
STORMWATER POLLUTION PREVENTION PLAN

RESIDENTIAL DEVELOPMENT

**1165 GREACEN POINT ROAD
VILLAGE OF MAMARONECK, NEW YORK**

Applicant/Owner:

Mr. William Fedyna
219 W 81st Street, Apt. 9D
New York, NY 10024
Phone: (646) 321-2081

Prepared by:



**JMC Planning Engineering
Landscape Architecture &
Land Surveying, PLLC**
120 Bedford Road
Armonk, NY 10504

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JMC SITE PLANS

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C-000	“Cover Sheet”	9	10/30/2020
C-010	“Existing Conditions Map”	9	10/30/2020
C-020	“Demolition & Tree Removal Plan”	9	10/30/2020
C-100	“Layout Plan”	9	10/30/2020
C-200	“Grading Plan”	1	10/30/2020
C-300	“Utilities Plan”	1	10/30/2020
C-400	“Erosion & Sediment Control Plan”	9	10/30/2020
C-900	“Construction Details”	9	10/30/2020
C-901	“Construction Details”	9	10/30/2020
C-902	“Construction Details”	4	10/30/2020
C-903	“Construction Details”	4	10/30/2020
L-100	“Landscaping & Wetland Mitigation Plan”	5	10/30/2020

I. INTRODUCTION

This Stormwater Pollution Prevention Plan has been prepared for the 1.09 acre site, located at 1165 Greacen Point Road in the Village of Mamaroneck, Westchester County, New York (hereinafter referred to as the "Site"). The site is bordered by the Delancey Cove to the northwest, Greacen Point Road to the southeast, and single-family homes to the southwest and northeast. The development has been designed in accordance with the following:

- Chapter 294 "Stormwater Management and Erosion and Sediment Control" of the Village of Mamaroneck Zoning Code

The project proposes the demolition of the existing single-family home and construction of a new single-family home with associated improvements including a detached garage, driveway / parking areas, landscaping improvements, deck and patio areas, an onsite wastewater treatment system, and stormwater management facilities.

II. STORMWATER MANAGEMENT PLANNING

A Stormwater Pollution Prevention Plan has been prepared for this project because it is a land development activity that involves:

- Disturbance of land greater than 1,000 square feet

The proposed stormwater facilities have been designed such that the quantity and quality of stormwater runoff during and after construction are not adversely altered or are enhanced when compared to pre-development conditions in the 25-year storm event.

The Six Step Process for Stormwater Site Planning and Practice Selection

Stormwater management using green infrastructure is summarized in the six step process described below. The six step process was adhered to when developing this SWPPP.

Information is provided in this SWPPP which documents compliance with the required process as follows:

Step 1: Site Planning

Implement planning practices that protect natural resources and utilize the hydrology of the site. Strong consideration must be given to reducing impervious cover to aid in the preservation of natural resources including protecting natural areas, avoiding sensitive areas and minimizing grading and soil disturbance.

Step 2: Determine Water Quality Treatment Volume (WQv)

Determine the required WQv for the site based on the site layout, impervious areas and sub-catchments. This initial calculation of WQv will have to be revised after green infrastructure techniques are applied. The following method has been used to calculate the WQv.

- **90% Rule** - According to the New York State Stormwater Design Manual, Section 4.1, the water quality volume is determined from the 90% rule. The method is based on 90% of the average annual stormwater runoff volume which must be provided due to impervious surfaces. The Water Quality Volume (denoted as the WQv) is designed to improve water quality sizing to capture and treat 90% of the average annual stormwater runoff volume. The WQv is directly related to the amount of impervious cover created at a site. The average rainfall storm depth for 90% of storms in New York State in one year is used to calculate a volume of runoff. The rainfall depth depends on the location of the site within the state. From this depth of rainfall, the required water quality volume is calculated.

Proposed SMP's will effectively treat 100% of the 1-year storm for all new impervious areas which is above and beyond the water quality requirements for Redevelopment Projects.

Step 3: Runoff Reduction Volumes (RRv) by Applying Green Infrastructure Techniques and Standard SMP's

RRv is not required for this project since it is a redevelopment; however, two Cisterns are proposed to collect rainwater for irrigation and will provide water quality and runoff reduction.

- **Rain Barrels and Cisterns**

- Underground storage tanks installed to collect stormwater runoff to be used for irrigation purposes the project will have an irrigation system for the lawn and landscaped areas.

The Minimum RRv capacity required must be provided by green infrastructure techniques to verify that the RRv requirement has been met. The RRv that is provided by the green infrastructure techniques can then be subtracted from the Total Required WQv that must be provided by the SMP's.

Step 4: Determine the minimum RRv Required

The minimum RRv is calculated similar to the WQV. However, it is determined using only the new impervious cover and accounts for the hydrologic soil group present. In no case shall the runoff reduction achieved from the newly constructed impervious area be less than the minimum runoff reduction volume (RRv_{min}).

Step 5: Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume

Apply the standard SMP's to meet additional water quality volume requirements that cannot be addressed by applying the green infrastructure techniques. The standard SMP's with RRv capacity must be implemented to verify that the RRv requirement has been met.

Step 6: Apply Volume and Peak Rate Control Practices to Meet Water Quantity Requirements

The Village of Mamaroneck requires that the Peak Rate from the 25 year storm event be mitigated under post-development conditions. This is accomplished by using practices such as infiltration basins, dry detention basins, etc. to meet water quantity requirements.

III. STUDY METHODOLOGY

Runoff rates were calculated based upon the standards set forth by the United States Department of Agriculture Natural Resources Conservation Service Technical Release 55, Urban Hydrology for Small Watersheds (TR-55), dated June 1986. The methodology set forth in TR-55 considers a multitude of characteristics for watershed areas including soil types, soil permeability, vegetative cover, time of concentration, topography, rainfall intensity, ponding areas, etc.

The 25-year storm recurrence intervals were reviewed in the design of the stormwater management facilities (see Appendix A for the Hydrologic Calculations).

Anticipated drainage conditions were analyzed taking into account the rate of runoff which will result from the construction of buildings, parking areas and other impervious surfaces associated with the site development.

Base Data and Design Criteria

For the stormwater management analysis, the following base information and methodology were used:

- I. The site drainage patterns and outfall facilities were reviewed by JMC personnel for the purpose of gathering background data and confirming existing mapping of the watershed areas.

2. An Existing Drainage Area Map was developed from the topographical survey. The drainage area map reflects the existing conditions within and around the project area.
3. A Proposed Drainage Area Map was developed from the proposed grading design superimposed over the topographical survey. The drainage area map reflects the proposed conditions within the project area and the existing conditions to remain in the surrounding area.
4. The United States Department of Agriculture (USDA) Web Soil Survey of the site available on its website at <http://websoilsurvey.nrcd.usda.gov>.
5. Soil Survey of Putnam and Westchester Counties, 1994.
6. The United States Department of Agriculture Natural Resources Conservation Service National Engineering Handbook, Section 4 - Hydrology", dated March 1985.
7. The United States Department of Agriculture Natural Resources Conservation Service Technical Report No. 55, Urban Hydrology for Small Watersheds (TR-55), dated June 1986.
8. United States Department of Commerce Weather Bureau Technical Release No. 40 Rainfall Frequency Atlas of the United States.
9. The time of concentration was calculated using the methods described in Chapter 3 of TR-55, Second Edition, June 1986. Manning's kinematics wave equation was used to determine the travel time of sheet flow. The 2-year 24 hour precipitation amount of 3.45 inches was used in the equation for all storm events. The travel time for shallow concentrated flow was computed using Figure 3-1 and Table 3-1 of TR-55. Manning's Equation was used to determine the travel time for channel reaches.
10. All hydrologic calculations were performed with the Bentley PondPack software package version 10.0.

11. The New York State Stormwater Management Design Manual, revised January 2015.
12. New York Standards and Specifications for Erosion and Sediment Control, November 2016.
13. The storm flows for the 25-year recurrence interval storms were analyzed for the total watershed areas. The Type III distribution design storm for a 24 hour duration was used and the mass rainfall for each design storm was taken from the Extreme Precipitation in New York & New England developed by the Natural Resource Conservation Service (NRCS) and the Northeast Regional Climate Center (NRCC) as follows:

24 Hour Rainfall Amounts

Design Storm Recurrence Interval	Inches of Rainfall
25 Year	6.41

IV. EXISTING CONDITIONS

The existing conditions of the project site consists of a 2,000± S.F. single-family residence including a deck and porch, driveway and parking areas, areas of lawn, and a wetland in the rear of the property adjacent to Delancey Cove. After stormwater runoff exits the project site, it flows to Delancey Cove.

The following natural features, conservation areas, resource areas and drainage patterns of the project site have been identified and utilized to develop Drawing DA-I “Existing Drainage Area Map” which is included in Appendix G:

- Wetlands (jurisdictional, wetland of special concern)
- Waterways (major, perennial, intermittent, springs)
- Buffers (stream, wetland, forest, etc.)
- Floodplains

- Topography (contour lines, existing flow paths, steep slopes, etc.)
- Soil (hydrologic soil groups, highly erodible soils, etc.)

Based on the USDA Web soil survey, all on-site soils are poorly drained and belong to hydrological group D. The soil types, boundaries and drainage areas/designations are depicted on Drawing DA-1 within Appendix G.

Two separate Design Lines (DL-1 through DL-2) were identified for comparing peak rates of runoff in existing and proposed conditions. Similarly, two separate drainage areas were identified in existing conditions based on the existing drainage divides at the site. The numbers included in the name of each drainage area correspond to the Design Point they drain towards.

The following is a description of each of the drainage areas analyzed in the existing conditions analysis:

Existing Drainage Area 1 (EDA-1) is 0.55 acres in size and is located on the northwestern portion of the site adjacent to the wetland area. This area consists of the existing single-family residence, driveway and parking areas, and areas of lawn. This drainage area drains overland to the wetland area, and ultimately to Delancey Cove.

The Curve Number (CN) and Time of Concentration (Tc) for this drainage area are 80 and 10.6 minutes, respectively. Refer to Drawing DA-1 in Appendix G.

Existing Drainage Area 2 (EDA-2) is 0.18 acres in size and is located on the southeastern portion of the site adjacent to the wetland area. This area consists of the existing driveway and areas of lawn. This drainage area drains overland toward Greacon Point Road, and ultimately to Delancey Cove.

The Curve Number (CN) and Time of Concentration (Tc) for this drainage area are 78 and 6.7 minutes, respectively. Refer to Drawing DA-1 in Appendix G.

The peak rates of runoff to the design points from the drainage areas for each storm are shown in the table below:

Table I
Summary of Peak Rates of Runoff in Existing Conditions
(Cubic Feet per Second)

Storm Recurrence Interval	DL-1	DL-2
25 year	2.11	0.69

V. PROPOSED CONDITIONS

The proposed improvements consist of the construction of a 2,637± S.F. single-family residence with associated improvements consisting of a detached garage, driveway / parking areas, landscaping improvements, deck and patio areas, an onsite wastewater treatment system, and stormwater management facilities.

The proposed drainage improvements include a variety of stormwater practices including an R-Tank subsurface detention facility and a rainwater cistern to water quality treatment and irrigation. After treatment for water quality and peak rate attenuation, stormwater discharges will utilize energy dissipating aprons which will drain to the existing wetland buffer and wetland. The vegetated practices and overland discharges provide multiple opportunities for water quality enhancement and infiltration in addition to the proposed stormwater management basins. These overland conveyances of stormwater runoff will result in additional infiltration not considered in the SWPPP's hydrologic model, resulting in a conservative analysis.

This section describes the design and analysis of the proposed conditions used to demonstrate that the SWPPP meets the requirements of the General Permit.

The Six Step Process For Stormwater Site Planning and Practice Selection

Step 1: Site Planning

The following practices and site features were incorporated in the site design:

- Preserving hydrology - Maintaining drainage divides
- Wetlands and buffers – The site includes 0.37 acres of wetlands and 0.41 acres of wetland buffers. The project requires the disturbance of 0.30± acres of wetland buffer.
- Floodplain considerations - The site lies within the 100 year flood zone according to the National Flood Insurance Program Flood Insurance Rate Map (FIRM) No. 36119C0361F, effective date 09/28/2007.
- Waterways (major, perennial, intermittent, springs) – The location, setback, cross section, etc. of the existing waterway has been maintained.
- Topography (contour lines, existing flow paths, steep slopes, etc.) has been maintained or disturbed to the minimum extent practicable.
- Soil (hydrologic soil groups, highly erodible soils, etc.)

Step 2: Determine Water Quality Treatment Volume (WQv)

The following method has been used to calculate the WQv.

- **90% Rule** - According to the New York State Stormwater Design Manual, Section 4.1, the water quality volume is determined from the 90% rule. The method is based on 90% of the average annual stormwater runoff volume which must be provided due to impervious surfaces. The Water Quality Volume (denoted as the WQv) is designed to improve water quality sizing to capture and treat 90% of the average annual stormwater runoff volume. The WQv is directly related to the amount of impervious cover created at a site. The average rainfall storm depth for 90% of storms in New York State in one year is used to calculate a volume of runoff. The rainfall depth depends on the location of the site within the state. From this depth of rainfall, the required water quality volume is calculated.

Proposed SMP's will effectively treat 100% of the 1 year storm for all new impervious areas which is above and beyond the water quality requirements for Redevelopment Projects.

Step 3: Runoff Reduction Volumes (RRv) by Applying Green Infrastructure Techniques and Standard SMP's

RRv is not required for this project since it is a redevelopment; however, two cisterns are proposed to collect rainwater for irrigation and will provide water quality and runoff reduction.

Step 4: Determine the minimum RRv Required

RRv calculations have not been provided as runoff reduction is not required.

Step 5: Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume

The entirety of the required Water Quality Volume has been met through the proposed rainwater cisterns. Please refer to the Water Quality Calculations in Appendix B.

Step 6: Apply Volume and Peak Rate Control Practices to Meet Water Quantity Requirements

- R-Tank Subsurface Detention System

Description

A subsurface detention system is proposed to store and detain stormwater runoff from the proposed house and driveway. This system has been designed to attenuate the peak rate of runoff during a 25-year storm event.

All practices exceed the required elements of SMP criteria as outlined in Chapter 6 of the NYS Stormwater Management Design Manual. A summary of each category is provided below.

1. Feasibility – Stormwater practices are designed based upon unique physical environmental considerations noted in the NYS Stormwater Management Design Manual (NYSSMDM).
2. Conveyance – The design conveys runoff to the designed stormwater practice in a manner that is safe, minimizes erosion and disruption to natural drainage channel and promotes filtering and infiltration.
3. Pretreatment – All stormwater practices provide pretreatment as required in accordance with NYSSMDM design guidelines.
4. Treatment Geometry – The plan provides water quality treatment in accordance with NYSSMDM guidelines.
5. Maintenance – Maintenance for the environment practices has been provided and is detail the SWPPP Report as required. Maintenance access is provided in the design plans.

In order to determine the post-development rates of runoff generated on-site, the following drainage areas were analyzed in the post-development conditions. These areas are graphically depicted on Drawing DA-2 "Proposed Drainage Area Map" located in Appendix G.

Two separate Design Lines (DL-1 through DL-2) were identified for comparing peak rates of runoff in existing and proposed conditions. Similarly, three separate drainage areas were identified in proposed conditions based on the proposed drainage divides at the site. The numbers included in the name of each drainage area correspond to the Design Point they drain towards.

The following is a description of each of the drainage areas analyzed in the proposed conditions analysis:

Proposed Drainage Area IA (PDA-IA) is 0.20 acres in size and is located in the center of the site and consists of the proposed single-family residence, detached garage, driveway and parking areas, front sidewalk, and lawn. This drainage area drains towards a series of drain inlets where

runoff is then conveyed to the rainwater cisterns, and then to the R-tank system for detention. After being detained, runoff is slowly released via an outlet control structure to a rip-rap apron, where it then flows overland to Delancey Cove.

The Curve Number (CN) and Time of Concentration (Tc) for this drainage area are 89 and 5.0 minutes, respectively.

Proposed Drainage Area 1B (PDA-1B) is 0.38 acres in size and is located on the northwestern portion of the site. This area consists of the backyard lawn areas which drain overland to the wetland and then to Delancey Cove.

The Curve Number (CN) and Time of Concentration (Tc) for this drainage area are 80 and 5.2 minutes, respectively.

Proposed Drainage Area 2 (PDA-2) is 0.15 acres in size and is located on the southeastern portion of the site. This area consists of the front yard and a portion of the proposed driveway. This drainage area drains overland toward Greacen Point Road and ultimately to Delancey Cove.

The Curve Number (CN) and Time of Concentration (Tc) for this drainage area are 82 and 5.0 minutes, respectively.

Refer to Drawing DA-2 in Appendix G.

The peak rates of runoff to the design point of each of the analyzed drainage areas for each storm are shown on the table below:

Table 2
Summary of Proposed Peak Rates of Runoff in Proposed Conditions
(Cubic Feet per Second)

Storm Recurrence Interval	DL-1	DL-2
25 year	1.89	0.66

The reductions in peak rates of runoff from proposed to existing conditions are shown on the table below:

Table 3
Percent Reductions in Peak Rates of Runoff (Existing vs. Proposed Conditions)
(Cubic Feet per Second)

Design Point	Storm Recurrence Frequency (Years)	Existing Peak Runoff Rate (cfs)	Proposed Peak Runoff Rate (cfs)	Percent Reduction (%)
1	25 year	2.11	1.89	10.4
2	25 year	0.69	0.66	4.3

As demonstrated in Table 4, the proposed stormwater improvements will result in reductions of peak rates of runoff for all design points analyzed.

VI. SOIL EROSION & SEDIMENT CONTROL

A potential impact of the proposed development on any soils or slopes will be that of erosion and transport of sediment during construction. An Erosion and Sediment Control Management Program will be established for the proposed development, beginning at the start of construction and continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," November 2016. A continuing maintenance program will be implemented for the control of sediment transport and erosion control after construction and throughout the useful life of the project.

The Operator shall have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify that the appropriate erosion and sediment controls, as shown on the Sediment & Erosion Control Plans, have been adequately installed to ensure overall preparedness of the site for the commencement of construction. In addition, the Operator shall have a qualified professional conduct one site inspection at least every seven calendar days and at least two site inspections every seven calendar days when greater than five acres of soil is disturbed at any one time.

Prior to the commencement of construction activity, the owner or operator must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The owner or operator shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the trained contractor. The owner or operator shall ensure that at least one trained contractor is on site on a daily basis when soil disturbance activities are being performed. The owner or operator shall have each of the contractors and subcontractors identified above sign a copy of the certification statement provided in Appendix D before they commence any construction activity.

Soil Description

As provided by the United States Department of Agriculture, Soil Conservation Service "Web Soil Survey," soil classifications which exist on the subject site are described below.

Soils are placed into four hydrologic groups: A, B, C, and D. In the definitions of the classes, infiltration rate is the rate at which water enters the soil at the surface and is controlled by the surface conditions. Transmission rate is the rate at which water moves in the soil and is controlled by soil properties. Definitions of the classes are as follows:

- A. (Low runoff potential). The soils have a high infiltration rate even when thoroughly wetted. They chiefly consist of deep, well drained to excessively drained sands or gravels. They have a high rate of water transmission.

- B. The soils have a moderate infiltration rate when thoroughly wetted. They chiefly are moderately deep to deep, moderately well drained to well drained soils that have moderately fine to moderately coarse textures. They have a moderate rate of water transmission.

- C. The soils have a slow infiltration rate when thoroughly wetted. They chiefly have a layer that impedes downward movement of water or have moderately fine to fine texture. They have a slow rate of water transmission.
- D. (High runoff potential). The soils have a very slow infiltration rate when thoroughly wetted. They chiefly consist of clay soils that have a high swelling potential, soils that have a permanent high-water table, soils that have a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. They have a very slow rate of water transmission.

A soil's tendency to erode is also described in the USDA web soil survey. The ratings in this interpretation indicate the hazard of soil loss from unsurfaced areas. The ratings are based on soil erosion factor K, slope, and content of rock fragments. The hazard is described as "slight," "moderate," or "SEVERE." A rating of "slight" indicates that little or no erosion is likely; "moderate" indicates that some erosion is likely, that the temporarily unsurfaced / unstabilized during construction may require occasional maintenance, and that simple erosion-control measures are needed; and "SEVERE" indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that erosion-control measures are needed.

Per the Soil Survey, the following soils listed below are present at the site. Following this list is a detailed description of each soil type found on the property:

<u>SYM.</u>	<u>H.S.G.</u>	<u>DESCRIPTION</u>
UhB	D	Urban land-Charlton complex, 3 to 8 percent slopes
UwB	D	Urban land-Woodbridge complex, 3 to 8 percent slopes

UhB, Urban land-Charlton complex, 3 to 8 percent slopes

This unit consists of areas of Urban land and the very deep, well drained, and gently sloping Charlton soil. It is on ridges and hilltops that are underlain by folded bedrock. The parent material consists of coarse-loamy melt-out till derived from gneiss, granite, and/or schist. Depth

to the top of a seasonal high-water table is at a depth of more than 60 inches. Available water capacity is moderate.

Hydrologic group: D

Erosion Hazard Rating: Severe

UhB, Urban land-Woodbridge complex, 3 to 8 percent slopes

This unit consists of areas of Urban land and the gently sloping, very deep, moderately well drained Woodbridge soil. The parent material consists of coarse-loamy melt-out till derived from gneiss, granite, and/or schist. Depth to the top of a seasonal high-water table is at a depth of 1.5 feet. Available water capacity is moderate.

Hydrologic group: D

Erosion Hazard Rating: Severe

On-Site Pollution Prevention

There are temporary pollution prevention measures used to control litter and construction debris on site, such as:

- Silt Fence
- Inlet Protection

There will be inlet protection provided for all storm drains and inlets with the use of silt sack inlet protection inserts and stone & block drop inlet protection, which keep silt, sediment and construction litter and debris out of the on-site stormwater drainage system.

Temporary Control Measures

Temporary control measures and facilities will include silt fences, construction ditches, stabilized construction access, temporary seeding, mulching and sediment traps with temporary riser and anti-vortex devices.

Throughout the construction of the proposed development, temporary control facilities will be implemented to control on-site erosion and sediment transfer. Construction ditches, if required, will be used to direct stormwater runoff to temporary sediment traps for settlement. The sediment traps will be constructed as part of this project will serve as temporary sediment basins to remove sediment and pollutants from the stormwater runoff produced during construction. Descriptions of the temporary sediment & erosion controls that will be used during the development of the site including silt fence, stabilized construction access, seeding, mulching and inlet protection are as follows:

1. Silt Fence is constructed using a geotextile fabric. The fence will be either 18 inches or 30 inches high. The height of the fence can be increased in the event of placing these devices on uncompacted fills or extremely loose undisturbed soils. The fences will not be placed in areas which receive concentrated flows such as ditches, swales and channels nor will the filter fabric material be placed across the entrance to pipes, culverts, spillway structures, sediment traps or basins.
2. Stabilized Construction Access consists of AASHTO No. 1 rock. The rock entrance will be a minimum of 50 feet in length by 24 feet in width by 8 inches in depth.
3. Seeding will be used to create a vegetative surface to stabilize disturbed earth until at least 80% of the disturbed area has a perennial vegetative cover. This amount is required to adequately function as a sediment and erosion control facility. Grass lining will also be used to line temporary channels and the surrounding disturbed areas.

4. Mulching is used as an anchor for seeding and disturbed areas to reduce soil loss due to storm events. These areas will be mulched with straw at a rate of 3 tons per acre such that the mulch forms a continuous blanket. Mulch must be placed after seeding or within 48 hours after seeding is completed.
5. Inlet Protection will be provided for all stormwater basins and inlets with the use of curb & gutter inlet protection and stone & block inlet protection structures, which will keep silt, sediment and construction debris out of the storm system. Existing structures within existing paved areas will be protected using "Silt Sacks" inside the structures.

The contractor shall be responsible for maintaining the temporary sediment and erosion control measures throughout construction. This maintenance will include, but not be limited to, the following tasks:

1. For dust control purposes, moisten all exposed graded areas with water at least twice a day in those areas where soil is exposed and cannot be planted with a temporary cover due to construction operations or the season (December through March).
2. Inspection of erosion and sediment control measures shall be performed at the end of each construction day and immediately following each rainfall event. All required repairs shall be immediately executed by the contractor.
3. Sediment deposits shall be removed when they reach approximately $\frac{1}{3}$ the height of the silt fence. All such sediment shall be properly disposed of in fill areas on the site, as directed by the Owner's Field Representative. Fill shall be protected following disposal with mulch, temporary and/or permanent vegetation and be completely circumscribed on the downhill side by silt fence.
4. Rake all exposed areas parallel to the slope during earthwork operations.

5. Following final grading, the disturbed area shall be stabilized with a permanent surface treatment (i.e. turf grass, pavement or sidewalk). During rough grading, areas which are not to be disturbed for fourteen or more days shall be stabilized with the temporary seed mixture, as defined on the plans. Seed all piles of dirt in exposed soil areas that will not receive a permanent surface treatment.

Concrete Material and Equipment Management

Concrete washouts shall be used to contain concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery. The washout facilities consolidate solid for easier disposal and prevent runoff of liquids. The wash water is alkaline and contains high levels of chromium, which can leach into the ground and contaminate groundwater. It can also migrate to a storm drain, which can increase the pH of area waters and harm aquatic life. Solids that are improperly disposed of can clog storm drain pipes and cause flooding. Installing concrete washout facilities not only prevents pollution but also is a matter of good housekeeping at your construction site.

Prefabricated concrete washout containers can be delivered to the site to provide maintenance and disposal of materials. Regular pick-ups of solid and liquid waste materials will be necessary. To prevent leaks on the job site, ensure that prefabricated washout containers are watertight. A self installed concrete washout facility can be utilized although they are much less reliable than prefabricated containers and are prone to leaks. There are many design options for the washout, but they are preferably built below-grade to prevent breaches and reduce the likelihood of runoff. Above-grade structures can also be used if they are sized and constructed correctly and are diligently maintained. One of the most common problems with self-installed concrete washout facilities is that they can leak or be breached as a result of constant use, therefore the contractor shall be sure to use quality materials and inspect the facilities on a daily basis.

Washouts must be sized to handle solids, wash water, and rainfall to prevent overflow.

Concrete Washout Systems, Inc. estimates that 7 gallons of wash water are used to wash one truck chute and 50 gallons are used to wash out the hopper of a concrete pump truck.

For larger sites, a below-grade washout should be at least 10 feet wide and sized to contain all liquid and solid waste expected to be generated in between cleanout periods. A minimum of 12-inches of freeboard must be provided. The pit must be lined with plastic sheeting of at least 10-mil thickness without holes or tears to prevent leaching of liquids into the ground. Concrete wash water should never be placed in a pit that is connected to the storm drain system or that drains to nearby waterways.

An above-grade washout can be constructed at least 10 feet wide by 10 feet long and sized to contain all liquid and solid waste expected to be generated in between cleanout periods. A minimum of 4-inches of freeboard must be provided. The washout structures can be constructed with staked straw bales or sandbags double-or triple lined with plastic sheeting of at least 10-mil thickness without holes or tears.

Concrete washout facilities shall not be located within 50 feet of storm drains, open ditches, or water bodies and should be placed in locations that allow for convenient access for concrete trucks. The contractor shall check all concrete washout facilities daily to determine if they have been filled to 75 percent capacity, which is when materials need to be removed. Both above-and below-ground self-installed washouts should be inspected daily to ensure that plastic linings are intact, and sidewalls have not been damaged by construction activities. Prefabricated washout containers should be inspected daily as well as to ensure the container is not leaking or nearing 75 percent capacity. Inspectors should also note whether the facilities are being used regularly. Additional signage for washouts may be needed in more convenient locations if concrete truck operators are not utilizing them.

The washout structures must be drained or covered prior to predicted rainstorms to prevent overflows. Hardened solids either whole or broken must be removed and then they may be reused onsite or hauled away for recycling.

Once materials are removed from the concrete washout, a new structure must be built or excavated, or if the previous structure is still intact, inspect it for signs of weakening or damage and make any necessary repairs. Line the structure with new plastic that is free of holes or tears and replace signage if necessary. It is very important that new plastic be used after every cleaning because pumps and concrete removal equipment can damage the existing liner.

Construction Site Chemical Control

The purpose of this management measure is to prevent the generation of nonpoint source pollution from construction sites due to improper handling and usage of nutrients and toxic substances, and to prevent the movement of toxic substances from the construction site.

Many potential pollutants other than sediment are associated with construction activities. These pollutants include pesticides; fertilizers used for vegetative stabilization; petrochemicals; construction chemicals such as concrete products, sealers, and paints; wash water associated with these products; paper; wood; garbage; and sanitary waste.

Disposal of excess pesticides and pesticide-related wastes should conform to registered label directions for the disposal and storage of pesticides and pesticide containers set forth in applicable Federal, State and local regulations that govern their usage, handling, storage, and disposal.

Pesticides should be disposed of through either a licensed waste management firm or a treatment, storage and disposal (TSD) facility. Containers should be triple rinsed before disposal, and rinse waters should be reused as product.

