TOWN OF MAMARONECK - VILLAGE OF LARCHMONT
COASTAL ZONE MANAGEMENT COMMISSION
Monday, April 22, 2019
7:30pm Mamaroneck Town Center, 1st Floor - Conference Room D, 740 W. Boston Post Road, Mamaroneck, NY 10543

Approval of Minutes

1. Approval of Minutes - March 25, 2019

Agenda Items

1. 7 Bay Avenue

Old Business

New Business

Meeting Adjournment

Any physically handicapped person needing special assistance in order to attend the meeting should call the Town Administrator's office at 381-7810.

Town of Mamaroneck — Village of Larchmont

COASTAL ZONE MANAGEMENT COMMISSION

TOWN CENTER: 740 West Boston Post Road, Mamaroneck, NY 10543-3353
TEL: 914-381-7845 FAX: 914-381-8473 conservationdept@townofmamaroneck.org

CZMC Minutes - Draft
March 25, 2019

A meeting of the Coastal Zone Management Commission (CZMC) was held on Monday, March 25, 2019 in the Mamaroneck Town Center, Conference Room D, 1st Floor, 740 W. Boston Post Road, Mamaroneck, New York. The meeting was called to order at 7:30 p.m.

MEMBERS PRESENT:
C. Alan Mason, Chairman
Kanan Sheth
Matthew Teitsch
Robert Fletcher
Maurizio Bertini

OTHERS PRESENT:
Councilwoman Jaine Elkind Eney, Liaison to Town of Mamaroneck Town Board
Elizabeth Paul, Environmental Planner, Town of Mamaroneck
Josh Lawlor, Applicant, 1 Briarcliff Road
Ralph Alfonzetti, Engineer, 1 Briarcliff Road
Michael Piccirillo, Architect, 1 Briarcliff Road
Azure Dee Sleicher, P.E. Race Coastal Engineering, 14 Pryer Lane
Benedict Salanitro, Engineer, Bonnie Briar Country Club

1. **Approval of Minutes**
The minutes of the February 25, 2019 meeting were approved as submitted.

2. **Referral – 1 Briarcliff Road**
CZMC visited the property at 1 Briarcliff Road on March 11th. Architect, Vladimir Levin and Engineer, Ralph Alfonzetti were at the site visit answering questions. At tonight's meeting, Architect Michael Piccirillo and Engineer, Ralph Alfonzetti continued the presentation and discussion of the proposal. CZMC members expressed concerns about the ability of the proposed house and stormwater system to withstand a catastrophic flood event. The engineer stated that to protect the house, the foundation can be reinforced and will have flood vents installed. In addition, the mechanicals can be suspended from the ceiling or placed in the attic. The stormwater system and raingarden have been sized to handle a 25-year storm, which is what it is required to do. The homeowner is aware that the property floods and appears prepared to accept this risk.

CZMC found the proposal to be consistent with the policies in the LWRP. As designed, the proposal includes the minimum measures required for stormwater mitigation.

However, it is recommended that additional reinforcement be provided for the foundation, and additional precautions be taken to make the property as resilient to the impacts of future flooding as possible.

3. **Referral – 14 Pryer Lane**

Azure Dee Sleicher, from Race Coastal Engineering presented the proposal to repair the seawall and install a gangway and floating dock at 14 Pryer Lane. The ramp as proposed will be 25-feet long leading to a 12 x 16 foot floating dock to be located in the Premium Mill Pond. The applicant is seeking approvals from the Army Corps of Engineers, NYS DEC and the NYS Office of General Services and was referred by the NYS Department of State for local consistency review.

CZMC found the proposal to be consistent with the policies in the LWRP with the restriction that no lighting shall be permitted on the ramp or dock and use of the dock should be limited to non-gas powered boats. In addition, the applicant must acquire the required underwater land grant, easement or lease necessary prior to installation.

4. **Referral – Bonnie Briar Country Club**

Benedict Salanitro presented the proposal for the replacement of 8 bridges and various watercourse landscape and maintenance activities throughout the golf course requiring a Wetlands and Watercourses Permit from the Town of Mamaroneck Planning Board. Watercourse maintenance includes the removal of accumulated leaves and sediments from the Sheldrake River, water features and irrigation ponds, the removal of invasive plants and the repair of eroded river banks. The bridges are primarily pedestrian and golf cart bridges and will be replaced with prefabricated bridges that will have landings beyond the banks of the river. Work will be divided into manageable phases over the course of several years requiring one or more permit extensions.

CZMC found the proposal to be consistent with the policies in the LWRP provided that the all required permits for the proposed maintenance activities are obtained, best management practices are followed for erosion and sediment control and restoration of disturbed areas occurs promptly. If the Planning Board determines that they would like CZMC to provide additional review of any of the project elements in the future, this can always be done.

5. **Referral – Issuance of NY Transportation Regional General Permit (TRGP-1)**

CZMC reviewed the draft New York Transportation Regional General Permit (TRGP-1) for certain transportation related activities in New York State. The New York State Department of State referred it to communities with local LWRPs for a consistency review.

The current permit would be revised to allow the following activities:

- Maintenance Activities
- Linear Transportation Projects
- Non-Linear Transportation Projects
- Streambed and Bank Stabilization Activities

- Temporary Construction, Access, Dewatering
- Emergency Activities

Under the proposed permit, non-tidal wetlands of up to 2 acres in size can be filled (the existing permit limits the filling of wetlands to 1/2 acre) and up to 500 linear feet of stream bed can be lost (previously, only the amount necessary could be lost).
CZMC found the proposed changes to the permit to be inconsistent with the policies in our Local Waterfront Revitalization Program. Specifically, Policy 44 which states, "Preserve and Protect Tidal and Freshwater Wetlands and Preserve the Benefits derived from these areas." Locally, freshwater wetlands as small as 2500 square feet and all watercourses are protected. These smaller wetland areas and vernal pools provide significant local wildlife habitat, flood mitigation and water quality benefits and should be preserved.

The draft permit frequently uses the term, "maximum extent practicable" as a standard for protection of habitat, wetland areas and watercourses. This term is vague and vulnerable to misinterpretation. Standards for protection must be clearly defined in order to make them enforceable.

The permit should not be modified to include new linear transportation structures or new non-linear transportation structures. These are not time-sensitive projects and should go through normal review procedures. Changes to the existing permit should be limited to in-kind and in-place repairs or replacements of structures and emergency activities. The draft permit should clarify that any transportation projects occurring within the Town of Mamaroneck or Village of Larchmont must be referred to our local Coastal Zone Management Commission for consistency review and any local permits.

6. **Old Business**
No old business to discuss.

7. **New Business**
The New York State Board for Historic Preservation is considering Winged Foot Golf Club for inclusion on the National and State Registers of Historic Places. This will require any unlisted action occurring within or adjacent to the property to be considered a Type I action under SEQR. Because the property is a Critical Environmental Area, this was already the case.

The meeting was adjourned at 9:00 p.m.

Town of Mamaroneck - Village of Larchmont
Coastal Assessment Form (CAF)

Applicants, or the appropriate municipal agency, shall complete this Coastal Assessment Form (CAF) for proposed actions which are subject to Local Consistency Review (see Waterfront Revitalization Law §§234-1 through 234-5 in the Code of the Town of Mamaroneck and §§292-1 through 292-4 in the Code of the Village of Larchmont). This assessment is intended to supplement other information used by the Bi-Municipal Coastal Zone Management Commission in making a determination of consistency with the Town of Mamaroneck and Village of Larchmont Local Waterfront Revitalization Program.

Upon completion of this form, it should be submitted as part of a complete application package for review. If assistance or further information is required for Town of Mamaroneck matters, please contact the Town of Mamaroneck Environmental Planner at (914) 381-7845. For Village of Larchmont matters, please contact the Village of Larchmont Building Inspector at (914) 834-6210.

PLEASE PRINT OR TYPE ALL ANSWERS.

A. GENERAL INFORMATION

Will the proposed action be undertaken by a municipal agency? Yes [ ] No [X]

If yes, please list agency or agencies and contact person(s): _____

_____

_____

If no, please complete the applicant information:

Name of Applicant: Stephen Wang & Associates PLLC

Street Address: 950 Third Avenue, 4th Floor

City, State, Zip: New York, NY 10022

Phone: 212.829.9494 Fax: N/A Email: stephen@swarchitect.com

Location and ownership of property for which action is proposed:

Section: _____ Block: 30 Lot: 729

Owner of Property: Mr. & Mrs. Segal

Street Address: 7 Bay Avenue

City, State, Zip: Larchmont, NY 10538

Phone: 212.829.9494 Fax: N/A Email: stephen@swarchitect.com

Size of property (square feet): 40,549 S.F. Is the property now developed? Yes [X] No [ ]

Will project require a zoning variance? Yes [ ] No [X]

If yes, briefly describe: _____

_____

Describe any unique/unusual landforms on the project site (rock outcroppings, swales, etc.):
The project site is located on the Long Island Sound, protected by a seawall. The seawall is interrupted by an outcropping of bedrock, while the front yard also has an outcropping of bedrock. The site slopes down to the Sound.

Percentage of site which contains slopes of 25% or greater: 0%

Are there streams, lakes, ponds or wetlands existing within or contiguous to the project area?
If so, describe (name, size, characteristics): No.

Will the action require approval by a state or federal agency? Yes [ ] No [X]
If yes, specify which state or federal agency and attach a copy of pending application and any relevant information and/or documentation to this form:

B. DESCRIPTION OF SITE AND PROPOSED ACTION

Provide a written description of the nature and the extent of the proposed action. Attach plans or additional information as necessary and/or required by application procedures.

Construction of a single family residence as of right, with previously approved pool and associated storm-water management practice.
Architectural site plan, site survey, and Storm-water Management Plan and Drainage Analysis Report are included with this application.

C. COASTAL ASSESSMENT

Check either "Yes" or "No" for each of the following questions:

1. Will the proposed action be located in, or contiguous to, or have a **potentially adverse effect** upon any of the following designated resource areas?

	Yes	No	Maybe
a. Significant fish or wildlife habitat or designated critical environmental area	[X]	[ ]	[ ]
b. Scenic resources of local significance	[ ]	[X]	[ ]
c. Natural protective features in an erosion hazard area	[ ]	[X]	[ ]

NOTE: If the answer to any of the above questions is "Yes", please explain in Section D any measures which will be undertaken to mitigate the adverse effects.

2. Will the proposed action have a **significant effect** upon:

	Yes	No	Maybe
a. Commercial or recreational use of fish and wildlife resources	[ ]	[X]	[ ]
b. Scenic quality of the coastal environment	[ ]	[X]	[ ]
c. Development of future, or existing water dependent uses	[ ]	[X]	[ ]
d. Land or water uses within a small harbor area	[ ]	[X]	[ ]
e. Stability of the shoreline	[ ]	[X]	[ ]
f. Surface or groundwater quality	[ ]	[X]	[ ]
g. Existing or potential public recreation opportunities	[ ]	[X]	[ ]
h. Structures, sites or districts of historic, archeological or cultural significance to the local area, state or nation	[ ]	[X]	[ ]

3. Will the proposed action **involve or result in** any of the following:

	Yes	No	Maybe
a. Physical alteration of land along the shoreline, land underwater or coastal waters	[ ]	[X]	[ ]
b. Expansion of existing public services or infrastructure in or near undeveloped or low density areas of the coastal area?	[ ]	[X]	[ ]
c. Filling, dredging, excavation or mining in coastal waters	[ ]	[X]	[ ]
d. Reduction of existing or potential public access to or along the shore	[ ]	[X]	[ ]
e. Development within a designated flood or erosion hazard area	[ ]	[X]	[ ]
f. Development of a natural feature that protects against flooding or erosion	[X]	[ ]	[ ]
g. Replacement of eroded sand or soil	[ ]	[X]	[ ]
h. Construction or reconstruction of erosion protective structures	[ ]	[X]	[ ]
i. Any change in surface or groundwater quality	[ ]	[X]	[ ]
j. Removal of trees from the site	[ ]	[X]	[ ]

4. Project details:

	Yes	No	Maybe
a. If the project is to be located adjacent to the shore:			
1. Does the project require a waterfront site in order to function	[ ]	[X]	[ ]
2. Will water-related recreation be provided	[ ]	[X]	[ ]
3. Will public access to shore or state owned underwater lands be provided	[ ]	[X]	[ ]
4. Will it replace a recreational or maritime use	[ ]	[X]	[ ]
5. Do essential public services and facilities presently exist at or near the site	[ ]	[X]	[ ]

6.	Is the site located near a flood prone area	[X]	[ ]	[ ]
7.	Is the site located in an area of high erosion	[ ]	[X]	[ ]
b.	Is the site presently used by the community as an open space or recreation area	[ ]	[X]	[ ]
c.	Does the project site offer or include scenic views/vistas known to be important to the community or the state	[ ]	[X]	[ ]
d.	Will the surface area of any waterways or wetland areas be increased or decreased by the project	[ ]	[X]	[ ]
e.	Will the project involve any waste discharges into coastal waters	[ ]	[X]	[ ]
f.	Does the project involve discharge of toxins, hazardous substances or other pollutants into coastal waters	[ ]	[X]	[ ]
g.	Will the project affect any area designated as a tidal or freshwater wetland	[ ]	[X]	[ ]
h.	Will the project result in an alteration of drainage flow patterns or surface water runoff on or from the site	[X]	[ ]	[ ]
i.	Will best management practices (BMPs) be utilized to control stormwater runoff	[X]	[ ]	[ ]
j.	Will any aspect of the proposed project result in emissions which exceed federal or state air quality standards or generate significant amounts of nitrates or sulfates	[ ]	[X]	[ ]

Please explain any of the above answers that may need further clarification in Section D.

D. COMMENTS AND ADDITIONAL INFORMATION: (continue on back if necessary)

As designed, runoff from the proposed roof and previously approved pool and patio will be conveyed to a proposed rain garden for water quality treatment prior to conveyance to a proposed attenuation gallery which will control the runoff prior to entry into the sound. The proposed attenuation gallery will discharge into the Long Island Sound through an overflow pipe where disturbance should not exceed 10 square feet.

D. COMMENTS AND ADDITIONAL INFORMATION: (continued)

I certify that I am the above described applicant and that the information contained on this form and on the attached survey/site plan(s) is(are) accurate to the best of my knowledge.

Date: 04/09 20 19 _____

Signature of Applicant

Prepared by: (if different than the applicant)

Name and Title: _____

Agency/Company: _____

Street Address: _____

City, State, Zip: _____

Phone: _____ Fax: _____ Email: _____

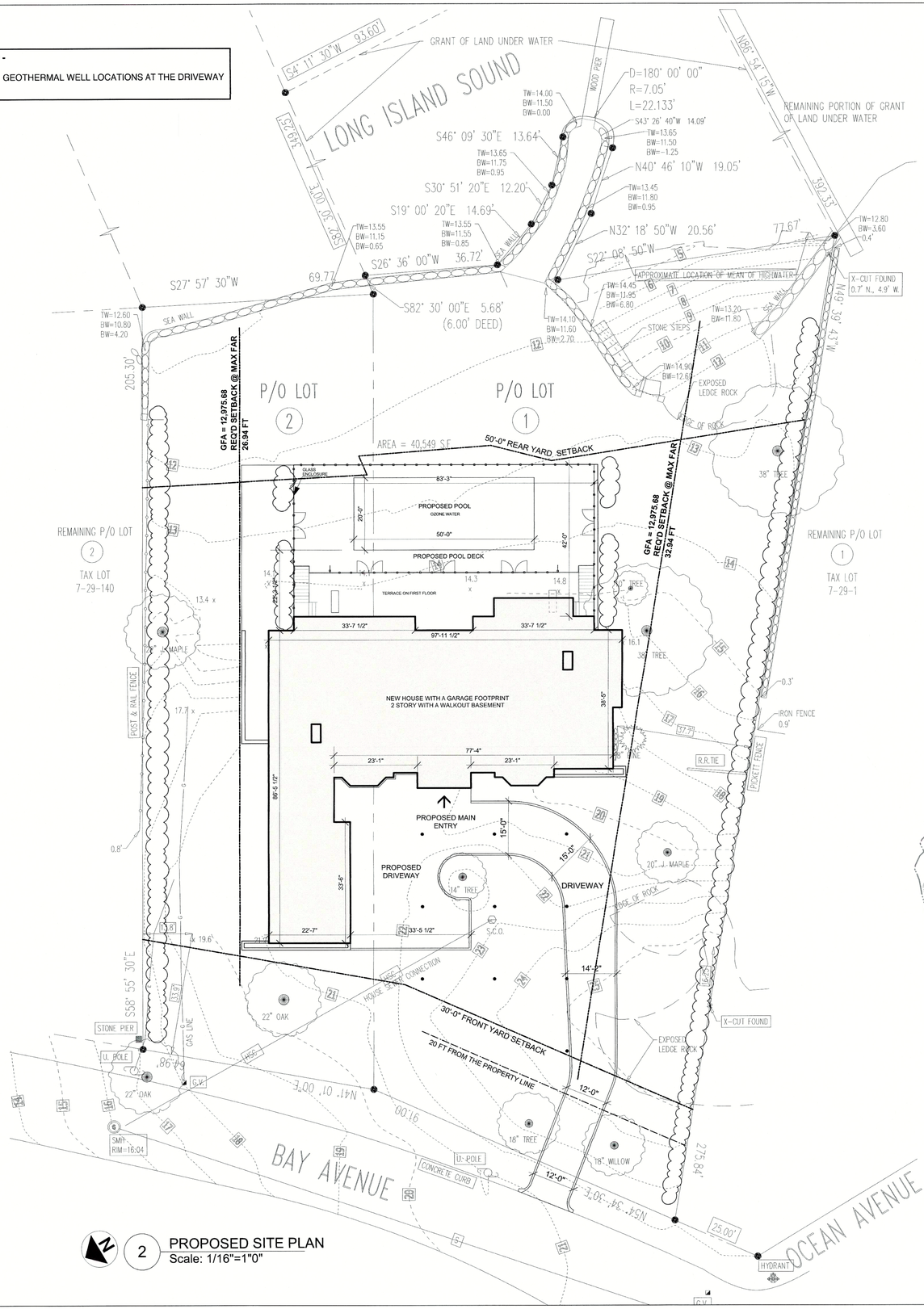
I certify that I prepared this Coastal Assessment Form for the above described applicant and that the information contained on this form and on the attached survey/site plan(s) is(are) accurate to the best of my knowledge.

Date: _____ 20 _____ _____

Signature of Preparer

LEGEND -

● GEOTHERMAL WELL LOCATIONS AT THE DRIVEWAY



2 PROPOSED SITE PLAN
Scale: 1/16"=1"0"

PRELIMINARY ZONING ANALYSIS	3/27/19
Address	7 Bay Avenue, Larchmont
Block:	729
Lot:	30 (Part of Lot 1 and Part of Lot 2)
Zoning:	W, Single-family Residence

LOT CHARACTERISTICS			
Item	Existing	Per New Codes	Proposed
Lot area	40,549 SF		40,549 SF
Lot Width	155 FT	120 FT (Min)	155 FT
Front Setback	± 33.9 FT	30 FT (Min)	± 35.3 FT
Rear Setback	± 79.5 FT	50 FT (Min)	± 82.3 FT
Side Setback	13.8 FT	26.94 FT	± 34.9 FT
Both Sides Setback	51.5 FT	59.88 FT	± 72 FT
Lot Coverage	12,625.47 SF	14,192.15 SF (Max - 35%)	13,441.46 SF

FLOOR AREA RATIO ANALYSIS			
Item	Existing	Max/New Codes	Proposed
FAR	13,074.59	12,975.68 SF	12,973.45

FLOOR AREA CALCULATIONS			
Floor	Existing	Remove/Add	Proposed
Cellar	3,158.70 SF	-18.91 SF	3,139.79 SF
First Floor	4,964.51 SF	129.97 SF	5,094.48 SF
Second Floor	3,182.88 SF	1,556.30 SF	4,739.18 SF
Attic	1,721.50 SF	-1,721.50 SF	0.00 SF
Chimney	47.00 SF	N/A	Inclusive
Total	13,074.59 SF	-54.14 SF	12,973.45 SF

Side Setback Analysis - Formula (PER NEW ZOINING CODES)		
Side Setback		26.94 FT
	((12,965SF-7,000SF)/100)X0.25+12FT = 26.91FT	
	((12,976SF-7,000SF)/100)X0.25+12FT = 26.94FT	
Other Side Setback		32.94 FT
	((12,965SF-7,000SF)/100)X0.25+18FT = 32.91FT	
	((12,976SF-7,000SF)/100)X0.25+18FT = 32.94FT	
Both Sides Setback		59.88 FT

1 KEY PLAN OF ADJACENT STRUCTURES
SCALE 0 50 100

Stephen Wang Associates PLLC
A R C H I T E C T S

950 Third Ave, 4th Floor
New York, NY 10022
(212) 829 9494 t
(212) 829 9409 f

PROJECT:

SINGLE FAMILY RESIDENCE

7 BAY AVENUE, LARCHMONT
NEW YORK, NY 10538

CLIENT:
PRIVATE RESIDENCE

INTERIOR DESIGNER:
CHANGO & CO.
226 GRAND STREET, BROOKLYN, NEW YORK 11211
T: 718.487.9559
F: 347.696.7714

STRUCTURAL ENGINEER:
BLUE SKY DESIGN, INC
121 WEST 27TH STREET, SUITE 904, NY, NY 10001
T: 646.230.9900
F: 646.230.7400

MECHANICAL ENGINEER:
OLA CONSULTING ENGINEERS, PC
50 BROADWAY, 2ND FL, HAWTHORNE, NY 10532
T: 914.747.2800

LANDSCAPE ARCHITECT:
JANICE PARKER LANDSCAPE ARCHITECTS
19 WEST PUTNAM AVENUE, GREENWICH, CT 06830
T: 203.340.2824

CIVIL ENGINEER:
HUDSON ENGINEERING & CONSULTING, P.C.
45 KNOLLWOOD ROAD, #201, ELMSFORD, NY 10523
T: 914.909.0420

GENERAL CONTRACTOR:
MURPHY BROTHERS CONTRACTING, INC.
416 WAVERLY AVENUE, MAMARONECH, NY 10543
T: 914.777.5777

MAX. TOTAL SQFT: 12,975.68 SQFT

No.	Date:	Revision/ Submission
01.	04/09/2019	ISSUED FOR CZMC MEETING_04/22

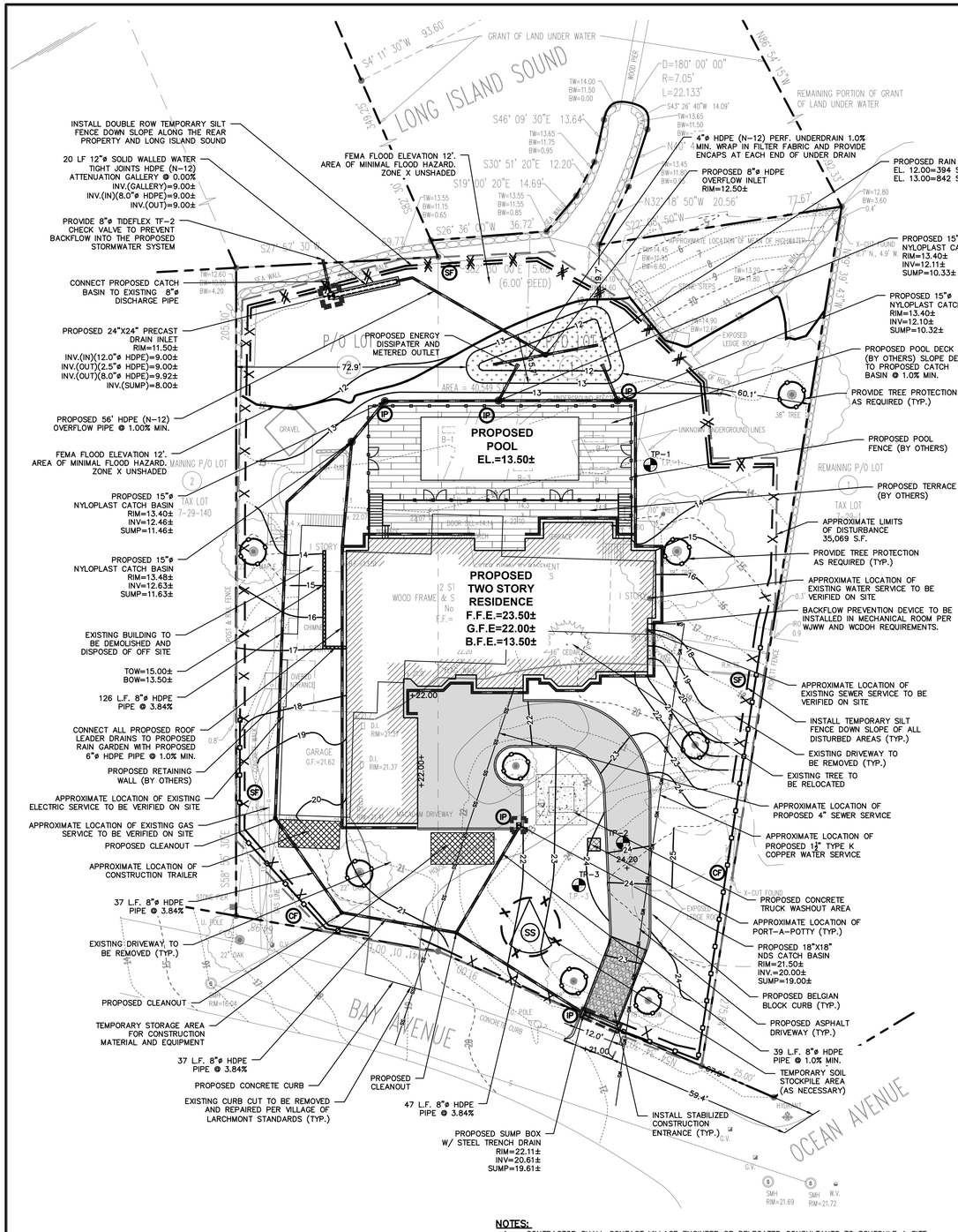
Drawing Title

SITE PLAN AND ZONING INFORMATION

Seal & Signature

REGISTERED ARCHITECT STEPHEN WANG 031007 STATE OF NEW YORK

Date: 01/06/2019
Project No. 0317
Drawn By: A.M.
Checked By: S.T.
DWG No.:
ZD-001
CAD File No: **Page:**



LEGEND

- PROPERTY LINE
- PROPOSED PATIO/TERRACE
- PROPOSED CONTOUR — 12
- PROPOSED SPOT GRADE — +11.50
- PROPOSED STORM PIPE
- PROPOSED DRAIN INLET
- PROPOSED STONE MASONRY WALL
- TEMPORARY INLET PROTECTION — IP
- TEMPORARY SILT FENCE — SF
- TEMPORARY CONSTRUCTION FENCE — CF
- TEMPORARY SOIL STOCKPILE AREA — SS
- STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED BELGIAN BLOCK CURB
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED TRENCH DRAIN
- PROPOSED LIMIT OF DISTURBANCE

GENERAL NOTES:

1. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SUPERVISION OF THE CONSTRUCTION.
2. NO CHANGES SHALL BE MADE TO THESE PLANS EXCEPT AS PER NYS LAW CHAPTER 987.
3. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE CODES, INCLUDING BUT NOT LIMITED TO ACI, AISC, ZONING, AND THE NEW YORK STATE BUILDING CODE.
4. ALL CONDITIONS, LOCATIONS AND DIMENSIONS SHALL BE FIELD VERIFIED AND THE ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY DISCREPANCIES.
5. ALL CHANGES MADE TO THE PLANS SHALL BE APPROVED BY THE ENGINEER AND ANY SUCH CHANGES SHALL BE FILED AS AMENDMENTS TO THE ORIGINAL BUILDING PERMIT.
6. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING HIS BEST SKILL AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
7. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE OWNER FOR THE ACTS AND OMISSIONS OF HIS EMPLOYEES, SUBCONTRACTORS AND THEIR AGENTS AND EMPLOYEES, AND OTHER PERSONS PERFORMING ANY OF THE WORK UNDER A CONTRACT WITH THE CONTRACTOR.
8. SAFETY DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO ALL LOCAL, STATE AND FEDERAL AGENCIES IN EFFECT DURING THE PERIOD OF CONSTRUCTION.
9. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL MAKE APPLICATION TO RECEIVE ALL NECESSARY PERMITS TO PERFORM THE WORK UNDER CONTRACT. THE CONTRACTOR AND HIS SUBCONTRACTORS SHALL BE LICENSED TO DO ALL WORK AS REQUIRED BY THE LOCAL COUNTY, AND STATE AGENCIES WHICH MAY HAVE JURISDICTION OVER THOSE TRADES, AND SHALL PRESENT THE OWNER WITH COPIES OF ALL LICENSES AND INSURANCE CERTIFICATES.
10. FINAL GRADING AROUND THE BUILDING AREA SHALL SLOPE AWAY FROM THE STRUCTURE.
11. ALL WRITTEN DIMENSIONS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER ANY SCALED DIMENSIONS.
12. ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION, REMODELING AND DEMOLITION WORK. PROTECTION MUST BE PROVIDED FOR FOOTINGS, FOUNDATIONS, PARTY WALLS, CHIMNEYS, SKYLIGHTS AND ROOFS. PROVISIONS SHALL BE MADE TO CONTROL WATER RUNOFF AND EROSION DURING CONSTRUCTION OR DEMOLITION ACTIVITIES. THE PERSON MAKING OR CAUSING AN EXCAVATION TO BE MADE SHALL PROVIDE WRITTEN NOTICE TO THE OWNERS OF ADJOINING BUILDINGS ADVISING THEM THAT THE EXCAVATION IS TO BE MADE AND THAT THE ADJOINING BUILDING SHOULD BE PROTECTED. SAID NOTIFICATION SHALL BE DELIVERED NOT LESS THAN 10 DAYS PRIOR TO THE SCHEDULED STARTING DATE OF THE EXCAVATION.
13. OWNER SHALL INSURE THAT THE INSURANCE PROVIDED BY THE CONTRACTOR HIRED TO PERFORM THE WORK SHALL BE ENDORSED TO NAME HUDSON ENGINEERING & CONSULTING, P.C., AND ANY DIRECTORS, OFFICERS, EMPLOYEES, SUBSIDIARIES, AND AFFILIATES, AS ADDITIONAL INSURED ON ALL POLICIES AND HOLD HARMLESS DOCUMENTS, AND SHALL STIPULATE THAT THIS INSURANCE IS PRIMARY, AND THAT ANY OTHER INSURANCE OR SELF-INSURANCE MAINTAINED BY HUDSON ENGINEERING & CONSULTING, P.C., SHALL BE EXCESS ONLY AND SHALL NOT BE CALLED UPON TO CONTRIBUTE WITH THIS INSURANCE. ISO ADDITIONAL INSURED ENDORSEMENT FORM NUMBER CG2010 1185 UNDER GL. COPIES OF THE INSURANCE POLICIES SHALL BE SUBMITTED TO AND HUDSON ENGINEERING & CONSULTING, P.C., FOR APPROVAL PRIOR TO THE SIGNING OF THE CONTRACT.
14. INDUSTRIAL CODE RULE 753: THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS PRIOR TO THE START OF HIS OPERATIONS AND SHALL COMPLY WITH ALL THE LATEST INDUSTRIAL CODE RULE 753 REGULATIONS.

INSTALLATION & MAINTENANCE OF EROSION CONTROL:

CONSTRUCTION SCHEDULE
NOTIFY APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION AT LEAST 5 DAYS PRIOR TO START.

EROSION CONTROL MEASURES
INSTALL ALL EROSION CONTROL MEASURES PRIOR TO START OF CONSTRUCTION. CALL FOR INSPECTION FROM THE APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION AT LEAST 2 DAYS PRIOR TO FINISH.

INSPECTION BY MUNICIPALITY
MAINTENANCE (TO BE PERFORMED DURING ALL PHASES OF CONSTRUCTION)

AFTER ANY RAIN CAUSING RUNOFF, CONTRACTOR TO INSPECT HAYBALES, ETC. AND REMOVE ANY EXCESSIVE SEDIMENT AND INSPECT STOCKPILES AND CORRECT ANY PROBLEMS WITH SEED ESTABLISHMENT. INSPECTIONS SHALL BE DOCUMENTED IN WRITING AND SUBMITTED TO THE APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION.

INSPECTION BY MUNICIPALITY - FINAL GRADING
REMOVE UNNEEDED SUBGRADE FROM SITE.
CALL FOR INSPECTION FROM THE APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION AT LEAST 2 DAYS PRIOR TO FINISH.

INSPECTION BY MUNICIPALITY - LANDSCAPING

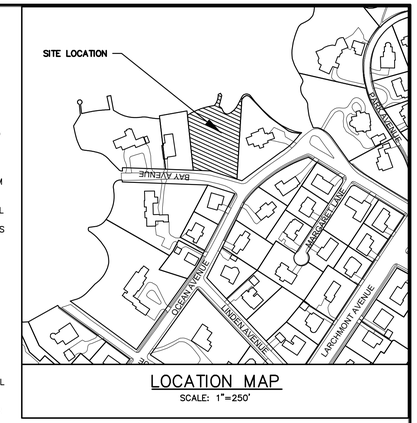
SPREAD TOPSOIL EVENLY OVER AREAS TO BE SEEDED. HAND RAKE LEVEL.
BROADCAST 1.25 LB. BAG OF JONATHAN GREEN "FASTGROW" MIX OR EQUAL OVER AREA TO BE SEEDED. APPLY STRAW MULCH AND WATER WITHIN 2 DAYS OF COMPLETION OF TOPSOILING. CALL FOR INSPECTION FROM THE APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION AT LEAST 2 DAYS PRIOR TO FINISH.

INSPECTION BY MUNICIPALITY - FINAL LANDSCAPING

GRASS ESTABLISHED.
CALL FOR INSPECTION FROM THE APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION AT LEAST 2 DAYS PRIOR TO FINISH.

INSPECTION BY MUNICIPALITY - FINAL INSPECTION

ALL EROSION CONTROL MEASURES REMOVED AND GRASS ESTABLISHED.
CALL FOR INSPECTION FROM THE APPROPRIATE MUNICIPAL AGENCY HAVING JURISDICTION AT LEAST 2 DAYS PRIOR TO FINISH.

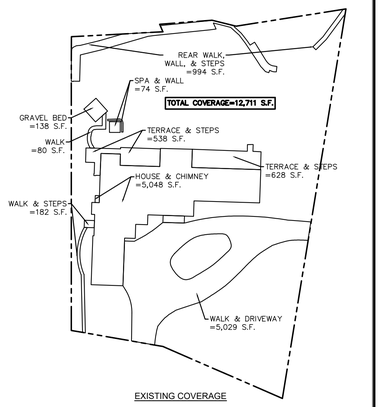


LOCATION MAP

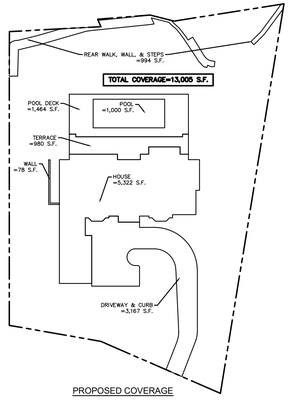
SCALE: 1"=250'

IMPERVIOUS COVERAGE

NOT TO SCALE



EXISTING COVERAGE



PROPOSED COVERAGE

CONSTRUCTION SEQUENCING:

THE FOLLOWING EROSION CONTROL SCHEDULE SHALL BE UTILIZED:

1. PRIOR TO COMMENCING CONSTRUCTION, A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH THE VILLAGE.
2. INSTALL A STABILIZED CONSTRUCTION ENTRANCE AT THE ACCESS POINT(S) TO THE SITE.
3. DEMARCATE THE LIMITS OF DISTURBANCE.
4. ESTABLISH CONSTRUCTION STAGING AREA.
5. INSTALL TREE PROTECTION ON TREES AS NOTED ON PLANS.
6. SELECTIVE VEGETATION REMOVAL FOR SILT FENCE INSTALLATION.
7. INSTALL SILT FENCE DOWN SLOPE OF ALL AREAS TO BE DISTURBED AS SHOWN ON THE PLAN.
8. REMOVE TREES WHERE NECESSARY (CLEAR & GRUB) FOR THE PROPOSED CONSTRUCTION.
9. STRIP TOPSOIL AND STOCKPILE AT THE LOCATIONS SPECIFIED ON THE PLANS (UP GRADIENT OF EROSION CONTROL MEASURES). TEMPORARILY STABILIZE TOPSOIL STOCKPILES (HYDROSEED DURING MAY 1ST THROUGH OCTOBER 31ST PLANTING SEASON OR BY COVERING WITH A TARPAULIN(S) NOVEMBER 1ST THROUGH APRIL 30TH. INSTALL SILT FENCE AROUND TOE OF SLOPE.
10. DEMOLISH ANY EXISTING SITE FEATURES AND/OR STRUCTURES NOTED AS BEING REMOVED ON THE CONSTRUCTION DOCUMENTS, AND DISPOSE OF OFF-SITE.
11. ROUGH GRADE DISTURBED SITE.
12. EXCAVATE AND CONSTRUCT FOUNDATIONS FOR NEW DWELLING.
13. EXCAVATE AND INSTALL WASHED STONE AND ENGINEERED SOIL MEDIA FOR RAIN GARDEN PER ENGINEER'S RECOMMENDATIONS AND REQUIREMENTS.
14. FINE GRADE AND SEED ALL DISTURBED AREAS. CLEAN PAVED AREAS AND DRAIN LINES. ENSURE GRASS STAND IS ACHIEVED.
15. INSTALL 4"-6" TOPSOIL, FINE GRADE, SEED THE DISTURBED AREAS AND INSTALL LANDSCAPE PLANTINGS. SPREAD SALT HAY OVER SEEDED AREAS.
16. INSTALL AND CONNECT ALL ROOF DRAIN LEADERS TO RAIN GARDEN.
17. REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES AFTER THE SITE IS STABILIZED WITH VEGETATION (80% UNIFORM DENSITY OF PERMANENT VEGETATION).

*SOIL EROSION AND SEDIMENT CONTROL MAINTENANCE MUST OCCUR WEEKLY AND PRIOR TO AND AFTER EVERY ½" OR GREATER RAINFALL EVENT.

RAIN GARDENS	UPON COMPLETION OF CONSTRUCTION: -ROUTINELY AS A COMPONENT OF THE PROPOSED LANDSCAPING	ROUTINE MAINTENANCE MAY INCLUDE THE OCCASIONAL REPLACEMENT OF PLANTS, MULCHING, WEEDING AND THINNING TO MAINTAIN THE DESIRED APPEARANCE. SPECIFIC ATTENTION SHOULD BE PAID TO THE FOLLOWING: – WEEDING AND WATERING ARE ESSENTIAL THE FIRST YEAR, AND CAN BE MINIMIZED WITH THE USE OF A WEED-FREE MULCH LAYER. – KEEP PLANTS PRUNED. CUT OFF OLD FLOWER HEADS AFTER A PLANT IS DONE BLOOMING. – KEEP THE GARDEN WEEDED, ESPECIALLY IN THE FIRST COUPLE OF YEARS WHILE THE NATIVE PLANTS ARE ESTABLISHING THEIR ROOT SYSTEMS. – ONCE THE RAIN GARDEN HAS MATURED, THE GARDEN AREA SHALL BE KEPT FREE OF BARE AREAS EXCEPT WHERE STEPPING STONES ARE LOCATED. – INSPECT FOR SEDIMENT ACCUMULATIONS OR HEAVY ORGANIC MATTER WHERE RUNOFF ENTERS THE GARDEN AND REMOVE AS NECESSARY. – THE TOP FEW INCHES OF PLANTING SOIL SHOULD BE REMOVED AND REPLACED WHEN WATER PONDS FOR MORE THAN 48 HOURS. – IF THE GARDEN OVERFLOW DEVICE IS AN EARTHEN BERM OR LIP, CHECK FOR EROSION AND REPAIR AS SOON AS POSSIBLE. IF EROSION CONTINUES, A HARDER ARMORING OF STONE MAY BE NECESSARY. – IF THE GARDEN OVERFLOW DEVICE IS A PIPE OR DRAIN INLET, MAKE SURE THE DEVICE IS FREE OF DEBRIS AND REMAINS UNCLOGGED. – MAKE SURE ALL APPROPRIATE ELEVATIONS HAVE BEEN MAINTAINED, NO SETTLEMENT HAS OCCURRED AND NO LOW SPOTS HAVE BEEN CREATED.
TEMPORARY SEEDING	ALL	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 OF GP-015-002, OR IS LOCATED IN ONE OF THE WATERSHEDS LISTED IN APPENDIX C OF GP-015-002, 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. WHEN ACTIVITIES TEMPORARILY CEASE DURING CONSTRUCTION, SOIL STOCKPILES AND EXPOSED SOIL SHOULD BE STABILIZED BY SEED, MULCH OR OTHER APPROPRIATE MEASURES.
	SPRING/SUMMER/ EARLY FALL	SEED THE AREA WITH RYEGRASS (ANNUAL OR PERENNIAL) AT 30 LBS. PER ACRE (APPROXIMATELY 0.7 LB./1000 SQ. FT. OR USE 1 LB./1000 SQ. FT.)
	LATE FALL/ EARLY WINTER	SEED THE AREA WITH CERTIFIED 'AROOSTOOK' WINTER RYE (CEREAL RYE) AT 100 LBS. PER ACRE (2.5 LBS./1000 SQ. FT.)
MULCH	APRIL 1 – NOVEMBER 30	ON ALL AREAS OF EXPOSED SOIL WHICH WILL NOT BE DISTURBED AGAIN WITHIN 7 DAYS, APPLY AT A RATE OF 1.5 TO 2.0 TONS PER ACRE.
WINTER MULCH	DECEMBER 1 – MARCH 31	ON ALL AREAS OF EXPOSED SOIL WHICH WILL NOT BE DISTURBED AGAIN WITHIN 7 DAYS, APPLY AT A RATE OF 3.0 TO 4.0 TONS PER ACRE.. EROSION CONTROL BLANKET MAY BE USED AS A SUBSTITUTE FOR WINTER MULCH.
HOMEOWNER IS RESPONSIBLE FOR IMPLEMENTATION OF REQUIRED POST-CONSTRUCTION INSPECTION AND MAINTENANCE TASKS OUTLINED ABOVE.		

TEST HOLE DATA:

TEST HOLE #1
DEPTH - 54"
0-6" TOPSOIL
6-44" DARK BROWN SILT WITH COBBLES & BOULDERS
44-54" PARTIALLY DECOMPOSED BEDROCK
NO GROUNDWATER
LEDGE ROCK @ 54"

TEST HOLE #2
DEPTH - 8"
0-8" TOPSOIL & SAND
NO GROUNDWATER
LEDGE ROCK @ 8"

TEST HOLE #3
DEPTH - 18"
0-18" TOPSOIL, SAND & GRAVEL
NO GROUNDWATER
LEDGE ROCK @ 18"

NOTE:
APPROXIMATE VOLUME OF ROCK EXCAVATION FOR PROPOSED POOL: 185 CY

NOTE:
APPROXIMATE VOLUME OF ROCK EXCAVATION FOR PROPOSED DWELLING: 279 CY

Cut/Fill Summary

Name	Cut	Fill	Net
CUT-FILL	626.67 Cu. Yd.	601.04 Cu. Yd.	24.63 Cu. Yd.<Cut>
Totals	626.67 Cu. Yd.	601.04 Cu. Yd.	24.63 Cu. Yd.<Cut>

NOTES:

1. CONTRACTOR SHALL CONTACT VILLAGE ENGINEER OR DELEGATED CONSULTANTS TO SCHEDULE A SITE INSPECTION PRIOR TO BACKFILLING INFILTRATION/ATTENUATION SYSTEM(S). SHOULD THE CONTRACTOR BACKFILL PRIOR TO INSPECTION, THE CONTRACTOR SHALL EXPOSE THE SYSTEM AT THEIR OWN EXPENSE.
2. INSTALLED EROSION AND SEDIMENT CONTROL DEVICES SHALL CONFORM WITH THE 2016 NYSDEC NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL. ALL CONSTRUCTION EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED BY THE TRAINED CONTRACTOR OR COMPONENT INDIVIDUAL HAVING RECEIVED NYSDEC 4-HOUR EROSION AND SEDIMENT CONTROL TRAINING AT A MINIMUM OF WEEKLY AND FOLLOWING ALL RAIN EVENTS GREATER THAN 0.5-INCHES.
3. ALL IMPORTED SOIL MATERIAL SHALL CONFORM WITH SOIL CONSTITUENT CONCENTRATIONS FOR UNRESTRICTED USE AS SPECIFIED BY THE NYSDEC DER-10 AND PART 375 STANDARDS. SOIL MOVING OPERATIONS ARE PROHIBITED BETWEEN THE HOURS OF 5:00PM TO 8:00AM MONDAY THROUGH FRIDAY AND ON SATURDAYS, SUNDAYS, AND STATE RECOGNIZED PUBLIC HOLIDAYS.
4. ALL INACTIVE DISTURBED SITE AREAS SHALL RECEIVE TEMPORARY STABILIZATION WITHIN 14 DAYS.
5. SOIL RESTORATION IN ACCORDANCE WITH CHAPTER 5 OF THE NYSDEC STORMWATER MANAGEMENT DESIGN MANUAL SHALL BE IMPLEMENTED TO RESTORE ALL DISTURBED SURFACES AT THE COMPLETION OF CONSTRUCTION.
6. THE PROPOSED RAIN GARDEN HAS BEEN SIZED PER THE REQUIREMENTS OF THE NYSDEC DESIGN MANUAL.
7. ROCK SHALL BE REMOVED BY UTILIZING HYDRAULIC HAMMER ROCK DRILLING FOR AN APPROXIMATE DURATION OF 2 WEEKS.
8. ALL WORK WITHIN THE VILLAGE ROW SHALL OBTAIN THE NECESSARY PERMITS.
9. THE INSTALLATION OF BACKFLOW PREVENTION DEVICES SHALL BE REQUIRED IN ACCORDANCE WITH WJWW REGULATIONS. THE TYPE OF BACKFLOW DEVICE(S) WILL BE BASED ON THE POTENTIAL HAZARD.

ANY ALTERATIONS OR REVISIONS OF THESE PLANS, UNLESS DONE BY OR UNDER THE DIRECTION OF THE NYS LICENSED AND REGISTERED ENGINEER THAT PREPARED THEM, IS A VIOLATION OF THE NYS EDUCATION LAW.

