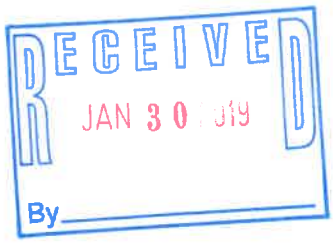
GOVE ENVIRONMENTAL SERVICES, INC.
AGENT



CITY OF PORTSMOUTH CONDITIONAL USE PERMIT APPLICATION

CATE ST. DEVELOPMENT, LLC

CATE ST RE-DEVELOPMENT

MAP-LOTS

172-1

173-2

165-2

163-33&34

Prepared By

Gove Environmental Services, Inc.
8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
Ph (603) 778 0644 / *Fax* (603) 778 0654
info@gesinc.biz / www.gesinc.biz

GES 2018024

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City of Portsmouth Conditional Use Application

City of Portsmouth
Application for Conditional Use Permit
For Use, Activity or Alteration in a Wetland or Wetland Buffer
[Zoning Ordinance – Section 10.1010 – Wetlands Protection]

Date Submitted: 01/30/19 Fee: $1,000.00

Site Address: Cate St., Portsmouth, NH Map ____ Lot See description

Zoning District: G1 Mixed Residential Lot area: 579,348 sq. ft.

Owner		Applicant	
Name	Jay Bisognano	Name	Jay Bisognano
Address	60K St., Boston, MA, 02127	Address	60K St., Boston, MA, 02127
Phone	978-490-5278	Phone	978-490-5278
Email	jb@torprops.com	Email	jb@torprops.com

Proposed Activity (check all that apply):

- ☐ New structure
- ☐ Expansion of existing structure
- ■ Other site alteration (specify): Working within the buffer

Impacted Jurisdictional Area(s) (check all that apply):

- ■ Inland wetland ■ Inland wetland buffer
- ☐ Tidal wetland ☐ Tidal wetland buffer

Total area of inland wetland (both on and off the parcel): _____ sq. ft.

Distance of proposed structure or activity to edge of wetland: ~16 ft.

	Total Area on Lot		Area to be Disturbed	
Inland wetland	7,515.47	sq. ft.	0.0	sq. ft.
Tidal wetland		sq. ft.		sq. ft.
Wetland buffer	106,553.56	sq. ft.	T: 19,567 P: 50,225	sq. ft.

Temporary & Permanent

Description of site and proposed construction: Map 172 Lot 1, Map 173 Lot 2, Map 165 Lot 2, Map 163 Lot 33&34

The proposed project will be a re-development of existing lots for residential living space and will include office and retail space while also improving storm water management on site and removing ~14% impervious surface across the site

See reverse side for Submission Requirements and Information for Applicant.
Both sides must be signed to complete this form.

_____ Date: 1/29/18
Owner

_____ Date: _____
Applicant (if different)

Submission Requirements

The applicant must file 22 copies (10 copies for the Conservation Commission and 12 copies for the Planning Board) of a stamped and folded Site Plan to scale showing the location of the proposed structure, use, activity or alteration in relation to the wetland, as determined by on-site inspection by a certified wetland scientist at a time when conditions are favorable for such inspection and delineation. The plan shall include all information specified in Section 10.1017.20 of the Zoning Ordinance, and shall include a locus map with a north arrow.

Information for Applicant

If there is any question, however slight, of the presence of wetlands on the site, the applicant should consult the City Wetlands Map on file in the Planning Department. If it appears that wetlands might exist on site, the applicant should become familiar with the provisions of Section 10.1010 of the Zoning Ordinance.

Review by Independent Certified Wetland Scientist

In the majority of cases the Planning Board will require the opinion of a qualified independent certified wetland scientist. In such cases the procedure is that the Board applies to the Rockingham County Conservation District for the services of such an individual. The findings of the certified wetland scientist will include, but are not limited to, the suitability of the site for the proposed use and the effect of the project on the wetlands on site and in the vicinity.

The certified wetland scientist will render a report to the District, with copies to the Planning Board and the Conservation Commission. The District will bill the City directly for the services of the certified wetland scientist. The owner /applicant shall forward a check to the City made payable to Rockingham County Conservation District prior to the petition being reviewed by either the Conservation Commission or the Planning Board.

Following the receipt of the report from the Rockingham County Conservation District, the Conservation Commission will review the application and will make a recommendation to the Planning Board. Once such a recommendation is made by the Conservation Commission, the Planning Board will schedule a Public Hearing.

I have read and understand the above information. I will pay any additional fees due as required above.

_____ Date: 11/28/19

Owner

_____ Date: _____

Applicant (if different)

Conditional Use Application Fact Sheet

Conditional Use Application

Fact Sheet

Wetlands, Overall Site:

- Subject Parcel: Map 172 Lot 1, Map 173 Lot 2, Map 165 Lot 2 and Map 163 Lots 33 & 34
  - Total area: 13.3 acres
- Total Wetland Area: Approximately 7,515.47 SF
- Total Area of 100-Foot Wetland Buffer: 106,553.56 SF

Wetland, Proposed Impact:

- Area of Wetland to be disturbed: 0.00 square feet
- Area of 100-foot Wetland Buffer to be disturbed:
  - Permanent: 50,225 square feet
  - Temporary: 19,567 square feet
  - Total: 69,792 square feet
- Minimization: The proposed project avoids all wetland impacts and will remove 15,663 SF of the existing impervious surface
- Avoidance: The proposed design moves all buildings away from the resource area and adds detention basins between Hodgson Brook and the proposed roadway for water quality control.

Wetlands, Proposed Restoration & Site Improvements:

- Area of Wetland Buffer to be restored: 19,567 square feet
  - Existing impervious surface to be reduced by 15,663 SF
  - Invasive species removal (Japanese Knotweed)
  - Native plantings to be installed
  - Detention basins to be installed for water quality
- Net Wetland Buffer Improvement: 19,567 square feet
- Other Site Improvements:
  - Introduce stormwater management to the site
  - Stormwater detention basin provides treatment of runoff
  - Stormwater will no longer flow untreated into Hodgson Brook
  - Plantings in 19,567 square feet of temporary disturbance area

Conditional Use Application Requirements & Criteria for Approval

GOVE ENVIRONMENTAL SERVICES, INC.

Conditional Use Application

10.1017.21

The application shall be in a form prescribed by the Planning Board, and shall include the following information:

(1) Location and area of lot and proposed activities and uses;

All work subject to conditional approval as noted in 10.1016.20 will occur on the 13.3-acre project site that incorporates Map 163, Lots 33&34 (0.28-acres,1.54-acres), Map 165, Lot 2 (1.6-acres), Map172, Lot 1 (5.43-acres), Map 173, Lot 2 (3.35-acres) and the right of way for Cate St adjacent to the aforementioned lots. Proposed activity within the 100ft buffer is for the construction of a through road that will join Cate St. to the Borthwick Ave and Route 1 intersection. During the construction of the connecting roadway, approximately 15,663 SF (~24%) of existing impervious surface currently within the buffer will be removed and the areas will be vegetated with native plantings. Other impacts within the buffer associated with the proposed project include invasive species removal, culvert removal and construction of treatment swale.

(2) Location and area of all jurisdictional areas (vernal pool, inland wetland, tidal wetland, river or stream) on the lot and within 250 feet of the lot;

GES reviewed work previously done by another wetland scientist on site. Upon review of all the jurisdictional wetland areas established on site we deemed them to be accurate based on the current wetland delineation standards. All wetlands on site are outlined on page CW-100 and CW-101

(3) Location and area of wetland buffers on the lot;

Total Wetland area on site:	7,515.47 SF
Total Area of 100ft Wetland Buffer:	106,553.56 SF
Area of Wetland Buffer to be Disturbed:	69,792 SF
Area of Wetland to be Disturbed:	0.00 SF (no direct wetland impacts)

See Plan:

(4) Description of proposed construction, demolition, fill, excavation, or any other alteration of the wetland or wetland buffer;

The applicant is proposing to connect Cate St. to the intersection of Borthwick Ave, and Route 1. During this proposed construction extending Cate St. removal of 15,663 SF of existing impervious pavement will be removed. Additional work within the buffer will include invasive species removal, culvert removal, and the construction of a treatment swale for storm water that enters Hodgson's Brook.

(5) *Setbacks of proposed alterations from property lines, jurisdictional areas and wetland buffers;*

See Proposed Conditions, Site Plan: CC-101

(6) Location and area of wetland impact, new impervious surface, previously disturbed upland;

There are no direct wetland impacts associated with the proposed development. All proposed work regarding the conditional use permit will occur within the bank of Hodgson Brook or within the 100ft buffer of the established wetland delineation. Existing impervious surface on site is 64,525 SF. The proposed development will impact approximately 48,862 SF of wetland buffer through the connection of Cate St. to the intersection of Borthwick Ave, and Route 1. This will result in 15,663 SF less impervious surface within the wetland buffer than what is currently existing on site. An additional 5,267SF of temporary impact will be done within the bank for removal of invasive species, and two culverts as well as the construction of a water quality treatment swale. All areas that will be considered temporary impacts will be re-established using an erosion control seed mix and native plantings to ensure that the areas are stabilized

(7) Location and description of existing trees to be removed, other landscaping, grade changes, fill extensions, rip rap, culverts, utilities;

This information is shown on Wetland Impact Plan CW-101. As part of the project, the dumping material as well as invasive species and culvert are to be removed and disposed of off-site. This are will be amended with clean material and planted with native species.

(8) Dimensions and uses of existing and proposed buildings and structures.

The two existing buildings on Map 165 Lot 2 are commercial warehouses, the two existing buildings on Map 172 Lot 1 include the Frank Jones Center as well as a second commercial building which does not appear to have active tenants, Map 163 Lots 33 & 34 both have buildings existing on the lots with one being a residential building (33) and the second being a landscaping station (34). There are no current structures on Map 173 Lot 2. The proposed buildings include 2 apartment buildings with a total of 250 units, 23 townhouse condos, and a retail/office building.

(9) Any other information necessary to describe the proposed construction or alteration.

The proposed project will remove 15,663 SF of the existing impervious surface within the 100-ft buffer along Hodgson Brook and replace it with native plantings to help re-establish native fauna along this section of the brook. No work will be occurring within Hodgson Brook. All work proposed by the applicant will only benefit the functions and values of this resource area.

10.1017.22
The application shall describe the impact of the proposed project with specific reference to the criteria for approval set forth in Section 10.1017.50 (or Section 10.1017.60 in the case of utility installation in a right-of-way), and shall demonstrate that the proposed site alteration is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Ordinance.

Project Description

The proposed project will look to redevelop the site previously mentioned above. The redevelopment will create addition residential living spaces as well as some commercial office and retail space. Currently the site is almost entirely paved or developed with 80.5% of the 13.3-acre site having impervious surface. The proposal brought forward by the applicant looks to remove approximately 14% of the impervious surface across the site and remove 24% of the impervious surface within the wetland buffer. The project also will tackle the stormwater treatment across the site as there is currently no treatment for stormwater before it enters directly into Hodgson Brook. Stormwater treatment will be done using, bioretention areas as well as a treatment swale and a closed drainage system.

Site Description

The site is almost entirely developed with impervious surface. Of the 13.3-acre site 10.7 acres are covered with impervious surface. A small area along Hodgson Brook appears to be somewhat naturally vegetated, however, this area also is becoming overrun with invasive species such as knotweed and rugosa rose. Drainage on site currently discharges directly into Hodgson Brook due to either sheet flow as the site is sloped towards the brook or though outflow pipes connected to catch basins on site. Impervious surface extends for a significant portion of the site adjacent to the top of bank leaving only a small amount of vegetated buffer between the current pavement and Hodgson Brook.

