



May 7, 2018

Mr. Craig Dixon., Chairman  
New Bedford Conservation Commission  
New Bedford City Hall  
133 Williams Street  
New Bedford, MA 02740

**RE: Response Letter**  
**61 John Vertente Boulevard – New Bedford, MA**  
**SE 049-0791**

Dear Mr. Dixon and Commission members:

On behalf of the applicant, Tim Cusson and 61 SMRE, LLC, please find revised Site Plans and HydroCAD© calculations enclosed with this letter. Revisions have been made in response to the comment email prepared by the Nitsch Engineering dated May 3, 2018 in regards to their review of the Site Plans. Our responses to the comments provided in the review letter are provided on the following pages.

We trust the attachments noted above and included herewith will provide the necessary documentation to address their comments. If you should have any questions, please feel free to contact us.

Very truly yours,

FARLAND CORP., INC.

*Christian A. Farland*

Christian A. Farland, P.E., LEED AP  
Principal Engineer and President

## Nitsch Comments

### **STORMWATER MANAGEMENT**

#### **Comment #1:**

*With regards to the depths of the soil media and separation from groundwater, those are decisions that are left to the Commission. My job, as consultant to the Commission, is to point out where projects are inconsistent with the Standards and let them make the decisions about whether or not to approve projects. You are asking for 'waivers' from these Standards, so as long as your design is inconsistent with the Standards I will keep it in front of the Commission.*

**Farland Corp. requests that as a special condition to the project, the Commission consider splitting the difference between the required planting soil media and the required groundwater separation. This has been represented in the revised Details Plan (Sheet 4).**

#### **Comment #2:**

*With regards to the rain garden detail, your elevations on the detail shows a bottom elevation 85 and the plan shows 84.*

**The plans and details have been revised to show consistency.**

#### **Comment #3:**

*With regards to the drainage areas draining to the rain garden, based on the swales you sketched it appears that a significant portion of the upland area will still drain to the driveway and then the rain garden. It also looks like that water that I diverted to the east will be captured in low point, which doesn't seem very desirable.*

**As requested, the HydroCAD calculations and drainage maps have been revised to incorporate this additional drainage area into the site conditions. Also, the proposed grading has been revised to facilitate the proper flow of stormwater to the designed discharge points.**

If you have any questions or require any further information please contact this office at (508) 717-3479.

# **STORMWATER MANAGEMENT REPORT AND NARRATIVE**

## **Proposed Site Plan**

**61 John Vertente Boulevard (Map 133 Lot 47)  
New Bedford, Massachusetts 02745**

## **Project Summary**

The project area associated with this proposed development is located at the southerly side of John Vertente Boulevard in the New Bedford Business Park in northern New Bedford. The site is comprised tax parcel Lot 47 on Assessor's Map 133, and consists of approximately 16.4+/- acres. The proposed project area is comprised of a Northwesterly portion of the parcel area. All of the parcel area, including the entire proposed project area, is located in the city's Industrial C zoning district. The site currently contains a large commercial building of the warehouse style consistent with other buildings within this business park. There also exists associated parking, loading, and landscaped areas, as well as several flagged areas of bordering vegetated wetlands. Access to the site is gained from a short dead end street named John Vertente Boulevard just off of the southerly side Samuel Barnett Boulevard.

The applicant is seeking permission to provide an alternate access driveway to the project site to be located in the northwesterly corner connected an existing parking area to the layout of Samuel Barnett Boulevard. In association with the access driveway, a rain garden is proposed to attenuate the expected stormwater runoff. The driveway will also incorporate a bituminous concrete Cape Cod berm along the majority of the edge of pavement, except where a stone diaphragm will direct runoff into the rain garden. Necessary grading and clearing will accompany each of these improvements, but will be limited to the required area keeping disturbance to a minimum.

The current use of the property is a vacant but most recently had been used as an industrial manufacturing plant dealing with mostly medical supplies. The applicant has previously filed to change the use to a food distribution and warehousing facility for the shipping company NWD Trucking, which will occupy the majority of the property and building. The existing building is configured to meet the needs of the applicant in terms of size and functionality and thus will require no changes to the footprint of the building.

In order to attenuate the increased stormwater runoff generated by the proposed impervious site coverage and to provide the appropriate level of water quality treatment, additional stormwater management practices have been proposed.

## **Methodology**

Drainage computations were performed using the Natural Resources Conservation Services (NRCS) TR-20 method and HydroCAD® Drainage Calculation Software to determine the change in the existing and post-development runoff rates from each drainage area for the 2-, 10-, and 100-year 24 hour storm events. The limits of the work proposed to complete the project fall within an area subject to protection by the Wetlands Protection Act, therefore, compliance with DEP Stormwater Management Standards is required. Sketches of the existing and proposed watershed areas, HydroCAD® Report, and copies of the calculation sheets are included as appendices to this report.

## **Existing Conditions**

The soils underlying the site are identified in the Natural Resources Conservation Service (NRCS) Soil Survey of Bristol County. The site soils are classified as 39A (Scarboro mucky fine sandy loam, 0-3 percent slopes, Hydrologic Soil Group: "C") and 602 (Urban Land, HSG: "Unranked")

## **Stormwater Management Overview**

### Existing Conditions:

The project site consists of one existing subcatchment drainage area, which discharges to the existing grass, wooded and wetland areas within this undeveloped portion of the property and uses natural exfiltration as its means of attenuation.

### Proposed Conditions:

Under proposed conditions, one subcatchment area has been included in the drainage model. The newly paved area directs runoff via sheet flow to a stone diaphragm first, next to a proposed rain garden, and finally if the basin itself reaches the proposed berm will overflow towards the existing BVW.

The proposed infiltration basin has been designed in accordance with the DEP Stormwater Handbook. In accordance with the Stormwater Handbook, the rate mitigation facilities have been engineered to reduce post-development runoff rates from pre-development conditions.

## **Stormwater Management Standards**

### **Standard 1:**

- Under proposed conditions, there will be no new untreated discharges or erosion in wetland areas. Drainage outfalls from the rain garden which discharge toward the existing northerly Bordering Vegetated Wetlands are provided with rip-rap spillways to help control velocity and erosion at the outlet. Stormwater discharges have been held below erodible velocities. This standard has been met.

**Standard 2:**

- The design of the stormwater system was designed for the post-development conditions to handle all storms' peak discharges and runoff volume to include the 2 and 10-year storm events. An evaluation of peak discharges from the 100-year storm 24-hour storm event demonstrates that although a small increase in the peak discharge rate occurs, the discharge will not result in increased off-site flooding due to the short duration of increased rate and the overall reduced volume of runoff. The site drainage system was designed in consideration of the structural standards and techniques of the Best Management Practices (BMP) and Low Impact Development (LID) outlined in the "Stormwater Management Handbook".

The results of site drainage calculations are presented in the following Table. The results are based upon evaluation of Pre-development conditions and the design of proposed surface drainage systems for the Post-development condition. These results show the Post-Development offsite runoff rates are reduced to less than the Pre-development conditions for the two-year and ten-year storm events, thus meeting the BMP guidelines for this site development.

<b>Table 1 - Comparison of Pre- versus Post-Development Offsite Runoff</b>						
<b>Frequency Storm</b>	<b>2-Year</b>		<b>10-Year</b>		<b>100-Year</b>	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
Pre-Development	0.30	0.035	0.65	0.070	1.28	0.134
Post-Development	0.14	0.010	0.22	0.016	0.34	0.026

\*See **Exhibit A** for supporting hydrologic calculations

**Standard 3:**

- The proposed rain garden has been designed to recharge most of the anticipated stormwater runoff from the majority of the new impervious area and any additional runoff not captured by the proprietary BMP will be directed through a stone diaphragm and finally to the existing BVW. The required Recharge Volume has been calculated using the Static Method and calculations are provided in **Exhibit C**. We note that the required Recharge Volume was calculated for the new impervious area only. The proposed design provides the required recharge volume within the proposed rain garden. This standard has been met.

**Standard 4:**

- The proposed stormwater management systems for this project have been designed to remove 80% of the average annual post construction load of

Total Suspended Solids in accordance with this standard, as shown in calculations provided in **Exhibit D**. Suitable practices for source control and pollution prevention have been identified in a long-term pollution prevention plan in **Exhibit E**. Structural BMPs have been designed to capture the required water quality volume determined in accordance with the Stormwater Handbook. This standard has been met.

**Standard 5:**

- Stormwater discharges are proposed to be treated by the specific structural BMPs determined to be suitable for treating runoff from such land uses. Rain gardens are appropriate BMPs for use with Land Uses with Higher Potential Pollutant Load. BMPs have been designed to treat 1.0 inch of runoff times the total new impervious are at the post-development site. This standard has been met

**Standard 6:**

- The site does not discharge within the Zone II or IWPA of a public water supply, nor does it discharge near or to any critical areas. This standard does not apply.

**Standard 7:**

- This project is a new development project. Some of the site is currently paved or covered with impervious cover, however these areas are unrelated to the proposed development. Those areas where new impervious coverage is proposed have been designed to meet all of the required Stormwater Standards. Those areas where existing impervious is proposed to remain will be allowed to maintain existing drainage patterns.

**Standard 8:**

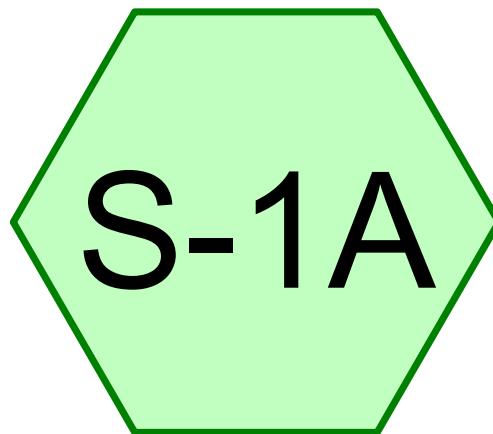
- We have provided for Construction Period Pollution in accordance with the regulations. A formal Construction Period Pollution Prevention Plan will be submitted prior to construction.

**Standard 9:**

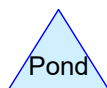
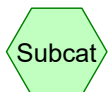
- A long-term operation and maintenance plan has been prepared to ensure that stormwater management systems function as designed. (**Exhibit F**)

**Standard 10:**

- We are not proposing any illicit discharges as defined in the Stormwater Management Regulations. See attached letter in (**Exhibit H**)



# Uncontrolled to BVW



**Drainage Diagram for 17-413.1 PRE**

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## 17-413.1 PRE

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.402	70	Woods, Good, HSG C (S-1A)
0.041	74	>75% Grass cover, Good, HSG C (S-1A)
<b>0.443</b>		<b>TOTAL AREA</b>



**17-413.1 PRE***Type III 24-hr 2-Year Rainfall=3.40"*

Prepared by Farland Corp.