7 BAY AVENUE STORMWATER MANAGEMENT PLAN BASED UPON EXISTING INFORMATION PROVIDED BY PAUL J. PETRETTI, DATED MARCH 17, 2017

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

3.	04/02/19	REVISED SITE LAYOUT
2.	03/18/19	REVISED PER VILLAGE COMMENTS
1.	02/28/19	REVISED SITE PLAN PER ARCHITECTURAL CHANGES
		Revisions

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEER'S SEAL & SIGNATURE

PROJECT:
PROPOSED DWELLING
7 BAY AVENUE
VILLAGE OF LARCHMONT
WESTCHESTER COUNTY - NEW YORK

STORMWATER MANAGEMENT PLAN

STATE OF NEW YORK · RICHARD P. STEIN · 18 OCT 1971 · No. 80837 · LICENSED PROFESSIONAL ENGINEER

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T: 914-909-0420
F: 914-560-2086
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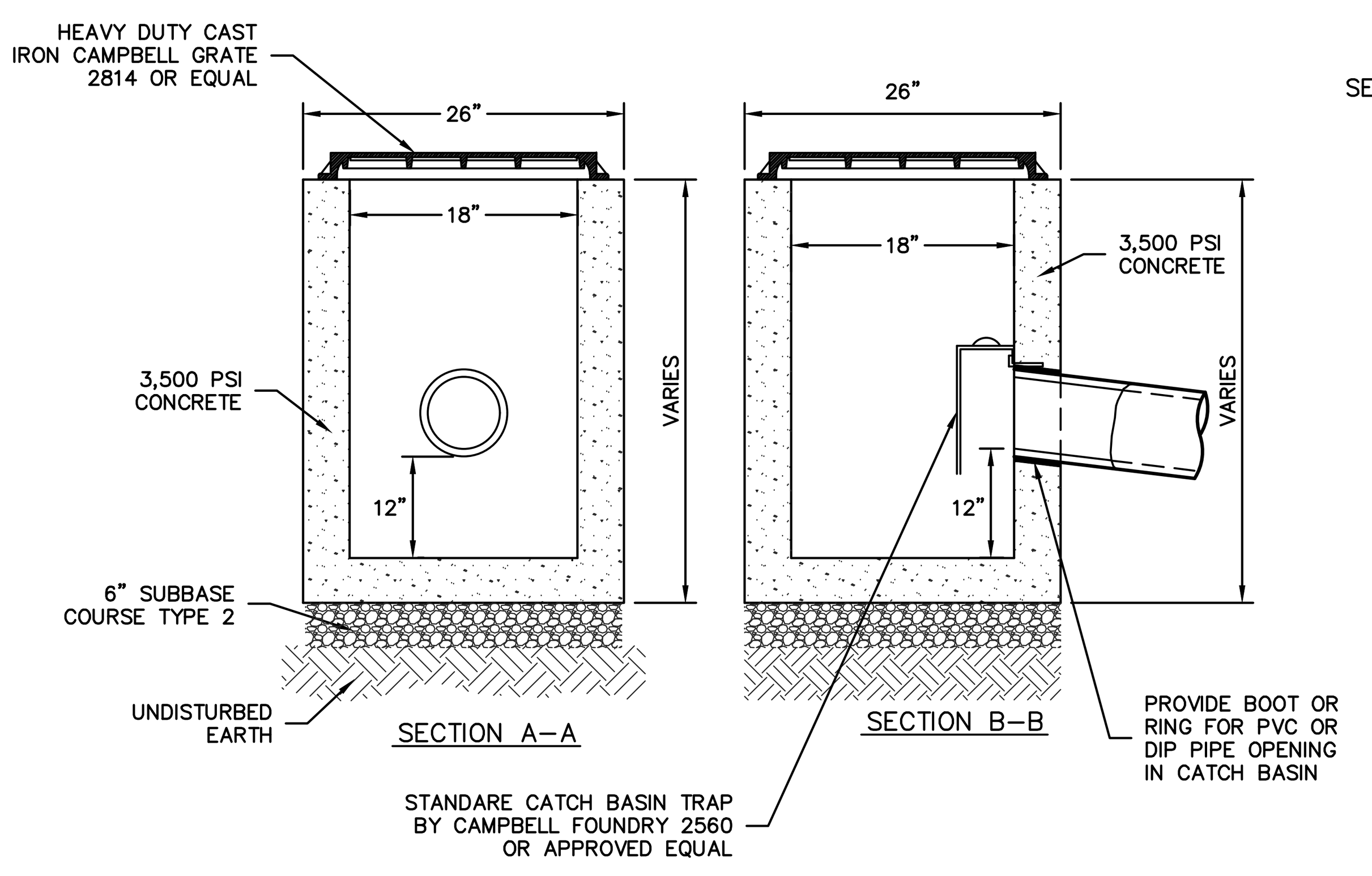
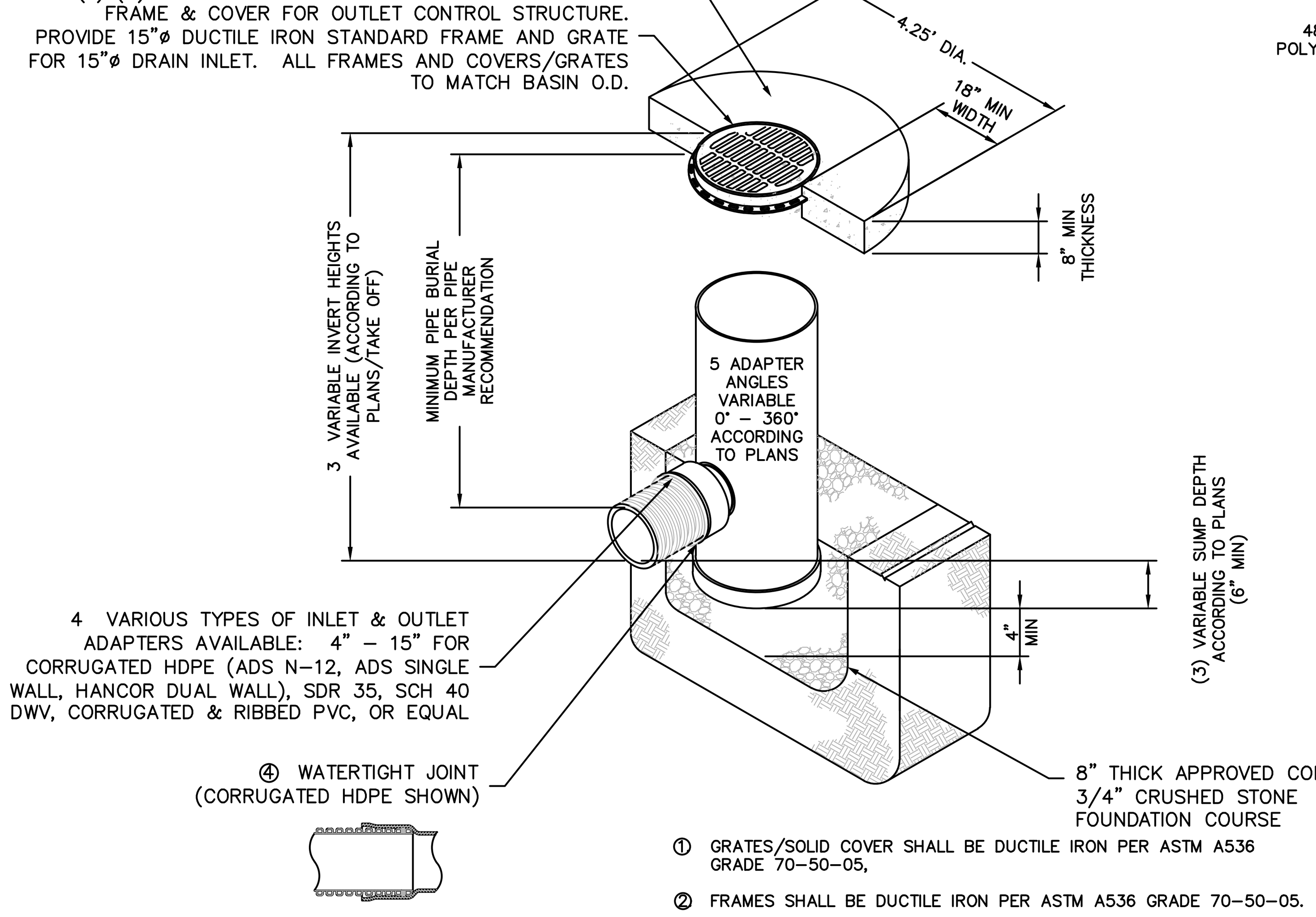
Date:	12/27/17
Scale:	1" = 20'
Designed By:	A.Y.
Checked By:	M.S.
Sheet No.	C-1

Sheet: 1 / 3



NOTES:
1. CONCRETE – 3,500 PSI MINIMUM STRENGTH @ 28 DAYS
2. DESIGN LOADING – AASHTO HS20-44
3. EARTH COVER – 0 TO 5 FEET
4. CONSTRUCTION JOINT – LAPPED

18"X18" PRECAST CONCRETE CATCH BASIN



① GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05,

② FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05.

③ DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001–110–065

④ DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC

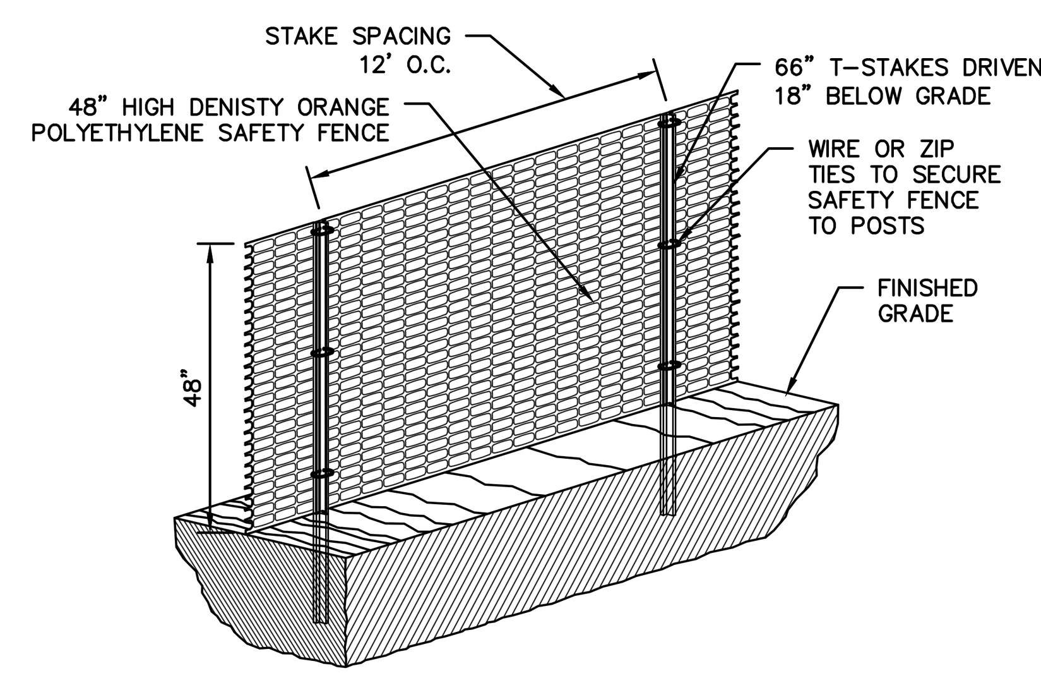
⑤ ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001–110–013.

GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1599CGP	7001-110-207
STANDARD	MEETS H-20	1599CGS	7001-110-208
SOLID COVER	MEETS H-20	1599CGC	7001-110-209
PEDESTRIAN BRONZE	N/A	1599CGPB	7001-110-210
DOME	N/A	1599CGD	7001-110-211
DROP IN GRATE	LIGHT DUTY	1501DI	7001-110-073

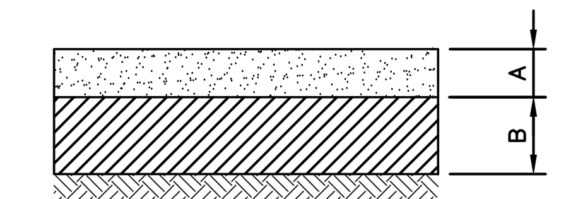
NOTES:

1. INSTALL BASIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. PRODUCT SHALL BE NYLOPLAST DRAIN BASIN MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS (ADS) OR APPROVED EQUAL.

15"ø NYLOPLAST BASIN

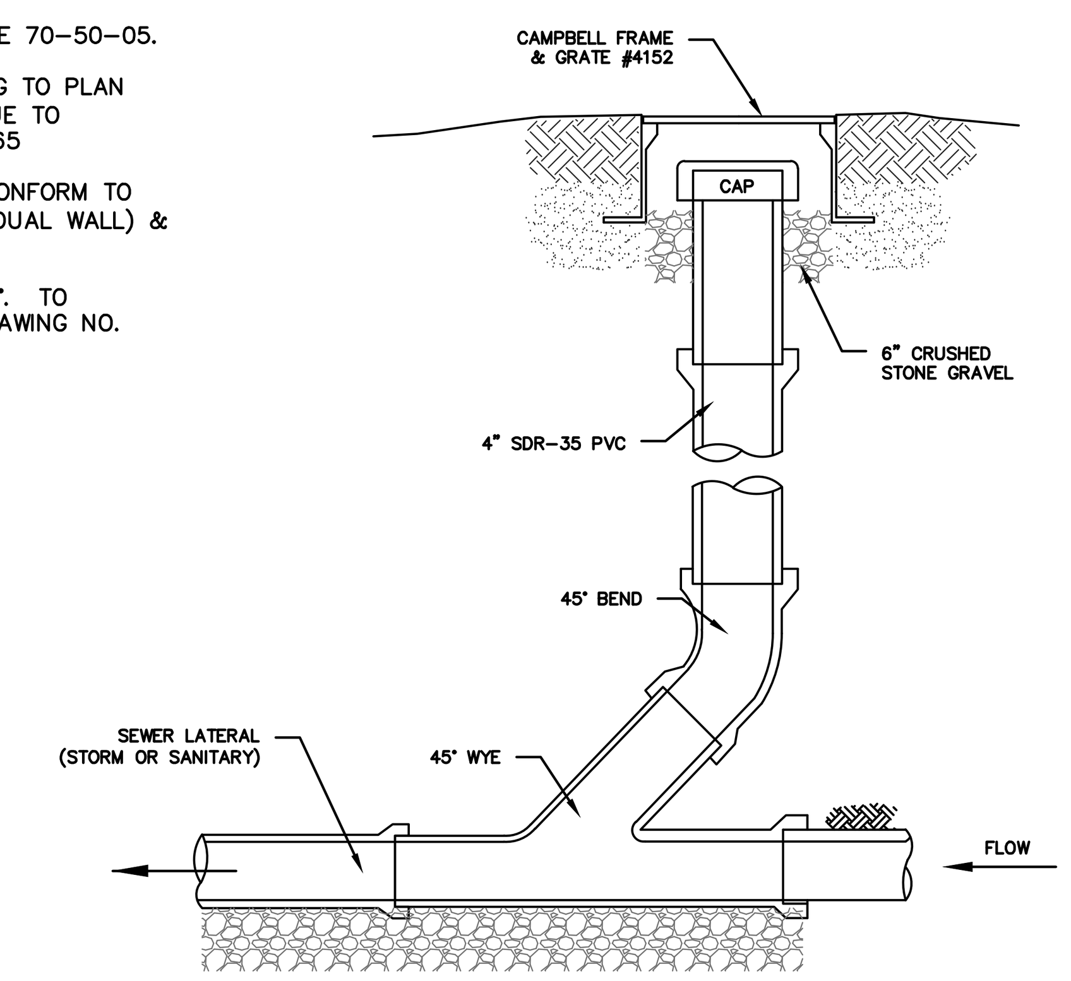


CONSTRUCTION FENCE



A– 2" TOP COURSE– N.Y.S.D.O.T. ITEM, 403.178202, TYPE 6 F2
B– 4" SUBBASE COURSE– N.Y.S.D.O.T. ITEM, 304.12, TYPE 2

DRIVEWAY PAVEMENT SECTION



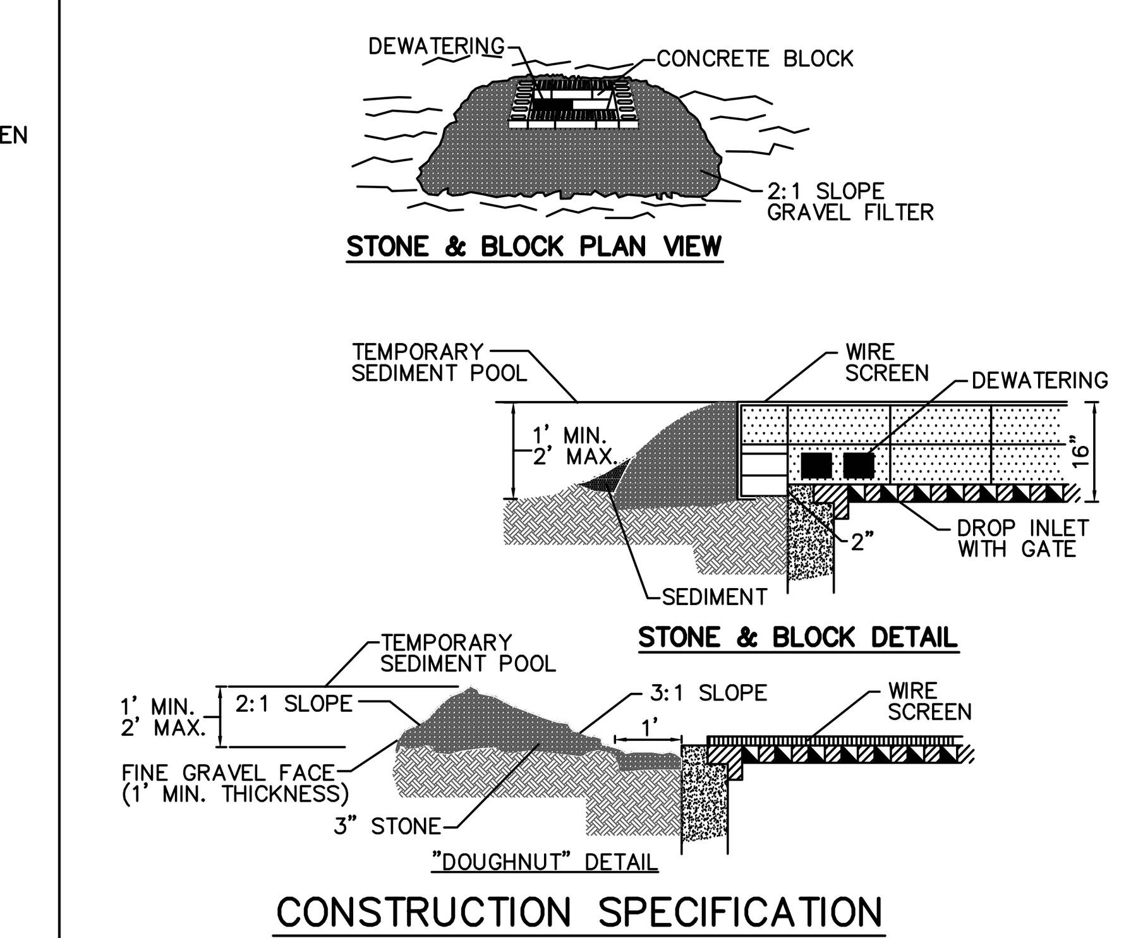
NOTES (SANITARY SEWER SERVICES):
1. ALL SANITARY SEWER SERVICES TO BE 4"ø SCH. 40 @ 1.0% MINIMUM.
2. IN ACCORDANCE WITH THE NYS RESIDENTIAL BUILDING CODE, THE FOLLOWING REQUIREMENTS APPLY:
   A. CLEANOUTS SHALL BE INSTALLED NOT MORE THAN 100 FEET APART IN HORIZONTAL DRAINAGE LINES (P3005.2.2).
   B. CLEANOUTS SHALL BE INSTALLED AT EACH CHANGE OF DIRECTION OF THE DRAINAGE SYSTEM GREATER THAN 45 DEGREES.
   C. CLEANOUTS SHALL BE INSTALLED SO THAT THE CLEANOUT OPENS TO ALLOW CLEANING IN THE DIRECTION OF THE FLOW OF THE DRAINAGE LINE (P3005.2.8).

NOTES (STORM SEWER):
1. REFER TO PLAN FOR SPECIFIC PIPE SIZING AND SLOPE SPECIFICATIONS; HOWEVER, IN GENERAL, ALL STORM SEWER SERVICES TO BE 6"ø SCH. 40 @ 1.0% MINIMUM.
2. CLEANOUTS SHALL BE PLACED BEFORE SIGNIFICANT PIPE BEND LOCATIONS (I.E., JUNCTIONS, 90–DEGREE BENDS, ETC.) UNLESS A ROOF LEADER DOWNSPOUT CONNECTION IS PROPOSED.

SEWER CLEANOUT DETAIL (GRAVITY)

(STORM OR SANITARY)

STONE & BLOCK DROP INLET PROTECTION

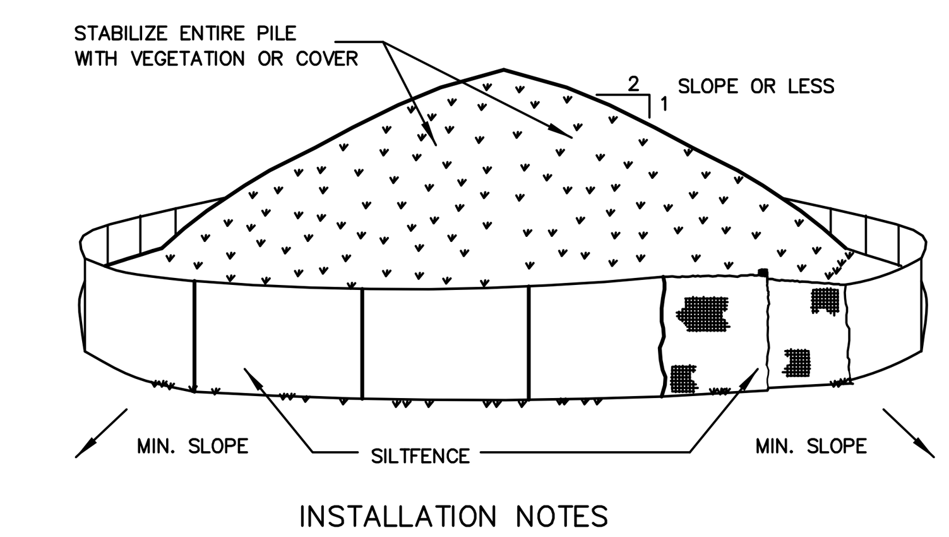


CONSTRUCTION SPECIFICATION

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 AGIANST INLET FOR SUPPORT.
2. HARDWARECLOTH 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 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.

