



PHOTO 1



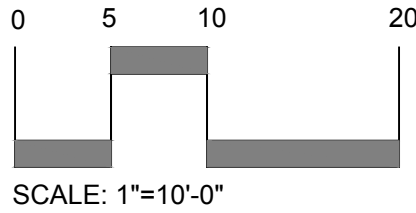
PHOTO 2



PHOTO 3



PHOTO 4



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PROJECT # 18-13

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Civil Engineers • Land Planners
251-F Underhill Avenue, Yorktown Heights, NY 10598
(914) 962-4488 - Fax: (914) 962-7386
www.sitedesignconsultants.com

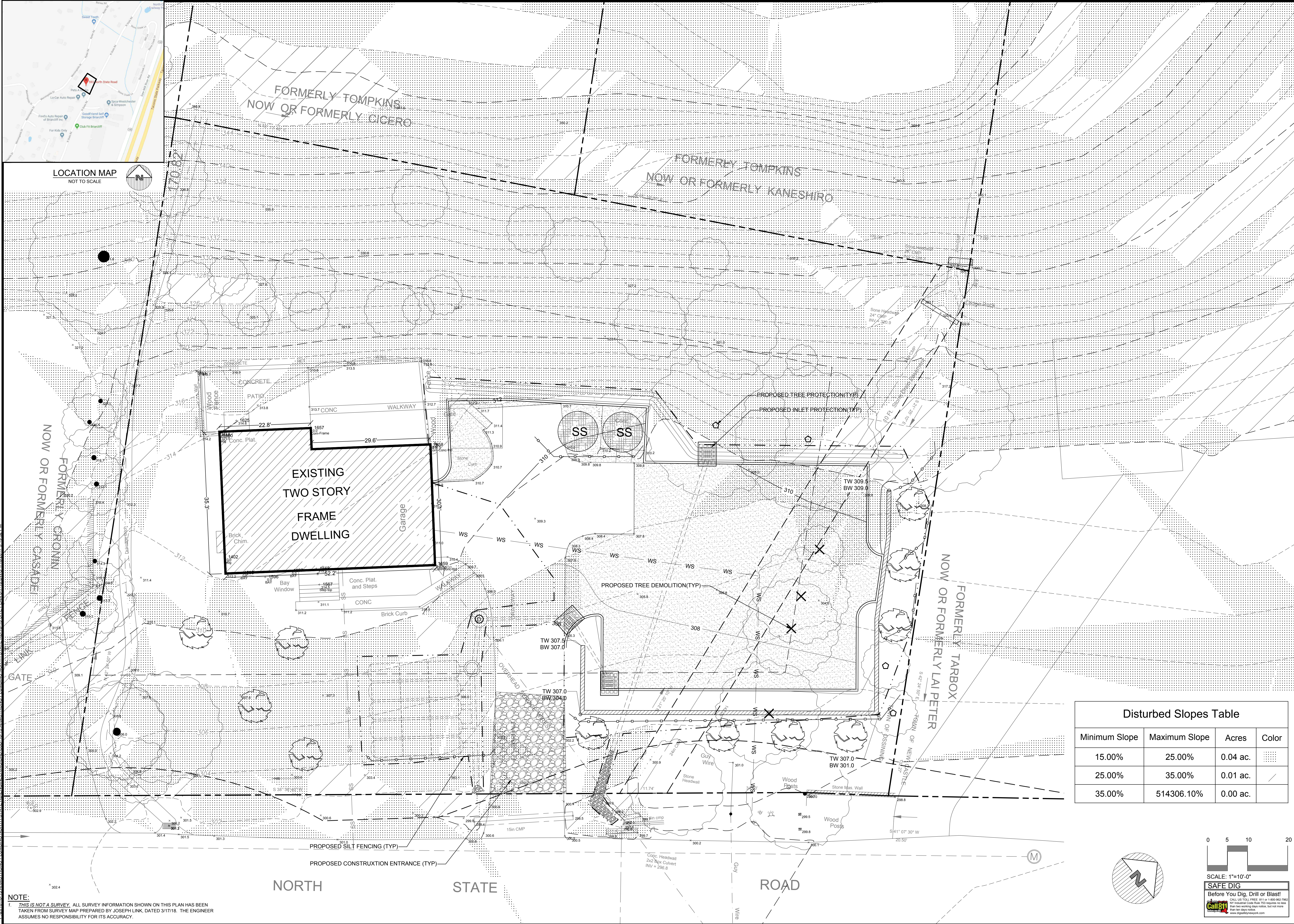
Revisions:	No.	Date	Comments
	1	5/21/18	Plan Revisions
	2	5/25/18	Town Comments
	3	6/17/18	Town Comments

SCALE: 1" = 10'	DRAWN BY: TK	DATE: 3/21/18
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EXISTING CONDITIONS

SITE PLAN
PREPARED FOR
ARMSTRONG PLUMBING LLC
593 NORTH STATE ROAD
Town of Ossining
Westchester County, NY

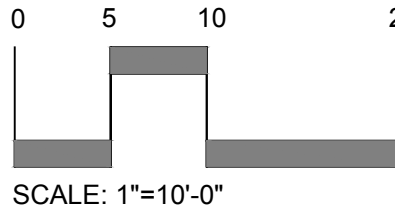
Sheet 2 of 12




NOTE:
1. THIS IS NOT A SURVEY. ALL SURVEY INFORMATION SHOWN ON THIS PLAN HAS BEEN TAKEN FROM SURVEY MAP PREPARED BY JOSEPH LINK, DATED 3/17/18. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ITS ACCURACY.

NOTE: UNAUTHORIZED ALTERATIONS OR ADDITIONS TO THIS DRAWING IS A VIOLATION OF SECTION 7209 (2) OF THE NEW YORK STATE EDUCATION LAW.

Disturbed Slopes Table			
Minimum Slope	Maximum Slope	Acres	Color
15.00%	25.00%	0.04 ac.	
25.00%	35.00%	0.01 ac.	
35.00%	514306.10%	0.00 ac.	

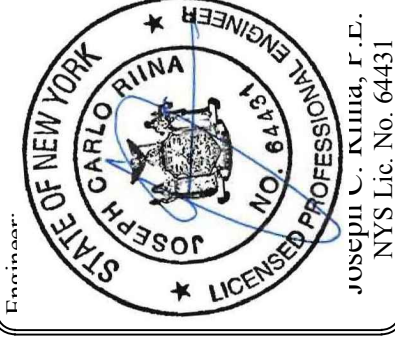


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Revisions:

No.	Date	Comments
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SCALE: 1" = 10'

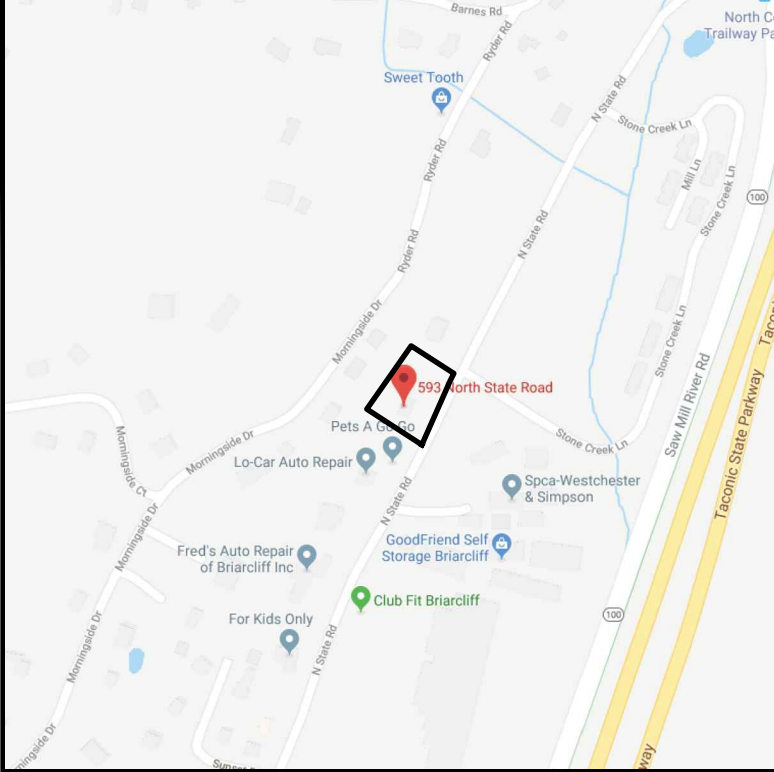
DRAWN BY: TK

DATE: 3/21/18

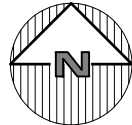
E&SC PLAN

SITE PLAN
PREPARED FOR
**ARMSTRONG PLUMBING
LLC**
593 NORTH STATE ROAD
Town of Ossining
Westchester County, NY

Sheet 3 of 12



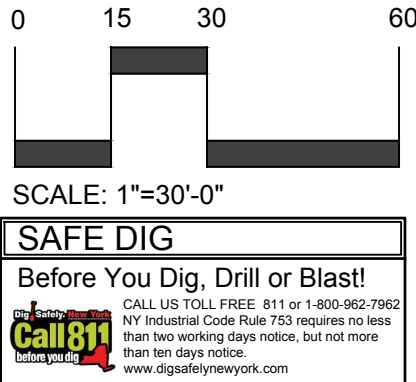
LOCATION MAP
NOT TO SCALE

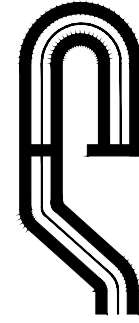


E:\2018\18-13 ARMSTRONG PLUMBING NORTH STATE ENGINEERING\CAD\CD-18-13 ARMSTRONG PLUMBING NORTH STATE RD\18-13 SITE PLAN\6-2-18 DWG-11652017-3-18-52.DWG