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**Summary for Subcatchment S-1A: Uncontrolled to BVW**

Runoff = 0.30 cfs @ 12.30 hrs, Volume= 0.035 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Type III 24-hr 2-Year Rainfall=3.40"

Area (sf)	CN	Description
17,510	70	Woods, Good, HSG C
1,780	74	>75% Grass cover, Good, HSG C
19,290	70	Weighted Average
19,290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0400	0.05		<b>Sheet Flow, First 50'</b>
					Woods: Dense underbrush n= 0.800 P2= 3.40"
3.4	216	0.0460	1.07		<b>Shallow Concentrated Flow, Woods</b>
					Woodland Kv= 5.0 fps
19.2	266	Total			

**17-413.1 PRE**

Type III 24-hr 10-Year Rainfall=4.80"

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**Summary for Subcatchment S-1A: Uncontrolled to BVW**

Runoff = 0.65 cfs @ 12.28 hrs, Volume= 0.070 af, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
17,510	70	Woods, Good, HSG C
1,780	74	>75% Grass cover, Good, HSG C
19,290	70	Weighted Average
19,290		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0400	0.05		<b>Sheet Flow, First 50'</b>
					Woods: Dense underbrush n= 0.800 P2= 3.40"
3.4	216	0.0460	1.07		<b>Shallow Concentrated Flow, Woods</b>
					Woodland Kv= 5.0 fps
19.2	266	Total			

**17-413.1 PRE***Type III 24-hr 100-Year Rainfall=7.00"*

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**Summary for Subcatchment S-1A: Uncontrolled to BVW**

Runoff = 1.28 cfs @ 12.27 hrs, Volume= 0.134 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
17,510	70	Woods, Good, HSG C
1,780	74	>75% Grass cover, Good, HSG C
19,290	70	Weighted Average
19,290		Pervious Area

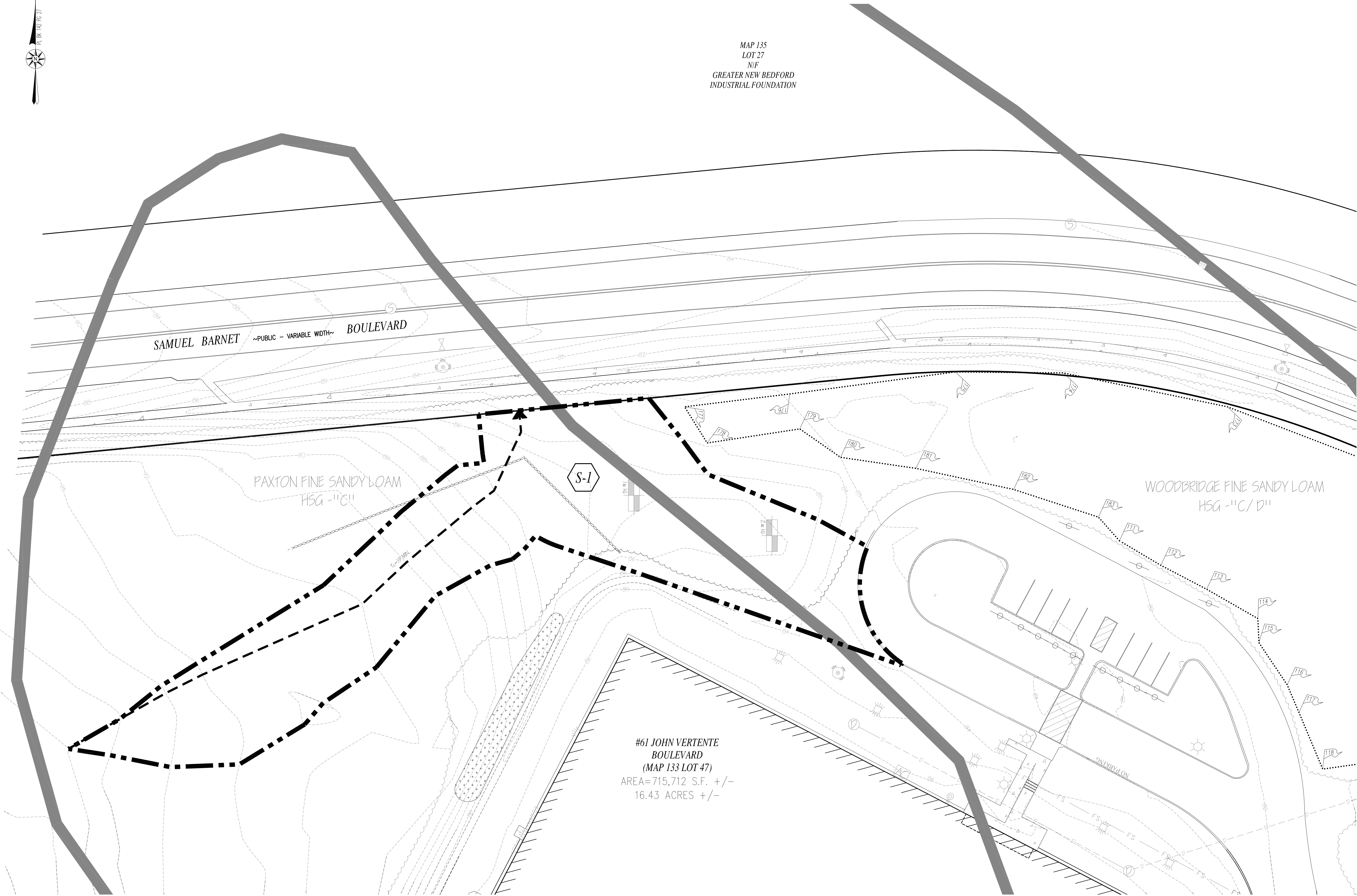
  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0400	0.05		<b>Sheet Flow, First 50'</b>
					Woods: Dense underbrush n= 0.800 P2= 3.40"
3.4	216	0.0460	1.07		<b>Shallow Concentrated Flow, Woods</b>
					Woodland Kv= 5.0 fps
19.2	266	Total			

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MAP 135  
LOT 27  
N/F  
GREATER NEW BEDFORD  
INDUSTRIAL FOUNDATION



#61 JOHN VERTENTE  
BOULEVARD  
(MAP 133 LOT 47)  
AREA=715,712 S.F. +/-  
16.43 ACRES +/-

REVISIONS

1	4/2/18	CONSERVATION COMMENTS
2	4/30/18	CONSERVATION COMMENTS
3	5/7/18	CONSERVATION COMMENTS

[www.FarlandCorp.com](http://www.FarlandCorp.com)  
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NEW BEDFORD, MA 02740  
P.508.717.3479  
OFFICES IN:  
•TAUNTON  
•MARLBOROUGH  
•WARWICK, RI

DRAWN BY: MJW  
DESIGNED BY: MJW  
CHECKED BY: CAF

SITE PLAN

— 61 JOHN VERTENTE BOULEVARD —  
ASSESSORS MAP 133 LOT 47  
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR:  
SURE 61, LLC  
100 DUCHANE BOULEVARD  
NEW BEDFORD, MA 02745

FEBRUARY 21, 2018

SCALE: 1"=20'

JOB NO. 17-413.1

LATEST REVISION:  
MAY 7, 2018

PRE-DEVELOPMENT  
MAP  
SHEET 3A OF 5



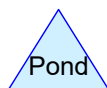
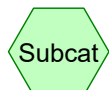
Off-Site Runoff

Combined to BVW



Runoff to RG

Rain Garden



**Drainage Diagram for 17-413.1 POST**

Prepared by Farland Corp.

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## 17-413.1 POST

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### Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.206	70	Woods, Good, HSG C (S-1)
0.108	79	50-75% Grass cover, Fair, HSG C (S-1,S-2)
0.009	89	Gravel roads, HSG C (S-1,S-2)
0.119	98	Paved parking & roofs (S-1,S-2)
<b>0.443</b>		<b>TOTAL AREA</b>

**17-413.1 POST**

Type III 24-hr 2-Year Rainfall=3.40"

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**Summary for Subcatchment S-1: Runoff to RG**

Runoff = 0.46 cfs @ 12.27 hrs, Volume= 0.048 af, Depth= 1.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.40"

Area (sf)	CN	Description
4,028	98	Paved parking & roofs
3,570	79	50-75% Grass cover, Fair, HSG C
300	89	Gravel roads, HSG C
8,990	70	Woods, Good, HSG C
16,888	79	Weighted Average
12,860		Pervious Area
4,028		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0400	0.05		<b>Sheet Flow, First 50</b>
					Woods: Dense underbrush n= 0.800 P2= 3.40"
2.8	176	0.0426	1.03		<b>Shallow Concentrated Flow, Woods</b>
					Woodland Kv= 5.0 fps
0.1	25	0.0280	3.40		<b>Shallow Concentrated Flow, Driveway</b>
					Paved Kv= 20.3 fps
0.0	8	0.2250	7.12		<b>Shallow Concentrated Flow, Filter Strip</b>
					Grassed Waterway Kv= 15.0 fps
18.7	259	Total			

**Summary for Subcatchment S-2: Off-Site Runoff**

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.40"

Area (sf)	CN	Description
1,170	98	Paved parking & roofs
87	89	Gravel roads, HSG C
1,145	79	50-75% Grass cover, Fair, HSG C
2,402	89	Weighted Average
1,232		Pervious Area
1,170		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	49		0.14		<b>Direct Entry, Min. Tc</b>



**17-413.1 POST**

Type III 24-hr 2-Year Rainfall=3.40"

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**Summary for Reach BVW: Combined to BVW**

Inflow Area = 0.055 ac, 48.71% Impervious, Inflow Depth = 2.26" for 2-Year event  
 Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af  
 Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

**Summary for Pond RG: Rain Garden**

Inflow Area = 0.388 ac, 23.85% Impervious, Inflow Depth = 1.49" for 2-Year event  
 Inflow = 0.46 cfs @ 12.27 hrs, Volume= 0.048 af  
 Outflow = 0.35 cfs @ 12.44 hrs, Volume= 0.048 af, Atten= 23%, Lag= 10.3 min  
 Discarded = 0.35 cfs @ 12.44 hrs, Volume= 0.048 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.06' @ 12.44 hrs Surf.Area= 1,851 sf Storage= 100 cf

Plug-Flow detention time= 2.0 min calculated for 0.048 af (100% of inflow)  
 Center-of-Mass det. time= 2.0 min ( 856.5 - 854.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	3,889 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	1,760	0	0
84.50	2,586	1,087	1,087
85.50	3,019	2,803	3,889

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.00'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	85.50'	<b>10.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b>
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

**Discarded OutFlow** Max=0.35 cfs @ 12.44 hrs HW=84.05' (Free Discharge)↑ **1=Exfiltration** (Exfiltration Controls 0.35 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)↑ **2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



**17-413.1 POST**

Type III 24-hr 10-Year Rainfall=4.80"

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**Summary for Subcatchment S-1: Runoff to RG**

Runoff = 0.83 cfs @ 12.26 hrs, Volume= 0.085 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
4,028	98	Paved parking & roofs
3,570	79	50-75% Grass cover, Fair, HSG C
300	89	Gravel roads, HSG C
8,990	70	Woods, Good, HSG C
16,888	79	Weighted Average
12,860		Pervious Area
4,028		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0400	0.05		<b>Sheet Flow, First 50</b>
					Woods: Dense underbrush n= 0.800 P2= 3.40"
2.8	176	0.0426	1.03		<b>Shallow Concentrated Flow, Woods</b>
					Woodland Kv= 5.0 fps
0.1	25	0.0280	3.40		<b>Shallow Concentrated Flow, Driveway</b>
					Paved Kv= 20.3 fps
0.0	8	0.2250	7.12		<b>Shallow Concentrated Flow, Filter Strip</b>
					Grassed Waterway Kv= 15.0 fps
18.7	259	Total			

**Summary for Subcatchment S-2: Off-Site Runoff**

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.80"

Area (sf)	CN	Description
1,170	98	Paved parking & roofs
87	89	Gravel roads, HSG C
1,145	79	50-75% Grass cover, Fair, HSG C
2,402	89	Weighted Average
1,232		Pervious Area
1,170		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	49		0.14		<b>Direct Entry, Min. Tc</b>

**17-413.1 POST**

Type III 24-hr 10-Year Rainfall=4.80"

Prepared by Farland Corp.