Explanation of Proposed Buffer Impact

The applicants proposed impacts to the buffer of the resource area (Hodgson Brook) are to remove impervious surface from within the buffer, removal of invasive species and two culverts within the top of bank, the construction of a treatment swale and the connection of Cate St. to the intersection of Borthwick Ave and Route 1.

10.1017.50
Criteria for Approval Any proposed development, other than installation of utilities within a right-of-way, shall comply with all of the following criteria:

(1) The land is reasonably suited to the use, activity or alteration.
The subject properties are within the G1 Zoning district Mixed Residential (Gateway Corridor). In Section 10.410 of the Zoning Ordinance, the purpose and definition of the G1 district "is to facilitate a broad range of housing types together with compatible

commercial, fabrication, and civic uses in a high-quality pedestrian environment with moderate to high density."
The proposed project looks to promote a high-quality pedestrian environment at a moderate to high density. This is accomplished with the project design as it promotes the addition of open community space though the projects residential buildings as well as the promotion of a proposed pedestrian walking/biking trail adjacent to Hodgson Brook.

(2) There is no alternative location outside the wetland buffer that is feasible and reasonable for the proposed use, activity or alteration.
The proposed project looks to move the road out of the buffer to the greatest extent possible. The roadway needs to impact the wetland buffer slightly as it needs to have smooth connectivity with the existing intersection of Borthwick Ave and Route 1. The proposed project will be removing 15,663SF of impervious surface that is currently within the buffer.

(3) There will be no adverse impact on the wetland functional values of the site or surrounding properties;
There will be no adverse impacts on the wetland's functional values from the proposed project. All impacts within the buffer and associated with the project will be beneficial to the wetland's functional values through the removal of impervious surface within the buffer and the treatment of stormwater that would otherwise not be treated before entering into Hodgson Brook.

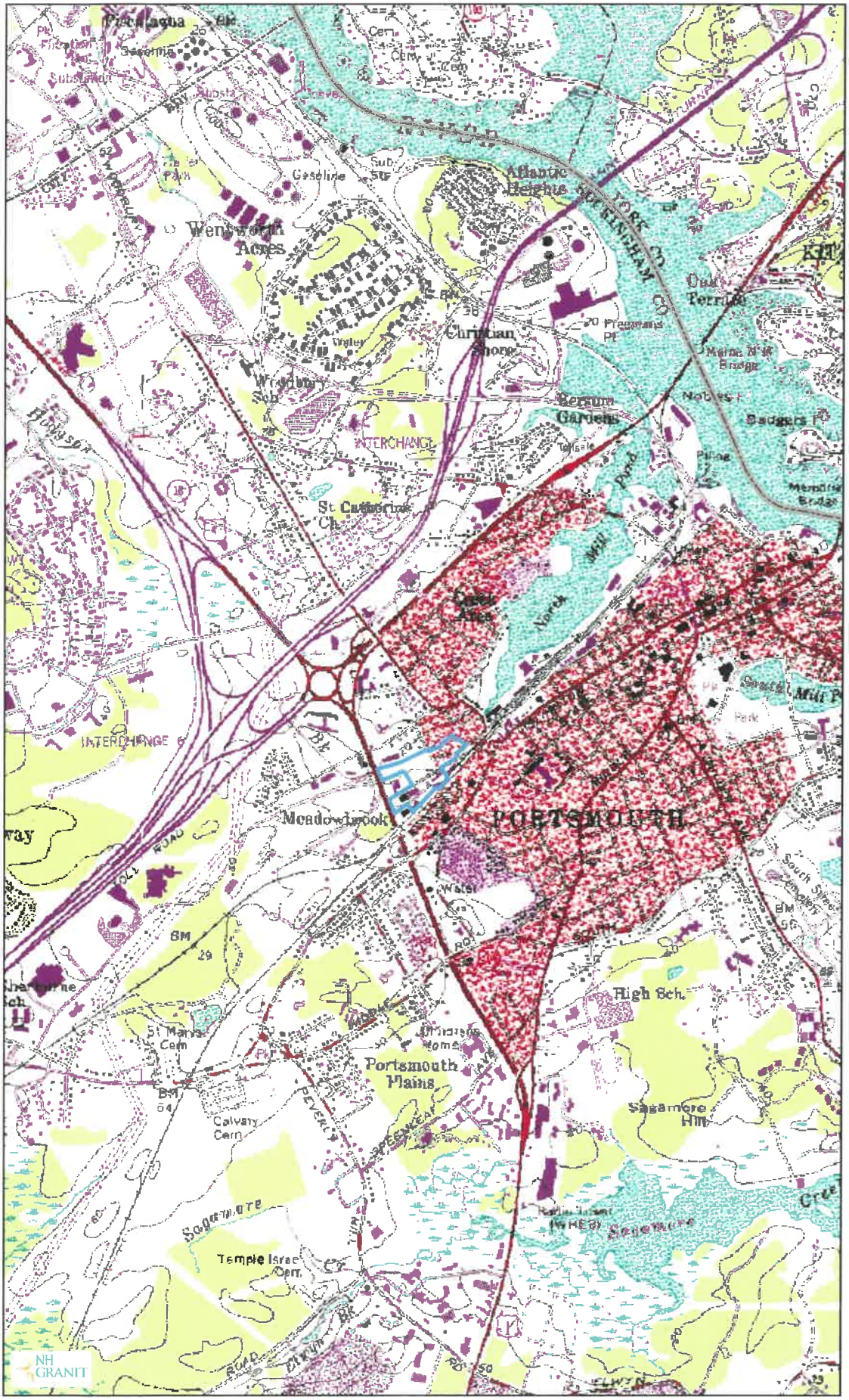
(4) Alteration of the natural vegetative state or managed woodland will occur only to the extent necessary to achieve construction goals; and
The impact to the 100ft buffer has been limited to the greatest extent possible. no unnecessary grading or clearing of vegetation will occur. The impact will be limited to 50,225 SF of permanent impact.

(5) The proposal is the alternative with the least adverse impact to areas and environments under the jurisdiction of this Section.
The proposed project avoids all direct wetland impacts and will remove approximately 24% of the existing impervious surface currently within the buffer and the project design moves all buildings away from the resource area and adds stormwater management to the site so the water will see treatment before entering Hodgson Brook.

(6) Any area within the vegetated buffer strip will be returned to a natural state to the extent feasible.
All temporary impacts within the buffer will be re-established with native vegetation and stabilized using erosion control BMP's.