Other practices include setting aside a locked storage area, tightly closing lids, storing in a cool, dry place, checking containers periodically for leaks or deterioration, maintaining a list of products in storage, using plastic sheeting to line the storage areas, and notifying neighboring property owners prior to spraying.

When storing petroleum products, follow these guidelines:

- Create a shelter around the area with cover and wind protection;
- Line the storage area with a double layer of plastic sheeting or similar material;
- Create an impervious berm around the perimeter with a capacity of 110 percent greater than that of the largest container;
- Clearly label all products;
- Keep tanks off the ground; and
- Keep lids securely fastened.

Post spill procedure information and have persons trained in spill handling on site or on call at all times. Materials for cleaning up spills should be kept on site and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed of. Maintain and wash equipment and machinery in confined areas specifically designed to control runoff.

Thinners or solvents should not be discharged into sanitary or storm systems when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes, or steam cleaning. Equipment-washing detergents can be used, and wash water may be discharged into sanitary sewers if solids are removed from the solution first. (This practice should be verified with the local sewer authority.) Small parts can be cleaned with degreasing solvents, which can then be reused or recycled.

Solid Waste Management and Portable Sanitary Management

The purpose of this management measure is to prevent the potential for solid waste such as construction debris, trash, etc. from construction sites due to improper handling and storage. Debris and litter should be removed periodically from the BMP's and surrounding areas to prevent clogging of pipes and structures. All construction material shall be stored in designated staging areas. Roll-off containers shall be placed on site and all empty containers, construction debris and litter shall be placed in the containers.

Portable sanitary units may be utilized on-site or bathrooms will be provided within construction trailers. A sanitation removal company will be hired to pump/remove any sanitary waste. In the event that portable sanitary units are used and then cleaned after being emptied, the rinse water may not be disposed of to the storm drain system. It shall be contained for later disposal if it can't be disposed of on-site. Remove paper and trash before cleaning the portable sanitary units. The portable sanitary units shall be located away from the storm drain system if possible. Provide over head cover for wash areas if possible. Maintain spill response material and equipment on site to eliminate the potential for contaminants and wash water from entering the storm drain system.

Permanent Control Measures and Facilities for Long Term Protection

Towards the completion of construction, permanent sediment and erosion control measures will be developed for long term erosion protection. The following permanent control measures and facilities have been proposed to be implemented for the project:

1. Drain Inlets will be used to remove some of the coarse sand and grit sediment before entering the drainage system. Each catch basin will be constructed with an 18 inch deep sump.
2. Two 3,000 gallon Cisterns will be used to store and provide water quality treatment for the stormwater runoff on the site. Some sediment will be collected and trapped before water is discharged to the detention system and then to the rear of the property.
3. Rip-Rap Energy Dissipators At discharge points from the stormwater management system, rip-rap pads consisting of angular rocks will be placed to dissipate velocity and reduce the risk of erosion.
4. Seeding of at least 70% perennial vegetative cover will be used to produce a permanent uniform erosion resistant surface. The seeded areas will be mulched with straw at a rate of 2 tons per acre such that the mulch forms a continuous blanket.

Specifications for Soil Restoration

Prior to the final stabilization of the disturbed areas, soil restoration will be required for all vegetated areas to recover the original properties and porosity of the soil. Soil Restoration Requirements are provided on Table 4 below:

Table 4

Soil Restoration Requirements

Type of Soil Disturbance	Soil Restoration Requirement		Comments/Examples
No soil disturbance	Restoration not permitted		Preservation of Natural Features
Minimal soil disturbance	Restoration not required		Clearing and grubbing
Areas where topsoil is stripped only – no change in grade	HSG A&B	HSG C&D	Protect area from any ongoing construction activities
	apply 6 inches of topsoil	Aerate* and apply 6 inches of topsoil	
Areas of cut or fill	HSG A&B	HSG C&D	Clearing and grubbing
	Aerate and apply 6 inches of topsoil	Apply full Soil Restoration**	
Heavy traffic areas on site (especially) in a zone 5-25 feet around buildings but not within a 5 foot perimeter around foundation walls)	Apply full Soil Restoration (decompaction and compost enhancement)		
Areas where Runoff Reduction and/or Infiltration practices are applied	Restoration not required, but may be applied to enhance the reduction specified for appropriate practices.		Keep construction equipment from crossing these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area.
Redevelopment projects	Soil Restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area.		

* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.

** Per "Deep Ripping and De-compaction, DEC 2008."

During periods of relatively low to moderate subsoil moisture, the disturbed subsoils are returned to rough grade and the following full soil restoration steps applied:

1. Apply 3 inches of compost over subsoil.
2. Till compost into subsoil to a depth of at least 12 inches using a cat-mounted ripper, tractor-mounted disc, or tiller, mixing, and circulating air and compost into subsoils.
3. Rock-pick until uplifted stone/rock materials of four inches and larger size are cleaned off the site.

Specifications for Final Stabilization of Graded Areas

Final stabilization of graded areas consists of the placement of topsoil and installation of landscaping (unless the area is to be paved, or a building is to be constructed in the location). Topsoil is to be spread as soon as grading operations are completed. Topsoil is to be placed to a minimum depth of six inches on all embankments, planting areas and seeding/sod areas. The subgrade is to be scarified to a depth of two inches to provide a bond of the topsoil with the subsoil. Topsoil is to be raked to an even surface and cleared of all debris, roots, stones and other unsatisfactory material.

Planting operations shall be conducted under favorable weather conditions as follows:

- Permanent Lawns - April 15 (provided soil is frost-free and not excessively moist) to May 15; August 15 to October 15.

- Temporary Lawn Seeding - if outside of the time periods noted above, the areas shall be seeded immediately on completion of topsoil operations with annual ryegrass (Italian rye) at a rate of six pounds per 1,000 square feet. Temporary lawn installation is permitted provided the soil is frost-free and not excessively moist. The permanent lawn is to be installed the next planting season.

On slopes with a grade of 3 horizontal to 1 vertical or greater, and in swales, a geotextile netting or mat shall be installed for stabilization purposes as shown on the Plans. Seeded areas are to be mulched with straw or hay at an application rate of 70-90 pounds per 1,000 s.f. Straw or hay mulch must be spread uniformly and anchored immediately after spreading to prevent wind blowing. Mulches must be inspected periodically and in particular after rainstorms to check for erosion. If erosion is observed, additional mulch must be applied. Netting shall be inspected after rainstorms for dislocation or failure; any damage shall be repaired immediately.

All denuded surfaces which will be exposed for a period of over two months or more shall be temporarily hydroseeded with (a) perennial ryegrass at a rate of 40 lbs per acre (1.0 lb per 1000 square feet); (b) Certified "Aroostook" winter rye (cereal rye) @ 100 lb per acre (2.5 lb/1000 s.f.) to be used in the months of October and November.

Permanent turfgrass cover is to consist of a seed mixture as follows:

(a) Sunny sites

Kentucky Bluegrass	2.0-2.6 pounds/1000 square feet
Perennial Ryegrass	0.6-0.7 pounds/1000 square feet
Fine Fescue	0.4-0.6 pounds/1000 square feet

(b) Shady sites

Kentucky Bluegrass	0.8-1.0 pounds/1000 square feet
Perennial Ryegrass	0.6-0.7 pounds/1000 square feet

Fine Fescue 2.6-3.3 pounds/1000 square feet

All plant materials shall comply with the standards of the American Association Of Nurserymen with respect to height and caliper as described in its publication American Standard for Nursery Stock, latest edition.

VII. CONSTRUCTION PHASE AND POST-CONSTRUCTION MAINTENANCE

During the construction phase and following construction of the project, a number of maintenance measures will be taken with respect to the site maintenance. Measures to be taken included the following:

I. During Construction

A comprehensive sediment and erosion control plan will be in place during the construction period. Maintenance measures for sediment and erosion controls will include:

A qualified professional acceptable to the municipality will be hired by the owner or operator to monitor the installation and maintenance of the sediment and erosion control plans. The qualified professional shall report directly to the Engineering Consultant and shall be responsible for ensuring compliance with the design of the sediment and erosion control plans.

The qualified professional so hired will inspect all sediment and erosion control measures at least every seven calendar days. In the event that there has been a variance with the design of the sediment and erosion control measures so that the ability of the measures to adequately perform the intended function is lessened or compromised and/or the facilities are not adequately maintained, the qualified professional shall be required to report such variance to the Engineering Consultant within 48 hours and shall be empowered to order immediate repairs to the sediment and erosion control measures.

The qualified professional will also be responsible for observing the adequacy of the vegetation growth (trees, shrubs, groundcovers and turfgrasses) in newly graded areas and for ordering additional plantings in the event that the established plant materials do not adequately protect the ground surface from erosion.

2. Following Construction

Site maintenance activities on the property will include:

- Grounds maintenance, including mowing of lawns;
- Planting of trees, shrubs and groundcovers; pruning of trees and shrubs;
- Maintenance of stormwater management area;

Mr. William Fedyna will be responsible for the long-term operation and maintenance of the permanent stormwater management practices. The permanent stormwater management practices shall be maintained in accordance with the Maintenance Inspection Checklists provided in Appendix C.

VIII. CONCLUSION

This Stormwater Pollution Prevention Plan has been prepared to describe the project's pre and post-development stormwater management improvements and its sediment and erosion control improvements to be utilized during construction. The proposed permanent improvements and the interim improvements to be utilized during construction have been designed in accordance with the requirements of the:

- Chapter 294 "Stormwater Management and Erosion and Sediment Control" of the Village of Mamaroneck Zoning Code

The project employs a variety of practices to enhance stormwater quality and reduce peak rates of runoff associated with the proposed improvements. These measures include two rainwater cisterns and a proposed subsurface detention system.

Based on the foregoing, it is our professional opinion that the proposed improvements will provide water quantity and quality enhancements which exceed the above mentioned requirements and are not anticipated to have any adverse impacts to the site or any surrounding areas.

APPENDIX A

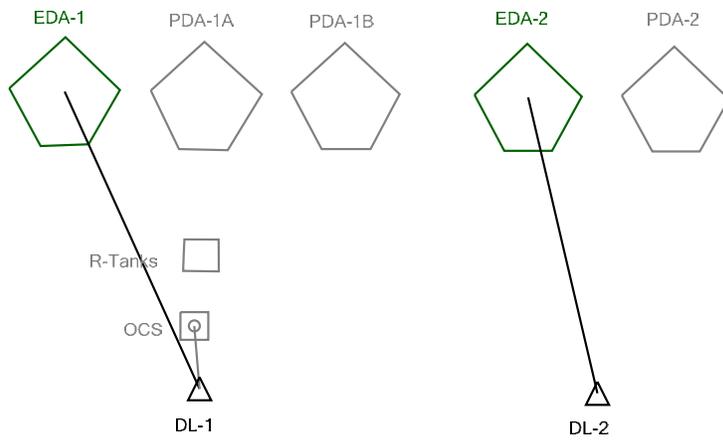
HYDROLOGIC CALCULATIONS

Project Summary

Title	Residential Development
Engineer	JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC
Company	
Date	10/1/2020

Notes

Scenario: Pre-Development 1 Year



Scenario: Post-Development 1 Year

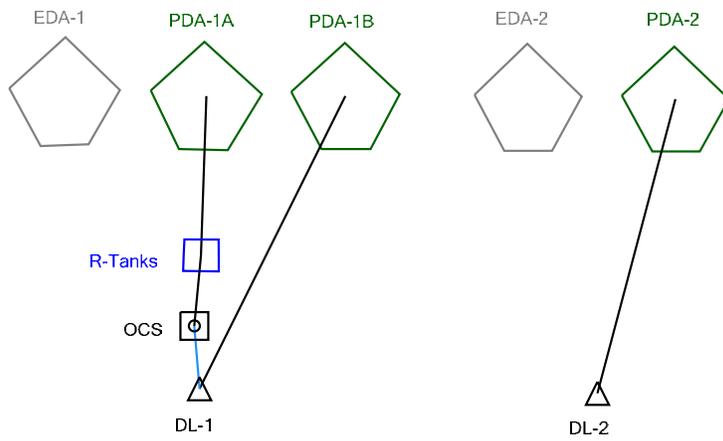


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Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft ³)	Time to Peak (hours)	Peak Flow (ft ³ /s)
EDA-1	Pre-Development 25 Year	25	8,294.000	12.150	2.11
EDA-2	Pre-Development 25 Year	25	2,512.000	12.100	0.69
PDA-1A	Post-Development 25 Year	25	3,720.000	12.100	0.99
PDA-2	Post-Development 25 Year	25	2,357.000	12.100	0.66
PDA-1B	Post-Development 25 Year	25	5,696.000	12.100	1.60

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft ³)	Time to Peak (hours)	Peak Flow (ft ³ /s)
DL-1	Post-Development 25 Year	25	9,394.000	12.100	1.89
DL-1	Pre-Development 25 Year	25	8,294.000	12.150	2.11
DL-2	Post-Development 25 Year	25	2,357.000	12.100	0.66
DL-2	Pre-Development 25 Year	25	2,512.000	12.100	0.69

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft ³)	Time to Peak (hours)	Peak Flow (ft ³ /s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft ³)
R-Tanks (IN)	Post-Development 25 Year	25	3,720.000	12.100	0.99	(N/A)	(N/A)
R-Tanks (OUT)	Post-Development 25 Year	25	3,698.000	12.200	0.73	10.12	876.000

Subsection: Time-Depth Curve
 Label: Time-Depth - 1
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Time-Depth Curve: 25 Year	
Label	25 Year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	25 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)				
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.3	0.3	0.3
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.3	0.4
5.000	0.4	0.4	0.4	0.4	0.4
5.500	0.4	0.4	0.4	0.4	0.5
6.000	0.5	0.5	0.5	0.5	0.5
6.500	0.5	0.5	0.5	0.6	0.6
7.000	0.6	0.6	0.6	0.6	0.6
7.500	0.7	0.7	0.7	0.7	0.7
8.000	0.7	0.7	0.8	0.8	0.8
8.500	0.8	0.8	0.9	0.9	0.9
9.000	0.9	1.0	1.0	1.0	1.0
9.500	1.1	1.1	1.1	1.2	1.2
10.000	1.2	1.2	1.3	1.3	1.3
10.500	1.4	1.4	1.5	1.5	1.6
11.000	1.6	1.7	1.7	1.8	1.8
11.500	1.9	2.0	2.2	2.4	2.7
12.000	3.2	3.7	4.0	4.2	4.4
12.500	4.5	4.6	4.6	4.7	4.8
13.000	4.8	4.9	4.9	4.9	5.0
13.500	5.0	5.1	5.1	5.1	5.2
14.000	5.2	5.2	5.3	5.3	5.3
14.500	5.3	5.4	5.4	5.4	5.5
15.000	5.5	5.5	5.5	5.5	5.6
15.500	5.6	5.6	5.6	5.6	5.7
16.000	5.7	5.7	5.7	5.7	5.7
16.500	5.8	5.8	5.8	5.8	5.8
17.000	5.8	5.8	5.9	5.9	5.9

Subsection: Time-Depth Curve
 Label: Time-Depth - 1
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)				
17.500	5.9	5.9	5.9	5.9	5.9
18.000	5.9	6.0	6.0	6.0	6.0
18.500	6.0	6.0	6.0	6.0	6.0
19.000	6.0	6.1	6.1	6.1	6.1
19.500	6.1	6.1	6.1	6.1	6.1
20.000	6.1	6.1	6.2	6.2	6.2
20.500	6.2	6.2	6.2	6.2	6.2
21.000	6.2	6.2	6.2	6.2	6.2
21.500	6.3	6.3	6.3	6.3	6.3
22.000	6.3	6.3	6.3	6.3	6.3
22.500	6.3	6.3	6.3	6.3	6.3
23.000	6.4	6.4	6.4	6.4	6.4
23.500	6.4	6.4	6.4	6.4	6.4
24.000	6.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
 Label: Time-Depth - 1
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Time-Depth Curve: 25 Year	
Label	25 Year
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	25 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)				
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.3	0.3	0.3
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.3	0.4
5.000	0.4	0.4	0.4	0.4	0.4
5.500	0.4	0.4	0.4	0.4	0.5
6.000	0.5	0.5	0.5	0.5	0.5
6.500	0.5	0.5	0.5	0.6	0.6
7.000	0.6	0.6	0.6	0.6	0.6
7.500	0.7	0.7	0.7	0.7	0.7
8.000	0.7	0.7	0.8	0.8	0.8
8.500	0.8	0.8	0.9	0.9	0.9
9.000	0.9	1.0	1.0	1.0	1.0
9.500	1.1	1.1	1.1	1.2	1.2
10.000	1.2	1.2	1.3	1.3	1.3
10.500	1.4	1.4	1.5	1.5	1.6
11.000	1.6	1.7	1.7	1.8	1.8
11.500	1.9	2.0	2.2	2.4	2.7
12.000	3.2	3.7	4.0	4.2	4.4
12.500	4.5	4.6	4.6	4.7	4.8
13.000	4.8	4.9	4.9	4.9	5.0
13.500	5.0	5.1	5.1	5.1	5.2
14.000	5.2	5.2	5.3	5.3	5.3
14.500	5.3	5.4	5.4	5.4	5.5
15.000	5.5	5.5	5.5	5.5	5.6
15.500	5.6	5.6	5.6	5.6	5.7
16.000	5.7	5.7	5.7	5.7	5.7
16.500	5.8	5.8	5.8	5.8	5.8
17.000	5.8	5.8	5.9	5.9	5.9

Subsection: Time-Depth Curve
 Label: Time-Depth - 1
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)				
17.500	5.9	5.9	5.9	5.9	5.9
18.000	5.9	6.0	6.0	6.0	6.0
18.500	6.0	6.0	6.0	6.0	6.0
19.000	6.0	6.1	6.1	6.1	6.1
19.500	6.1	6.1	6.1	6.1	6.1
20.000	6.1	6.1	6.2	6.2	6.2
20.500	6.2	6.2	6.2	6.2	6.2
21.000	6.2	6.2	6.2	6.2	6.2
21.500	6.3	6.3	6.3	6.3	6.3
22.000	6.3	6.3	6.3	6.3	6.3
22.500	6.3	6.3	6.3	6.3	6.3
23.000	6.4	6.4	6.4	6.4	6.4
23.500	6.4	6.4	6.4	6.4	6.4
24.000	6.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: EDA-1
Scenario: Pre-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow

Hydraulic Length	72.00 ft
Manning's n	0.400
Slope	0.056 ft/ft
2 Year 24 Hour Depth	3.5 in
Average Velocity	0.11 ft/s
Segment Time of Concentration	0.176 hours

Time of Concentration (Composite)

Time of Concentration (Composite)	0.176 hours
-----------------------------------	-------------

Subsection: Time of Concentration Calculations
Label: EDA-1
Scenario: Pre-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

==== **SCS Channel Flow**

Tc = $R = Qa / Wp$
 $V = (1.49 * (R^{2/3}) * (Sf^{0.5})) / n$

Where: $(Lf / V) / 3600$
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: EDA-2
Scenario: Pre-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow

Hydraulic Length	53.00 ft
Manning's n	0.400
Slope	0.094 ft/ft
2 Year 24 Hour Depth	3.5 in
Average Velocity	0.13 ft/s
Segment Time of Concentration	0.112 hours

Time of Concentration (Composite)

Time of Concentration (Composite)	0.112 hours
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Subsection: Time of Concentration Calculations
Label: EDA-2
Scenario: Pre-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

==== **SCS Channel Flow**

Tc = $R = Qa / Wp$
 $V = (1.49 * (R^{2/3}) * (Sf^{0.5})) / n$

Where: $(Lf / V) / 3600$
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PDA-1A
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Time of Concentration Results

Segment #1: User Defined Tc	
Time of Concentration	0.083 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: PDA-1A
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

==== User Defined

Tc = Value entered by user
Where: Tc= Time of concentration, hours

Subsection: Time of Concentration Calculations
Label: PDA-1B
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow

Hydraulic Length	72.00 ft
Manning's n	0.150
Slope	0.046 ft/ft
2 Year 24 Hour Depth	3.5 in
Average Velocity	0.23 ft/s
Segment Time of Concentration	0.087 hours

Time of Concentration (Composite)

Time of Concentration (Composite)	0.087 hours
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Subsection: Time of Concentration Calculations
Label: PDA-1B
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

==== **SCS Channel Flow**

Tc = $R = Qa / Wp$
 $V = (1.49 * (R^{2/3}) * (Sf^{0.5})) / n$

Where: $(Lf / V) / 3600$
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PDA-2
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow

Hydraulic Length	42.00 ft
Manning's n	0.150
Slope	0.065 ft/ft
2 Year 24 Hour Depth	3.5 in
Average Velocity	0.24 ft/s
Segment Time of Concentration	0.049 hours

Time of Concentration (Composite)

Time of Concentration (Composite)	0.083 hours
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Subsection: Time of Concentration Calculations
Label: PDA-2
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

==== **SCS Channel Flow**

Tc = $R = Qa / Wp$
 $V = (1.49 * (R^{2/3}) * (Sf^{0.5})) / n$

(Lf / V) / 3600
Where: R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Runoff CN-Area
 Label: EDA-1
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft ²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	2,816.364	0.0	0.0	98.000
Pasture, grassland, or range - good - Soil D	80.000	7,220.639	0.0	0.0	80.000
Woods - good - Soil D	77.000	13,971.697	0.0	0.0	77.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	24,008.700	(N/A)	(N/A)	80.366

Subsection: Runoff CN-Area
 Label: EDA-2
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft ²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	332.527	0.0	0.0	98.000
Pasture, grassland, or range - good - Soil D	80.000	1,167.020	0.0	0.0	80.000
Woods - good - Soil D	77.000	6,150.852	0.0	0.0	77.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	7,650.400	(N/A)	(N/A)	78.370

Subsection: Runoff CN-Area
 Label: PDA-1A
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft ²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	4,406.125	0.0	0.0	98.000
Pasture, grassland, or range - good - Soil D	80.000	4,296.180	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	8,702.305	(N/A)	(N/A)	89.114

Subsection: Runoff CN-Area
Label: PDA-1B
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft ²)	C (%)	UC (%)	Adjusted CN
Pasture, grassland, or range - good - Soil D	80.000	16,473.360	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	16,473.360	(N/A)	(N/A)	80.000

Subsection: Runoff CN-Area
 Label: PDA-2
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft ²)	C (%)	UC (%)	Adjusted CN
Pasture, grassland, or range - good - Soil D	80.000	5,737.065	0.0	0.0	80.000
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	515.525	0.0	0.0	98.000
GrassPave	88.000	230.000	0.0	0.0	88.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	6,482.590	(N/A)	(N/A)	81.715

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: EDA-1
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Storm Event	25 Year
Return Event	25 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.176 hours
Area (User Defined)	24,008.700 ft ²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
6.650	0.00	0.00	0.00	0.00	0.00
6.900	0.00	0.00	0.00	0.00	0.00
7.150	0.00	0.01	0.01	0.01	0.01
7.400	0.01	0.01	0.01	0.01	0.01
7.650	0.01	0.01	0.01	0.01	0.01
7.900	0.01	0.01	0.01	0.01	0.01
8.150	0.02	0.02	0.02	0.02	0.02
8.400	0.02	0.02	0.02	0.02	0.02
8.650	0.02	0.03	0.03	0.03	0.03
8.900	0.03	0.03	0.03	0.03	0.04
9.150	0.04	0.04	0.04	0.04	0.04
9.400	0.04	0.05	0.05	0.05	0.05
9.650	0.05	0.05	0.06	0.06	0.06
9.900	0.06	0.06	0.06	0.07	0.07
10.150	0.07	0.07	0.08	0.08	0.08
10.400	0.08	0.09	0.09	0.09	0.10
10.650	0.10	0.10	0.11	0.11	0.11
10.900	0.12	0.12	0.12	0.13	0.13
11.150	0.14	0.15	0.16	0.17	0.18
11.400	0.19	0.20	0.22	0.23	0.27
11.650	0.32	0.40	0.49	0.60	0.71
11.900	0.83	1.02	1.39	1.77	2.04
12.150	2.11	1.91	1.60	1.35	1.17
12.400	1.01	0.87	0.73	0.61	0.51
12.650	0.43	0.38	0.35	0.33	0.31
12.900	0.29	0.28	0.26	0.25	0.24
13.150	0.23	0.22	0.22	0.21	0.21
13.400	0.21	0.20	0.20	0.20	0.19
13.650	0.19	0.19	0.18	0.18	0.17
13.900	0.17	0.17	0.16	0.16	0.16
14.150	0.15	0.15	0.15	0.15	0.15
14.400	0.14	0.14	0.14	0.14	0.14
14.650	0.14	0.13	0.13	0.13	0.13
14.900	0.13	0.13	0.12	0.12	0.12

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: EDA-1
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
15.150	0.12	0.12	0.11	0.11	0.11
15.400	0.11	0.11	0.11	0.10	0.10
15.650	0.10	0.10	0.10	0.10	0.09
15.900	0.09	0.09	0.09	0.09	0.08
16.150	0.08	0.08	0.08	0.08	0.08
16.400	0.08	0.08	0.08	0.08	0.08
16.650	0.07	0.07	0.07	0.07	0.07
16.900	0.07	0.07	0.07	0.07	0.07
17.150	0.07	0.07	0.07	0.06	0.06
17.400	0.06	0.06	0.06	0.06	0.06
17.650	0.06	0.06	0.06	0.06	0.06
17.900	0.06	0.05	0.05	0.05	0.05
18.150	0.05	0.05	0.05	0.05	0.05
18.400	0.05	0.05	0.05	0.05	0.05
18.650	0.05	0.05	0.05	0.05	0.05
18.900	0.05	0.05	0.05	0.05	0.05
19.150	0.05	0.05	0.05	0.05	0.05
19.400	0.05	0.05	0.04	0.04	0.04
19.650	0.04	0.04	0.04	0.04	0.04
19.900	0.04	0.04	0.04	0.04	0.04
20.150	0.04	0.04	0.04	0.04	0.04
20.400	0.04	0.04	0.04	0.04	0.04
20.650	0.04	0.04	0.04	0.04	0.04
20.900	0.04	0.04	0.04	0.04	0.04
21.150	0.04	0.04	0.04	0.04	0.04
21.400	0.04	0.04	0.04	0.04	0.04
21.650	0.04	0.04	0.04	0.04	0.04
21.900	0.04	0.04	0.04	0.04	0.03
22.150	0.03	0.03	0.03	0.03	0.03
22.400	0.03	0.03	0.03	0.03	0.03
22.650	0.03	0.03	0.03	0.03	0.03
22.900	0.03	0.03	0.03	0.03	0.03
23.150	0.03	0.03	0.03	0.03	0.03
23.400	0.03	0.03	0.03	0.03	0.03
23.650	0.03	0.03	0.03	0.03	0.03
23.900	0.03	0.03	0.03	(N/A)	(N/A)

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: EDA-2
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Storm Event	25 Year
Return Event	25 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.112 hours
Area (User Defined)	7,650.400 ft ²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
7.400	0.00	0.00	0.00	0.00	0.00
7.650	0.00	0.00	0.00	0.00	0.00
7.900	0.00	0.00	0.00	0.00	0.00
8.150	0.00	0.00	0.00	0.00	0.00
8.400	0.00	0.00	0.01	0.01	0.01
8.650	0.01	0.01	0.01	0.01	0.01
8.900	0.01	0.01	0.01	0.01	0.01
9.150	0.01	0.01	0.01	0.01	0.01
9.400	0.01	0.01	0.01	0.01	0.01
9.650	0.01	0.01	0.02	0.02	0.02
9.900	0.02	0.02	0.02	0.02	0.02
10.150	0.02	0.02	0.02	0.02	0.02
10.400	0.02	0.03	0.03	0.03	0.03
10.650	0.03	0.03	0.03	0.03	0.03
10.900	0.03	0.04	0.04	0.04	0.04
11.150	0.04	0.05	0.05	0.05	0.06
11.400	0.06	0.06	0.07	0.08	0.09
11.650	0.11	0.14	0.17	0.21	0.24
11.900	0.29	0.38	0.55	0.64	0.69
12.150	0.64	0.49	0.40	0.35	0.31
12.400	0.26	0.22	0.18	0.15	0.13
12.650	0.11	0.10	0.10	0.09	0.09
12.900	0.09	0.08	0.08	0.07	0.07
13.150	0.07	0.07	0.07	0.07	0.06
13.400	0.06	0.06	0.06	0.06	0.06
13.650	0.06	0.06	0.06	0.05	0.05
13.900	0.05	0.05	0.05	0.05	0.05
14.150	0.05	0.05	0.05	0.05	0.04
14.400	0.04	0.04	0.04	0.04	0.04
14.650	0.04	0.04	0.04	0.04	0.04
14.900	0.04	0.04	0.04	0.04	0.04
15.150	0.04	0.04	0.04	0.03	0.03
15.400	0.03	0.03	0.03	0.03	0.03
15.650	0.03	0.03	0.03	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: EDA-2
 Scenario: Pre-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
15.900	0.03	0.03	0.03	0.03	0.03
16.150	0.03	0.03	0.03	0.02	0.02
16.400	0.02	0.02	0.02	0.02	0.02
16.650	0.02	0.02	0.02	0.02	0.02
16.900	0.02	0.02	0.02	0.02	0.02
17.150	0.02	0.02	0.02	0.02	0.02
17.400	0.02	0.02	0.02	0.02	0.02
17.650	0.02	0.02	0.02	0.02	0.02
17.900	0.02	0.02	0.02	0.02	0.02
18.150	0.02	0.02	0.02	0.02	0.02
18.400	0.02	0.02	0.02	0.02	0.02
18.650	0.02	0.02	0.02	0.01	0.01
18.900	0.01	0.01	0.01	0.01	0.01
19.150	0.01	0.01	0.01	0.01	0.01
19.400	0.01	0.01	0.01	0.01	0.01
19.650	0.01	0.01	0.01	0.01	0.01
19.900	0.01	0.01	0.01	0.01	0.01
20.150	0.01	0.01	0.01	0.01	0.01
20.400	0.01	0.01	0.01	0.01	0.01
20.650	0.01	0.01	0.01	0.01	0.01
20.900	0.01	0.01	0.01	0.01	0.01
21.150	0.01	0.01	0.01	0.01	0.01
21.400	0.01	0.01	0.01	0.01	0.01
21.650	0.01	0.01	0.01	0.01	0.01
21.900	0.01	0.01	0.01	0.01	0.01
22.150	0.01	0.01	0.01	0.01	0.01
22.400	0.01	0.01	0.01	0.01	0.01
22.650	0.01	0.01	0.01	0.01	0.01
22.900	0.01	0.01	0.01	0.01	0.01
23.150	0.01	0.01	0.01	0.01	0.01
23.400	0.01	0.01	0.01	0.01	0.01
23.650	0.01	0.01	0.01	0.01	0.01
23.900	0.01	0.01	0.01	(N/A)	(N/A)