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**Summary for Reach BVW: Combined to BVW**

Inflow Area = 0.055 ac, 48.71% Impervious, Inflow Depth = 3.58" for 10-Year event  
 Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af  
 Outflow = 0.22 cfs @ 12.09 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

**Summary for Pond RG: Rain Garden**

Inflow Area = 0.388 ac, 23.85% Impervious, Inflow Depth = 2.63" for 10-Year event  
 Inflow = 0.83 cfs @ 12.26 hrs, Volume= 0.085 af  
 Outflow = 0.42 cfs @ 12.59 hrs, Volume= 0.085 af, Atten= 49%, Lag= 19.8 min  
 Discarded = 0.42 cfs @ 12.59 hrs, Volume= 0.085 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.26' @ 12.59 hrs Surf.Area= 2,196 sf Storage= 522 cf

Plug-Flow detention time= 7.1 min calculated for 0.085 af (100% of inflow)

Center-of-Mass det. time= 7.1 min ( 845.1 - 838.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	3,889 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	1,760	0	0
84.50	2,586	1,087	1,087
85.50	3,019	2,803	3,889

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.00'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	85.50'	<b>10.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b>
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

**Discarded OutFlow** Max=0.42 cfs @ 12.59 hrs HW=84.26' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.42 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

**17-413.1 POST**

Type III 24-hr 100-Year Rainfall=7.00"

Prepared by Farland Corp.

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Page 7

**Summary for Subcatchment S-1: Runoff to RG**

Runoff = 1.43 cfs @ 12.26 hrs, Volume= 0.148 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
4,028	98	Paved parking & roofs
3,570	79	50-75% Grass cover, Fair, HSG C
300	89	Gravel roads, HSG C
8,990	70	Woods, Good, HSG C
16,888	79	Weighted Average
12,860		Pervious Area
4,028		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	50	0.0400	0.05		<b>Sheet Flow, First 50</b> Woods: Dense underbrush n= 0.800 P2= 3.40"
2.8	176	0.0426	1.03		<b>Shallow Concentrated Flow, Woods</b> Woodland Kv= 5.0 fps
0.1	25	0.0280	3.40		<b>Shallow Concentrated Flow, Driveway</b> Paved Kv= 20.3 fps
0.0	8	0.2250	7.12		<b>Shallow Concentrated Flow, Filter Strip</b> Grassed Waterway Kv= 15.0 fps
18.7	259	Total			

**Summary for Subcatchment S-2: Off-Site Runoff**

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.026 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=7.00"

Area (sf)	CN	Description
1,170	98	Paved parking & roofs
87	89	Gravel roads, HSG C
1,145	79	50-75% Grass cover, Fair, HSG C
2,402	89	Weighted Average
1,232		Pervious Area
1,170		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	49		0.14		<b>Direct Entry, Min. Tc</b>

**17-413.1 POST**

Type III 24-hr 100-Year Rainfall=7.00"

Prepared by Farland Corp.

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**Summary for Reach BVW: Combined to BVW**

Inflow Area = 0.055 ac, 48.71% Impervious, Inflow Depth = 5.71" for 100-Year event  
 Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.026 af  
 Outflow = 0.34 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

**Summary for Pond RG: Rain Garden**

Inflow Area = 0.388 ac, 23.85% Impervious, Inflow Depth = 4.58" for 100-Year event  
 Inflow = 1.43 cfs @ 12.26 hrs, Volume= 0.148 af  
 Outflow = 0.51 cfs @ 12.69 hrs, Volume= 0.148 af, Atten= 65%, Lag= 26.3 min  
 Discarded = 0.51 cfs @ 12.69 hrs, Volume= 0.148 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.64' @ 12.69 hrs Surf.Area= 2,645 sf Storage= 1,442 cf

Plug-Flow detention time= 17.7 min calculated for 0.148 af (100% of inflow)

Center-of-Mass det. time= 17.6 min ( 839.8 - 822.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	84.00'	3,889 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
84.00	1,760	0	0
84.50	2,586	1,087	1,087
85.50	3,019	2,803	3,889

Device	Routing	Invert	Outlet Devices
#1	Discarded	84.00'	<b>8.270 in/hr Exfiltration over Surface area</b>
#2	Primary	85.50'	<b>10.0' long x 4.0' breadth Broad-Crested Rectangular Weir</b>
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00			
2.50 3.00 3.50 4.00 4.50 5.00 5.50			
Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66			
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32			

**Discarded OutFlow** Max=0.51 cfs @ 12.69 hrs HW=84.64' (Free Discharge)↑**1=Exfiltration** (Exfiltration Controls 0.51 cfs)**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=84.00' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)



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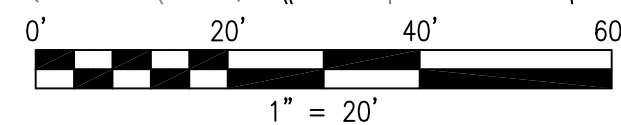
MAP 135  
LOT 27  
N/F  
GREATER NEW BEDFORD  
INDUSTRIAL FOUNDATION

SAMUEL BARNET ~PUBLIC - VARIABLE WIDTH~ BOULEVARD

PAXTON FINE SANDY LOAM  
HSG -11'C"

WOODBIDGE FINE SANDY LOAM  
HSG -11'C/D"

#61 JOHN VERTENTE  
BOULEVARD  
(MAP 133 LOT 47)  
AREA=715,712 S.F. +/-  
16.43 ACRES +/-



REVISIONS

1	4/2/18	CONSERVATION COMMENTS
2	4/30/18	CONSERVATION COMMENTS
3	5/7/18	CONSERVATION COMMENTS

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• WARWICK, RI

DRAWN BY: MJW  
DESIGNED BY: MJW  
CHECKED BY: CAF

SITE PLAN

— 61 JOHN VERTENTE BOULEVARD —  
ASSESSORS MAP 133 LOT 47  
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR:  
SURE 61, LLC  
100 DUCHANE BOULEVARD  
NEW BEDFORD, MA 02745

FEBRUARY 21, 2018

SCALE: 1"=20'

JOB NO. 17-413.1

LATEST REVISION:  
MAY 7, 2018

POST-DEVELOPMENT  
MAP

SHEET 3A OF 5

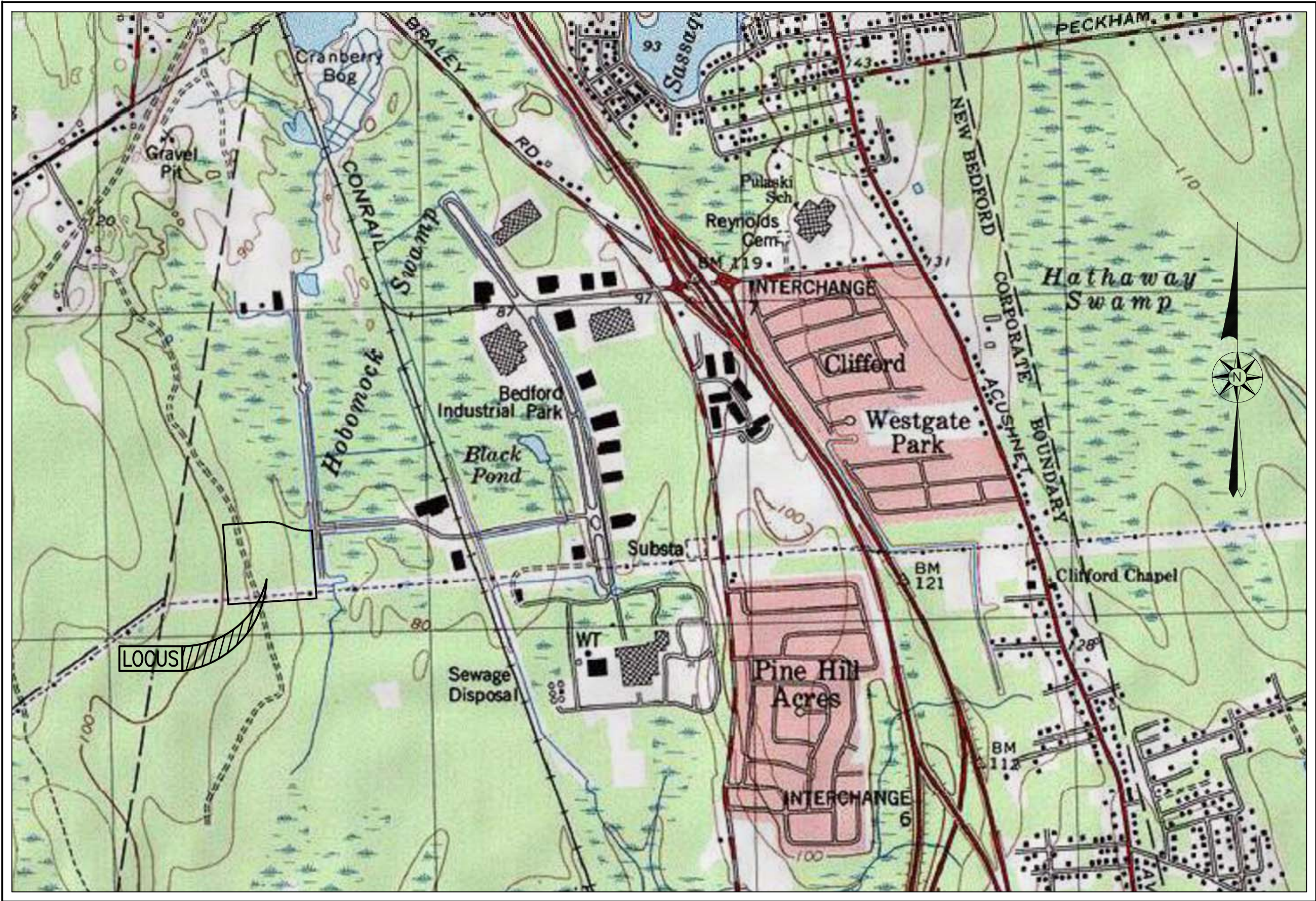


S I T E     P L A N

61 JOHN VERTENTE BOULEVARD

ASSESSORS MAP #133 LOT #47

NEW BEDFORD, MASSACHUSETTS



— AREA MAP —

SCALE: 1"=1,000'±

— ZONING DATA —			
DISTRICT: INDUSTRIAL C			
DESCRIPTION	REQUIRED	EXISTING	PROVIDED
LOT AREA	0 S.F.	16.43 AC	16.43 AC
UPLAND AREA	0 S.F.	15.5± AC	13.5± AC
UPLAND AREA PERCENTAGE	0 %	82.2± %	82.2± %
LOT FRONTAGE	0 FT	1478.82 FT	1478.82 FT
FRONT SETBACK	*25 FT	107.3 FT	107.3 FT
SIDE SETBACK	*25 FT	203.3 FT	203.3 FT
REAR SETBACK	*25 FT	241.3 FT	241.3 FT
BUILDING HEIGHT (MAXIMUM)	100 FT	24.7± FT	24.7± FT
BUILDING COVERAGE (MAXIMUM)	**50 %	11.7 %	11.7 %
LOT COVERAGE (MAXIMUM)	***80 %	33.6 %	36.4 %
*PER GNBIF REGULATIONS, SETBACKS OF FIFTY (50) FEET FROM ANY STREET OR LOT LINE ARE REQUIRED			
**PER GNBIF REGULATIONS, FIRST FLOOR BUILDING COVERAGE SHALL NOT EXCEED 40% OF THE PREMISES			
***PER GNBIF REGULATIONS, LOT COVERAGE SHALL NOT COVER MORE THAN 65% OF THE PREMISES			