Locus Map

Site Location



Legend

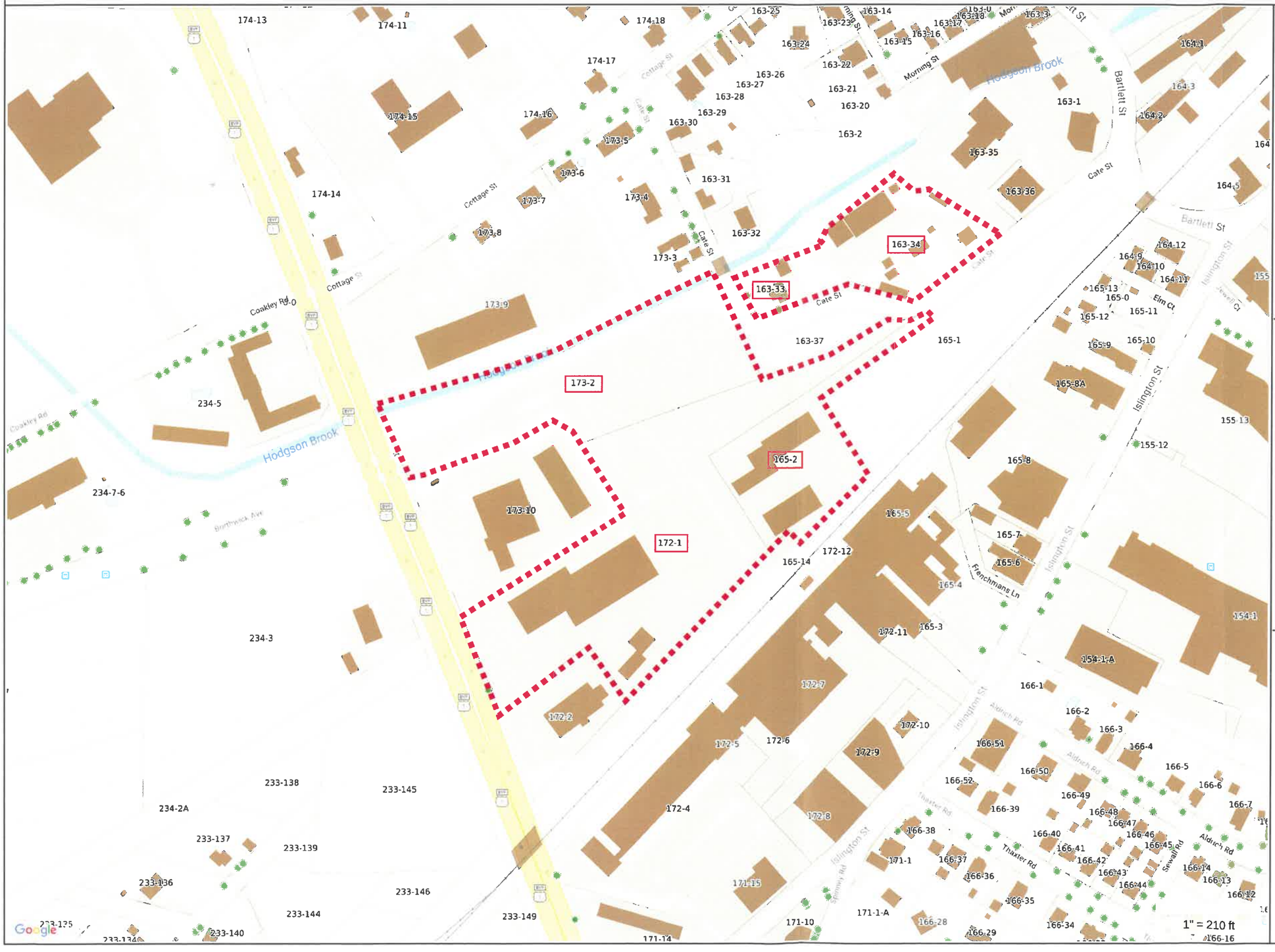
- State
- County
- City/Town

Map Scale
1: 25,000

Map Generated: 8/28/2018

Notes

Tax Map

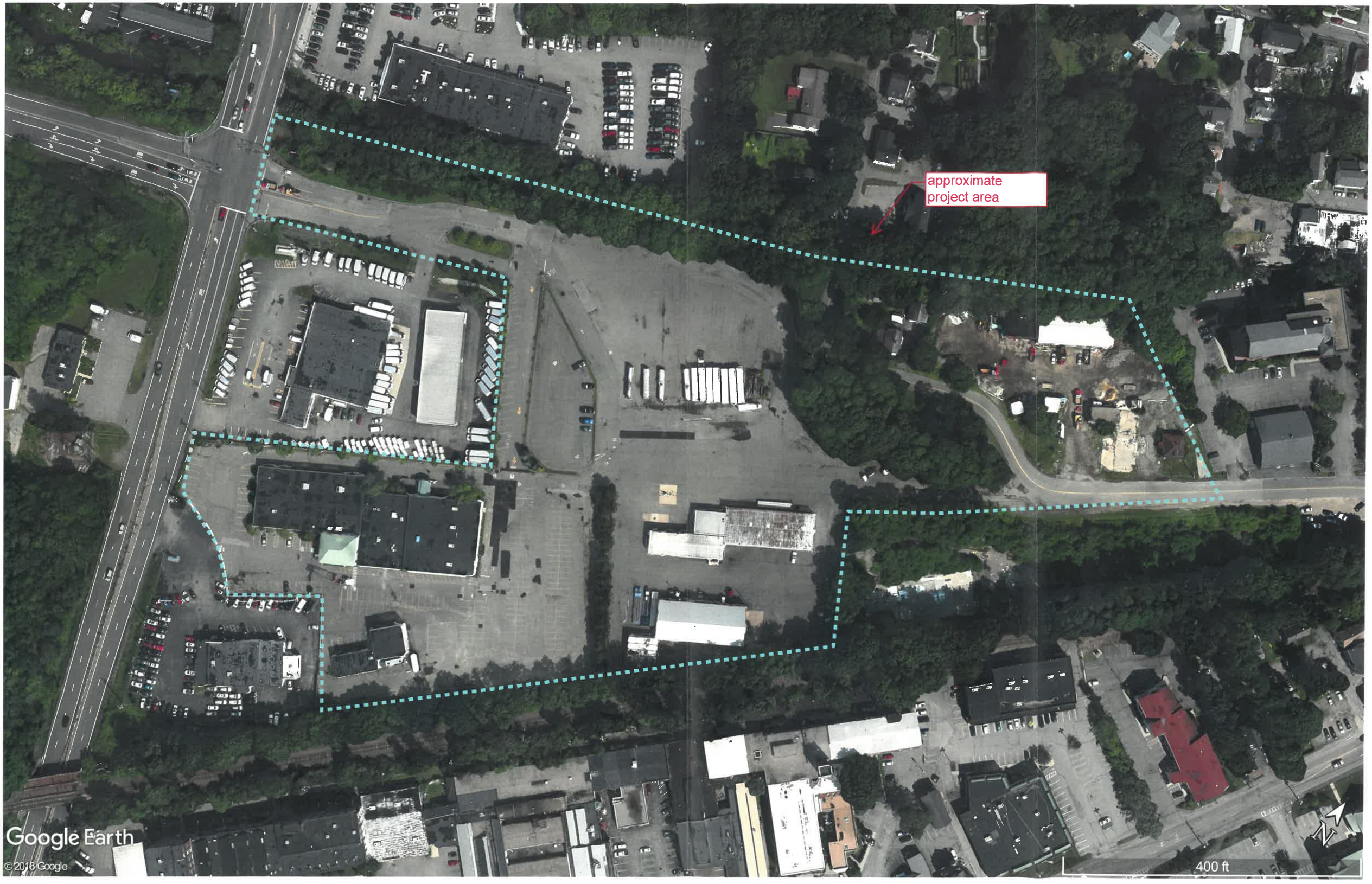


MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Portsmouth, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 11/30/2018
Data updated 11/19/2018

Overview Photo


approximate
project area
Google Earth
© 2018 Google
400 ft
N

NH Fish & Game Wildlife Map of Highest Ranked Wildlife Habitat

Highest Ranked Habitat

Legend

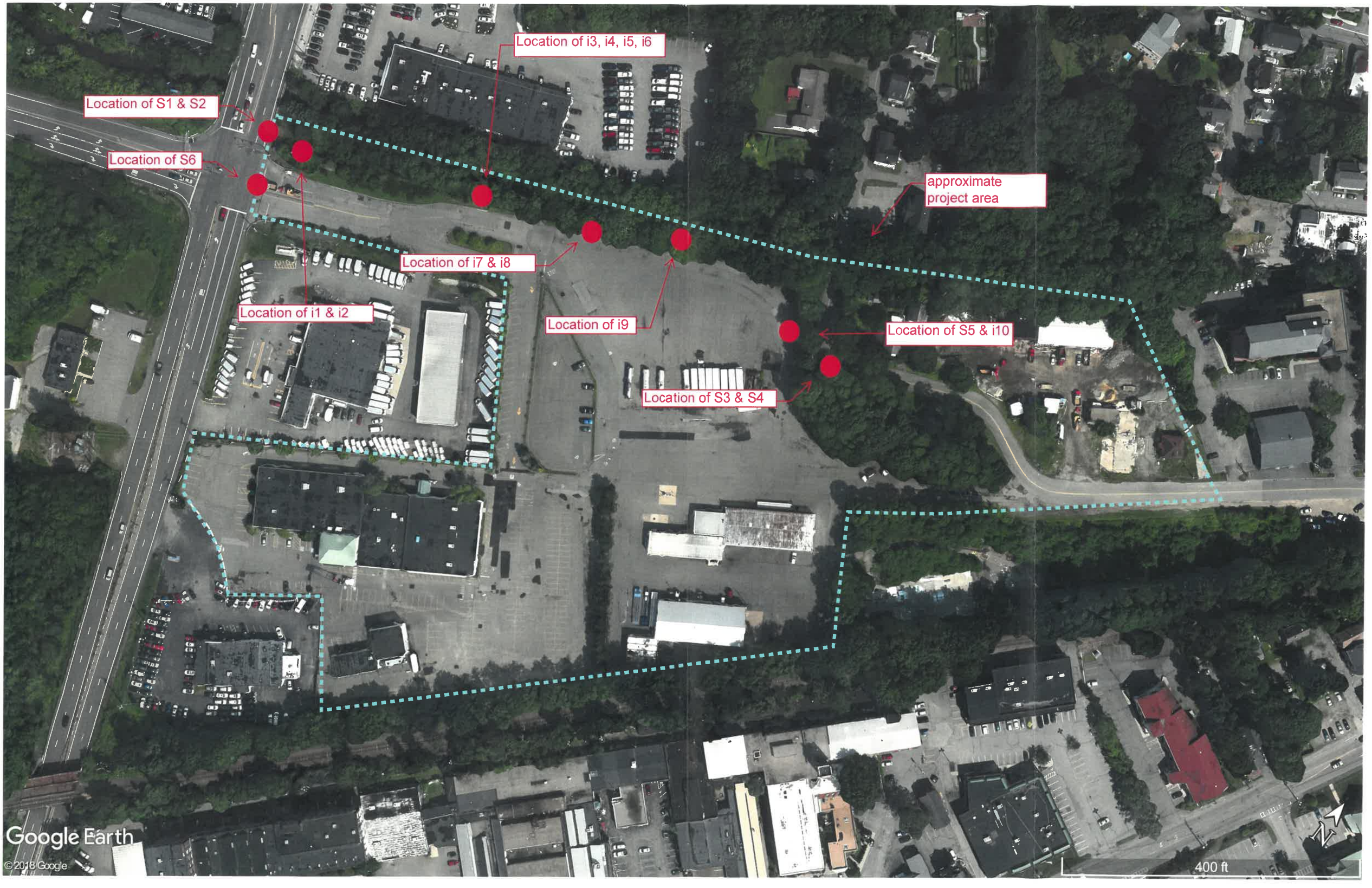
WAP 2015: Highest Ranked Wildlife Habitat
- Not Top Ranked
- Highest Ranked Habitat in NH
- Highest Ranked Habitat in Region
- Supporting Landscape

Map Scale
1: 25,000

Map Generated: 8/28/2018

Notes

Photo Locations


Location of i3, i4, i5, i6
Location of S1 & S2
Location of S6
approximate
project area
Location of i7 & i8
Location of i1 & i2
Location of i9
Location of S5 & i10
Location of S3 & S4
Google Earth
© 2018 Google
400 ft

Photos of Street Scape, Photos #1-#5

Photo #S1: Looking south at the intersection of Route 1 and Borthwick Ave along the frontage of the property

Photo #S2: Looking north along the property frontage on Route 1

Photo #S3: Looking to the north along Cate St.

Photo #S4: Looking to the west along Cate St.

Photo #S5: Looking out at the the open lot area to the intersection of Borthwick Ave and Route 1

Photo #S6: Looking west towards the project are with wetland buffer impacts to the left. Route 1 behind photographer

Photos of Location of Buffer Impacts, Photos #10-#20

Photo I1: Impact area #1 looking toward the bank. Route 1 is behind the photographer.

Photo I2: Impact area #1. Looking toward Route 1.

Photo I3: Looking towards Route 1 along the bank at impact area #2

Photo I4: Depicting the abundance of Japanese Knotweed. Looks north towards Hodgson Brook, showing impact area #3

Photo I5: Depicting the abundance of Japanese Knotweed. Looks into Hodgson Brook, showing impact area #3

Photo I6: Depicting the abundance of Japanese Knotweed. Looks upslope toward the parking lot on site with Hodgson brook behind. This shows impact area #3

Photo I7: Depicting the abundance of Japanese Knotweed. Looks north towards Hodgson Brook, showing impact area #4

Photo I8: Depicting the abundance of Japanese Knotweed. Looks north towards Hodgson Brook, showing impact area #4

Photo I9: Depicting the abundance of Japanese Knotweed. Looking towards Route 1 and down slope towards Hodgson Brook, showing impact area #4.

Photo I10: Looking towards Route 1 with impact areas in the buffer to the left.

Stormwater Management Report

West End Yards

Cate Street/Route 1
Portsmouth, NH 03801

APPLICANT & OWNER

Torrington Properties Inc.

60 K Street
Boston, MA 02127

Waterstone Property Group

322 Reservoir Street
Needham, MA 02494

November 19, 2018

FUSS & O'NEILL

Libby House
5 Fletcher Street, Suite 1
Kennebunk, ME 04043

Project No. 20180317.A10

FUSS & O'NEILL

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Stormwater Management Report
West End Yards

FUSS & O'NEILL

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FUSS & O'NEILL

1 Executive Summary

This Stormwater Management Report describes proposed work and stormwater management associated with the re-development of the Frank Jones Center Property as well as a collection of other properties along Cate Street, located between Route 1 Bypass and Bartlett Street, Portsmouth, New Hampshire (Site). The Site is identified on the Site Location Map, *Figure 1*.

The results of the redevelopment of these parcels of land are as follows:

1) 1.8 Acre reduction of impervious surfaces on the 13.31 Acres being redeveloped
    a. Equivalent to a 13.6% reduction

2) 0.35 Acre reduction of impervious surface in the wetland buffer along Hodgson Brook
    a. Equivalent to a 24% reduction of impervious surface in the buffer

3) 100% Stormwater pre-treatment
    a. Currently stormwater is not pre-treated

4) 50%-100% Stormwater Treatment
    a. Currently stormwater is not treated

5) Provision of a 25 to 30-ft wide vegetated wetland buffer along the top of bank to Hodgson Brook
    a. Currently only a short section of the wetland and brook has a vegetated buffer at the top of bank

6) Increased Stormwater Infiltration both passively through restoration of vegetated areas and actively through Stormwater Management Practices such as, bioretention areas and Infiltration Chamber Galleries

7) Net reduction on stormwater runoff to Hodgson Brook and the Watershed points of Analysis, both in Flow Rate and Volume

The proposal consists of the construction of:

1) A new City Street, in essence an extension of Cate Street to Route 1 Bypass at the current intersection of Route1 Bypass, Borthwick Avenue and the Frank Jones Center driveway

2) A multi-use / Bike Trail along the alignment of the new City Street from Route 1 Bypass to Bartlett Street.

3) A Dog Park

4) New greenspaces throughout the site

5) A 20,000-sf footprint Retail / Commercial / Office Building in the current location of the Frank Jones Center. Gross floor space of 40,000-sf over 2 floors

6) 2, 5 story Apartment Buildings providing a total of 325 apartment units

7) 23 Townhomes

8) Parking for all of the uses above Commercial, Office and Residential

Existing and proposed hydrologic conditions for the development of the project Site were evaluated to compare existing and proposed stormwater peak discharges and volumes. The evaluation demonstrates a net decrease in peak stormwater discharge and volume for the 2-year, 10-year, 25-year, and 100-year storm events.