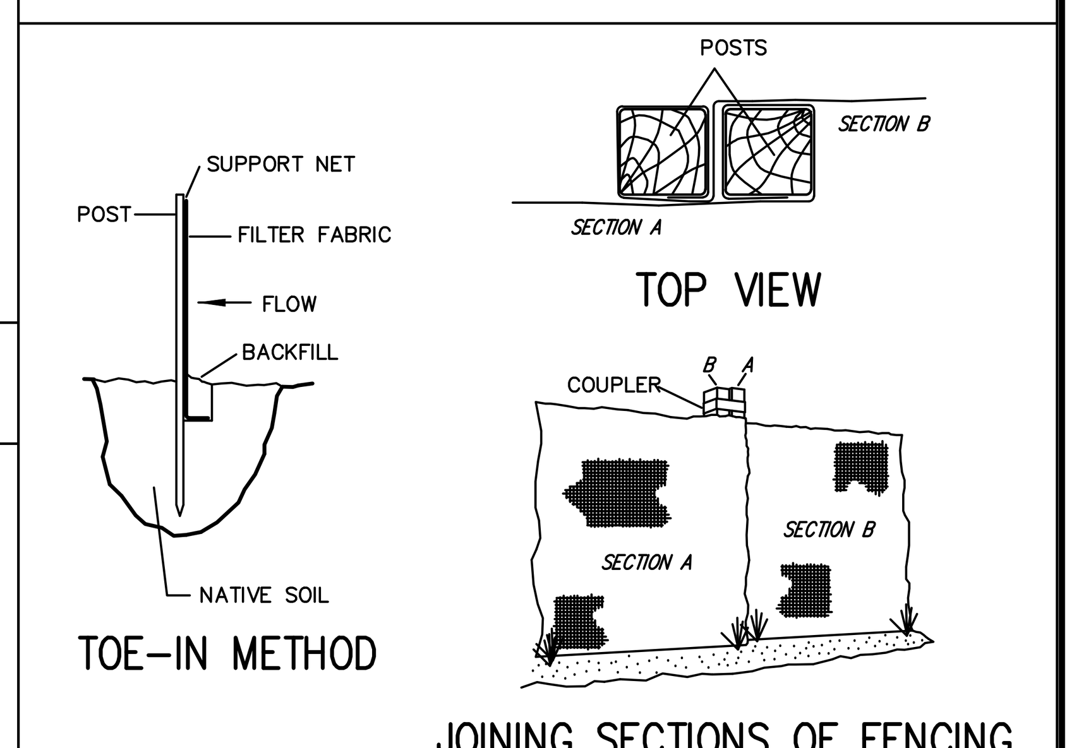
SOIL STOCKPILING



INSTALLATION NOTES

INSTALLATION NOTES:
1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. SOILS OR FILL TO BE STOCKPILED ON SITE DURING CUTTING AND FILLING ACTIVITIES SHOULD BE LOCATED ON LEVEL PORTIONS OF THE SITE WITH A MINIMUM OF 50–75 FOOT SETBACKS FROM TEMPORARY DRAINAGE SWALES.
3. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
4. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAWBALES, THEN STABILIZED WITH VEGETATION OR COVERED.
5. STOCKPILES REMAINING IN PLACE FOR MORE THAN A WEEK SHOULD BE SEEDED AND MULCHED OR COVERED WITH GEOTEXTILE FABRIC SURROUNDED BY SILT FENCE.
6. SEE SPECIFICATIONS (THIS MANUAL) FOR INSTALLATION OF SILT FENCE.

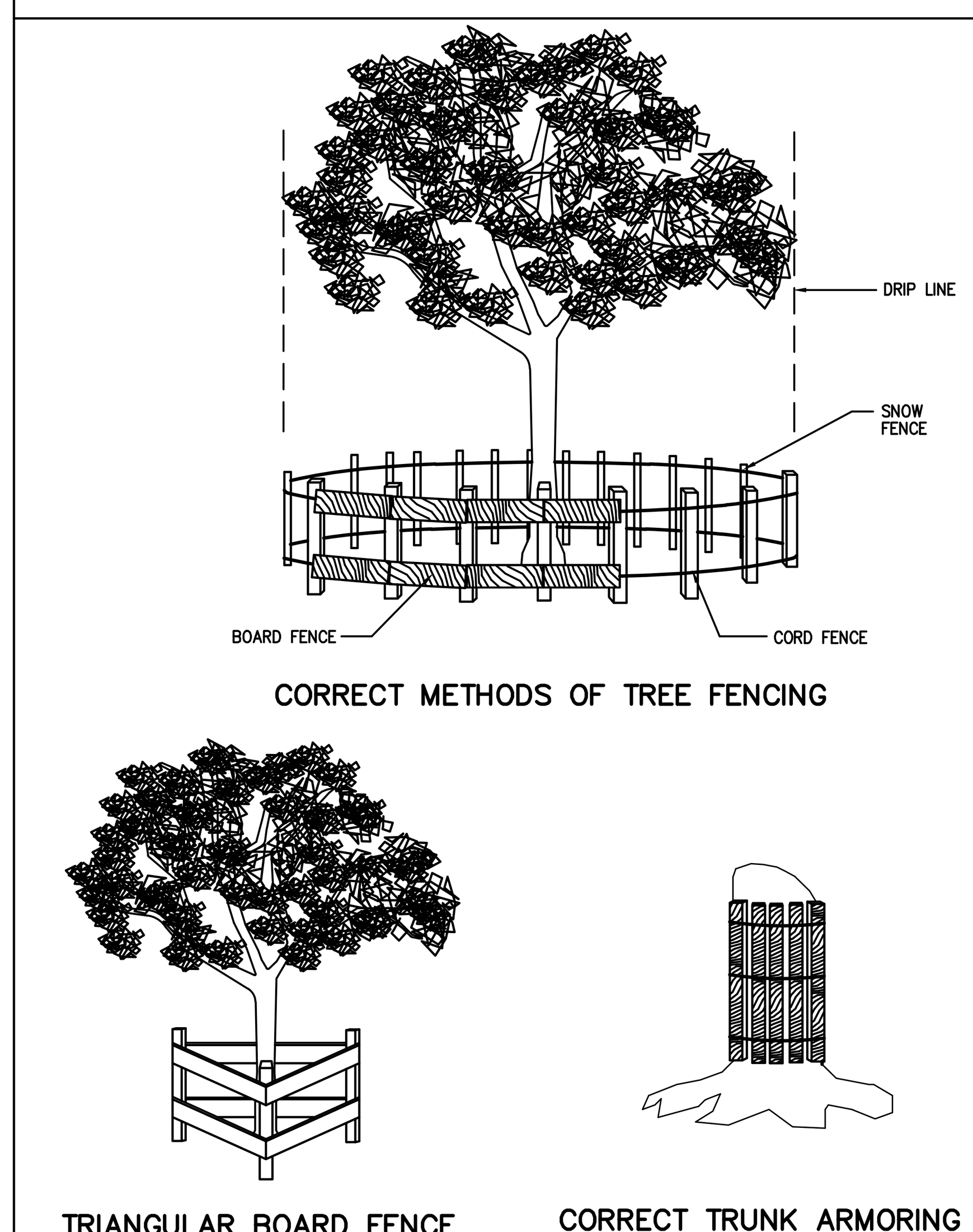
SILT FENCE



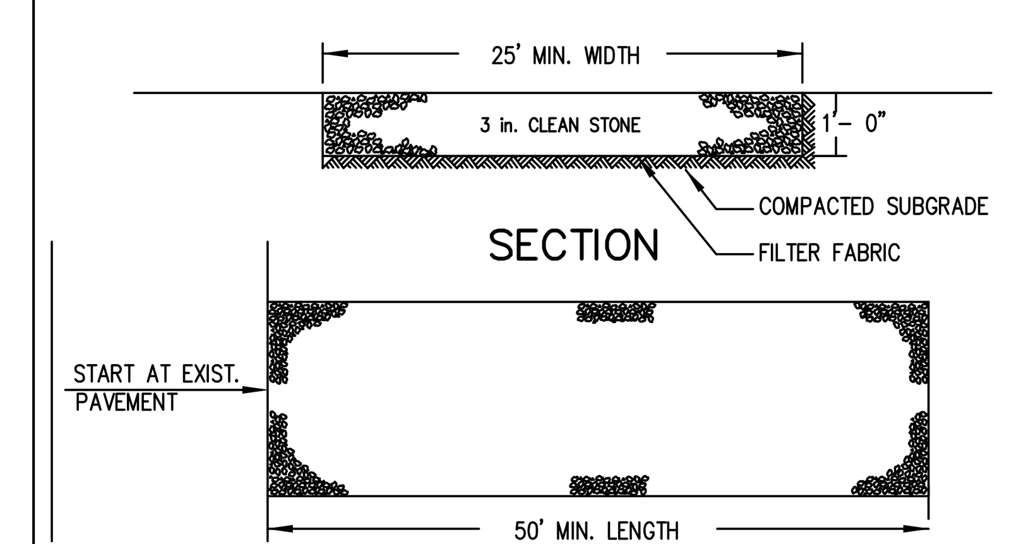
INSTALLATION NOTES:

1. EXCAVATE A 4 INCH * 4 INCH TRENCH ALONG THE LOWER PERIMETER OF THE SITE.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM)WALL OF THE TRENCH (NET SIDE AWAY FROM DIRECTION OF FLOW).
3. DRIVE THE POST INTO THE GROUND UNTIL THE NETTING IS APPROXIMATELY 2 INCHES FROM THE TRENCH BOTTOM.
4. LAY THE TOE–IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. STEEPER SLOPES REQUIRE AN INTERCEPT TRENCH.
5. JOIN SECTIONS AS SHOWN ABOVE.

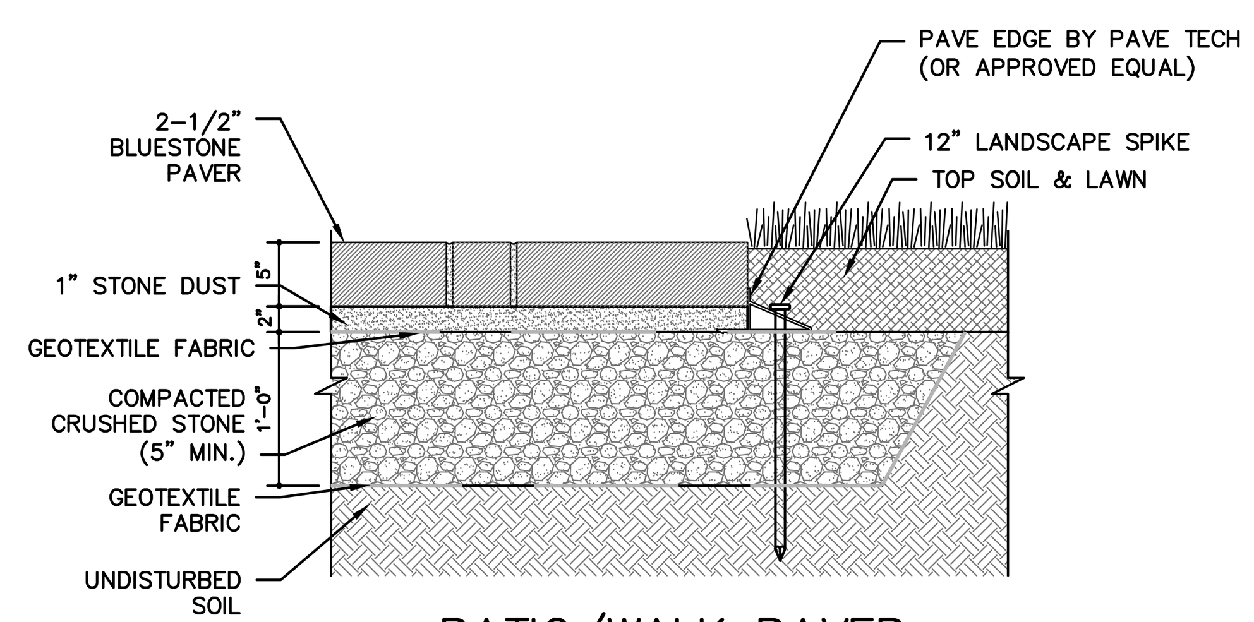
FENCING AND ARMORING



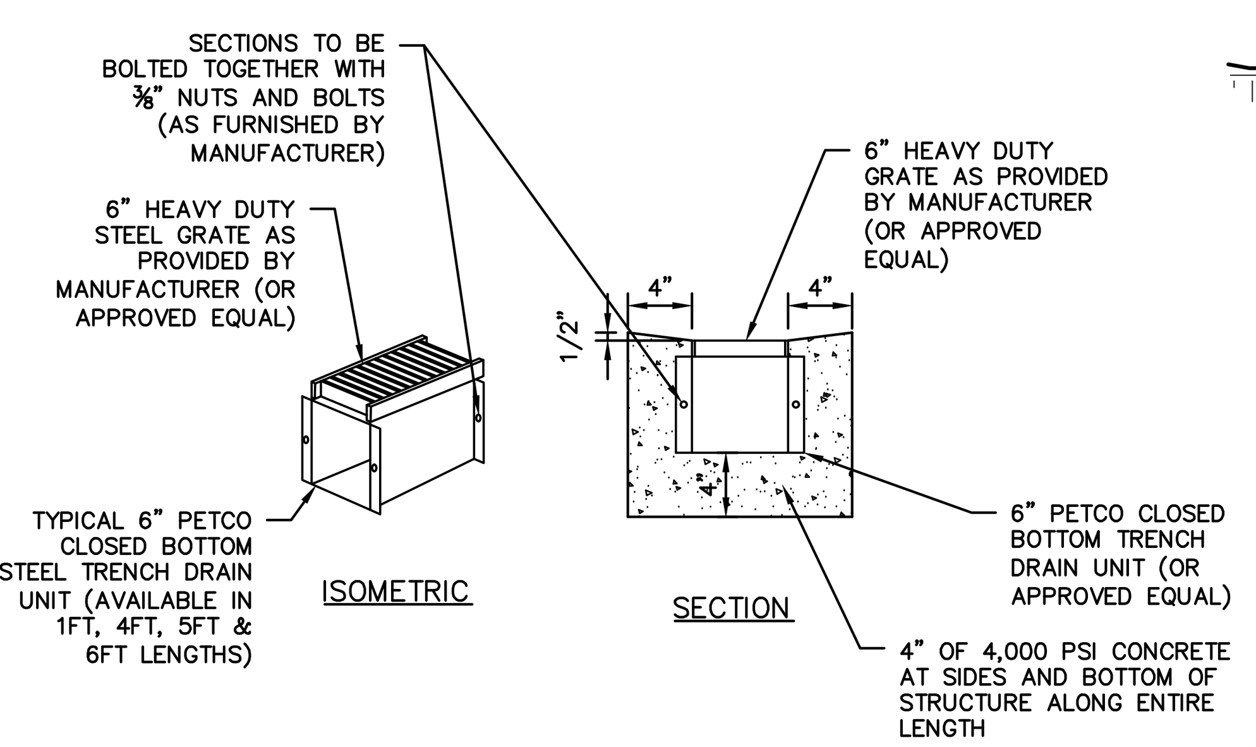
STABILIZED CONSTRUCTION ENTRANCE



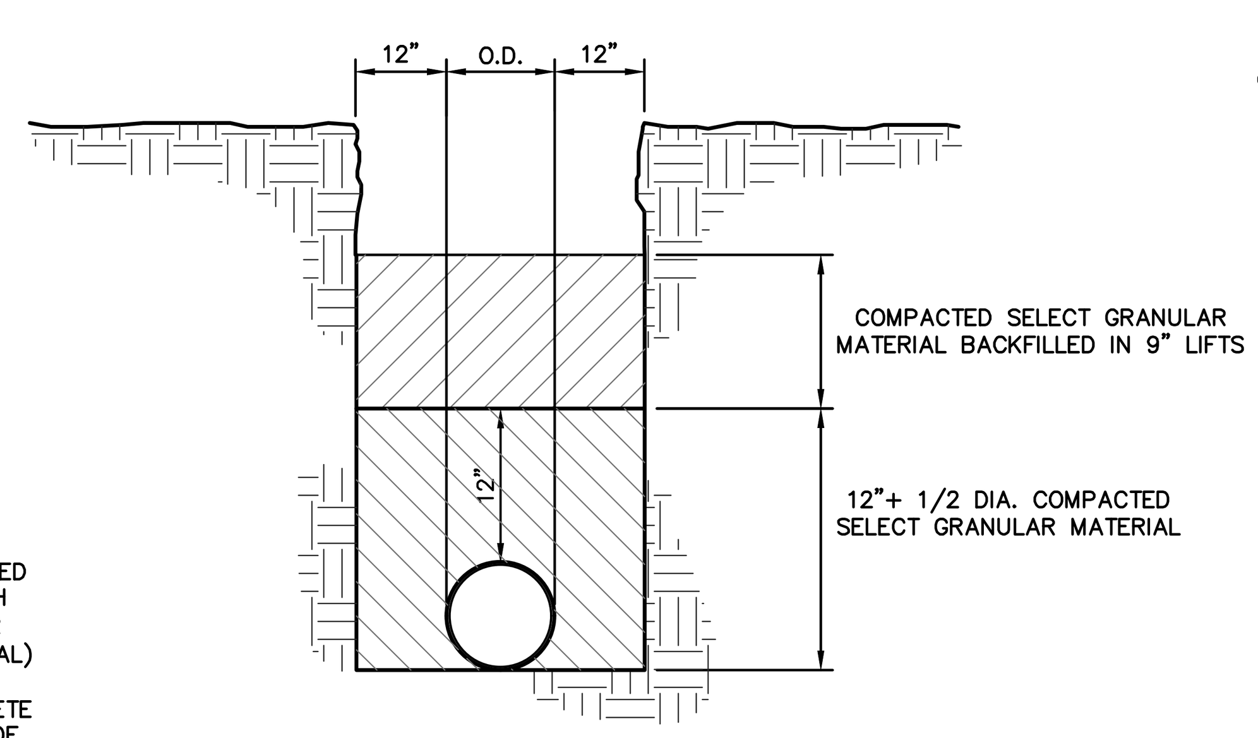
INSTALLATION NOTES:
1. STONE SIZE – USE 3" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH – AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – 25 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
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 RIGHT OF WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN 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.



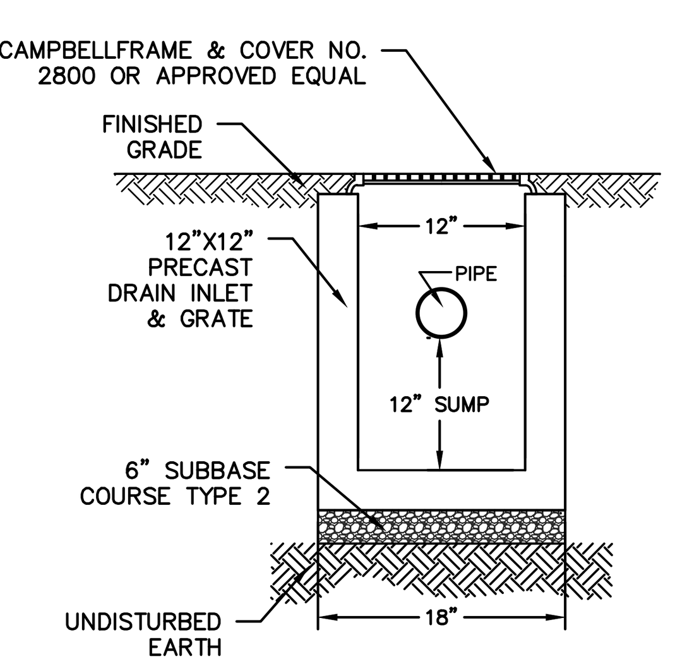
PATIO/WALK PAVER AT LAWN



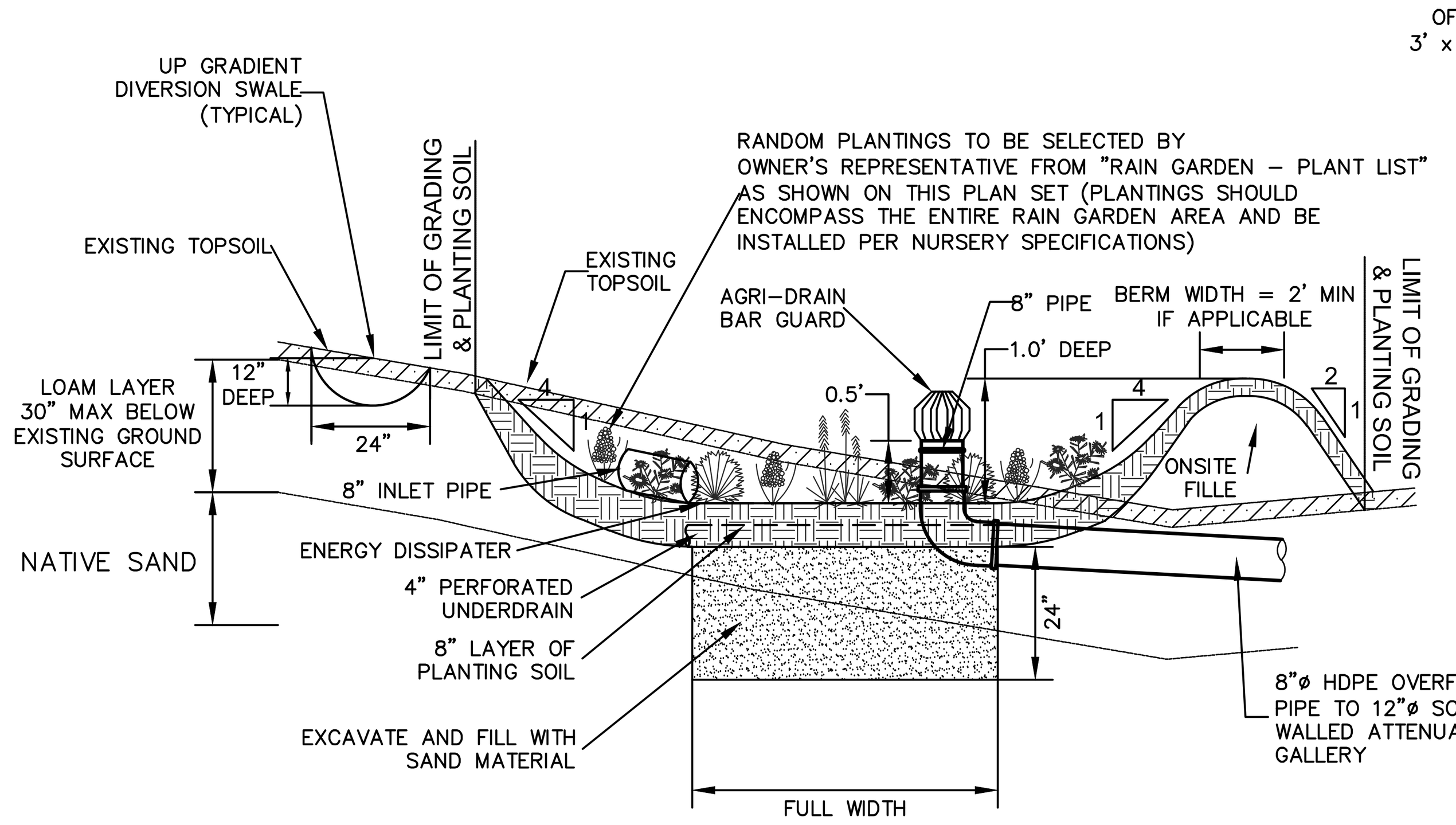
STEEL TRENCH DRAIN



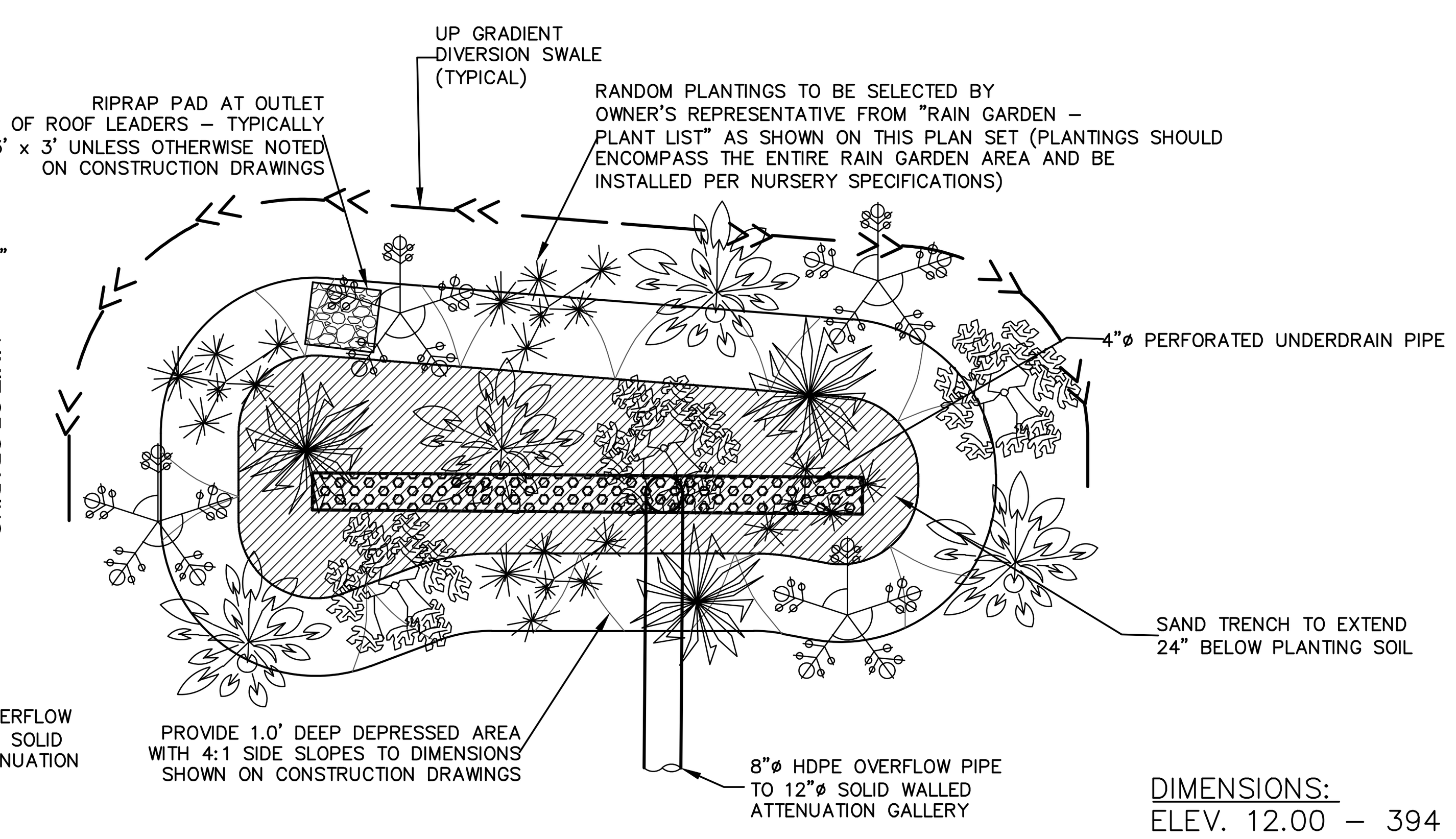
TRENCH BEDDING



SUMP BOX



RAIN GARDEN – CROSS SECTION



DIMENSIONS:
ELEV. 12.00 – 394 SQ. FT.
ELEV. 13.00 – 842 SQ. FT.