— INDEX —	
SHEET	DESCRIPTION
1	COVER
2	EXISTING CONDITIONS
3	LAYOUT & GRADING
4	DETAILS
5	NOTES & LEGEND

RECORD OWNER:  
ASSESSORS MAP 133 LOT 47  
SMRE 61, LLC  
100 DUCHAINE BOULEVARD  
NEW BEDFORD, MA 02745  
DEED BOOK 12559 PAGE 127

REVISIONS

1	4/2/18	CONSERVATION COMMENTS
2	4/30/18	CONSERVATION COMMENTS
3	5/7/18	CONSERVATION COMMENTS

SEAL

CHRISTIAN ALBERT FARLAND  
No. 47544  
CIVIL ENGINEER  
MASSACHUSETTS

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DESIGNED BY: MJW  
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NEW BEDFORD, MA 02745

FEBRUARY 21, 2018

SCALE: AS NOTED

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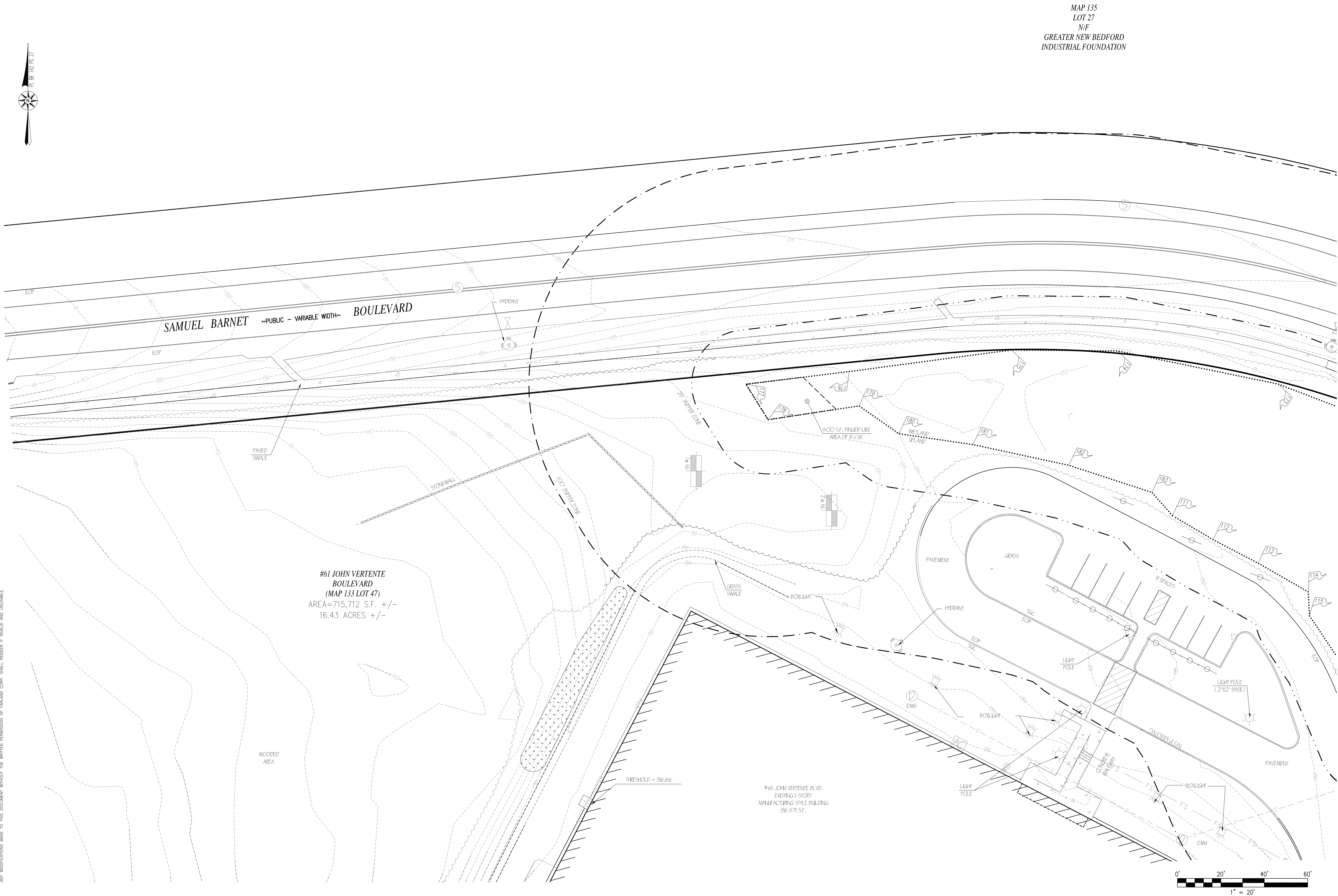
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COVER SHEET

SHEET 1 OF 5

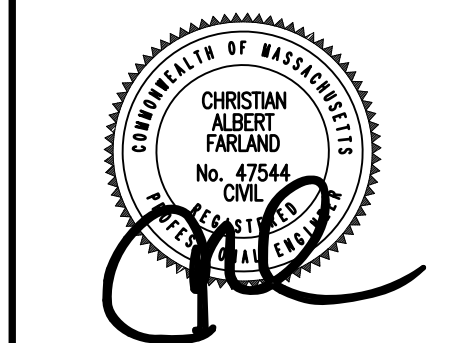


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MAP 135  
LOT 27  
N/F  
GREATER NEW BEDFORD  
INDUSTRIAL FOUNDATION

REVISIONS		
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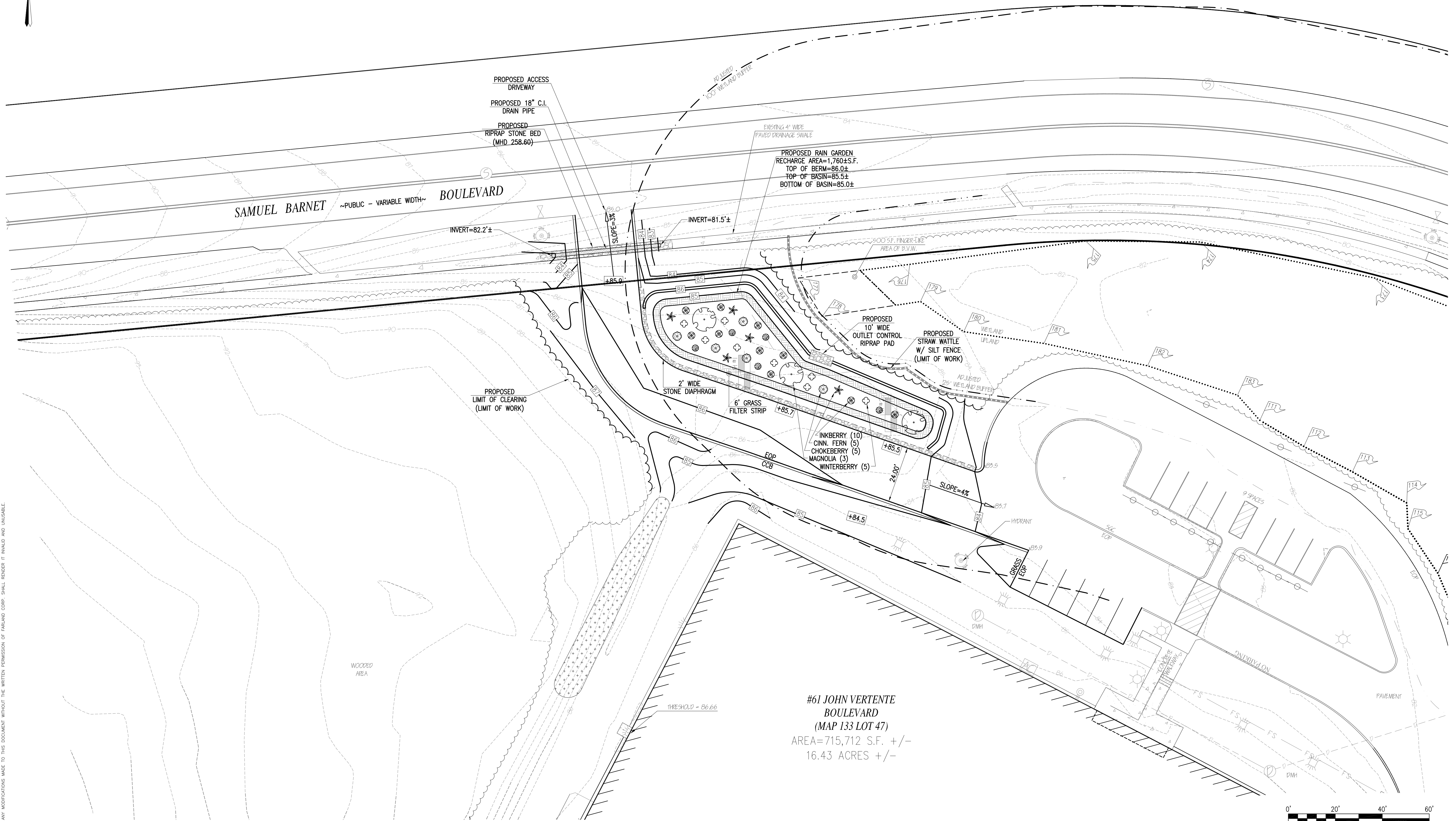
EXISTING CONDITIONS  
SHEET 2 OF 5



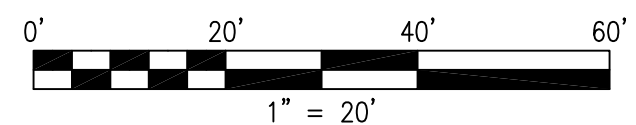
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N/F  
GREATER NEW BEDFORD  
INDUSTRIAL FOUNDATION

