HVLV® FC-24 FEED CONNECTORS TO CREATE AN INTERNAL MANIFOLD. THE NOMINAL INSIDE DIMENSIONS OF EACH SIDE PORTAL SHALL BE 8.5 INCHES (216 mm) HIGH BY 12 INCHES (304 mm) WIDE. MAXIMUM ALLOWABLE OUTER DIAMETER (O.D.) PIPE SIZE IN THE SIDE PORTAL IS 10.25 INCHES (260 mm).
9. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV® FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 mm) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (615 mm) LONG.
10. THE NOMINAL STORAGE VOLUME OF THE RECHARGER 150XLHD CHAMBER SHALL BE 2.650 FT³ / FT (0.246 m³ / m) - WITHOUT STONE. THE NOMINAL STORAGE VOLUME OF A JOINED RECHARGER 150XLHD SHALL BE 27.16 FT3 / UNIT (0.77 m³ / UNIT) - WITHOUT STONE.
11. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT³ / FT (0.085 m³ / m) - WITHOUT STONE.
12. THE RECHARGER 150XLHD CHAMBER SHALL HAVE THIRTY DISCHARGE HOLES BORED INTO THE SIDEWALLS OF THE UNIT'S CORE TO PROMOTE LATERAL CONVEYANCE OF WATER.
13. THE RECHARGER 150XLHD CHAMBER SHALL HAVE 20 CORRUGATIONS.
14. THE ENDWALL OF THE CHAMBER, WHEN PRESENT, SHALL BE AN INTEGRAL PART OF THE CONTINUOUSLY FORMED UNIT. SEPARATE END PLATES CANNOT BE USED WITH THIS UNIT.
15. THE RECHARGER 150XLRHD STAND ALONE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO FULLY FORMED INTEGRAL ENDWALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE ENDWALLS.
16. THE RECHARGER 150XLSHD STARTER UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
17. THE RECHARGER 150XLIHD INTERMEDIATE UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY OPEN ENDWALL AND ONE PARTIALLY FORMED INTEGRAL ENDWALL WITH A LOWER TRANSFER OPENING OF 10 INCHES (254 mm) HIGH X 20.5 INCHES (521 mm) WIDE.
18. THE RECHARGER 150XLEHD END UNIT MUST BE FORMED AS A WHOLE CHAMBER HAVING ONE FULLY FORMED INTEGRAL ENDWALL AND ONE FULLY OPEN END WALL AND HAVING NO SEPARATE END PLATES OR END WALLS.
19. THE HVLV® FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE RECHARGER 150XLHD AND ACT AS CROSS FEED CONNECTIONS.
20. CHAMBERS MUST HAVE HORIZONTAL STIFFENING FLEX REDUCTION STEPS BETWEEN THE RIBS.
21. THE CHAMBER SHALL HAVE A RAISED INTEGRAL CAP AT THE TOP OF THE ARCH IN THE CENTER OF EACH UNIT TO BE USED AS AN OPTIONAL INSPECTION PORT OR CLEAN-OUT.
22. THE UNITS MAY BE TRIMMED TO CUSTOM LENGTHS BY CUTTING BACK TO ANY CORRUGATION.
23. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.
24. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
25. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED TO MEET THE MATERIAL AND STRUCTURAL REQUIREMENTS OF IAPMO PS 63-2019, INCLUDING RESISTANCE TO AASHTO H-10 AND H-20 HIGHWAY LIVE LOADS, WHEN INSTALLED IN ACCORDANCE WITH CULTEC'S INSTALLATION INSTRUCTIONS.
26. THE CHAMBER SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE SPECIFICATION OF NSAI IRISH AGREEMENT BOARD CERTIFICATE FOR CULTEC ATTENUATION AND INFILTRATION.
27. MAXIMUM ALLOWED COVER OVER TOP OF UNIT SHALL BE 12 FEET (3.65 m).

CULTEC HVLV® FC-24 FEED CONNECTOR PRODUCT SPECIFICATIONS

GENERAL
CULTEC HVLV FC-24 FEED CONNECTORS ARE DESIGNED TO CREATE AN INTERNAL MANIFOLD FOR CULTEC RECHARGER 150XLHD STORMWATER CHAMBERS.

CHAMBER PARAMETERS
1. THE CHAMBERS SHALL BE MANUFACTURED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE CHAMBER SHALL BE VACUUM THERMOFORMED OF HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE (HMWHDPE) WITH A BLACK INTERIOR AND BLUE EXTERIOR.
3. THE CHAMBER SHALL BE ARCHED IN SHAPE.
4. THE CHAMBER SHALL BE OPEN-BOTTOMED.
5. THE NOMINAL CHAMBER DIMENSIONS OF THE CULTEC HVLV FC-24 FEED CONNECTOR SHALL BE 12 INCHES (305 MM) TALL, 16 INCHES (406 mm) WIDE AND 24.2 INCHES (614 mm) LONG.
6. THE NOMINAL STORAGE VOLUME OF THE HVLV FC-24 FEED CONNECTOR SHALL BE 0.913 FT3 / FT (0.085 m³ / m) - WITHOUT STONE.
7. THE HVLV FC-24 FEED CONNECTOR CHAMBER SHALL HAVE 2 CORRUGATIONS.
8. THE HVLV FC-24 FEED CONNECTOR MUST BE FORMED AS A WHOLE CHAMBER HAVING TWO OPEN END WALLS AND HAVING NO SEPARATE END PLATES OR SEPARATE END WALLS. THE UNIT SHALL FIT INTO THE SIDE PORTALS OF THE CULTEC RECHARGER STORMWATER CHAMBER AND ACT AS CROSS FEED CONNECTIONS CREATING AN INTERNAL MANIFOLD.
9. THE CHAMBER SHALL BE DESIGNED TO WITHSTAND TRAFFIC LOADS WHEN INSTALLED ACCORDING TO CULTEC'S RECOMMENDED INSTALLATION INSTRUCTIONS.
10. THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2008 CERTIFIED FACILITY.

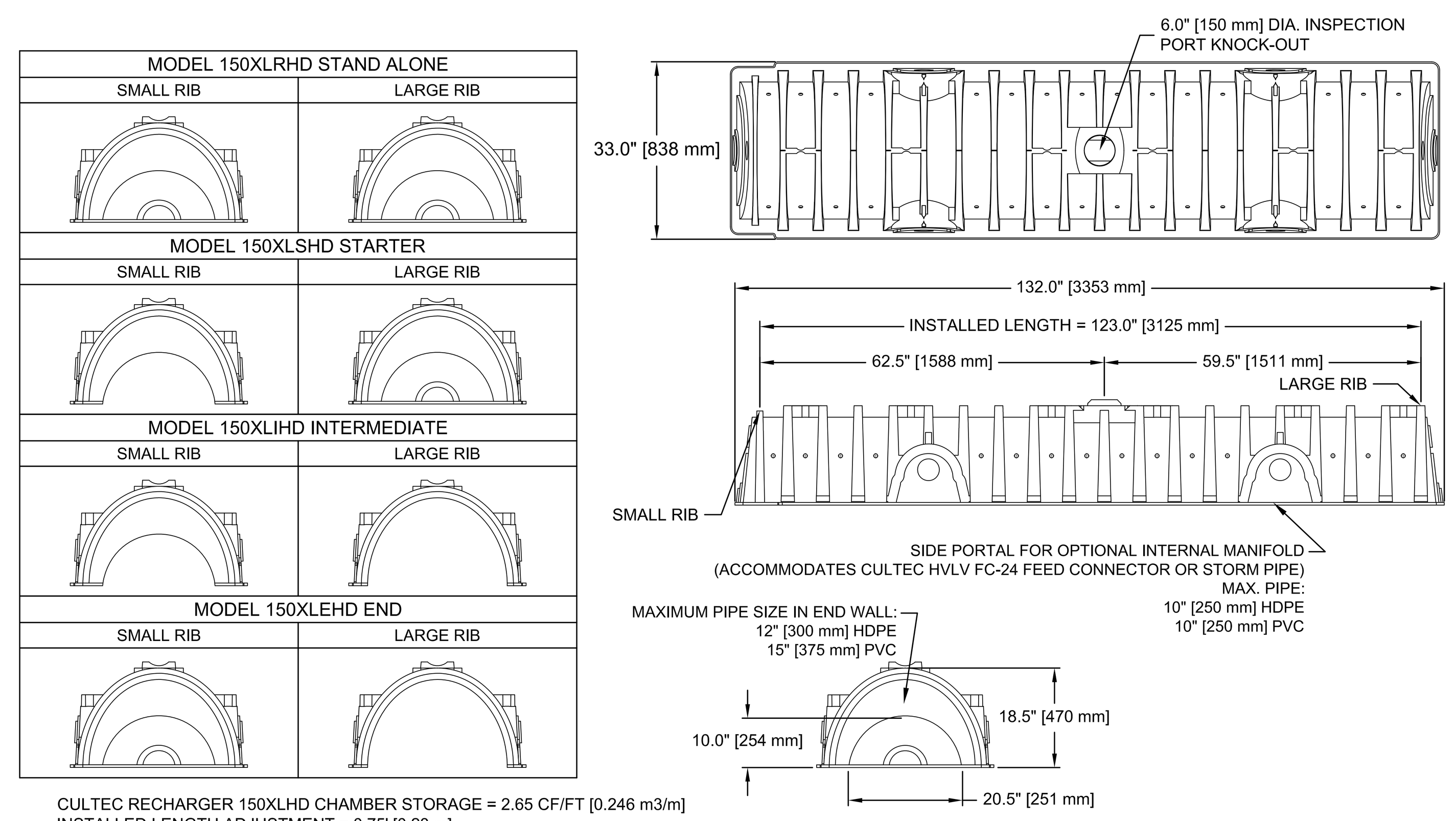
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE
CULTEC NO. 410™ NON-WOVEN GEOTEXTILE MAY BE USED WITH CULTEC CONTACTOR® AND RECHARGER® STORMWATER INSTALLATIONS TO PROVIDE A BARRIER THAT PREVENTS SOIL INTRUSION INTO THE STONE.

GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TYPICAL WEIGHT OF 4.5 OZ/SY (142 G/M).
4. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH VALUE OF 120 LBS (533 N) PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE AN ELONGATION @ BREAK VALUE OF 50% PER ASTM D4632 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A MULLEN BURST VALUE OF 225 PSI (1551 KPA) PER ASTM D3786 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A PUNCTURE STRENGTH VALUE OF 65 LBS (289 N) PER ASTM D4833 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE VALUE OF 340 LBS (1513 N) PER ASTM D6241 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A TRAPEZOID TEAR VALUE OF 50 LBS (222 N) PER ASTM D4533 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A AOS VALUE OF 70 U.S. SIEVE (0.212 MM) PER ASTM D4751 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY VALUE OF 1.7 SEC-1 PER ASTM D4491 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATE VALUE OF 135 GAL/MIN/SF (5500 L/MIN/SM) PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A UV STABILITY @ 500 HOURS VALUE OF 70% PER ASTM D4355 TESTING METHOD.

CULTEC NO. 4800™ WOVEN GEOTEXTILE
CULTEC NO. 4800 WOVEN GEOTEXTILE IS DESIGNED AS A UNDERLAYMENT TO PREVENT SCOURING CAUSED BY WATER MOVEMENT WITHIN THE CULTEC CHAMBERS AND FEED CONNECTORS UTILIZING THE CULTEC MANIFOLD FEATURE. IT MAY ALSO BE USED AS A COMPONENT OF THE CULTEC SEPARATOR ROW TO ACT AS A BARRIER TO PREVENT SOIL/CONTAMINANT INTRUSION INTO THE STONE WHILE ALLOWING FOR MAINTENANCE.

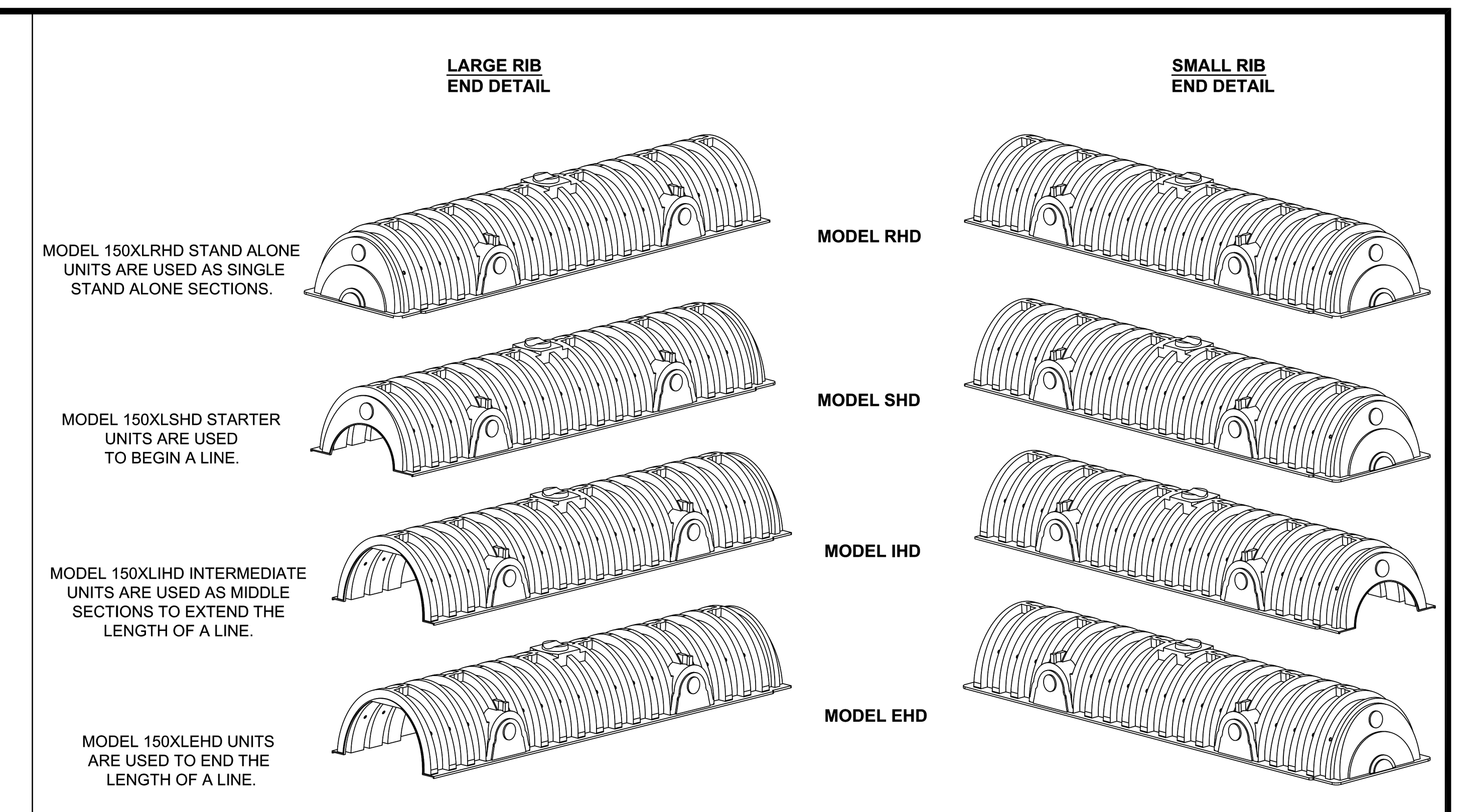
GEOTEXTILE PARAMETERS
1. THE GEOTEXTILE SHALL BE PROVIDED BY CULTEC, INC. OF BROOKFIELD, CT. (203-775-4416 OR 1-800-428-5832)
2. THE GEOTEXTILE SHALL BE BLACK IN APPEARANCE.
3. THE GEOTEXTILE SHALL HAVE A TENSILE STRENGTH OF 550 X 550 LBS (2,448 X 2,448 N) PER ASTM D4632 TESTING METHOD.
4. THE GEOTEXTILE SHALL HAVE A ELONGATION @ BREAK RESISTANCE OF 20 X 20% PER ASTM D4632 TESTING METHOD.
5. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE OF 5,070 X 5,070 LBS/FT (74 X 74 KN/M) PER ASTM D4595 TESTING METHOD.
6. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 2% STRAIN OF 960 X 1,096 LBS/FT (14 X 16 KN/M) PER ASTM D4595 TESTING METHOD.
7. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 5% STRAIN OF 2,740 X 2, 740 LBS/FT (40 X 40 KN/M) PER ASTM D4595 TESTING METHOD.
8. THE GEOTEXTILE SHALL HAVE A WIDE WIDTH TENSILE RESISTANCE @ 10% STRAIN OF 4,800 X 4,800 LBS/FT (70 X 70 KN/M) PER ASTM D4595 TESTING METHOD.
9. THE GEOTEXTILE SHALL HAVE A CBR PUNCTURE RESISTANCE OF 1,700 LBS (7,560 N) PER ASTM D6241 TESTING METHOD.
10. THE GEOTEXTILE SHALL HAVE A TRAPEZOIDAL TEAR RESISTANCE OF 180 X 180 LBS (801 X 801 N) PER ASTM D4533 TESTING METHOD.
11. THE GEOTEXTILE SHALL HAVE AN APPARENT OPENING SIZE OF 40 US STD. SIEVE (0.425 MM) PER ASTM D4751 TESTING METHOD.
12. THE GEOTEXTILE SHALL HAVE A PERMITTIVITY RATING OF 0.15 SEC-1 PER ASTM D4491 TESTING METHOD.
13. THE GEOTEXTILE SHALL HAVE A WATER FLOW RATING OF 11.5 GPM/FT2 (470 LPM/M2) PER ASTM D4491 TESTING METHOD.
14. THE GEOTEXTILE SHALL HAVE A UV RESISTANCE OF 80% @ 500 HRS. PER ASTM D4355 TESTING METHOD.