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: PDA-1A
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Storm Event	25 Year
Return Event	25 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,702.305 ft ²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.01	0.01
5.950	0.01	0.01	0.01	0.01	0.01
6.200	0.01	0.01	0.01	0.01	0.01
6.450	0.01	0.01	0.01	0.01	0.01
6.700	0.01	0.01	0.01	0.01	0.01
6.950	0.01	0.01	0.01	0.01	0.01
7.200	0.01	0.01	0.01	0.01	0.01
7.450	0.01	0.01	0.01	0.01	0.01
7.700	0.01	0.01	0.01	0.01	0.02
7.950	0.02	0.02	0.02	0.02	0.02
8.200	0.02	0.02	0.02	0.02	0.02
8.450	0.02	0.02	0.02	0.02	0.02
8.700	0.02	0.02	0.02	0.03	0.03
8.950	0.03	0.03	0.03	0.03	0.03
9.200	0.03	0.03	0.03	0.03	0.03
9.450	0.03	0.03	0.04	0.04	0.04
9.700	0.04	0.04	0.04	0.04	0.04
9.950	0.04	0.04	0.04	0.04	0.05
10.200	0.05	0.05	0.05	0.05	0.05
10.450	0.05	0.06	0.06	0.06	0.06
10.700	0.06	0.06	0.06	0.07	0.07
10.950	0.07	0.07	0.07	0.08	0.08
11.200	0.09	0.09	0.10	0.10	0.11
11.450	0.11	0.12	0.14	0.17	0.21
11.700	0.26	0.31	0.36	0.41	0.47
11.950	0.66	0.90	0.97	0.99	0.82
12.200	0.59	0.49	0.43	0.38	0.32
12.450	0.27	0.22	0.18	0.15	0.14

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: PDA-1A
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
12.700	0.13	0.13	0.12	0.11	0.11
12.950	0.10	0.10	0.09	0.09	0.09
13.200	0.09	0.08	0.08	0.08	0.08
13.450	0.08	0.08	0.08	0.07	0.07
13.700	0.07	0.07	0.07	0.07	0.07
13.950	0.06	0.06	0.06	0.06	0.06
14.200	0.06	0.06	0.06	0.06	0.06
14.450	0.06	0.05	0.05	0.05	0.05
14.700	0.05	0.05	0.05	0.05	0.05
14.950	0.05	0.05	0.05	0.05	0.05
15.200	0.04	0.04	0.04	0.04	0.04
15.450	0.04	0.04	0.04	0.04	0.04
15.700	0.04	0.04	0.04	0.04	0.03
15.950	0.03	0.03	0.03	0.03	0.03
16.200	0.03	0.03	0.03	0.03	0.03
16.450	0.03	0.03	0.03	0.03	0.03
16.700	0.03	0.03	0.03	0.03	0.03
16.950	0.03	0.03	0.03	0.03	0.03
17.200	0.03	0.03	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.02	0.02	0.02	0.02	0.02
18.700	0.02	0.02	0.02	0.02	0.02
18.950	0.02	0.02	0.02	0.02	0.02
19.200	0.02	0.02	0.02	0.02	0.02
19.450	0.02	0.02	0.02	0.02	0.02
19.700	0.02	0.02	0.02	0.02	0.02
19.950	0.02	0.02	0.02	0.02	0.02
20.200	0.02	0.02	0.02	0.02	0.02
20.450	0.02	0.02	0.02	0.02	0.02
20.700	0.02	0.02	0.02	0.02	0.02
20.950	0.02	0.02	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table)
Label: PDA-1A
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: PDA-1B
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Storm Event	25 Year
Return Event	25 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	16,473.360 ft ²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
6.650	0.00	0.00	0.00	0.00	0.00
6.900	0.00	0.00	0.00	0.00	0.00
7.150	0.00	0.00	0.00	0.00	0.00
7.400	0.01	0.01	0.01	0.01	0.01
7.650	0.01	0.01	0.01	0.01	0.01
7.900	0.01	0.01	0.01	0.01	0.01
8.150	0.01	0.01	0.01	0.01	0.01
8.400	0.01	0.02	0.02	0.02	0.02
8.650	0.02	0.02	0.02	0.02	0.02
8.900	0.02	0.02	0.02	0.02	0.03
9.150	0.03	0.03	0.03	0.03	0.03
9.400	0.03	0.03	0.03	0.03	0.04
9.650	0.04	0.04	0.04	0.04	0.04
9.900	0.04	0.04	0.05	0.05	0.05
10.150	0.05	0.05	0.05	0.06	0.06
10.400	0.06	0.06	0.06	0.07	0.07
10.650	0.07	0.07	0.08	0.08	0.08
10.900	0.08	0.09	0.09	0.09	0.10
11.150	0.10	0.11	0.12	0.13	0.13
11.400	0.14	0.15	0.16	0.19	0.23
11.650	0.29	0.36	0.43	0.52	0.60
11.900	0.69	0.99	1.38	1.53	1.60
12.150	1.36	0.99	0.83	0.73	0.64
12.400	0.55	0.46	0.37	0.31	0.26
12.650	0.24	0.22	0.21	0.21	0.20
12.900	0.19	0.18	0.17	0.16	0.15
13.150	0.15	0.15	0.15	0.14	0.14
13.400	0.14	0.14	0.13	0.13	0.13
13.650	0.13	0.12	0.12	0.12	0.12
13.900	0.11	0.11	0.11	0.11	0.10
14.150	0.10	0.10	0.10	0.10	0.10
14.400	0.10	0.10	0.10	0.09	0.09
14.650	0.09	0.09	0.09	0.09	0.09
14.900	0.09	0.08	0.08	0.08	0.08

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: PDA-1B
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
15.150	0.08	0.08	0.08	0.08	0.07
15.400	0.07	0.07	0.07	0.07	0.07
15.650	0.07	0.07	0.06	0.06	0.06
15.900	0.06	0.06	0.06	0.06	0.06
16.150	0.06	0.06	0.05	0.05	0.05
16.400	0.05	0.05	0.05	0.05	0.05
16.650	0.05	0.05	0.05	0.05	0.05
16.900	0.05	0.05	0.05	0.05	0.05
17.150	0.05	0.04	0.04	0.04	0.04
17.400	0.04	0.04	0.04	0.04	0.04
17.650	0.04	0.04	0.04	0.04	0.04
17.900	0.04	0.04	0.04	0.04	0.04
18.150	0.03	0.03	0.03	0.03	0.03
18.400	0.03	0.03	0.03	0.03	0.03
18.650	0.03	0.03	0.03	0.03	0.03
18.900	0.03	0.03	0.03	0.03	0.03
19.150	0.03	0.03	0.03	0.03	0.03
19.400	0.03	0.03	0.03	0.03	0.03
19.650	0.03	0.03	0.03	0.03	0.03
19.900	0.03	0.03	0.03	0.03	0.03
20.150	0.03	0.03	0.03	0.03	0.03
20.400	0.03	0.03	0.03	0.03	0.03
20.650	0.03	0.03	0.03	0.03	0.03
20.900	0.03	0.03	0.03	0.03	0.03
21.150	0.03	0.03	0.03	0.03	0.03
21.400	0.03	0.03	0.03	0.03	0.03
21.650	0.02	0.02	0.02	0.02	0.02
21.900	0.02	0.02	0.02	0.02	0.02
22.150	0.02	0.02	0.02	0.02	0.02
22.400	0.02	0.02	0.02	0.02	0.02
22.650	0.02	0.02	0.02	0.02	0.02
22.900	0.02	0.02	0.02	0.02	0.02
23.150	0.02	0.02	0.02	0.02	0.02
23.400	0.02	0.02	0.02	0.02	0.02
23.650	0.02	0.02	0.02	0.02	0.02
23.900	0.02	0.02	0.02	(N/A)	(N/A)

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: PDA-2
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Storm Event	25 Year
Return Event	25 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,482.590 ft ²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.02	0.02	0.02	0.02	0.02
9.700	0.02	0.02	0.02	0.02	0.02
9.950	0.02	0.02	0.02	0.02	0.02
10.200	0.02	0.02	0.03	0.03	0.03
10.450	0.03	0.03	0.03	0.03	0.03
10.700	0.03	0.03	0.03	0.04	0.04
10.950	0.04	0.04	0.04	0.04	0.05
11.200	0.05	0.05	0.05	0.06	0.06
11.450	0.07	0.07	0.08	0.10	0.12
11.700	0.15	0.19	0.22	0.25	0.29
11.950	0.42	0.58	0.63	0.66	0.55
12.200	0.40	0.33	0.29	0.26	0.22
12.450	0.19	0.15	0.12	0.10	0.10
12.700	0.09	0.09	0.08	0.08	0.08
12.950	0.07	0.07	0.06	0.06	0.06
13.200	0.06	0.06	0.06	0.06	0.06
13.450	0.05	0.05	0.05	0.05	0.05
13.700	0.05	0.05	0.05	0.05	0.05
13.950	0.04	0.04	0.04	0.04	0.04
14.200	0.04	0.04	0.04	0.04	0.04
14.450	0.04	0.04	0.04	0.04	0.04
14.700	0.04	0.04	0.04	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table)
 Label: PDA-2
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
14.950	0.03	0.03	0.03	0.03	0.03
15.200	0.03	0.03	0.03	0.03	0.03
15.450	0.03	0.03	0.03	0.03	0.03
15.700	0.03	0.03	0.03	0.02	0.02
15.950	0.02	0.02	0.02	0.02	0.02
16.200	0.02	0.02	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.01
17.950	0.01	0.01	0.01	0.01	0.01
18.200	0.01	0.01	0.01	0.01	0.01
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Subsection: Addition Summary
Label: DL-1
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Summary for Hydrograph Addition at 'DL-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PDA-1B R-Tanks

Node Inflows

Inflow Type	Element	Volume (ft ³)	Time to Peak (hours)	Flow (Peak) (ft ³ /s)
Flow (From)	PDA-1B	5,696.144	12.100	1.60
Flow (From)		3,697.633	12.200	0.73
Flow (In)	DL-1	9,393.777	12.100	1.89

Subsection: Addition Summary
Label: DL-1
Scenario: Pre-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Summary for Hydrograph Addition at 'DL-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	EDA-1

Node Inflows

Inflow Type	Element	Volume (ft ³)	Time to Peak (hours)	Flow (Peak) (ft ³ /s)
Flow (From)	EDA-1	8,294.216	12.150	2.11
Flow (In)	DL-1	8,294.216	12.150	2.11

Subsection: Addition Summary
Label: DL-2
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Summary for Hydrograph Addition at 'DL-2'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PDA-2

Node Inflows

Inflow Type	Element	Volume (ft ³)	Time to Peak (hours)	Flow (Peak) (ft ³ /s)
Flow (From)	PDA-2	2,356.599	12.100	0.66
Flow (In)	DL-2	2,356.599	12.100	0.66

Subsection: Addition Summary
Label: DL-2
Scenario: Pre-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Summary for Hydrograph Addition at 'DL-2'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	EDA-2

Node Inflows

Inflow Type	Element	Volume (ft ³)	Time to Peak (hours)	Flow (Peak) (ft ³ /s)
Flow (From)	EDA-2	2,511.605	12.100	0.69
Flow (In)	DL-2	2,511.605	12.100	0.69

Subsection: Elevation vs. Volume Curve
Label: R-Tanks
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Elevation-Volume

Pond Elevation (ft)		Pond Volume (ft ³)	
	7.99		0.000
	10.25		929.214

Subsection: Outlet Input Data
 Label: OCS
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	7.99 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	10.25 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - Out	8.00	10.25
Rectangular Weir	Weir - 1	Forward	Culvert - Out	10.05	10.25
Culvert-Circular	Culvert - Out	Forward	TW	8.00	10.25
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
 Label: OCS
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Structure ID: Orifice - 1	
Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	8.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600
Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	10.05 ft
Weir Length	4.00 ft
Weir Coefficient	3.33 (ft ^{0.5})/s
Structure ID: Culvert - Out	
Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	12.0 in
Length	37.00 ft
Length (Computed Barrel)	37.00 ft
Slope (Computed)	0.007 ft/ft
Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.031
Kr	0.000
Convergence Tolerance	0.00 ft
Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	0.000
T2 ratio (HW/D)	1.194
Slope Correction Factor	-0.500

Subsection: Outlet Input Data
Label: OCS
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...

T1 Elevation	8.00 ft	T1 Flow	2.75 ft ³ /s
T2 Elevation	9.19 ft	T2 Flow	3.14 ft ³ /s

Subsection: Outlet Input Data
Label: OCS
Scenario: Post-Development 25 Year

Return Event: 25 years
Storm Event: 25 Year

Structure ID: TW	
Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall
Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft ³ /s
Flow Tolerance (Maximum)	10.000 ft ³ /s

Subsection: Composite Rating Curve
 Label: OCS
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft ³ /s)	Tailwater Elevation (ft)	Convergence Error (ft)
7.99	0.00	(N/A)	0.00
8.00	0.00	(N/A)	0.00
8.49	0.13	(N/A)	0.00
8.99	0.20	(N/A)	0.00
9.49	0.26	(N/A)	0.00
9.99	0.31	(N/A)	0.00
10.05	0.31	(N/A)	0.00
10.25	1.48	(N/A)	0.00

Contributing Structures

(no Q: Orifice - 1,Weir - 1,Culvert - Out)
(no Q: Orifice - 1,Weir - 1,Culvert - Out)
Orifice - 1,Culvert - Out
(no Q: Weir - 1)
Orifice - 1,Culvert - Out
(no Q: Weir - 1)
Orifice - 1,Culvert - Out
(no Q: Weir - 1)
Orifice - 1,Culvert - Out
(no Q: Weir - 1)
Orifice - 1,Culvert - Out
(no Q: Weir - 1)
Orifice - 1,Weir - 1,Culvert - Out

Subsection: Elevation-Volume-Flow Table (Pond)
 Label: R-Tanks
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Infiltration

Infiltration Method (Computed) No Infiltration

Initial Conditions

Elevation (Water Surface, Initial) 7.99 ft
 Volume (Initial) 0.000 ft³
 Flow (Initial Outlet) 0.00 ft³/s
 Flow (Initial Infiltration) 0.00 ft³/s
 Flow (Initial, Total) 0.00 ft³/s
 Time Increment 0.050 hours

Elevation (ft)	Outflow (ft ³ /s)	Storage (ft ³)	Area (ft ²)	Infiltration (ft ³ /s)	Flow (Total) (ft ³ /s)	2S/t + O (ft ³ /s)
7.99	0.00	0.000	0.000	0.00	0.00	0.00
8.00	0.00	4.112	0.000	0.00	0.00	0.05
8.49	0.13	205.578	0.000	0.00	0.13	2.41
8.99	0.20	411.157	0.000	0.00	0.20	4.77
9.49	0.26	616.735	0.000	0.00	0.26	7.11
9.99	0.31	822.313	0.000	0.00	0.31	9.44
10.05	0.31	846.983	0.000	0.00	0.31	9.72
10.25	1.48	929.214	0.000	0.00	1.48	11.80

Subsection: Pond Routed Hydrograph (total out)
 Label: R-Tanks (OUT)
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

Peak Discharge	0.73 ft ³ /s
Time to Peak	12.200 hours
Hydrograph Volume	3,697.242 ft ³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.01	0.01	0.01
6.450	0.01	0.01	0.01	0.01	0.01
6.700	0.01	0.01	0.01	0.01	0.01
6.950	0.01	0.01	0.01	0.01	0.01
7.200	0.01	0.01	0.01	0.01	0.01
7.450	0.01	0.01	0.01	0.01	0.01
7.700	0.01	0.01	0.01	0.01	0.01
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.02	0.02	0.02
8.450	0.02	0.02	0.02	0.02	0.02
8.700	0.02	0.02	0.02	0.02	0.02
8.950	0.02	0.02	0.02	0.02	0.02
9.200	0.02	0.03	0.03	0.03	0.03
9.450	0.03	0.03	0.03	0.03	0.03
9.700	0.03	0.03	0.03	0.03	0.03
9.950	0.03	0.04	0.04	0.04	0.04
10.200	0.04	0.04	0.04	0.04	0.04
10.450	0.04	0.05	0.05	0.05	0.05
10.700	0.05	0.05	0.05	0.05	0.06
10.950	0.06	0.06	0.06	0.06	0.06
11.200	0.07	0.07	0.07	0.07	0.08
11.450	0.08	0.08	0.09	0.10	0.11
11.700	0.12	0.13	0.14	0.16	0.18
11.950	0.20	0.23	0.26	0.29	0.50
12.200	0.73	0.52	0.46	0.40	0.34
12.450	0.31	0.31	0.30	0.30	0.29
12.700	0.28	0.28	0.27	0.27	0.26
12.950	0.25	0.24	0.24	0.23	0.22
13.200	0.22	0.21	0.20	0.20	0.19
13.450	0.18	0.18	0.17	0.16	0.16
13.700	0.15	0.15	0.14	0.14	0.13
13.950	0.13	0.12	0.12	0.11	0.11
14.200	0.10	0.10	0.09	0.09	0.09
14.450	0.08	0.08	0.08	0.07	0.07

Subsection: Pond Routed Hydrograph (total out)
 Label: R-Tanks (OUT)
 Scenario: Post-Development 25 Year

Return Event: 25 years
 Storm Event: 25 Year

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft ³ /s)				
14.700	0.07	0.07	0.07	0.06	0.06
14.950	0.06	0.06	0.06	0.06	0.06
15.200	0.05	0.05	0.05	0.05	0.05
15.450	0.05	0.05	0.05	0.05	0.05
15.700	0.05	0.04	0.04	0.04	0.04
15.950	0.04	0.04	0.04	0.04	0.04
16.200	0.04	0.04	0.04	0.04	0.04
16.450	0.03	0.03	0.03	0.03	0.03
16.700	0.03	0.03	0.03	0.03	0.03
16.950	0.03	0.03	0.03	0.03	0.03
17.200	0.03	0.03	0.03	0.03	0.03
17.450	0.03	0.03	0.03	0.03	0.03
17.700	0.03	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.02	0.02	0.02	0.02	0.02
18.700	0.02	0.02	0.02	0.02	0.02
18.950	0.02	0.02	0.02	0.02	0.02
19.200	0.02	0.02	0.02	0.02	0.02
19.450	0.02	0.02	0.02	0.02	0.02
19.700	0.02	0.02	0.02	0.02	0.02
19.950	0.02	0.02	0.02	0.02	0.02
20.200	0.02	0.02	0.02	0.02	0.02
20.450	0.02	0.02	0.02	0.02	0.02
20.700	0.02	0.02	0.02	0.02	0.02
20.950	0.02	0.02	0.02	0.02	0.02
21.200	0.02	0.02	0.02	0.02	0.02
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

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APPENDIX B

NYSDEC STORMWATER SIZING CALCULATIONS

CISTERN WORKSHEET

JMC Project: **18100**

Design Point: **DL-1**

RAINWATER HARVESTING TANK CALCULATIONS

Drainage Area: PDA-1A

Site Data for Drainage Area to be Treated by Practice			
DESCRIPTION	SYMBOL	VALUE	UNITS
Design Storm [90% Rainfall Event Number]	P	1.5	In
Impervious Area	I	0.10	Ac
Area	A	0.20	Ac
Percent Impervious	%I	50.63	%
Runoff Coefficient [0.05 + 0.009 x %I]	R _v	0.51	CF
TOTAL VOLUME Required [$WQ_v = (P \times R_v \times A) / 12$]	WQ _v	550	CF

Minimum Cistern Size			
DESCRIPTION	SYMBOL	VALUE	UNITS
Water Quality Volume	WQ _v	550	CF
Conversion Factor (7.5 gals/cf)		7.50	Gals/CF
Required Cistern Volume Vol = (WQ _v x 7.5)	Vol	4,126	Gals

Proposed Cistern Size			
DESCRIPTION	SYMBOL	VALUE	UNITS
Provided Cistern Volume (Per Cistern)	-	5,000	Gal
Provided Cistern Volume	PVol	5,000	Gal

APPENDIX C

TEMPORARY EROSION AND SEDIMENT CONTROL & PERMANENT STORMWATER PRACTICE INSPECTION CHECKLIST

Temporary Erosion and Sediment Control Inspection and Maintenance Checklist

Erosion and Sediment Control Measure	Inspection/Maintenance Intervals	Inspection/Maintenance Requirements
Stabilized Construction Entrance	Daily	<ul style="list-style-type: none"> • Periodic top dressing with additional aggregate as required • Clean sediment in public right-of-ways immediately
Silt Fence	Weekly + After Each Rain	<ul style="list-style-type: none"> • Remove & redistribute sediment when bulges develop in the silt fence.
Inlet Protection	Weekly + After Each Rain	<ul style="list-style-type: none"> • Remove sediment as necessary and replace filter fabric, crushed stone etc. • Any broken and damaged components should be replaced. • Check all materials for proper anchorage and secure as necessary.

Permanent Stormwater Management Practice Inspection and Maintenance Checklist

Stormwater Management Practice	Inspection/Maintenance Intervals	Inspection/Maintenance Requirements
Rip-Rap Apron/Energy Dissipator and Check Dams	Annually + After Major Storms	<ul style="list-style-type: none"> • Check for evidence of flows going around the structure. • Check for evidence at downstream toe and repair as needed. • Clean sediment and install additional aggregate as necessary.
Drain Inlets	Monthly	<ul style="list-style-type: none"> • Check for blockage and/or erosion at top of each inlet. Repair/remove as necessary. • Check for sediment and debris collected within sumps and clean out as necessary.
Subsurface Stormwater Management Detention Facility	Annually + After Major Storms	<ul style="list-style-type: none"> • Check level of sediment and debris accumulated within the system. • Check structural integrity of the system pipes, structures, etc. for cracking, bulging or deterioration. Repair/remove as necessary. • Confirm all inlets and outlet structures/pipes are operating properly.

The owner/operator responsible for inspection and maintenance as outlined above:

Mr. William Fedyna
219 W 81st Street, Apt. 9D
New York, NY 10024
Phone: (646) 321-2081

APPENDIX D

CONTRACTOR'S CERTIFICATION



Site Planning
 Civil Engineering
 Landscape Architecture
 Land Surveying
 Transportation Engineering

Environmental Studies
 Entitlements
 Construction Services
 3D Visualization
 Laser Scanning

JMC Project 18100
 Residential Development
 1165 Greacen Point Road
 Village of Mamaroneck, NY

CONTRACTOR'S CERTIFICATION

“I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations”

Company Name: _____

Address: _____

Telephone Number: _____

Name and Title: _____

Signature: _____ Date: _____

Permit Identification No.: _____

Name and Title of Trained Contractor: _____

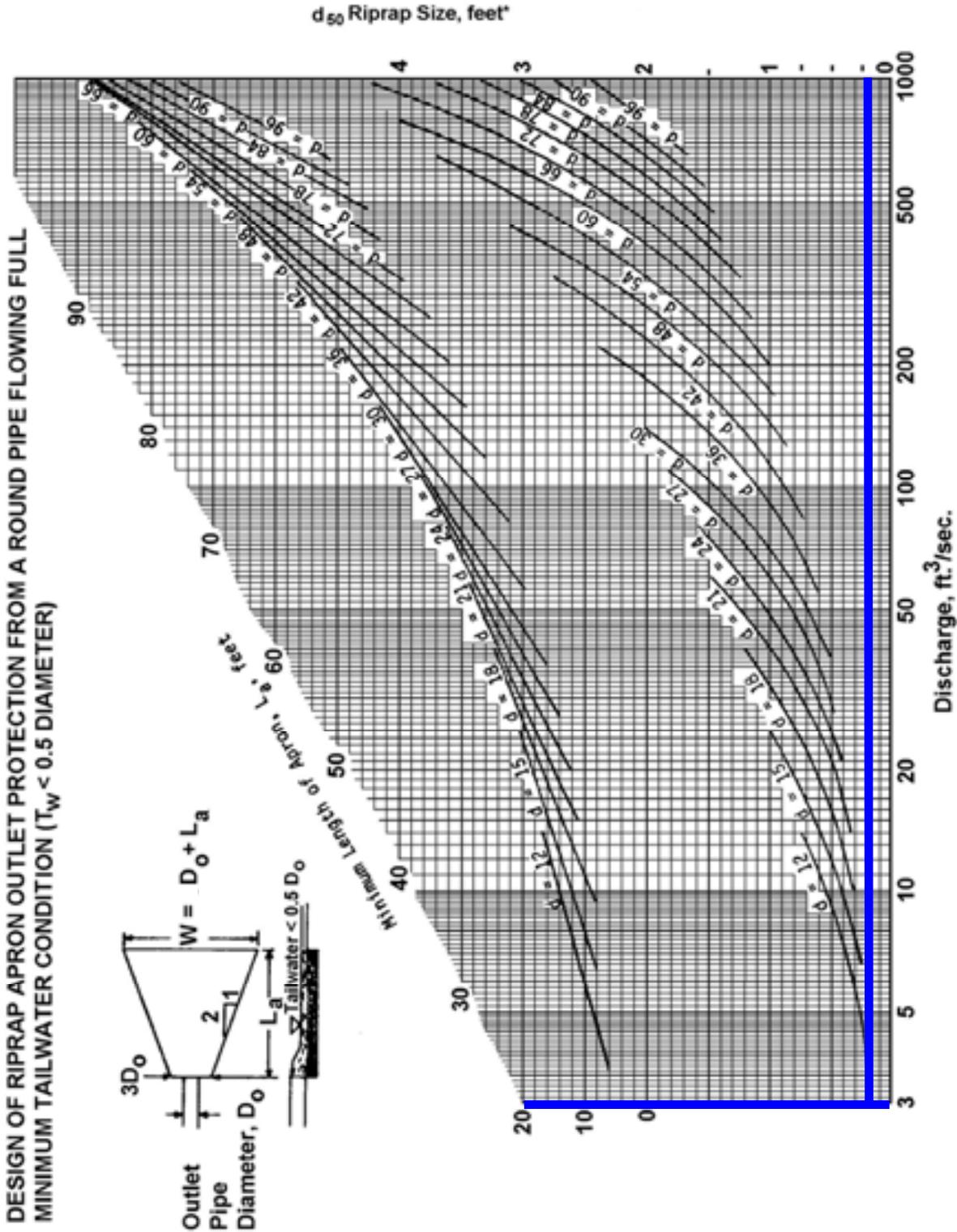
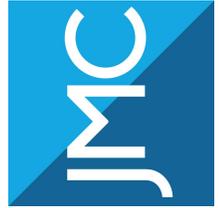
Elements of the SWPPP Contractor is responsible for: _____

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APPENDIX E

***STONE OUTLET PROTECTION
DESIGN CALCULATIONS***

Figure 3.16
Outlet Protection Design—Minimum Tailwater Condition Chart
 (Design of Outlet Protection from a Round Pipe Flowing Full,
 Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)



* For discharge velocities exceeding Maximum Allowable for Riprap indicated, increase d_{50} stone size and/or provide velocity reduction device.