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PROJECT # 18-13

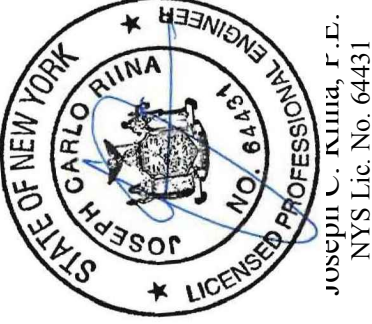
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DATE: 3/21/18

SITE PLAN
PREPARED FOR

ARMSTRONG PLUMBING
LLC

593 NORTH STATE ROAD

Town of Ossining

Westchester County, NY

Sheet 4 of 12

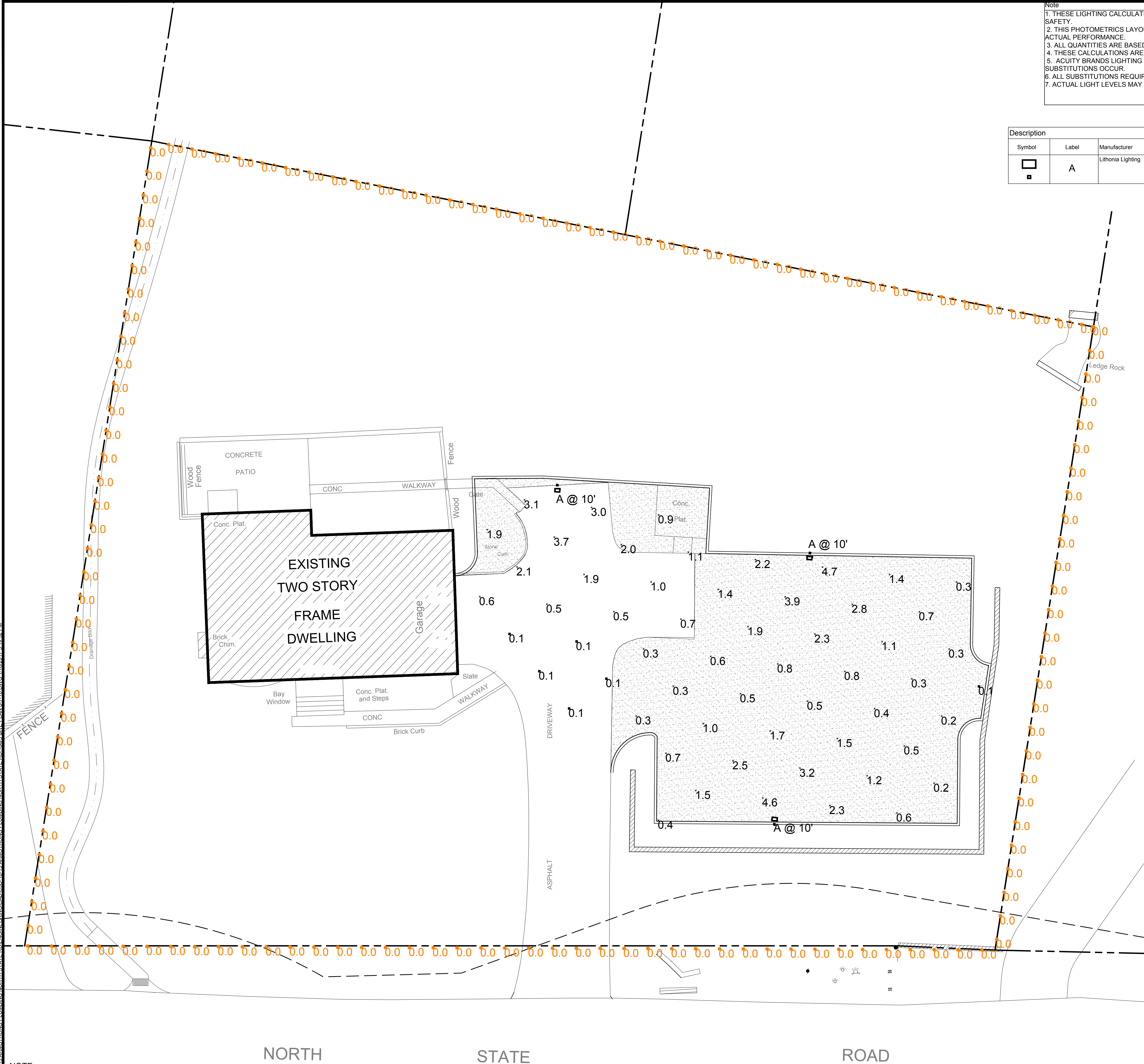


E:\2018\18-13 ARMSTRONG PLUMBING NORTH STATE RD\18-13 ARMSTRONG PLUMBING NORTH STATE RD\18-13 SITE PLAN\6-2-18 DWG-1162017-18-52.DWG

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Note:
1. THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SUITABILITY AND SAFETY.
2. THIS PHOTOMETRICS LAYOUT WAS CALCULATED USING SPECIFIC CRITERIA, ANY DEVIATION FROM STATED PARAMETERS WILL AFFECT ACTUAL PERFORMANCE.
3. ALL QUANTITIES ARE BASED ON FIXTURES SHOWN IN THE LIGHTING CALCULATIONS ONLY.
4. THESE CALCULATIONS ARE BASED ON LISTED FIXTURES ONLY. SUBSTITUTION OF THESE FIXTURES VOIDS ALL CALCULATIONS.
5. ACUITY BRANDS LIGHTING RESERVES THE RIGHT TO WITHDRAW THESE COPYRIGHTED LIGHTING PLANS FROM PUBLIC RECORD IF SUBSTITUTIONS OCCUR.
6. ALL SUBSTITUTIONS REQUIRE NEW CALCULATIONS BASED ON THE FIXTURES SUPPLIED.
7. ACTUAL LIGHT LEVELS MAY VARY DUE TO ACTUAL FIXTURE LOCATIONS AND FIELD CONDITIONS.

Description	Symbol	Label	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
		A	Lithonia Lighting	DSX0 LED P1 30K T4M MVOLT HS	DSX0 LED P1 30K T4M MVOLT with houseshield	LED	1	DSX0_LED_P1_30K_T4M_MVOLT_HS.ies	3322	0.9	38

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Property Line	+	0.0 fc	0.0 fc	0.0 fc	N/A	N/A
Proposed Parking	+	1.3 fc	4.7 fc	0.1 fc	47.0:1	13.0:1

D-Series Size 0 LED Area Luminaire

Specifications

EPA: 0.95 ft² (0.09 m²)

Length: 26" (661 mm)

Width: 13" (330 mm)

Height: 7" (178 mm)

Weight (max): 16 lbs (7.3 kg)

Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA DDBXD

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics P1 P4 P7 P2 P5 P3 P6 Rotated optics P10 P12 P11 P13	30K 40K 50K 5000 K AMBC Amber phosphor converted	T15 Type I short T25 Type II short T35 Type III short T4M Type IV medium T5M Type V medium T6M Type VI medium T7M Type VII medium T8M Type VIII medium T9M Type IX medium T10M Type X medium T11M Type XI medium T12M Type XII medium T13M Type XIII medium T14M Type XIV medium T15M Type XV medium T16M Type XVI medium T17M Type XVII medium T18M Type XVIII medium T19M Type XIX medium T20M Type XX medium T21M Type XXI medium T22M Type XXII medium T23M Type XXIII medium T24M Type XXIV medium T25M Type XXV medium T26M Type XXVI medium T27M Type XXVII medium T28M Type XXVIII medium T29M Type XXIX medium T30M Type XXX medium T31M Type XXXI medium T32M Type XXXII medium T33M Type XXXIII medium T34M Type XXXIV medium T35M Type XXXV medium T36M Type XXXVI medium T37M Type XXXVII medium T38M Type XXXVIII medium T39M Type XXXIX medium T40M Type XL medium T41M Type XLI medium T42M Type XLII medium T43M Type XLIII medium T44M Type XLIV medium T45M Type XLV medium T46M Type XLVI medium T47M Type XLVII medium T48M Type XLVIII medium T49M Type XLIX medium T50M Type L medium T51M Type LI medium T52M Type LII medium T53M Type LIII medium T54M Type LIV medium T55M Type LV medium T56M Type LVI medium T57M Type LVII medium T58M Type LVIII medium T59M Type LIX medium T60M Type LX medium T61M Type LXI medium T62M Type LXII medium T63M Type LXIII medium T64M Type LXIV medium T65M Type LXV medium T66M Type LXVI medium T67M Type LXVII medium T68M Type LXVIII medium T69M Type LXIX medium T70M Type LXX medium T71M Type LXXI medium T72M Type LXXII medium T73M Type LXXIII medium T74M Type LXXIV medium T75M Type LXXV medium T76M Type LXXVI medium T77M Type LXXVII medium T78M Type LXXVIII medium T79M Type LXXIX medium T80M Type LXXX medium T81M Type LXXXI medium T82M Type LXXXII medium T83M Type LXXXIII medium T84M Type LXXXIV medium T85M Type LXXXV medium T86M Type LXXXVI medium T87M Type LXXXVII medium T88M Type LXXXVIII medium T89M Type LXXXIX medium T90M Type XL medium T91M Type XLI medium T92M Type XLII medium T93M Type XLIII medium T94M Type XLIV medium T95M Type XLV medium T96M Type XLVI medium T97M Type XLVII medium T98M Type XLVIII medium T99M Type XLIX medium T100M Type L medium	120V 240V 480V 600V 800V 1000V 1200V 1440V 1680V 1920V 2160V 2400V 2640V 2880V 3120V 3360V 3600V 3840V 4080V 4320V 4560V 4800V 5040V 5280V 5520V 5760V 6000V 6240V 6480V 6720V 6960V 7200V 7440V 7680V 7920V 8160V 8400V 8640V 8880V 9120V 9360V 9600V 9840V 10080V 10320V 10560V 10800V 11040V 11280V 11520V 11760V 12000V 12240V 12480V 12720V 12960V 13200V 13440V 13680V 13920V 14160V 14400V 14640V 14880V 15120V 15360V 15600V 15840V 16080V 16320V 16560V 16800V 17040V 17280V 17520V 17760V 18000V 18240V 18480V 18720V 18960V 19200V 19440V 19680V 19920V 20160V 20400V 20640V 20880V 21120V 21360V 21600V 21840V 22080V 22320V 22560V 22800V 23040V 23280V 23520V 23760V 24000V 24240V 24480V 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CONSTRUCTION SEQUENCE

Recommended Sequence of Construction

Use of erosion and sediment control structures and practices are important for maintaining site stability under runoff and during construction activities. The Construction Sequence should be staged with erosion and sediment controls, as follows, with all controls in place and implemented prior to respective infrastructure construction. As construction proceeds, the controls should be monitored, maintained and replaced as needed. Additional controls may be required as needed to address unforeseen situations.