150XLHD 1.0 — GENERAL NOTES

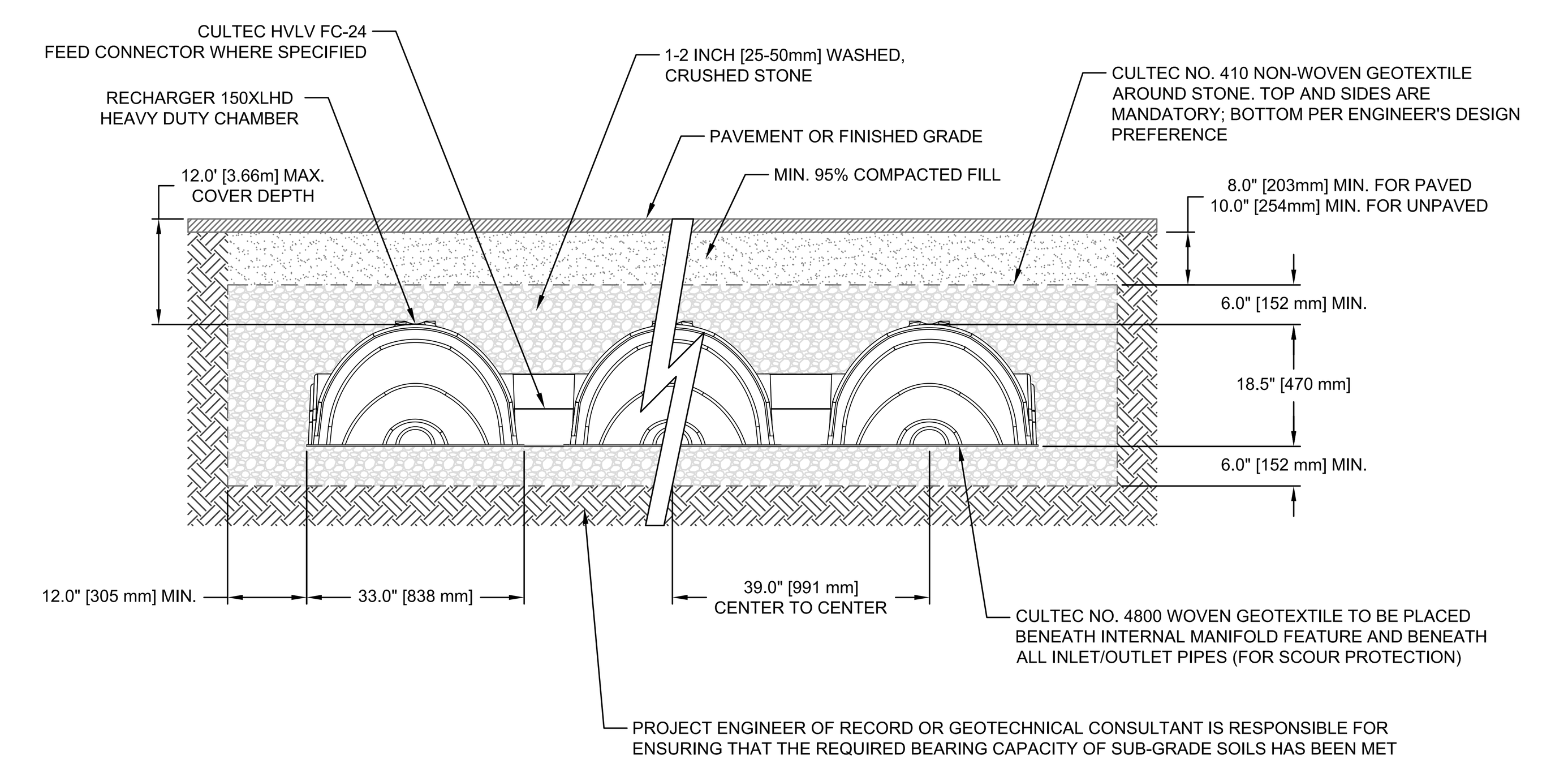


CULTEC RECHARGER 150XLHD CHAMBER STORAGE = 2.65 CF/FT [0.246 m3/m]
INSTALLED LENGTH ADJUSTMENT = 0.75' [0.23 m]