PIPE DIAMETER: 12"

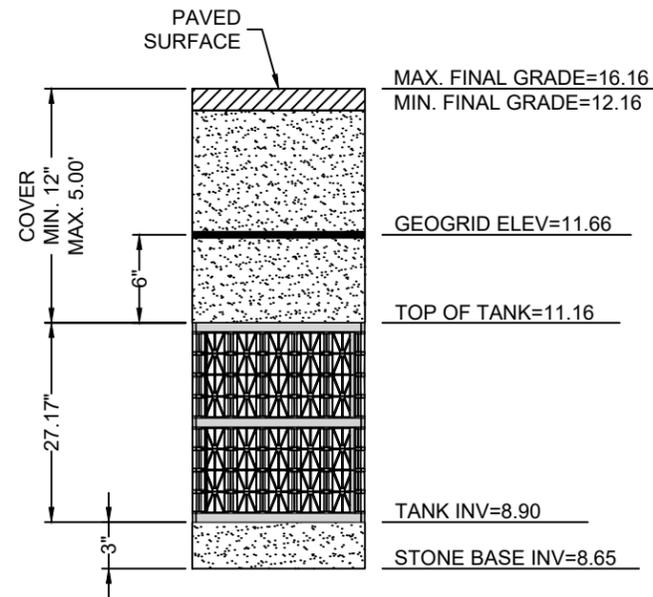
DISCHARGE RATE: 1.89 cfs

d_{50} RIP RAP SIZE: 3"

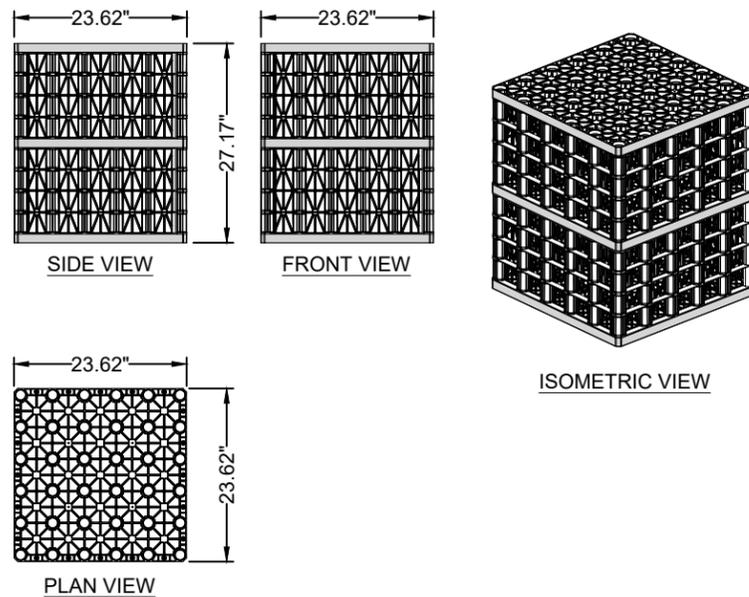
L_a MINIMUM LENGTH OF APRON: 6'

APPENDIX F

R-TANK DETAILS AND SPECIFICATIONS



DOUBLE R-TANK^{UD} - ELEVATION



MODULE DATA

GEOMETRY:
 LENGTH = 23.62 IN. (600 MM)
 WIDTH = 23.62 IN. (600 MM)
 HEIGHT = 27.17 IN. (690 MM)
 TANK VOLUME = 8.77 CF
 STORAGE VOLUME = 8.33 CF
 VOID INTERNAL VOLUME: 95%
 VOID SURFACE AREA: 90%

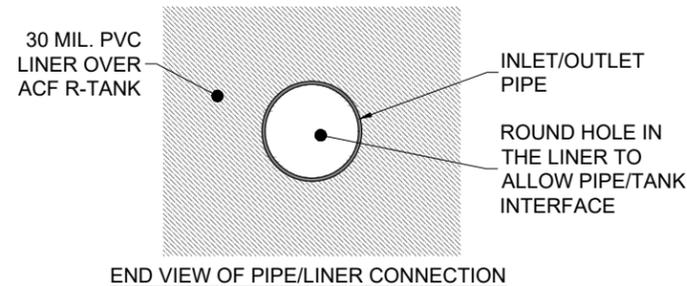
LOAD RATING:
 134.2 PSI, (MODULE ONLY)
 HS20, (WITH ACF COVER SYSTEM)

MATERIAL:
 100% RECYCLED POLYPROPYLENE

DOUBLE R-TANK^{UD} - MODULE DETAIL

R-TANK ^{UD} QUANTITIES	
R-TANK ^{UD} MODULE TYPE	DOUBLE
# OF DOUBLE R-TANKS	204
R-TANK STORAGE VOLUME	1,700 CF
STONE BED FOOTPRINT	1,035 SF
STONE QUANTITY	68 CY
30 MIL. PVC LINER TANK WRAP	2,118 SF (235 SY)
8 OZ. NON-WOVEN GEOTEXTILE LINER PROTECTION	4,236 SF (471 SY)
ACF BX-12 GEOGRID	1680 SF (187 SY)
10" MAINTENANCE PORTS	1
6" PIPE BOOTS	2
NOTE: STONE QUANTITY INCLUDES 6" OF COVER AND 3" OF BASE.	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	

CUT A ROUND HOLE IN THE LINER ENVELOPE AND GEOTEXTILE PROTECTION FABRIC THAT IS SLIGHTLY LARGER THAN THE PIPE.

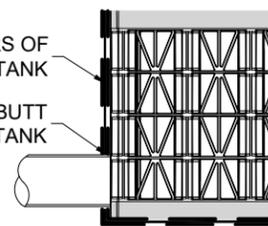


IMPERMEABLE LINER BETWEEN TWO LAYERS OF NON-WOVEN GEOTEXTILE FABRIC OVER ACF R-TANK

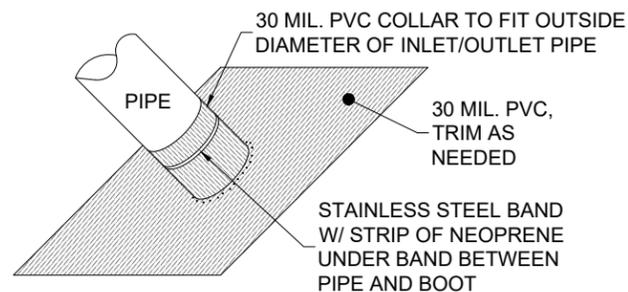
AFTER LINER IS CUT AND PIPE INSTALLED, SLIDE BOOT AGAINST TANK AND SECURE WITH STAINLESS STEEL BAND, THEN BOND BOOT TO TANK LINER AND SEAL END OF BOOT WITH SILICONE. REPLACE ANY GEOTEXTILE PROTECTION FABRIC REMOVED DURING BOOT INSTALLATION PROCESS.

NOTE: PIPE MUST BUTT DIRECTLY AGAINST R-TANK

SIDE VIEW OF PIPE/LINER CONNECTION

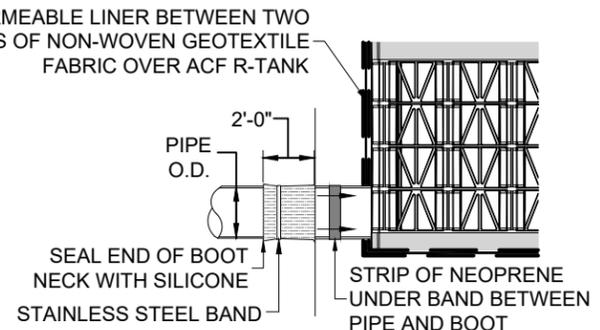


IMPERMEABLE LINER BETWEEN TWO LAYERS OF NON-WOVEN GEOTEXTILE FABRIC OVER ACF R-TANK



FRONT VIEW OF 30 MIL. PVC BOOT

R-TANK^{HD} TYPICAL TANK INLET/OUTLET W/ 30 MIL PVC PIPE BOOT DETAIL



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT:
 ACF ENVIRONMENTAL 1-800-448-3636
 www.acfenvironmental.com



R-TANK^{UD} SYSTEM DETAILS
 RESIDENTIAL DEVELOPMENT
 MAMARONECK, NY
 SITE DESIGNATION: UGDS

ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

DRAWN BY

JPS

DATE

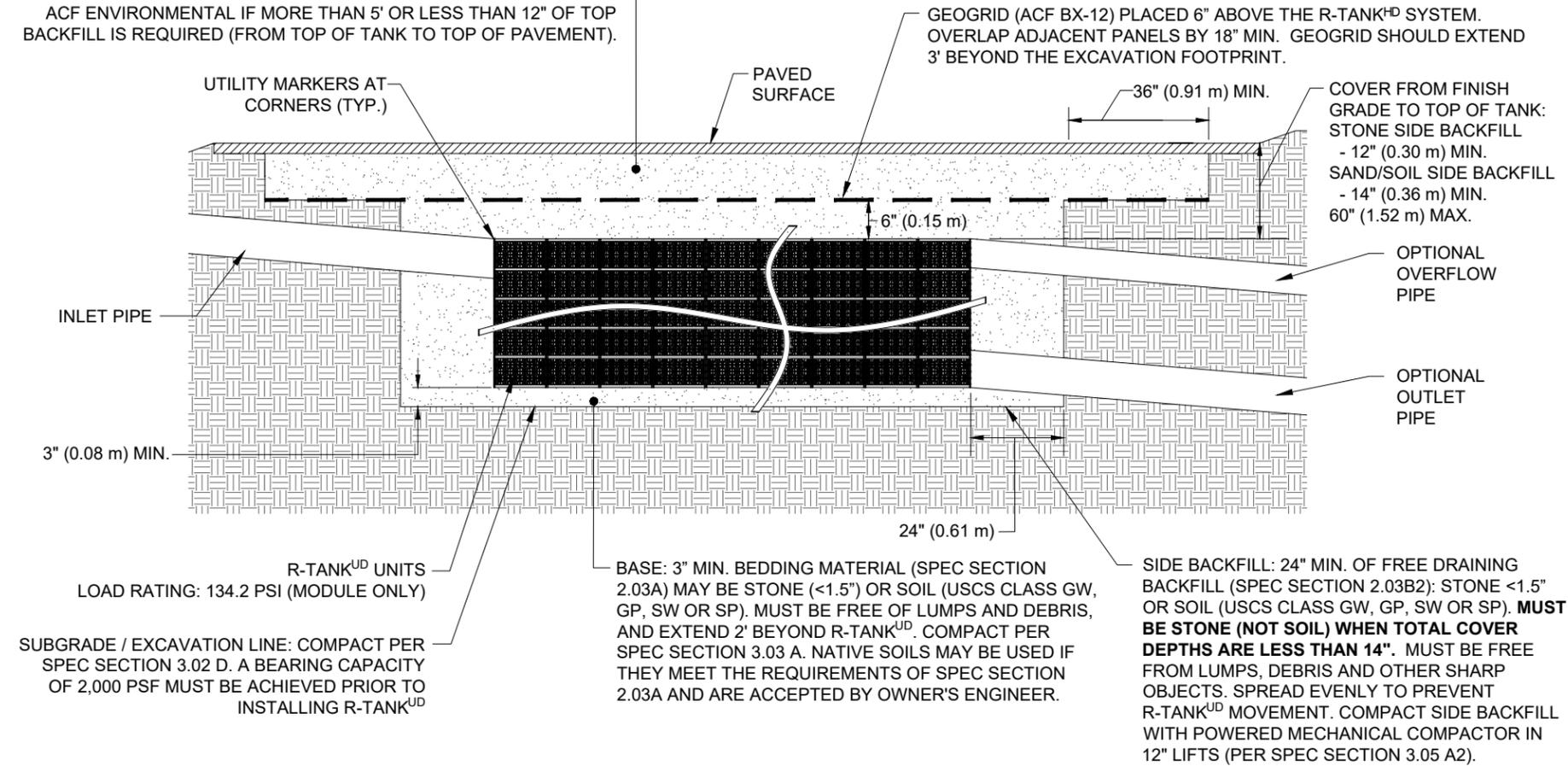
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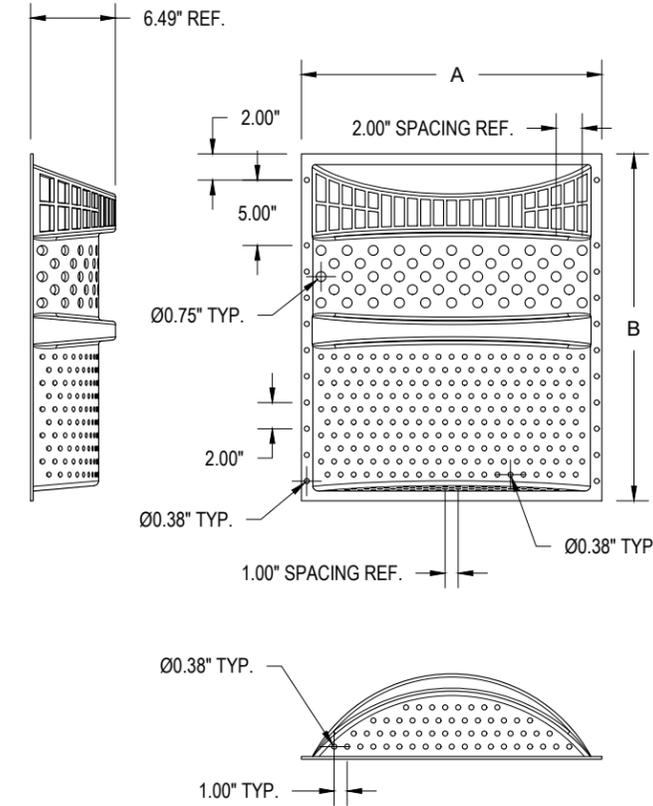
TOTAL COVER: 12"(STONE)/14"(SAND/SOIL) MINIMUM AND 60" MAXIMUM. FIRST 12" (OR FROM TOP OF MODULE TO BOTTOM OF PAVEMENT SECTION WHEN MINIMUM COVER CONDITIONS APPLY) MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B2): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT <10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4. A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 5'. CONTACT ACF ENVIRONMENTAL IF MORE THAN 5' OR LESS THAN 12" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:

- FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{UD} MODULE SHEET.
- INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
- PRE-TREATMENT STRUCTURES NOT SHOWN.
- FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{UD} FOOTPRINT.



R-TANK^{UD} & H-20 LOADS - SECTION VIEW



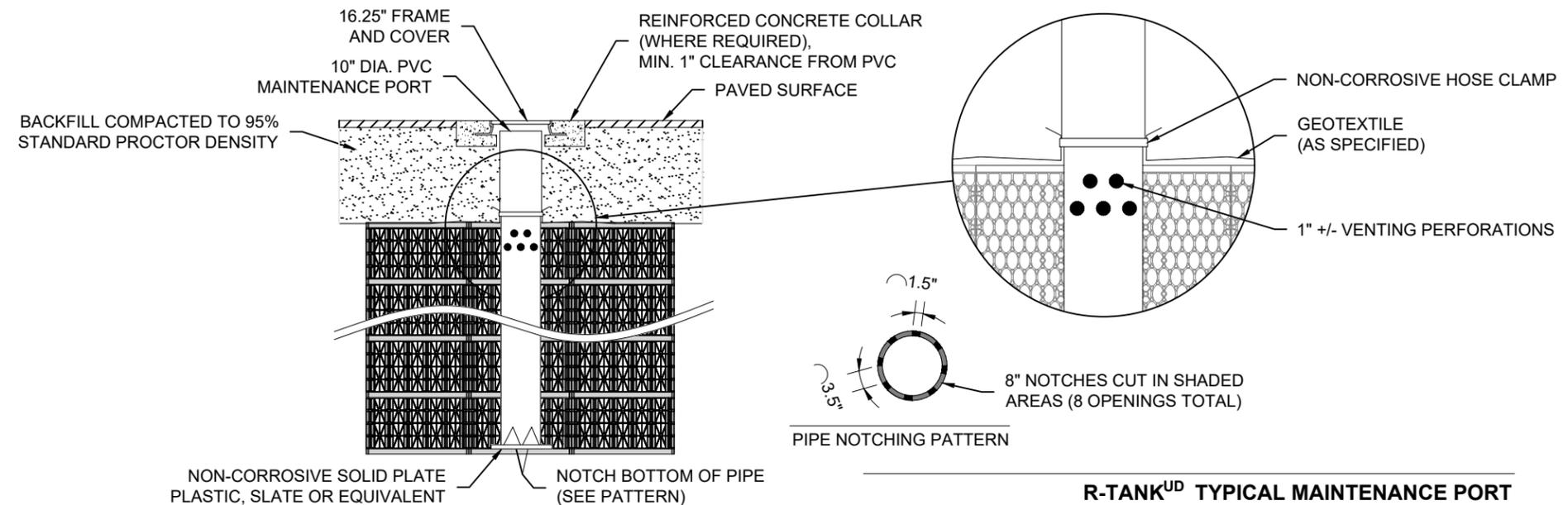
SIZE	A	B
23" x 24"	23"	26.51"
28" x 30"	28"	33.15"
34" x 36"	34"	38.69"

±0.25" TOLERANCE ON DIMENSIONS

TRASHGUARD PLUS PRETREATMENT DETAIL

NOTES

- THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
- MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
- SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
- IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK^{UD} TYPICAL MAINTENANCE PORT



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

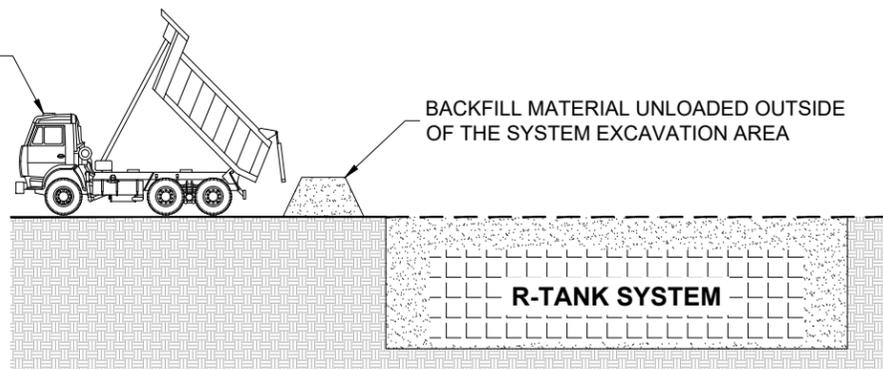
FOR ADDITIONAL INFORMATION PLEASE CONTACT:
ACF ENVIRONMENTAL 1-800-448-3636
www.acfenvironmental.com



R-TANK^{UD} SYSTEM DETAILS
RESIDENTIAL DEVELOPMENT
MAMARONECK, NY
SITE DESIGNATION: UGDS
ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

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DUMP TRUCKS AND PANS SHALL NOT OPERATE OVER THE SYSTEM EXCAVATION AREA

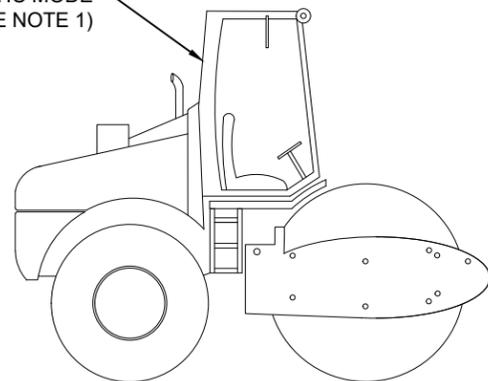


DUMP TRUCK DETAIL (SEE NOTE 3)

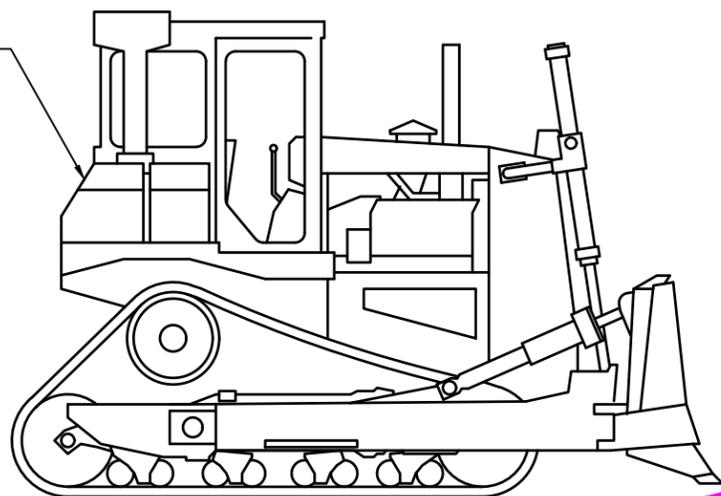
NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 B**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 B**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 C**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL ACF REPRESENTATIVE FOR ADDITIONAL INFORMATION.

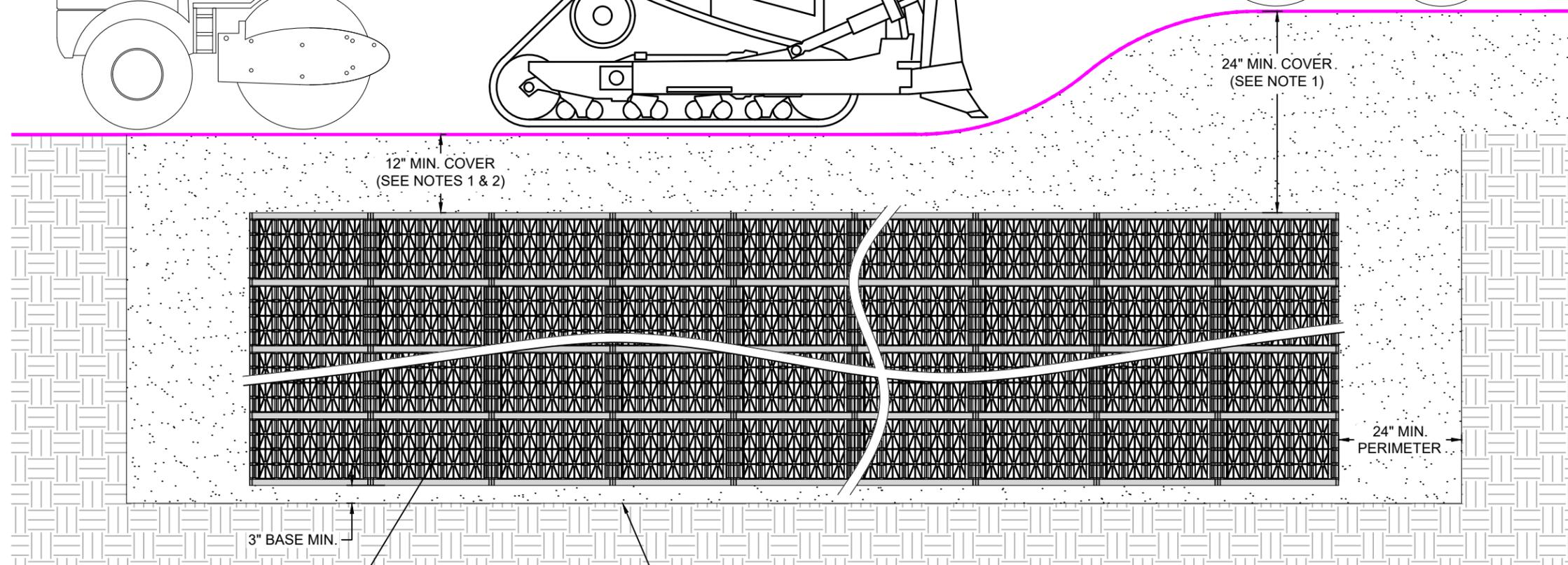
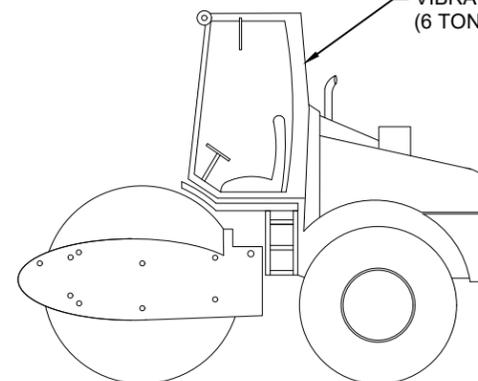
SMOOTH DRUM ROLLER STATIC MODE (6 TON MAX, SEE NOTE 1)



LOW GROUND PRESSURE DOZER (10 TON MAX, SEE NOTE 2)



SMOOTH DRUM ROLLER VIBRATORY MODE (6 TON MAX, SEE NOTE 1)



R-TANK^{UD} UNITS
LOAD RATING: 134.2 PSI (MODULE ONLY)

SUBGRADE / EXCAVATION LINE: COMPACT PER SPEC SECTION 3.02 D. A BEARING CAPACITY OF 2,000 PSF MUST BE ACHIEVED PRIOR TO INSTALLING R-TANK^{UD}



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT:
ACF ENVIRONMENTAL 1-800-448-3636
www.acfenvironmental.com



R-TANK^{UD} CONSTRUCTION EQUIPMENT COVER DETAIL
RESIDENTIAL DEVELOPMENT
MAMARONECK, NY
SITE DESIGNATION: UGDS
ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

DRAWN BY
JPS

DATE
08/25/20

SHEET NO.

R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 Description of Work Included

- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- B. Provide and install R-Tank^{LD}, R-Tank^{HD}, R-Tank^{SD}, or R-Tank^{UD} system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
- C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
- D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 Quality Control

- A. All materials shall be manufactured in ISO certified facilities.
- B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
 2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
- C. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
- C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 Submittals

- A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- B. Submit manufacturer's product data, including compressive strength and unit weight.
- C. Submit manufacturer's installation instructions.
- D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
- E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
- F. Submit required experience and personnel requirements as specified in Section 1.03.
- G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 Delivery, Storage, and Handling

- A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
- C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
 2. Do not use frozen materials or materials mixed or coated with ice or frost.
 3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 Preinstallation Conference.

- A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 Project Conditions

- A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
- B. Protect adjacent work from damage during R-Tank system installation.
- C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
- D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-Tank Units

- A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
- B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank ^{LD} VALUE	R-Tank ^{HD} VALUE	R-Tank ^{SD} VALUE	R-Tank ^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of void area available for infiltration	90%	90%	90%	90%
Compressive Strength	ASTM D 2412 / ASTM F 2416	50.0 psi	33.4 psi	42.9 psi	134.2 psi
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20	18	12
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24	19	15
Maximum Cover	Maximum allowable cover depth	3 feet	7 feet	10 feet	5 feet
Unit Weight	Weight of plate per cubic foot of tank	3.29 lbs/cf	3.02 lbs/cf	3.98 lbs/cf	4.33 lbs/cf
Rad Thickness	Thickness of load bearing members	0.18 inches	0.16 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	+4 - 187 F	+14 - 167 F	+14 - 137 F	+13 - 137 F

- C. Supplier: ACF Environmental 2831 Cardwell Road Richmond, VA 23234
(T): 800-448-3636; (F): 804-743-7779 www.acfenvironmental.com

2.02 Geosynthetics

- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
 2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
- B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-Tank^{UD} installations, and is often not required for non-traffic load applications.

2.03 Backfill & Cover Materials

- A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- B. Side and Top Backfill: Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system. Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
1. For LD, HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
 2. For UD modules in traffic loaded (HS-20) applications with less than 14" of top cover, side backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of > 14". Top backfill material may be stone or soil as noted above (Section 2.03 B 1).
- C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 Other Materials

- Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 Assembly of R-Tank Units

- A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 Layout and Excavation

- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
- B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
- C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
- D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
 2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
- E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
 2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
 3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 Preparation of Base

- A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within 1/2" (+/- 1/4") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
 2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
- B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 Installation of the R-Tanks

- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer.
- B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
 2. For UD installations, there is no perpendicular end row required.
- D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (buted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
- F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
- G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with 'U' bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 Backfilling of the R-Tank Units

- A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
 2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
 3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
 4. No compaction equipment is permissible to operate directly on the R-Tank modules.
 5. Top Backfill:
 - a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System.
 - b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.
 6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
 7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
 8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- B. Only low pressure tire or track vehicles shall be operated over the R-Tank system during construction. No machinery should drive on top of the tank until a minimum of 18" of backfill and compaction is achieved. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Where necessary the heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system with tracked equipment.
- C. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. No non-installation related loading should be allowed over the R-Tank system until the final design section has been constructed (including pavement).
- D. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
- E. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

PART 4 - USING THE SYSTEM

4.01 Maintenance Requirements

- A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- B. Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter. This is done by removing the cap of the port and using a measuring device long enough to reach the bottom of the R-Tank system and stiff enough to push through the loose sediments, allowing a depth measurement.
- C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed. A flushing event consists of pumping water into the Maintenance Port and/or adjacent structure, allowing the turbulent flows through the R-Tank system to re-suspend the fine sediments. If multiple Maintenance Ports have been installed, water should be pumped into each port to maximize flushing efficiency. Sediment-laden water can be filtered through a Dirlbag or approved equivalent if permitted by the locality.



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

FOR ADDITIONAL INFORMATION PLEASE CONTACT:
ACF ENVIRONMENTAL 1-800-448-3636
www.acfenvironmental.com



R-TANK SPECIFICATION
RESIDENTIAL DEVELOPMENT
MAMARONECK, NY
SITE DESIGNATION: UGDS

ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

DRAWN BY

JPS

DATE

08/25/20

SHEET NO.