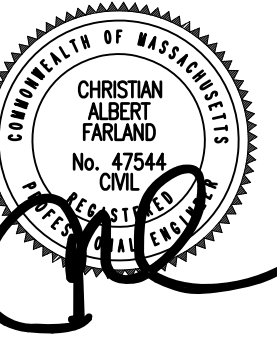


#61 JOHN VERTENTE  
BOULEVARD  
(MAP 133 LOT 47)  
AREA=715,712 S.F. +/-  
16.43 ACRES +/-



REVISIONS

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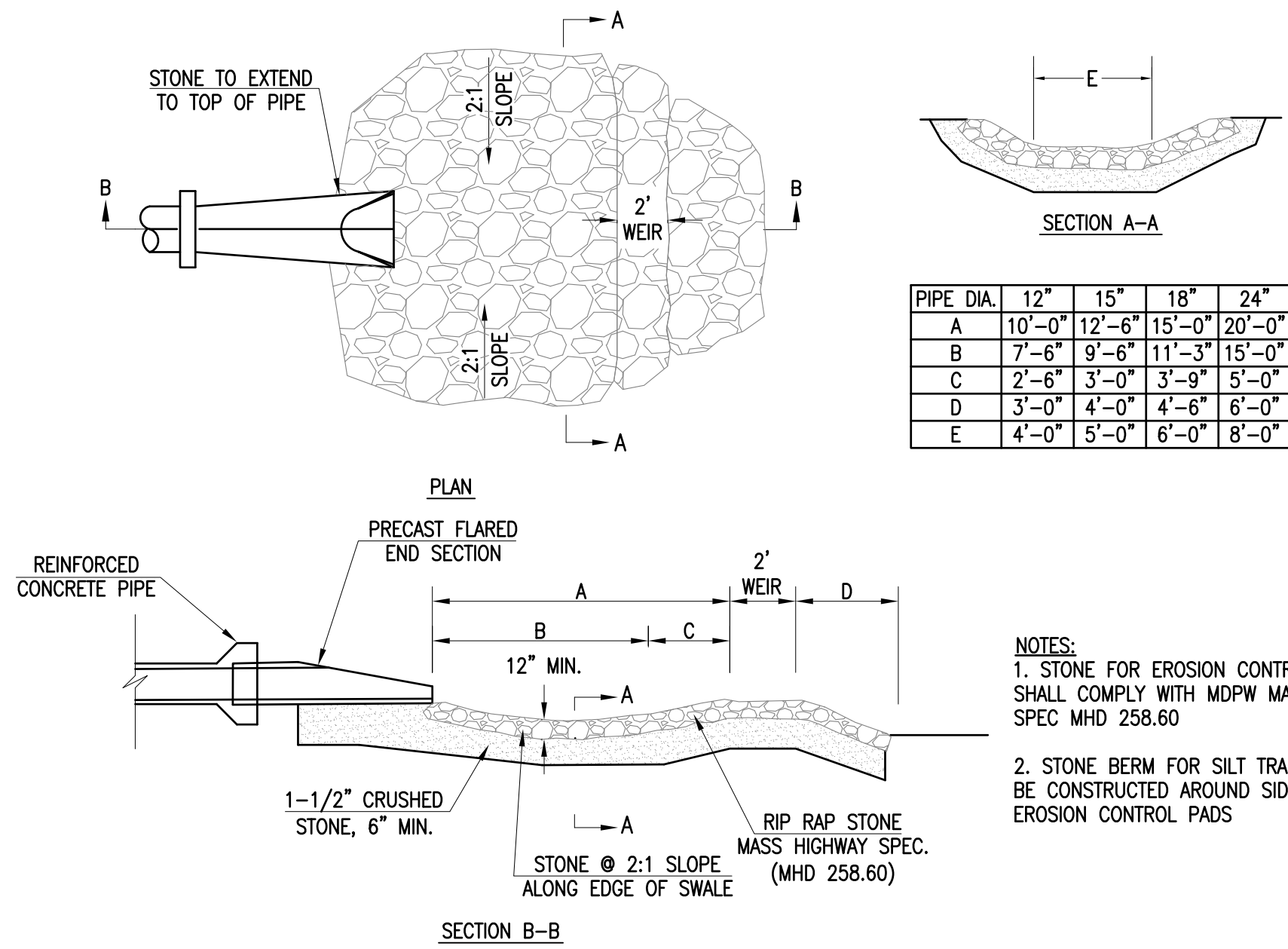
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LAYOUT & GRADING PLAN  
SHEET 3 OF 5

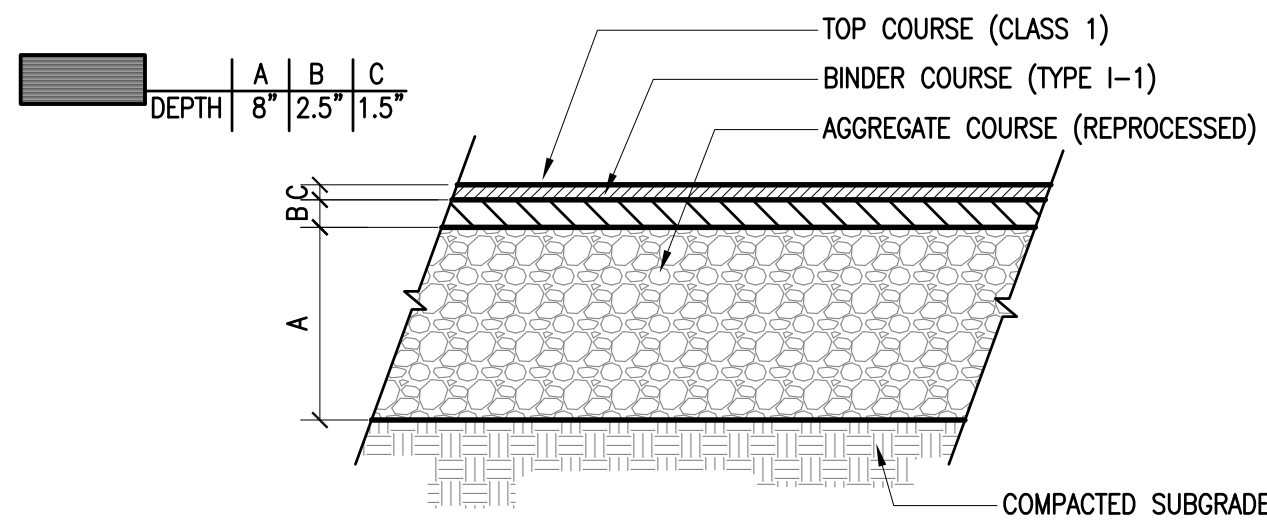


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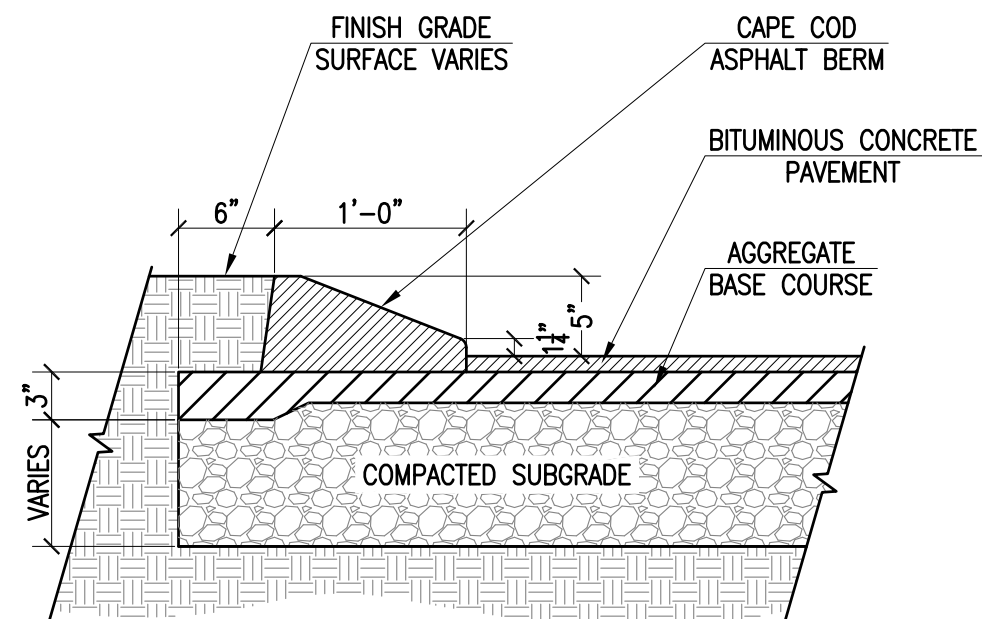
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NOT TO SCALE



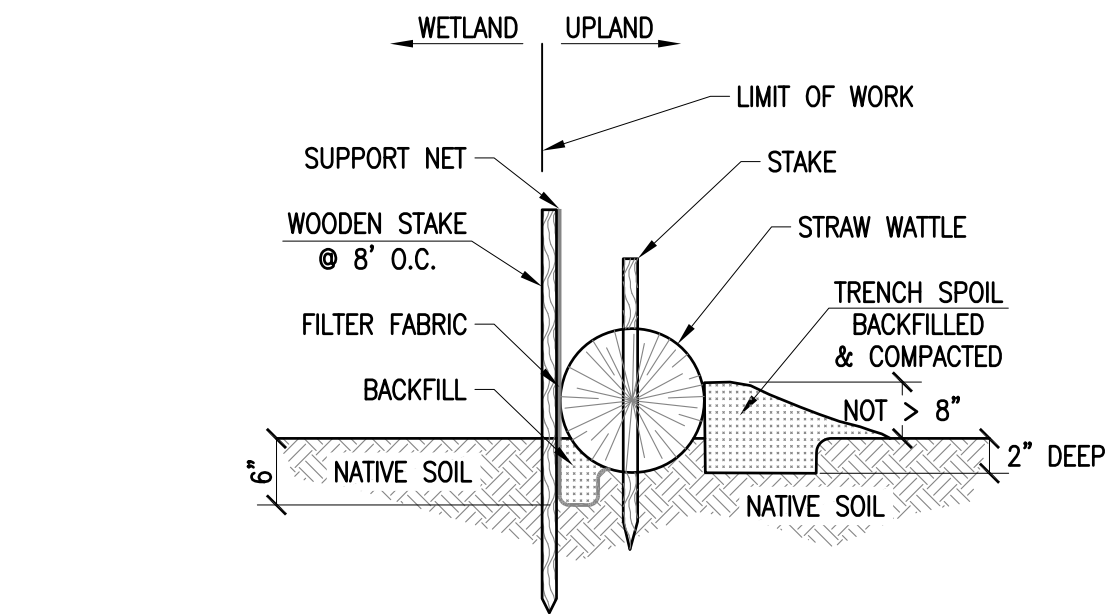
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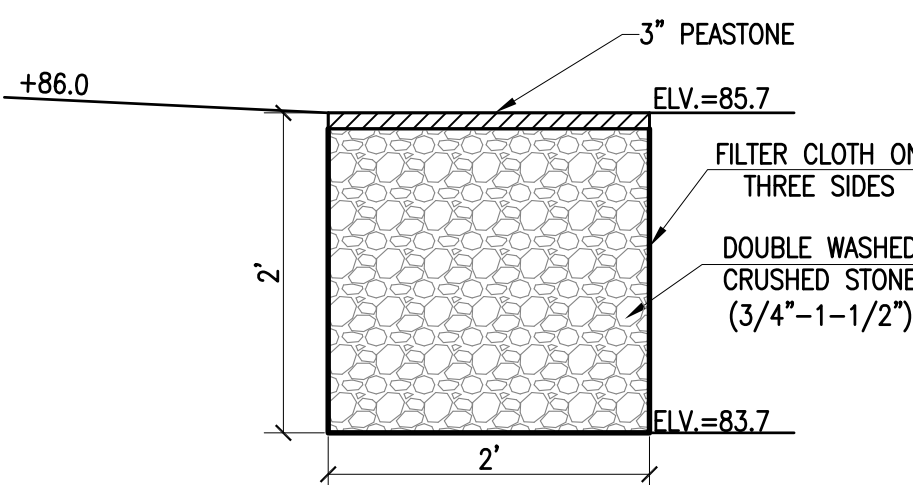
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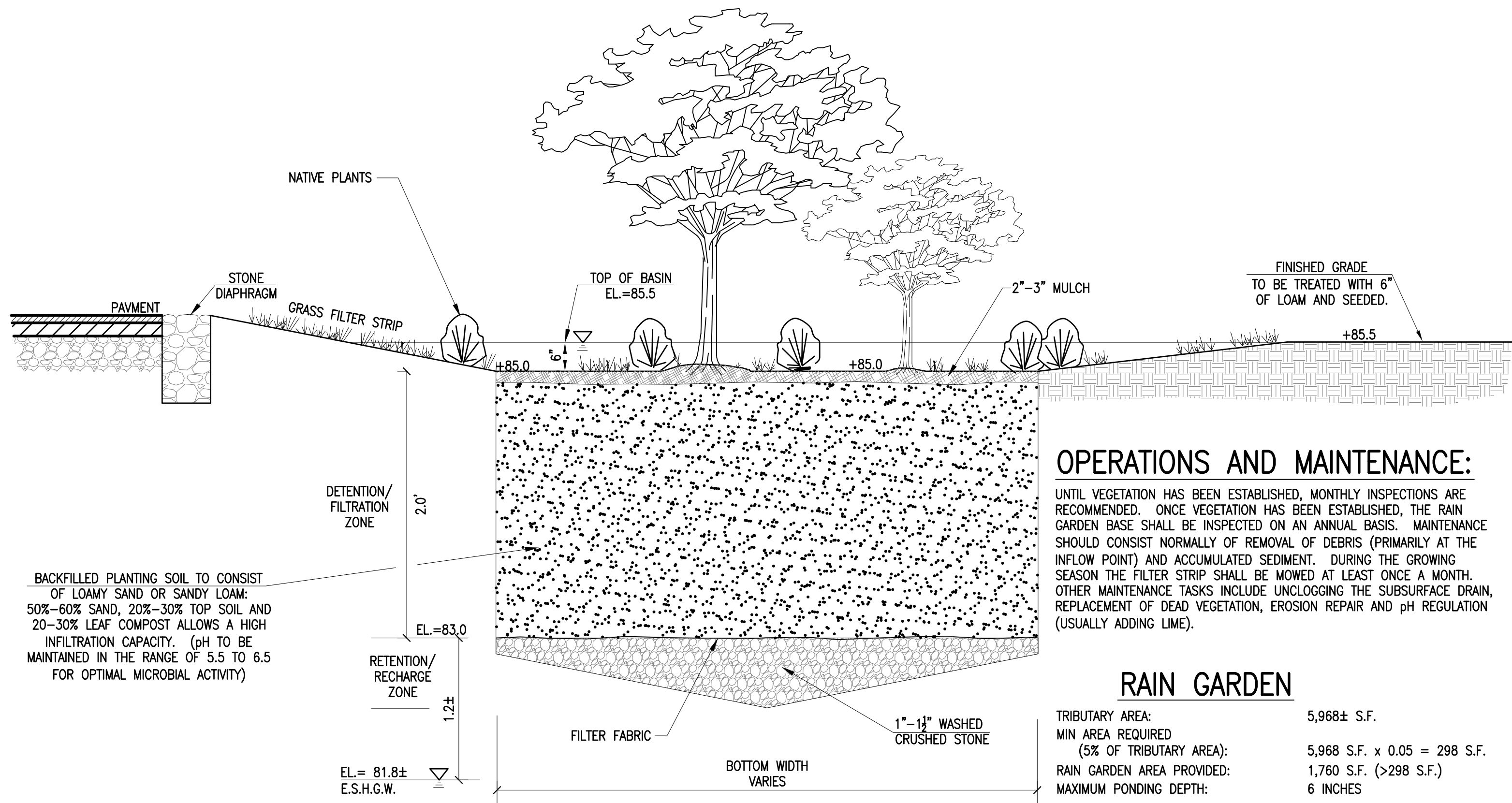
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### STONE DIAPHRAGM