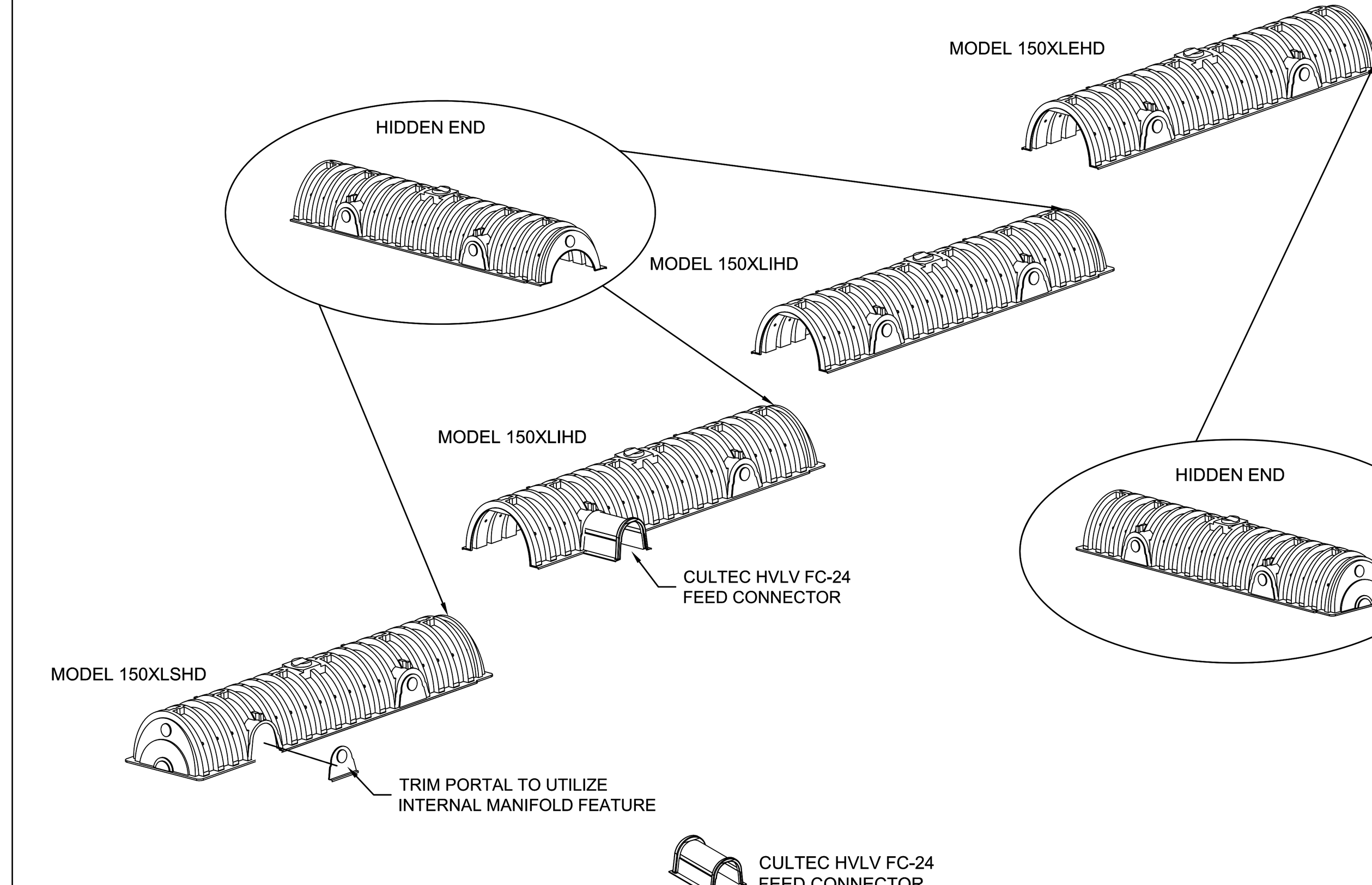
150XLHD 2.0 — CULTEC RECHARGER 150XLHD HEAVY DUTY THREE VIEW



150XLHD 3.0 — CULTEC RECHARGER 150XLHD HEAVY DUTY END DETAIL INFORMATION

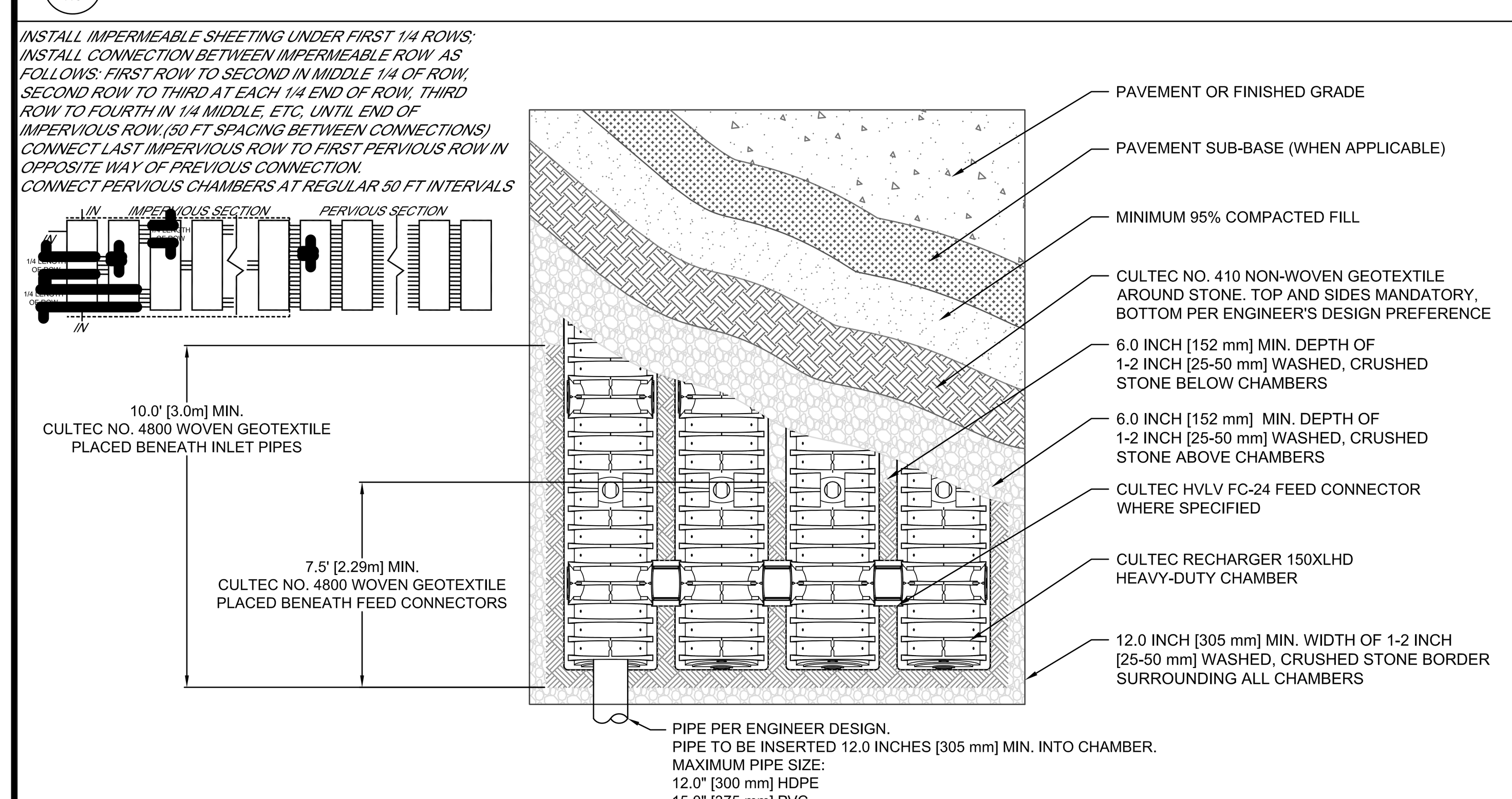


150XLHD 5.0 — CULTEC RECHARGER 150XLHD HEAVY DUTY CROSS SECTION

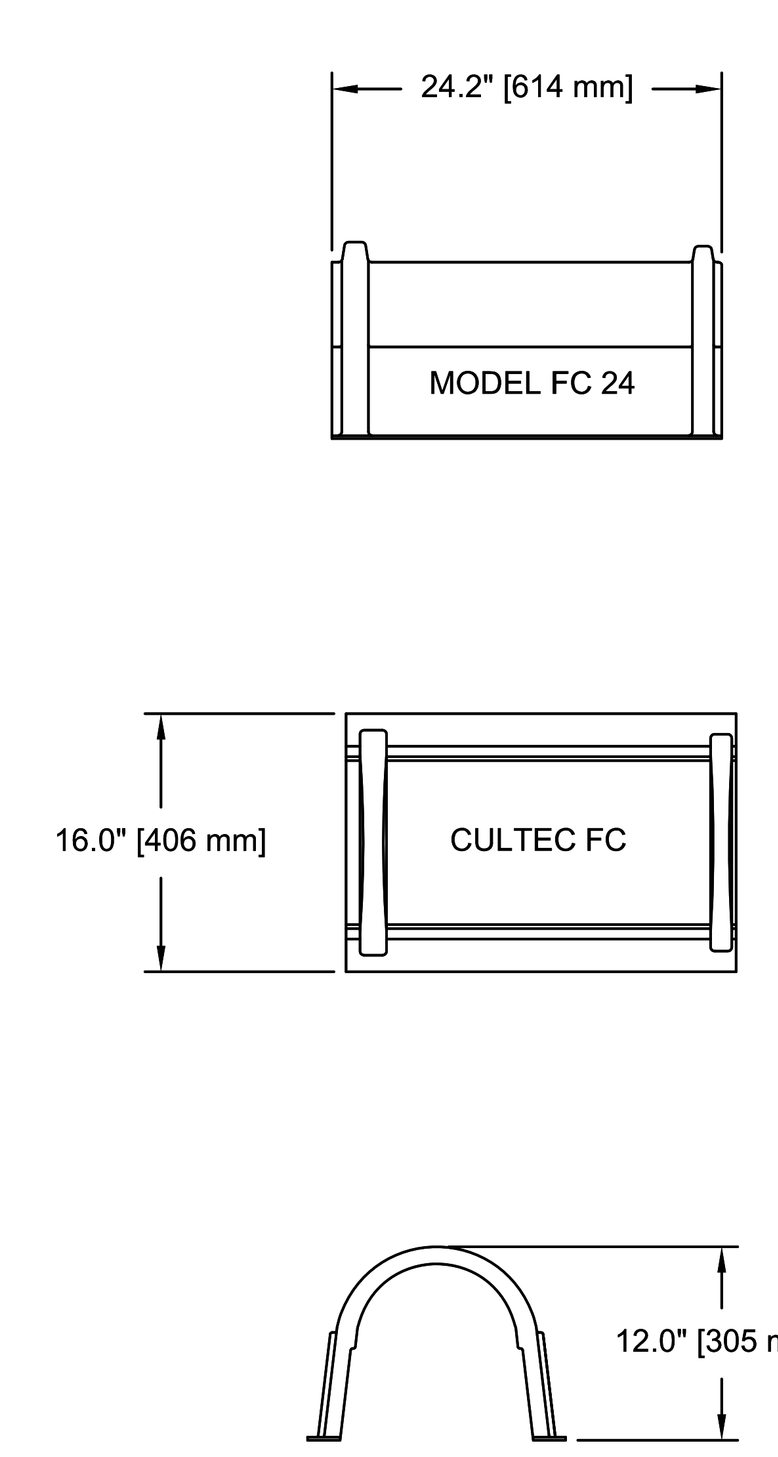


150XLHD 6.0 — CULTEC RECHARGER 150XLHD HEAVY DUTY TYPICAL INTERLOCK

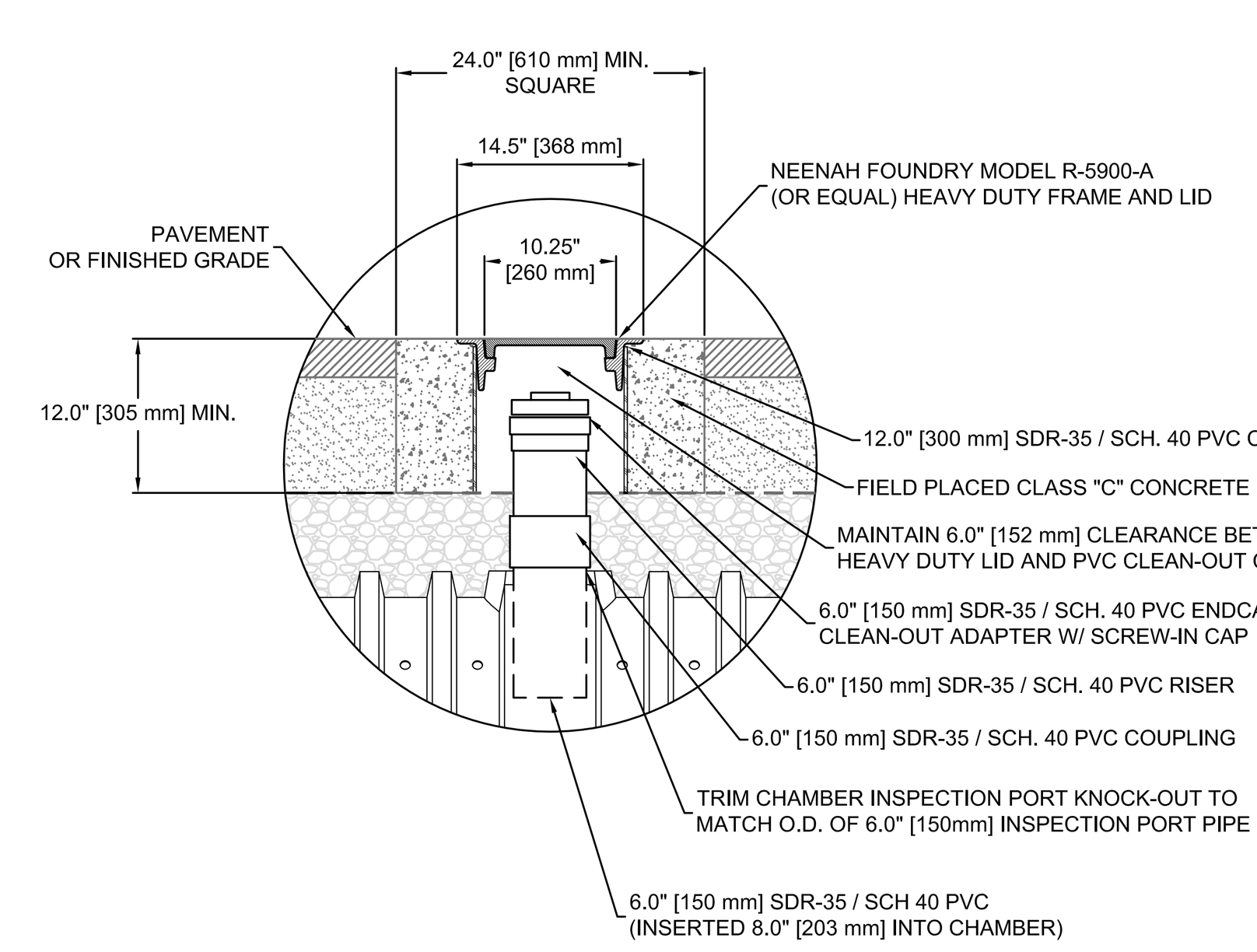
INSTALL IMPERMEABLE SHEETING UNDER FIRST 1/4 ROWS. INSTALL CONNECTION BETWEEN IMPERMEABLE ROW AS FOLLOWS: FIRST ROW TO SECOND IN MIDDLE 1/4 OF ROW, SECOND ROW TO THIRD AT EACH 1/4 END OF ROW, THIRD ROW TO FOURTH IN 1/4 MIDDLE, ETC. UNTIL END OF IMPERVIOUS ROW (50 FT SPACING BETWEEN CONNECTIONS) CONNECT LAST IMPERVIOUS ROW TO FIRST PERVIOUS ROW IN OPPOSITE WAY OF PREVIOUS CONNECTION. CONNECT PERVIOUS CHAMBERS AT REGULAR 50 FT INTERVALS



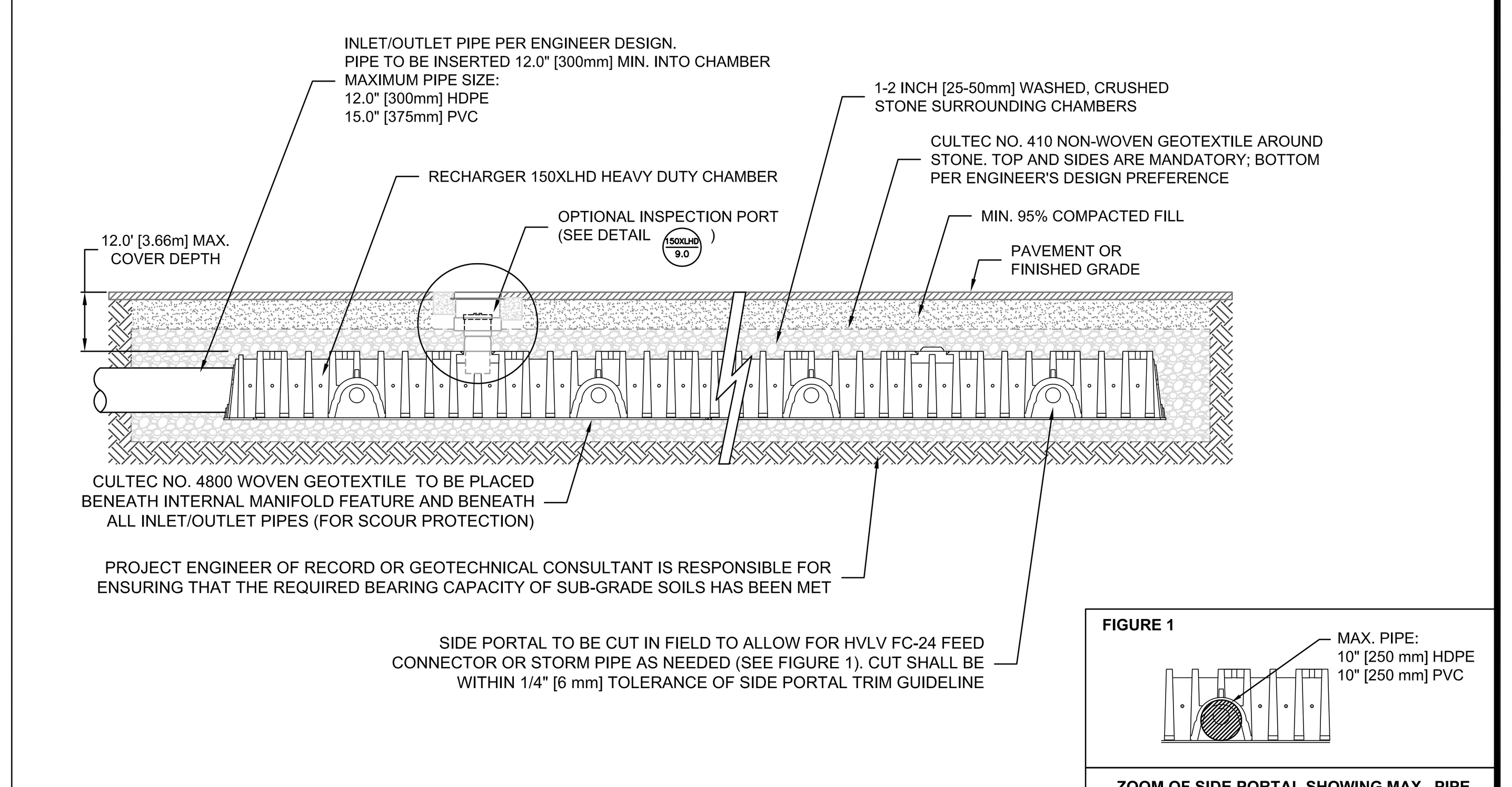
150XLHD 7.0 — CULTEC RECHARGER 150XLHD HEAVY DUTY PLAN VIEW



150XLHD 8.0 — CULTEC HVLV FC-24 FEED CONNECTOR THREE VIEW



150XLHD 9.0 — OPTIONAL INSPECTION PORT - ZOOM DETAIL



150XLHD 10.0 — CULTEC INTERNAL MANIFOLD - OPTIONAL INSPECTION PORT DETAIL

CULTEC, Inc.
Subsurface Stormwater Management Systems

P.O. Box 280 | PH: (203) 775-4416
878 Federal Road | PH: (800) 4-CULTEC
Brookfield, CT 06804 | FX: (203) 775-1462
www.cultec.com | tech@cultec.com

THIS DRAWING WAS PREPARED TO SUPPORT THE DESIGN ENGINEER FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE DESIGN ENGINEER TO ASSURE THAT THE STORMWATER SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ENSURE THAT THE CULTEC PRODUCTS ARE DESIGNED IN ACCORDANCE WITH CULTEC'S MINIMUM REQUIREMENTS. CULTEC INC. DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS. THE DESIGNING ENGINEER IS RESPONSIBLE FOR ALL DESIGN DECISIONS.

RECHARGER 150XLHD
DETAIL SHEET
TRAFFIC APPLICATION

CULTEC STORMWATER CHAMBER			
PROJECT NO:		DATE:	2019
DESIGNED BY:	CULTEC, INC	DRAWN BY:	TECH
SCALE:	N.T.S.	SHEET NO:	1 OF 1

BERGER ENGINEERING AND SURVEYING
100 FULTON AVE.
POUGHKEEPSIE N.Y. 12603
(845) 471 - 7383
bergerengr@gmail.com
PE REGISTRATION 069634 CERT 0405443 EXPIRE ON 04-30-25
LS REGISTRATION 049745 CERT 1255930 EXPIRE ON 04-30-24
COA FOR PE AND LS CERT 0018252 AND 0018253

Date	Revision
August 24, 2023	Stormwater Design
March 1, 2023	Misc Revision per Owner
February 28, 2023	Misc Revision per Owner
February 11, 2023	Misc Revision per Owner

Michael R. Berta. AIA
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7 Robert Rd. Poughkeepsie, NY 12603
(845) 489-1638
www.bertaarchitects.com - mike@bertaarchitects.com

PROPOSED STORMWATER CHAMBER DETAILS

Proposed Addition / Alteration For
Faith Apostolic Ministries Inc
110 South Grand Ave
Poughkeepsie, New York

Date	February 6, 2023
Job No	2023-001
Scale	AS SHOWN
Drawing	CD-2
Of	4

APPENDIX 3

WATER QUALITY & RUNOFF REDUCTION AND CHANNEL PROTECTION

WATER QUALITY & RUNOFF REDUCTION

COVER

PRE DEVELOPMENT (EXISTING)												
COVER	TOTAL		DP1-E-PARK AVE		DP2-N-CENTER		DP3-NORTH		DP-4-NW-S GRAND		DP-5-SW-S GRAND	
	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC
TOTAL AREA	302,644	6.95	83,718	1.92	9,404	0.22	14,605	0.34	120,090	2.76	74,827	1.71
LAWN	200,074	4.59	83,191	1.91	9,404	0.22	14,605	0.34	62,671	1.44	30,203	0.69
ROOF	35,090	0.81	0	0.00	0	0.00	0	0.00	28,788	0.66	6,302	0.14
ASPHALT & WALKS	67,480	1.55	527	0.01	0	0.00	0	0.00	28,631	0.66	38,322	0.88
IMPERVIOUS TOTAL	102,570	2.35	527	0.01	0	0.00	0	0.00	57,419	1.32	44,624	1.02