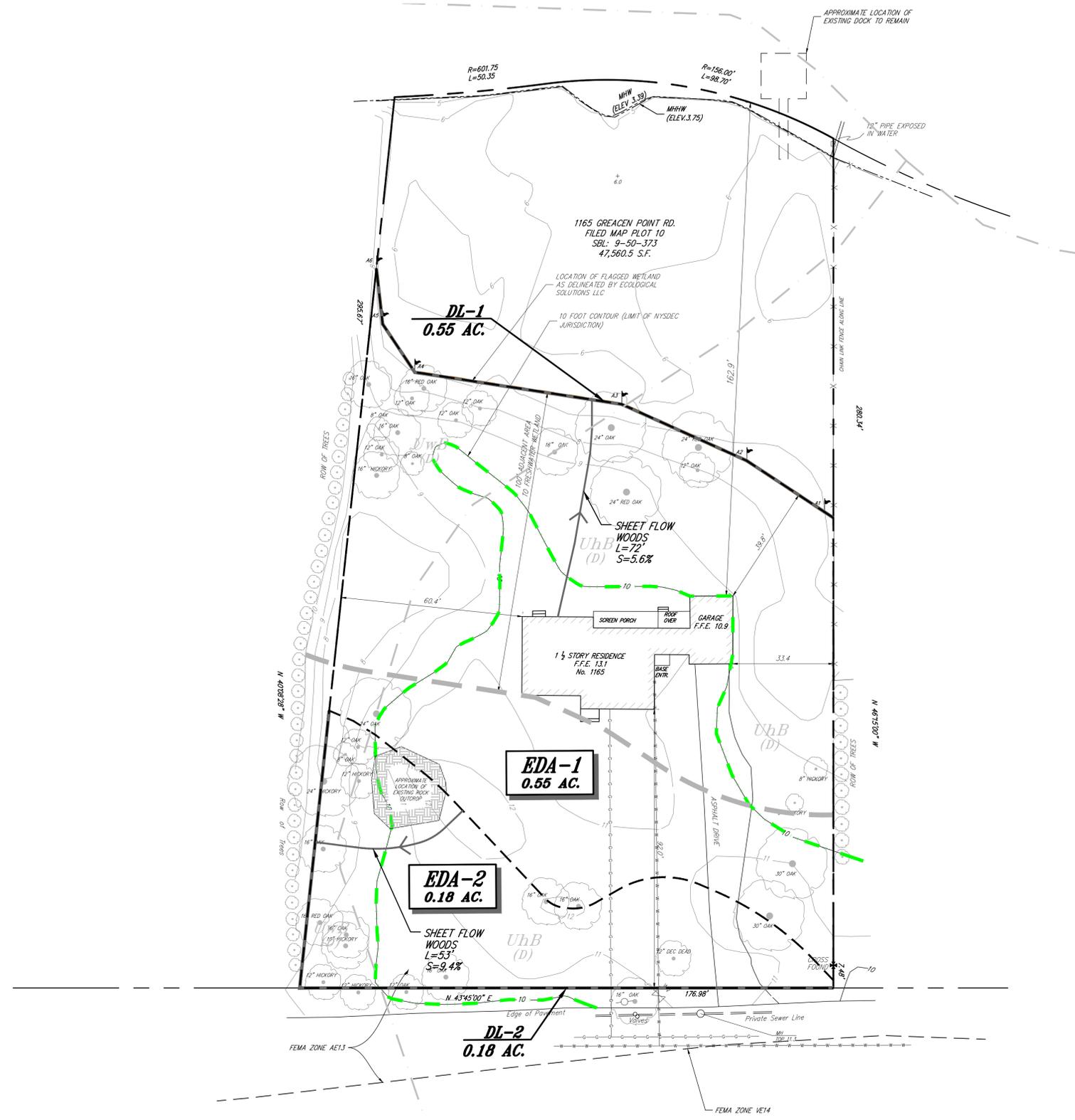
6 of 6

APPENDIX G

DRAWINGS

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LEGEND	
	EXISTING PROPERTY LINE
	ADJACENT PROPERTY LINE
	EXISTING EASEMENT LINE
	EXISTING BUILDING LINE
	EXISTING PAVEMENT EDGE
	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
	EXISTING FENCE
	EXISTING FLAGGED WETLAND LINE
	EXISTING TREE AND DESIGNATION
	10 FOOT CONTOUR FROM USGS MAPPING (NYSDEC LIMIT OF ADJACENT AREA)
	EXISTING WETLAND SETBACK
	EXISTING SANITARY LINE AND SIZE
	EXISTING WATER LINE
	EXISTING OVERHEAD WIRES
	EXISTING MANHOLE
	EXISTING WATER VALVE
	EXISTING DRAINAGE DIVIDE
	LIMIT OF SOIL GROUPS LINE
	DRAINAGE DESIGN ANALYSIS BOUNDARY
	SOIL DESIGNATION AND HYDROLOGIC SOIL GROUP
	BORING LOCATION AND DESIGNATION

- NOTES:**
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.
 - TEST PITS/BORING HOLES SHOWN ON THIS PLAN WERE CONDUCTED BY JMC, PLLC, ON 08/06/2020.
 - WETLANDS FLAGGED BY ECOLOGICAL SOLUTIONS L.L.C.
 - THE MEAN LOW WATER BOUNDARY IS BEYOND DRAWING LIMITS TOWARD THE DELANCEY COVE CHANNEL.
 - MEAN HIGH WATER: 3.39'

SOIL TYPE TABLE		
DESIGNATION	HYDROLOGIC GROUP	DESCRIPTION
UhB	D	URBAN LAND-CHARLTON COMPLEX, 3 TO 8 PERCENT SLOPES
UwB	D	URBAN LAND-WOODBRIDGE COMPLEX, 3 TO 8 PERCENT SLOPES

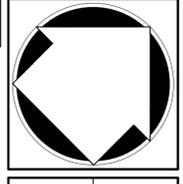
ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

No.	Revision	Date	By

Previous Editions Obsolete

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W 81ST STREET, APT. 9D
 NEW YORK, NY, 10024
 ARCHITECT:
ARCHI-TECTONICS
 111 JOHN ST. #700
 NEW YORK, NY 10038

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
 120 BEDFORD ROAD - ARMONK, NY 10504
 voice 914.273.5225 • fax 914.273.2102
 www.jmcpllc.com

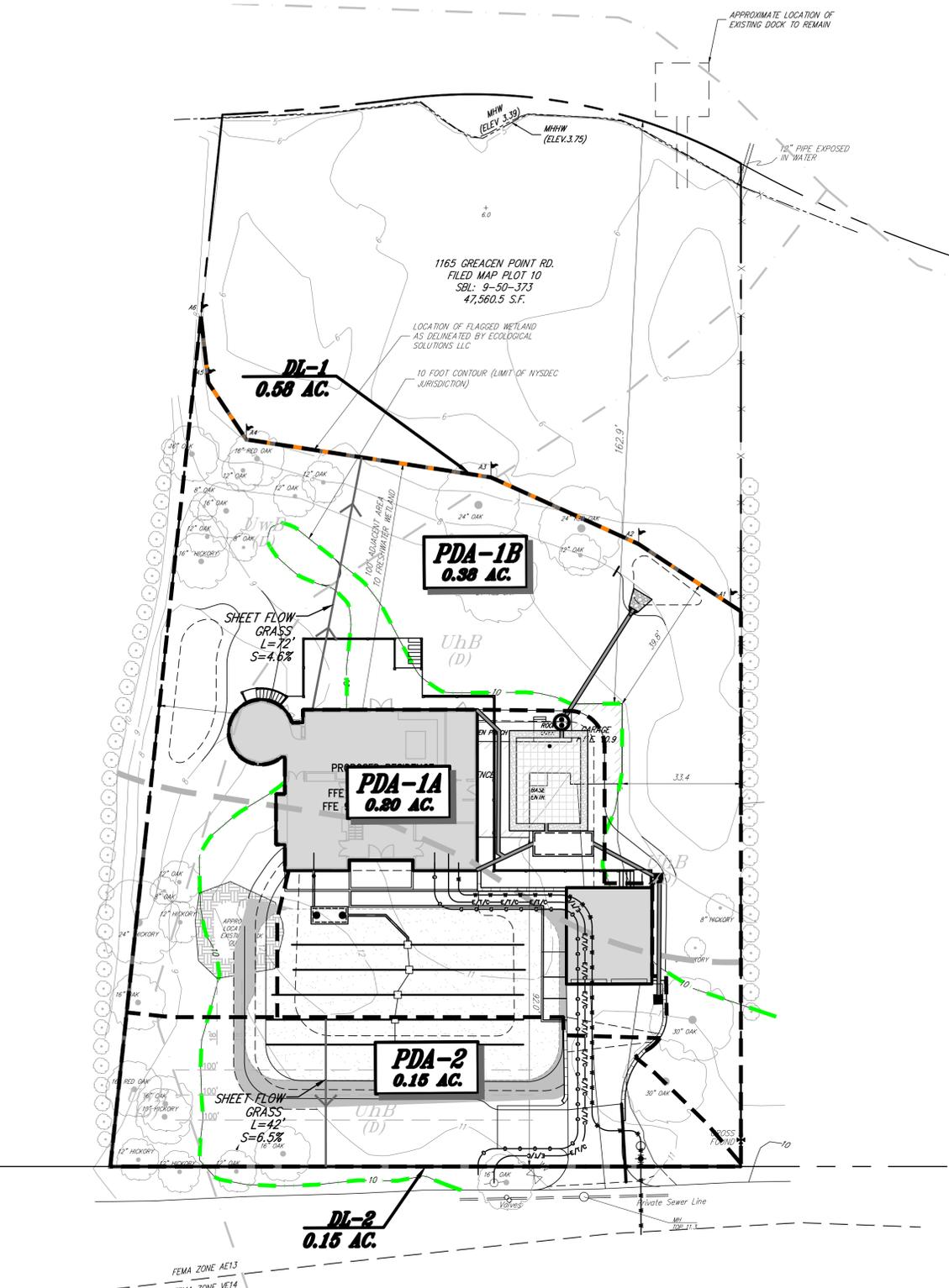


EXISTING DRAINAGE AREA MAP
 RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

Drawn: RAR Approved: JAR
 Scale: 1" = 20'
 Date: 06/08/2020
 Project No: 18100
 880-DRAINAGE-24 EDA EDA.scr
 Drawing No:
DA-1

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LEGEND	
	EXISTING PROPERTY LINE
	ADJACENT PROPERTY LINE
	EXISTING EASEMENT LINE
	EXISTING BUILDING OVERHANG
	EXISTING BUILDING LINE
	EXISTING PAVEMENT EDGE
	EXISTING INDEX CONTOUR
	EXISTING FENCE
	EXISTING MANHOLE
	EXISTING WATER VALVE
	EXISTING UTILITY POLE
	EXISTING SANITARY LINE
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING WETLAND LIMITS
	EXISTING WETLAND SETBACK
	USGS 10 FOOT CONTOUR (NYSDEC JURISDICTIONAL LINE)
	PROPOSED BUILDING LINE
	PROPOSED ASPHALT
	PROPOSED PAVER WALKWAY
	PROPOSED FINISHED GRADE
	PROPOSED SPOT GRADE
	PROPOSED RETAINING WALL (DESIGN BY OTHERS)
	PROPOSED CLEANOUT
	PROPOSED 1,500 GAL. SEPTIC TANK
	PROPOSED DRAINAGE DIVIDE
	LIMIT OF SOIL GROUPS LINE
	DRAINAGE DESIGN ANALYSIS BOUNDARY
	SOIL DESIGNATION AND HYDROLOGIC SOIL GROUP

NOTES:

- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.
- ALL STORMWATER MANAGEMENT PRACTICES SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.

SOIL TYPE TABLE		
DESIGNATION	HYDROLOGIC GROUP	DESCRIPTION
UhB	D	URBAN LAND-CHARLTON COMPLEX, 3 TO 8 PERCENT SLOPES
UwB	D	URBAN LAND-WOODBRIDGE COMPLEX, 3 TO 8 PERCENT SLOPES

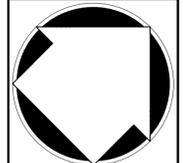
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No.	Revision	Date	By

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
219 W 81ST STREET, APT. 9D
NEW YORK, NY, 10024

ARCHITECT:
ARCHI-TECTONICS
111 JOHN ST. #700
NEW YORK, NY 10038

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
JMC Site Development Consultants, LLC
John Meyer Consulting, Inc.
120 BEDFORD ROAD - ARMONK, NY 10504
voice 914.273.5225 • fax 914.273.2102
www.jmcplic.com



PROPOSED DRAINAGE AREA MAP
RESIDENTIAL DEVELOPMENT
1165 GREACEN POINT ROAD
MAMARONECK, NY, 10543

Drawn: RAR Approved: JAR
Scale: 1" = 20'
Date: 06/08/2020
Project No: 18100
8800-DRAINAGE-24 PDA EDL.scr
Drawing No:
DA-2

Previous Editions Obsolete

SITE PLAN APPROVAL DRAWINGS

RESIDENTIAL DEVELOPMENT

TAX MAP SECTION 9 | BLOCK 50 | LOT 373
WESTCHESTER COUNTY
1165 GREACEN POINT ROAD
MAMARONECK, NY, 10543

Applicant/Owner:

MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W 81ST STREET, APT. 9D
 NEW YORK, NY, 10024

Architect:

ARCHI-TECTONICS
 111 JOHN ST #700
 NEW YORK, NY 10038
 (212)206-0920

Attorney:

CUDDY & FEDER LLP
 445 HAMILTON AVENUE, 14TH FLOOR
 WHITE PLAINS, NY 10601
 (914)761-1300

Surveyor:

SPINELLI SURVEYING
 650 HALSTEAD AVENUE
 MAMARONECK, NY 10543
 (914) 381-2357

JMC Site Planner, Civil & Traffic Engineer,
 Surveyor and Landscape Architect:
 120 BEDFORD ROAD
 ARMONK, NY 10504
 (914) 273-5225



JMC Drawing List:

- C-000 COVER SHEET
- C-010 EXISTING CONDITIONS MAP
- C-020 DEMOLITION & TREE REMOVAL PLAN
- C-100 LAYOUT PLAN
- C-200 GRADING PLAN
- C-300 UTILITIES PLAN
- C-400 EROSION & SEDIMENT CONTROL PLAN
- C-900 CONSTRUCTION DETAILS
- C-901 CONSTRUCTION DETAILS
- C-902 CONSTRUCTION DETAILS
- C-903 CONSTRUCTION DETAILS
- L-100 LANDSCAPING & WETLAND MITIGATION PLAN

TABLE OF LAND USE

SECTION 9, BLOCK 50, LOT 373 ZONE "R-20" - "ONE FAMILY RESIDENTIAL" PROPOSED USE: RESIDENTIAL FIRE DISTRICT: MAMARONECK VILLAGE FD WATER DISTRICT: WESTCHESTER JOINT WATER WORKS SCHOOL DISTRICT: MAMARONECK SEWER DISTRICT: PRIVATE ONSITE WASTEWATER TREATMENT SYSTEM			
DESCRIPTION	REQUIRED	EXISTING	PROPOSED
LOT AREA (FEET)	20,000 MINIMUM	47,560 S.F.	47,560 S.F.
LOT WIDTH (FEET)	100' MINIMUM	177'	177'
LOT FRONTOAGE (FEET)	100' MINIMUM	177'	177'
LOT DEPTH (FEET)	100' MINIMUM	280'	280'
BUILDING HEIGHT (STORIES/FEET)	2.5/35'	1.5/21'±	2.5/35'±
GROSS FLOOR AREA (SQUARE FEET)	-	-	-
LOT COVERAGE BY PRINCIPAL BUILDING (PERCENT)	35% MAXIMUM	3.4%	6.9%
OFF STREET PARKING SPACES (EACH)	2	2	3
YARDS			
FRONT YARD SETBACK (FEET)	25' MINIMUM	92'	90'
REAR YARD SETBACK (FEET)	30' MINIMUM	162.9'	149'
SIDE YARD SETBACK (FEET/TOTAL)	20' MIN/45' TOTAL	33.4'/93.8'	20.0'/45.0'
PARKING			
REAR/SIDE PARKING SETBACK (FEET)	5' MINIMUM	26.7±	5'
TOTAL PARKING (SPACES)	2 MINIMUM	1	3



ZONING / VICINITY MAP
 SCALE: N.T.S.

SOURCE: WESTCHESTER COUNTY GIS / 2016

LEGEND	
	SITE PROPERTY LINE
	ZONING BOUNDARY
MR	MARINE RECREATION
R-20	RESIDENTIAL ZONE

GENERAL CONSTRUCTION NOTES APPLY TO ALL WORK HEREIN:

- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CALL 811 "DIG SAFELY" (1-800-962-7962) TO HAVE UNDERGROUND UTILITIES LOCATED. EXPLORATORY EXCAVATIONS SHALL COMPLY WITH CODE 753 REQUIREMENTS. NO WORK SHALL COMMENCE UNTIL ALL THE OPERATORS HAVE NOTIFIED THE CONTRACTOR THAT THEIR UTILITIES HAVE BEEN LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL PUBLIC AND PRIVATE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION, INsofar AS THEY MAY BE ENDANGERED BY THE CONTRACTOR'S OPERATIONS. THIS SHALL HOLD TRUE WHETHER OR NOT THEY ARE SHOWN ON THE CONTRACT DRAWINGS. IF THEY ARE SHOWN ON THE DRAWINGS, THEIR LOCATIONS ARE NOT GUARANTEED EVEN THOUGH THE INFORMATION WAS OBTAINED FROM THE BEST AVAILABLE SOURCES, AND IN ANY EVENT, OTHER UTILITIES ON THESE PLANS MAY BE ENCOUNTERED IN THE FIELD. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, IMMEDIATELY REPAIR OR REPLACE ANY STRUCTURES OR UTILITIES THAT HE DAMAGES, AND SHALL CONSTANTLY PROCEED WITH CAUTION TO PREVENT UNDUE INTERRUPTION OF UTILITY SERVICE.
- CONTRACTOR SHALL HAND DIG TEST PITS TO VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL VERIFY EXISTING UTILITIES DEPTHS AND ADVISE OF ANY CONFLICTS WITH PROPOSED UTILITIES. IF CONFLICTS ARE PRESENT, THE OWNER'S REPRESENTATIVE, JMC, PLLC AND THE APPLICABLE MUNICIPALITY OR AGENCY SHALL BE NOTIFIED IN WRITING. THE EXISTING/PROPOSED UTILITIES RELOCATION SHALL BE DESIGNED BY JMC, PLLC.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL LOCAL PERMITS REQUIRED.
- ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES, STANDARDS, ORDINANCES, RULES, AND REGULATIONS. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL SAFETY CODES. APPLICABLE SAFETY CODES MEAN THE LATEST EDITION INCLUDING ANY AND ALL AMENDMENTS, REVISIONS, AND ADDITIONS THERE TO, TO THE FEDERAL DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION'S OCCUPATIONAL SAFETY AND HEALTH STANDARDS (OSHA), AND APPLICABLE SAFETY, HEALTH REGULATIONS AND BUILDING CODES FOR CONSTRUCTION IN THE STATE OF NEW YORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GUARDING AND PROTECTING ALL OPEN EXCAVATIONS IN ACCORDANCE WITH THE PROVISION OF SECTION 107-05 (SAFETY AND HEALTH REQUIREMENTS) OF THE NYSOT STANDARD SPECIFICATIONS. IF THE CONTRACTOR PERFORMS ANY HAZARDOUS CONSTRUCTION PRACTICES, ALL OPERATIONS IN THE AFFECTED AREA SHALL BE DISCONTINUED AND IMMEDIATE ACTION SHALL BE TAKEN TO CORRECT THE SITUATION TO THE SATISFACTION OF THE APPROVAL AUTHORITY HAVING JURISDICTION.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AFFECTED BY THE SCOPE OF WORK SHOWN HEREON AT ALL TIMES TO THE SATISFACTION OF THE OWNERS REPRESENTATIVE. RAMPING CONSTRUCTION TO PROVIDE ACCESS MAY BE CONSTRUCTED WITH SUBBASE MATERIAL EXCEPT THAT TEMPORARY ASPHALT CONCRETE SHALL BE PLACED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE PEDESTRIAN ACCESS AT ALL TIMES.
- CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF EXISTING PAVEMENT TO REMAIN.

AREA MAP
 SCALE: N.T.S.



SUBSURFACE UTILITY LOCATIONS ARE BASED ON A COMPILATION OF FIELD EVIDENCE. AVAILABLE RECORD PLANS AND/OR UTILITY MARK-OUTS. THE LOCATION OR COMPLETENESS OF UNDERGROUND INFORMATION CANNOT BE GUARANTEED. VERIFY THE ACTUAL LOCATION OF ALL UTILITIES PRIOR TO EXCAVATION OR CONSTRUCTION.

811 Know what's below.
 Call before you dig.

No.	Revision	Date	By
3.	UPDATED SURVEY	05/11/2020	RAR
4.	REVISED PER VILLAGE COMMENTS	06/08/2020	RAR
5.	RESUBMIT TO VILLAGE HCZMC	07/01/2020	RAR
6.	RESPOND TO TOWN COMMENTS	07/22/2020	RAR
7.	RESUBMIT TO VILLAGE HCZMC	09/02/2020	RAR
8.	RESUBMIT TO DEC	10/13/2020	RAR
9.	RESUBMIT TO HCZMC FOR CONSISTENCY REVIEW	10/30/2020	RAR

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JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
 120 BEDFORD ROAD • ARMONK, NY 10504
 voice 914.273.5225 • fax 914.273.2102
 www.jmcpllc.com

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 Scale: NOT TO SCALE
 Date: 07/24/2018
 Project No: 18100
 8000-01E C-000 COVER.sxd
 Drawing No: **C-000**

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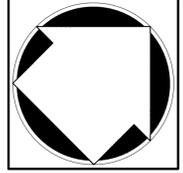


LEGEND	
	EXISTING PROPERTY LINE
	ADJACENT PROPERTY LINE
	EXISTING EASEMENT LINE
	EXISTING BUILDING LINE
	EXISTING PAVEMENT EDGE
	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
	EXISTING FENCE
	EXISTING FLAGGED WETLAND LINE
	EXISTING TREE AND DESIGNATION
	10 FOOT CONTOUR FROM USGS MAPPING (NYSDEC LIMIT OF ADJACENT AREA)
	EXISTING WETLAND SETBACK
	EXISTING SANITARY LINE AND SIZE
	EXISTING WATER LINE
	EXISTING OVERHEAD WIRES
	EXISTING MANHOLE
	EXISTING WATER VALVE
	EXISTING UTILITY POLE
	BORING LOCATION AND DESIGNATION

- NOTES:**
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.
 - TEST PITS/BORING HOLES SHOWN ON THIS PLAN WERE CONDUCTED BY JMC, PLLC, ON 08/06/2020.
 - WETLANDS FLAGGED BY ECOLOGICAL SOLUTIONS L.L.C.
 - THE MEAN LOW WATER BOUNDARY IS BEYOND DRAWING LIMITS TOWARD THE DELANCEY COVE CHANNEL.
 - MEAN HIGH WATER: 3.39'
MEAN HIGHER HIGH WATER: 3.75'
MEAN LOW WATER: -3.90'
MEAN LOWER LOW WATER: -4.14'

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W 81ST STREET, APT. 9D
 NEW YORK, NY, 10024
 ARCHITECT:
ARCHI-TECTONICS
 111 JOHN ST. #700
 NEW YORK, NY 10038

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
 120 BEDFORD ROAD - ARMONK, NY 10504
 voice 914.273.5225 - fax 914.273.2102
 www.jmcpllc.com



EXISTING CONDITIONS MAP
 RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

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Project No: 18100	
HWG-GE	C-010
EXIST	EXST
Drawing No:	C-010

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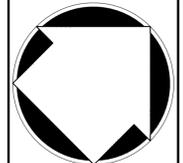
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- THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES TO BE DEMOLISHED AND EXISTING UTILITIES TO BE PROTECTED. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR AND JMC PRIOR TO THE START OF CONSTRUCTION.
- PRIOR TO THE START OF ANY DEMOLITION THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND/OR APPROVALS FROM THE VILLAGE OF MAMARONECK AND ALL OTHER AUTHORITIES HAVING JURISDICTION. CONTRACTOR SHALL PAY ALL OUTSTANDING FEES, CHARGES, AND DEPOSITS TO ACQUIRE SAID PERMITS. NO DEMOLITION SHALL COMMENCE UNTIL A PERMIT HAS BEEN OBTAINED FROM THE VILLAGE.
- THE CONTRACTOR SHALL COORDINATE THE DISCONNECTION OF ALL UTILITIES WITH THE UTILITY COMPANY HAVING JURISDICTION PRIOR TO THE START OF DEMOLITION. CONFIRMATION OF DISCONNECTED UTILITIES SHALL BE PROVIDED TO THE VILLAGE OF MAMARONECK BUILDING DEPARTMENT IN ACCORDANCE WITH THEIR REQUIREMENTS. LETTERS FROM THE APPROPRIATE UTILITIES STATING THAT GAS AND ELECTRIC HAVE BEEN CUT OFF SHALL BE PROVIDED TO THE TOWN.
- ANY UNSUITABLE MATERIAL FOUND ON-SITE DURING DEMOLITION/CONSTRUCTION, AS DETERMINED BY THE PROJECT'S GEOTECHNICAL ENGINEER, SHALL BE PROPERLY DISPOSED OF OFF-SITE IN A MANNER APPROVED BY ALL AUTHORITIES HAVING JURISDICTION AND REPLACED WITH SUITABLE MATERIAL AS REQUIRED.
- ANY UNSUITABLE MATERIAL FOUND ON-SITE DURING CONSTRUCTION SHALL BE DISPOSED OF OFF-SITE IN A MANNER APPROVED BY ALL AUTHORITIES HAVING JURISDICTION AND REPLACED WITH SUITABLE MATERIAL AS REQUIRED. ALL REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL SHALL BE COMPLETED UNDER THE DIRECT SUPERVISION OF A GEOTECHNICAL ENGINEER.
- ALL DEMOLITION AND/OR CONSTRUCTION WITHIN THE RIGHT-OF-WAY, INCLUDING STREETS AND SIDEWALKS, SHALL BE PERFORMED IN ACCORDANCE WITH THE TOWN.
- ALL CONSTRUCTION/DEMOLITION DEBRIS NOT PROPOSED TO BE RECYCLED SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE IN ACCORDANCE WITH THE REGULATIONS OF ALL LOCAL, STATE AND FEDERAL AGENCIES HAVING JURISDICTION.
- EXISTING CONCRETE MAY BE STORED ON SITE, AND RECYCLED FOR USE AS COMPACTED FILL. ALL MATERIAL TO BE USED AS FILL SHALL BE APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER.
- PRIOR TO THE START OF SITE DEMOLITION, EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THIS PLAN, AS REQUIRED AND/OR DIRECTED BY THE VILLAGE OF MAMARONECK OR JMC.
- EXISTING DRAINAGE PATTERNS ON SITE SHALL BE MAINTAINED TO THE MAXIMUM EXTENT PRACTICABLE.
- ALL EXISTING SIDEWALKS, CURBS, PAVEMENT, ETC. TO REMAIN, WHICH ARE DISTURBED OR DAMAGED DUE TO THE NEW CONSTRUCTION, ARE TO BE REPLACED WITH MATERIALS CONSISTENT WITH EXISTING CONDITIONS.
- THESE PLANS ARE TO BE PROVIDED TO BOTH THE DEMOLITION CONTRACTOR AND THE SITE CONTRACTOR FOR THEIR USE, INFORMATION AND COORDINATION. ANY QUESTIONS OF CONTRACTOR RESPONSIBILITY AND/OR SEPARATION OF WORK SHALL BE DIRECTED TO THE GENERAL CONTRACTOR IN WRITING PRIOR TO ISSUANCE OF BID.
- THE OWNER SHALL RETAIN A LICENSED AND QUALIFIED PROFESSIONAL, CERTIFIED BY THE TOWN, TO INSPECT FOR THE PRESENCE OF ASBESTOS AND/OR OTHER HAZARDOUS MATERIALS WITHIN DEMOLITION AREAS PRIOR TO THE COMMENCEMENT OF DEMOLITION. IF REMEDIATION IS REQUIRED, THE OWNER SHALL DO SO IN ACCORDANCE WITH THE COUNTY ASBESTOS RULES AND REGULATIONS AND/OR ANY AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED DOCUMENTATION TO THE TOWN PRIOR TO OBTAINING A DEMOLITION PERMIT.
- PRIOR TO COMMENCEMENT OF DEMOLITION, THE CONTRACTOR MUST PROVIDE 24-HOUR NOTIFICATION TO THE TOWN.