RAIN GARDEN – PLAN VIEW

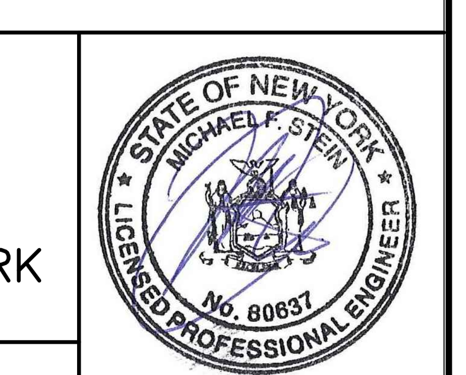
BOTANICAL NAME	COMMON NAME	INUNDATION TOLERANCE
TREES & SHRUBS		
LINDERA BENZOIN	COMMON SPICE BUSH	YES
SAMBUCUS CANADENSIS	ELDERBERRY	YES
PYRUS ARBUTIFOLIA	RED CHOKE BERRY	YES
AMELANCHIER CANADENSIS	SHADOWBUSH, SERVICEBERRY	YES
CORNUS AMOMUIM	SILKY DOGWOOD	YES
ALNUS RUGOSA	SPECKLED ALDER	YES
ROSA PALUSTRIC	SWAMP ROSE	IRREGULAR, SEASONAL, OR REGULARLY SATURATED
ILEX VERTICILLATA	WINTERBERRY	YES
HERBACEOUS PLANTS		
PELTANDRA VIRGINICA	ARROW ARUM	UP TO 1'
SAFFITARIA LATIFOLIA	ARROWHEAD, DUCK POTATO	UP TO 1'
ANDROPOGON GERARDI	BIG BLUESTEM	IRREGULAR OR SEASONAL INNUNDATION
ANDROPOGON GLOMERATUS	BUSHY BEARDGRASS	UP TO 1'
LOBELIA CARDINALIS	CARDINAL FLOWER	SOME TOLERATES SATURATION UP TO 100% OF SEASON
TYPHA SP.	CATTAIL	UP TO 1'
GLYCERIA STRIATA	FOWL MANNAGRASS	IRREGULAR OR SEASONAL INUDATION
SPARGANIUM EURYCARPUM	GIANT BURREED	REGULAR TO PERMANENTLY INUDATED UP TO 1'
HIBISCUS MOSCHEUTOS	MARSH HIBISCUS	UP TO 3"
PONTEDERIA CORDATA	PICKERELWEED	UP TO 1'
AGROSTIS ALBA	REDTOP	UP TO 25% OF THE SEASON
LEERSIA ORYZOIDES	RICE CUTGRASS	UP TO 3"
CAREX SPP.	SEDGES	UP TO 3"
DESCHAMPSIA CAESPITOSA	TUFTED HAIRGRASS	REGULAR TO IRREGULAR INUNDATION
SCIRPUS VALIDUS	SOFT-STEM BULRUSH	UP TO 1'
POLYGONUM SPP.	SMARTWEED	UP TO 1'
JUNCUS EFFUSUS	SOFT RUSH	UP TO 3"
PANICUM VIRGATUM	SWITCH GRASS	UP TO 3"
ACORUS CALAMUS	SWEET FLAG	UP TO 3"
SCIRPUS CYPERINUS	WOOL GRASS	IRREGULARLY TO SEASONALLY INUNDATED
-	ERNST CONSERVATION SEED ERNST 128	SEASONALLY FLOODED

Revisions	
1.	ADDED DETAILS PER SITE PLAN REVISIONS 02/28/19
2.	REVISED PER VILLAGE COMMENTS 03/18/19

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEERS SEAL & SIGNATURE

PROJECT:

PROPOSED DWELLING
7 BAY AVENUE
VILLAGE OF LARCHMONT
WESTCHESTER COUNTY – NEW YORK



DETAILS

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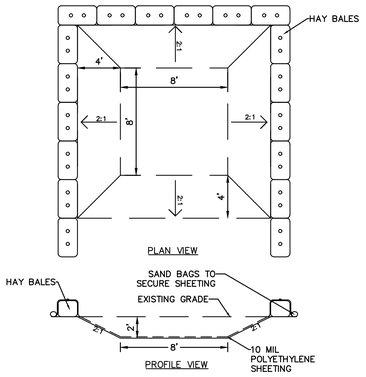
Date:	12/27/17
Scale:	1" = 20'
Designed By:	A.Y.
Checked By:	M.S.

Sheet: 2 3

Sheet No.

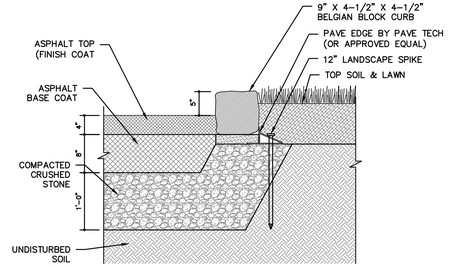
C-2



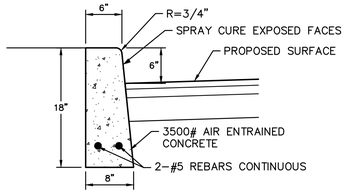
CLEANOUT WASHOUT AREA

CONCRETE WASHOUT AREA NOTES:

1. CONCRETE WASHOUT AREA TO BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE. CONCRETE WASHOUT AREA TO BE ENTIRELY SELF CONTAINED
2. HAY BALES SHALL BE PROVIDED AROUND THE PERIMETER OF CONCRETE WASHOUT AREA FOR CONTAINMENT.
3. WASHOUT AREA SHALL BE LINED WITH PLASTIC SHEETING NO THINNER THAN 10 MILS. SHEETING SHALL HAVE NO HOLES OR TEARS AND SHALL BE ANCHORED BY SAND BAGS ON ALL SIDES EXCEPT ACCESS SIDE. PLASTIC LINING TO BE REPLACED WITH EACH CLEANING
4. SIGNS SHALL BE PROVIDED AT THE CONSTRUCTION ENTRANCE AND CONCRETE AREAS INDICATING LOCATION OF WASHOUT AREA.
5. WASHOUT AREA TO BE ENCLOSED IN CONSTRUCTION FENCE.
6. WASHOUT AREAS TO BE INSPECTED DAILY TO ENSURE LINER IS INTACT AND ADEQUATE CAPACITY IS AVAILABLE AT ALL TIMES. WASHOUT AREAS SHALL BE INSPECTED IMMEDIATELY AFTER HEAVIER RAINS. DAMAGED OR LEAKING WASHOUT AREAS TO BE DEACTIVATED AND REPAIRED IMMEDIATELY.
7. CONCRETE WASTE SHALL BE REMOVED AND DISPOSED OF ONCE IT REACHES THREE-QUARTERS OF THE WASHOUT AREA'S HEIGHT. ALL WASTE SHALL BE DISPOSED OF IN A MANNER CONSISTENT WITH APPLICABLE LAWS, REGULATIONS, AND GUIDELINES OF MUNICIPALITY.

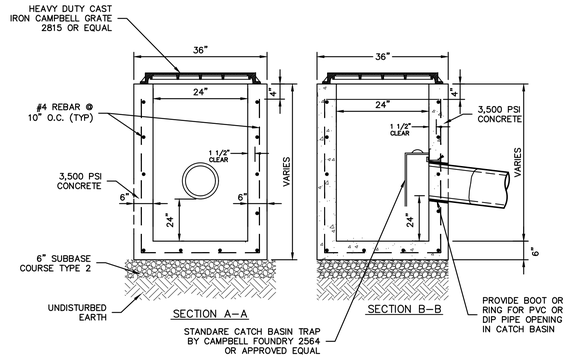


BELGIAN BLOCK CURB AT ASPHALT & LAWN



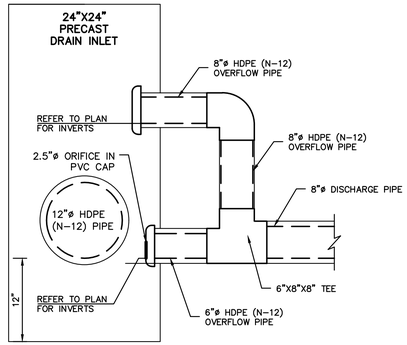
NOTE:
EXPANSION JOINTS TO BE INSTALLED EVERY 10 FEET.

CONCRETE CURB



NOTES:
1. CONCRETE – 3,500 PSI MINIMUM STRENGTH @ 28 DAYS
2. STEEL REINFORCEMENT – ASTM A-615, # 4 REBAR, GRADE 60
3. COVER TO STEEL – 1 ½" MINIMUM
4. DESIGN LOADING – AASHTO HS20-44
5. EARTH COVER – 0 TO 5 FEET
6. CONSTRUCTION JOINT – LAPPED

PRECAST DRAIN INLET



NOTE
ALL STUBS TO BE INSTALLED BY MANUFACTURER.

OUTLET DETAIL

No.	Revisions	Date
1.	ADDED DETAILS PER SITE PLAN REVISIONS	12/28/18
2.	REVISED PER VILLAGE COMMENTS	03/18/19

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEERS SEAL & SIGNATURE

PROJECT:
PROPOSED DWELLING
7 BAY AVENUE
VILLAGE OF LARCHMONT
WESTCHESTER COUNTY – NEW YORK

DETAILS

STATE OF NEW YORK · MICHAEL F. STERN · No. 80637 · LICENSED PROFESSIONAL ENGINEER

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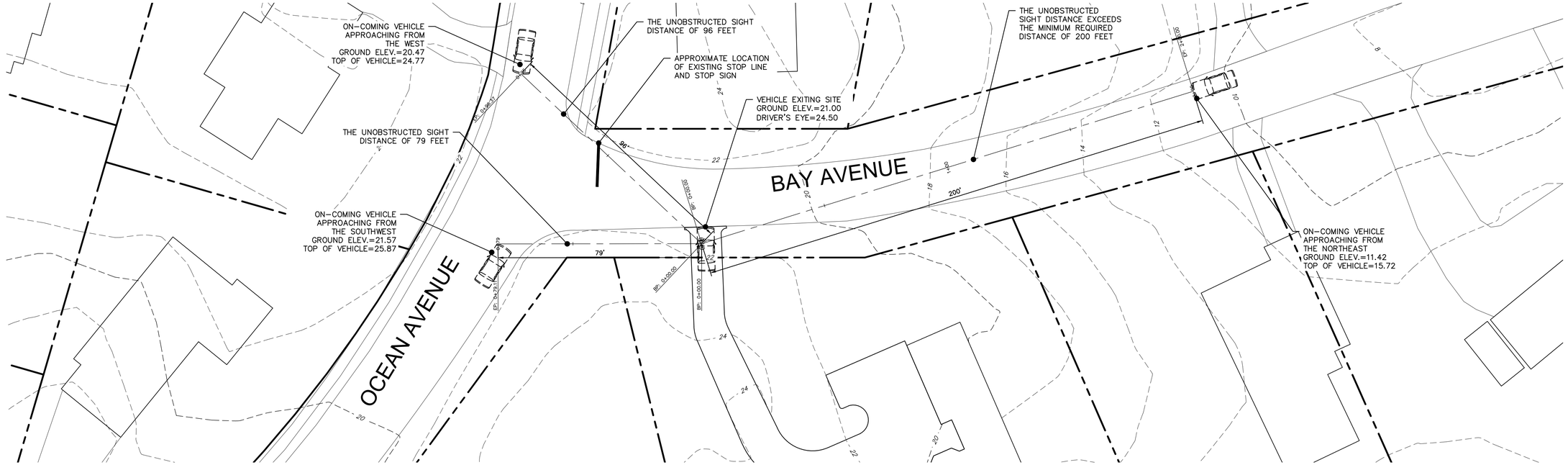
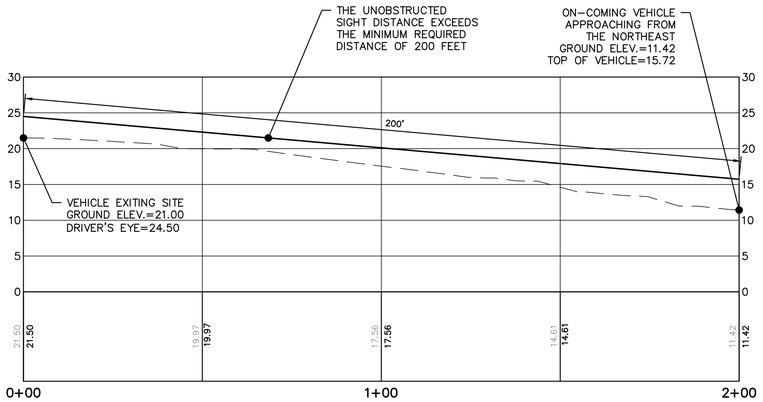
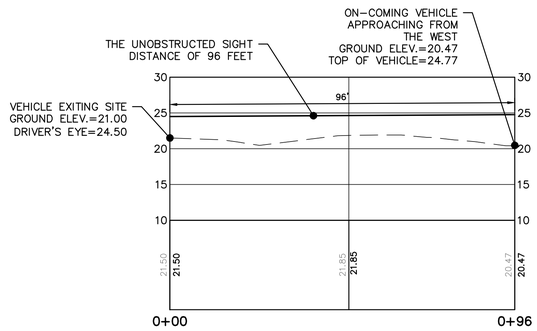
Date: 12/27/17 Sheet: 3
Scale: 1" = 20' 3
Designed By: A.Y.
Checked By: M.S.
Sheet No.
C-3





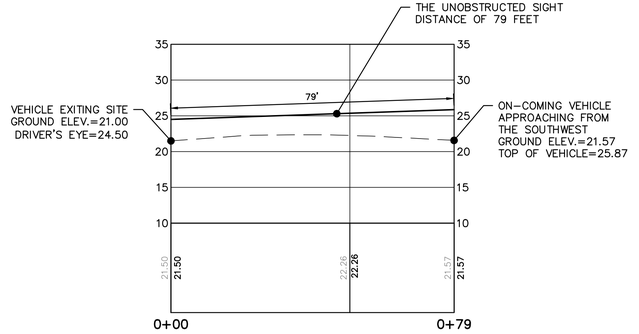
SIGHT DISTANCE PROFILE (NORTHWEST) STA. 0+00 TO STA. 2+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'



SIGHT DISTANCE PROFILE (WEST)
STA. 0+00 TO STA. 0+96

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'



SIGHT DISTANCE PROFILE (SOUTHWEST)
STA. 0+00 TO STA. 0+79

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 10'

Posted Speed Limit =	30	mph
Design Speed Limit =	30	mph
Stopping Sight Distance =	200	(ft) design
Height of Driver's Eye =	3.50	(ft)
Ground Elevation =	21.00	(ft)
Driver's Eye Elevation =	24.50	(ft)
Height of Approaching Vehicle =	4.30	(ft)
Ground Elevation 200' North=	11.42	(ft) +/-
Top of Approaching Vehicle =	15.72	(ft) +/-
Ground Elevation 96' West =	20.47	(ft) +/-
Top of Approaching Vehicle =	24.77	(ft) +/-
Ground Elevation 79' Southwest =	21.57	(ft) +/-
Top of Approaching Vehicle =	25.87	(ft) +/-

7 BAY AVENUE SIGHT DISTANCE ANALYSIS
BASED UPON EXISTING INFORMATION
PROVIDED BY WESTCHESTER COUNTY GIS

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

ANY ALTERATIONS OR REVISIONS OF THESE PLANS, UNLESS DONE BY OR UNDER THE DIRECTION OF THE NYS LICENSED AND REGISTERED ENGINEER THAT PREPARED THEM, IS A VIOLATION OF THE NYS EDUCATION LAW.

No. | Description | Date
Revisions

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEER'S SEAL & SIGNATURE

PROJECT:

PROPOSED DWELLING
7 BAY AVENUE
VILLAGE OF LARCHMONT
WESTCHESTER COUNTY – NEW YORK

SIGHT DISTANCE ANALYSIS

STATE OF NEW YORK · MICHAEL F. SIMON · No. 80637 · LICENSED PROFESSIONAL ENGINEER

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Date: 04/09/19 Sheet: 1 / 1
Scale: 1" = 20'
Designed By: A.Y.
Checked By: M.S.
Sheet No.
SD-1

STORMWATER MANAGEMENT PLAN & DRAINAGE ANALYSIS

7 Bay Avenue
Village of Larchmont - New York

December 27, 2017
Revised April 2, 2019

Hudson Engineering & Consulting, P.C.
45 Knollwood Road – Suite 201
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STORMWATER MANAGEMENT
PLAN & DRAINAGE ANALYSIS
7 Bay Avenue
Village of Larchmont - New York

INTRODUCTION

This Stormwater Management Plan presents the proposed Best Management Practices (BMPs) to control erosion and sedimentation and manage stormwater during and upon construction of Proposed dwelling, driveway, pool and patio at 7 Bay Avenue in the Village of Larchmont, Westchester County, New York.

This plan consists of this narrative and a plan set entitled: "Proposed Dwelling, 7 Bay Avenue, Village of Larchmont, Westchester County - New York", all as prepared by Hudson Engineering and Consulting, P.C., Elmsford, New York, last revised April 2, 2019. The design is in accordance with the Village of Larchmont requirements. Since the project disturbance is less than one acre the New York State Department of Environmental Conservation [NYSDEC] stormwater regulations are not applicable.

METHODOLOGY

In accordance with the exemption listed in the Village Code, Section 335-28. (B).(2), "The Stormwater Management Officer may waive or reduce any of the requirements of this section if he/she determines that such existing Village stormwater facility is of adequate size, and will discharge surface water runoff directly to Long Island Sound, the East Creek, or the Premium River without adversely affecting drainage from any other area." Therefore, the stormwater management system shall only be designed for water quality measures and will exclude attenuation.

The stormwater analysis was developed utilizing the Soil Conservation Service (SCS) TR-20, 24-hour Type III storm events (HydroCad®) to assist with the design of the mitigating practices. The "Complex Number" (CN) value determination is based on soil type, vegetation and land use. The design is in accordance with the Village of Larchmont's stormwater regulations. The "Time of Concentration" (T_c) was determined as a direct entry of one-minute. The CN and T_c data are input into the computer model. The project site was modeled for the water quality rainfall event (1.65-inches) Type III – 24-hour storm event. Additionally, an attenuation practice was designed to ensure equivalent or reduced runoff rates up to the 50-year Type III – 24-hour storm events.

PRE-DESIGN INVESTIGATIVE ANALYSIS

A pre-design investigative analysis was performed including deep-hole tests by Soil Testing, Inc. in the locations shown on the plans.

Three (3) deep-hole tests were excavated and labeled TP-1, TP-2, and TP-3, as shown on the plans.

- TP-1 was excavated to a depth of 54-inches. The test revealed topsoil to a depth of 6-inches, dark brown silt with cobbles and boulders to a depth of 44-inches, and partially decomposed bedrock to the invert. Ledge rock was encountered at 54 inches. No groundwater was encountered.

- TP-2 was excavated to a depth of 8-inches. The test revealed topsoil and sand to the invert. Ledge rock was encountered at 8 inches. No groundwater was encountered.

- TP-1 was excavated to a depth of 18-inches. The test revealed topsoil, sand, and gravel to the invert. Ledge rock was encountered at 18 inches. No groundwater was encountered.

The deep test hole log sheet is attached.

PRE-DEVELOPED CONDITION

In the existing conditions the site was modeled as one watershed, Watershed 1 analyzed as follows:

Watershed 1 contains a tributary area of 40,549 square feet. 27,838 square feet is pervious in the form of lawn and landscaping in “D” soils, and 12,711 square feet is impervious in the form of existing house, walkways, driveway, terrace, steps, and walls. The weighted Complex Number (CN) value was calculated as 86 and the Time of Concentration (Tc) was calculated as 6.4 minutes. The stormwater runoff from Watershed 1 originates in the west of the property and flows east towards DP-1, at which point it exits the site onto the Long Island Sound.

Pre-Developed Stormwater Runoff Rates
(cubic feet per second)

Storm Event	1-Year	2-Year	10-Year	25-Year	50-Year
DP-1	1.66	2.21	3.79	5.02	6.16

See drawing WS-M for watershed areas and location of DP-1.

POST-DEVELOPED CONDITION

The project site was modeled as two watersheds in the proposed condition: Watershed 1, and Watershed 1A. Each watershed was analyzed as follows:

Watershed 1 contains a tributary area of 28,616 square feet. 27,544 square feet is pervious in the form of lawn and landscaping in "D" soils, 1,072 square feet is impervious in the form of existing rear walls, existing concrete walk, existing steps, and proposed walls. The weighted Complex Number (CN) value was calculated as 81 and the Time of Concentration (Tc) was calculated as 6.9 minutes. The stormwater runoff from Watershed 1 originates in the west of the property and flows east towards DP-1, at which point it exits the site onto Long Island Sound.