POST DEVELOPMENT (REDEVELOPMENT WITH REMAINING EXISTING PLUS PROPOSED)												
COVER	TOTAL		DP1-E-PARK AVE		DP2-N-CENTER		DP3-NORTH		DP-4-NW-S GRAND		DP-5-SW-S GRAND	
	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC
TOTAL	302,644	6.95	141,654	3.25	7,103	0.16	14,605	0.34	65,215	1.50	74,067	1.70
LAWN	146,663	3.37	73,267	1.68	7,103	0.16	14,605	0.34	19,581	0.45	32,107	0.74
ROOF	39,378	0.90	15,827	3.00	0	0.00	0	0.00	17,244	0.40	6,307	0.14
ASPHALT & WALKS	116,603	2.68	52,560	1.21	0	0.00	0	0.00	28,390	0.65	35,653	0.82
IMPERVIOUS TOTAL	155,981	3.58	68,387	1.57	0	0.00	0	0.00	45,634	1.05	41,960	0.96

DIFFERENCE BETWEEN EXISTING AND PROPOSED												
COVER	TOTAL		DP1-E-PARK AVE		DP2-N-CENTER		DP3-NORTH		DP-4-NW-S GRAND		DP-5-SW-S GRAND	
	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC	SF	AC
TOTAL	0	0.00	57,936	1.33	-2,301	-0.05	0	0.00	-54,875	-1.26	-760	-0.02
LAWN	-53,411	-1.23	-9,924	-0.23	-2,301	-0.05	0	0.00	-43,090	-0.99	1,904	0.04
ROOF	4,288	0.10	15,827	3.00	0	0.00	0	0.00	-11,544	-0.27	5	0.00
ASPHALT & WALKS	51,792	1.19	52,033	1.19	0	0.00	0	0.00	-241	-0.01	-2,669	-0.06
IMPERVIOUS TOTAL CHANGE	56,080	1.29	67,860	1.56	0	0.00	0	0.00	-11,785	-0.27	-2,664	-0.06
REDUCTION IN IMPERVIOUS, %									21		6	

Version 1.8
Last Updated: 11/09/2015

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	1	
P=	1.35	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	1.72	1.36	79%	0.76	6,420	Infiltration Basin-1A-UnderGround
2	0.36	0.21	59%	0.58	1,014	Infiltration Basin-1B
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	2.08	1.57	76%	0.73	**7,433**	**Subtotal 1**
Total	2.08	1.57	76%	0.73	**7,433**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	2.08	1.57	76%	0.73	7,433
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**2.08**	**1.57**	76%	0.73	7,433
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	2.08	1.57	76%	0.73	**7,433**

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**cf**	**cf**
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	1	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	2.08	1.57	7329	105
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4				
	Bioretention & Infiltration Bioretention	F-5	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.00	0.00	1	
Totals by Standard SMP w/RRV →			2.08	1.57	7329	105
Totals by Standard SMP →			0.00	0.00		0
Totals (Area + Volume + all SMPs) →			2.08	1.57	7,329	105
	Impervious Cover √	okay				
	Total Area √	okay				

Infiltration Basin Worksheet

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	1.72	1.36	0.79	0.76	6419.58	1.35	Infiltration Basin-1A-UnderGround
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	79%	0.76	6,420	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.					0	ft^3	

Pretreatment Techniques to Prevent Clogging			
Infiltration Rate	0.50	*in/hour*	*Okay*
Pretreatment Sizing	25	*% WQv*	*25% minimum;* *50% if >2 in/hr* *100% if >5in/hour*
Pretreatment Required Volume	1,605	ft^3	
Pretreatment Provided	1,605	ft^3	
Pretreatment Techniques utilized	*Other*		

Size An Infiltration Basin			
Design Volume	6,420	ft^3	WQv
Basal Area Required	4,280	ft^2	*Infiltration practices shall be designed to exfiltrate the entire WQv through the floor of each practice.*
Basal Area Provided	6,466	ft^2	
Design Depth	1.50	*ft*	
Volume Provided	9,699	ft^3	*Storage Volume provided in infiltration basin area (not including pretreatment.*

Determine Runoff Reduction			
RRv	**6,420**	**ft^3**	***90% of the storage provided in the basin or WQv whichever is smaller***
Volume Treated	0	ft^3	*This is the portion of the WQv that is not reduced/infiltrated*
Sizing √	OK		*The infiltration basin must provide storage equal to or greater than the WQv of the contributing area.*

Infiltration Basin Worksheet

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
2	0.36	0.21	0.59	0.58	1013.73	1.35	Infiltration Basin-1B
Enter Impervious Area Reduced by Disconnection of Rooftops		0.00	59%	0.58	1,014	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.					0	*ft^3*	

Pretreatment Techniques to Prevent Clogging			
Infiltration Rate	0.50	*in/hour*	*Okay*
Pretreatment Sizing	25	*% WQv*	*25% minimum;* *50% if >2 in/hr* *100% if >5in/hour*
Pretreatment Required Volume	253	*ft^3*	
Pretreatment Provided	254	*ft^3*	
Pretreatment Techniques utilized	*Plunge Pool*		

Size An Infiltration Basin			
Design Volume	1,014	*ft^3*	WQv
Basal Area Required	2,027	*ft^2*	*Infiltration practices shall be designed to exfiltrate the entire WQv through the floor of each practice.*
Basal Area Provided	2,020	*ft^2*	*Error, too small*
Design Depth	0.50	*ft*	
Volume Provided	1,010	*ft^3*	*Storage Volume provided in infiltration basin area (not including pretreatment.*

Determine Runoff Reduction			
RRv	**909**	***ft^3***	***90% of the storage provided in the basin or WQv whichever is smaller***
Volume Treated	105	*ft^3*	*This is the portion of the WQv that is not reduced/infiltrated*
Sizing √	Error		*The infiltration basin must provide storage equal to or greater than the WQv of the contributing area.*

UNDERGROUND INFILTRATION - I-4			BOTTOM AREA Ab		= WQv	/ dp	
						DEPTH	
				sf	cf	ft	
				5807	5565	0.96	
			WQv PROV'D =		Vst +	Vsys	
					VOL STONE BASE	VOL OF SYSTEM ABOVE STONE	
				cf	cf	cf	
				5811	2226	3585	

UNDERGROUND INFILTRATION - I-4			BOTTOM AREA Ab		= WQv	/ dp	
						DEPTH	
				sf	cf	ft	
				6466	6466	1.00	
			WQv PROV'D =		Vst +	Vsys	
					VOL STONE BASE	VOL OF SYSTEM ABOVE STONE	
				cf	cf	cf	
				6171	2586	3585	

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C		30%
D	**2.08**	20%
Total Area	2.076905418	
Calculate the Minimum RRv		
S =	**0.20**	
Impervious =	1.57	*acre*
Precipitation	1.35	*in*
Rv	0.95	
Minimum RRv	**1,462**	***ft3***
	0.03	af

NOI QUESTIONS

#	NOI Question	Reported Value	
		cf	af
28	Total Water Quality Volume (WQv) Required	7433	*0.171*
30	Total RRV Provided	7433 ~~7329~~	*0.168*
31	Is RRv Provided ≥WQv Required?	~~No~~ Yes	
32	Minimum RRv	1462	*0.034*
32a	Is RRv Provided ≥ Minimum RRv Required?	Yes	
33a	Total WQv Treated	0 ~~105~~	*0.002*
34	Sum of Volume Reduced & Treated	> 7434	*0.171*
34	Sum of Volume Reduced and Treated	> 7434	*0.171*
35	Is Sum RRv Provided and WQv Provided ≥WQv Required?	Yes	

Total RRv Provided is > 7329 cf. DEC spread sheet calcs incorrect. Total RRv for infiltration is 100% volume provided. There RRv Provided is equal to or greater than WQv Required

Apply Peak Flow Attenuation			
36	Channel Protection	*Cpv*	
37	Overbank	*Qp*	
37	Extreme Flood Control	*Qf*	
	Are Quantity Control requirements met?	*Yes*	Plan Completed

CHANNEL PROTECTION

Stream Channel Proctection Volume (Cp)

Ia = 200/CN-2

P_1 = One year rainfall = 2.80 inches

Vs/Vr = 0.682-1.43(Qo/Qi)+1.64(Qo/Qi))^2-0.804(Qo/Qi)^3

Qd = Post-development runoff for P_1 (inches)

A = Site area in acres

Vs (Cp)= (Vs/Vr)(Qd)(A)/12 (acre-feet)

Watershed	CN	Ia	P_1	Ia/P	Tc (hours) *	Qu** (csm/in)	(Qo / Qi) ** *	(Vs/Vr)	Qd	A, ac	Vs (acre-ft)	RRv + WQv Prov'd (cu ft)	1year detention (cu ft)
DP-1-East	90	0.22	2.80	0.079	0.10	700	0.028	0.643	1.80	2.1	0.2	7,434	6,349
									Total CPv Provided, ac-ft			**0.3**	

* Tc = Minimum

** Using NRCC Mass Curve Value

*** Using T= 24 hr and Figure D.11.2 from MD design Manual

Summary for Subcatchment CPv: CHANNEL PROTECTION VOLUME-EAST

Runoff = 4 cfs @ 12.09 hrs, Volume= 0.312 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

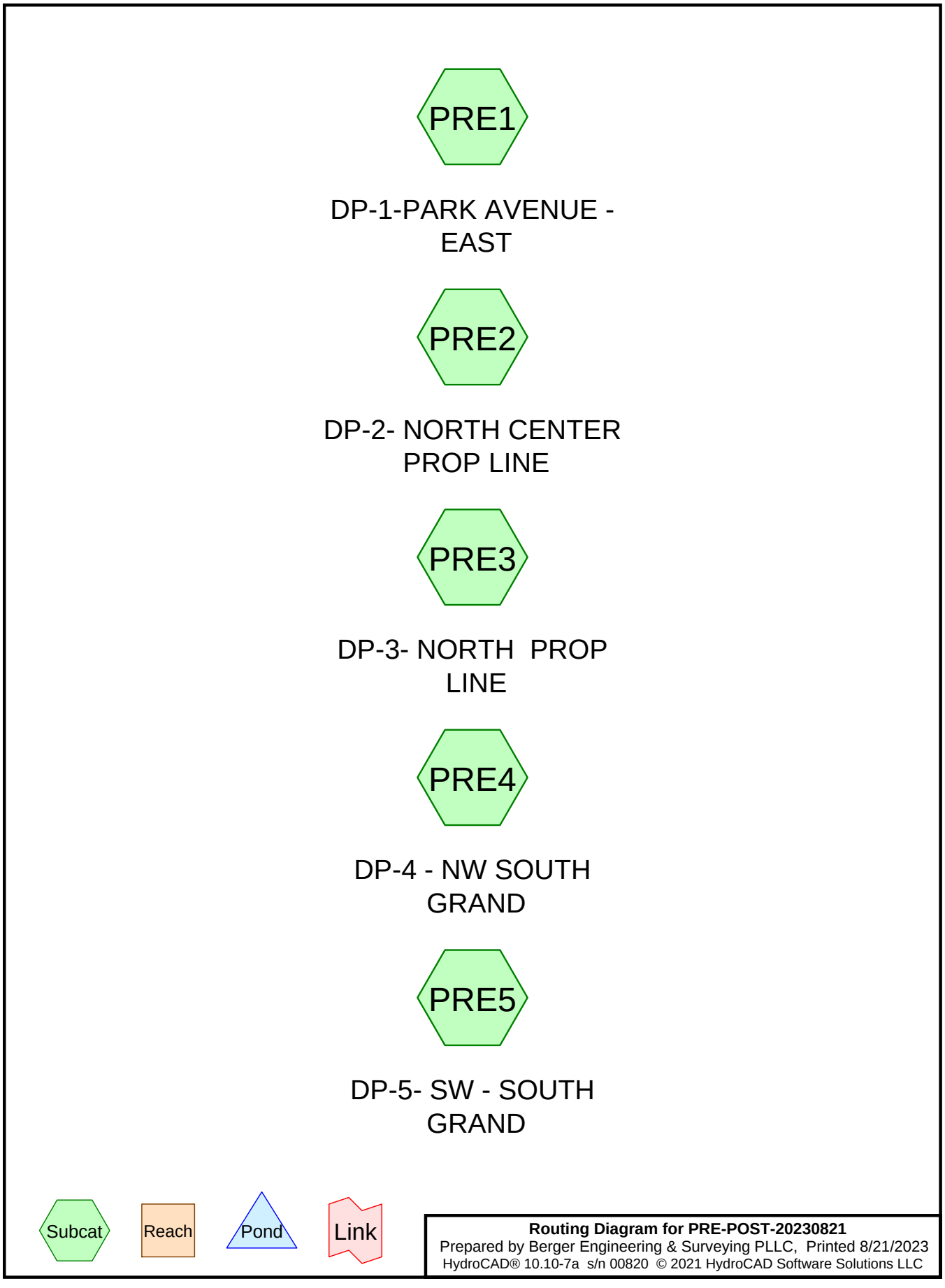
	Area (ac)	CN	Description
*	1.640	98	INCREASE IN IMPERVIOUS
	0.440	61	>75% Grass cover, Good, HSG B
	2.080	90	Weighted Average
	0.440		21.15% Pervious Area
	1.640		78.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

APPENDIX 4

HYDROCAD OUTPUT REPORTS

PRE-DEVELOPMENT HYDROCAD OUTPUT REPORTS



Routing Diagram for PRE-POST-20230821
Prepared by Berger Engineering & Surveying PLLC, Printed 8/21/2023
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Summary for Subcatchment PRE1: DP-1-PARK AVENUE - EAST

Runoff = 0 cfs @ 12.29 hrs, Volume= 0.047 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
1.910	61	>75% Grass cover, Good, HSG B
0.010	98	Paved parking, HSG B
1.920	61	Weighted Average
1.910		99.48% Pervious Area
0.010		0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	15	0.0100	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	340	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	355	Total			

Summary for Subcatchment PRE2: DP-2- NORTH CENTER PROP LINE

Runoff = 0 cfs @ 12.15 hrs, Volume= 0.005 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.220	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.220	61	Weighted Average
0.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PRE3: DP-3- NORTH PROP LINE

Runoff = 0 cfs @ 12.15 hrs, Volume= 0.008 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.340	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.340	61	Weighted Average
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PRE4: DP-4 - NW SOUTH GRAND

Runoff = 3 cfs @ 12.15 hrs, Volume= 0.240 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
1.440	61	>75% Grass cover, Good, HSG B
1.320	98	Paved parking, HSG B
2.760	79	Weighted Average
1.440		52.17% Pervious Area
1.320		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	675	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.5	775	Total			

Summary for Subcatchment PRE5: DP-5- SW - SOUTH GRAND

Runoff = 2 cfs @ 12.16 hrs, Volume= 0.183 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.690	61	>75% Grass cover, Good, HSG B
1.020	98	Paved parking, HSG B
1.710	83	Weighted Average
0.690		40.35% Pervious Area
1.020		59.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.7	445	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.5	495	Total			