2 Project Description

2.1 Existing Conditions

The Site, 13.3 Acres of commercial land, is located east of U.S. Route 1 Bypass in Portsmouth, New Hampshire (Refer to *Figure 1)*. Existing Site features include the Frank Jones Center and an accessory building on Tax Map 172 Lot 1, parking area on Tax Map 173 Lot 2, 2 industrial buildings on Tax Map 165 Lot 2, The PK Brown contractor yard and buildings on Tax Map 163 Lot 34, a House and outbuildings on Tax Map 163 Lot 33, and City Land occupied by Cate Street and a pocket of woods.

2.1.1 Site Parameters

A review of Federal, state, and local requirements for the Site generated the following results:

- The Site lies outside the 500-year flood plain, denoted as "Zone X" on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map Community Panel Number 33015C0259E, May 17, 2005.

- The Site is free of Endangered Flora or Fauna Habitat that would be directly affected by the project per the New Hampshire Natural Heritage Bureau (NHB). Refer to *Appendix C.*

- Freshwater wetland resources exist on and adjacent to the property. Resource area delineations were completed by Luke Hurley, CWS, CSS of Gove Environmental Services, Inc. and are included on the plans. These Wetlands are subject to a 100-ft wetland buffer.

2.1.2 Soils

The Site is characterized by Natural Resources Conservation Service (NRCS, formerly SCS) as Urban land-Canton complex, which is classified as Hydrological Soil Group (HSG) D. A

websoil survey of the soils within the Site can be found in *Appendix C.*

A Site Specific Soils Mapping (SSSM) has been prepared for the site by Luke Hurley, CWS, CSS of Gove Environmental Services, Inc. Based upon the mapping the site has been mapped as:

> ***400A Udorthents, sandy or gravelly***
> *This map unit typically includes the following concepts: 1) very gravelly (> 35%) sand or very gravelly loamy sand; Or 2) sand or loamy sand textures that may have lenses of loamy very fine sand or finer somewhere in the particle-size class control section (25 - 100 cm or 10 - 40"). Saturated hydraulic conductivity (Ksat) is high or very high. Drainage class ranges from excessively drained to somewhat poorly drained. Typical gravel pit.*

Mr. Hurley has offered that this would equate to an Eldridge NRCS, 38 Hydrologic Soils Group (HSG) C. According to this guidance we have used HSG C for the drainage analysis.

Hydraulic conductivity is being confirmed by McPhail Associates, Inc. the team Geotechnical Engineers.

ESHWT will be confirmed by Testpit in each stormwater practice.

2.2 Proposed Conditions

The redevelopment of the site, will reduce impervious cover by13.6% over the entire site area and greatly improve the stormwater collection, conveyance, treatment and ability to provide groundwater recharge on site. The practices implemented to accomplish this are discussed further in section 3.3.

2.2.1 Design Elements

The following measures have been incorporated in the project design to control the peak stormwater runoff rate, provide recharge, and treat stormwater generated by the site:

- Best Management Practices Designed in accordance with the City of Portsmouth regulations and the NHDES Stormwater Manual;
- An Erosion and Sediment Control plan has been developed that will prevent direct discharges to wetlands, and avoid or minimize channelized stormwater flow directly into wetland resource areas;
- Land disturbance and grading shall be conducted in a selective manner and appropriate construction BMPs are incorporated to preclude construction period runoff/erosion;
- Top soil is preserved or supplemented sufficient to maintain vegetation cover;
- All conveyances and outfalls are dissipated outside of wetland areas; and

- No work is proposed in Essential or Significant Wildlife Habitats or fisheries habitats, as identified by the NHB.

3 Hydrologic Analysis

The hydrologic analyses for existing and proposed conditions were completed using HydroCAD version 10.00-20 to determine peak runoff flow rates and total runoff volumes for the watershed models. HydroCAD is based on the NRCS Technical Release 20 and Technical Release 55, and is subject to cumulative rainfall/volume dependent routing calculations. Hydrographs are prepared for each element of the watershed and routed through the dynamic-storage-indication method to produce various time-based results.
Labeling on the drainage plans and HydroCAD diagrams is as follows:

- Subcatchments – represented by hexagons
- Ponds – represented by triangles
- Reaches and Analysis Points – represented by squares
- Time of Concentration – represented by circles with letters and flow lines

The Pre and Post-Development hydrologic analysis has been included in *Appendix F.*

3.1 Existing Watershed Summary

The majority of stormwater runoff from the existing on-site development is conveyed via the cities stormwater runoff system which runs south to north along U.S. Route 1 Bypass. The stormwater system and the outfalls into Hodgson Brook are designated as Analysis Point AP1. A small portion of stormwater flows offsite and is designated as Analysis Point AP2. All soils on Site are hydrologic soils group C.

14 subwatersheds have been established for the project's pre-development conditions. Refer to the Pre-Development Subwatershed Plan included as *Figure 3.*

3.2 Proposed Watershed Summary

Post-development stormwater management features have been located and designed to imitate a more natural distribution of stormwater over the site than what exists today due to the extreme amount of impervious coverage. Stormwater is conveyed via closed drainage system to one of the following:

- Water Quality Unit followed by a vegetated swale and level spreader
- Bioretention areas
- Subsurface Infiltration Chamber galleries

Overflow stormwater leaves the infiltration practices in large storm events and flows to either Hodgson Brook or the City closed Drainage system on Bartlett Street via overflow pipes tied to the proposed closed drainage system.

38 subwatersheds have been established for the project's post-development conditions. Refer to the Post-Development Subwatershed Plan included as *Figure 4*.

3.3 Best Management Practices

BMPs have been incorporated into the proposed Site improvements in order to protect natural resources from point source stormwater releases associated with the development. The following sections discuss the various BMP's employed.

3.3.1 Off-line Closed Drainage System

A project of this size will inevitably require a closed drainage stormwater collection system employing catch basins, drain manholes and pipe to route stormwater to locations on site available to treat and control it prior to release to downstream areas in the watershed.

There are two common types of closed drainage systems employed In-line and Off-line.

In an in-line closed drainage system, stormwater is collected by catch basins that are connected to each other in series as the system moves down gradient across the site. This type of system re-suspends any solids that settle in the downstream catch basin sumps as flow from upstream catch basins are conveyed through them. Ultimately, this provides little to no pre-treatment of suspended solids.

The proposal utilizes an off-line closed drainage system. In an off-line system, stormwater is collected by catch basins that are then connected to a "drain main" via drain manholes. The sump of each catch basin is then able to retain the suspended solids that enter the catch basin without being re-suspended by flow from another catch basin flowing through it. The proposal also implements catch basins that are "hooded". The hoods are accessories that are mounted to the wall of the catch basin over the invert out that extend about 1-ft below the invert which help to retain floating solids and help settle sediment in the sump of the catch basin.

3.3.2 Bioretention Basins (Rain Gardens)

Bioretention areas are being employed to treat and control stormwater along the new City Street on the north side. The bioretention areas are located at the curve in the road at the east end of the site.

Bioretention basins utilize biologic actions that take place in all soil cross sections to treat stormwater. The soil in a bioretention basin, commonly referred to as a rain garden is a specific tested mix of soils components, that create a soil with a very specific infiltration rate and organic soil / sand mix. Bioretention basins can be constructed in any existing soil condition.

If the existing soil in the location of the bioretention basin provide adequate separation from Estimated Seasonal High Water Table (ESHWT) and sufficient hydraulic conductivity (Ksat), infiltration can be used as one of the means the basin outlets stormwater, providing groundwater recharge.

In the event that the ESHWT separation requirements cannot be met, the bioretention basin can be lined and equip with an underdrain that is outleted to a closed drainage system or an appropriate outfall in the watershed.

The proposal employs bioretention basins that provide some infiltration and groundwater recharge and are also equipped with underdrains to ensure that stormwater does not remain ponded for more than 72 hours.

3.3.3 Subsurface Infiltration Chambers

Subsurface Chambers are being used by this proposal. Particularly, Stormtech SC740 chambers. These chambers consist of high density poly ethylene (HDPE) arches embedded in clean washed stone. The chambers provide superior storage and the stone provides both storage and a stable interface with the in-situ soils the chamber gallery is constructed in. Stormtech Chamber systems provide an additional amount of pre-treatment in one row of chambers called the isolator row. Stormwater is directed to the isolator row first and flows laterally through perforations to the chambers and stone adjacent to it. The isolator row is constructed on top of filter fabric allowing any sediment finding its way to the chambers to be trapped and kept out of the stone. With adequate separation to ESHWT and Ksat infiltration can be employed to allow the stormwater to recharge the groundwater.

In the event that inadequate separation to ESHWT or Ksat are available, chamber galleries can be lined, creating a subsurface detention system.

3.3.4 Water Quality Unit (WQU)

A Water Quality Unit is being provided in the design just prior to the treatment swale and level spreader that allows discharge of stormwater from the closed drainage system to outlet to Hodgson Brook. The WQU will ensure maximum suspended solids removal ahead of stormwater release to the brook.

3.3.5 Treatment Swale with Level Spreader

A treatment swale and level spreader are provided at the outfall of the closed drainage system ahead of Hodgson Brook to ensure energy in the stormwater is dissipated prior to release.

3.3.6 Vegetated Buffer

The design as proposed provides a vegetated buffer along the alignment of the new City Street between the multi-use / bike trail and the top of bank to Hodgson Brook. While this is an improvement, it cannot be claimed as a treatment practice under the NHDES Stormwater rules because it is note deep enough.

3.4 Hydrologic Analysis Results

Today the stormwater generated on site either flows to Hodgson Brook at Analysis Point AP1 or to the City Closed Drainage system in Cate Street hat is connected to the system in Bartlett Street denoted by Analysis Point AP2. The Pre development site is highly impervious,; developed with buildings and paved areas.

The post-development decrease in impervious ground cover and proposed BMPs will attenuate peak flows from the Site. The proposed improvements will result in a net decrease to the Analysis Points AP 1 and AP2 in peak stormwater discharge for the 2-year, 10-year, 25-year, and 100-year 24-hour storm events, as compared to the existing conditions peak stormwater flowrate. The following tables summarize existing vs. proposed stormwater flows for the watershed analysis.

Table 1.1: AP1 Peak Stormwater Flowrate Results at Analysis Point

Design Storm	Existing Flow (cfs)	Proposed Flow (cfs)	Net Change (cfs)
2-year	19.05	14.64	-4.41
10-year	31.76	24.65	-7.11
25-year	41.92	32.59	-9.33
50-year	51.47	40.06	11.41
100-year	62.99	49.07	-13.92

Table 1.2: AP1 Total Stormwater Volume Results at Analysis Point

Design Storm	Existing Volume (cf)	Proposed Volume (cf)	Net Change (cf)
2-year	71,714	50,708	-21,006
10-year	119,732	86,485	-33,247
25-year	158,390	116,426	-41,964
50-year	195,136	148,224	-46912
100-year	239,786	189,222	-50,564

Table 2.1: AP2 Peak Stormwater Flowrate Results at Analysis Point

Design Storm	Existing Flow (cfs)	Proposed Flow (cfs)	Net Change (cfs)
2-year	12.66	3.54	-9.12
10-year	20.38	6.52	-0.60
25-year	26.37	10.00	-16.37
50-year	31.95	11.79	-20.16
100-year	38.64	14.73	-23.91

Table 2.2: AP2 Total Stormwater Volume Results at Analysis Point

Design Storm	Existing Volume (cf)	Proposed Volume (cf)	Net Change (cf)
2-year	43,124	14,167	-28,957
10-year	71,074	27,815	-43,259
25-year	93,230	40,616	-52,614
50-year	114,126	53,441	-60,685
100-year	139,392	70,107	-69,285

As can be seen the re-development of the site affords a unique opportunity to reduce stormwater flows both in rate and volume to a taxed waterway and an existing City Storm Drain.