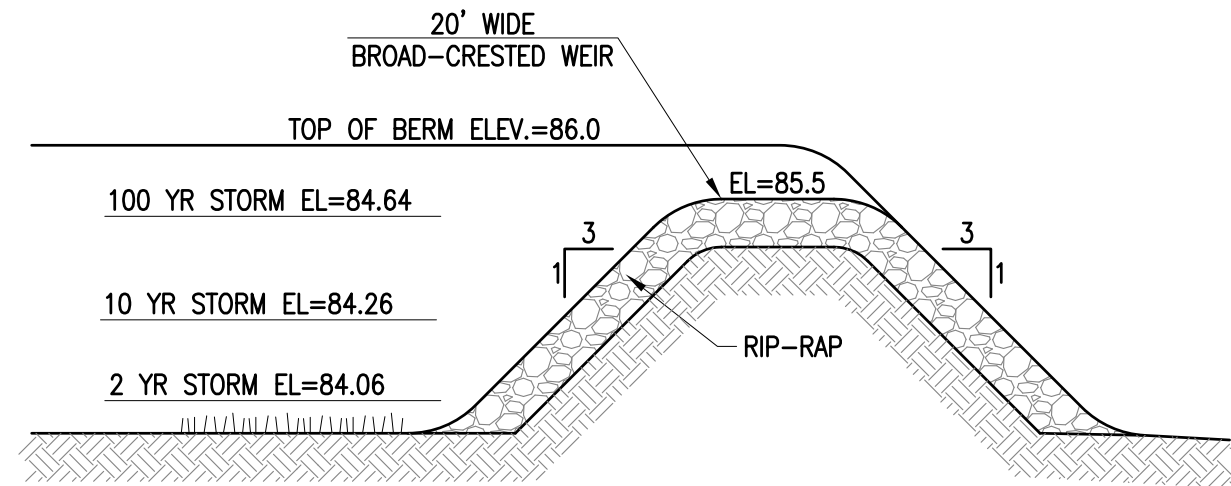
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### RAIN GARDEN (PROFILE)

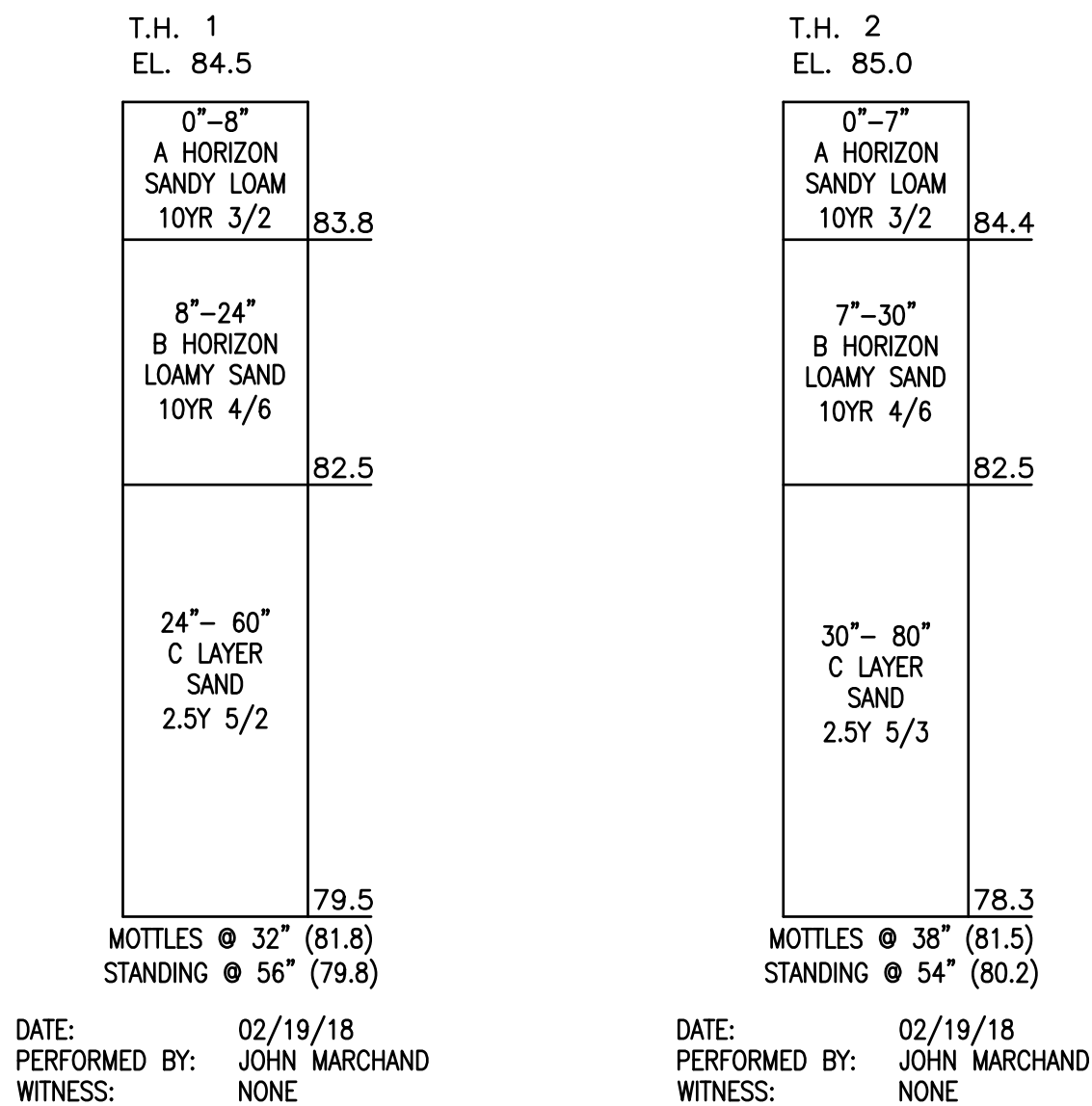
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PLANTING SCHEDULE						
SYMBOL	BOTANICAL NAME	COMMON NAME	HEIGHT "AS PLANTED"	MATURE HEIGHT	MATURE SPREAD	QUANTITY
SHRUBS						
	ILEX GLABRA "SHAMROCK"	INKBERRY	3 GALLON	4-6'	4-6'	10
	ARONIA MELANOCARPA	BLACK CHOKEBERRY	3 GALLON	6-8'	4'-6'	5
	ILEX VERTICILLATA	WINTERBERRY	3 GALLON	6-8'	4'-6'	8
GRASSES AND FERNS						
	PANICUM VIRGATUM	SWITCHGRASS	1 GALLON	3'-5'	4'	5
	OSMUNDA CINNAMOMEA	CINNAMON FERN	3 GALLON	3'-5'	4'	5
TREES						
	MAGNOLIA VIRGINIANA GLAUCA	SWEET BAY MAGNOLIA	5'-7'	15'-20'	15'-20'	3



### BROAD-CRESTED STONE OUTLET WEIR

NOT TO SCALE



### SOIL PROFILE

NOT TO SCALE

### SOIL PROFILE

NOT TO SCALE

REVISIONS

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JOB NO. 17-413.1  
LATEST REVISION:  
MAY 7, 2018