Summary for Subcatchment PRE1: DP-1-PARK AVENUE - EAST

Runoff = 3 cfs @ 12.13 hrs, Volume= 0.219 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
1.910	61	>75% Grass cover, Good, HSG B
0.010	98	Paved parking, HSG B
1.920	61	Weighted Average
1.910		99.48% Pervious Area
0.010		0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	15	0.0100	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	340	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	355	Total			

Summary for Subcatchment PRE2: DP-2- NORTH CENTER PROP LINE

Runoff = 0 cfs @ 12.10 hrs, Volume= 0.025 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.220	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.220	61	Weighted Average
0.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PRE3: DP-3- NORTH PROP LINE

Runoff = 0 cfs @ 12.10 hrs, Volume= 0.039 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.340	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.340	61	Weighted Average
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PRE4: DP-4 - NW SOUTH GRAND

Runoff = 8 cfs @ 12.15 hrs, Volume= 0.644 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
1.440	61	>75% Grass cover, Good, HSG B
1.320	98	Paved parking, HSG B
2.760	79	Weighted Average
1.440		52.17% Pervious Area
1.320		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	675	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.5	775	Total			

Summary for Subcatchment PRE5: DP-5- SW - SOUTH GRAND

Runoff = 5 cfs @ 12.16 hrs, Volume= 0.452 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.690	61	>75% Grass cover, Good, HSG B
1.020	98	Paved parking, HSG B
1.710	83	Weighted Average
0.690		40.35% Pervious Area
1.020		59.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.7	445	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.5	495	Total			

Summary for Subcatchment PRE1: DP-1-PARK AVENUE - EAST

Runoff = 7 cfs @ 12.12 hrs, Volume= 0.551 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
1.910	61	>75% Grass cover, Good, HSG B
0.010	98	Paved parking, HSG B
1.920	61	Weighted Average
1.910		99.48% Pervious Area
0.010		0.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	15	0.0100	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	340	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	355	Total			

Summary for Subcatchment PRE2: DP-2- NORTH CENTER PROP LINE

Runoff = 1 cfs @ 12.09 hrs, Volume= 0.063 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.220	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.220	61	Weighted Average
0.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PRE3: DP-3- NORTH PROP LINE

Runoff = 1 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.340	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.340	61	Weighted Average
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PRE4: DP-4 - NW SOUTH GRAND

Runoff = 15 cfs @ 12.14 hrs, Volume= 1.267 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
1.440	61	>75% Grass cover, Good, HSG B
1.320	98	Paved parking, HSG B
2.760	79	Weighted Average
1.440		52.17% Pervious Area
1.320		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	675	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.5	775	Total			

Summary for Subcatchment PRE5: DP-5- SW - SOUTH GRAND

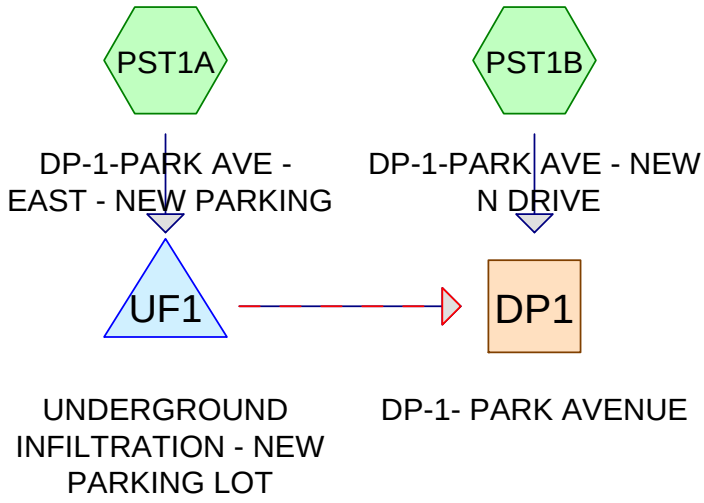
Runoff = 10 cfs @ 12.15 hrs, Volume= 0.852 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.690	61	>75% Grass cover, Good, HSG B
1.020	98	Paved parking, HSG B
1.710	83	Weighted Average
0.690		40.35% Pervious Area
1.020		59.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
3.7	445	0.0100	2.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.5	495	Total			

POST-DEVELOPMENT HYDROCAD OUTPUT REPORTS



PST2

DP-2- NORTH CENTER PROP LINE

PST3

DP-3- NORTH PROP LINE

PST4

DP-4 - NW SOUTH GRAND

PST5

DP-5- SW - SOUTH GRAND

Subcat Reach Pond Link

Routing Diagram for PRE-POST-20230821
Prepared by Berger Engineering & Surveying PLLC, Printed 8/21/2023
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Summary for Subcatchment PST1A: DP-1-PARK AVE - EAST - NEW PARKING

Runoff = 4 cfs @ 12.09 hrs, Volume= 0.260 af, Depth= 1.80"
Routed to Pond UF1 : UNDERGROUND INFILTRATION - NEW PARKING LOT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.360	61	>75% Grass cover, Good, HSG B
1.370	98	Paved parking, HSG B
1.730	90	Weighted Average
0.360		20.81% Pervious Area
1.370		79.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, MINIMUM**

Summary for Subcatchment PST1B: DP-1-PARK AVE - NEW N DRIVE

Runoff = 1 cfs @ 12.15 hrs, Volume= 0.058 af, Depth= 0.45"
Routed to Reach DP1 : DP-1- PARK AVENUE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
1.320	61	>75% Grass cover, Good, HSG B
0.210	98	Paved parking, HSG B
1.530	66	Weighted Average
1.320		86.27% Pervious Area
0.210		13.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	15	0.0100	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	340	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	355	Total			

Summary for Subcatchment PST2: DP-2- NORTH CENTER PROP LINE

Runoff = 0 cfs @ 12.15 hrs, Volume= 0.004 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.160	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.160	61	Weighted Average
0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST3: DP-3- NORTH PROP LINE

Runoff = 0 cfs @ 12.15 hrs, Volume= 0.008 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.340	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.340	61	Weighted Average
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST4: DP-4 - NW SOUTH GRAND

Runoff = 3 cfs @ 12.09 hrs, Volume= 0.196 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.450	61	>75% Grass cover, Good, HSG B
1.050	98	Paved parking, HSG B
1.500	87	Weighted Average
0.450		30.00% Pervious Area
1.050		70.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST5: DP-5- SW - SOUTH GRAND

Runoff = 2 cfs @ 12.15 hrs, Volume= 0.173 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

Area (ac)	CN	Description
0.740	61	>75% Grass cover, Good, HSG B
0.960	98	Paved parking, HSG B
1.700	82	Weighted Average
0.740		43.53% Pervious Area
0.960		56.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.3	400	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.1	450	Total			

Summary for Reach DP1: DP-1- PARK AVENUE

Inflow Area = 3.260 ac, 48.47% Impervious, Inflow Depth = 0.21" for 1-Year event
Inflow = 1 cfs @ 12.15 hrs, Volume= 0.058 af
Outflow = 1 cfs @ 12.15 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond UF1: UNDERGROUND INFILTRATION - NEW PARKING LOT

Inflow Area = 1.730 ac, 79.19% Impervious, Inflow Depth = 1.80" for 1-Year event
Inflow = 4 cfs @ 12.09 hrs, Volume= 0.260 af
Outflow = 0 cfs @ 11.44 hrs, Volume= 0.260 af, Atten= 96%, Lag= 0.0 min
Discarded = 0 cfs @ 11.44 hrs, Volume= 0.260 af
Primary = 0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP1 : DP-1- PARK AVENUE
Secondary = 0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP1 : DP-1- PARK AVENUE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.21' @ 15.78 hrs Surf.Area= 11,115 sf Storage= 6,349 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 474.8 min (1,286.9 - 812.2)

Volume	Invert	Avail.Storage	Storage Description
#1	159.00'	231 cf	**67.00'W x 157.00'L x 1.10'H Prismatoid** 11,571 cf Overall x 2.0% Voids
#2A	156.00'	10,035 cf	**53.50'W x 207.75'L x 3.04'H Field A** 33,807 cf Overall - 8,721 cf Embedded = 25,086 cf x 40.0% Voids
#3A	157.00'	8,721 cf	**Cultec R-150XLHD** x 320 Inside #2 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		18,987 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	**10.0" Round Culvert X 2.00** L= 200.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 157.50' / 157.35' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 0.55 sf
#2	Secondary	160.00'	**50.0' long + 4.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Discarded	156.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0 cfs @ 11.44 hrs HW=156.04' (Free Discharge)
↑—**3=Exfiltration** (Exfiltration Controls 0 cfs)

Primary OutFlow Max=0 cfs @ 0.00 hrs HW=156.00' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Controls 0 cfs)

Secondary OutFlow Max=0 cfs @ 0.00 hrs HW=156.00' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0 cfs)

Summary for Subcatchment PST1A: DP-1-PARK AVE - EAST - NEW PARKING

Runoff = 8 cfs @ 12.09 hrs, Volume= 0.559 af, Depth= 3.88"
Routed to Pond UF1 : UNDERGROUND INFILTRATION - NEW PARKING LOT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.360	61	>75% Grass cover, Good, HSG B
1.370	98	Paved parking, HSG B
1.730	90	Weighted Average
0.360		20.81% Pervious Area
1.370		79.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, MINIMUM**

Summary for Subcatchment PST1B: DP-1-PARK AVE - NEW N DRIVE

Runoff = 3 cfs @ 12.13 hrs, Volume= 0.220 af, Depth= 1.73"
Routed to Reach DP1 : DP-1- PARK AVENUE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
1.320	61	>75% Grass cover, Good, HSG B
0.210	98	Paved parking, HSG B
1.530	66	Weighted Average
1.320		86.27% Pervious Area
0.210		13.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	15	0.0100	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	340	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	355	Total			

Summary for Subcatchment PST2: DP-2- NORTH CENTER PROP LINE

Runoff = 0 cfs @ 12.10 hrs, Volume= 0.018 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.160	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.160	61	Weighted Average
0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST3: DP-3- NORTH PROP LINE

Runoff = 0 cfs @ 12.10 hrs, Volume= 0.039 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.340	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.340	61	Weighted Average
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST4: DP-4 - NW SOUTH GRAND

Runoff = 6 cfs @ 12.09 hrs, Volume= 0.446 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.450	61	>75% Grass cover, Good, HSG B
1.050	98	Paved parking, HSG B
1.500	87	Weighted Average
0.450		30.00% Pervious Area
1.050		70.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST5: DP-5- SW - SOUTH GRAND

Runoff = 5 cfs @ 12.14 hrs, Volume= 0.436 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.00"

Area (ac)	CN	Description
0.740	61	>75% Grass cover, Good, HSG B
0.960	98	Paved parking, HSG B
1.700	82	Weighted Average
0.740		43.53% Pervious Area
0.960		56.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.3	400	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.1	450	Total			

Summary for Reach DP1: DP-1- PARK AVENUE

Inflow Area = 3.260 ac, 48.47% Impervious, Inflow Depth = 1.41" for 10-Year event
Inflow = 3 cfs @ 12.13 hrs, Volume= 0.382 af
Outflow = 3 cfs @ 12.13 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond UF1: UNDERGROUND INFILTRATION - NEW PARKING LOT

Inflow Area = 1.730 ac, 79.19% Impervious, Inflow Depth = 3.88" for 10-Year event
Inflow = 8 cfs @ 12.09 hrs, Volume= 0.559 af
Outflow = 1 cfs @ 13.04 hrs, Volume= 0.559 af, Atten= 92%, Lag= 57.1 min
Discarded = 0 cfs @ 9.66 hrs, Volume= 0.397 af
Primary = 1 cfs @ 13.04 hrs, Volume= 0.162 af
Routed to Reach DP1 : DP-1- PARK AVENUE
Secondary = 0 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach DP1 : DP-1- PARK AVENUE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 157.96' @ 13.04 hrs Surf.Area= 11,115 sf Storage= 12,836 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 566.0 min (1,356.8 - 790.7)

Volume	Invert	Avail.Storage	Storage Description
#1	159.00'	231 cf	**67.00'W x 157.00'L x 1.10'H Prismatoid** 11,571 cf Overall x 2.0% Voids
#2A	156.00'	10,035 cf	**53.50'W x 207.75'L x 3.04'H Field A** 33,807 cf Overall - 8,721 cf Embedded = 25,086 cf x 40.0% Voids
#3A	157.00'	8,721 cf	**Cultec R-150XLHD** x 320 Inside #2 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		18,987 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	**10.0" Round Culvert X 2.00** L= 200.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 157.50' / 157.35' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 0.55 sf
#2	Secondary	160.00'	**50.0' long + 4.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Discarded	156.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0 cfs @ 9.66 hrs HW=156.04' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0 cfs)

Primary OutFlow Max=1 cfs @ 13.04 hrs HW=157.96' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1 cfs @ 1.22 fps)

Secondary OutFlow Max=0 cfs @ 0.00 hrs HW=156.00' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Controls 0 cfs)

Summary for Subcatchment PST1A: DP-1-PARK AVE - EAST - NEW PARKING

Runoff = 13 cfs @ 12.08 hrs, Volume= 0.981 af, Depth= 6.81"
Routed to Pond UF1 : UNDERGROUND INFILTRATION - NEW PARKING LOT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.360	61	>75% Grass cover, Good, HSG B
1.370	98	Paved parking, HSG B
1.730	90	Weighted Average
0.360		20.81% Pervious Area
1.370		79.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, MINIMUM**

Summary for Subcatchment PST1B: DP-1-PARK AVE - NEW N DRIVE

Runoff = 7 cfs @ 12.12 hrs, Volume= 0.511 af, Depth= 4.01"
Routed to Reach DP1 : DP-1- PARK AVENUE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
1.320	61	>75% Grass cover, Good, HSG B
0.210	98	Paved parking, HSG B
1.530	66	Weighted Average
1.320		86.27% Pervious Area
0.210		13.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	15	0.0100	0.09		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.50"
5.7	340	0.0200	0.99		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.4	355	Total			

Summary for Subcatchment PST2: DP-2- NORTH CENTER PROP LINE

Runoff = 1 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.160	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.160	61	Weighted Average
0.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST3: DP-3- NORTH PROP LINE

Runoff = 1 cfs @ 12.09 hrs, Volume= 0.098 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.340	61	>75% Grass cover, Good, HSG B
0.000	98	Paved parking, HSG B
0.340	61	Weighted Average
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST4: DP-4 - NW SOUTH GRAND

Runoff = 11 cfs @ 12.08 hrs, Volume= 0.806 af, Depth= 6.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.450	61	>75% Grass cover, Good, HSG B
1.050	98	Paved parking, HSG B
1.500	87	Weighted Average
0.450		30.00% Pervious Area
1.050		70.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment PST5: DP-5- SW - SOUTH GRAND

Runoff = 10 cfs @ 12.14 hrs, Volume= 0.830 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.00"

Area (ac)	CN	Description
0.740	61	>75% Grass cover, Good, HSG B
0.960	98	Paved parking, HSG B
1.700	82	Weighted Average
0.740		43.53% Pervious Area
0.960		56.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	50	0.0200	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.50"
2.3	400	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
10.1	450	Total			