4 Soil Erosion and Sedimentation Control

Soil erosion and sedimentation control details and narratives for construction periods are provided in the Stormwater Pollution Prevention Plan (SWPPP) [Pending] and the Site plans. Soil erosion and sedimentation control details and procedures are consistent with the NHDES best management Practices for Erosion and Sediment Control.

Erosion and sedimentation controls used on the Site during construction will include silt fence, check dams, hay bales, a construction entrance, and water for dust control. Additional erosion and sediment controls will be utilized as required. Silt fence and hay bales will be placed down-gradient of disturbed areas and up-gradient of wetlands. A construction entrance will be installed to ensure sediment does not get tracked onto US Route 1 Bypass or Bartlett Street.

Water will be applied to exposed soils to provide dust control as needed.
The schedule for the commencement or cessation of construction activities, grading, and soil stabilization measures ceased on a portion of the Site, and stabilization measures initiated, shall be recorded and maintained as part of the SWPPP.

4.1 Construction Support Activities

Waste materials generated from construction activities will include excavated soil, brush, asphalt, and building demo debris. All excavation debris and other waste will be transported to an approved disposal facility. If required, materials may be temporarily stockpiled within designated staging areas. Details and procedures are provided in the construction Site plans. Construction materials will be present on-site during various stages of construction. All materials will be temporarily stored within designated staging or lay-down areas and will be transported to the Site as needed. Construction vehicle fueling will take place at a designated staging area only. Staging areas will be located within the limit of work, outside the wetlands located on-site.

5 Summary

This Stormwater Management Report describes proposed work and stormwater management associated with the re-development of the Frank Jones Center and assembled properties.

The proposed Site improvements will decrease post-development peak stormwater runoff rates and volumes. 2 bioretention areas and 4 subsurface infiltration galleries as well as an offline closed drainage system and a vegetated swale and level spreader all work together to accomplish the improvements.

WEST END YARDS

CATE STREET · PORTSMOUTH · NEW HAMPSHIRE

CONDITIONAL USE PERMIT PLANS

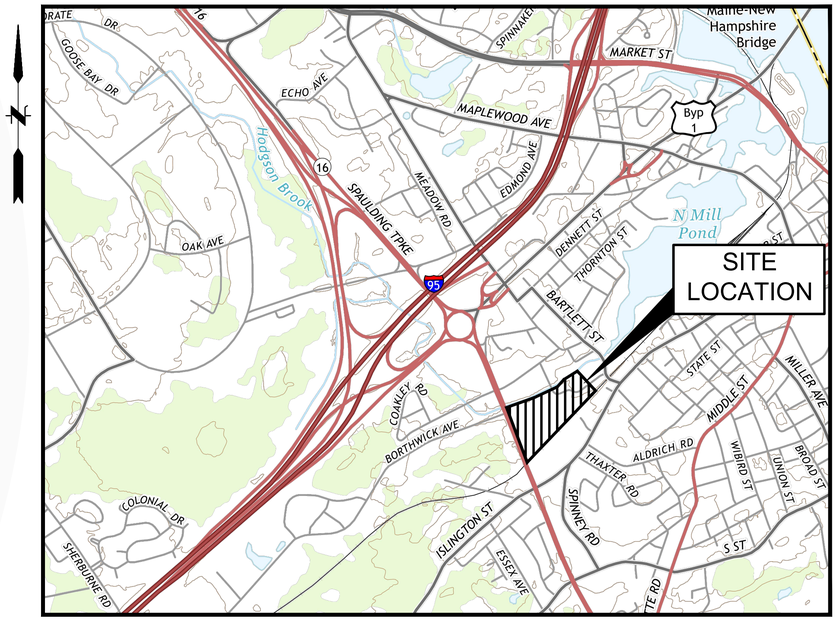
MARCH, 2019

PREPARED FOR

CATE STREET DEVELOPMENT, LLC
60 K STREET
BOSTON, MA 02127

PREPARED BY

FUSS & O'NEILL
UPPER SQUARE BUSINESS CENTER
5 FLETCHER STREET, SUITE 1
KENNEBUNK, MAINE 04043
207.363.0669
www.fando.com



LOCATION MAP
SCALE: 1" = 1200'

SHEET INDEX

PROJECT TEAM

LAND SURVEYOR
DOUCET SURVEY, INC
102 KENT PLACE
NEWMARKET, NH. 03857
603.659.6560

NATURAL RESOURCES CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC
8 CONTINENTAL DRIVE
BUILDING 2, SUITE H
EXETER, NH. 03833-7507
603.778.0644

DIG SAFE ME NH VT CALL T-888-DIG-SAFE TOLL FREE UTILITIES UNDER GROUND PLANT DAMAGE PREVENTION SYSTEM

CONTACT DIG SAFE 72 HOURS PRIOR TO CONSTRUCTION

THE LOCATION OF ANY UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. CLD CONSULTING ENG. INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. 72 HOURS PRIOR TO ANY EXCAVATION ON SITE, THE CONTRACTOR SHALL CONTACT DIG-SAFE AT 1-888-DIG-SAFE.

PROJ. No.: 20170317.000
DATE: MARCH 2019

C-001

CIVIL GENERAL NOTES

GENERAL

1. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SHOWN ON THE DRAWINGS TO SCALE OR TO THEIR ACTUAL DIMENSION OR LOCATION. COORDINATE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
2. DO NOT RELY SOLELY ON ELECTRONIC VERSIONS OF DRAWINGS, SPECIFICATIONS, AND DATA FILES THAT ARE PROVIDED BY THE ENGINEER. FIELD VERIFY LOCATION OF PROJECT FEATURES.
3. PERFORM NECESSARY CONSTRUCTION NOTIFICATIONS, APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK AS REQUIRED BY THE CONTRACT DOCUMENTS.
4. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDINGS AND ADJACENT SITE ELEMENTS INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
5. BASE PLAN: THE PROPERTY LINES SHOWN WERE DETERMINED BY AN ACTUAL FIELD SURVEY CONDUCTED BY (NAME OF SURVEYOR), AND FROM PLANS OF RECORD. THE TOPOGRAPHY AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY (NAME OF SURVEYOR) AND AERIAL SERVICES PERFORMED BY (NAME OF AERIAL COMPANY) DURING (DATE PERFORMED).
6. TOPOGRAPHIC ELEVATIONS ARE BASED ON (NAME) DATUM.
7. GEOTECHNICAL DATA INCLUDING TEST PIT AND BORING LOCATIONS AND ELEVATIONS WERE OBTAINED FROM (NAME OF GEOTECHNICAL ENGINEER).
8. WETLANDS WERE DELINEATED BY (NAME OF SOIL SCIENTIST) ON (DATE).

WORK RESTRICTIONS

1. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, FIRE HYDRANTS, AND UTILITIES WITHOUT APPROPRIATE PERMITS.
2. WORK IS RESTRICTED TO THE HOURS OF TO THE HOURS (TIME) TO (TIME) ON (DAY) THROUGH (DAY)

REGULATORY REQUIREMENTS

1. WITHIN LOCAL RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS.
2. WITHIN STATE RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS AND ISSUED REVISIONS/SUPPLEMENTS.
3. PROVIDE TRAFFIC SIGNAGE AND PAVEMENT MARKINGS IN CONFORMANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. PERFORM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
5. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
6. THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND AND FALLS WITHIN THE CONNECTICUT DEP STORMWATER AND DEWATERING WASTEWATER FROM CONSTRUCTION ACTIVITIES GENERAL PERMIT PROCESS. (NAME OF APPLICANT) HAS SUBMITTED INFORMATION TO THE DEP TO SATISFY THIS GENERAL PERMIT. THE CONTRACTOR MUST HAVE A COPY OF THIS GENERAL PERMIT ON SITE AT ALL TIMES.

EROSION AND SEDIMENT CONTROL

1. INSTALL EROSION CONTROL MEASURES PRIOR TO STARTING ANY WORK ON THE SITE. REFER TO THE EROSION AND SEDIMENT CONTROL DRAWINGS.
2. IMPLEMENT ALL NECESSARY MEASURES REQUIRED TO CONTROL STORMWATER RUNOFF, DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE. PERFORM CORRECTIVE ACTION AS NEEDED FOR EROSION CLEANUP AND REPAIRS TO OFF SITE AREAS, IF ANY, AT NO COST TO OWNER.
3. INSPECT AND MAINTAIN EROSION CONTROL MEASURES PER THE SCHEDULE IN THE EROSION AND SEDIMENT CONTROL DRAWINGS. DISPOSE OF SEDIMENT IN AN UPLAND AREA. DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
4. PERFORM CONSTRUCTION SEQUENCING IN SUCH A MANNER TO CONTROL EROSION AND TO MINIMIZE THE TIME THAT EARTH MATERIALS ARE EXPOSED BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL MEASURES. CLEAN SEDIMENT AND DEBRIS FROM TEMPORARY MEASURES AND FROM PERMANENT STORM DRAIN AND SANITARY SEWER SYSTEMS.

DEMOLITION

1. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS, UNLESS OTHERWISE NOTED.

CONSTRUCTION LAYOUT

1. PROVIDE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED SITE IMPROVEMENTS. FIELD VERIFY EXISTING PAVEMENT AND GROUND ELEVATIONS AT THE INTERFACE WITH PROPOSED PAVEMENTS AND DRAINAGE STRUCTURES BEFORE START OF CONSTRUCTION.
2. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, FIELD VERIFY PROPOSED UTILITY ROUTES AND IDENTIFY ANY INTERFERENCES OR OBSTRUCTIONS WITH EXISTING UTILITIES OR PUBLIC RIGHTS-OF-WAY.
3. IMMEDIATELY INFORM THE ENGINEER IN WRITING IF EXISTING UTILITY CONDITIONS CONFLICT OR DIFFER FROM THAT INDICATED AND IF THE WORK CANNOT BE COMPLETED AS INDICATED.
4. DIMENSIONS ARE FROM FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS NOTED OTHERWISE.
5. BOUNDS OR MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.

EARTHWORK

1. NOTIFY UTILITY LOCATOR SERVICE AT LEAST 72 HOURS BEFORE STARTING EXCAVATION.

   CALL DIGSAFE: 1-888-DIG-SAFE
2. STOP WORK IN THE VICINITY OF SUSPECTED CONTAMINATED SOIL, GROUNDWATER OR OTHER MEDIA. IMMEDIATELY NOTIFY THE OWNER SO THAT APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN. RESUME WORK IN THE IMMEDIATE VICINITY ONLY UPON DIRECTION BY THE OWNER.
3. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, PERFORM EARTHWORK OPERATIONS TO SUBGRADE ELEVATIONS. SEE DRAWINGS BY OTHERS FOR WORK ABOVE SUBGRADE.