DETAIL SHEET  
SHEET 4 OF 5



GENERAL CONSTRUCTION NOTES

- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIG SAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
- PROPERTY LINE INFORMATION TAKEN FROM: PLAN ENTITLED: "APPROVAL NOT REQUIRED PLAN" IN NEW BEDFORD, MASSACHUSETTS DRAWN FOR JOHNSON & JOHNSON PROFESSIONAL, INC." DATED JANUARY 18, 1999 BY EARLE O. PHILLIPS, JR.
- TOPOGRAPHIC SURVEY PERFORMED BY FARLAND CORP. IN JULY & AUGUST 2017.
- WETLAND DELINEATION FROM PLAN ENTITLED "MANUFACTURING AND OFFICE ADDITION, DEPUY ORTHOPEDICS, INC, 61 JOHN VERTENTE BOULEVARD" (SHEET C2) DATED 10/08/04 BY PLANNERS DESIGNERS ARCHITECTS, INC.
- VERTICAL ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 AND HORIZONTAL LOCATIONS REFER TO THE NORTH AMERICAN DATUM (NAD) OF 1983.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL STANDARDS AND REGULATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.
- WHERE PROPOSED PAVEMENT AND WALKS ARE TO MEET EXISTING, THE CONTRACTOR SHALL SAWCUT A NEAT LINE AND MATCH GRADE. SEAL ALL JOINTS WITH HOT BITUMINOUS ASPHALT JOINT SEALER.
- CURBING TO BE AS INDICATED ON THE PLANS.
- ALL EXISTING TREES, SHRUBS AND GROUND COVER WHERE NATURAL GRADE IS TO BE RETAINED SHALL BE KEPT IN THEIR EXISTING STATE UNLESS REMOVAL IS REQUIRED FOR CONSTRUCTION PURPOSES. THE NUMBER OF REMOVED TREES SIX CALIPER OR LARGER SHALL BE MINIMIZED.
- ALL AREAS DISTURBED BY CONSTRUCTION AND NOT TO BE PAVED OR OTHERWISE TREATED AS NOTED ON PLAN SHALL BE TREATED WITH 4" OF LOAM, SEEDED AND HAY MULCHED FOR EROSION CONTROL.
- SITE IMPROVEMENTS SHALL CONFORM TO A.D.A. SPECIFICATIONS.
- LIGHTING SHALL BE DIRECTED ON SITE AND AWAY FROM TRAFFIC INTERFERENCE.
- THE CONTRACTOR SHALL PROTECT AND/OR CAP OFF ALL EXISTING ON-SITE UTILITY SERVICES ACCORDING TO THE LOCAL AUTHORITY'S SPECIFICATIONS. SERVICES SHALL BE CAPPED OFF WHERE SAME ENTER THE PERIMETER OF THE PROPERTY LINE.
- CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
- ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
- THESE PLANS ARE PERMITTING PLANS AND SHALL NOT TO BE USED FOR CONSTRUCTION. A FINAL SET OF STAMPED PLANS FOR CONSTRUCTION WILL BE ISSUED AFTER RECEIVING FINAL APPROVAL FROM THE LOCAL AND/OR STATE DEPARTMENTS.
- ANY MINOR MODIFICATIONS (AS DETERMINED BY THE CITY PLANNER) TO THE INFORMATION SHOWN ON THE APPROVED SITE PLANS SHALL BE SUBMITTED TO THE CITY PLANNER AS A MINOR PLAN REVISION FOR APPROVAL PRIOR TO WORK BEING PERFORMED.
- ANY WORK AND MATERIAL WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD REQUIREMENTS.
- ALL HANDICAP PARKING, RAMPS, AND ACCESS SHALL CONFORM TO AAB & MAAB REQUIREMENTS.
- ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO CONSTRUCTION. EROSION CONTROL SHALL CONFORM TO CITY OF NEW BEDFORD CONSERVATION COMMISSION REQUIREMENTS AS STATED IN THE ORDER OF CONDITIONS.
- ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO MUTCD REQUIREMENTS.
- THE CONTRACTOR SHALL OBTAIN A STREET DISTURBANCE & OBSTRUCTION PERMIT PRIOR TO ANY CONSTRUCTION WITHIN THE RIGHT OF WAY.
- ALL WATER AND SEWER MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CITY OF NEW BEDFORD REQUIREMENTS.
- ALL WATER AND SEWER CONSTRUCTION SHALL BE INSPECTED BY THE CITY OF NEW BEDFORD BEFORE BEING BACKFILLED.
- THE CITY SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO THE REQUIRED INSPECTIONS.

CONSTRUCTION SEQUENCING NOTES

- CONSTRUCT TEMPORARY AND PERMANENT EROSION CONTROL FACILITIES. EROSION CONTROL FACILITIES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING.
- TREE PROTECTION FENCE SHALL BE INSTALLED AND APPROVED BY THE OWNER REPRESENTATIVE PRIOR TO ANY EARTH MOVING.
- ALL PERMANENT DITCHES AND SWALES ARE TO BE STABILIZED WITH VEGETATION OR RIP RAP PRIOR TO DIRECTING RUNOFF TO THEM.
- CLEAR CUT, DEMOLISH AND DISPOSE OF EXISTING SITE ELEMENTS NOT TO REMAIN.
- STORMWATER SHALL NOT BE DIRECTED TOWARDS THE INFILTRATION BASIN UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
- GRADE AND GRAVEL ALL PAVED AREAS. ALL PROPOSED PAVED AREAS SHALL BE STABILIZED IMMEDIATELY AFTER GRADING.
- BEGIN ALL PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER THEIR CONSTRUCTION.
- DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES AND MULCH AND SEED AS REQUIRED.
- FINISH PAVING ALL HARD SURFACE AREAS.
- INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- REMOVE TEMPORARY EROSION CONTROL MEASURES.
- THE CONSTRUCTION SEQUENCE SHALL BE CONFINED TO THE LIMIT OF WORK AS SHOWN ON THE DRAWINGS.
- UPON COMPLETION OF CONSTRUCTION THE OWNER SHALL AGREE TO MAINTAIN AND CLEAN ALL DRAINAGE STRUCTURES AS REQUIRED.

SITE PREPARATION NOTES

- WITHIN THE LIMIT OF WORK LINE AS NOTED ON THE SITE PLANS, REMOVE AND DISCARD ALL CONCRETE PAVEMENT, BITUMINOUS CONCRETE PAVEMENT, BRICK PAVEMENT, TOP SOIL, MULCH, TRASH, DEAD TREES AND STUMPS, SHRUBBERY, CHAIN LINK FENCE POSTS, RAILS, FABRIC, GATES, FOOTINGS AND ALL APPURTENANCES, BOLLARDS, POSTS, CONCRETE FOOTINGS AND FOUNDATIONS, WALLS AND CURBS UNLESS OTHERWISE NOTED.
- THE OWNER'S REPRESENTATIVE SHALL BE CONSULTED AND WILL REVIEW THE WORK ON SITE WITH THE CONTRACTOR BEFORE ANY WORK SHALL COMMENCE.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER'S REPRESENTATIVE PRIOR TO STARTING WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING CONDITIONS TO REMAIN THAT ARE DUE TO CONTRACTOR OPERATIONS.
- ALL ITEMS TO BE REMOVED THAT ARE NOT STOCKPILED FOR LATER REUSE ON THE PROJECT OR DELIVERED TO THE OWNER SHALL BE LEGALLY DISPOSED OF OFF SITE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS EFFORTS OF THE DEMOLITION WITH ALL TRADES.
- THE CONTRACTOR SHALL COORDINATE ALL ADJUSTMENT OR ABANDONMENT OF UTILITIES WITH THE RESPECTIVE UTILITY COMPANY.
- THE CONTRACTOR SHALL MAINTAIN OR ADJUST TO NEW FINISH GRADES AS NECESSARY ALL UTILITY AND SITE STRUCTURES SUCH AS LIGHT POLES, SIGN POLES, MANHOLES, CATCH BASINS, HAND HOLES, WATER AND GAS GATES, HYDRANTS, ETC., FROM MAINTAINED UTILITY AND SITE SYSTEMS UNLESS OTHERWISE NOTED OR DIRECTED BY THE OWNER'S REPRESENTATIVE.

UTILITY AND GRADING NOTES

- ALL ON-SITE STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE PIPE (HDPE) OR CLASS V RCP, UNLESS NOTED OTHERWISE.
- HDPE PIPE SHALL CONFORM WITH AASHTO DESIGNATIONS M294 AND M252, SHALL BE MANUFACTURED WITH HIGH DENSITY POLYETHYLENE PLASTIC AND SHALL BE ADS N-12 PIPE AS MANUFACTURED BY ADVANCE DRAINAGE SYSTEM, INC. OR HANCOR HI-Q PIPE AS MANUFACTURED BY HANCOR, INC. OR APPROVED EQUAL UNLESS OTHERWISE NOTED OR DETAILED.
- A MINIMUM OF 18" VERTICAL CLEARANCE SHALL BE MAINTAINED WHERE WATER SERVICES CROSS STORM DRAIN LINES.
- ALL WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 5 FEET OF COVER AND A MAXIMUM OF 6 FEET OF COVER EXCEPT AS NOTED OR DETAILED OTHERWISE. GREATER DEPTHS ARE PERMITTED WHERE REQUIRED TO AVOID CONFLICTS WITH OTHER UTILITIES.
- GENERALLY, WATER MAIN FITTINGS IDENTIFIED ON THIS DRAWING ARE SHOWN FOR INSTALLATION LOCATION PURPOSE. THE CONTRACTOR SHALL NOTE THAT NOT ALL FITTINGS ARE NOTED, SHOWN OR INDICATED.
- ALL WATER MAIN FITTINGS, TEES, BENDS, HYDRANTS, ETC. SHALL BE RESTRAINED WITH CONCRETE THRUST BLOCKS.
- DOMESTIC WATER SERVICES 2.5" AND SMALLER SHALL BE TYPE K COPPER TUBING AND SHALL BE INSTALLED WITH APPROPRIATELY SIZED CORPORATION STOP AND APPROVED SADDLE CURB STOP, AND BOX, USING MATERIALS SPECIFIED BY THE MUNICIPAL WATER DEPARTMENT OR COMPANY.
- ALL WATER MAINS 3" AND LARGER SHALL BE CEMENT LINED DUCTILE IRON - CLASS 52, AND SHALL BE INSTALLED WITH APPROPRIATELY SIZED FITTINGS AND GATE VALVES.
- ALL WATER MAIN APPURTENANCES, MATERIALS, METHODS OF INSTALLATION AND TESTING REQUIREMENTS SHALL MEET OR EXCEED ALL LOCAL MUNICIPAL REQUIREMENTS.
- PRESSURE AND LEAKAGE TEST, DISINFECTION AND FLUSHING SHALL BE IN ACCORDANCE WITH ALL LOCAL MUNICIPAL STANDARDS AND REQUIREMENTS. CONTRACTORS SHALL BE RESPONSIBLE FOR ALL COSTS IN CONNECTION WITH UTILITY TESTS, FLUSHING AND INSPECTIONS AS REQUIRED BY THE LOCAL MUNICIPALITY.
- BEFORE THE DEVELOPMENT SITE IS GRADED, THE AREA OF THE DRAINAGE BASINS SHOULD BE FENCED OFF TO PREVENT HEAVY EQUIPMENT FROM COMPACTING THE UNDERLYING SOIL.
- WHERE PROPOSED GRADES MEET EXISTING GRADES, CONTRACTOR SHALL BLEND GRADES TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING AND NEW WORK. PONDING AT TRANSITION AREAS WILL NOT BE ALLOWED.
- CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.
- MAXIMUM SLOPE IN DISTURBED AREAS SHALL NOT EXCEED 3:1, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL VERIFY EXISTING GRADES AND NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES.
- CONTRACTOR SHALL ADJUST UTILITY ELEMENT MEANT TO BE FLUSH WITH GRADE THAT IS AFFECTED BY SITE WORK OR GRADE CHANGES, WHETHER SPECIFICALLY NOTED ON PLANS OR NOT.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER'S REPRESENTATIVE FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ALL GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- THE LOCATION, SIZE, DEPTH AND SPECIFICATIONS FOR CONSTRUCTION OF PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY AND APPROVED BY THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE AND ELECTRICAL). FINAL DESIGN AND LOCATIONS AT THE BUILDING WILL BE PROVIDED BY THE ARCHITECT. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE UTILITY CONNECTIONS WITH THE RESPECTIVE COMPANIES PRIOR TO ANY UTILITY CONSTRUCTION.

LAYOUT AND MATERIAL NOTES

- CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.
- ANY DISCREPANCIES BETWEEN DRAWINGS, SPECIFICATIONS AND SITE CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE OWNER'S REPRESENTATIVE FOR CLARIFICATION AND RESOLUTION PRIOR TO BIDDING OR CONSTRUCTION.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND ALL DETAILS CONTIGUOUS TO THE BUILDING INCLUDING SIDEWALKS, RAMPS, UTILITY ENTRANCE LOCATIONS, WALL PACKS, CONCRETE DOOR PADS, ROOF DRAINS, ETC.
- ACCESSIBLE CURB RAMPS SHALL BE PER THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES, WHICH IS MORE STRINGENT. THE FOLLOWING LAYOUT CRITERIA SHALL CONTROL UNLESS OTHERWISE NOTED ON THE PLAN: ALL DIMENSIONS ARE TO OUTSIDE FACE OF BUILDING. ALL DIMENSIONS ARE TO FACE OF CURB AT GUTTER LINE. ALL DIMENSIONS ARE TO CENTER OF PAVEMENT MARKINGS. ALL TIES TO PROPERTY LINES ARE PERPENDICULAR TO THE PROPERTY LINE UNLESS OTHERWISE NOTED.