Summary for Reach DP1: DP-1- PARK AVENUE

Inflow Area = 3.260 ac, 48.47% Impervious, Inflow Depth = 3.88" for 100-Year event
Inflow = 9 cfs @ 12.29 hrs, Volume= 1.055 af
Outflow = 9 cfs @ 12.29 hrs, Volume= 1.055 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond UF1: UNDERGROUND INFILTRATION - NEW PARKING LOT

Inflow Area = 1.730 ac, 79.19% Impervious, Inflow Depth = 6.81" for 100-Year event
Inflow = 13 cfs @ 12.08 hrs, Volume= 0.981 af
Outflow = 6 cfs @ 12.29 hrs, Volume= 0.981 af, Atten= 56%, Lag= 12.4 min
Discarded = 0 cfs @ 12.24 hrs, Volume= 0.437 af
Primary = 4 cfs @ 12.29 hrs, Volume= 0.537 af
Routed to Reach DP1 : DP-1- PARK AVENUE
Secondary = 2 cfs @ 12.29 hrs, Volume= 0.007 af
Routed to Reach DP1 : DP-1- PARK AVENUE

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 160.06' @ 12.29 hrs Surf.Area= 21,634 sf Storage= 18,977 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 377.2 min (1,153.2 - 775.9)

Volume	Invert	Avail.Storage	Storage Description
#1	159.00'	231 cf	**67.00'W x 157.00'L x 1.10'H Prismatoid** 11,571 cf Overall x 2.0% Voids
#2A	156.00'	10,035 cf	**53.50'W x 207.75'L x 3.04'H Field A** 33,807 cf Overall - 8,721 cf Embedded = 25,086 cf x 40.0% Voids
#3A	157.00'	8,721 cf	**Cultec R-150XLHD** x 320 Inside #2 Effective Size= 29.8"W x 18.0"H => 2.65 sf x 10.25'L = 27.2 cf Overall Size= 33.0"W x 18.5"H x 11.00'L with 0.75' Overlap Row Length Adjustment= +0.75' x 2.65 sf x 16 rows
		18,987 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	157.50'	**10.0" Round Culvert X 2.00** L= 200.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 157.50' / 157.35' S= 0.0008 '/' Cc= 0.900 n= 0.013, Flow Area= 0.55 sf
#2	Secondary	160.00'	**50.0' long + 4.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Discarded	156.00'	**0.500 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0 cfs @ 12.24 hrs HW=159.01' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0 cfs)

Primary OutFlow Max=4 cfs @ 12.29 hrs HW=160.05' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 4 cfs @ 3.49 fps)

Secondary OutFlow Max=2 cfs @ 12.29 hrs HW=160.05' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2 cfs @ 0.58 fps)

APPLICATION TO THE PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

Application for Site Plan, Special Permit & Facade Approval

OFFICE USE ONLY

CODE: PLSF

ID #_____

FEE: _____
Total, from:
$500, plus
$_____
($150 per 1000 square feet of floor area), plus
$_____
($35 per number of required parking spaces), plus
$_____
($500 for special permit, if applicable)

I. PROPERTY ADDRESS: 233-237 Main Street

II. PROPERTY OWNER: Elian & Justin Realty LLC
ADDRESS: 971 Allen Lane
Woodmere
New York, 11598 (state and zip code)
PHONE NUMBER: (646) 358-9089 (include area code)

III. NAME OF APPLICANT: Jay Diesing, RA AIA - Mauri Architects PC
ADDRESS: 73 Mansion Street
Poughkeepsie
New York, 12601 (state and zip code)
PHONE NUMBER: (845) 452-1030 (include area code)
EMAIL ADDRESS: jay@mauri-architects.com

(If applicant is NOT the owner, proof of owner's consent to the application MUST be provided.)

IV. CONSULTANT: Mauri Architects PC
ADDRESS: 73 Mansion Street
Poughkeepsie
New York, 12601 (state and zip code)
PHONE NUMBER: (845) 452-1030 (include area code)

V. PROPOSED USE or FAÇADE CHANGE (Summarize proposed use or uses):_____

Mixed-Use: Apartments with approximately 6,200 SF of Retail tenant space on First Floor.

VI. ZONING DISTRICT: PID-CC, Civic Corridor

(Proceed to XVII for special permit & façade approval only)

PROJECT INFORMATION

New construction: _____(yes)__X__ (no)

Change of use:__X__ (yes) _____ (no)

Expansion/addition:_____ (yes) __X__ (no)

Alteration:__X__ (yes) _____ (no)

Cost of Construction: $__TBD__

LOT AND BULK INFORMATION:

Lot area: __0.29__ (acres) __12,804__ (square feet)

Building Footprint: __N/A__ (proposed square feet for new construction)

__11,850__ (existing square feet for change of use/expansion)

__N/A__ (additional proposed square feet for expansion)

__11,850__ (total building footprint, square feet)

Lot Coverage: __92.5%__ (percentage, building coverage only)

Gross Floor Area: __N/A__ (proposed square feet for new construction)

__31,150__ (existing square feet for change of use/expansion)

__N/A__ (additional proposed square feet for expansion)

__31,150__ (total gross floor area, square feet)

Building Height: __3__ (stories) __41'-0" +/-__ (feet)

Floor Area Ratio: __2.43__ (ratio of gross floor area divided by lot area)

VIII. PROJECT PARKING INFORMATION

A) Number of Off-Street Parking Spaces required: __26__

B) Number of Off-Street Parking Spaces provided: __0 (Existing)__

C) Waiver Requested: _____ (Yes) __X__ (No)

Is municipal parking available within 600 feet? __X__ (Yes) _____ (No)

If yes, name all such municipal facilities: _____
Duro Lot and Financial Plaza Parking Deck
_____

(If a waiver is requested based on proximity to municipal facilities, a written request for such waiver, addressed to the City Planning Staff and the Chairman of the Planning Board, must be submitted with the application.)

If a private parking facility is to be utilized, is such facility within 600 feet?

_____ (Yes) _____ (No) N/A

If yes, provide the address of the facility, name of the property owner, number of spaces in the lot, number of spaces available for lease, and length of lease. Attach copy of lease. Additional information may be required by the Planning Board):
N/A
_____

IX. RESIDENTIAL PROPOSALS

A) Type of Development: Multi-Family Residential Dwelling (Apartments)
(Townhouse, condominium, multiple residence rental, etc.)

B) Unit Breakdown:

Number of efficiency or "studio" units: 15

Number of one (1) bedroom units: 6

Number of two (2) bedroom unit's 1

Number with three or more bedrooms: 0

Total number of units: 22

C) Is funding public? ____ Yes __X__ No
If yes, describe funding source: N/A

X. OFFICE PROPOSALS (____ Medical/Dental ____ Professional ____ Business) N/A

A) Number of Employees: _____
B) Number of doctors/dentists/medical practitioners: _____
C) Days/Hours of Operation: _____

XI. SERVICE BUSINESS PROPOSALS N/A

A) Specify Business: _____
(e.g., laundromat, drycleaner, beauty parlor, travel agency, banks)

B) Number of Employees: _____

C) Number of Washing Machines (for laundromat): _____

D) Days/Hours of Operation: _____

XII. MERCANTILE PROPOSALS (Retail _X_ Wholesale _____)

A) Type of Mercantile (specify): TBD

B) Number of Employees: TBD

C) Days/Hours of Operation: TBD

XIII. STANDARD RESTAURANT/FAST FOOD RESTAURANT/COFFEE SHOP/DONUT SHOP/NIGHTCLUB/DISCOTHEQUE/BAR PROPOSALS N/A

A) Specify Use: _____

B) Number of seats (excluding bar stools and outdoor seating):_____

C) Meals served (i.e., breakfast, lunch, dinner): _____

D) Type of Menu: _____

E) Days/Hours of Operation: _____

F) Entertainment (live and/or recorded):_____

G) Will the restaurant contain a bar/lounge?: _____ Yes _____ No

H) If yes, how many seats at the bar? _____

I) Is a drive-through window proposed? _____

J) Is a walk-up window proposed? _____

K) Is an outdoor seating area proposed? _____

L) If yes, how many seats are proposed? _____

M) If yes, is outdoor cooking proposed? _____

XIV. INDUSTRIAL/COMMERCIAL PROPOSALS (Automobile repair, taxi, motor vehicle sales, warehouse, manufacturing, animal hospital, research facilities, etc.) N/A

A) Specify Use: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

E) Number of work bays (if automobile repair): _____

F) Days/Hours of operation: _____

XV. EDUCATIONAL/INSTITUTIONAL/RECREATIONAL PROPOSALS (e.g., Museums, Theatres, Conference Centers, Hotels, Motels, Hospitals, Nursing Homes, Assisted Living Facilities, Nursery Schools, Private Schools, Day Care Centers, Places of Worship, Marinas, Membership Clubs, etc.) N/A

A) Specify: _____

B) Number of shifts (if any): _____

C) Number of employees: _____
(If shifts are proposed, list number of employees per shift)

D) Number of beds (hospitals, nursing homes, etc): _____

E) Number of seats in largest assembly space: _____

F) Number of classrooms (schools): _____

G) Number of rental units (hotels, motels, etc.) _____

H) Number of boat slips/courts (e.g., tennis, handball, etc.), alleys: _____

I) Days/Hours of Operation: _____

XVI. PROPOSALS NOT MENTIONED ABOVE (Please be specific): N/A

_____

_____

_____

_____

_____

XVII. APPLICANT CERTIFICATION

I, Jay Diesing, RA AIA, certify that the this application has addressed the objectives outlined in the Zoning Ordinance with consideration given to the public health, safety and welfare; the comfort and convenience of the public in general or the residents or users of the proposed development and of the immediate neighborhood.

The applicant certifies that all information contained herein is accurate and complete as of the date of this application.

Jay Diesing — 26 December 2023

Signature of Applicant — Date

MARTIN J DIESING AIA
RICHARD K TOMPKINS AIA

December 26, 2023

Anne Saylor, Chair
City of Poughkeepsie Planning Board
62 Civic Center Plaza, 2nd Floor
Poughkeepsie, NY 12601

RE: Proposed Mixed Use Building at:
235 Main Street
Poughkeepsie, NY 12601

Dear Chairperson Saylor and Planning Board Members,

Enclosed for your review is an application for Site Plan Approval for the above referenced property. The Owner would like to convert the existing three-story office building into a mix-use structure with apartments and first floor retail spaces. No physical changes to the site layout are proposed as a part of this project.

This application and project are privately funded by the Owner and no outside funding or grants will be utilized. The Owner hereby states that he is financially capable of completing this project.

I look forward to meeting with you and the Board to discuss the project at the next available Planning Board meeting. Should you have any questions prior to the meeting, please do not hesitate to contact my office.

Sincerely,

Jay Diesing

Jay Diesing, RA AIA

PLANNING BOARD APPROVAL

CITY PLANNING BOARD
CITY OF POUGHKEEPSIE, NEW YORK

SITE PLAN APPROVAL:

FILE NO:

PROJECT NAME: 235 MAIN STREET

PROJECT LOCATION: 235 MAIN STREET, POUGHKEEPSIE NY 12601

APPLICANT: JAY DIESING, RA - MAURI ARCHITECTS PC

OFFICIALLY APPROVED AT THE PLANNING BOARD MEETING

HELD THE _____ DAY OF _____, 2____

PLANNING CHAIR: _____

DESIGNEE: _____

DATE SIGNED: _____

CONDITION(S): _____

DEPARTMENTAL SIGNATURES

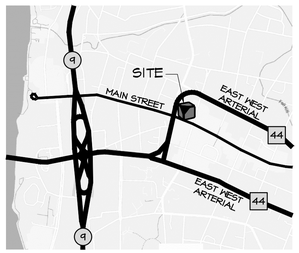
FIRE CHIEF	DATE
POLICE CHIEF	DATE
BUILDING INSPECTOR	DATE
CITY ENGINEER	DATE
COMMISSIONER OF PUBLIC WORKS	DATE

INDEX TO DRAWINGS

SHT. #	TITLE
PB-1	PROPOSED SITE PLAN & ZONING DATA CHART
PB-2	PROPOSED LANDSCAPING PLAN & DETAILS
PB-3	PROPOSED FLOOR PLANS & DETAILS

SITE LOC. MAP

SCALE N.T.S.



TAX MAP

SCALE N.T.S.



LINE OF ZONING DISTRICT BOUNDARY

TAX MAP INFORMATION

SYMBOL	GRID NUMBER	OWNER OF RECORD
■	6162-77-014124	ELIAN & JUSTIN REALTY LLC 971 ALLEN LANE WOODMERE, NY 11598
A	6162-69-020138	MID-HUDSON CIVIC CENTER, INC 14 CIVIC CENTER PLZ POUGHKEEPSIE, NY 12601
B	6162-77-008107	COUNTY OF DUTCHESS 22 MARKET STREET POUGHKEEPSIE, NY 12601
C	6162-77-009112	DUTCHESS COUNTY 22 MARKET STREET POUGHKEEPSIE, NY 12601
D	6162-77-014105	COUNTY OF DUTCHESS 22 MARKET STREET POUGHKEEPSIE, NY 12601
E	6162-77-019107	COUNTY OF DUTCHESS 22 MARKET STREET POUGHKEEPSIE, NY 12601
F	6162-77-022102	COUNTY OF DUTCHESS COURT HOUSE 22 MARKET STREET POUGHKEEPSIE, NY 12601

PROPOSED MIXED-USE BUILDING:

235 MAIN STREET

233-237 MAIN STREET — POUGHKEEPSIE, NY

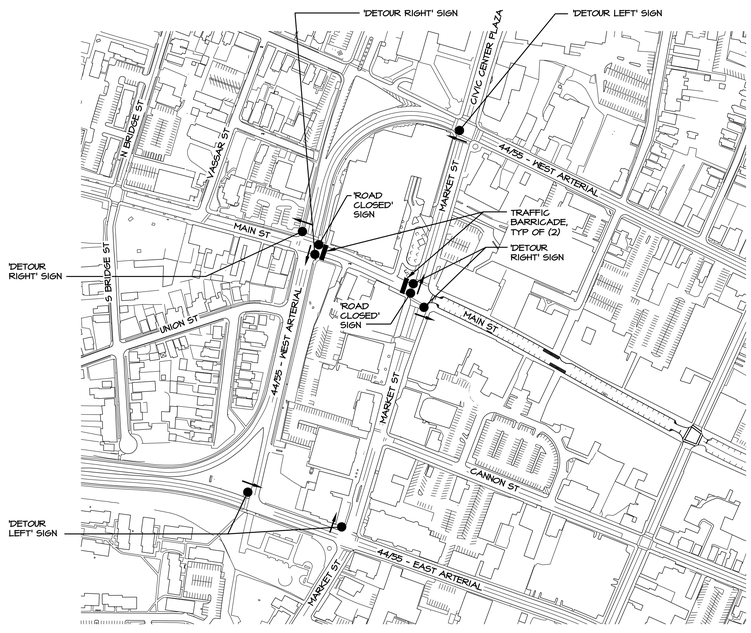
ZONING DATA CHART

CITY OF POUGHKEEPSIE
PARCEL #6162-77-014124

ZONE PID-CC		REQUIRED	EXISTING	PROPOSED
LOT AREA	MIN	N/A	0.29 ACRES ± (12,804 SF ±)	0.29 ACRES ± (12,804 SF ±)
BUILDING HEIGHT	MIN	3 STORIES	3 STORIES	3 STORIES
	MAX	6 STORIES		
LOT COVERAGE	MIN	50%	92.5% ±	92.5% ±
OPEN SPACE	MIN	15%	0%	0%
FRONT YARD SETBACK	MIN	0'-0"	0'-0" ±	0'-0" ±
	MAX	15'-0"		
SIDE YARD SETBACK	MIN	0'-0"	0'-0" ± (EAST) 6'-11" ± (WEST)	0'-0" ± (EAST) 6'-11" ± (WEST)
REAR YARD SETBACK	MIN	8'-0"	0'-0" ±	0'-0" ±
FRONTAGE OCCUPANCY	MIN	80%	97% ±	97% ±
	MAX	100%		
PARKING: MULTIFAMILY RESIDENTIAL DWELLING: 0.5 SPACE / UNIT PLUS 1 VISITOR / 10 UNITS GENERAL RETAIL: 1 SPACE / 500 SF	MIN	0.5 X 22 UNITS = 11 + 22 / 10 = 2.2 13.2 6,200 SF / 500 = 12.4 13.2 + 12.4 = 25.6 26 SPACES TOTAL	0 PARKING SPACES	0 PARKING SPACES