UTILITIES

1. TERMINATE EXISTING UTILITIES IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. COORDINATE UTILITY SERVICE DISCONNECTS WITH UTILITY REPRESENTATIVES.
2. THE TYPE, SIZE AND LOCATION OF DEPICTED UNDERGROUND UTILITIES ARE APPROXIMATE REPRESENTATIONS OF INFORMATION OBTAINED FROM FIELD LOCATIONS OF VISIBLE FEATURES, EXISTING MAPS AND PLANS OF RECORD, UTILITY MAPPING, AND OTHER SOURCES OF INFORMATION OBTAINED BY THE ENGINEER. ASSUME NO GUARANTEE AS TO THE COMPLETENESS, SERVICEABILITY, EXISTENCE, OR ACCURACY OF UNDERGROUND FACILITIES. FIELD VERIFY THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES.
3. PAY ALL FEES AND COSTS ASSOCIATED WITH UTILITY MODIFICATIONS AND CONNECTIONS, REGARDLESS OF THE ENTITY THAT PERFORMS THE WORK.
4. COORDINATE THE WORK AND WORK SCHEDULE WITH UTILITY COMPANIES. PROVIDE ADEQUATE NOTICE TO UTILITIES TO PREVENT DELAYS IN CONSTRUCTION.
5. INTERIOR DIAMETERS OF STORM DRAIN AND SANITARY SEWER STRUCTURES SHALL BE DETERMINED BY THE PRECAST MANUFACTURER, BASED ON THE INDICATED PIPE SYSTEM LAYOUT AND LOCAL MUNICIPAL STANDARDS.

   MINIMUM INTERIOR DIAMETERS:
   0 TO 20 FEET DEEP; 4 FEET.
   20 FEET OR GREATER; 5 FEET.
5. RIM ELEVATIONS FOR MANHOLES, VALVE COVERS, GATE AND PULL BOXES, AND OTHER STRUCTURES ARE APPROXIMATE. SET OR RESET RIM ELEVATIONS AS FOLLOWS:

   IN PAVEMENTS AND CONCRETE SURFACES: FLUSH
   IN SURFACES ALONG ACCESSIBLE ROUTES: FLUSH
   IN LANDSCAPE, SEEDED, AND OTHER EARTH SURFACE AREAS:
   1 INCH ABOVE SURROUNDING AREA; TAPER EARTH TO RIM ELEVATION.
6. INSTALL PROPOSED PRIVATE UTILITY SERVICES ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY THE AUTHORITY HAVING JURISDICTION (WATER, SEWER, GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). COORDINATE FINAL DESIGN LOADS AND LOCATIONS WITH OWNER AND ARCHITECT.

PAVEMENT

1. AT A MINIMUM, CONSTRUCT ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).

GENERAL SITE RESTORATION

1. PROVIDE 6 INCHES OF TOPSOIL AND SEED TO AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED TO BE RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) UNLESS OTHERWISE NOTED.
2. REPAIR DAMAGES RESULTING FROM CONSTRUCTION LOADS, AT NO ADDITIONAL COST TO OWNER.
3. RESTORE AREAS DISTURBED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION OR BETTER, AT NO ADDITIONAL COST TO OWNER.

STREAM BUFFER RESTORATION SEQUENCE NOTES:

1. EROSION CONTROL WILL BE PLACED AROUND ALL JURISDICTIONAL WETLANDS PRIOR TO THE START OF WORK.
2. INITIAL WORK FOR INVASIVE SPECIES REMOVAL WILL BE PERFORMED WITH GUIDANCE BY STAFF FROM GES INC.
3. INVASIVE SPECIES REMOVAL WILL IDEALLY BE DONE ONCE THE VEGETATION IS MATURE DURING THE LATE SPRING OR EARLY SUMMER TO AID IN IDENTIFICATION. INVASIVE SPECIES VEGETATION WILL INITAILLY BE CUT AS NEEDED TO AVOID THE POTENTIAL SPREAD OF SEEDS. ANY MATERIAL IN "SEED" WILL BE BAGGED AND DISPOSED OF PROPERLY.
4. ALL WORK WILL BE PERFORMED FROM THE UPPER AREA OF THE SITE BY LONG REACH EXCAVATORS. ANY SMALL-SCALE WORK WILL BE DONE BY HAND TO REDUCE BANK IMPACTS AND ELIMINATE ANY UNNEEDED WEEKENING OF THE STABILITY OF THE BANK. NO WORK WILL BE PERFORMED FROM WITHIN THE STREAM.
5. EXCAVATION WORK WILL BEGIN BY REMOVING REMAINING ROOT MATERIAL AND "SEED BANK" FROM THE SLOPE AND ANY DEBRIS.
6. ALL FILL MATERIAL, INCLUDING PAVEMENT, CINDER BLOCKS, CEMENT, TRASH, I.E, BUCKETS, COUCHES, APPLIANCES, EXERCISE EQUIPMENT, ETC., WILL BE REMOVED AND DISPOSED OF PROPERLY.
7. ANY CULVERTS EXISTING IN THE BANK TO BE REMOVED WILL BE SAW CUT OR CRUSHED AND REMOVED. THE REMAINING PORTIONS OF CULVERTS WILL BE LEFT IN PLACE AND WILL BE FILLED WITH CEMENT TO CLOSE THEM OFF. THIS WILL REDUCE THE ADDITIONAL BANK IMPACT RESULTING FROM THEIR REMOVAL ENTIRELY.
8. ANY DEBRIS REMOVAL NEAR MATURE TREE ROOTS WILL BE PERFORMED BY HAND SHOVEL OR SMALL MACHINE TO REDUCE DAMAGE TO ROOT STRUCTURE.
9. CLEAN TOP SOIL WILL BE ADDED TO AREAS OF REMOVED MATERIALS, INCLUDING CULVERT ENDS. THIS MATERIAL WILL BE LEVELED TO CREATE A SMOOTH BANK TO BE PLANTED.
10. THE FOLLOWING SPECIES WILL BE PLANTED IN RANDOM SPACING AT THE SPECIFIED NUMBERS AND SPACING IN EACH RESTORATION AREA BELOW:

    HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),
    WINTERBERRY (ILEX VERTICILATTA),
    SWEET PEPPER BUSH (CLETHERA ALNIFOLIA).

    ANY EXPOSED AREAS WILL BE SEEDED WITH AN EROSION CONTROL SEED MIX @ 35lbs/ACRE. THIS WORK WILL BE PERFOMRED BY HAND TOOLS. ALL PLANTS ARE TO BE IN 1-2 GALLON POTS AS AVAILABLE AT THE TIME OF THE PLANTING. PLANTS WILL BE LAID OUT PER THE RESTORATION PLAN IN RANDOM ORDER. HOLES WILL BE DUG BY HAND FOR PLANTING. ONCE PLANTED THE HOLES WILL BE BROUGHT LEVEL WITH ADDITIONAL SOIL. THE ENTIRE EXPOSED SLOPES WILL BE SEEDED AS SPECIFIED AND WILL BE COVERED WITH JUTE MATTING AFTER TO ELIMINATE EROSION. SUPPLEMENTAL WATERING WILL OCCUR SHOULD THERE NOT BE SIGNIFICANT RAINFALL.

    IMPACT AREA 1 WILL HAVE 1,875 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH A TOTAL OF 117 PLANTS AT A SPACING OF 4' OC

    39- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),
    39- WINTERBERRY (ILEX VERTICILATTA)
    39- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

    IMPACT AREA 2 WILL HAVE 148 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH A TOTAL OF 9 PLANTS AT A SPACING OF 4' OC

    3- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),
    3- WINTERBERRY (ILEX VERTICILATTA)
    3- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

    IMPACT AREA 3 WILL HAVE 344 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH 21 TOTAL PLANTS AT 4' OC SPACING

    7- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),
    7- WINTERBERRY (ILEX VERTICILATTA)
    7- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

    IMPACT AREA 4 WILL HAVE 3,412 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH A TOTAL OF 96 PLANTS AT A SPACING OF 6' OC.

    32- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),
    32- WINTERBERRY (ILEX VERTICILATTA)
    32- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),
11. MONITORING OF THE RESTORATION AREAS WILL BE DONE UNDER THE DIRECTION OF THE NHDES WETLANDS BUREAU, AS THESE AREAS FALL UNDER THEIR JURISDICTON.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: VERT.: DATUM: HORZ.: VERT.: 0 GRAPHIC SCALE

FUSS & O'NEILL
UPPER SQUARE BUSINESS CENTER
5 FLETCHER STREET, SUITE 1
KENNEBUNK, MAINE 04043
207.363.0669
www.fando.com

CATE STREET DEVELOPMENT, LLC

GENERAL NOTES & LEGEND

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CN-001

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Plotter: DWG TO PDF.PC3 CTB File: FO.STB
MS VIEW: LAYER STATE:

BOUNDARIES

EXISTING		PROPOSED
	PROPERTY LINE	
BEARING DISTANCE		BEARING DISTANCE
	APPROXIMATE LOT LINE	
	INTERIOR LOT LINE	
	APPROXIMATE ABUTTER LOT LINE	
	EASEMENT LINE	
BOW CONCORD	TOWN LINE	
COOS GRAFTON	COUNTY LINE	
MAINE NEW HAMPSHIRE	STATE LINE	
⊡	BOUND FOUND	
△ R.R.S.F.	RAILROAD SPIKE FOUND	
○	IRON PIPE/ROD FOUND	
■	4"X4" GRANITE BOUND TO BE SET	
●	5/8" REBAR W/ID CAP TO BE SET	
	CONCRETE	
	BOUND FOUND	
	IRON PIPE FOUND	
	CONCRETE	
	DRILL HOLE	

NATURAL RESOURCES

EXISTING		PROPOSED
	MAJOR CONTOUR LINE	20
	MINOR CONTOUR LINE	22
+ 201.0	SPOT ELEVATION	+ 201.0
	EDGE OF WETLAND	
	WETLAND AREA	
	CONIFEROUS TREE	
	DECIDUOUS TREE	
	MONITORING WELL	
TP	TEST PIT	TP
	TREE LINE	
	SHRUB LINE	
	EDGE OF WATER	

GENERAL

EXISTING		PROPOSED
	STOCKADE FENCE	
	CHAIN LINK FENCE	
X	BARBED WIRE FENCE	X
	STONE WALL	
	RETAINING WALL	
	GUARDRAIL	
	SIGN	
	SIGN (TWO POSTS)	
	FENCE POST	
	POST	
	POST	
	BOLLARD	
	FLAG POLE	
	CONCRETE	
	CRUSHED STONE	
	LEDGE OUTCROP	
LEACH FIELD	LEACH FIELD	
	GAS PUMPS	
	STORAGE TANKS	
	CEMETERY	
	INTERMITTENT WATER COURSE	
RIVER (STREAM)	SHORE LINE	
POND	SHORE LINE	

DRAINAGE

EXISTING		PROPOSED
	DRAINAGE NOTE	1
SD	DRAIN LINE	D
XD	DRAIN LINE (SEE NOTE 20)	
	CATCH BASIN	
Ⓓ	DRAIN MANHOLE	
RD	ROOF DRAIN	
R	ROOF DRAIN LINE	R
UD	STORM UNDERDRAIN	UD
	DRAINAGE FLOW DIRECTION ARROW	
	PROPOSED REINFORCED CONCRETE CULVERT END	
	PROPOSED TYPE "C–L" CATCH BASIN	
	PROPOSED TYPE "C" CATCH BASIN	
	PROPOSED HEAD WALL	

WATER

EXISTING		PROPOSED
	WATER NOTE	1
W	WATER LINE	W
XW	WATER LINE (SEE NOTE 20)	
	FIRE HYDRANT	
	PROPOSED HYDRANT AND GATE VALVE	
	WATER GATE VALVE	
	SPIGOT	
Ⓦ	WELL	Ⓦ

SEWER

EXISTING		PROPOSED
	SEWER NOTE	1
SS	SEWER LINE	S
XS	SEWER LINE (SEE NOTE 20)	
FM	SEWER FORCE MAIN	FM
Ⓢ	SANITARY SEWER MANHOLE	
Ⓒ	CLEANOUT	Ⓒ