Refer to The Construction Drawings for all plans and details which relate to the Construction Sequence. This Sequence should be followed in conjunction with all Plans, Notes, and the Stormwater Pollution Prevention Plan. Prior to the commencement of work, the Owner and General Contractor shall read and understand the Sequence for Construction. The Sequence shall be discussed at the time of the Pre-construction Meeting.

During construction of the project, the Contractor is responsible to coordinate all required inspections with various agencies and the Project Engineer.

Construction Sequence

General Sequence: The general sequence applies to the start of all Phases of the project. The requirements in this shall be applied as appropriate in that phase and shall be assumed in place prior to the start of the work outlined in the sequence for each Phase.

- Prior to the beginning of any site work the major features of the construction must be field staked by a licensed surveyor. These include the building, limits of disturbance, utility lines, and Stormwater practices.
- Prior to the start of the project, an on-site pre-construction meeting will be held. This will be attended by the Project Owner, the Operator responsible for complying with the approved construction drawings including the Erosion and Sediment Control (E&SC) Plan and Details, the Design Engineer, the Engineer responsible for E&SC monitoring during construction, Town representatives from the Engineering Department and Code Enforcement.
- Cut and clear trees within the phase limits as necessary for the areas to be disturbed. Install tree protective measure at marked locations on E&SC Plan.
- Install all temporary erosion control measures as shown on the Erosion and Sediment Control Plan for the project's immediate disturbance areas. This shall include, but not limited to silt fence, stabilized construction entrances, diversion swales, sediment traps, construction fence, etc. This sequence must be followed to insure proper implementation of the Erosion and Sediment Control Plan (E&SC) and Stormwater Pollution Prevention Plan (SWPPP).
- Timbered trees and woodchips shall be temporarily stored in the stockpile and/or staging area if necessary before being removed off-site. Woodchips may be used for mulch to stabilize disturbed areas. Woodchip mulch shall be applied at a minimum rate of 500 lbs. per 1000 SF (2" thick minimum).
- Remove existing vegetative cover, cut and clear trees, grub, remove stumps and other surface features in the limit of construction only. Any disturbance that results from tree clearing and grubbing shall be immediately stabilized with woodchips mulch, hydro-mulch, or straw and seed. Timbered trees, wood chips, and stumps shall be removed off-site unless otherwise directed. As staked woodchips may be stockpiled for use as stabilizing ground cover. Demolish and/or remove existing features, i.e.: fence, concrete slab, asphalt etc., and dispose of or stockpile as required by the Owner. All construction debris shall be properly disposed of in accordance with all Federal, State, and Local requirements.
- Once the tree removal operation is complete strip the topsoil within the limits of disturbance and place excavated topsoil within the identified stockpile locations. Any soils so deemed by the Design or Monitoring Engineer shall be stockpiled for future use as landscaped areas topsoil. Contractor shall take every precaution feasible to reduce the amount of disturbed/exposed soils during construction.
- Begin rough grading of driveways and adjacent areas. Slopes in excess of 3H:1V shall not be left exposed and must be stabilized.
- Cut material shall first be moved to the fill locations required to complete the access drive and parking and bring the area up to final grades. Excess material to be used toward grading in Phase II shall be stockpiled. Blasted rock that is not suitable to remain on site shall be hauled away and properly disposed of.
- Begin installation of subsurface detention chambers within limits of disturbance.
- When the subsurface units are installed, the upstream drainage structure shall be blocked so as to not allow sediment laden water from reaching the subsurface chambers.
- Backfill as installation is complete and stabilize the area. If trenches are to be left open, place excavated material on the up-slope sides of the trench and protect and stabilize if it is to remain open for an extended period of seven (7) days or more.
- Upon completion of the subsurface chambers, begin installation of proposed Downstream Defender unit. Install storm sewer piping, catch basins and manholes, working downstream to upstream. During the installation of catch basins, install inlet protection as per E&SC Plan to assure that sediment laden water will not enter the storm system. Once the final grade above the system is achieved, put into place the final topsoil cover, seed mix, and erosion control blanket, or hydro-mulch.
- Once the infiltrator system has been installed, grade and install the base course for the driveways and parking areas.

Final Site Stabilization and Completion of New Construction:

- Upon completion of all Phases, the site shall be inspected by the Supervising Engineer and Town Inspector to determine completion of all work and permanent stabilization of the site.
- Any areas deemed incomplete or not properly stabilized shall be done so to the satisfaction to the Supervising Engineer and Town Inspector.
- Once the site is deemed adequately stable the temporary erosion and sediment control measures can be removed including the sediment traps. The area where the sediment trap was located shall be filled, top soiled, seeded and mulched in accordance with the specifications within this plan. At that time if deemed appropriate drainage structures upstream from the subsurface stormwater management systems shall be cleaned of sediment and debris. They can then be unblocked to allow for flow of collected surface runoff.

Contact information during and after construction:

593 North State Road LLC.
593 North State Road
Ossining, NY 10510

GENERAL EROSION CONTROL NOTES:

- Contractor shall be responsible for compliance with all sediment and erosion control practices. The sediment and erosion control practices are to be installed prior to any major soil disturbances and maintained until permanent protection is established. Road surface flows from the site should be dissipated with tracking pad or appropriate measures during adjacent road shoulder regrading. The contractor in responsible for the installation and maintenance of all soil erosion and sedimentation control devices throughout the course of construction.
- Catch basin inlet protection must be installed and operating at all times until tributary areas have been stabilized. When possible, flows should be stabilized before reaching inlet protection structure. Timely maintenance of sediment control structures is the responsibility of the contractor.
- All structures shall be maintained in good working order at all times. The sediment level in all sediment traps shall be closely monitored and sediment removed promptly when maximum levels are reached or as ordered by the engineer. All sediment control structures shall be inspected on a regular basis, and after each heavy rain to insure proper operation as designed. An inspection schedule shall be set forth prior to the start of construction.
- The locations and the installation times of the sediment capturing standards shall be as specified in these plans, as ordered by the engineer, and in accordance with the latest edition of the "New York standards and specifications for erosion and sediment control" (NYSSESC).
- All topsoil shall be placed in a stabilized stockpile for reuse on the site. All stockpile material required for final grading and stored on site shall be temporarily seeded and mulched within 7 days. Refer to soil stockpile details.
- Any disturbed areas that will be left exposed more than 7 days and not subject to construction traffic, shall immediately receive temporary seeding. Mulch shall be used if the season prevents the establishment of a temporary cover. Disturbed areas shall not be limed and fertilized prior to temporary seeding.
- All disturbed areas within 500 feet of an inhabited dwelling shall be wetted as necessary to provide dust control.
- The contractor shall keep the roadways within the project clear of soil and debris and is responsible for any street cleaning necessary during the course of the project.
- Sediment and erosion control structures shall be removed, and the area stabilized when the drainage area has been properly stabilized by permanent measures.
- All sediment and erosion control measures shall be installed in accordance with current edition of nyssec.
- All regraded areas must be stabilized appropriately prior to any rock blasting, cutting, and/or filling of soils. Special care should be taken during construction to insure stability during maintenance and integrity of control structures.
- Any slopes graded at 3:1 or greater shall be stabilized with erosion blankets to be staked into place in accordance with the manufacturers requirements. Erosion blankets may also be required at the discretion of town officials or project engineer. When stabilized blanket is utilized for channel stabilization, place all of the volume of seed mix prior to laying net, or as recommended by the manufacturer.
- To prevent heavy construction equipment and trucks from tracking soil off-site, construct a pervious crushed stone pad. Locate and construct pads as detailed in these plans.
- Contractor is responsible for controlling dust by sprinkling exposed soil areas periodically with water as required. Contractor to supply all equipment and water.
- Contractor shall be responsible for construction inspections as per NYSDEC GP-0-15-002 and Town of Ossining code.

OWNER / OPERATOR CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Name (please print): _____

Title: _____

Date: _____

Address: _____

Phone: _____

E-mail: _____

Signature: _____

MAINTENANCE OF TEMPORARY EROSION AND SEDIMENT CONTROL STRUCTURES:

NYS DEC GP-0-15-002 exposure restrictions - states that any exposed earthwork shall be stabilized in accordance with the guidelines of this plan.