GENERAL NOTES

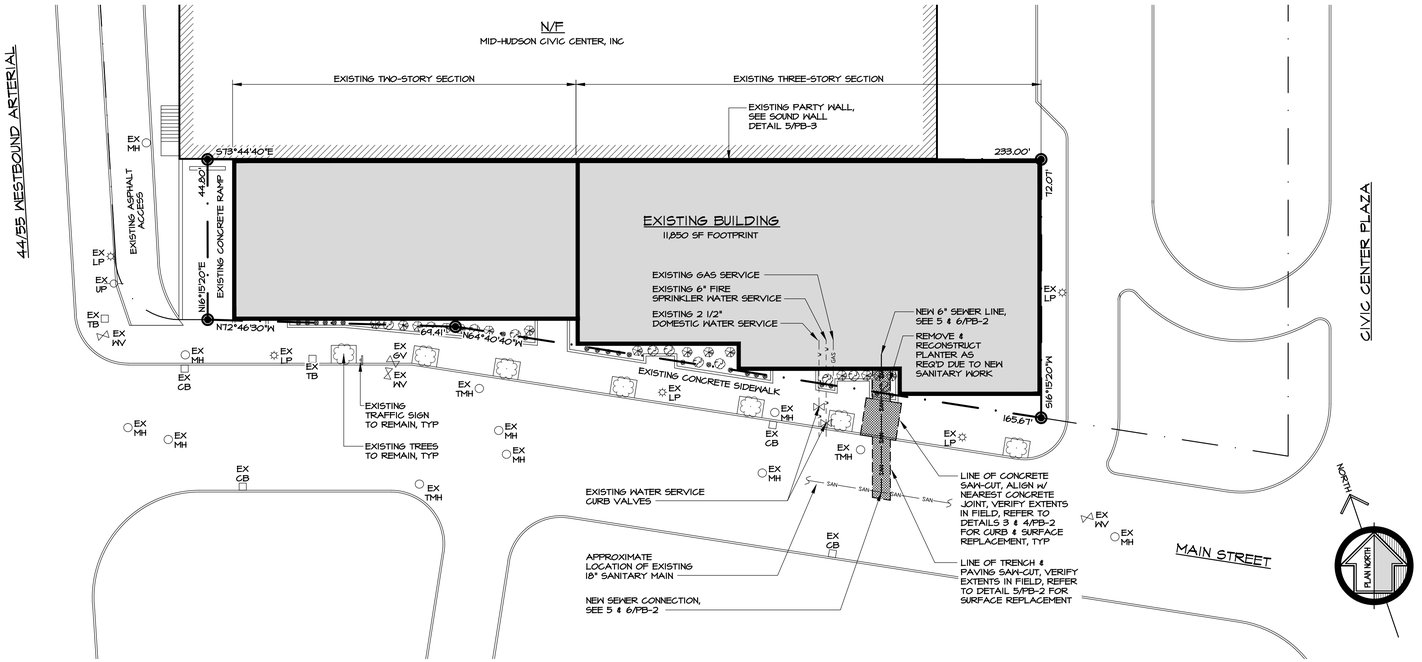
1. THE PROPOSED BUILDING SHALL COMPLY WITH THE 2020 BUILDING CODE OF NEW YORK STATE, LOCAL CODES & ALL OTHER APPLICABLE CODES & ORDINANCES.
2. PROJECT LOCATED IN THE CITY OF POUGHKEEPSIE FIRE DISTRICT.
3. PROJECT LOCATED IN THE POUGHKEEPSIE CITY SCHOOL DISTRICT.
4. A KNOX BOX FOR BUILDING ACCESS BY EMERGENCY SERVICES WILL BE INSTALLED AT EACH BUILDING ENTRANCE. LOCATION & INSTALLATION REQUIREMENTS TO BE COORDINATED WITH THE FIRE DEPARTMENT.
5. THE EXISTING FIRE SPRINKLER SYSTEM WILL BE RECONFIGURED FOR THE NEW OCCUPANCY IN ACCORDANCE WITH THE 2020 BUILDING CODE OF NEW YORK STATE & NFPA 13 STANDARDS & REQUIREMENTS.
6. A FIRE ALARM SYSTEM WILL BE INSTALLED THROUGHOUT THE BUILDING IN ACCORDANCE WITH THE 2020 BUILDING CODE OF NEW YORK STATE & NFPA 72 STANDARDS & REQUIREMENTS.



2 PB-1 **PROPOSED DETOUR PLAN**

SCALE: N.T.S.

NOTE: ALL TRAFFIC SIGNAGE SHALL BE IN ACCORDANCE W/ MUTCD STANDARDS & APPROVED BY THE CITY OF POUGHKEEPSIE



1 PB-1 **PROPOSED SITE PLAN**

SCALE: 1" = 20'-0"

0 10' 50'

project no.
19-56.23

date
26 DEC 2023

drawn by
BP

revision date	description

PROPOSED MIXED-USE BUILDING:
235 MAIN STREET
233 - 237 MAIN STREET
POUGHKEEPSIE, NY

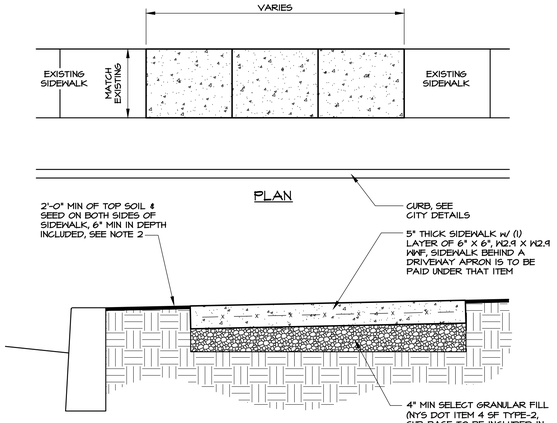
PROPOSED SITE PLAN & ZONING DATA CHART

MAURI ARCHITECTS PC
73 MANSION STREET POUGHKEEPSIE NY 12601 845.452.1080 mauri-architects.com

SHEET NO.
PB-1

PURSUANT TO SECTION 645 (5) OF THE REGULATIONS OF THE COMMISSIONER OF EDUCATION UNAUTHORIZED ALTERATIONS TO THIS DOCUMENT IS A VIOLATION OF THE LAW

REGISTERED ARCHITECT
MARTIN T DIESING
033240
STATE OF NEW YORK

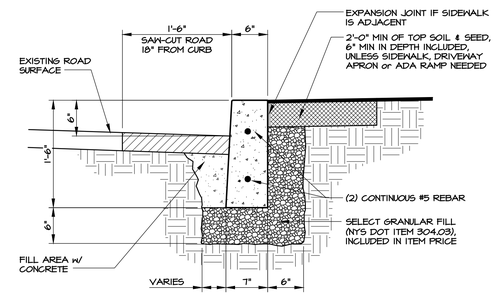


NOTES:

1. CONCRETE SHALL BE 4,000 PSI, MIN
2. WHERE MATERIAL IS NOT USED THE CITY OF POUGHKEEPSIE WILL BE CREDITED IN AREAS WHERE MORE THAN THE SPECIFIED AMOUNT OF MATERIAL IS USED. MAJOR GRADE CHANGES WILL BE APPROVED BY THE CITY ENGINEERING DEPARTMENT & WILL BE PAID UNDER APPROPRIATE ITEMS.
3. UPON COMPLETION OF CURING, ALL CONCRETE SURFACES SHALL BE COATED W/ SODIUM CHLORIDE INHIBITING SEALER AS REQUIRED.

3 CITY SIDEWALK DETAIL

PB-2 SCALE: NTS

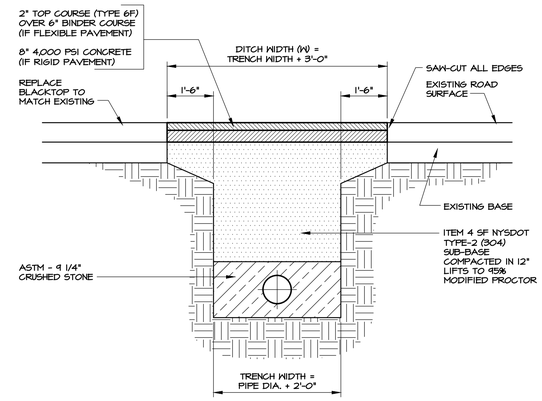


NOTE: CONCRETE SHALL BE 4,000 PSI, MIN

4 CITY CURB DETAIL

PB-2 SCALE: 1" = 1'-0"

0 1" 6" 1' 2'

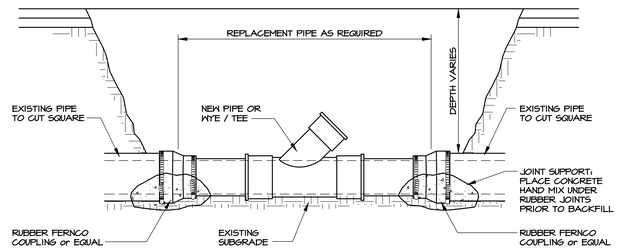


NOTES:

1. DITCH WIDTH SHALL EXTEND A MINIMUM OF ONE & ONE-HALF FEET FROM THE EDGES OF THE TRENCH.
2. REPLACED BASE MATERIAL OVER TRENCH SHALL BE ITEM 4 COMPACTED IN 12" LIFTS.
3. PIPE BEDDING SHALL BE A MINIMUM OF 6" ABOVE & BELOW PIPE.
4. ALL JOINTS SHALL BE MECHANICALLY SAWED.
5. ALL JOINTS SHALL BE SQUARED TO THE EXISTING EDGE OF CURB AND/OR PAVEMENT, AND TACK COATED PER DETAIL.
6. ROAD SURFACE REPLACEMENT SHALL BE A MINIMUM OF SIX INCHES OF ASPHALTIC CONCRETE.
7. BINDER COURSE ASPHALT PLACEMENT TO BE PLACED IN TWO LIFTS.

5 CITY TRENCH / PAVING DETAIL

PB-2 SCALE: NTS



NOTES:

1. FOR PIPE GREATER THAN 15" ALL PIPE JOINTS SHALL BE CONSTRUCTED BY METHODS APPROVED BY THE CITY ENGINEER.
2. WHERE APPROVED BY THE CITY ENGINEER, INSTALLER MAY CONNECT TO THE EXISTING SANITARY MAIN WITH CITY APPROVED TAPPING SADDLE IN LIEU OF NEW WYE.

6 CITY SANITARY WYE DETAIL

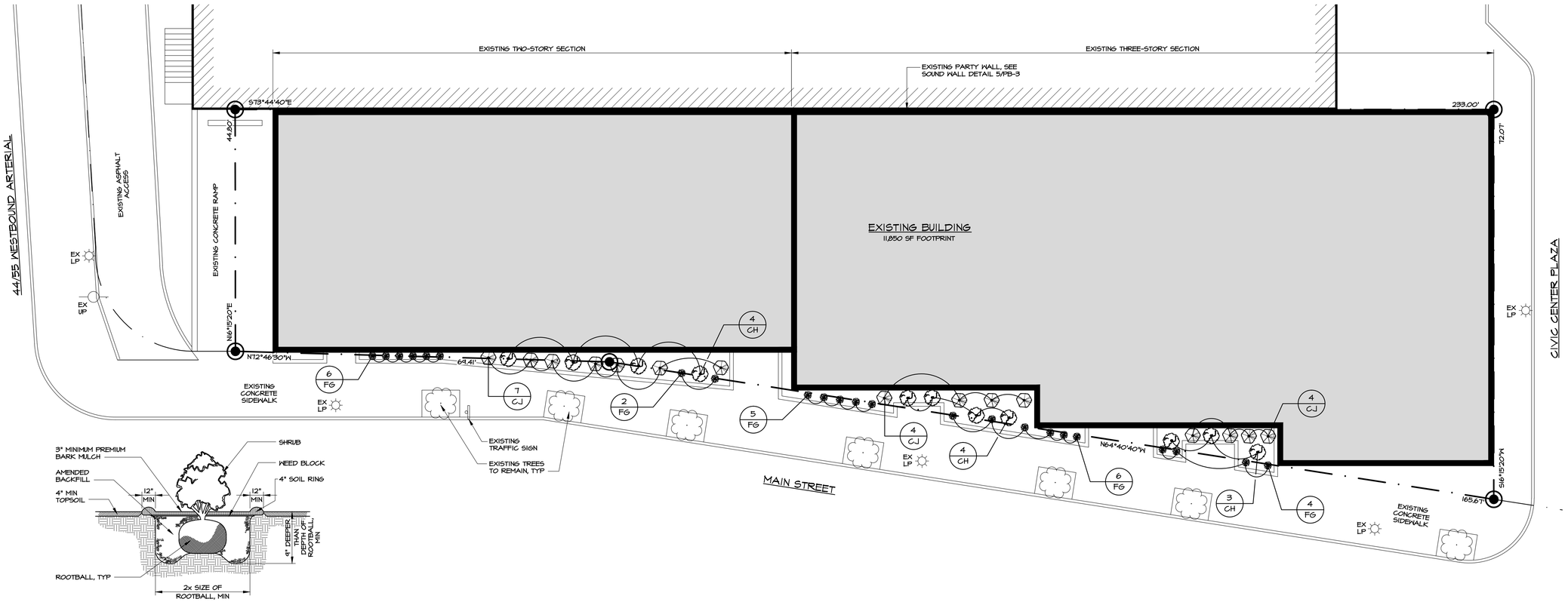
PB-2 SCALE: NTS

PLANTING SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE
CJ	15	JUNIPERUS CHINENSIS 'HETZII COLUMNARIS'	GREEN COLUMNAR JUNIPER	3 GAL.
FG	23	PENNISETUM ALOPECUROIDES 'HAMELIN'	DWARF FOUNTAIN GRASS	3 GAL.
CH	11	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	3 GAL.

PLANTING NOTES

1. ALL PLANTING BEDS SHALL BE MULCHED WITH SHREDDED BARK MULCH AT A MINIMUM DEPTH OF 3".
2. INSTALL WEED BLOCK or EQUAL BELOW MULCH BED.
3. PLANT SIZE INDICATED SHALL BE AT TIME OF PLANTING.