Watershed 1A contains a tributary area of approximately 11,993 square feet. All of which is impervious in the form of the proposed dwelling, terrace, pool, pool deck, and driveway. The weighted Complex Number (CN) value is calculated as 98 and the Time of Concentration (Tc) is a direct entry of 1.0 minute. The runoff from this tributary area is conveyed via a comprehensive drainage system and released into a proposed rain garden located in the eastern corner of the property. The rain garden has a foot print of 842 square feet, is twelve-inches in depth, and has one overflow discharge pipe for controlled release of the collected stormwater into a 20 linear foot 12-inch attenuation gallery. The exfiltration rate of the soil in the rain garden is modeled at a rate 30 inches per hour. This minimal rate does *not* account for a small amount of evapotranspiration that will naturally occur from the plantings in the rain garden. The system is designed to fully accept (no release) the entire water control volume runoff (1.66-inches rainfall) up to the 1-year storm event for the watershed. The runoff volume for storm events greater than the 1-year storm event is directed to an eight-inch diameter pipe in the floor of the rain garden. This eight-inch diameter pipe collects the runoff and coveys it to a proposed attenuation gallery consisting of 20 LF of 12" HDPE pipe. The gallery outlets into a 24"x24" drain inlet that is equipped with reduced diameter orifice for controlled release of the collected stormwater to the Long Island Sound up to the 50-year storm event.

The total runoff for the post developed condition at DP-1 was modeled for the 1-, 2-, 10-, 25-, and 50-year Type III – 24-hour storm events.

Post-Developed Stormwater Runoff Rates
(cubic feet per second)

Storm Event	1-Year	2-Year	10-Year	25-Year	50-Year
DP-1	0.89	1.36	3.00	4.13	5.08

See drawing WS-M for watershed areas and location of DP-1.

The proposed post-developed conditions for the site reduce or equal the stormwater runoff rates of the pre-developed conditions at design point [DP-1].

SUMMARY OF FLOWS AT DESIGN POINT

The peak rates of runoff from Watershed 1 and Watershed 1A were calculated to be as follows:

Design Point		STORM EVENT			
	1-Year	2-Year	10-Year	25-Year	50-Year
DP-1					
• Pre-[cfs]	1.66	2.21	3.79	5.02	6.16
• Post-[cfs]	**0.89**	**1.36**	**3.00**	**4.13**	**5.08**

WATER QUALITY VOLUME

P= 90% Rainfall 1.5 -inches

A_i = Impervious Area = 11,993 -square feet

A_i = 0.2753 -acres

A_t = Tributary Area = 11,993 -square feet

A_t = 0.2753 -acres

I = % Impervious = 100.00%

R_v= 0.05+0.009(I); where I = Percent Impervious written as a percent

R_v= 0.950 **(0.20 minimum)**

R_v= 0.950

$$WQ_v = \frac{(P \times R_v \times A_t)}{12} = 0.03269 \text{ acre-feet} = 1424.17 \text{ cubic feet}$$

Rainfall = 1.66 -inches → 0.03283 acre-feet OKAY

CONSTRUCTION PHASE

During the construction phase of the project, a sediment and erosion control plan shall be implemented in accordance with the New York State Department of Environmental Conservation's Best Management Practices (BMP). The primary goals of the sediment and erosion control plan are to prevent the tracking of dirt and mud onto adjacent roads, to prevent mud and silt from entering into existing and proposed drainage facilities, and to protect the receiving waters from contamination during the construction.

During construction, the party responsible for implementing the temporary (during construction) Stormwater Management facilities Maintenance Program will be the owner. Contact information will be filed with the Village.

A New York State Professional Engineer or Certified Professional in Erosion and Sediment Control (P.E. or CPESC) shall conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls shown on the plan have been adequately installed and/or implemented to ensure overall preparedness of the site for construction. Following the commencement of construction, site inspections shall be conducted by the P.E. or CPESC at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater.

During each inspection, the representative shall record the following:

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;

4. Inspect all sediment control practices and record approximate degree of sediment accumulation as a percentage of the sediment storage volume;

5. Inspect all erosion and sediment control practices and record all maintenance requirements. 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 the barrier. Record the depth of sediment within containment structures and any erosion near outlet and overflow structures.

6. All identified deficiencies.

The construction manager shall maintain a record of all inspection reports in a site logbook. The site logbook shall be maintained on-site and be made available to the Village of Larchmont and/or the NYSDEC. A summary of the site inspection activities shall be posted on a monthly basis in a public accessible location at the site.

The projects anticipated start date is Spring 2019 and the anticipated completion date is Summer 2019.

CONSTRUCTION SEQUENCING

The following erosion control schedule shall be utilized:

1. Prior to commencing construction, a pre-construction meeting shall be scheduled with the Village.

2. Install a stabilized construction entrance at the access point(s) to the site.

3. Demarcate the limits of disturbance.

4. Establish construction staging area.

5. Install tree protection o n trees as noted on plans.

6. Selective vegetation removal for silt fence installation.

7. Install silt fence down slope of all areas to be disturbed as shown on the plan.

8. Remove trees where necessary (clear & grub) for the proposed construction.

9. Strip topsoil and stockpile at the locations specified on the plans (up gradient of erosion control measures). Temporarily stabilize topsoil stockpiles (hydroseed during May 1st through October 31st planting season or by covering with a tarpaulin(s) November 1st through April 30th. and install silt fence around toe of slope).

10. Demolish any existing site features and/or structures noted as being removed on the construction documents, and dispose of off-site.

11. Rough grade disturbed site.

12. Excavate and construct foundations for new dwelling.

13. Excavate and install washed stone and engineered soil media for rain garden per engineer's recommendations and requirement.

14. Fine grade and seed all disturbed areas. Clean paved areas and drain lines. Ensure grass stand is achieved.

15. Install 4”-6” topsoil, fine grade, seed the disturbed areas and install landscape plantings. spread salt hay over seeded areas.

16. Install and connect all roof drain leaders to rain garden.

17. Remove all temporary soil erosion and sediment control measures after the site is stabilized with vegetation (80% uniform density of permanent vegetation).

* Soil erosion and sediment control maintenance must occur weekly and prior to and after every ½” or greater rainfall event.

EROSION AND SEDIMENT CONTROL COMPONENTS

The primary aim of the soil and sediment control measures is to reduce soil erosion from areas stripped of vegetation during and after construction and to prevent silt from reaching the off-site drainage structures and downstream properties. The Sediment and Erosion Control Components are an integral component of the construction sequencing and will be implemented to control sedimentation and re-establish vegetation.

Planned erosion and sedimentation control practices during construction include the installation, inspection and maintenance of the inlet protection, soil stockpile areas, and silt fencing. General land grading practices, including land stabilization and construction sequencing are also integrated into the Sediment and Erosion Control Plan. Dust control is not expected to be a problem due to the relatively limited area of exposure. Should excessive dust be generated, it will be controlled by sprinkling.

All proposed soil erosion and sediment control practices have been designed in accordance with the following publications:

- New York State standards and Specifications for Urban Erosion and Sediment Control, November 2016

- New York State General Permit for Stormwater Discharges, GP-0-15-002 (General permit).

- “Reducing the Impacts of Stormwater Runoff from New Development”, as published by the New York State Department of Environmental Conservation (NYSDEC), second edition, April, 1993.

The proposed soil erosion and sediment control devices include the planned erosion control practices outlined below. Maintenance procedures for each erosion control practice have also been outlined below.

- **SILT FENCE**

  Silt fence (geo-textile filter cloth) shall be placed in locations depicted on the approved plans. The purpose of the silt fence is to reduce the velocity of sediment laden stormwater from small drainage areas and to intercept the transported sediment load. In general, silt fence shall be used at the toe of slopes or intermediately within slopes where obvious channel concentration of stormwater is not present.

  Maintenance

  Silt fencing shall be inspected at a minimum of once per week and prior to and within 24 hours following a rain event ½" or greater. Inspections shall include ensuring that the fence material is tightly secured to the woven wire and the wire is secured to the wood posts. In addition, overlapping filter fabric shall be secured and the fabric shall be maintained a minimum of six (6) inches below grade. In the event that any "bulges" develop in the fence, that section of fence shall be replaced within 24 hours with new fence section. Any sediment build-up against the fence shall be removed within 24 hours and deposited on-site a minimum of 100 feet outside of any wetland or watercourse.

  The installation of silt fencing will be maintained or replaced until the fencing is no longer necessary. Once the site is stabilized, all silt fences shall be removed. The immediate area occupied by the silt fence will be shaped to an acceptable grade and stabilized.

- **INLET PROTECTION**

  After catch basins and surface inlets have been installed, these drain inlets will receive stormwater from the roadways, driveways, and surrounding overland watersheds. In order to protect the receiving waters from sedimentation, the contractor shall install stone and block inlet protection as shown on the plans. Once installed, ¾ inch stone aggregate shall be installed around the perimeter of all catch basins and surface inlets as illustrated on the approved plans. This barrier will allow stormwater to be filtered prior to reaching the basin inlet grate.

  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.

The barrier should be inspected after each rain event and repairs made within 24 hours. 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.

Maintenance

Stone Aggregate: The stone aggregate shall be inspected weekly prior to and within 24 hours following a rain event ½" or greater. Care shall be taken to ensure that all stone aggregate is properly located and secure and do not become displaced. The stone aggregate shall be inspected for accumulated sediments and any accumulated sediment shall be removed from the device and deposited not less than 100 feet from wetland or watercourse.

- **TREE PROTECTION**

All significant trees to be preserved located within the limits of disturbance and on the perimeter of the disturbance limits shall be protected from harm by erecting a 3' high (minimum) snow fence completely surrounding the tree. Snow fence should extend to the drip-line of the tree to be preserved. Trees designated to be protected shall be identified during the staking of the limits of disturbance for each construction phase.

Maintenance

The snow fence shall be inspected daily to ensure that the perimeter of the fence remains at the drip-line of the tree to be preserved. Any damaged portions of the fence shall be repaired or replaced within 48 hours. Care shall also be taken to ensure that no construction equipment is driven or parked within the drip-line of the tree to be preserved.

- ***SOIL/SHOT ROCK STOCKPILING***

  All soil and shot rock stripped from the construction area during grubbing and mass grading shall be stockpiled in locations shown on the plans, but in no case shall they be placed within 100' of a wetland or watercourse. The stockpiled soils shall be re-used during finish-grading to provide a suitable growing medium for plant establishment. Soil stockpiles shall be protected from erosion by vegetating the stockpile with rapidly –germinating grass seed (during the May 1st – October 30th) planting season or covering the stockpile with tarpaulin the remainder of the year. Install silt fence around toe of slope.

  Maintenance

  Sediment controls (silt fence) surrounding the stockpiles shall be inspected according to the recommended maintenance outline above. *All stockpiles shall be inspected for signs of erosion or problems with seed establishment weekly or tarpaulin and prior to and within 24 hours following a rain event ½" or greater.*

- ***GENERAL LAND GRADING***

  The intent of the Erosion & Sediment Control Plan is to control disturbed areas such that soils are protected from erosion by temporary methods and, ultimately, by permanent vegetation. Where practicable, all cut and fill slopes shall be kept to a maximum slope of 2:1. In the event that a slope must exceed a 2:1 slope, it will be stabilized with stone riprap. On fill slopes, all material will be placed in layers not to exceed 12 inches in depth and adequately compacted.

- **SURFACE STABILIZATION**

  All disturbed areas will be protected from erosion with the use of vegetative measures (i.e., grass seed mix, sod) hydromulch netting or hay. When activities temporarily cease during construction, soil stockpiles and exposed soil should be stabilized by seed, mulch or other appropriate measures within 7 days after construction activity has ceased, or 24 hours prior to a rain event ½" or greater.

  All seeded areas will be re-seeded areas as necessary and mulched according to the site plan to maintain a vigorous, dense vegetative cover,

  Erosion control barriers (silt fencing) shall be placed around exposed areas during construction. Where exposed areas are immediately uphill from a wetland or watercourse, the erosion control barrier will consist of double rows of silt fencing. Any areas stripped of vegetation during construction will be vegetated and/or mulch, but in no case more than 14 days to prevent erosion

of the exposed soils. And topsoil removed during construction will be temporarily stockpiled for future use in grading and landscaping.

As mentioned above, temporary vegetation will be established to protect exposed soil areas during construction. If growing conditions are not suitable for the temporary vegetation, mulch will be used to the satisfaction of the Town Engineer. Materials that may be used for mulching include straw, hay, salt hay, wood fiber, synthetic soil stabilizers, mulch netting, sod or hydromulch. In site areas where significant erosion potential exists (steep slopes) and where specifically directed by the Town's representative, Curlex Excelsior erosion control blankets (manufactured by American Excelsior, or approved equal) shall be installed. A permanent vegetative cover will be established upon completion of construction of those areas that have been brought to finish-grade and to remain undisturbed.

- **Temporary Stabilization (May 1st through October 31st planting season)**

  The following seeding application should be used depending on the time of year.

  - Spring/summer or early fall, seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb/1000 sq. ft. or use 1 lb/1000 sq. ft.).

  - Late fall or early winter, seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs/1000 sq. ft.).

- **Permanent Stabilization (May 1st through October 31st planting season)**

  1. Provide minimum of four (4) inches topsoil for all new lawn areas. Top dress all existing disturbed lawn areas with two (2) inches of topsoil.

  2. Grass seed shall be evenly sown by mechanical seeder at a rate of 3.0-4.0 pounds per 1,000 square feet.

  3. Fine rake, roll and water to a depth of one inch all seeded areas.

  4. Apply air-dried hay or straw mulch to provide 90% coverage of surface (approximately 90 lbs. per 1,000 sf). Use small grain straw where mulch is maintained for more than three months

  5. Contractor shall provide, at his own expense, protection against trespassing and other damage to lawn areas.

  6. <u>Lawn seed mix</u> shall include:

     a. General Recreation areas and lawns:

- 65% Kentucky Bluegrass blend
- 20% Perennial Rye
- 15% Fine fescue

Sod may be used as an alternate to seeding in select areas.

Slow release fertilizers will be applied by hand to horticultural plantings as part of regular horticultural maintenance program and shall be limited to a single spring application.

CONSTRUCTION PRACTICES TO MINIMIZE STORMWATER CONTAMINATION

Adequate measures shall be taken to minimize contaminant particles arising from the discharge of solid materials, including building materials, grading operations, and the reclamation and placement of pavement, during project construction, including but not limited to:

- Building materials, garbage, and debris shall be cleaned up daily and deposited into dumpsters, which will be periodically removed from the site and appropriately disposed of.

- Dump trucks hauling material from the construction site will be covered with a tarpaulin.

- The paved street adjacent to the site entrance will be swept daily to remove excess mud, dirt, or rock tracked from the site.

- Petroleum products will be stored in tightly sealed containers that are clearly labeled.

- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

- All spills will be cleaned up immediately upon discovery. Spills large enough to reach the storm system will be reported to the National Response Center at 1-800-424-8802.

- 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.

- 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 storm system, but will be properly disposed according to the manufacturer's instructions.

- Sanitary waste will be collected from portable units a minimum of two times a week to avoid overfilling.

- Any asphalt substances used on-site will be applied according to the manufacturer's recommendation.

- Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to avoid spills and will be applied only in the minimum amounts recommended by the manufacturer and worked into the soil to limit exposure to stormwater.

- No disturbed area shall be left un-stabilized for longer than 14 days during the growing season.

- When erosion is likely to be a problem, grubbing operations shall be scheduled and performed such that grading operations and permanent erosion control features can follow within 24 hours thereafter.

- As work progresses, patch seeding shall be done as required on areas previously treated to maintain or establish protective cover.

- Drainage pipes and swales/ditches shall generally be constructed in a sequence from outlet to inlet in order to stabilize outlet areas and ditches before water is directed to the new installation or any portion thereof, unless conditions unique to the location warrant an alternative method.

STORMWATER MANAGEMENT FACILITIES MAINTENANCE PROGRAM

The following maintenance plan has been developed to maintain the proper function of all drainage and erosion and sediment control facilities:

- Minimize the use of road salt for maintenance of driveway areas.

- Drainage inlets/structures shall be vacuum swept twice a year, at the conclusion of the landscape season in the fall and at the conclusion of the sand and de-icing season in the spring.

- <u>General Stormwater Facilities Maintenance (Storm Sewer, Catch Basins/Drain Inlets, Manholes, Pre-treatment Device and Subsurface Infiltration System)</u>

  All stormwater facilities shall be inspected immediately after completion of construction, and then monthly for the first three (3) months following the completion of the Project. Within the first three (3) months, inspections shall immediately be performed following a large storm event (i.e. producing 1/2"

(one-half inch) of rain or greater. Thereafter, these facilities shall be inspected as described as follows. Upon inspection, facilities shall be immediately maintained and/or cleaned as may be required. Any site areas exhibiting soil erosion of any kind shall be immediately restored and stabilized with vegetation, mulch or stone, depending on the area to be stabilized.

Upon each inspection, all visible debris including, but not limited to, twigs, leaf and forest litter shall be removed from the swales, overflow discharge points and frames and grates of drainage structures.

- Subsurface Attenuation/Exfiltration Gallery:

  The subsurface infiltration chambers shall be inspected immediately after construction. Thereafter, the attenuation/exfiltration gallery shall be inspected every six (6) months (Spring and Fall) for excess sediment accumulation. During dry weather conditions, when sediment has accumulated to an average depth exceeding 3" (three inches), the gallery shall be water jetted clean, and all accumulated sediments shall be vacuumed out or removed manually. A stadia rod may be inserted to determine the depth of the sediment.

- Sumps − Catch Basin/Drain Inlets and Drain Manholes

  All catch basin/drain inlets and drain manholes with sumps have been designed to trap sediment prior to its transport to the infiltration practice and, ultimately, downstream. These sumps will require periodic inspection and maintenance to ensure that adequate depth is maintained within the sumps.

  All sumps shall be inspected once per month for the first three (3) months (after drainage system has been put into service). Thereafter, all sumps shall be inspected every four (4) months. The Owner, or their duly authorized representative, shall take measurements of the sump depth.

  If sediment has accumulated to 1/2 (one-half) the depth of the sump, all sediment shall be removed from the sump. Sediments can be removed with hand-labor or with a vacuum truck.

  The use of road salt shall be minimized for maintenance of roadway and driveway areas.

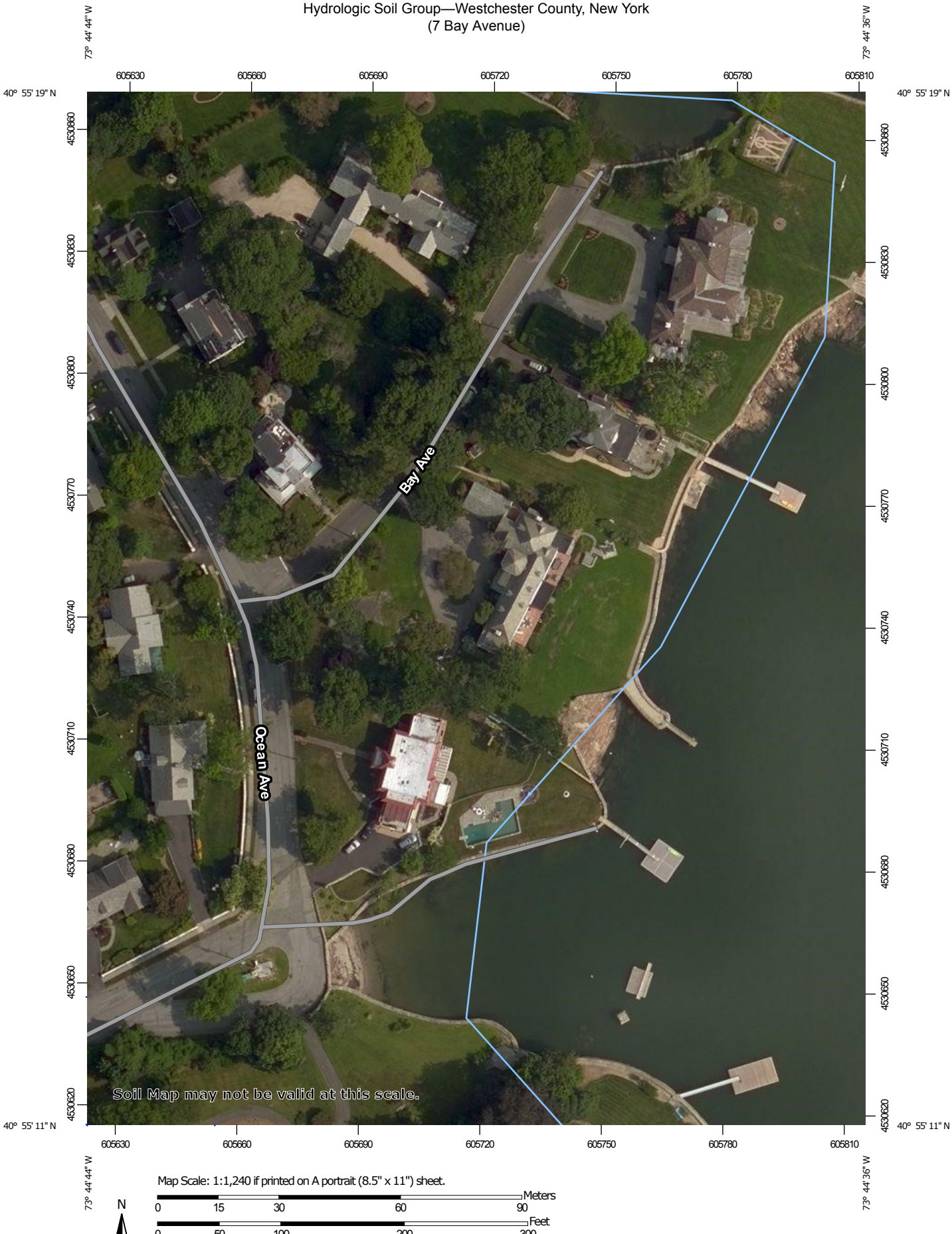
The permanent maintenance program will be managed by the future homeowners upon completion of construction and acceptance of the improvements.

CONCLUSION

The stormwater management plan proposed meets all the requirements set forth by the Village of Larchmont. Design modification requirements that may occur during the approval process will be performed and submitted for review to the Village of Larchmont.

Soils Maps &
Soils Data

Hydrologic Soil Group—Westchester County, New York
(7 Bay Avenue)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 1:12,000.