- Trees and vegetation shall be protected at all times as shown on the detail drawing and as directed by the engineer.
- Care should be taken so as not to channel concentrated runoff through the areas of construction activity on the site.
- Fill and site disturbances should not be created which causes water to pond off site or on adjacent properties.
- Runoff from land disturbances shall not be discharged or have the potential to discharge off site without first being intercepted by a control structure, such as a sediment trap or silt fence. Sediment shall be removed before exceeding 50% of the retention structure's capacity.
- For finished grading, adequate grade shall be provided so that water will not pond on lawns for more than 24 hours after rainfall, except in swale flow areas which may drain for as long as 48 hours after rainfall.
- All swales and other areas of concentrated flow shall be properly stabilized with temporary control measures to prevent erosion and sediment travel. Surface flows over cut and fill areas shall be stabilized at all times.
- All sites shall be stabilized with erosion control materials within 7 days of final grading.
- Temporary sediment trapping devices shall be removed from the site within 30 days of final stabilization.

MAINTENANCE SCHEDULE:

	DAILY	WEEKLY	MONTHLY	AFTER RAINFALL	NECESSARY TO MAINTAIN FUNCTION	AFTER APPROVAL OF INSPECTOR
SILT FENCE	---	----	INSP.	INSP.	CLEAN/ REPLACE	REMOVE
WHEEL CLEANER	CLEAN	----	----	----	REPLACE	REMOVE
INLET PROTECTION	---	INSP.	INSP.	CLEAN	REPLACE	REMOVE

MAINTENANCE OF PERMANENT CONTROL STRUCTURES DURING CONSTRUCTION:

The stormwater management system and outlet structure shall be inspected on a regular basis and after every rainfall event. Sediment build up shall be removed from the inlet protection regularly to insure detention capacity and proper drainage. Outlet structure shall be free of obstructions. All piping and drain inlets shall be free of obstruction. Any sediment build up shall be removed.

MAINTENANCE OF CONTROLS AFTER CONSTRUCTION:

Controls (including respective outlet structures) should be inspected periodically for the first few months after construction and on an annual basis thereafter. They should also be inspected after major storm events.

DEBRIS AND LITTER REMOVAL:

Twice a year, inspect outlet structure and drain inlets for accumulated debris. Also, remove any accumulations during each mowing operation.

STRUCTURAL REPAIR/REPLACEMENT:

Outlet structure must be inspected twice a year for evidence of structural damage and repaired immediately.

EROSION CONTROL:

Unstable areas tributary to the basin shall immediately be stabilized with vegetation or other appropriate erosion control measures.

SEDIMENT REMOVAL:

Sediment should be removed after it has reached a maximum depth of five inches above the stormwater management system floor.

TOPSOIL:

Existing topsoil will be removed and stored in piles sufficiently as to avoid mixing with other excavation. Stockpiles shall be surrounded by erosion control as outlined on these plans. The furnishing of new topsoil shall be of a better or equal to the following criteria (SS713.01 NYSDOT):

- The pH of the material shall be 5.5 to 7.6.
- The organic content shall not be less than 2% or more than 70%.
- Gradation:

SIEVE SIZE	% PASSING BY WGT.
2 INCH	100
1 INCH	85 TO 100
1/4 INCH	65 TO 100
NO. 200 MESH	20 TO 80

PERMANENT VEGETATIVE COVER:

- Site preparation:
 - Install erosion control measures.
 - Scarify compacted soil areas.
 - Lime as required to pH 6.5.
 - Fertilize with 10-6-4 4 lbs/1,000 S.F.
 - Incorporate amendments into soil with disc harrow.
- Seed mixtures for use on swales and cut and fill areas.

MIXTURE	LBS/ACRE
ALT. A	KENTUCKY BLUE GRASS 20 CREeping RED FESCUE 28 RYE GRASS OR REDTOP 5
ALT. B	CREeping RED FESCUE 20 REDTOP 2 TALL FESCUE/SMOOTH BLOOMGRASS 20
- SEEDING:
 - Prepare seed bed by raking to remove stones, twigs, roots and other foreign material.
 - Apply soil amendments and integrate into soil.
 - Apply seed uniformly by cyclone seeder culti-packer or hydro-seeder at rate indicated.
 - Stabilize seeded areas in drainage swales.
 - Irrigate to fully saturate soil layer, but not to dislodge planting soil.
 - Seed between April 1st and May 15th or August 15th and October 15th.
 - Seeding may occur May 15th and August 15th if adequate irrigation is provided.
 - Seeding

TEMPORARY VEGETATIVE COVER:

SITE PREPARATION:

- Install erosion control measures.
- Scarify areas of compacted soil.
- Fertilize with 10-10-10 at 400/acre.
- Lime as required to pH 6.5.

SEED SPECIES:

MIXTURE	LBS/ACRE
Rapidly germinating annual ryegrass (or approved equal)	20
Perennial ryegrass	20
Cereal oats	36

SEEDING:

Same as permanent vegetative cover

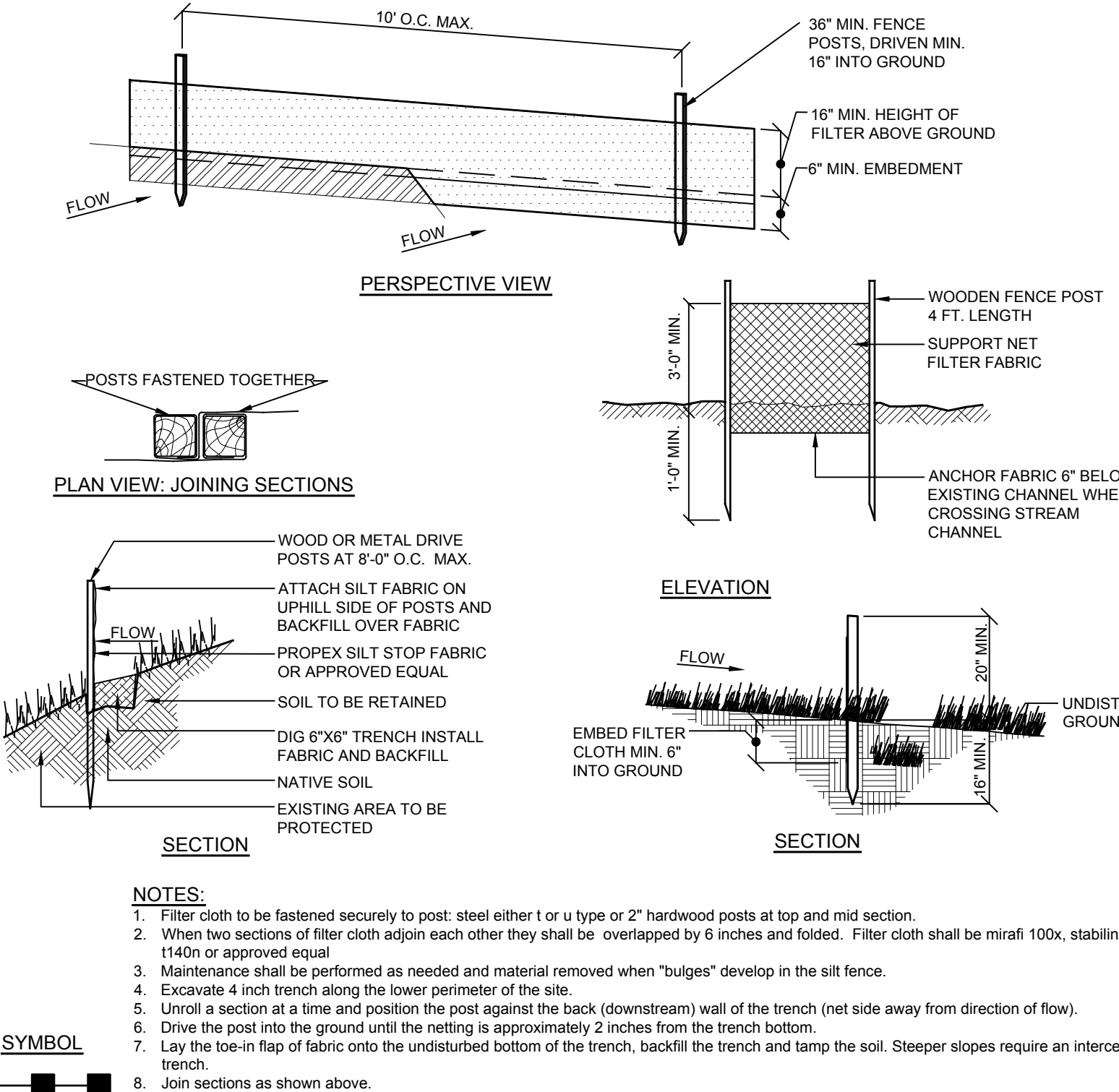
CONTRACTOR CERTIFICATION STATEMENT

Certification Statement - All contractors and subcontractors as identified in a SWPPP, by the Owner or Operator, in accordance with Part III.A.5 of the SPDES General Permit for Stormwater Runoff from Construction Activity, GP-0-15-002, dated January 12, 2015, Page 10 of 40, shall sign a copy of the following Certification Statement before undertaking any construction activity at the Site identified in the SWPPP:

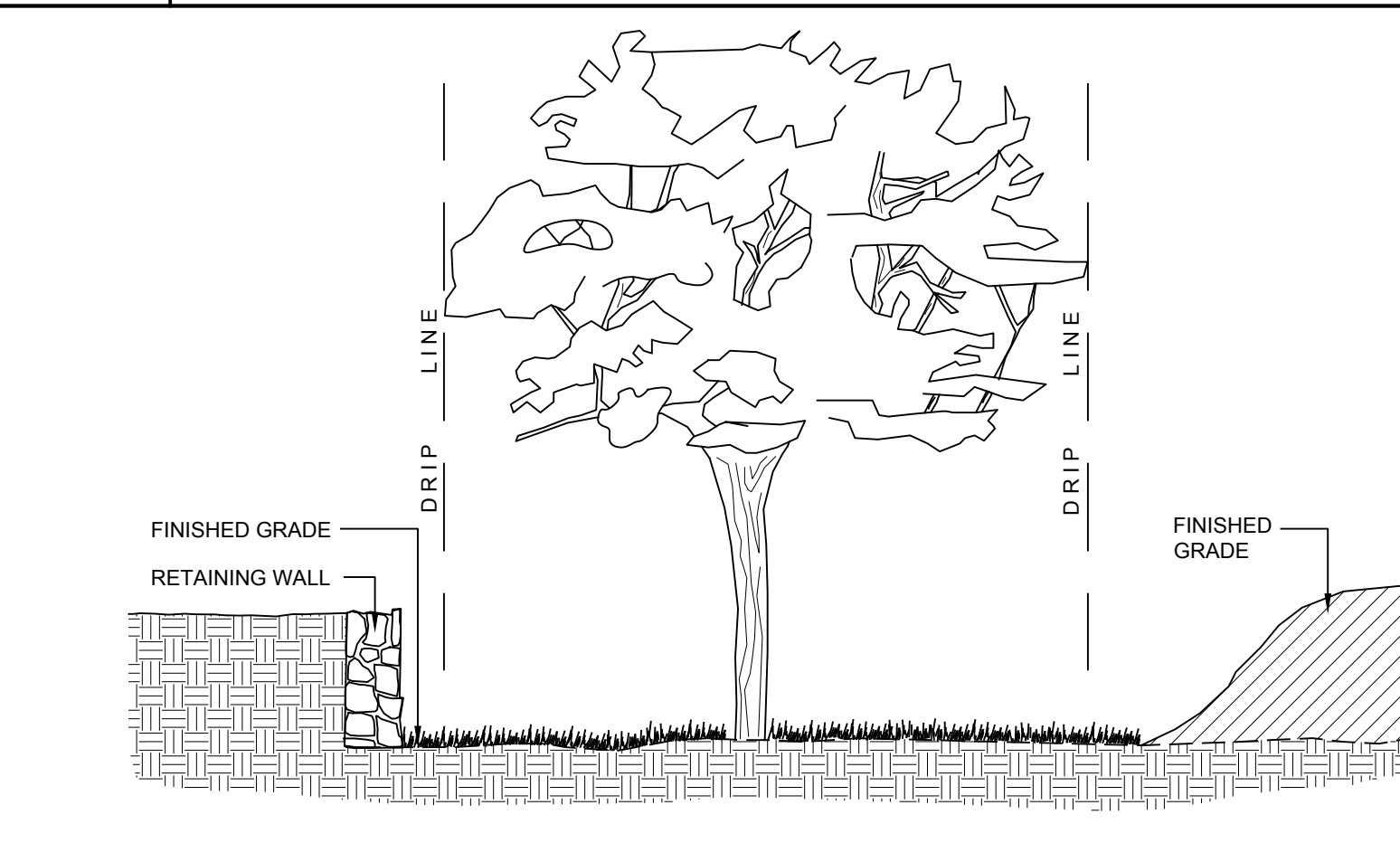
"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the Qualified Inspector during a site inspection. I also understand that the Owner or Operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharge from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Individual Contractor: _____
Name and Title (please print): _____
Signature of Contractor: _____
Company / Contracting Firm: _____
Name of Company: _____
Address of Company: _____
Telephone Number / Cell Number: _____
Site Information: _____
Address of Site: _____