SOIL EROSION AND SEDIMENT CONTROL NOTES

- THE CONSERVATION COMMISSION SHALL BE NOTIFIED, AT LEAST 72 HOURS PRIOR TO ANY LAND DISTURBANCE.
- A COPY OF THE SOIL EROSION AND SEDIMENT CONTROL PLAN MUST BE MAINTAINED ON THE PROJECT SITE DURING CONSTRUCTION.
- SOIL EROSION AND SEDIMENT CONTROL PRACTICES IN THE PLAN SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
- ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY DEMOLITION GRADING OPERATIONS AND/OR INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES.
- ALL APPLICABLE SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE LEFT IN PLACE UNTIL CONSTRUCTION IS COMPLETED AND/OR THE AREA IS STABILIZED.
- ALL SOIL EROSION AND SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED AND MAINTAINED ON A REGULAR BASIS AND AFTER EVERY STORM EVENT.
- THE MAINTENANCE OF SOIL EROSION AND SEDIMENT CONTROL MEASURES AND FACILITIES DURING AND IMMEDIATELY AFTER CONSTRUCTION RESTS WITH THE GENERAL CONTRACTOR. UPON ACCEPTANCE OF THE PROJECT, THE OWNER SHALL BECOME RESPONSIBLE FOR MAINTENANCE OF ANY REMAINING MEASURES AND FACILITIES.
- OFF SITE SEDIMENT DISTURBANCE MAY REQUIRE ADDITIONAL CONTROL MEASURES TO BE DETERMINED BY THE ENGINEER.
- THE CONSERVATION COMMISSION AND/OR ENGINEER MAY REQUIRE ADDITIONAL SOIL EROSION MEASURES TO BE INSTALLED, AS DIRECTED BY THE DISTRICT INSPECTOR.
- ADJOINING PROPERTIES SHALL BE PROTECTED FROM EXCAVATION AND FILLING OPERATIONS AT ALL TIMES.
- THE CONTRACTOR SHALL UTILIZE ALL METHODS NECESSARY TO PREVENT BLOWING AND MOVEMENT OF DUST FROM THE EXPOSED SOIL SURFACES.
- PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
- A CRUSHED STONE TIRE CLEANING PAD WILL BE INSTALLED WHEREVER A CONSTRUCTION ENTRANCE EXISTS. SEE LOCATION DETAIL ON PLAN.
- ALL CATCH BASIN INLETS SHALL BE PROTECTED DURING CONSTRUCTION AS DETAILED ON THE PLAN, IF APPLICABLE.
- ALL STORM DRAINAGE OUTLETS SHALL BE PROTECTED AS REQUIRED HEREON BEFORE DISCHARGE POINTS BECOME OPERATIONAL.
- THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
- LAND AREAS EXPOSED AT ANY ONE TIME AND THE LENGTH OF EXPOSURE SHALL BE KEPT TO A PRACTICAL MINIMUM. THEY SHALL BE LEFT IN A NEAT AND FINISHED APPEARANCE AND PROTECTED FROM EROSION.
- ANY DISTURBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN SIXTY (60) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING AND FERTILIZATION. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTRIBUTED AREAS SHALL BE MULCHED.
- ALL CRITICAL AREAS SUBJECT TO EROSION SHALL RECEIVE A TEMPORARY SEEDING AND BE MULCHED IN ACCORDANCE WITH THE SPECIFICATIONS IMMEDIATELY FOLLOWING ROUGH GRADING.
- IMMEDIATELY AFTER COMPLETION OF STRIPPING AND STOCKPILING OF TOPSOIL, SEED THE STOCKPILE WITH ANNUAL RYE GRASS. STABILIZE TOPSOIL STOCKPILES WITH STRAW MULCH FOR PROTECTION IF THE SEASON DOES NOT PERMIT THE APPLICATION AND ESTABLISHMENT OF TEMPORARY SEEDING.
- SOIL STOCKPILES ARE NOT TO BE LOCATED WITHIN FIFTY (50) FEET OF WETLANDS, THE FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITIES. THE BASE OF ALL STOCKPILES SHALL BE PROTECTED BY A STRAW BALE BARRIER OR SEDIMENT FENCE. LOCATIONS ARE DELINEATED ON THE PLAN.
- MAXIMUM SIDE SLOPES OF ALL EXPOSED SURFACES SHALL NOT BE CONSTRUCTED STEEPER THAN 3:1 UNLESS OTHERWISE APPROVED BY THE DISTRICT.
- ALL AREAS NOT STABILIZED BY CONSTRUCTION, SODDING OR LANDSCAPING SHALL BE SEEDED AND STABILIZED IN ACCORDANCE WITH THE SEEDING AND MULCHING SPECIFICATIONS.
- MULCHING IS REQUIRED ON ALL SEEDED AREAS TO INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED TO PROMOTE EARLIER VEGETATIVE COVER.
- ALL Dewatering OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTRATION DEVICE. THE SEDIMENT FILTER MUST BE CAPABLE OF FILTERING THE SEDIMENT AND BE PLACED SO AS NOT TO CAUSE EROSION OF THE DOWNSTREAM AREA.

GENERAL PLANTING NOTES

- ALL PLANT MATERIAL SHALL CONFORM TO THE STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERYMEN OR THE PLANT MATERIAL WILL BE UNACCEPTABLE. ALL PLANT MATERIAL SHALL BE TRUE TO SPECIES, VARIETY, SIZE AND BE CERTIFIED DISEASE AND INSECT FREE. THE OWNER AND/OR THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO APPROVE ALL PLANT MATERIAL ON SITE PRIOR TO INSTALLATION.
- ALL PLANT MATERIAL SHALL BE PROPERLY GUYED, STAKED, WRAPPED, AND PLANTED IN CONFORMANCE WITH THE TYPICAL PLANTING DETAILS. GUY WIRES SHALL BE ATTACHED TO THE TREE AT A HEIGHT OF TWO-THIRDS THE HEIGHT OF THE TREE AND SHOULD BE LOCATED AT POINTS SO AS NOT TO SPLIT THE TRUNK OF MULTI-STEMMED TREES. PROVIDE THREE STAKES PER TREE UNLESS NOTED OTHERWISE INSTALL ALL PLANT MATERIAL ON UNDISTURBED GRADE. PROVIDE BURLAP WRAPPING WITH A 50% OVERLAP. CUT AND REMOVE BURLAP FROM TOP ONE-THIRD OF THE ROOT BALL.
- PROVIDE PLANTING PITS AS INDICATED ON PLANTING DETAILS. BACKFILL PLANTING PITS WITH ONE PART EACH OF TOP SOIL, PEAT MOSS, AND PARENT MATERIAL. IF WET SOIL CONDITIONS EXIST THEN PLANTING PITS SHALL BE EXCAVATED AN ADDITIONAL 12" AND FILLED WITH SAND.
- NEWLY INSTALLED PLANT MATERIAL SHALL BE WATERED AT THE TIME OF INSTALLATION AND SHALL BE SUBSEQUENTLY FLOODED TWICE WITHIN TWENTY-FOUR (24) HOURS OF PLANTING. REGULAR WATERING SHALL BE PROVIDED TO ENSURE THE ESTABLISHMENT, GROWTH AND SURVIVAL OF ALL PLANTS.
- ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE. ANY PLANT MATERIAL THAT DIES WITHIN THAT TIME PERIOD SHALL BE REMOVED, INCLUDING THE STUMP, AND REPLACED WITH MATERIAL OF SIMILAR SIZE AND SPECIES AT THE EXPENSE OF THE DEVELOPER. THE REPLACED PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR AFTER THE REPLACEMENT DATE.
- THE LANDSCAPE CONTRACTOR SHALL PROVIDE A MINIMUM 4" LAYER OF TOPSOIL IN ALL LAWN AREAS AND A MINIMUM OF 6" OF TOPSOIL IN ALL PLANTING AREAS. A FULL SOIL ANALYSIS SHALL BE CONDUCTED AFTER CONSTRUCTION AND PRIOR TO PLANTING TO DETERMINE THE EXTENT OF SOIL AMENDMENT REQUIRED.
- ALL DISTURBED LAWN AREAS SHALL BE STABILIZED WITH EITHER SOD OR SEED AS INDICATED ON THE LANDSCAPE PLANS. SEED SHALL CONSIST OF THE MIXTURE LISTED IN THE GENERAL SEEDING NOTES. ALL DISTURBED LAWN AREAS SHALL BE TOP SOILED, LIMED, FERTILIZED, AND FINE GRADED PRIOR TO LAWN INSTALLATION.
- ALL TREES ARE TO BE GUYED, 3 EACH, UNLESS OTHERWISE NOTED ON PLAN.
- ALL DECIDUOUS TREES ARE TO BE WRAPPED, WITH TREE WRAP, UP TO THE FIRST BRANCHING AND SECURED.
- THE LANDSCAPE CONTRACTOR IS TO PERFORM ALL CONTRACTED WORK IN A REASONABLE PERIOD OF CONTINUOUS WORK.
- THE LANDSCAPE CONTRACTOR IS TO MAINTAIN PLANT MATERIAL WHILE THE PROJECT IS UNDERWAY AND FOR A PERIOD OF TWO WEEKS AFTER THE COMPLETION OF THE PROJECT UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR IS TO CLEAN UP AND REMOVE ANY DEBRIS FROM THE SITE, CAUSED BY THE LANDSCAPE CONTRACTOR.

EXISTING	LEGEND	PROPOSED
	CONTOUR LINE	
	SPOT GRADE	
	EDGE OF PAVEMENT	
	VERTICAL GRANITE CURB	
	SLOPED GRANITE CURB	
	VERTICAL CONCRETE CURB	
	BITUMINOUS CONCRETE CURB	
	CAPE COD BERM	
	STONE WALL	
	CHAIN LINK FENCE	
	IRON FENCE	
	POST & RAIL FENCE	
	STOCKADE FENCE	
	GUARD RAIL	
	STRAW WATTLES	
	WATER LINE	
	FIRE HYDRANT	
	POST INDICATOR VALVE	
	WATER GATE	
	WATER METER PIT	
	IRRIGATION HAND HOLE	
	WELL	
	SEWER LINE	
	SEWER MANHOLE	
	GAS LINE	
	GAS METER	
	GAS GATE	
	DRAIN LINE	
	DRAIN MANHOLE	
	CATCH BASIN	
	OVERHEAD WIRES	
	ELECTRIC, TELEPHONE & CABLE	
	UTILITY POLE	
	GUY WIRE	

REVISIONS

1	4/2/18	CONSERVATION COMMENTS
2	4/30/18	CONSERVATION COMMENTS
3	5/7/18	CONSERVATION COMMENTS

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OFFICES IN:  
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●MARLBOROUGH  
●WARWICK, RI

SITE PLAN

— 61 JOHN VERTENTE BOULEVARD —  
ASSESSORS MAP 133 LOT 47  
NEW BEDFORD, MASSACHUSETTS

PREPARED FOR:  
SHURE 61, LLC  
100 DUCHANE BOULEVARD  
NEW BEDFORD, MA 02745

DRAWN BY: MJW  
DESIGNED BY: MJW  
CHECKED BY: CAF

FEBRUARY 21, 2018

SCALE: AS NOTED

JOB NO. 17-413.1

LATEST REVISION:  
MAY 7, 2018

NOTES

SHEET 5 OF 5

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