LEGEND	
	EXISTING PROPERTY LINE
	ADJACENT PROPERTY LINE
	EXISTING EASEMENT LINE
	EXISTING BUILDING LINE
	EXISTING PAVEMENT EDGE
	EXISTING CURB LINE
	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
	EXISTING FENCE
	EXISTING TREE AND DESIGNATION
	EXISTING TREE TO BE REMOVED
	EXISTING WETLAND SETBACK
	EXISTING STORM DRAIN LINE AND SIZE
	EXISTING SANITARY LINE AND SIZE
	EXISTING WATER LINE
	EXISTING OVERHEAD WIRES
	EXISTING MANHOLE
	EXISTING WATER VALVE
	EXISTING UTILITY POLE
	EXISTING FEATURE TO BE REMOVED

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W 81ST STREET, APT. 9D
 NEW YORK, NY, 10024

ARCHITECT:
ARCHI-TECTONICS
 111 JOHN ST. #700
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 120 BEDFORD ROAD - ARMONK, NY 10504
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DEMOLITION AND TREE REMOVAL PLAN
RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

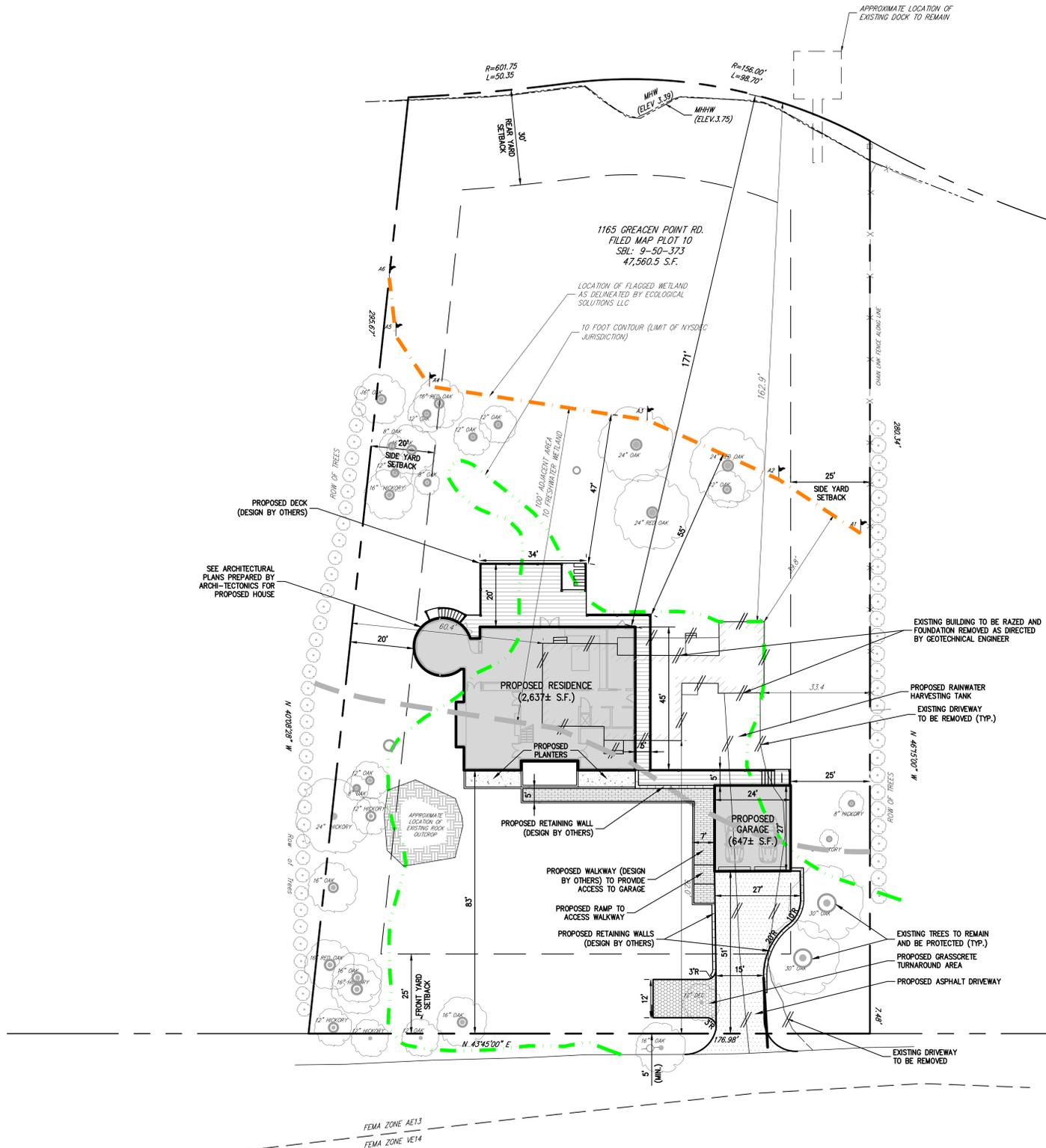
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LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING SETBACK LINE
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION
- EXISTING WATER LINE
- EXISTING UTILITY POLE
- EXISTING WETLAND LIMITS
- EXISTING WETLAND SETBACK
- USGS 10 FOOT CONTOUR (NYSDEC JURISDICTIONAL LINE)
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED BUILDING LINE
- PROPOSED SAWCUT LINE
- PROPOSED CONCRETE SIDEWALK
- PROPOSED EDGE OF PAVEMENT
- PROPOSED PAVEMENT HATCH
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- PROPOSED FENCE

NOTES:

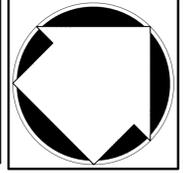
1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.

LOT COVERAGES			
WETLAND BUFFER		EXISTING	PROPOSED
TOTAL WETLAND BUFFER COVERAGE	(S.F./PERCENT)	2,455±/5.2	2,455±/5.2
LOT COVERAGE (PRINCIPAL BUILDING)	(S.F./PERCENT)	1,597±/3.4	2,027±/4.3
LOT COVERAGE (GARAGE)	(S.F./PERCENT)	-	351±/0.7
LOT COVERAGE (SIDEWALK)	(S.F./PERCENT)	232±/0.05	63±/0.1
LOT COVERAGE (DRIVEWAY)	(S.F./PERCENT)	626±/1.3	-
LOT COVERAGE (WALLS)	(S.F./PERCENT)	-	14±/0.02
OVERALL SITE		EXISTING	PROPOSED
OVERALL LOT COVERAGE	(S.F./PERCENT)	3,149±/6.6	5,059±/10.6
LOT COVERAGE (PRINCIPAL BUILDING)	(S.F./PERCENT)	1,597±/3.4	2,637±/5.5
LOT COVERAGE (GARAGE)	(S.F./PERCENT)	-	647±/1.4
LOT COVERAGE (SIDEWALK)	(S.F./PERCENT)	234±/0.05	677±/1.4
LOT COVERAGE (DRIVEWAY)	(S.F./PERCENT)	1,318±/2.8	1,000±/2.1
LOT COVERAGE (WALLS)	(S.F./PERCENT)	-	98±/0.2

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W 81ST STREET, APT. 9D
 NEW YORK, NY, 10024

ARCHITECT:
ARCHI-TECTONICS
 111 JOHN ST. #700
 NEW YORK, NY 10038

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LAYOUT PLAN
 RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
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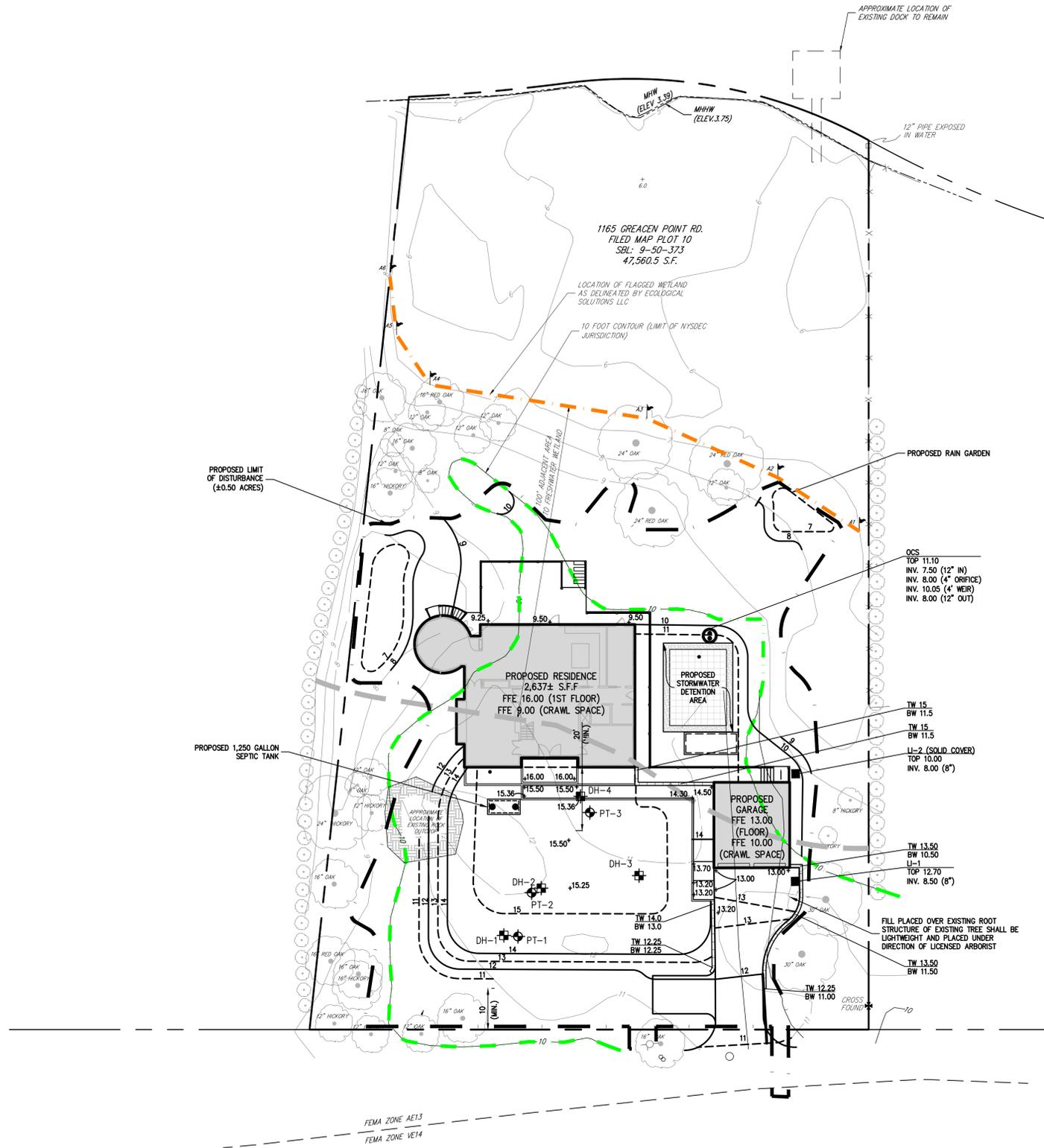
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(PROPOSED GRADE) TW 4+
 4" BW (PROPOSED GRADE)

RETAINING WALL SPOT GRADE LEGEND

TOTAL FILL REQUIRED FOR SITE (CUBIC YARDS)

RUN OF BANK FILL (SEPTIC AREA)	530
IMPERVIOUS CLAY FILL (SEPTIC AREA)	150
GENERAL CUT	377
SUPPORTIVE FILL	117
TOTAL NET FILL	420

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING EASEMENT LINE
- EXISTING BUILDING OVERHANG
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING INDEX CONTOUR
- EXISTING INDEX CONTOUR
- X-X EXISTING FENCE
- EXISTING MANHOLE
- WV EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- EXISTING GAS LINE
- EXISTING WETLAND LIMITS
- EXISTING WETLAND SETBACK
- USGS 10 FOOT CONTOUR (NYSDEC JURISDICTIONAL LINE)
- PROPOSED BUILDING LINE
- PROPOSED ASPHALT
- PROPOSED PAVER WALKWAY
- PROPOSED FINISHED GRADE
- PROPOSED SPOT GRADE
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- PROPOSED CLEANOUT
- PROPOSED 1,500 GAL. SEPTIC TANK

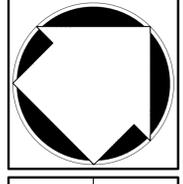
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- ALL FILLS SHALL BE COMPACTED TO PROVIDE STABILITY OF MATERIAL AND TO PREVENT SETTLEMENT.
- EXCAVATIONS AND FILLS SHALL NOT ENDANGER ADJOINING PROPERTIES, NOR DIVERT WATER ONTO THE PROPERTY OF OTHERS AT ANY TIME DURING THE COURSE OF CONSTRUCTION.
- CONTRACTOR SHALL REFER TO EROSION AND SEDIMENT CONTROL PLAN FOR FURTHER DIRECTION REGARDING SITE STABILIZATION THROUGHOUT THE COURSE OF CONSTRUCTION.
- UNLESS OTHERWISE SPECIFIED, PIPE FOR WATER LINES SHALL TYPE "K" COPPER TUBE IN ACCORDANCE WITH ASTM B-88.
- ELECTRIC, TELEPHONE, AND CABLE TELEVISION LINES SHALL BE INSTALLED UNDERGROUND IN CONDUIT IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY HAVING JURISDICTION.

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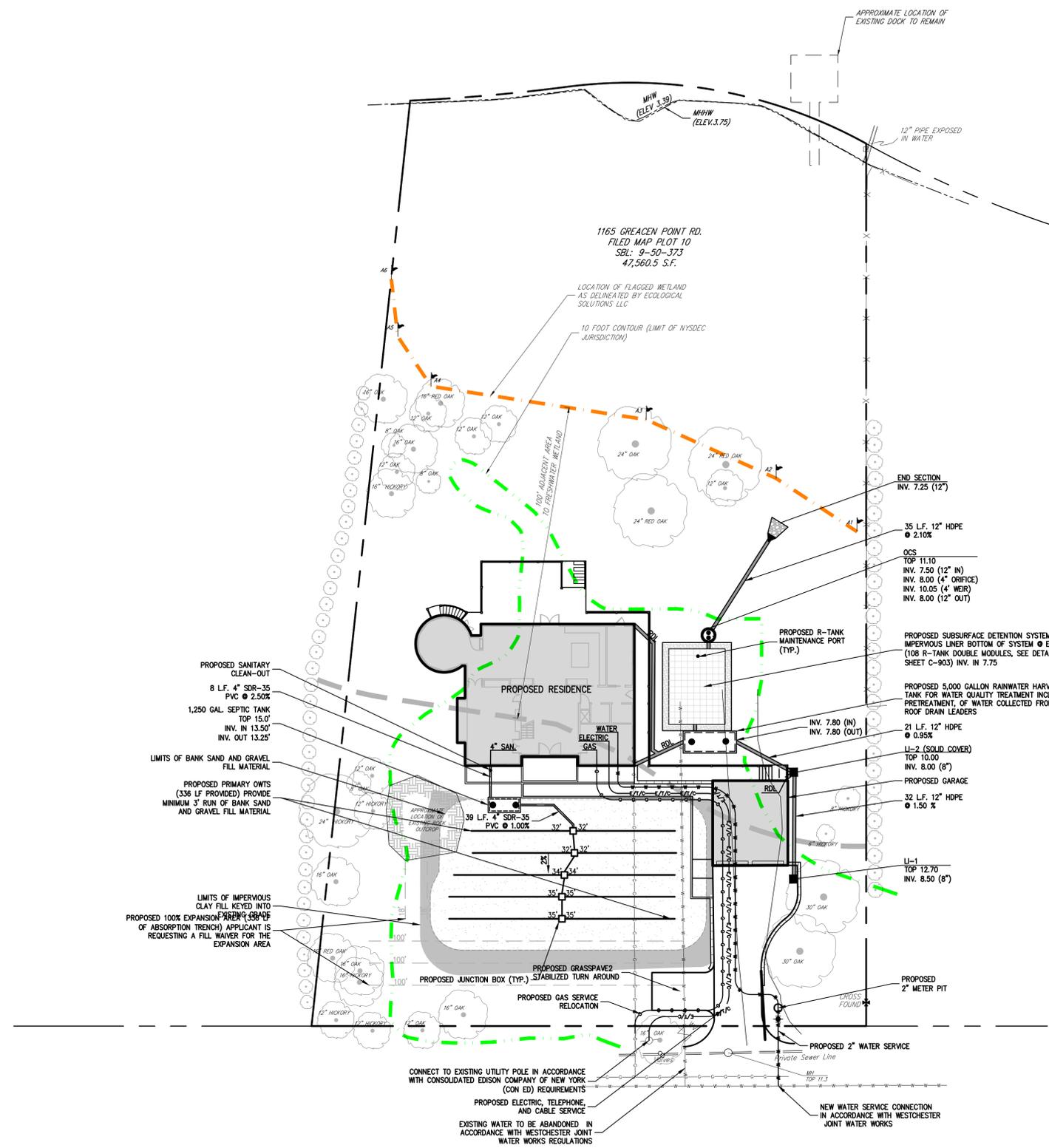
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1.	RESUBMIT TO HZCMC FOR CONSISTENCY REVIEW	10/30/2020	RAR

Drawn: RAR Approved: JAR
 Scale: 1" = 20'
 Date: 10/13/2020
 Project No: 18100
 HWG-SE C-200 GR40.scr
 Drawing No: **C-200**

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LEGEND	
	EXISTING PROPERTY LINE
	ADJACENT PROPERTY LINE
	EXISTING EASEMENT LINE
	EXISTING BUILDING LINE
	EXISTING PAVEMENT EDGE
	EXISTING CURB LINE
	EXISTING INDEX CONTOUR
	EXISTING FENCE
	EXISTING SANITARY LINE
	EXISTING WATER LINE
	EXISTING GAS LINE
	EXISTING WETLAND LIMITS
	EXISTING WETLAND SETBACK
	USGS 10 FOOT CONTOUR (NYSDEC JURISDICTIONAL LINE)
	EXISTING MANHOLE
	EXISTING WATER VALVE
	EXISTING UTILITY POLE
	PROPOSED BUILDING LINE
	PROPOSED ASPHALT
	PROPOSED PAVER WALKWAY
	PROPOSED CLEANOUT
	PROPOSED WATER LINE
	PROPOSED WATER VALVE
	PROPOSED 2" SCH. 40 PVC FORCE MAIN
	PRIMARY OWTS FIELD WITH DISTRIBUTION BOX
	EXPANSION FIELD
	PROPOSED RETAINING WALL (DESIGN BY OTHERS)
	PROPOSED UTILITY POLE
	PROPOSED 1,500 GAL. SEPTIC TANK

- NOTES**
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "SURVEY DWG TITLE," PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.
 - ALL STORMWATER MANAGEMENT PRACTICES SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY TRAFFIC DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.
 - UNLESS OTHERWISE SPECIFIED, PIPE FOR WATER LINES SHALL BE COPPER TYPE "K", MANUFACTURED IN ACCORDANCE WITH ASTM B-88.
 - ELECTRIC, TELEPHONE, AND CABLE TELEVISION LINES SHALL BE INSTALLED UNDERGROUND IN CONDUIT IN ACCORDANCE WITH THE REQUIREMENTS OF THE UTILITY COMPANY HAVING JURISDICTION.

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W. 81ST STREET, APT. 9D
 NEW YORK, NY, 10024

ARCHITECT:
ARCHI-TECTONICS
 111 JOHN ST. #700
 NEW YORK, NY 10038

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
 120 BEDFORD ROAD - ARMONK, NY 10504
 voice: 914.273.5225 - fax: 914.273.2102
 www.jmcplic.com



UTILITIES PLAN
 RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

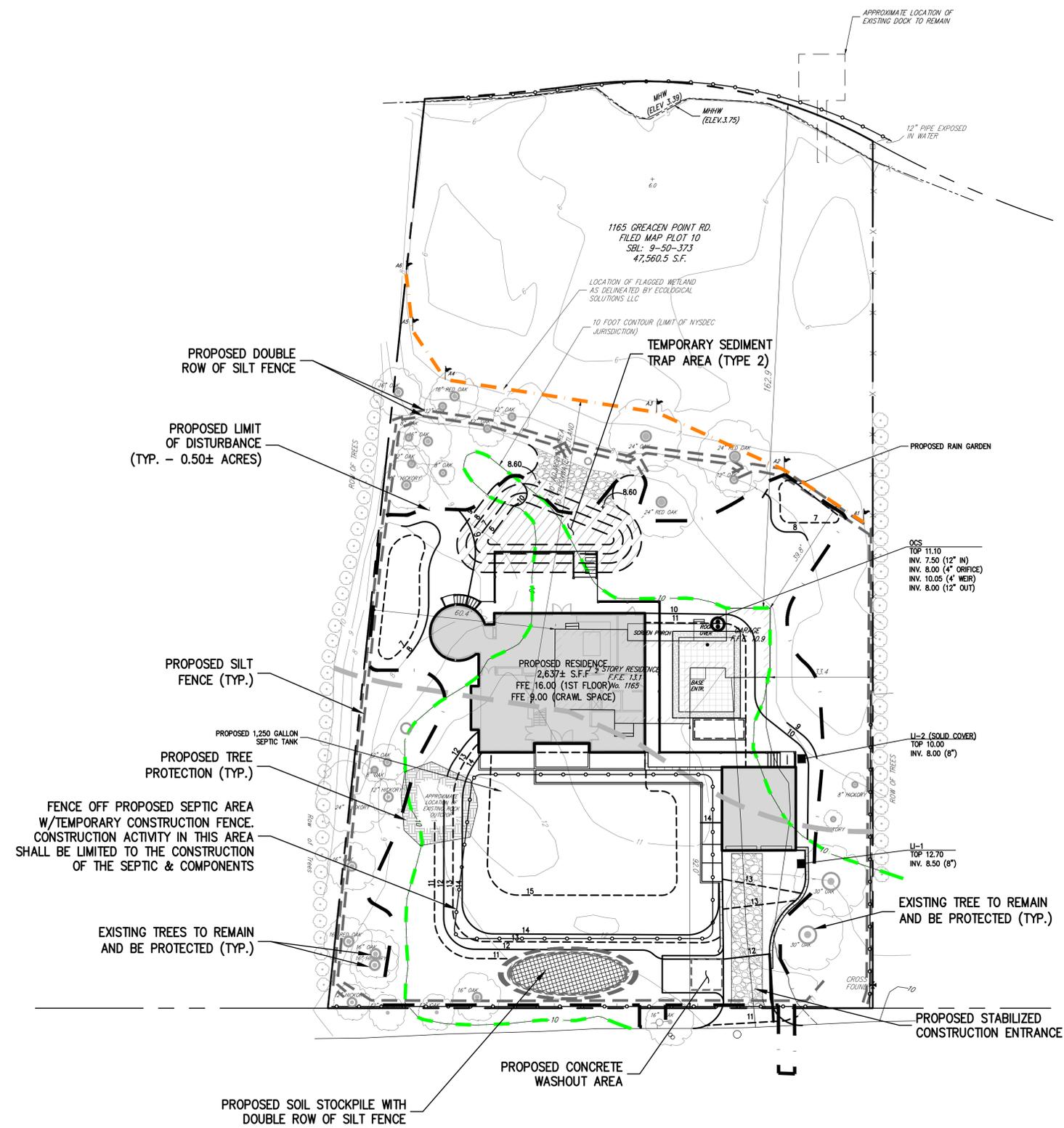
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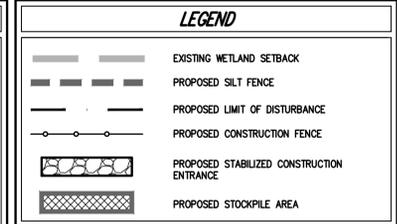
Drawn:	RAR	Approved:	JAR
Scale:	1" = 20'	Date:	10/13/2020
Project No.:	18100	Sheet:	C-300
Drawn By:			
C-300			

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- ### SEQUENCE OF CONSTRUCTION
- CONSTRUCTION SHALL BE SEQUENCED IN SUCH A MANNER THAT ANY AREA WHICH IS DISTURBED SHALL FIRST BE PROTECTED WITH SEDIMENT EROSION CONTROLS AS INDICATED ON THIS PLAN. PARTICULAR REQUIREMENTS ARE GIVEN AS FOLLOWS:
- DEMOLITION OF EXISTING BUILDINGS AS REQUIRED.
 - INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES AS INDICATED ON THIS PLAN.
 - CLEAR UNDEVELOPED PORTION OF PROPERTY WHICH IS TO BE DEVELOPED.
 - STRIP AND STOCKPILE TOPSOIL.
 - BEGIN BUILDING AND PARKING LOT CONSTRUCTION, ROUGH GRADING.
 - INSTALL STORM DRAIN SYSTEM COMPLETE (IMMEDIATELY INSTALL HAYBALE FILTERS ON ALL INLETS).
 - INSTALL PUBLIC UTILITIES (GAS, ELECTRIC AND TELEPHONE) AS REQUIRED.
 - INSTALL CONCRETE AND ASPHALT CONCRETE PAVEMENT COMPLETE.
 - FINISH GRADING, REDISTRIBUTE TOPSOIL AND ESTABLISH VEGETATION AND/OR LANDSCAPING.
 - CLEAN PAVEMENTS AND STORM DRAIN SYSTEM OF ALL ACCUMULATED SEDIMENT IN CONJUNCTION WITH THE REMOVAL OF ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES.
 - COMPLETE SITE AND BUILDING CONSTRUCTION.



- ### NOTES:
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.
 - THIS PLAN IS FOR TEMPORARY EROSION AND SEDIMENT CONTROL INFORMATION ONLY.
 - PRIOR TO BEGINNING ANY CLEARING, GRUBBING OR EXCAVATION, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH ALL THE PLANS AND SPECIFICATIONS. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL THE SITE IS STABILIZED. FINAL STABILIZATION OF LANDSCAPED AREAS SHALL BE IN ACCORDANCE WITH THE LANDSCAPE PLAN.
 - THE CONTRACTOR SHALL INSPECT AND MAINTAIN ON-SITE EROSION AND SEDIMENT CONTROL MEASURES ON A DAILY BASIS. ALL COLLECTED SEDIMENT WITHIN SEDIMENT BARRIERS SHALL BE REMOVED PERIODICALLY AS REQUIRED TO MAINTAIN THE FUNCTION OF THE SEDIMENT BARRIERS. ALL SEDIMENT COLLECTED SHALL BE RESPAWN ON-SITE WITHIN STABILIZED AREAS AS DIRECTED BY THE OWNERS REPRESENTATIVE.
 - THE CONTRACTOR SHALL INSPECT DOWNSTREAM CONDITIONS FOR EVIDENCE OF SEDIMENTATION ON A WEEKLY BASIS. AFTER EACH RAINFALL, AND AS MAY BE REQUIRED OR DIRECTED BY ALL APPLICABLE APPROVALS AND PERMITS, THE CONTRACTOR SHALL IMMEDIATELY PROVIDE A WRITTEN REPORT ON FINDINGS OF SEDIMENT IN DOWNSTREAM AREAS TO ALL AUTHORITIES HAVING JURISDICTION AND MAKE REPAIRS AS REQUIRED OR DIRECTED.
 - ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED BY THE CONTRACTOR AS REQUIRED/WARRANTED BY FIELD CONDITIONS AND AS DIRECTED BY THE OWNERS REPRESENTATIVE, JMC, AND/OR ANY AUTHORITY HAVING JURISDICTION.
 - STOCKPILING OF CONSTRUCTION MATERIAL SHALL BE PLACED ON-SITE IN THE AREA DESIGNATED ON THIS PLAN OR AS APPROVED BY THE OWNERS REPRESENTATIVE. STOCKPILED EXCAVATED MATERIAL SHALL HAVE TWO ROWS OF SILT FENCE LOCATED AROUND ITS PERIMETER. ALL STOCKPILED MATERIAL SHALL BE MAINTAINED IN AN ORDERLY MANNER SO AS NOT TO IMPEDE ON PEDESTRIAN AND/OR VEHICULAR TRAFFIC CIRCULATION ROUTES.
 - DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE OWNERS REPRESENTATIVE.
 - ALL STORMWATER MANAGEMENT PRACTICES SHALL REMAIN UNDISTURBED AND BE PROTECTED FROM HEAVY MACHINERY TRAFFIC DURING CONSTRUCTION. HOWEVER DURING CONSTRUCTION OF THE PRACTICE THE CONTRACTOR SHALL MINIMIZE AND AVOID HEAVY MACHINERY TRAFFIC TO THE MAXIMUM EXTENT PRACTICABLE. THERE SHALL BE NO STORAGE OF MATERIALS WITHIN AREAS TO BE USED FOR STORMWATER MANAGEMENT PRACTICES. THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCE AROUND THE PRACTICE TO DISCOURAGE VEHICLE TRAFFIC.
 - ALL EXPOSED SLOPES AND GRADED/DISTURBED AREAS, THAT WILL NOT BE FURTHER DISTURBED WITHIN 14 CALENDAR DAYS (7 DAYS FOR CONSTRUCTION SITES THAT EITHER DIRECTLY DISCHARGE TO ONE OF THE 303(a) WATERSHEDS LISTED IN APPENDIX E OF THE GENERAL PERMIT OR ARE LOCATED WITHIN ONE OF THE WATERSHEDS LISTED IN APPENDIX C OF THE GENERAL PERMIT), SHALL BE TEMPORARILY SEEDED WITHIN 24 HOURS OF DISTURBANCE, IN ACCORDANCE WITH THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) "EROSION AND SEDIMENT CONTROL GUIDELINES" AND THE ANSI A300 "BEST MANAGEMENT PRACTICES FOR TREE AND SHRUB PLANTING, TRANSPLANTING, MAINTENANCE AND CARE," PREPARED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA), LATEST EDITIONS, AS FOLLOWS:
 - SEED MIXTURE AND RATE OF APPLICATION:
 - IN SPRING, SUMMER OR EARLY FALL, SEED THE AREA WITH RYEGRASS (ANNUAL OR PERENNIAL) AT 30 POUNDS PER ACRE (APPROXIMATELY 0.7 POUNDS/1000 SQUARE FEET OR USE 1 POUND/1000 SQUARE FEET).
 - IN LATE FALL OR EARLY WINTER, SEED THE AREA WITH CERTIFIED 'AROSTOOK' WINTER RYE (CEREAL RYE) AT 100 POUNDS PER ACRE (2.5 POUNDS/1000 SQUARE FEET).
 - APPLICATION SHALL BE UNIFORM BY MECHANICAL OR HYDROSEED METHODS.
 - MULCH ALL SEEDED AREAS WITH STRAW AT A RATE OF 2 TONS PER ACRE (90 POUNDS PER 1,000 SQUARE FEET) SUCH THAT THE MULCH FORMS A CONTINUOUS BLANKET.
 - ALL SEEDED AREAS SHALL BE FERTILIZED, RESEED, AND MULCHED AS NECESSARY TO MAINTAIN VIGOROUS, DENSE VEGETATIVE COVER.
 - TEMPORARY SEED MIXTURES SHALL NOT BE PLACED ON AREAS WHERE FINAL GRADE HAS BEEN ESTABLISHED AND TOPSOIL HAS BEEN PLACED UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE ARCHITECT.