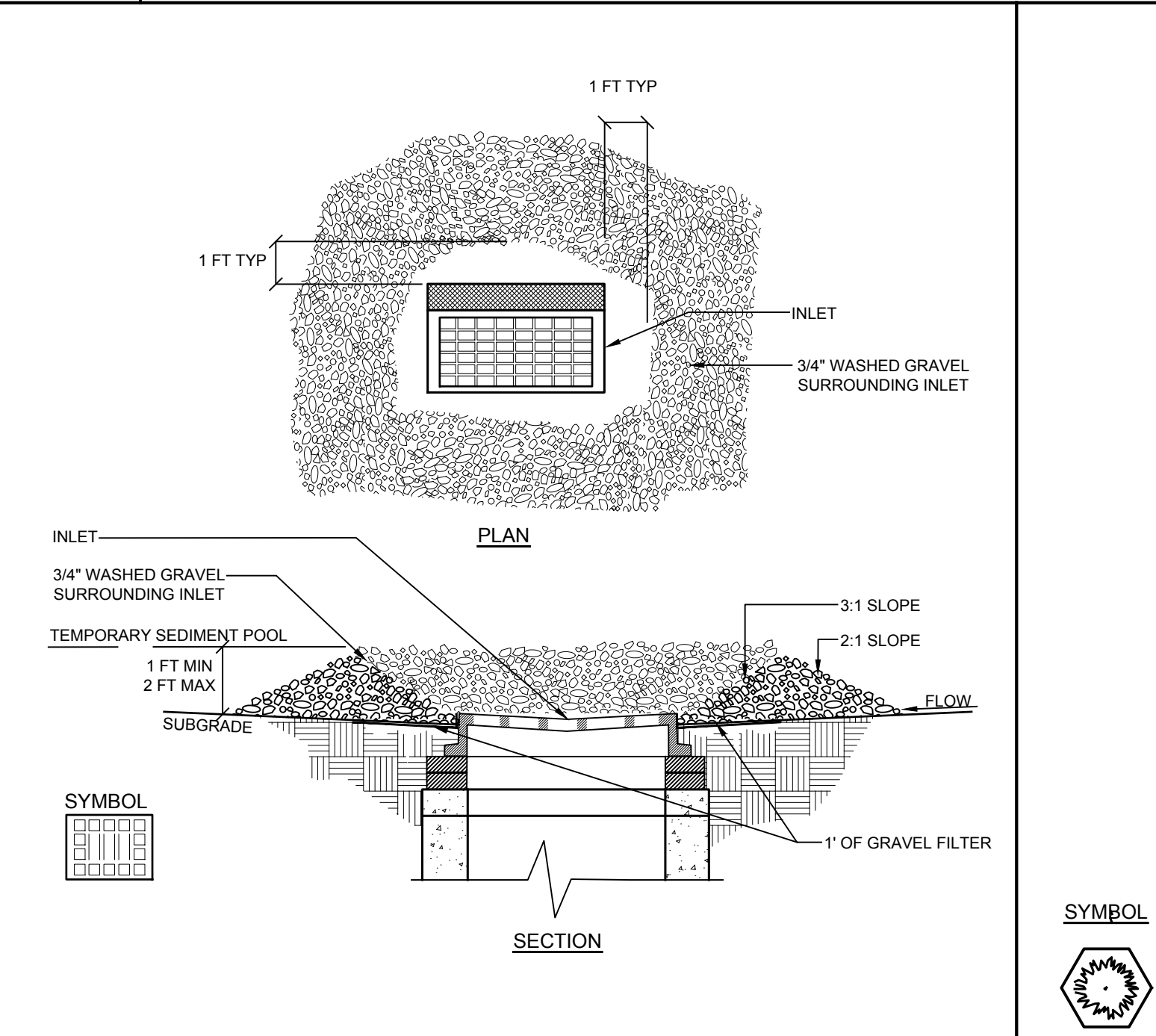
Today's Date: _____



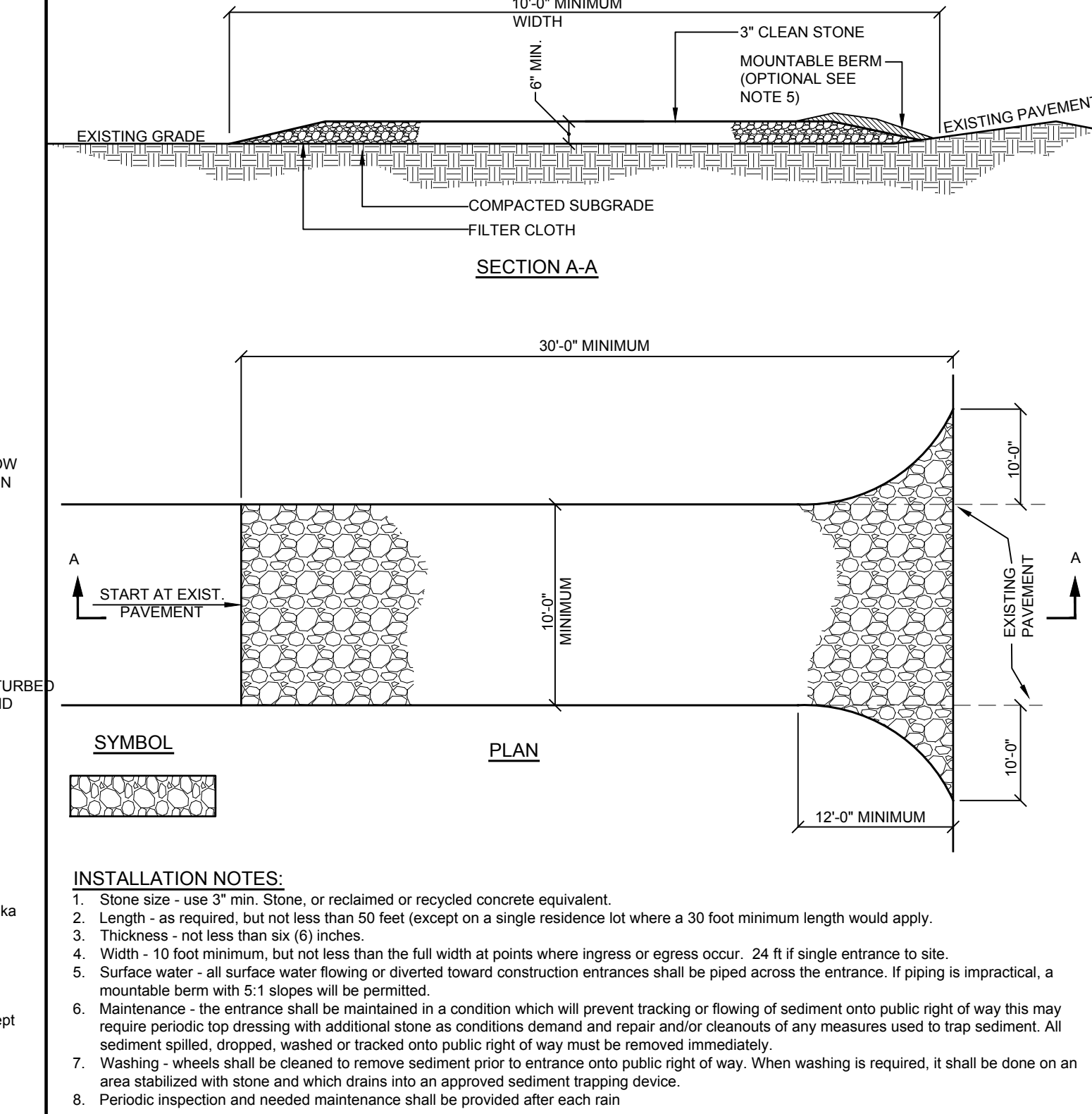
E-1 SILT FENCE DETAIL NOT TO SCALE



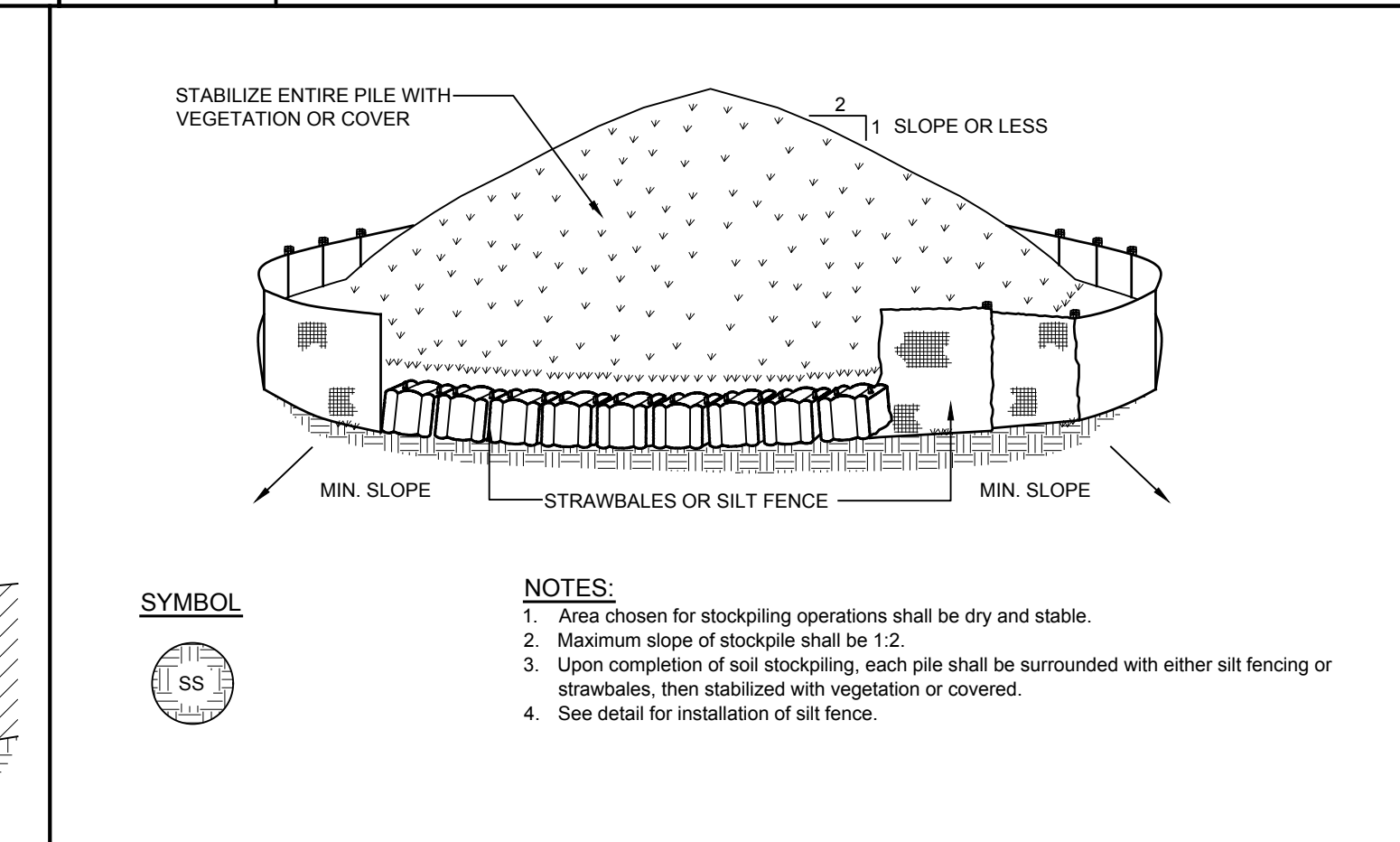
E-3 TREE PROTECTION PLAN FOR GRADE CHANGE DETAIL NOT TO SCALE



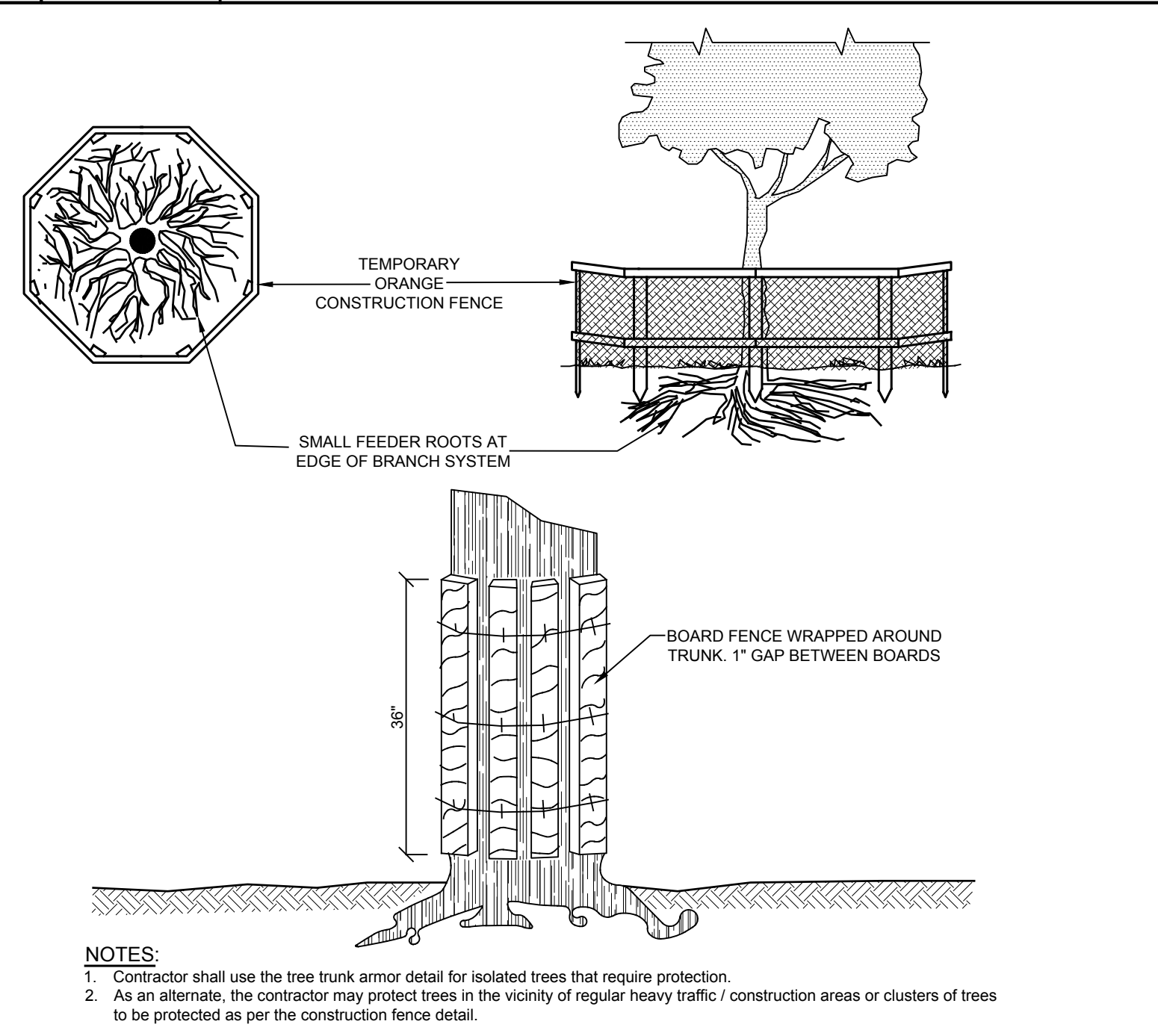
E-5 INLET PROTECTION DETAIL NOT TO SCALE