GAS

EXISTING		PROPOSED
	GAS NOTE	1
G	GAS MAIN	G
	GAS GATE VALVE	
O.F.C.	OIL FILL CAP	

ELECTRIC

EXISTING		PROPOSED
	ELECTRIC NOTE	1
OHW	OVERHEAD WIRES	OHW
	UTILITY POLE	
	UTILITY POLE & GUY WIRE	
	UTILITY POLE W/ LIGHT	
	LIGHT POLES	SINGLE DOUBLE
E	ELECTRICAL SERVICE	E
	ELECTRIC BOX	
	PROPOSED ELECTRICAL MANHOLE	
Ⓜ	MANHOLE	Ⓜ
	HAND HOLE	
	PROPOSED LIGHT	

TELEPHONE

EXISTING		PROPOSED
T	TELEPHONE LINE	T
Ⓣ	TELEPHONE MANHOLE	Ⓣ

CATV

EXISTING		PROPOSED
C	CABLE LINE	C

STRIPING

EXISTING		PROPOSED
SWL	SINGLE SOLID LINE (WHITE)	PSSL (W)
	SINGLE BROKEN LINE (WHITE)	PSBL (W)
	DOUBLE SOLID LINE (WHITE)	PDSL (W)
SYL	SINGLE SOLID LINE (YELLOW)	PSSL (Y)
	SINGLE BROKEN LINE (YELLOW)	PSBL (Y)
DYL	DOUBLE SOLID LINE (YELLOW)	PDSL (Y)
	(A)=STOP BAR = 18" SSL (WHITE)(T)	(A)

GENERAL PAVEMENT MARKING NOTE:
PLACEMENT AND COLOR OF PAVMENT MARKING LINES, SYMBOLS AND WORDS SHALL CONFORM TO THE (MUTCD) SECTION 632 OF NHDOT STANDARD SPECIFICATION BOOK, CONTRACT SUPPLEMENTAL SPECIFICATIONS, THE STATE OF NEW HAMPSHIRE PAVEMENT MARKING STANDARD DETAIL SHEETS, AND STANDARD PLAN SHEETS.

RETROREFLECTIVE PAINT PAVMENT MARKING KEY:
THE FOLLOWING PAVEMENT MARKINGS SHALL BE RETROREFLECTIVE THERMOPLASTIC UNLESS OTHERWISE NOTIFIED BY THE STATE STANDARD SYMBOLS AND WORDS

←WORDS ONLY – WORDS
(A) = STOP BARS = 18" SSL (WHITE)(T)

	ACCESSIBLE PARKING SPACE	
	PAINTED ISLAND	
10	PARKING SPACE COUNT	10

CURB

EXISTING		PROPOSED
VGC	VERTICAL GRANITE CURB	VGC
SGC	SLOPED GRANITE CURB	SGC
SBB	SLOPED BITUMINOUS BERM	SBB
CC	CONCRETE CURB	CC
BCC	BITUMINOUS CURB	BCC
	TIPDOWN	TD

TRAFFIC UTILITIES

SIGNAL CONDUIT (EXISTING)		
SIGNAL CONDUIT (PROPOSED)		
MAGNETIC DETECTOR SLEEVE		
LOOP DETECTOR	8'X10' (LABEL SIZE)	8'X10'
PULLBOX	P.B. EXISTING	P.B. PROPOSED
HANDHOLE	H.H.	H.H.
CONTROLLER CABINET	C.C.	C.C.
SPREAD FOOTING	10' 8'(LABEL SIZE)	
CYLINDRICAL FOUNDATION		NOTE ANGLE FROM TO ARM
MAST ARM POLE (WITH SIGNAL HEADS)		
STEEL SPAN WIRE POLES		
PEDESTRIAN SIGNAL POLE		
TRAFFIC SIGNAL (EXISTING)		
STREET LIGHT CONDUIT		

EROSION CONTROL

PROPOSED SILT FENCE	SF
PROPOSED HAY BALES	HB
PROPOSED HAYBALE CHECK DAM	
PROPOSED SILT SOCKS	
PROPOSED EROSION CONTROL MAT	
PROPOSED INLET PROTECTION	
PROPOSED OUTLET PROTECTION	
PROPOSED STONE CHECK DAM	
PROPOSED LIMIT OF DISTURBANCE	LOD

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: VERT.:
DATUM: HORZ.: NAD83 VERT.: NAVD88
0 GRAPHIC SCALE

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GENERAL NOTES & LEGEND

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CN-002

File Path: F:\P2018\0317A10\Civil3\Dwg\20180317A10_DET01.dwg Layout: CN-002 Plotted: Wed, March 06, 2019 - 11:58 AM User: rlundborn
MS VIEW: LAYER STATE:
Plotter: DWG TO PDF.PC3 CTB File: FO.STB

File Path: F:\P2018\0317\A10\Civil3\Dwg\20180317A10_CONCOM 03.05.2019.dwg Layout: CCE-100 Plotted: Wed, March 06, 2019 - 12:31 PM User: ddugal
MS VIEW: | LAYER STATE: | Plotter: DWG TO PDF.PC3 CTB File: FO.STB

CCE-100

PROJ. No: 20180317A10
DATE: 03/06/2019

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EXISTING OVERALL SITE PLAN

WEST END YARDS

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SCALE:
HORZ.: 1"=60'
VERT.: 1"=60'
DATUM:
HORZ.: NAD83
VERT.: NAVD88
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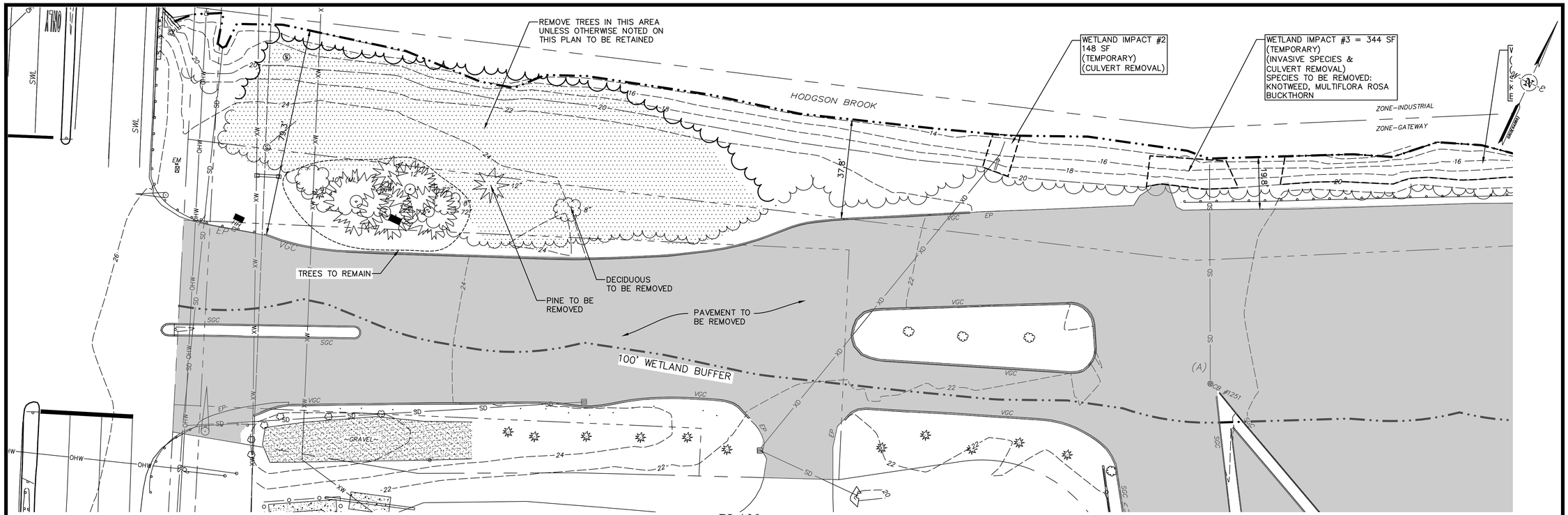
GRAPHIC SCALE

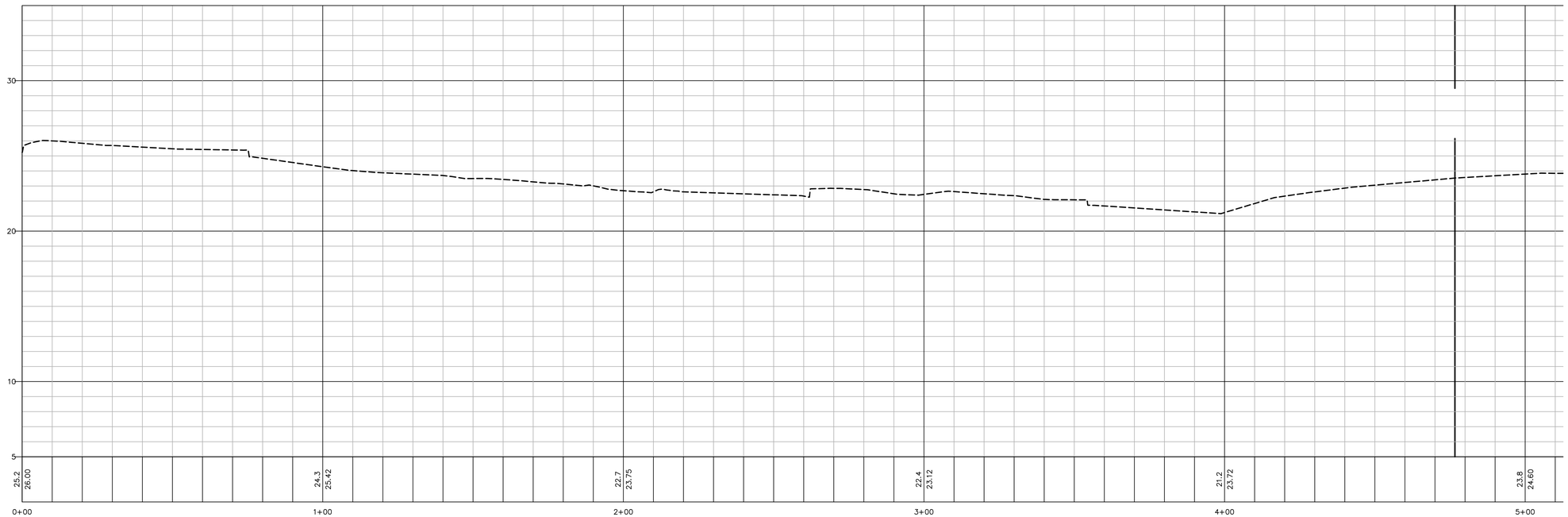
No.	DATE	DESCRIPTION	DESIGNER	REVIEWER



PLAN

SEE STREAM BUFFER RESTORATION NOTES ON CN–001

SCALE: 1 INCH = 20 FT.