2 PLANTING DETAIL

PB-2 SCALE: 1/4" = 1'-0"

0 1" 2' 5' 10'

1 PROPOSED LANDSCAPING PLAN

PB-2 SCALE: 1" = 10'-0"

0 10' 30'

project no. 19-56.23

date 26 DEC 2023

drawn by BP

revision date	description

PROPOSED MIXED-USE BUILDING:

235 MAIN STREET

233 - 237 MAIN STREET POUGHKEEPSIE, NY

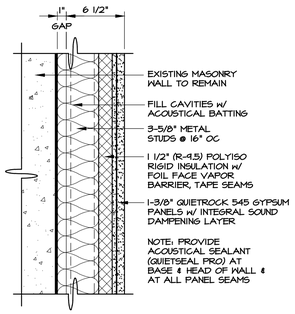
PROPOSED LANDSCAPING PLAN & DETAILS

MAURI ARCHITECTS PC
73 MANSION STREET POUGHKEEPSIE NY 12601 845.452.1030 mauri-architects.com

SHEET NO. PB-2

PURSUANT TO SECTION 6415 (3) OF THE REGULATIONS OF THE COMMISSIONER OF EDUCATION. UNAUTHORIZED ALTERATIONS TO THIS DOCUMENT IS A VIOLATION OF THE LAW.

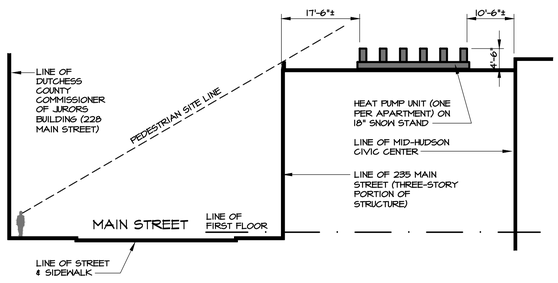


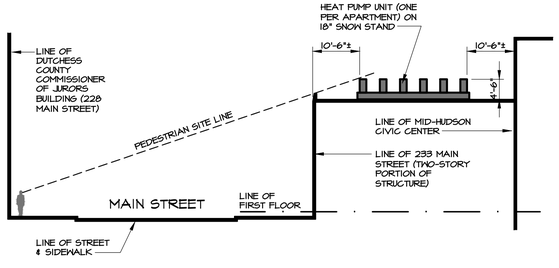


5 PB-3 PARTY WALL SOUND DETAIL

SCALE: 1-1/2" = 1'-0"

0 6" 1' 2'

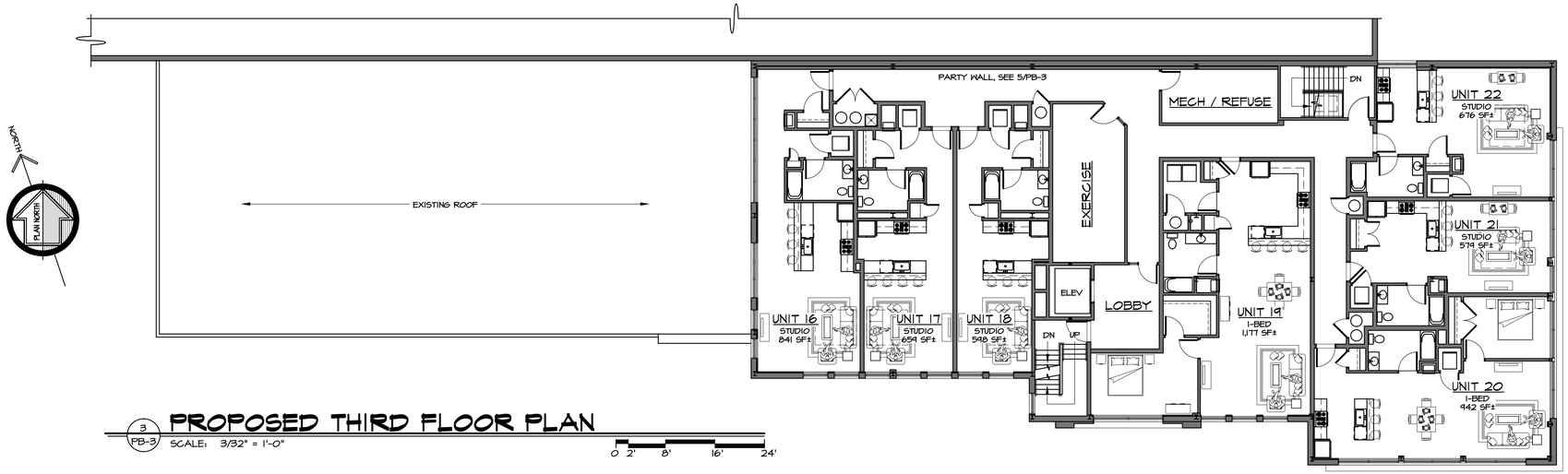




4 PB-3 ROOFTOP UNIT SITELINE SCHEMATICS

SCALE: 1/16" = 1'-0"

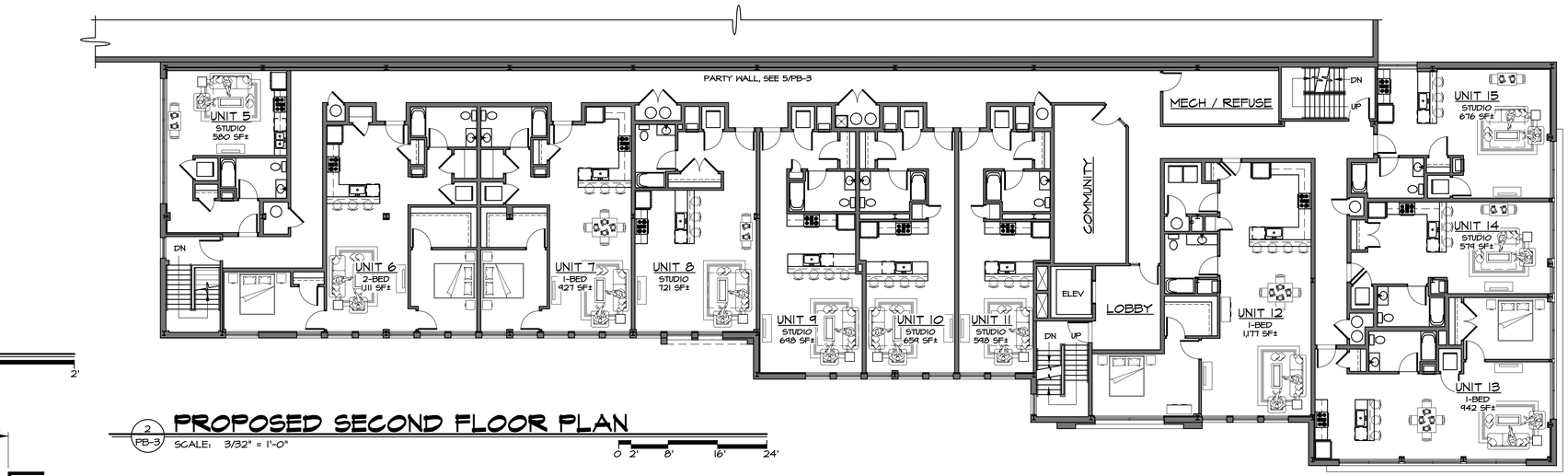
0 2' 10' 20' 40'



3 PB-3 PROPOSED THIRD FLOOR PLAN

SCALE: 3/32" = 1'-0"

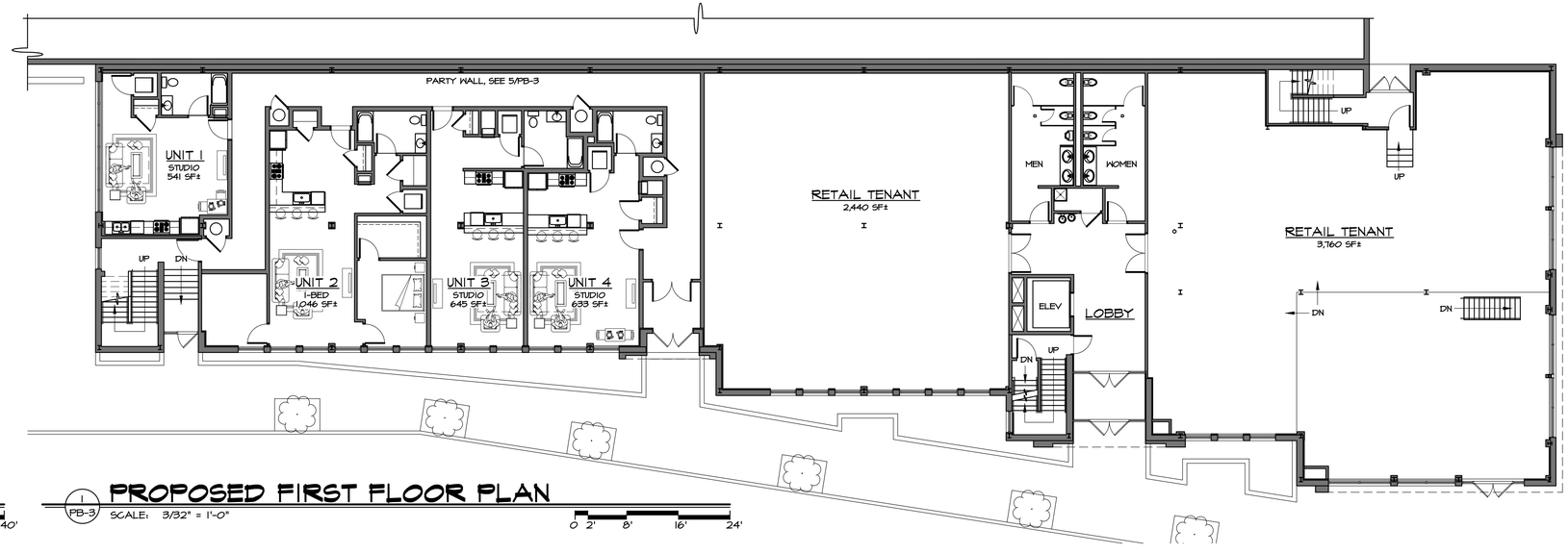
0 2' 8' 16' 24'



2 PB-3 PROPOSED SECOND FLOOR PLAN

SCALE: 3/32" = 1'-0"

0 2' 8' 16' 24'



1 PB-3 PROPOSED FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

0 2' 8' 16' 24'

project no.
19-56.23

date
26 DEC 2023

drawn by
BP

revision date	description

PROPOSED MIXED-USE BUILDING:

235 MAIN STREET

233 - 237 MAIN STREET POUGHKEEPSIE, NY

PROPOSED FLOOR PLANS & DETAILS

MAURI ARCHITECTS PC
73 MANSION STREET POUGHKEEPSIE NY 12601 845.452.1030 mauri-architects.com

sheet no.
PB-3

PURSUANT TO SECTION 7209 (2) OF THE REGULATIONS OF THE COMMISSIONER OF EDUCATION UNAUTHORIZED ALTERATIONS TO THIS DOCUMENT IS A VIOLATION OF THE LAW

REGISTERED ARCHITECT MARTIN T DIESING III 033240 STATE OF NEW YORK

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
235 Main Street

Project Location (describe, and attach a location map):
233-237 Main Street, Poughkeepsie, NY 12601

Brief Description of Proposed Action:
Existing three-story office building to be converted to mixed-use building with multi-family residential dwellings (22 apartment units) and approximately 6,200 square-feet of retail space on the first floor.

Name of Applicant or Sponsor:	Telephone: (845) 452-1030
Jay Diesing, RA AIA - Mauri Architects PC	E-Mail: jay@mauri-architects.com

Address:
73 Mansion Street

City/PO:	State:	Zip Code:
Poughkeepsie	NY	12601

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: City of Poughkeepsie - Building Permit; City of Poughkeepsie - Site Plan Approval	☐	☑

3. a. Total acreage of the site of the proposed action? 0.29 acres
   b. Total acreage to be physically disturbed? 0 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 0.29 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☑ Urban ☐ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☐ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☐	☑
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☐	☑

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	☐	☑

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____ _____	☐	☑

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____ _____	☐	☑

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☐	☑
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☑ Urban ☐ Suburban

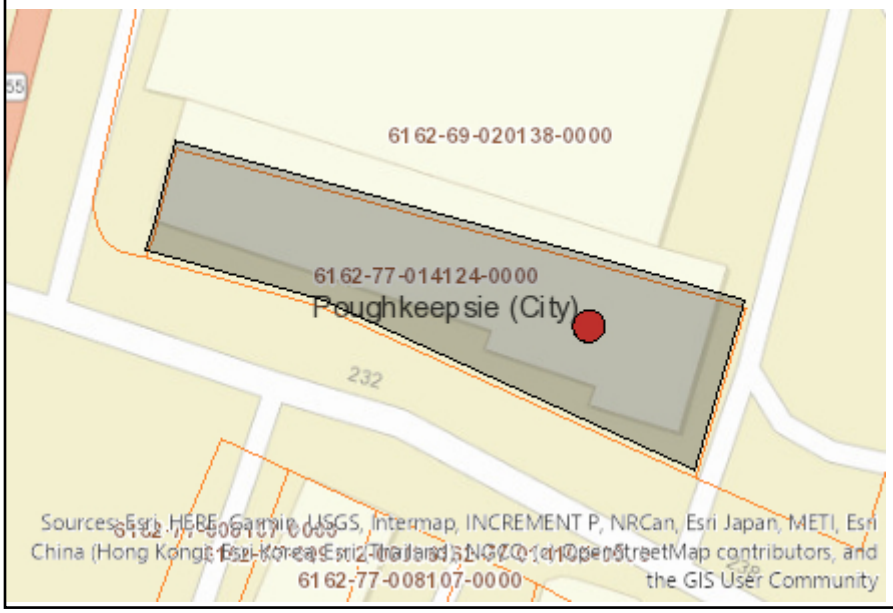
	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☑	☐
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☐	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☐
If Yes, briefly describe: _____		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment: _____		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe: _____		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☐	☑
If Yes, describe: _____		
NYS DEC Spill Record: 9604976 - #2 Fuel Oil, 235 Main Street, Closed July 29, 1996		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Jay Diesing, RA AIA - Mauri Architects PC Date: December 26, 2023

Signature: Jay Diesing Title: Architect

PRINT FORM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	Yes
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	No
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	No
Part 1 / Question 20 [Remediation Site]	Yes

Elian & Justin Realty, LLC
971 Allen Lane
Woodmere, New York 11598

December 26, 2023

Anne Saylor, Chair
City of Poughkeepsie Planning Board
62 Civic Center Plaza, 2nd Floor
Poughkeepsie, NY 12601

RE: Proposed Mixed Use Building at:
235 Main Street
Poughkeepsie, NY 12601

Dear Chairperson Saylor and Planning Board Members,

Please be advised that Jay Diesing, RA AIA of Mauri Architects PC is hereby authorized to submit an Application for Site Plan Review to the City of Poughkeepsie and represent Elian & Justin Realty LLC as related to the above referenced project.

Should you have any questions, please do not hesitate to contact me.

Sincerely,

Ulbardo Fernandez