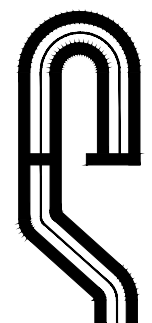
E-2 STABILIZED CONSTRUCTION ENTRANCE DETAIL NOT TO SCALE



E-4 SOIL STOCKPILE DETAIL NOT TO SCALE



E-6 TREE TRUNK ARMOR / TREE PROTECTION DETAIL NOT TO SCALE



PROJECT # 18-13

Site Design Consultants

Civil Engineers • Land Planners

251-F Underhill Avenue, Yorktown Heights, NY 10598
(914) 962-4488 - Fax: (914) 962-7386
www.sitedesignconsultants.com

Engineer:

Joseph C. Rina, P.E.
NYS Lic. No. 64431

Revisions:	No.	Date	Comments
1	5/2/18	Plan Revisions	
2	5/25/18	Town Comments	
3	6/17/18	Town Comments	

SCALE:	NTS
DRAWN BY:	TK
DATE:	3/21/18

E&SC DETAILS

SITE PLAN PREPARED FOR

ARMSTRONG PLUMBING

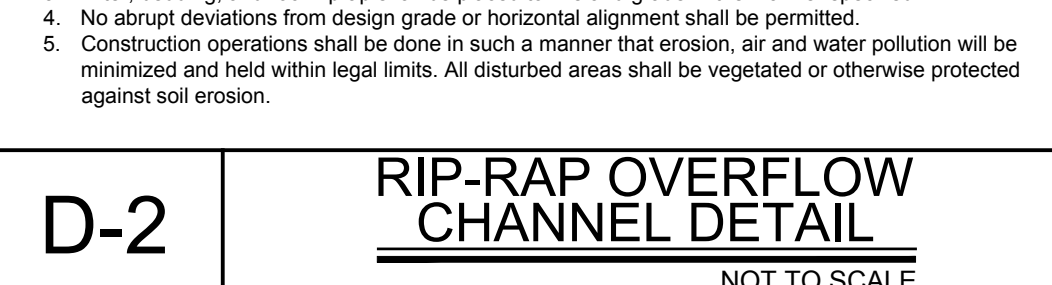
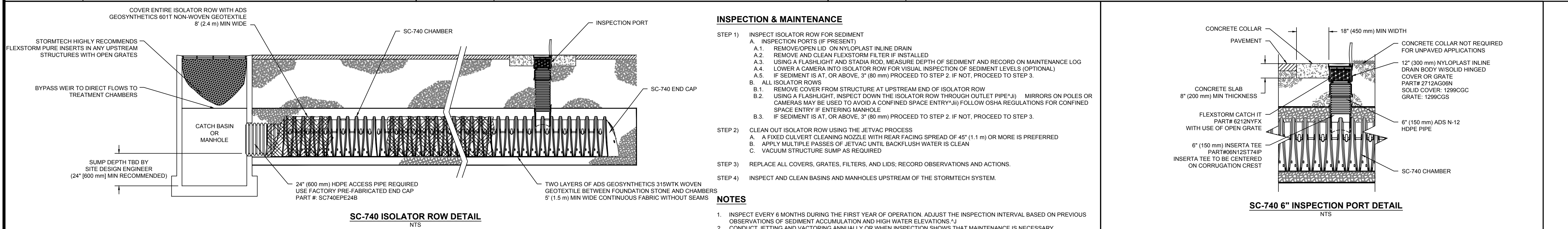
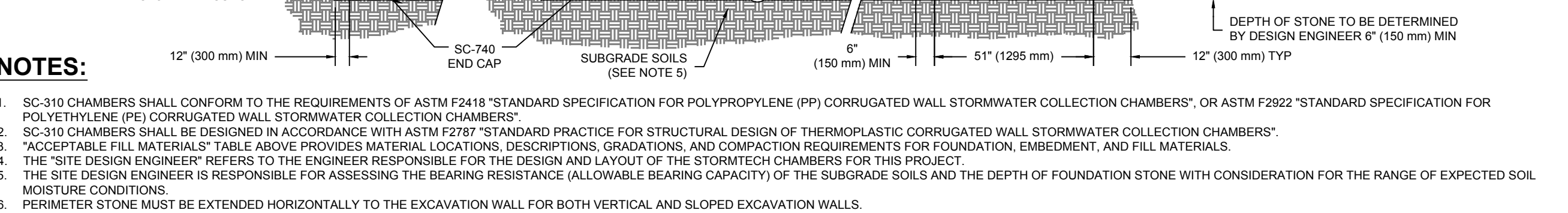
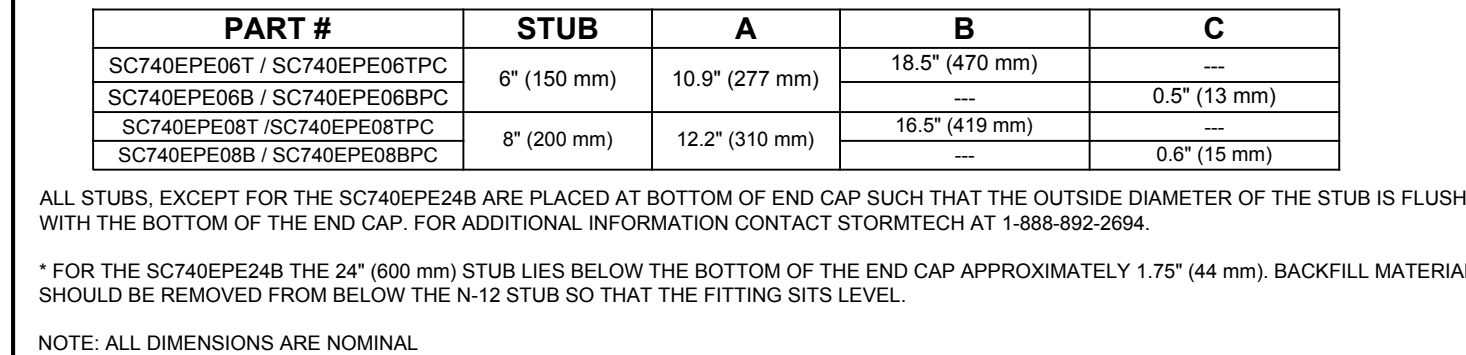
LLC

593 NORTH STATE ROAD

Town of Ossining

Westchester County, NY

Sheet 8 of 12



Operation

Introduction

The Downstream Defender® operates on simple fluid hydraulics. It is self-activating, has no moving parts, no external power requirement and is manufactured from durable non-corrosive components. No manual procedures are required to operate the unit and maintenance is limited to monitoring accumulations of stored pollutants and periodic clean-outs. The Downstream Defender® has been designed to allow for easy and safe access for inspection/monitoring and clean-out procedures. Entry into the unit or removal of the internal components is not necessary for maintenance, thus safety concerns related to confined-space-entry are avoided.

Pollutant Capture and Retention

The internal components of the Downstream Defender® have been designed to protect the oil/floatables and sediment storage volumes so that separator performance is not reduced as pollutants accumulate between clean-outs (Fig.2). The Downstream Defender® vessel remains wet between storm events. Oil and floatables are stored on the water surface in the outer annulus separate from the sediment storage volume in the sump of the unit providing the option for separate oil disposal, and accessories such as adsorbent pads. Since the oil/floatables and sediment storage volumes are isolated from the active separation region, the potential for re-suspension and washout of stored pollutants between clean-outs is minimized.

Wet Sump

The sump of the Downstream Defender® retains a standing water

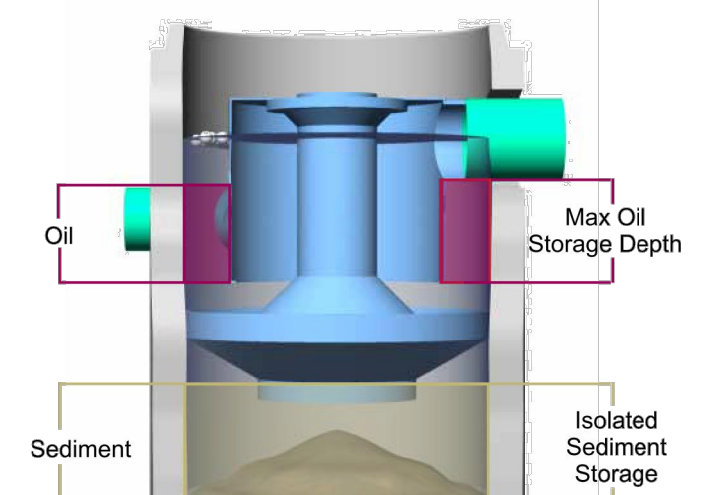


Fig.2 Pollutant storage volumes of the Downstream Defender®.

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com



Fig.4

Inspection Procedures

- Set up any necessary safety equipment around the access port or grate of the Downstream Defender® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
- Remove the lids to the manhole (Fig. 4). NOTE: The 4-ft (1.2m) Downstream Defender® will only have one lid.
- Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities. See Fig.7 and 8 for typical inspection views.
- Without entering the vessel, use the pole with the skimmer net to remove floatables and loose debris from the outer annulus of the chamber.
- Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel (Fig.5).
- On the Maintenance Log (see page 9), record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.

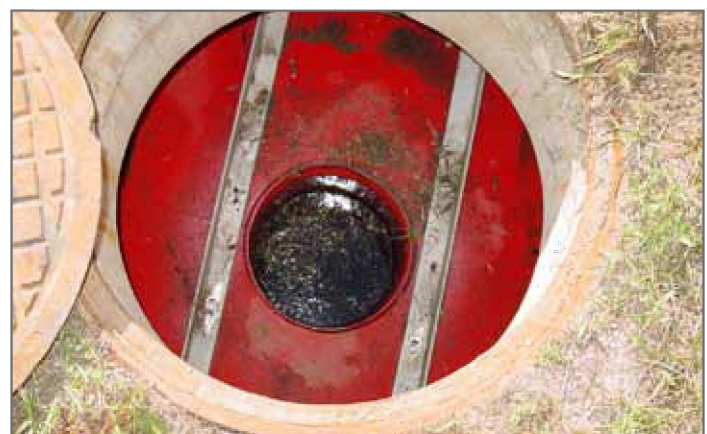


Fig.7 View over center shaft into sediment storage zone.