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: Westchester County, New York
Survey Area Data: Version 14, Sep 3, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 21, 2014—Aug 27, 2014

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CrC	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	0.4	4.8%
UlC	Urban land-Charlton-Chatfield complex, rolling, very rocky		5.3	68.8%
UpB	Urban land-Paxton complex, 3 to 8 percent slopes	D	0.2	2.1%
W	Water		1.8	24.2%
Totals for Area of Interest			**7.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

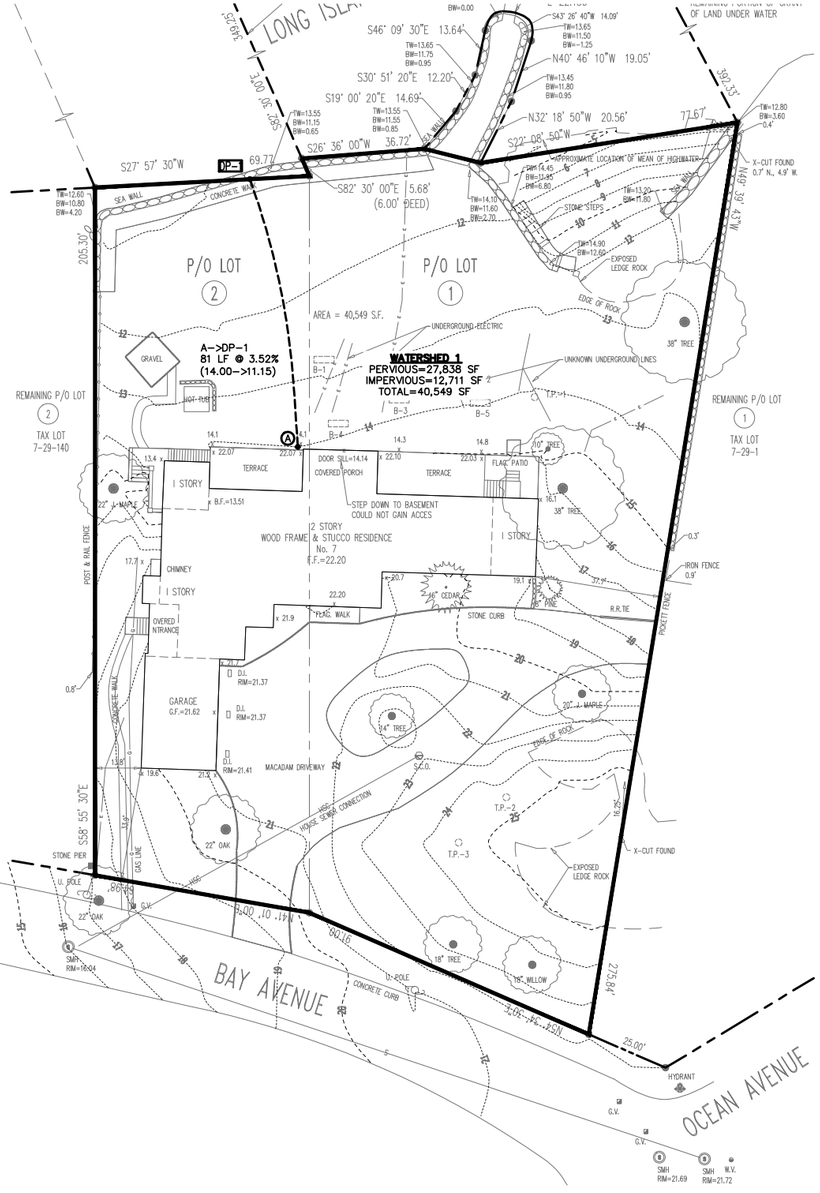
Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

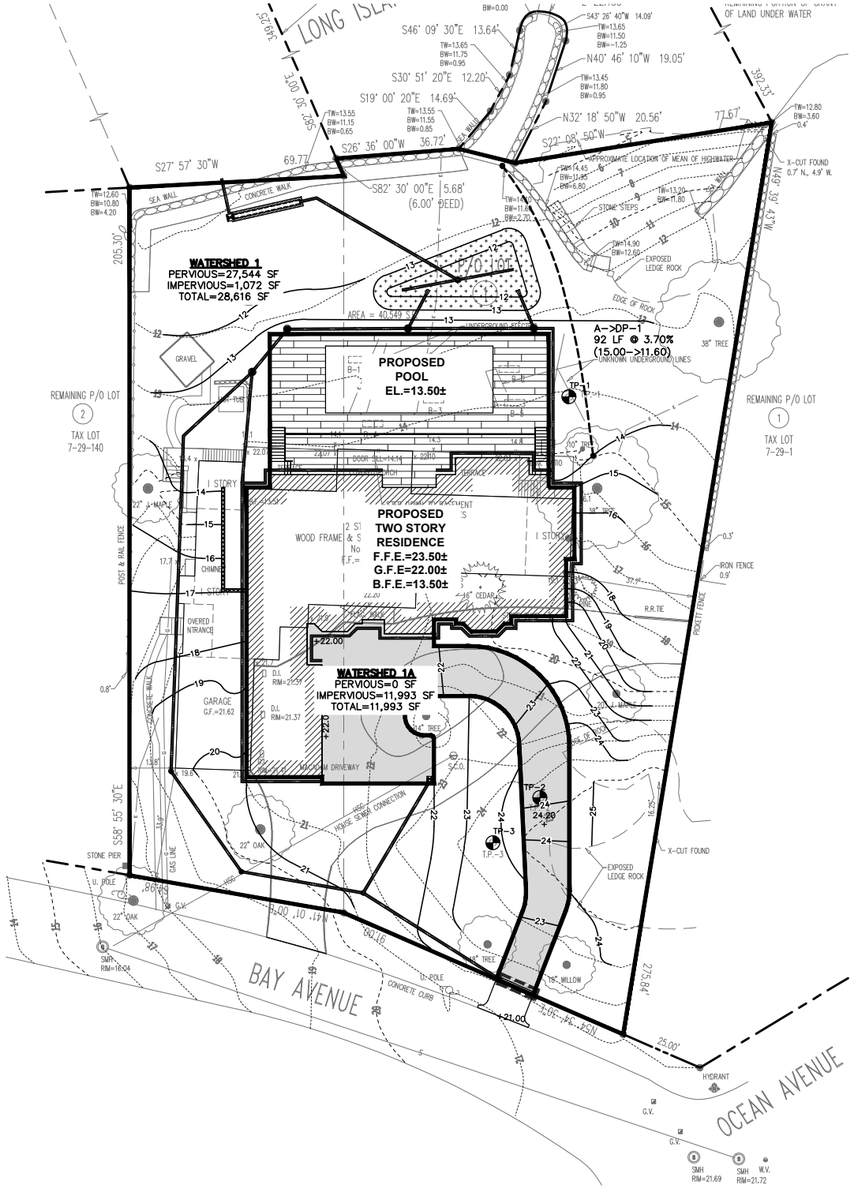
Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Watershed Maps



EXISTING WATERSHED



PROPOSED WATERSHED

ANY ALTERATIONS OR REVISIONS OF THESE PLANS, UNLESS DONE BY OR UNDER THE DIRECTION OF THE NYS LICENSED AND REGISTERED ENGINEER THAT PREPARED THEM, IS A VIOLATION OF THE NYS EDUCATION LAW.

7 BAY AVENUE WATERSHED MAP BASED UPON EXISTING INFORMATION PROVIDED BY PAUL J. PETRETTI, DATED MARCH 17, 2017

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

REVISED SITE LAYOUT 04/02/19

THIS PLAN NOT VALID FOR CONSTRUCTION WITHOUT ENGINEERS SEAL & SIGNATURE

PROJECT:

PROPOSED DWELLING
7 BAY AVENUE
VILLAGE OF LARCHMONT
WESTCHESTER COUNTY – NEW YORK

WATERSHED MAPS

STATE OF NEW YORK
MICHAEL P. HUDSON
LICENSED PROFESSIONAL ENGINEER
No. 80837

HUDSON ENGINEERING & CONSULTING, P.C.
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F: 914-560-2086

Date: 03/18/19
Scale: 1" = 20'
Designed By: A.Y.
Checked By: M.S.
Sheet: 1 / 1
Sheet No. WS-M

Pre-Development Analysis of the 1-, 2-, 10-, 25- and 50-year Storm Frequencies

Subcat Reach Pond Link

Routing Diagram for Existing Condition - 2019-03-14
Prepared by Hudson Engineering & Consulting, P.C., Printed 3/15/2019
HydroCAD® 10.00-14 s/n 02549 © 2015 HydroCAD Software Solutions LLC

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 EX: Watershed 1 Runoff Area=40,549 sf 31.35% Impervious Runoff Depth=1.54"
Flow Length=81' Slope=0.0352 '/' Tc=6.4 min CN=86 Runoff=1.66 cfs 5,215 cf

Reach ExR: Long Island Sound Inflow=1.66 cfs 5,215 cf
Outflow=1.66 cfs 5,215 cf

Total Runoff Area = 40,549 sf Runoff Volume = 5,215 cf Average Runoff Depth = 1.54"
68.65% Pervious = 27,838 sf 31.35% Impervious = 12,711 sf

Summary for Subcatchment EX: Watershed 1

Runoff = 1.66 cfs @ 12.09 hrs, Volume= 5,215 cf, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.86"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	74	98	Spa & wall
*	218	98	Gravel Bed & walk
*	1,166	98	Terrace & Steps
*	5,048	98	House & chimney
*	182	98	Walk & steps
*	5,029	98	Walk & driveway
	27,838	80	>75% Grass cover, Good, HSG D
	40,549	86	Weighted Average
	27,838		68.65% Pervious Area
	12,711		31.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	81	0.0352	0.21		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Reach ExR: Long Island Sound

Inflow Area = 40,549 sf, 31.35% Impervious, Inflow Depth = 1.54" for 1-Year event
Inflow = 1.66 cfs @ 12.09 hrs, Volume= 5,215 cf
Outflow = 1.66 cfs @ 12.09 hrs, Volume= 5,215 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 EX: Watershed 1 Runoff Area=40,549 sf 31.35% Impervious Runoff Depth=2.05"
Flow Length=81' Slope=0.0352 '/' Tc=6.4 min CN=86 Runoff=2.21 cfs 6,941 cf

Reach ExR: Long Island Sound Inflow=2.21 cfs 6,941 cf
Outflow=2.21 cfs 6,941 cf

Total Runoff Area = 40,549 sf Runoff Volume = 6,941 cf Average Runoff Depth = 2.05"
68.65% Pervious = 27,838 sf 31.35% Impervious = 12,711 sf

Summary for Subcatchment EX: Watershed 1

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 6,941 cf, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.45"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	74	98	Spa & wall
*	218	98	Gravel Bed & walk
*	1,166	98	Terrace & Steps
*	5,048	98	House & chimney
*	182	98	Walk & steps
*	5,029	98	Walk & driveway
	27,838	80	>75% Grass cover, Good, HSG D
	40,549	86	Weighted Average
	27,838		68.65% Pervious Area
	12,711		31.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	81	0.0352	0.21		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Reach ExR: Long Island Sound

Inflow Area = 40,549 sf, 31.35% Impervious, Inflow Depth = 2.05" for 2-Year event
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 6,941 cf
Outflow = 2.21 cfs @ 12.09 hrs, Volume= 6,941 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 EX: Watershed 1 Runoff Area=40,549 sf 31.35% Impervious Runoff Depth=3.58"
Flow Length=81' Slope=0.0352 '/' Tc=6.4 min CN=86 Runoff=3.79 cfs 12,094 cf

Reach ExR: Long Island Sound Inflow=3.79 cfs 12,094 cf
Outflow=3.79 cfs 12,094 cf

Total Runoff Area = 40,549 sf Runoff Volume = 12,094 cf Average Runoff Depth = 3.58"
68.65% Pervious = 27,838 sf 31.35% Impervious = 12,711 sf

Summary for Subcatchment EX: Watershed 1

Runoff = 3.79 cfs @ 12.09 hrs, Volume= 12,094 cf, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.12"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	74	98	Spa & wall
*	218	98	Gravel Bed & walk
*	1,166	98	Terrace & Steps
*	5,048	98	House & chimney
*	182	98	Walk & steps
*	5,029	98	Walk & driveway
	27,838	80	>75% Grass cover, Good, HSG D
	40,549	86	Weighted Average
	27,838		68.65% Pervious Area
	12,711		31.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	81	0.0352	0.21		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Reach ExR: Long Island Sound

Inflow Area = 40,549 sf, 31.35% Impervious, Inflow Depth = 3.58" for 10-Year event
Inflow = 3.79 cfs @ 12.09 hrs, Volume= 12,094 cf
Outflow = 3.79 cfs @ 12.09 hrs, Volume= 12,094 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 EX: Watershed 1 Runoff Area=40,549 sf 31.35% Impervious Runoff Depth=4.80"
Flow Length=81' Slope=0.0352 '/' Tc=6.4 min CN=86 Runoff=5.02 cfs 16,220 cf

Reach ExR: Long Island Sound Inflow=5.02 cfs 16,220 cf
Outflow=5.02 cfs 16,220 cf

Total Runoff Area = 40,549 sf Runoff Volume = 16,220 cf Average Runoff Depth = 4.80"
68.65% Pervious = 27,838 sf 31.35% Impervious = 12,711 sf

Summary for Subcatchment EX: Watershed 1

Runoff = 5.02 cfs @ 12.09 hrs, Volume= 16,220 cf, Depth= 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.41"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	74	98	Spa & wall
*	218	98	Gravel Bed & walk
*	1,166	98	Terrace & Steps
*	5,048	98	House & chimney
*	182	98	Walk & steps
*	5,029	98	Walk & driveway
	27,838	80	>75% Grass cover, Good, HSG D
	40,549	86	Weighted Average
	27,838		68.65% Pervious Area
	12,711		31.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	81	0.0352	0.21		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Reach ExR: Long Island Sound

Inflow Area = 40,549 sf, 31.35% Impervious, Inflow Depth = 4.80" for 25-Year event
Inflow = 5.02 cfs @ 12.09 hrs, Volume= 16,220 cf
Outflow = 5.02 cfs @ 12.09 hrs, Volume= 16,220 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 EX: Watershed 1 Runoff Area=40,549 sf 31.35% Impervious Runoff Depth=5.94"
Flow Length=81' Slope=0.0352 '/' Tc=6.4 min CN=86 Runoff=6.16 cfs 20,086 cf

Reach ExR: Long Island Sound Inflow=6.16 cfs 20,086 cf
Outflow=6.16 cfs 20,086 cf

Total Runoff Area = 40,549 sf Runoff Volume = 20,086 cf Average Runoff Depth = 5.94"
68.65% Pervious = 27,838 sf 31.35% Impervious = 12,711 sf

Summary for Subcatchment EX: Watershed 1

Runoff = 6.16 cfs @ 12.09 hrs, Volume= 20,086 cf, Depth= 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.60"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	74	98	Spa & wall
*	218	98	Gravel Bed & walk
*	1,166	98	Terrace & Steps
*	5,048	98	House & chimney
*	182	98	Walk & steps
*	5,029	98	Walk & driveway
	27,838	80	>75% Grass cover, Good, HSG D
	40,549	86	Weighted Average
	27,838		68.65% Pervious Area
	12,711		31.35% Impervious Area

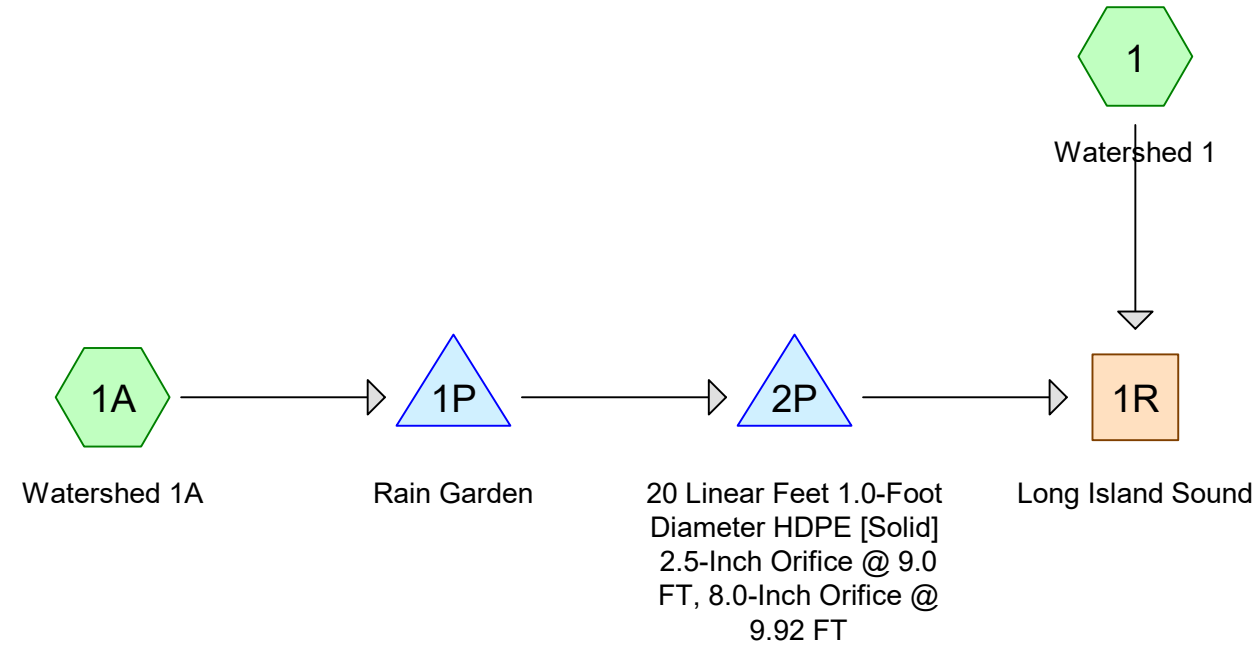
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	81	0.0352	0.21		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Reach ExR: Long Island Sound

Inflow Area = 40,549 sf, 31.35% Impervious, Inflow Depth = 5.94" for 50-Year event
Inflow = 6.16 cfs @ 12.09 hrs, Volume= 20,086 cf
Outflow = 6.16 cfs @ 12.09 hrs, Volume= 20,086 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Post-Development Analysis of the 1-, 2-, 10-, 25- and 50-year Storm Frequencies



Subcat Reach Pond Link

Routing Diagram for Proposed Condition - 2019-03-27

Prepared by Hudson Engineering & Consulting, P.C., Printed 4/2/2019

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 1: Watershed 1 Runoff Area=28,616 sf 3.75% Impervious Runoff Depth=1.21"
Flow Length=92' Slope=0.0370 '/' Tc=6.9 min CN=81 Runoff=0.89 cfs 2,878 cf

Subcatchment 1A: Watershed 1A Runoff Area=11,933 sf 100.00% Impervious Runoff Depth=2.63"
Tc=1.0 min CN=98 Runoff=0.90 cfs 2,614 cf

Reach 1R: Long Island Sound Inflow=0.89 cfs 2,878 cf
Outflow=0.89 cfs 2,878 cf

Pond 1P: Rain Garden Peak Elev=12.46' Storage=230 cf Inflow=0.90 cfs 2,614 cf
Discarded=0.42 cfs 2,615 cf Primary=0.00 cfs 0 cf Outflow=0.42 cfs 2,615 cf

Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE Peak Elev=9.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Total Runoff Area = 40,549 sf Runoff Volume = 5,492 cf Average Runoff Depth = 1.63"
67.93% Pervious = 27,544 sf 32.07% Impervious = 13,005 sf

Summary for Subcatchment 1: Watershed 1

Runoff = 0.89 cfs @ 12.10 hrs, Volume= 2,878 cf, Depth= 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.86"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	78	98	Spa & wall
	27,544	80	>75% Grass cover, Good, HSG D
	28,616	81	Weighted Average
	27,544		96.25% Pervious Area
	1,072		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	92	0.0370	0.22		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Subcatchment 1A: Watershed 1A

Runoff = 0.90 cfs @ 12.01 hrs, Volume= 2,614 cf, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.86"

	Area (sf)	CN	Description
*	2,464	98	Pool & Pool deck
*	5,322	98	Proposed Residence
*	980	98	Proposed Terrace
*	3,167	98	Proposed Driveway
	11,933	98	Weighted Average
	11,933		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, Direct Entry**

Summary for Reach 1R: Long Island Sound

Inflow Area = 40,549 sf, 32.07% Impervious, Inflow Depth = 0.85" for 1-Year event
Inflow = 0.89 cfs @ 12.10 hrs, Volume= 2,878 cf
Outflow = 0.89 cfs @ 12.10 hrs, Volume= 2,878 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Rain Garden

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 2.63" for 1-Year event
Inflow = 0.90 cfs @ 12.01 hrs, Volume= 2,614 cf
Outflow = 0.42 cfs @ 12.11 hrs, Volume= 2,615 cf, Atten= 54%, Lag= 5.6 min
Discarded = 0.42 cfs @ 12.11 hrs, Volume= 2,615 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 12.46' @ 12.11 hrs Surf.Area= 601 sf Storage= 230 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.2 min (756.4 - 754.2)

Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	618 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	394	0	0
13.00	842	618	618

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**30.000 in/hr Exfiltration over Surface area**
#2	Primary	12.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.42 cfs @ 12.11 hrs HW=12.46' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.42 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.00' (Free Discharge)
↑**2=Orifice/Grate** (Controls 0.00 cfs)

ry for Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE [Solid] 2.5-Inch Orifice @ 9.0 FT, 8.0-Inch Orifice @

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 0.00" for 1-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 9.00' @ 0.00 hrs Surf.Area= 4 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	16 cf	**12.0" Round Pipe Storage** L= 20.0'
#2	9.00'	10 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		26 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	4	0	0
11.50	4	10	10

Device	Routing	Invert	Outlet Devices	
#1	Primary	9.00'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	9.92'	**8.0" Vert. Orifice/Grate**	C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=9.00' (Free Discharge)
└─**1=Orifice/Grate** (Controls 0.00 cfs)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 1: Watershed 1 Runoff Area=28,616 sf 3.75% Impervious Runoff Depth=1.67"
Flow Length=92' Slope=0.0370 '/' Tc=6.9 min CN=81 Runoff=1.24 cfs 3,978 cf

Subcatchment 1A: Watershed 1A Runoff Area=11,933 sf 100.00% Impervious Runoff Depth=3.22"
Tc=1.0 min CN=98 Runoff=1.10 cfs 3,199 cf

Reach 1R: Long Island Sound Inflow=1.36 cfs 4,038 cf
Outflow=1.36 cfs 4,038 cf

Pond 1P: Rain Garden Peak Elev=12.58' Storage=307 cf Inflow=1.10 cfs 3,199 cf
Discarded=0.46 cfs 3,139 cf Primary=0.17 cfs 60 cf Outflow=0.62 cfs 3,198 cf

Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE Peak Elev=9.69' Storage=14 cf Inflow=0.17 cfs 60 cf
Outflow=0.13 cfs 60 cf

Total Runoff Area = 40,549 sf Runoff Volume = 7,177 cf Average Runoff Depth = 2.12"
67.93% Pervious = 27,544 sf 32.07% Impervious = 13,005 sf

Summary for Subcatchment 1: Watershed 1

Runoff = 1.24 cfs @ 12.10 hrs, Volume= 3,978 cf, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.45"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	78	98	Spa & wall
	27,544	80	>75% Grass cover, Good, HSG D
	28,616	81	Weighted Average
	27,544		96.25% Pervious Area
	1,072		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	92	0.0370	0.22		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Subcatchment 1A: Watershed 1A

Runoff = 1.10 cfs @ 12.01 hrs, Volume= 3,199 cf, Depth= 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.45"

	Area (sf)	CN	Description
*	2,464	98	Pool & Pool deck
*	5,322	98	Proposed Residence
*	980	98	Proposed Terrace
*	3,167	98	Proposed Driveway
	11,933	98	Weighted Average
	11,933		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, Direct Entry**

Summary for Reach 1R: Long Island Sound

Inflow Area = 40,549 sf, 32.07% Impervious, Inflow Depth = 1.19" for 2-Year event
Inflow = 1.36 cfs @ 12.11 hrs, Volume= 4,038 cf
Outflow = 1.36 cfs @ 12.11 hrs, Volume= 4,038 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Rain Garden

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 3.22" for 2-Year event
Inflow = 1.10 cfs @ 12.01 hrs, Volume= 3,199 cf
Outflow = 0.62 cfs @ 12.09 hrs, Volume= 3,198 cf, Atten= 43%, Lag= 4.5 min
Discarded = 0.46 cfs @ 12.09 hrs, Volume= 3,139 cf
Primary = 0.17 cfs @ 12.09 hrs, Volume= 60 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 12.58' @ 12.09 hrs Surf.Area= 656 sf Storage= 307 cf

Plug-Flow detention time= 2.7 min calculated for 3,198 cf (100% of inflow)
Center-of-Mass det. time= 2.7 min (752.9 - 750.2)

Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	618 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	394	0	0
13.00	842	618	618

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**30.000 in/hr Exfiltration over Surface area**
#2	Primary	12.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.46 cfs @ 12.09 hrs HW=12.58' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.46 cfs)

Primary OutFlow Max=0.17 cfs @ 12.09 hrs HW=12.58' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.17 cfs @ 0.95 fps)

ry for Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE [Solid] 2.5-Inch Orifice @ 9.0 FT, 8.0-Inch Orifice @

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 0.06" for 2-Year event
Inflow = 0.17 cfs @ 12.09 hrs, Volume= 60 cf
Outflow = 0.13 cfs @ 12.12 hrs, Volume= 60 cf, Atten= 26%, Lag= 2.0 min
Primary = 0.13 cfs @ 12.12 hrs, Volume= 60 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 9.69' @ 12.12 hrs Surf.Area= 23 sf Storage= 14 cf

Plug-Flow detention time= 1.6 min calculated for 60 cf (100% of inflow)
Center-of-Mass det. time= 1.6 min (728.2 - 726.7)

Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	16 cf	**12.0" Round Pipe Storage** L= 20.0'
#2	9.00'	10 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		26 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	4	0	0
11.50	4	10	10

Device	Routing	Invert	Outlet Devices	
#1	Primary	9.00'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	9.92'	**8.0" Vert. Orifice/Grate**	C= 0.600

Primary OutFlow Max=0.12 cfs @ 12.12 hrs HW=9.68' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 3.66 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 1: Watershed 1 Runoff Area=28,616 sf 3.75% Impervious Runoff Depth=3.09"
Flow Length=92' Slope=0.0370 '/' Tc=6.9 min CN=81 Runoff=2.30 cfs 7,372 cf

Subcatchment 1A: Watershed 1A Runoff Area=11,933 sf 100.00% Impervious Runoff Depth=4.88"
Tc=1.0 min CN=98 Runoff=1.64 cfs 4,856 cf

Reach 1R: Long Island Sound Inflow=3.00 cfs 7,844 cf
Outflow=3.00 cfs 7,844 cf

Pond 1P: Rain Garden Peak Elev=12.74' Storage=418 cf Inflow=1.64 cfs 4,856 cf
Discarded=0.51 cfs 4,384 cf Primary=0.82 cfs 472 cf Outflow=1.33 cfs 4,856 cf

Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE Peak Elev=10.41' Storage=21 cf Inflow=0.82 cfs 472 cf
Outflow=0.84 cfs 472 cf

Total Runoff Area = 40,549 sf Runoff Volume = 12,228 cf Average Runoff Depth = 3.62"
67.93% Pervious = 27,544 sf 32.07% Impervious = 13,005 sf

Summary for Subcatchment 1: Watershed 1

Runoff = 2.30 cfs @ 12.10 hrs, Volume= 7,372 cf, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.12"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	78	98	Spa & wall
	27,544	80	>75% Grass cover, Good, HSG D
	28,616	81	Weighted Average
	27,544		96.25% Pervious Area
	1,072		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	92	0.0370	0.22		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Subcatchment 1A: Watershed 1A

Runoff = 1.64 cfs @ 12.01 hrs, Volume= 4,856 cf, Depth= 4.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=5.12"

	Area (sf)	CN	Description
*	2,464	98	Pool & Pool deck
*	5,322	98	Proposed Residence
*	980	98	Proposed Terrace
*	3,167	98	Proposed Driveway
	11,933	98	Weighted Average
	11,933		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, Direct Entry**

Summary for Reach 1R: Long Island Sound

Inflow Area = 40,549 sf, 32.07% Impervious, Inflow Depth = 2.32" for 10-Year event
Inflow = 3.00 cfs @ 12.09 hrs, Volume= 7,844 cf
Outflow = 3.00 cfs @ 12.09 hrs, Volume= 7,844 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Rain Garden

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 4.88" for 10-Year event
Inflow = 1.64 cfs @ 12.01 hrs, Volume= 4,856 cf
Outflow = 1.33 cfs @ 12.05 hrs, Volume= 4,856 cf, Atten= 19%, Lag= 2.2 min
Discarded = 0.51 cfs @ 12.05 hrs, Volume= 4,384 cf
Primary = 0.82 cfs @ 12.05 hrs, Volume= 472 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 12.74' @ 12.05 hrs Surf.Area= 728 sf Storage= 418 cf

Plug-Flow detention time= 2.8 min calculated for 4,855 cf (100% of inflow)
Center-of-Mass det. time= 2.9 min (745.8 - 743.0)

Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	618 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	394	0	0
13.00	842	618	618

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**30.000 in/hr Exfiltration over Surface area**
#2	Primary	12.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.51 cfs @ 12.05 hrs HW=12.74' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.51 cfs)

Primary OutFlow Max=0.83 cfs @ 12.05 hrs HW=12.74' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.83 cfs @ 1.62 fps)

ry for Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE [Solid] 2.5-Inch Orifice @ 9.0 FT, 8.0-Inch Orifice @

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 0.47" for 10-Year event
Inflow = 0.82 cfs @ 12.05 hrs, Volume= 472 cf
Outflow = 0.84 cfs @ 12.05 hrs, Volume= 472 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.05 hrs, Volume= 472 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 10.41' @ 12.05 hrs Surf.Area= 4 sf Storage= 21 cf

Plug-Flow detention time= 0.9 min calculated for 472 cf (100% of inflow)
Center-of-Mass det. time= 0.8 min (726.8 - 725.9)

Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	16 cf	**12.0" Round Pipe Storage** L= 20.0'
#2	9.00'	10 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		26 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	4	0	0
11.50	4	10	10

Device	Routing	Invert	Outlet Devices	
#1	Primary	9.00'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	9.92'	**8.0" Vert. Orifice/Grate**	C= 0.600

Primary OutFlow Max=0.84 cfs @ 12.05 hrs HW=10.41' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 5.50 fps)
└**2=Orifice/Grate** (Orifice Controls 0.65 cfs @ 2.38 fps)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 1: Watershed 1 Runoff Area=28,616 sf 3.75% Impervious Runoff Depth=4.26"
Flow Length=92' Slope=0.0370 '/' Tc=6.9 min CN=81 Runoff=3.15 cfs 10,157 cf

Subcatchment 1A: Watershed 1A Runoff Area=11,933 sf 100.00% Impervious Runoff Depth=6.17"
Tc=1.0 min CN=98 Runoff=2.05 cfs 6,137 cf

Reach 1R: Long Island Sound Inflow=4.13 cfs 11,010 cf
Outflow=4.13 cfs 11,010 cf

Pond 1P: Rain Garden Peak Elev=12.87' Storage=510 cf Inflow=2.05 cfs 6,137 cf
Discarded=0.54 cfs 5,284 cf Primary=1.02 cfs 853 cf Outflow=1.56 cfs 6,137 cf

Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE Peak Elev=10.51' Storage=22 cf Inflow=1.02 cfs 853 cf
Outflow=1.04 cfs 853 cf

Total Runoff Area = 40,549 sf Runoff Volume = 16,294 cf Average Runoff Depth = 4.82"
67.93% Pervious = 27,544 sf 32.07% Impervious = 13,005 sf

Summary for Subcatchment 1: Watershed 1

Runoff = 3.15 cfs @ 12.10 hrs, Volume= 10,157 cf, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.41"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	78	98	Spa & wall
	27,544	80	>75% Grass cover, Good, HSG D
	28,616	81	Weighted Average
	27,544		96.25% Pervious Area
	1,072		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	92	0.0370	0.22		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Subcatchment 1A: Watershed 1A

Runoff = 2.05 cfs @ 12.01 hrs, Volume= 6,137 cf, Depth= 6.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=6.41"

	Area (sf)	CN	Description
*	2,464	98	Pool & Pool deck
*	5,322	98	Proposed Residence
*	980	98	Proposed Terrace
*	3,167	98	Proposed Driveway
	11,933	98	Weighted Average
	11,933		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, Direct Entry**

Summary for Reach 1R: Long Island Sound

Inflow Area = 40,549 sf, 32.07% Impervious, Inflow Depth = 3.26" for 25-Year event
Inflow = 4.13 cfs @ 12.09 hrs, Volume= 11,010 cf
Outflow = 4.13 cfs @ 12.09 hrs, Volume= 11,010 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Rain Garden

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 6.17" for 25-Year event
Inflow = 2.05 cfs @ 12.01 hrs, Volume= 6,137 cf
Outflow = 1.56 cfs @ 12.06 hrs, Volume= 6,137 cf, Atten= 24%, Lag= 2.7 min
Discarded = 0.54 cfs @ 12.06 hrs, Volume= 5,284 cf
Primary = 1.02 cfs @ 12.06 hrs, Volume= 853 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 12.87' @ 12.06 hrs Surf.Area= 783 sf Storage= 510 cf

Plug-Flow detention time= 2.9 min calculated for 6,136 cf (100% of inflow)
Center-of-Mass det. time= 2.9 min (742.4 - 739.5)

Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	618 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	394	0	0
13.00	842	618	618

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**30.000 in/hr Exfiltration over Surface area**
#2	Primary	12.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.54 cfs @ 12.06 hrs HW=12.87' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.54 cfs)

Primary OutFlow Max=1.02 cfs @ 12.06 hrs HW=12.87' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.02 cfs @ 2.92 fps)

ry for Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE [Solid] 2.5-Inch Orifice @ 9.0 FT, 8.0-Inch Orifice @

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 0.86" for 25-Year event
Inflow = 1.02 cfs @ 12.06 hrs, Volume= 853 cf
Outflow = 1.04 cfs @ 12.05 hrs, Volume= 853 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.05 hrs, Volume= 853 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 10.51' @ 12.05 hrs Surf.Area= 4 sf Storage= 22 cf

Plug-Flow detention time= 0.7 min calculated for 853 cf (100% of inflow)
Center-of-Mass det. time= 0.7 min (726.7 - 726.1)

Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	16 cf	**12.0" Round Pipe Storage** L= 20.0'
#2	9.00'	10 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		26 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	4	0	0
11.50	4	10	10

Device	Routing	Invert	Outlet Devices	
#1	Primary	9.00'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	9.92'	**8.0" Vert. Orifice/Grate**	C= 0.600

Primary OutFlow Max=1.04 cfs @ 12.05 hrs HW=10.50' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.19 cfs @ 5.70 fps)
└**2=Orifice/Grate** (Orifice Controls 0.84 cfs @ 2.60 fps)

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 1: Watershed 1 Runoff Area=28,616 sf 3.75% Impervious Runoff Depth=5.37"
Flow Length=92' Slope=0.0370 '/' Tc=6.9 min CN=81 Runoff=3.94 cfs 12,796 cf

Subcatchment 1A: Watershed 1A Runoff Area=11,933 sf 100.00% Impervious Runoff Depth=7.36"
Tc=1.0 min CN=98 Runoff=2.44 cfs 7,319 cf

Reach 1R: Long Island Sound Inflow=5.08 cfs 14,024 cf
Outflow=5.08 cfs 14,024 cf

Pond 1P: Rain Garden Peak Elev=12.99' Storage=608 cf Inflow=2.44 cfs 7,319 cf
Discarded=0.58 cfs 6,091 cf Primary=1.17 cfs 1,228 cf Outflow=1.75 cfs 7,319 cf

Pond 2P: 20 Linear Feet 1.0-Foot Diameter Peak Elev=10.59' Storage=22 cf Inflow=1.17 cfs 1,228 cf
Outflow=1.18 cfs 1,228 cf

Total Runoff Area = 40,549 sf Runoff Volume = 20,115 cf Average Runoff Depth = 5.95"
67.93% Pervious = 27,544 sf 32.07% Impervious = 13,005 sf

Summary for Subcatchment 1: Watershed 1

Runoff = 3.94 cfs @ 12.10 hrs, Volume= 12,796 cf, Depth= 5.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.60"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	78	98	Spa & wall
	27,544	80	>75% Grass cover, Good, HSG D
	28,616	81	Weighted Average
	27,544		96.25% Pervious Area
	1,072		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	92	0.0370	0.22		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Subcatchment 1A: Watershed 1A

Runoff = 2.44 cfs @ 12.01 hrs, Volume= 7,319 cf, Depth= 7.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Year Rainfall=7.60"

	Area (sf)	CN	Description
*	2,464	98	Pool & Pool deck
*	5,322	98	Proposed Residence
*	980	98	Proposed Terrace
*	3,167	98	Proposed Driveway
	11,933	98	Weighted Average
	11,933		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, Direct Entry**

Summary for Reach 1R: Long Island Sound

Inflow Area = 40,549 sf, 32.07% Impervious, Inflow Depth = 4.15" for 50-Year event
Inflow = 5.08 cfs @ 12.09 hrs, Volume= 14,024 cf
Outflow = 5.08 cfs @ 12.09 hrs, Volume= 14,024 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Rain Garden

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 7.36" for 50-Year event
Inflow = 2.44 cfs @ 12.01 hrs, Volume= 7,319 cf
Outflow = 1.75 cfs @ 12.07 hrs, Volume= 7,319 cf, Atten= 28%, Lag= 3.1 min
Discarded = 0.58 cfs @ 12.07 hrs, Volume= 6,091 cf
Primary = 1.17 cfs @ 12.07 hrs, Volume= 1,228 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 12.99' @ 12.07 hrs Surf.Area= 836 sf Storage= 608 cf

Plug-Flow detention time= 2.9 min calculated for 7,318 cf (100% of inflow)
Center-of-Mass det. time= 2.9 min (740.2 - 737.2)

Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	618 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	394	0	0
13.00	842	618	618

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**30.000 in/hr Exfiltration over Surface area**
#2	Primary	12.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.58 cfs @ 12.07 hrs HW=12.99' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.58 cfs)

Primary OutFlow Max=1.17 cfs @ 12.07 hrs HW=12.99' (Free Discharge)
↑—**2=Orifice/Grate** (Orifice Controls 1.17 cfs @ 3.36 fps)

ry for Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE [Solid] 2.5-Inch Orifice @ 9.0 FT, 8.0-Inch Orifice @

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 1.24" for 50-Year event
Inflow = 1.17 cfs @ 12.07 hrs, Volume= 1,228 cf
Outflow = 1.18 cfs @ 12.06 hrs, Volume= 1,228 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.18 cfs @ 12.06 hrs, Volume= 1,228 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 10.59' @ 12.06 hrs Surf.Area= 4 sf Storage= 22 cf

Plug-Flow detention time= 0.6 min calculated for 1,228 cf (100% of inflow)
Center-of-Mass det. time= 0.6 min (726.8 - 726.2)

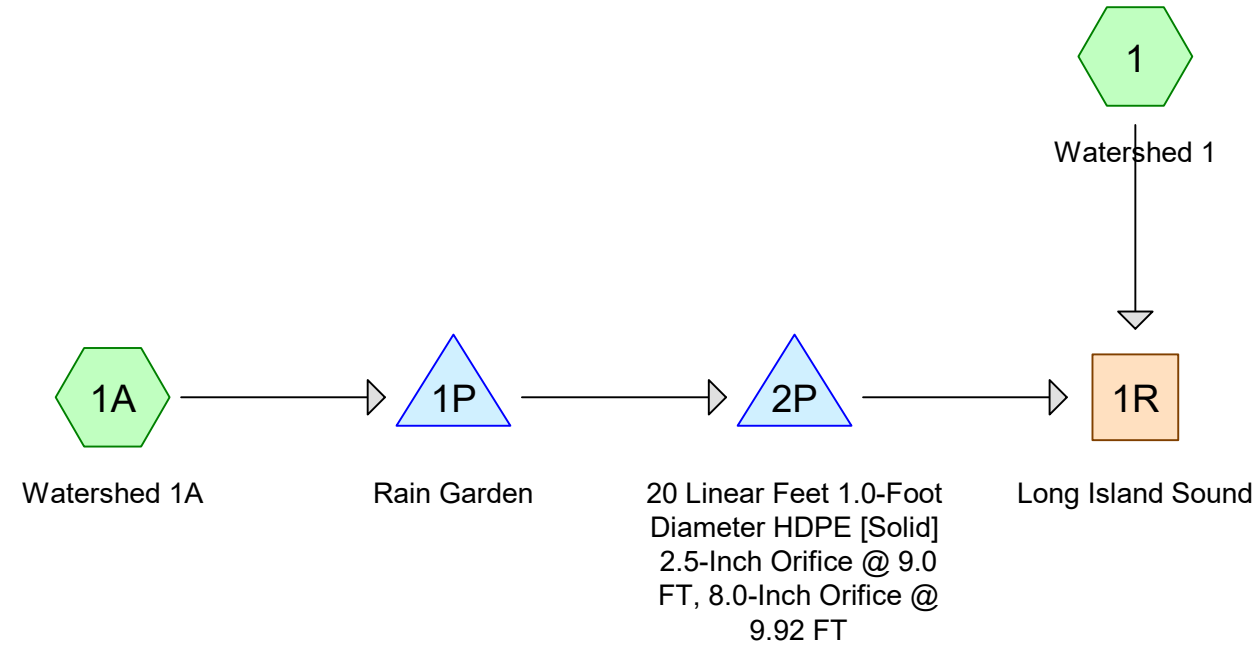
Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	16 cf	**12.0" Round Pipe Storage** L= 20.0'
#2	9.00'	10 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		26 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	4	0	0
11.50	4	10	10

Device	Routing	Invert	Outlet Devices	
#1	Primary	9.00'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	9.92'	**8.0" Vert. Orifice/Grate**	C= 0.600

Primary OutFlow Max=1.17 cfs @ 12.06 hrs HW=10.59' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.20 cfs @ 5.86 fps)
└**2=Orifice/Grate** (Orifice Controls 0.97 cfs @ 2.78 fps)

Water Quality Calculations



Subcat Reach Pond Link

Routing Diagram for Proposed Condition - 2019-03-27

Prepared by Hudson Engineering & Consulting, P.C., Printed 4/3/2019

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 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 1: Watershed 1 Runoff Area=28,616 sf 3.75% Impervious Runoff Depth=0.40"
Flow Length=92' Slope=0.0370 '/' Tc=6.9 min CN=81 Runoff=0.26 cfs 956 cf

Subcatchment 1A: Watershed 1A Runoff Area=11,933 sf 100.00% Impervious Runoff Depth=1.44"
Tc=1.0 min CN=98 Runoff=0.51 cfs 1,430 cf

Reach 1R: Long Island Sound Inflow=0.26 cfs 956 cf
Outflow=0.26 cfs 956 cf

Pond 1P: Rain Garden Peak Elev=12.15' Storage=63 cf Inflow=0.51 cfs 1,430 cf
Discarded=0.32 cfs 1,430 cf Primary=0.00 cfs 0 cf Outflow=0.32 cfs 1,430 cf

Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE Peak Elev=9.00' Storage=0 cf Inflow=0.00 cfs 0 cf
Outflow=0.00 cfs 0 cf

Total Runoff Area = 40,549 sf Runoff Volume = 2,386 cf Average Runoff Depth = 0.71"
67.93% Pervious = 27,544 sf 32.07% Impervious = 13,005 sf

Summary for Subcatchment 1: Watershed 1

Runoff = 0.26 cfs @ 12.11 hrs, Volume= 956 cf, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-WQv Rainfall=1.66"

	Area (sf)	CN	Description
*	994	98	Existing rear walls, walk, steps
*	78	98	Spa & wall
	27,544	80	>75% Grass cover, Good, HSG D
	28,616	81	Weighted Average
	27,544		96.25% Pervious Area
	1,072		3.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	92	0.0370	0.22		**Sheet Flow, A->DP-1** Grass: Short n= 0.150 P2= 3.45"

Summary for Subcatchment 1A: Watershed 1A

Runoff = 0.51 cfs @ 12.01 hrs, Volume= 1,430 cf, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-WQv Rainfall=1.66"

	Area (sf)	CN	Description
*	2,464	98	Pool & Pool deck
*	5,322	98	Proposed Residence
*	980	98	Proposed Terrace
*	3,167	98	Proposed Driveway
	11,933	98	Weighted Average
	11,933		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, Direct Entry**

Summary for Reach 1R: Long Island Sound

Inflow Area = 40,549 sf, 32.07% Impervious, Inflow Depth = 0.28" for 1-WQv event
Inflow = 0.26 cfs @ 12.11 hrs, Volume= 956 cf
Outflow = 0.26 cfs @ 12.11 hrs, Volume= 956 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: Rain Garden

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 1.44" for 1-WQv event
Inflow = 0.51 cfs @ 12.01 hrs, Volume= 1,430 cf
Outflow = 0.32 cfs @ 12.08 hrs, Volume= 1,430 cf, Atten= 37%, Lag= 4.0 min
Discarded = 0.32 cfs @ 12.08 hrs, Volume= 1,430 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 12.15' @ 12.08 hrs Surf.Area= 460 sf Storage= 63 cf

Plug-Flow detention time= 0.8 min calculated for 1,429 cf (100% of inflow)
Center-of-Mass det. time= 0.6 min (768.4 - 767.8)

Volume	Invert	Avail.Storage	Storage Description
#1	12.00'	618 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
12.00	394	0	0
13.00	842	618	618

Device	Routing	Invert	Outlet Devices
#1	Discarded	12.00'	**30.000 in/hr Exfiltration over Surface area**
#2	Primary	12.50'	**8.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.32 cfs @ 12.08 hrs HW=12.15' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=12.00' (Free Discharge)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

ry for Pond 2P: 20 Linear Feet 1.0-Foot Diameter HDPE [Solid] 2.5-Inch Orifice @ 9.0 FT, 8.0-Inch Orifice @

Inflow Area = 11,933 sf,100.00% Impervious, Inflow Depth = 0.00" for 1-WQv event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Peak Elev= 9.00' @ 0.00 hrs Surf.Area= 4 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	9.00'	16 cf	**12.0" Round Pipe Storage** L= 20.0'
#2	9.00'	10 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		26 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.00	4	0	0
11.50	4	10	10

Device	Routing	Invert	Outlet Devices	
#1	Primary	9.00'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	9.92'	**8.0" Vert. Orifice/Grate**	C= 0.600

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=9.00' (Free Discharge)
└─**1=Orifice/Grate** (Controls 0.00 cfs)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Deep Hole Test Logs

SOILTESTING, INC. 90 DONOVAN RD. OXFORD, CT 06478 CT (203) 262-9328 NY (914) 946-4850	TEST PITS	CLIENT: STEPHEN WANG Assoc
	PROJECT NO. G46 - 0647 - 17	TEST PIT NO.: TP-1, 2 & 3
	PROJECT NAME #7 BAY AVE	
BACKHOE OPERATOR: PD AD	LOCATION LARCHMONT, NY.	
INSPECTOR:		DATE WORK DONE: 3-15-17

Test Pit or Probe No.	Water Level / time elapsed	Moisture	Soil Strata in Auger Holes From (ft.)	To (ft.)	Remarks: Include: Groundwater depth, Size of Auger used, description of soil in Auger holes, depth of auger samples
TP-1	None After	moist	0	6"	Topsoil
	0 HRS	moist	6"	3'8"	DK BRN SILT with cobbels &
					BOULDERS Little sand, gravel (possible FILL)
		dry-moist	3'8"	4'6"	PARTIALLY DECOMPOSED BEDROCK
				4'6"	REFUSAL - END of PIT
					*NO PERCOLATION TEST PERFORMED DUE TO
					High BEDROCK CONDITIONS
TP-2	None After	moist	0	8"	Topsoil Little SAND
	0 HRS			8"	BEDROCK - REFUSAL - END of PIT
					* NO .....
TP-3	None After	moist	0	1'6"	Topsoil Little SAND, gravel
	0 HRS			1'6"	BEDROCK - REFUSAL - END of PIT
					* NO .....