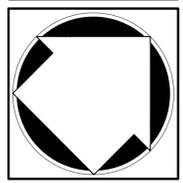
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5.	RESUBMIT TO VILLAGE HCZMC	07/01/2020	RAR
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7.	RESUBMIT TO VILLAGE HCZMC	09/02/2020	RAR
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9.	RESUBMIT TO HZCFC FOR CONSISTENCY REVIEW	10/30/2020	RAR

APPLICANT/OWNER:
MR. WILLIAM FEDYNA & ELISABETH FEDYNA
 219 W. 81ST STREET, APT. 9D
 NEW YORK, NY, 10024

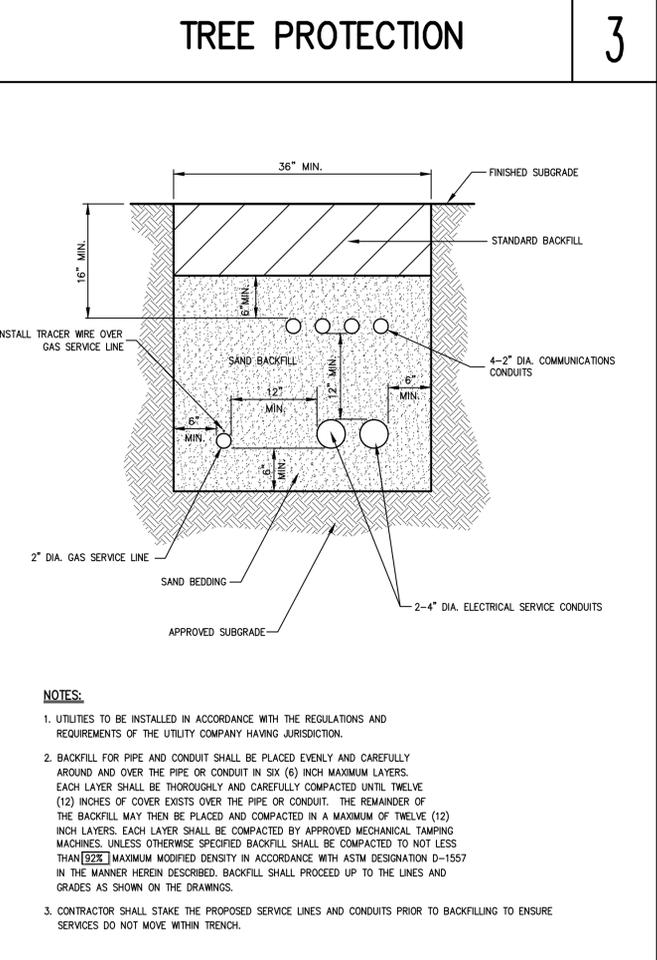
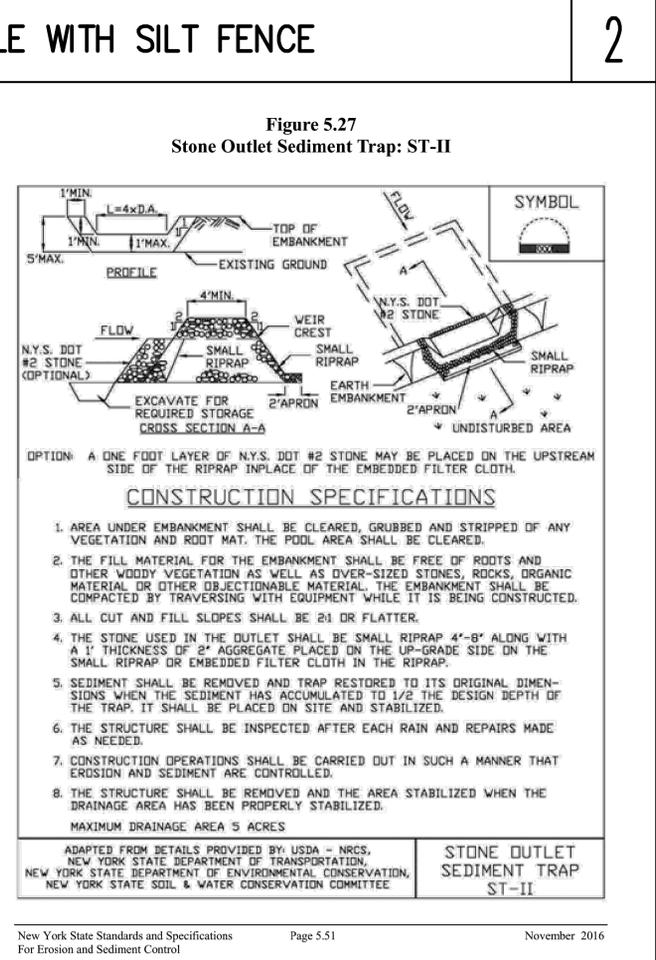
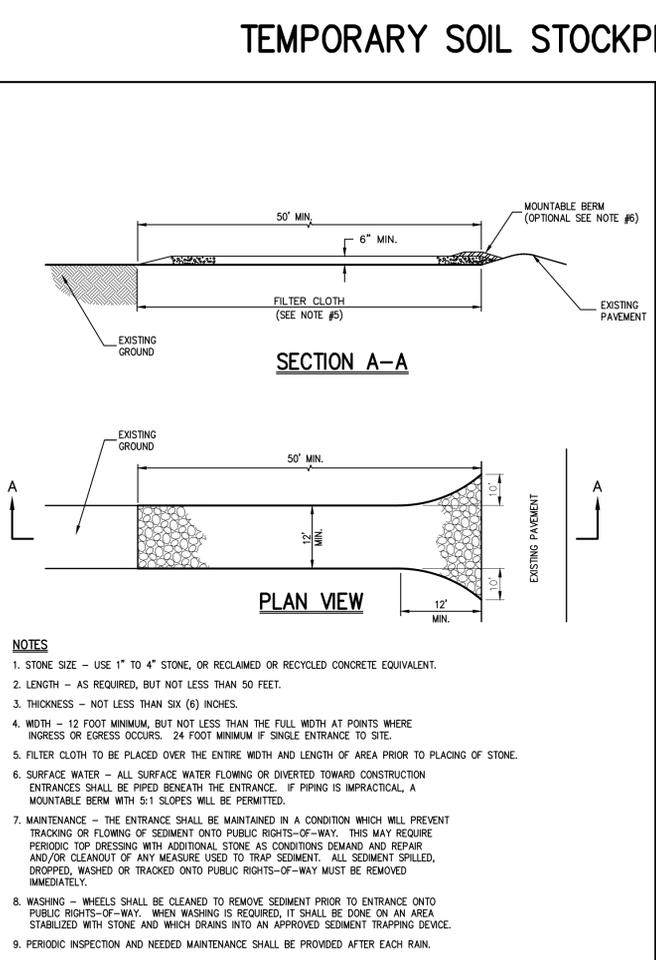
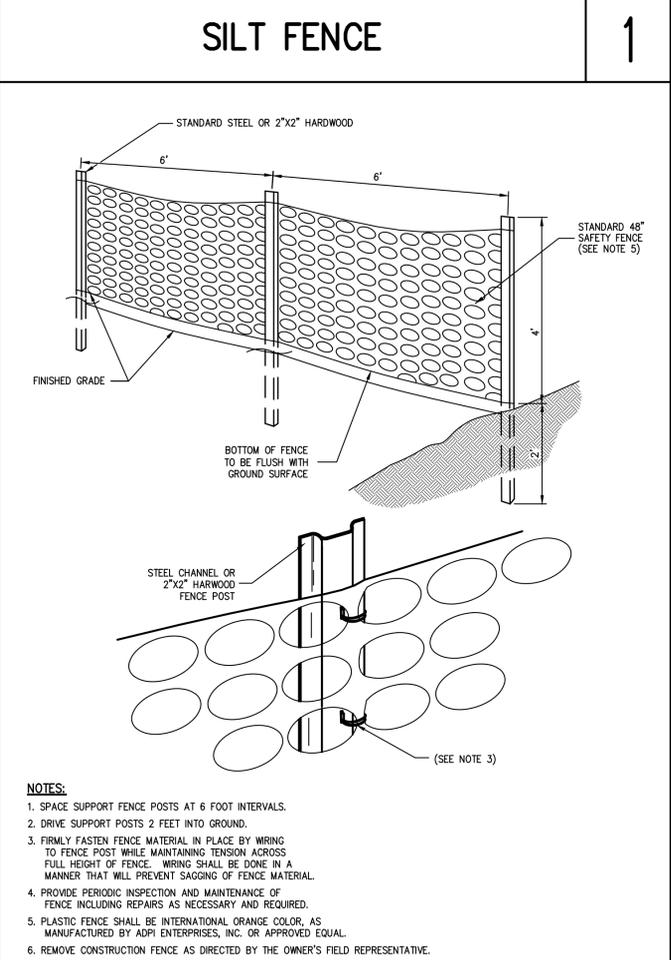
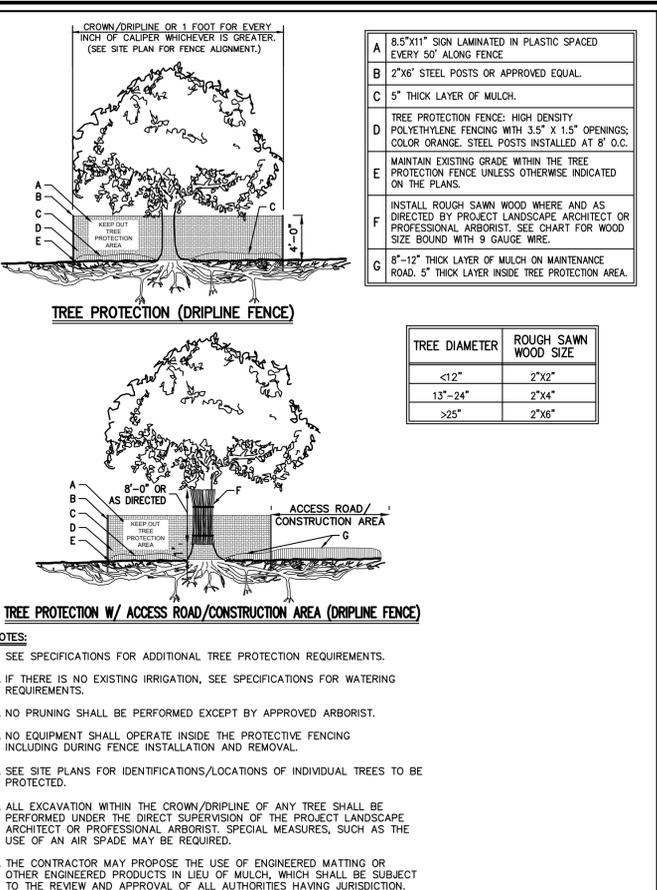
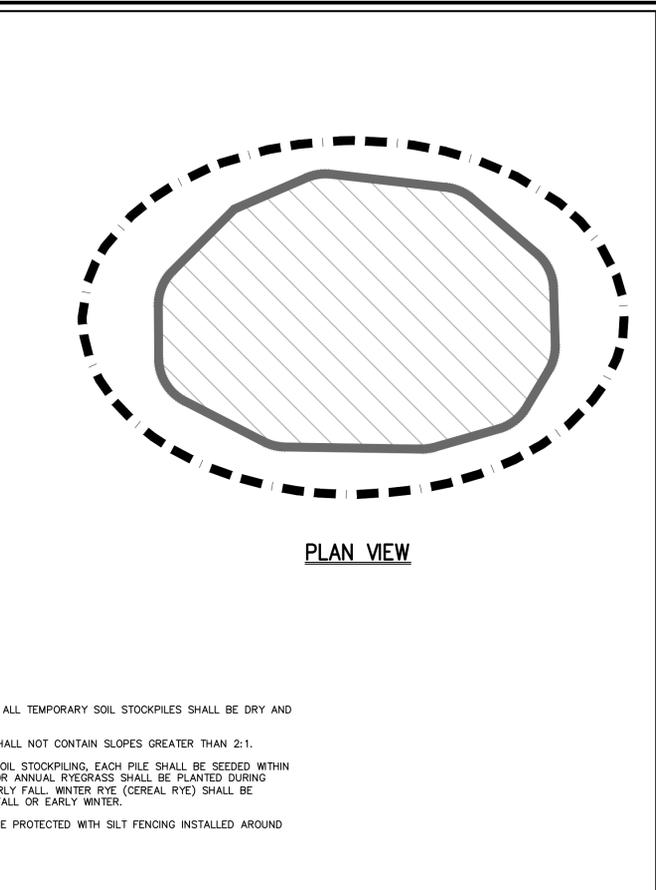
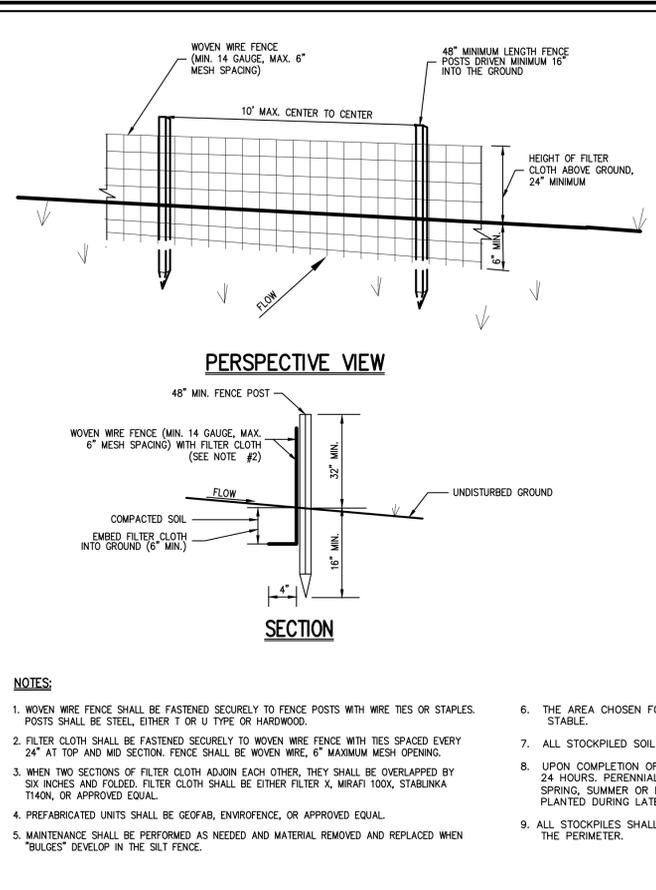
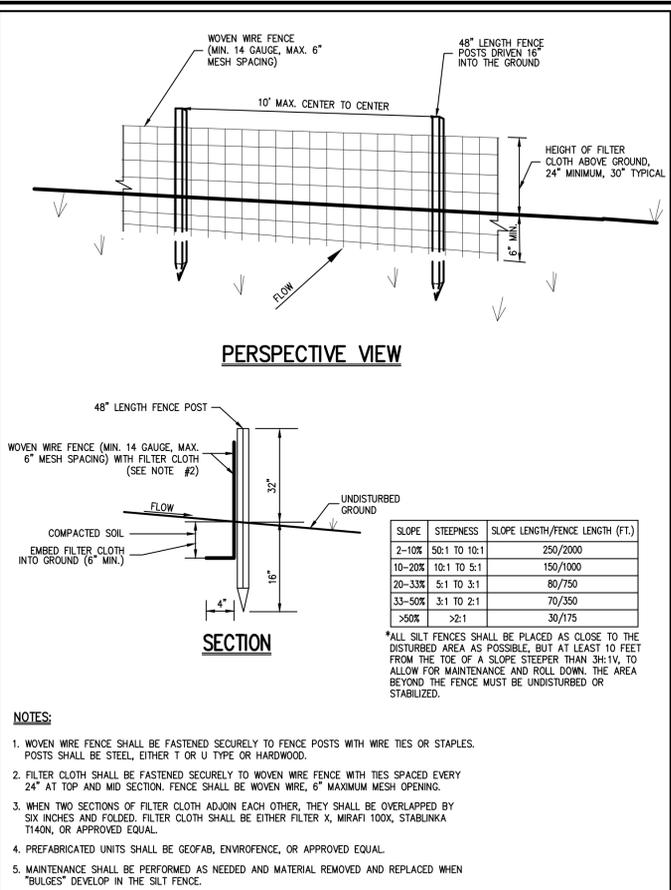
ARCHITECT:
ARCHI-TECTONICS
 111 JOHN ST. #700
 NEW YORK, NY 10038

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
 120 BEDFORD ROAD - ARMONK, NY 10504
 voice 914.273.5225 - fax 914.273.2102
 www.jmcplic.com



EROSION & SEDIMENT CONTROL PLAN
RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

Drawn: RAR Approved: JAR
 Scale: 1" = 20'
 Date: 07/24/2018
 Project No: 18100
 HW-SE C-400 SE.scx
 Drawing No: **C-400**



CONSTRUCTION FENCE 4

STABILIZED CONSTRUCTION ENTRANCE 5

TEMPORARY SEDIMENT TRAP STONE OUTLET (TYPE II) 6

UTILITY TRENCH DETAIL 7

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Engineering, Landscaping, Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
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 voice 914.273.5225 • fax 914.273.2102
 www.jmcplic.com

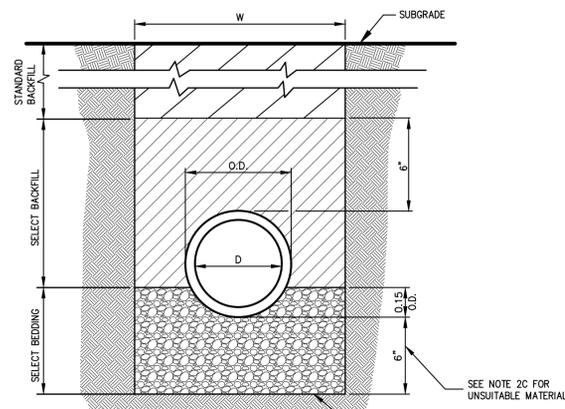
CONSTRUCTION DETAILS

RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

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 Date: 07/24/2018
 Project No: 18100
 1800-DETAILS C-900
 Drawing No: C-900

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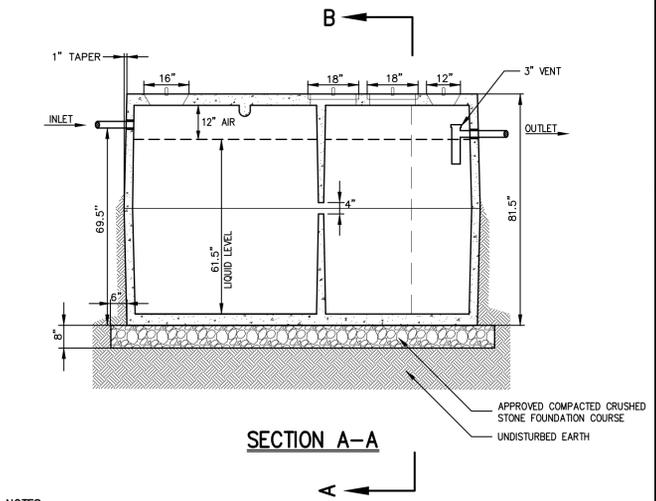
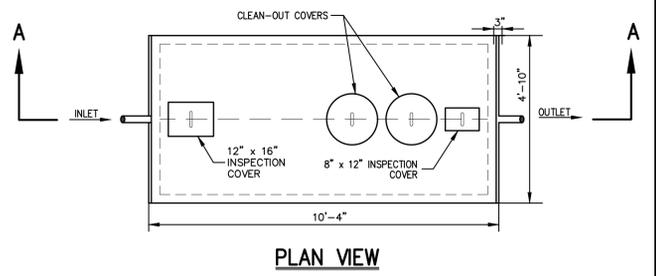


NOTES:

- FOR TYPE II TRENCH, MATERIAL FOR SELECT BEDDING AND SELECT BACKFILL SHALL BE:
 - EITHER SAND OR CRUSHED STONE IF NO WATER IS ENCOUNTERED IN TRENCH.
 - 3/4" CRUSHED STONE IF WATER IS ENCOUNTERED IN TRENCH.
- TYPE II TRENCH SHALL BE USED IN ALL OF THE FOLLOWING CASES:
 - FOR ALL CORRUGATED POLYETHYLENE DRAIN PIPE (CPDP) AND PVC PIPE AND CONDUIT INSTALLATION.
 - WHEN ROCK OR HARD PAN IS ENCOUNTERED IN BOTTOM OF TRENCH.
 - WHEN UNSUITABLE MATERIAL IS ENCOUNTERED IN BOTTOM OF TRENCH. IN SUCH CASE DEPTH OF UNDERCUTTING SHALL BE AS DIRECTED BY THE ENGINEER WITH 6" MINIMUM.
- FOR ALL TRENCH EXCAVATION IN FILL AREAS, ALL EMBANKMENTS SHALL BE CONSTRUCTED TO A MINIMUM OF 2 FEET ABOVE THE OUTSIDE TOP (AT THE BELL) OF THE PIPE PRIOR TO BEGINNING ANY TRENCH EXCAVATION.
- BACKFILL FOR PIPE AND CONDUIT SHALL BE PLACED EVENLY AND CAREFULLY AROUND AND OVER THE PIPE OR CONDUIT IN SIX (6) INCH MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED UNTIL TWELVE (12) INCHES OF COVER EXISTS OVER THE PIPE OR CONDUIT. THE REMAINDER OF THE BACKFILL MAY THEN BE PLACED AND COMPACTED IN A MAXIMUM OF TWELVE (12) INCH LAYERS. EACH LAYER SHALL BE COMPACTED BY APPROVED MECHANICAL TAMPING MACHINES. UNLESS OTHERWISE SPECIFIED BACKFILL SHALL BE COMPACTED TO NOT LESS THAN [92%] MAXIMUM MODIFIED DENSITY IN ACCORDANCE WITH ASTM DESIGNATION D-1557 IN THE MANNER HEREIN DESCRIBED. BACKFILL SHALL PROCEED UP TO THE LINES AND GRADES AS SHOWN ON THE DRAWINGS.

TYPE II TRENCH

8

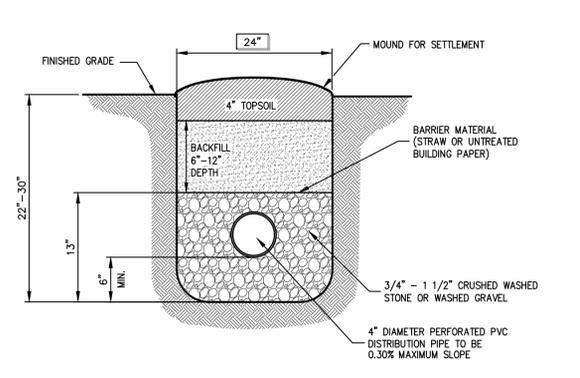


NOTES:

- SEPTIC TANK SHALL BE M&M CONCRETE PRODUCTS, INC. PRODUCT NO. S-1000-12, 1,000 GALLON, OR APPROVED EQUAL.
- CONCRETE MINIMUM STRENGTH: 4,000 PSI @ 28 DAYS.
- TANK SHALL BE PLACED ON 3" BED OF SAND OR PEA GRAVEL.

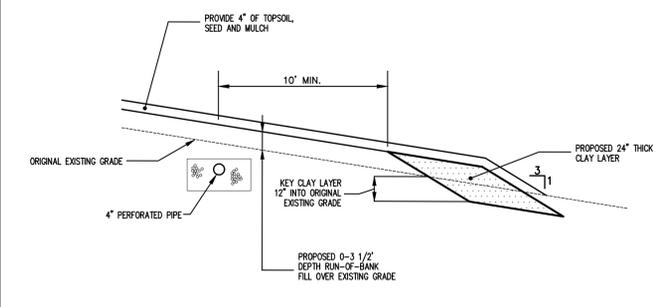
1,500 GALLON SEPTIC TANK

9



ABSORPTION TRENCH

10

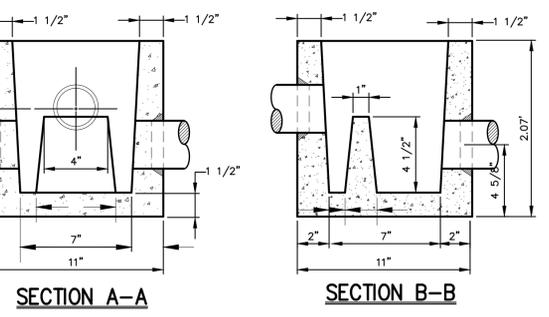
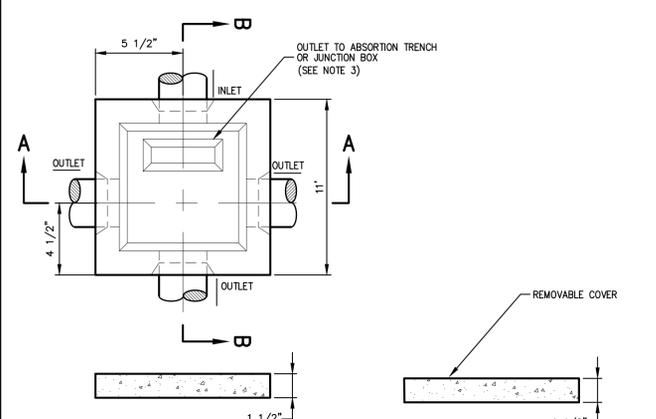


NOTES:

- THE "TYPICAL FILL SECTION" IS TO BE INSTALLED AS SHOWN ON PLAN.

TYPICAL FILL SECTION

11

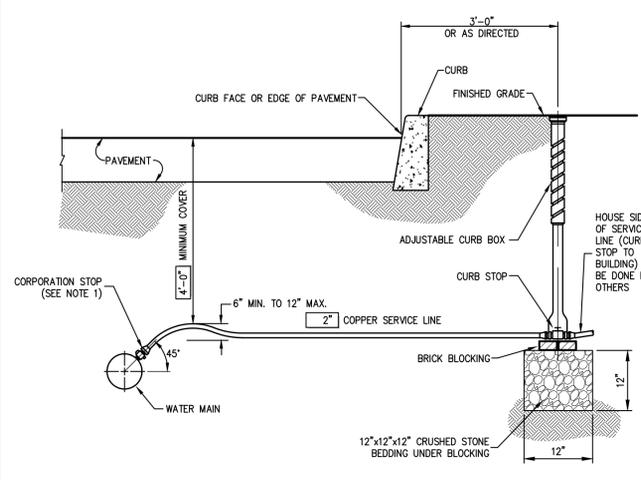


NOTES:

- DISTRIBUTION BOX SHALL BE PRECAST CONCRETE CONSTRUCTION AND DESIGNED TO ACCOMMODATE AN H=20 DESIGN LOAD.
- BOTTOM OF BOX SHALL BE LEVEL AND SUPPORTED SOLIDLY BELOW FROST LINE. FOOTING TO EXTEND TO 42" BELOW GROUND LEVEL.
- INSTALL TIGHT JOINT [PVC] PIPE FROM SEPTIC TANK OR EFFLUENT PUMP PIT TO DISTRIBUTION BOX AND BETWEEN ALL JUNCTION BOXES.
- ALL OUTLETS ARE TO BE AT THE SAME ELEVATION.