Hydro International (Stormwater), 94 Hutchins Drive, Portland ME 04102
Tel: (207) 756-6200 Fax: (207) 756-6212 Web: www.hydro-int.com

Floatables and Sediment Cleanout

Floatables cleanout is typically done in conjunction with sediment removal. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables (Fig.6).

Floatables and loose debris can also be netted with a skimmer and pole. The access port located at the top of the manhole provides unobstructed access for a vactor hose and skimmer pole to be lowered to the base of the sump.

Scheduling

- Floatables and sump cleanout are typically conducted once a year during any season.
- If sediment depths are greater than 75% of maximum clean-out depths stated in Table 1, sediment removal is required.
- Floatables and sump cleanout should occur as soon as possible following a spill in the contributing drainage area.



Fig.8 View of outer annulus of floatables and oil collection zone.

The Downstream Defender® allows for easy and safe inspection, monitoring and clean-out procedures. A commercially or municipally owned sump-vac is used to remove captured sediment and floatables. Access ports are located in the top of the manhole. On the 6-ft (1.8m), 8-ft (2.4m), 10-ft (3.0m) and 12-ft (3.7m) units, the floatables access port is above the outlet pipe between the concrete manhole wall and the dip plate. The sediment removal access ports for all Downstream Defender® models are located directly over the hollow center shaft.

Maintenance events may include Inspection, Oil & Floatables Removal, and Sediment Removal. Maintenance events do not require entry into the Downstream Defender®, nor do they require the internal components of the Downstream Defender® to be removed. In the case of inspection and floatables removal, a vactor truck is not required. However, a vactor truck is required if the maintenance event is to include oil removal and/or sediment removal.

Determining Your Maintenance Schedule

The frequency of cleanout is determined in the field after installation. During the first year of operation, the unit should be inspected every six months to determine the rate of sediment and floatables accumulation. A simple probe such as a Sludge Judge® can be used to determine the level of accumulated solids stored in the sump. This information can be recorded in the maintenance log (see page 9) to establish a routine maintenance schedule.

The vactor procedure, including both sediment and oil/floatables removal, for a 6-ft (1.8m) Downstream Defender® typically takes less than 30 minutes and removes a combined water/oil volume of about 500 gallons (1900 liters).

Table 1. Downstream Defender® Pollutant Storage Capacities and Max. Cleanout Depths.

Unit Diameter		Total Oil Storage		Oil Clean-out Depth		Total Sediment Storage		Sediment Clean-out Depth		Max. Liquid Volume Removed	
(ft)	(m)	(gal)	(L)	(in)	(cm)	(yd³)	(m³)	(in)	(cm)	(gal)	(L)
4	1.2	70	265	<16	<41	0.70	0.53	<18	<45	384	1,454
6	1.8	216	818	<23	<58	2.10	1.61	<24	<61	1,239	4,690
8	2.4	540	2,044	<33	<84	4.65	3.56	<30	<76	2,884	10,917
10	3.0	1,050	3,975	<42	<107	8.70	6.65	<36	<91	5,546	20,994
12	3.7	1,770	6,700	<49	<125	14.70	11.24	<42	<107	9,460	35,810

NOTES

- Refer to Downstream Defender® Clean-out Detail (Fig.2) for measurement of depths.
- Oil accumulation is typically less than sediment, however, removal of oil and sediment during the same service is recommended.
- Remove floatables first, then remove sediment storage volume.
- Sediment removal is not required unless sediment depths exceed 75% of maximum clean-out depths stated in Table 1.



Recommended Equipment

- Safety Equipment (traffic cones, etc.)

- Crow bar or other tool to remove grate or lid
- Pole with skimmer or net (if only floatables are being removed)
- Sediment probe (such as a Sludge Judge®)
- Vactor truck (6-inch/150mm diameter flexible hose recommended)
- Downstream Defender® Maintenance Log

Floatables and Sediment Clean Out Procedures

- Set up any necessary safety equipment around the access port or grate of the Downstream Defender® as stipulated by local ordinances. Safety equipment should notify passing pedestrian and road traffic that work is being done.
- Remove the lids to the manhole NOTE: The 4-ft (1.2m) Downstream Defender® will only have one lid.
- Without entering the vessel, look down into the chamber to inspect the inside. Make note of any irregularities.
- Using the Floatables Port for access, remove oil and floatables stored on the surface of the water with the vactor hose or the skimmer net (Fig.9, top).
- Using a sediment probe such as a Sludge Judge®, measure the depth of sediment that has collected in the sump of the vessel and record it in the Maintenance Log (Pg.9).
- Once all floatables have been removed, drop the vactor hose to the base of the sump via the Central Access Port. Vactor out the sediment and gross debris off the sump floor (Fig.6 and 9).

Maintenance at a Glance

Activity	Frequency
Inspection	- Regularly during first year of installation - Every 6 months after the first year of installation
Oil and Floatables Removal	- Once per year, with sediment removal - Following a spill in the drainage area
Sediment Removal	- Once per year or as needed - Following a spill in the drainage area

NOTE: For most cleanouts it is not necessary to remove the entire volume of liquid in the vessel. Only removing the first few inches of oils/floatables and the sediment storage volume is required.



Inspection Procedures

Inspection is a simple process that does not involve entry into the Downstream Defender®. Maintenance crews should be familiar with the Downstream Defender® and its components prior to inspection.

Scheduling

- It is important to inspect your Downstream Defender® every six months during the first year of operation to determine your site-specific rate of pollutant accumulation
- Typically, inspection may be conducted during any season of the year
- Sediment removal is not required unless sediment depths exceed 75% of maximum clean-out depths stated in Table 1
- Recommended Equipment
 - Safety Equipment and Personal Protective Equipment (traffic cones, work gloves, etc.)
 - Crow bar or other tool to remove grate or lid
 - Pole with skimmer or net
 - Sediment probe (such as a Sludge Judge®)
 - Trash bag for removed floatables
- Downstream Defender® Maintenance Log

- Retract the vactor hose from the vessel.

- On the Maintenance Log provided by Hydro International, record the date, unit location, estimated volume of floatables and gross debris removed, and the depth of sediment measured. Also note any apparent irregularities such as damaged components or blockages.

- Securely replace the grate or lid.

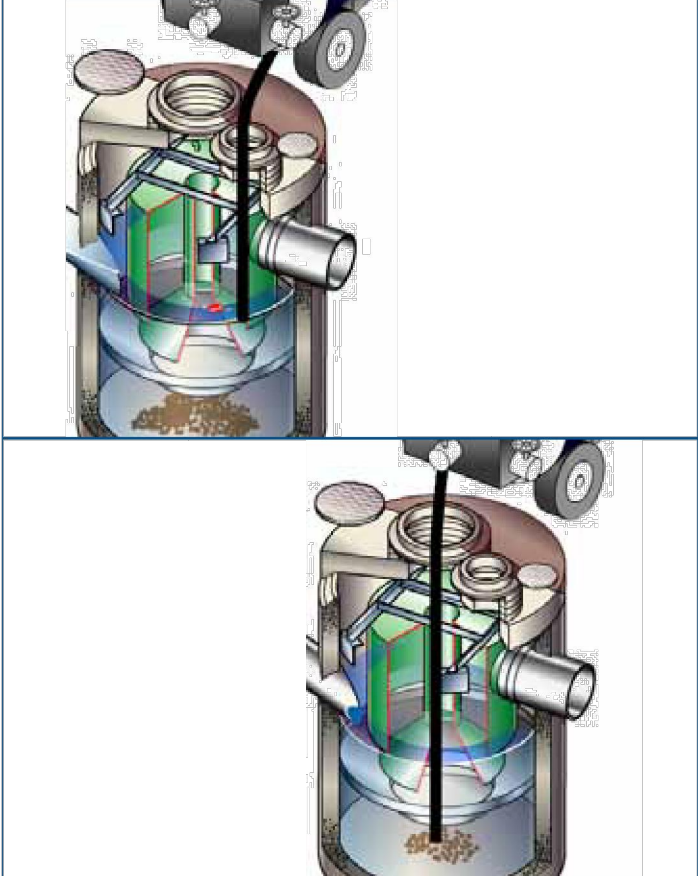
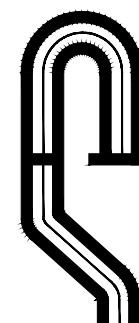
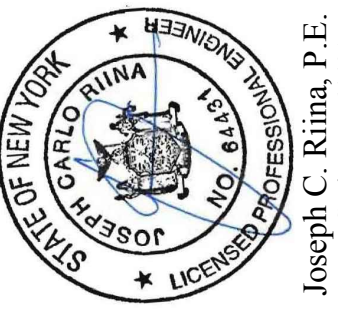


Fig.9 Floatables and sediment are removed with a vactor hose



Site Design Consultants

Civil Engineers • Land Planners
251-F Underhill Avenue, Yorktown Heights, NY 10598
(914) 962-4488 - Fax: (914) 962-7386
www.sitedesignconsultants.com



Revisions:	No.	Date	Comments
	1	5/2/18	Plan Revisions
	2	5/25/18	Town Comments
	3	6/11/18	Town Comments

SCALE: NTS	DRAWN BY: TK	DATE: 3/21/18
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DOWNSTREAM DEFENDER DETAILS

SITE PLAN
PREPARED FOR
**ARMSTRONG PLUMBING
LLC**
593 NORTH STATE ROAD
Westchester County, NY