3-WAY DISTRIBUTION BOX

12



SERVICE LINE REQUIREMENTS

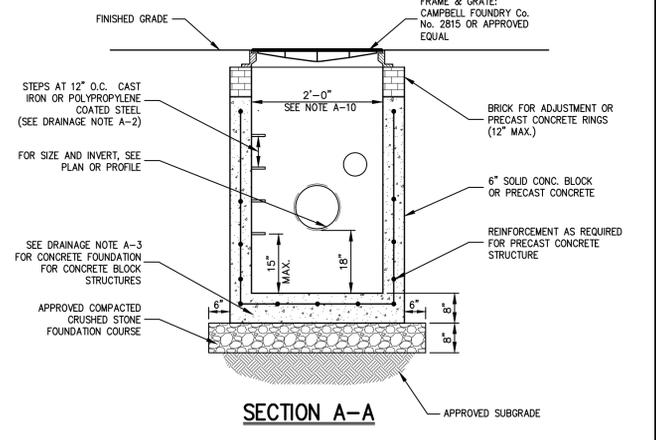
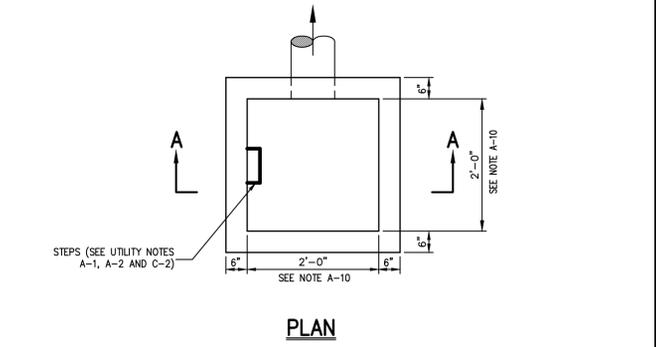
SIZE	SERVICE LINE(MATERIALS)	CORPORATION STOP	CURB STOP	CURB BOX	ENLARGED BASE
2"	COPPER, TYPE K	H-15013 N	H-15214 N	H-10310	H-10349

NOTES:

- INSTALLATION OF CORPORATION STOPS SHALL BE MADE IN THE UPPER PIPE QUADRANT, BUT MAY BE MADE AT ANGLES LESS THAN 45° IF APPROVED BY THE OWNER'S FIELD REPRESENTATIVE.
- SERVICE LINE SHALL HAVE NO JOINTS BETWEEN THE WATER MAIN AND CURB STOP.
- CORPORATION STOP, CURB STOP, CURB BOX AND ENLARGED BASE FOR CURB BOX SHALL BE MUELLER COMPANY OR APPROVED EQUAL. CATALOG NUMBERS SHOWN REFER TO MUELLER COMPANY.
- ALL SERVICE BRASS SHALL COMPLY WITH ANWA C-800. COMPONENTS IN CONTACT WITH POTABLE WATER SHALL ALSO COMPLY WITH LATEST REQUIREMENTS OF THE FEDERAL SAFE DRINKING WATER ACT.

WATER SERVICE CONNECTION
(2" OR LESS)

13

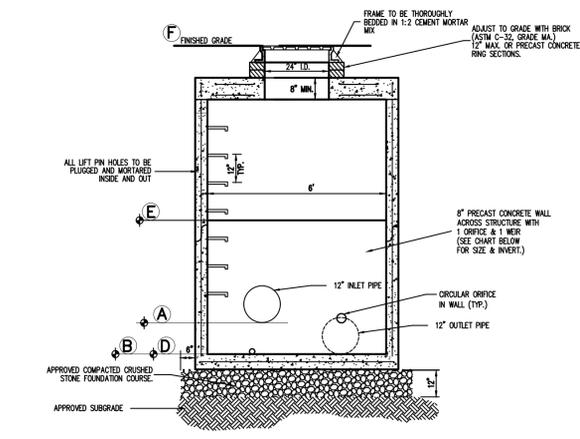


NOTE:

- SEE NOTES PERTAINING TO DRAIN INLETS UNDER UTILITY NOTES ON DRAWING [EXX]

DRAIN INLET (TYPE LI)
(WITH SUMP)

14



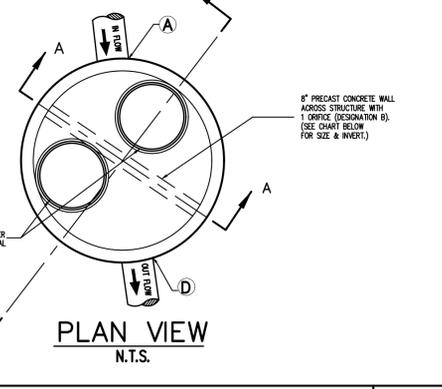
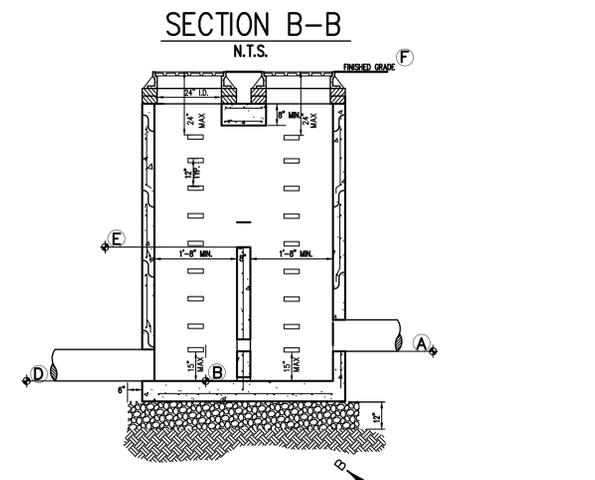
SECTION A-A
N.T.S.

NOTES:

- STEPS SHALL BE CAST IRON NEMA# NO. R-1891-0 OR CAMPBELL FOUNDRY NO. 2588-1 OR POLYPROPYLENE COATED STEEL. (SEE SPECIFICATIONS) OR APPROVED EQUAL.
- STRUCTURES SHALL MEET OR EXCEED A.S.T.M. AND O.S.H.A. REQUIREMENTS.
- STRUCTURES SHALL BE DESIGNED TO ACCOMMODATE H=20 LOADING.
- SEE "NOTES PERTAINING TO MANHOLES" UNDER "UTILITY NOTES" ON DRAWING [C-901]

SCHEDULE OF INVERTS

DESIGNATION	A		B		D		E		F
	INLET	ORIFICE	INLET	ORIFICE	INLET	ORIFICE	WER	FINISHED GRADES	
OCS	12"	8.80	3"	8.80	12"	7.92	4'	10.60	12.50



OUTLET CONTROL STRUCTURE

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4.	REVISED PER VILLAGE COMMENTS	06/08/2020
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9.	RESUBMIT TO HCZMC FOR CONSISTENCY REVIEW	10/30/2020

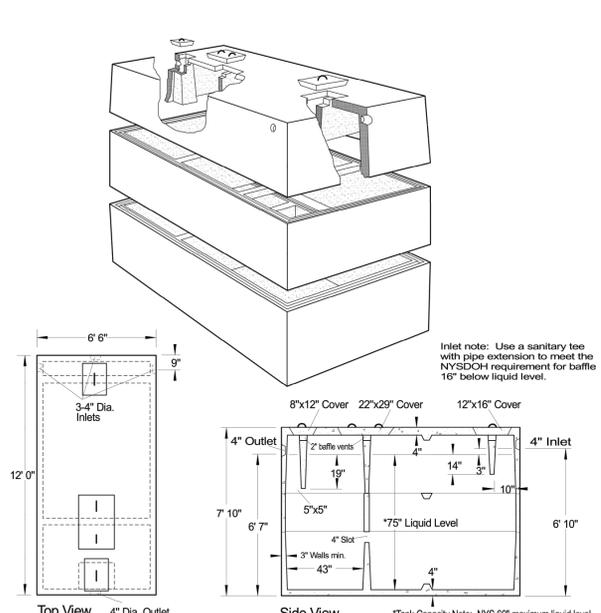
JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
 JMC Site Development Consultants, LLC
 John Meyer Consulting, Inc.
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CONSTRUCTION DETAILS
RESIDENTIAL DEVELOPMENT
 1165 GREACEN POINT ROAD
 MAMARONECK, NY, 10543

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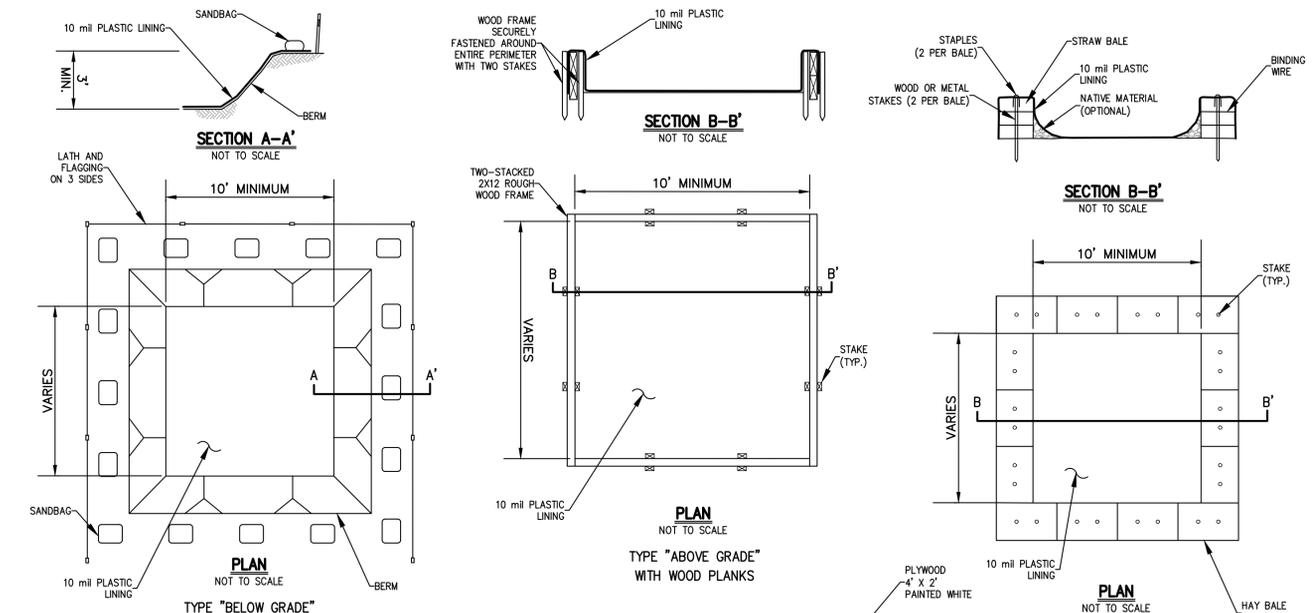
Drawn: RAR Approved: JAR
 Scale: NOT TO SCALE
 Date: 07/24/2018
 Project No: 18100
 1800-BEIMS C-901
 Drawing No:

C-901



SPECIFICATIONS	
Concrete Min. Strength: 4,000 psi at 28 days	PRECAST SEPTIC TANKS MODEL ST-3000 / 3000 GALLONS Woodard's Concrete Products, Inc. 629 Lyboil Road, Bullville, NY 10915 (845) 361-3471 / Fax 361-1050 Page 7A 7/19/12
Reinforcement: #3 Rebar, 6x6x10ga. WWM	
Air Entrainment: 5%	
Construction Joint: Butyl Rubber Sealant	
Pipe Connection: Polylok Seal (patented)	
Weight = 18,000 lbs Load Rating: 300 psf	

www.woodardsconcrete.com



- NOTES:**
- ACTUAL LAYOUT DETERMINED IN THE FIELD.
 - LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE AREAS SUCH AS STORM DRAINS, OPEN DITCHES, OR WATER BODIES, INCLUDING WETLANDS.
 - THE CONSTRUCTION STORMWATER GENERAL PERMIT DOES NOT ALLOW OPERATORS TO DISCHARGE CONCRETE WASH WATER TO WATERWAYS, STORM DRAINS OR GROUNDWATER. OPERATORS MUST MANAGE AND CONTAIN THIS WATER TO PREVENT SPILLS, LEAKS OR DISCHARGES. DO NOT USE SANITARY SEWER WITHOUT LOCAL APPROVAL.
 - WASHOUT FACILITIES SHALL BE SIZED TO CONTAIN ALL LIQUIDS AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. APPROXIMATELY 7 GALLONS OF WASH WATER ARE USED TO WASH ONE TRUCK CHUTE AND APPROXIMATELY 50 GALLONS OF WASH WATER ARE USED TO WASH OUT THE HOPPER OF A CONCRETE PUMP TRUCK.
 - WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 12 INCHES.
 - THE CONCRETE WASHOUT SIGN (SEE PAGE 6) SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
 - THE FACILITY NEEDS TO BE INSPECTED DAILY TO ENSURE PLASTIC LININGS ARE STILL INTACT AND SIDEWALLS ARE NOT DAMAGED.
 - THE FACILITY NEEDS TO BE CLEANED OR CHANGED WHEN 75% FULL.
 - IF THE WASHOUT IS NEARING CAPACITY, VACUUM AND DISPOSE OF THE WASTE MATERIAL IN AN APPROVED MANNER AND INSTALL A NEW PLASTIC LINING AFTER EVERY CLEANING.
 - PLACE A SECURE, NON-COLLAPSING, NON-WATER COLLECTING COVER OVER THE CONCRETE WASHOUT FACILITY PRIOR TO PREDICTED WET WEATHER.

CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)

RAINWATER HARVESTING TANK

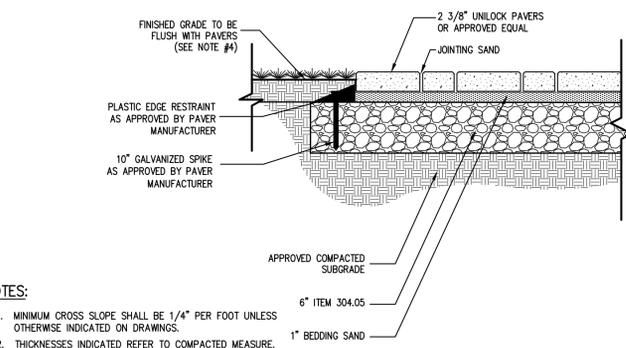
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CONCRETE WASHOUT

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"MOSAIC" RETAINING WALL EXAMPLE
(NOT FOR CONSTRUCTION—RETAINING WALL DESIGNED BY OTHERS)

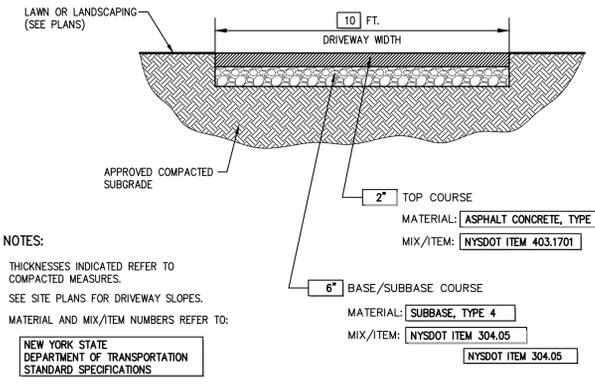
18



- NOTES:**
- MINIMUM CROSS SLOPE SHALL BE 1/4" PER FOOT UNLESS OTHERWISE INDICATED ON DRAWINGS.
 - THICKNESSES INDICATED REFER TO COMPACTED MEASURE.
 - ALL DISTURBED AREAS ADJACENT TO SIDEWALKS SHALL BE TOPSOILED (4" DEPTH) AND SEEDED WITH GRASS.

PAVER INSTALLATION
(PROPOSED WALKWAY)

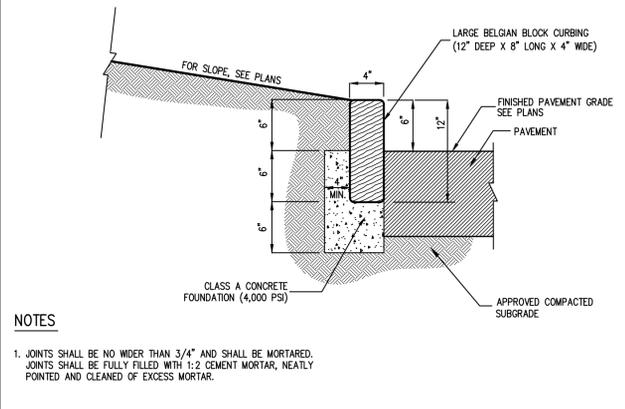
20



- NOTES:**
- THICKNESSES INDICATED REFER TO COMPACTED MEASURES.
 - SEE SITE PLANS FOR DRIVEWAY SLOPES.
 - MATERIAL AND MIX/ITEM NUMBERS REFER TO:
NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS

STANDARD DRIVEWAY

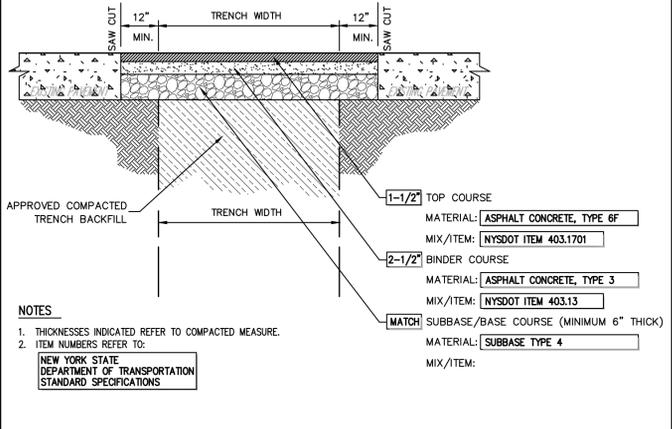
21



- NOTES:**
- JOINTS SHALL BE NO WIDER THAN 3/4" AND SHALL BE MORTARED. JOINTS SHALL BE FULLY FILLED WITH 1:2 CEMENT MORTAR, NEATLY POINTED AND CLEANED OF EXCESS MORTAR.

STONE CURB
(BELGIAN BLOCK)

22



- NOTES:**
- THICKNESSES INDICATED REFER TO COMPACTED MEASURE.
 - ITEM NUMBERS REFER TO:
NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS

PAVEMENT REPLACEMENT OVER TRENCH

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No.	Revision	Date
1.	RESPOND TO TOWN COMMENTS	07/22/2020
2.	RESUBMIT TO VILLAGE HCZMC	09/02/2020
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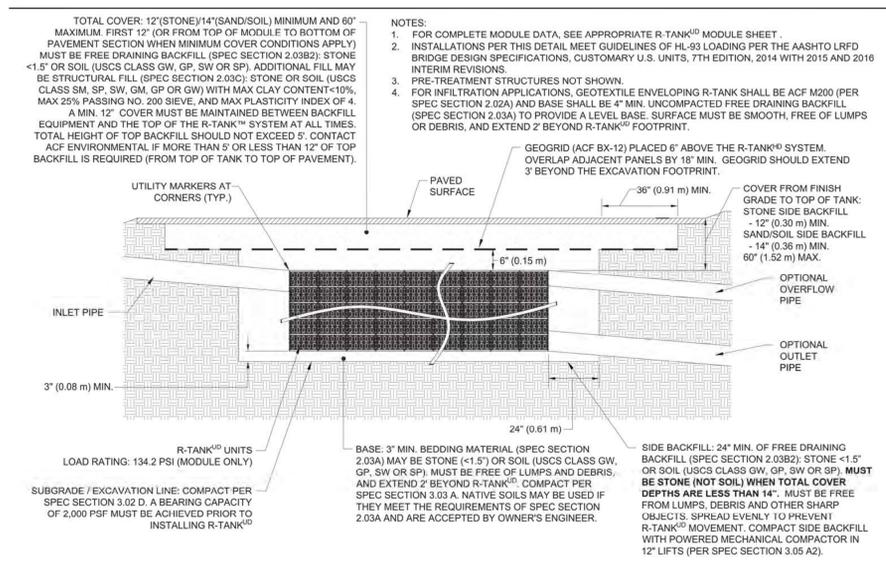
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Date: 07/24/2018	
Project No: 18100	
1800-REIMS C-902	
Drawing No:	C-902

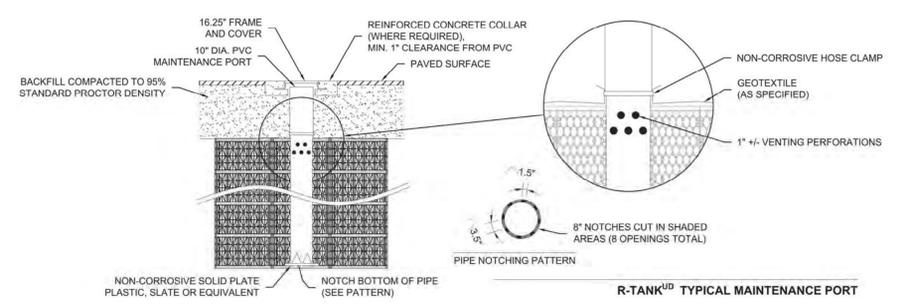
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R-TANK & H-20 LOAD - SECTION VIEW

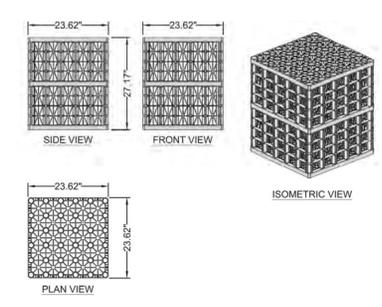
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- NOTES:**
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
 2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
 3. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
 4. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LEU OF A FRAME AND COVER WITH CONCRETE COLLAR.

R-TANK TYPICAL MAINTENANCE PORT

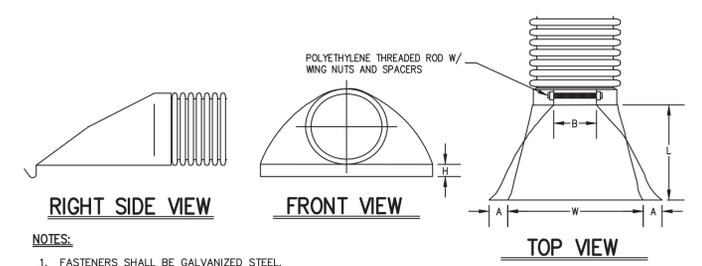
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MODULE DATA

GEOMETRY: LENGTH = 23.62 IN. (600 MM) WIDTH = 23.62 IN. (600 MM) HEIGHT = 27.17 IN. (690 MM) TANK VOLUME = 8.77 CF STORAGE VOLUME = 8.33 CF VOID INTERNAL VOLUME: 95% VOID SURFACE AREA: 90%	LOAD RATING: 134.2 PSI, (MODULE ONLY) H20, (WITH ACF COVER SYSTEM) MATERIAL: 100% RECYCLED POLYPROPYLENE
--	--

DOUBLE R-TANK™ - MODULE DETAIL



NOTES:

1. FASTENERS SHALL BE GALVANIZED STEEL.
2. ALL DIMENSIONS ARE NOMINAL.

PIPE SIZE	A	B (MAX.)	H	L	W
12"	6.5"	10.0"	6.5"	25.0"	29.0"

PLASTIC END SECTION

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DOUBLE R-TANK MODULE DETAIL

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No.	Revision	Date
1.	RESPOND TO TOWN COMMENTS	07/22/2020
2.	RESUBMIT TO VILLAGE HCZMC	09/02/2020
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 JMC Site Development Consultants, LLC
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 120 BEDFORD ROAD - ARMONK, NY 10504
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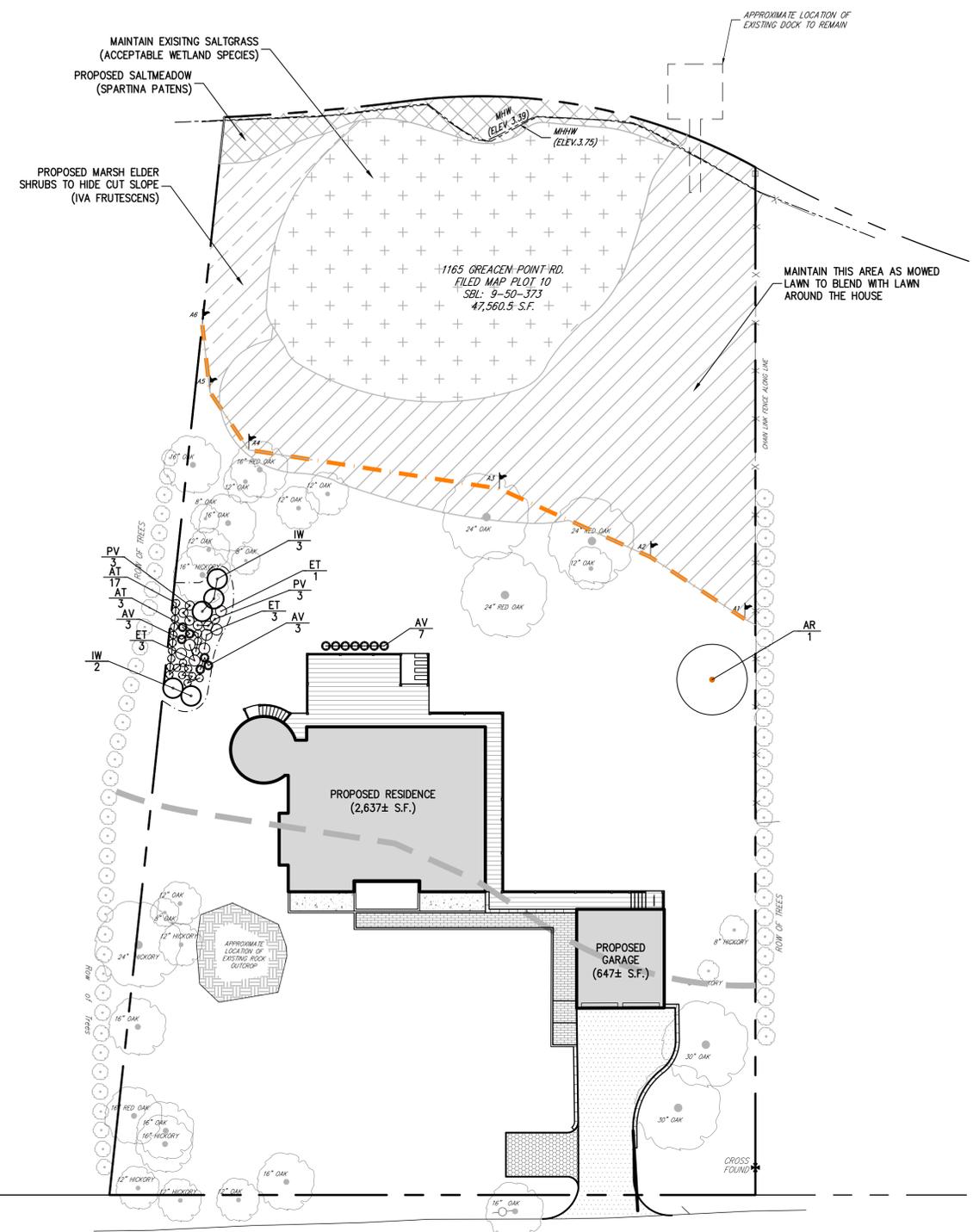
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1800-REIMS C-903	
Drawing No: C-903	

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LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- X-X- EXISTING FENCE
- (110 W) EXISTING TREE AND DESIGNATION
- EXISTING UTILITY POLE
- EXISTING WETLAND LIMITS
- EXISTING WETLAND SETBACK
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE SIDEWALK
- PROPOSED EDGE OF PAVEMENT
- PROPOSED PAVEMENT HATCH
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- + ○ EXISTING TREES
- + ○ PROPOSED TREES
- ○ PROPOSED SHRUBS/GRASSES

- NOTES:**
- EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY PREPARED BY SPINELLI SURVEYING, DATED 02/22/2018, LAST REVISED 04/23/2020.
 - PLANT SPECIES IS REPRESENTATIVE AND SUBSTITUTIONS MAY BE REQUIRED AT TIME OF PLANTING DUE TO AVAILABILITY, TIME OF YEAR, ETC.
 - WETLAND PROPER MITIGATION SHOWN PER EVANS ASSOCIATES ENVIRONMENTAL CONSULTING, INC.

PLANT SCHEDULE							
TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT COND.	REMARKS	PHOTO SAMPLE
AR	1	Acer rubrum	Red Maple	3" - 3.5" Cal.	B & B	N/A	
SHRUBS							
IW	5	Ilex verticillata	Winterberry	6' - 7' Ht.	Cont.	N/A	
PERENNIALS							
AT	20	Asclepias tuberosa	Butterfly Milkweed	2' - 3' Ht.	Cont.	N/A	
ET	7	Euthamia tenuifolia	Goldenrod	3' - 6' Ht.	Cont.	N/A	
GRASSES							
AV	13	Andropogon virginicus	Broomsedge	2' - 4' Ht.	Cont.	N/A	
PV	6	Panicum virgatum	Switch Grass	1 gal.	Cont.	N/A	

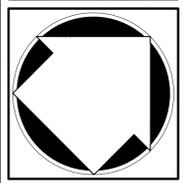
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2.	RESPOND TO TOWN COMMENTS	07/22/2020	RAR
3.	RESUBMIT TO VILLAGE HCZMC	08/31/2020	RAR
4.	RESUBMIT TO DEC	10/13/2020	RAR
5.	RESUBMIT TO HZCMC FOR CONSISTENCY REVIEW	10/30/2020	RAR

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APPLICANT/OWNER: **MR. WILLIAM FEDYNA & ELISABETH FEDYNA**
 219 W 81ST STREET, APT. 9D
 NEW YORK, NY, 10024
 ARCHITECT: **ARCHI-TECTONICS**
 111 JOHN ST. #700
 NEW YORK, NY 10038

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
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 MAMARONECK, NY, 10543

Drawn: RAR Approved: JAR
 Scale: 1" = 20'
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