PROFILE

HORIZ: 1 INCH = 20 FT.
VERT: 1 INCH = 4 FT.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

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DATUM: HORZ.: NAD83 VERT.: NGVD29
GRAPHIC SCALE 0

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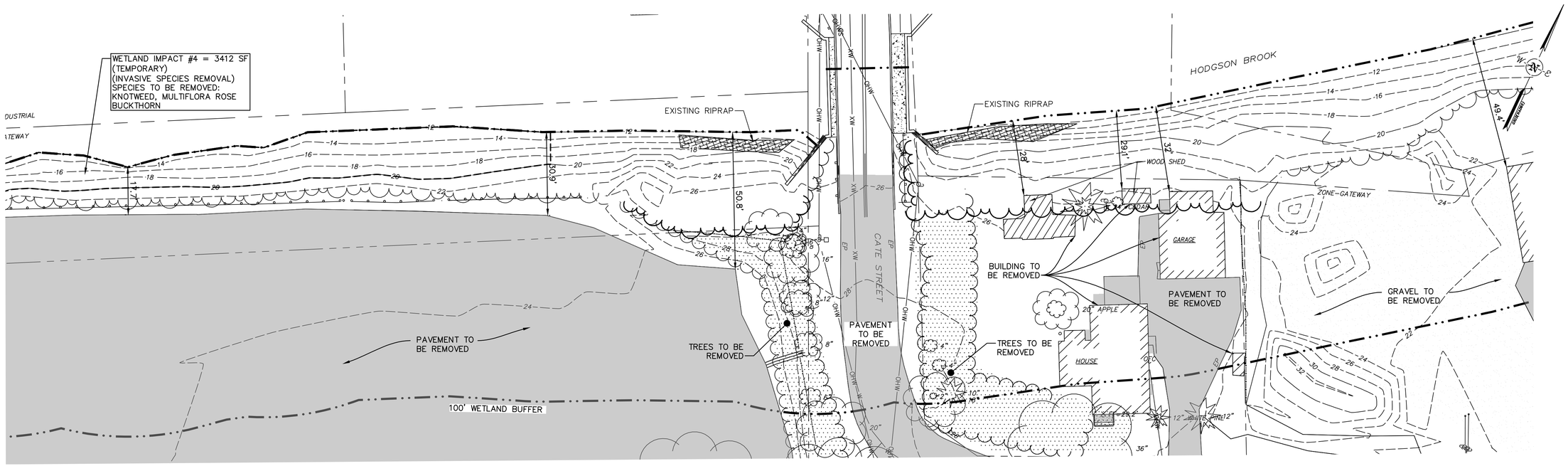
EXISTING ROADWAY
PLAN & PROFILE
WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CCE-101



SEE STREAM BUFFER RESTORATION NOTES ON CN-001

PLAN

20 0 20 40

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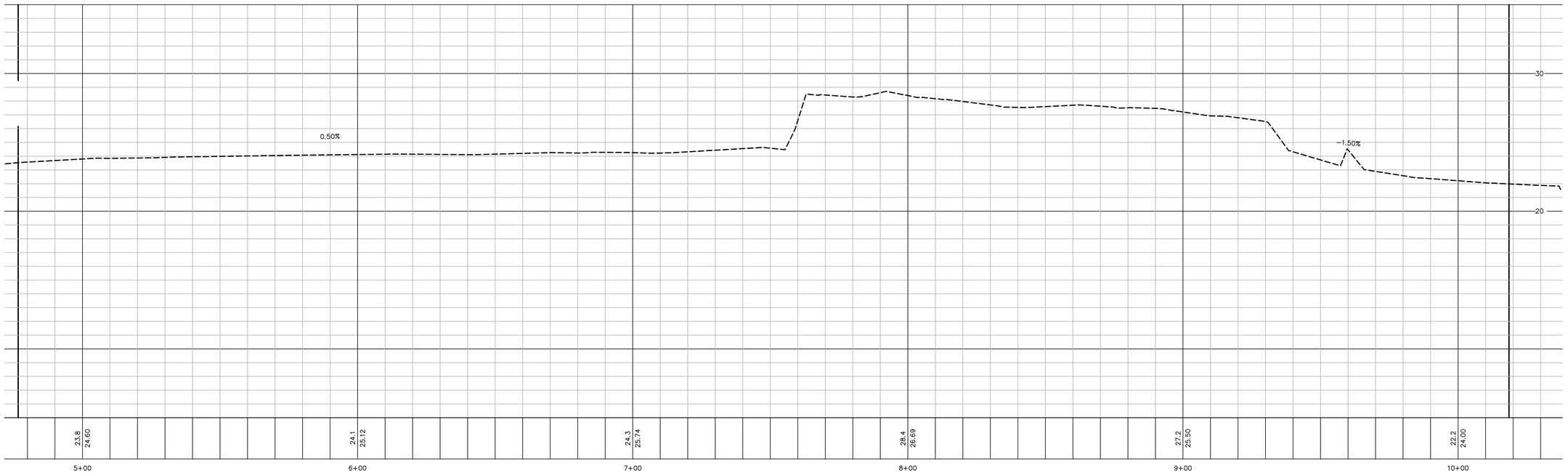

PROFILE

20 0 20 40

4 0 4 8

HORIZ: 1 INCH = 20 FT.
VERT: 1 INCH = 4 FT.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: VERT.:
DATUM: HORZ.: NAD83 VERT.: NGVD29
0 GRAPHIC SCALE

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EXISTING ROADWAY
PLAN & PROFILE
WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CCE-102

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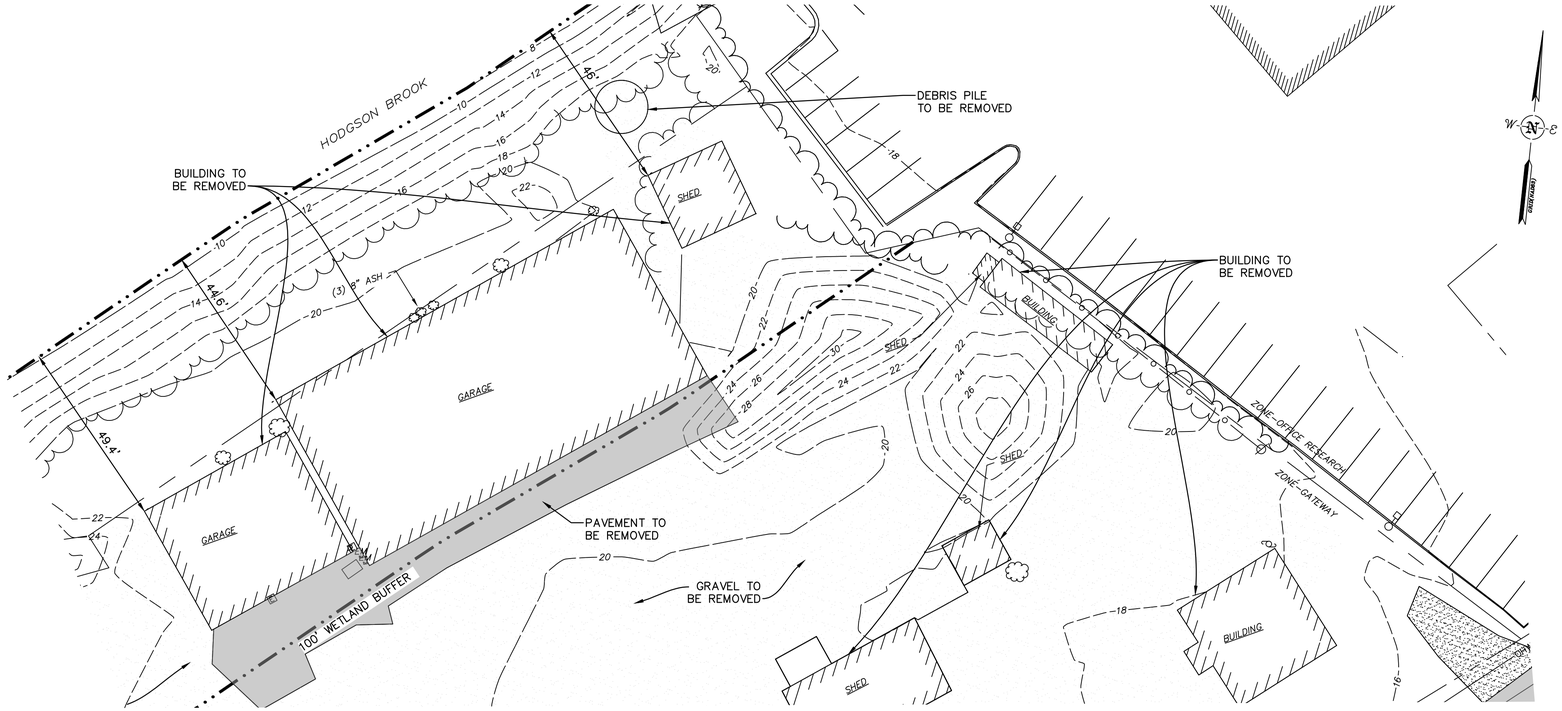
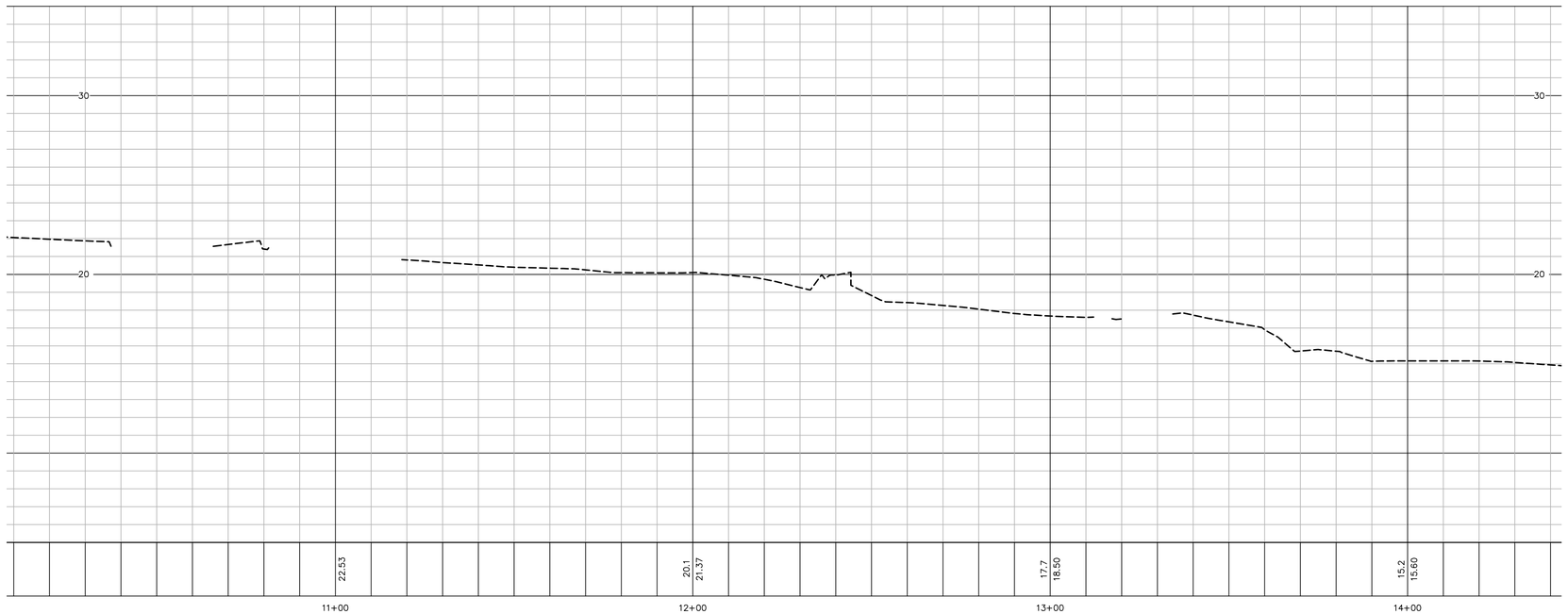


PLAN

SCALE: 1 INCH = 20 FT.

SEE STREAM BUFFER RESTORATION NOTES ON CN-001



PROFILE

HORIZ: 1 INCH = 20 FT.
VERT: 1 INCH = 4 FT.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: VERT.:
DATUM: HORZ.: NAD83 VERT.: NGVD29
GRAPHIC SCALE 0

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ROADWAY PLAN & PROFILE

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CCE-103

File Path: F:\P2018\0317A10\Civil\3Dwg\20180317A10_CONCOM 03.05.2019.dwg Layout: CCE-103 Plotted: Wed, March 06, 2019 - 12:35 PM User: ddugal
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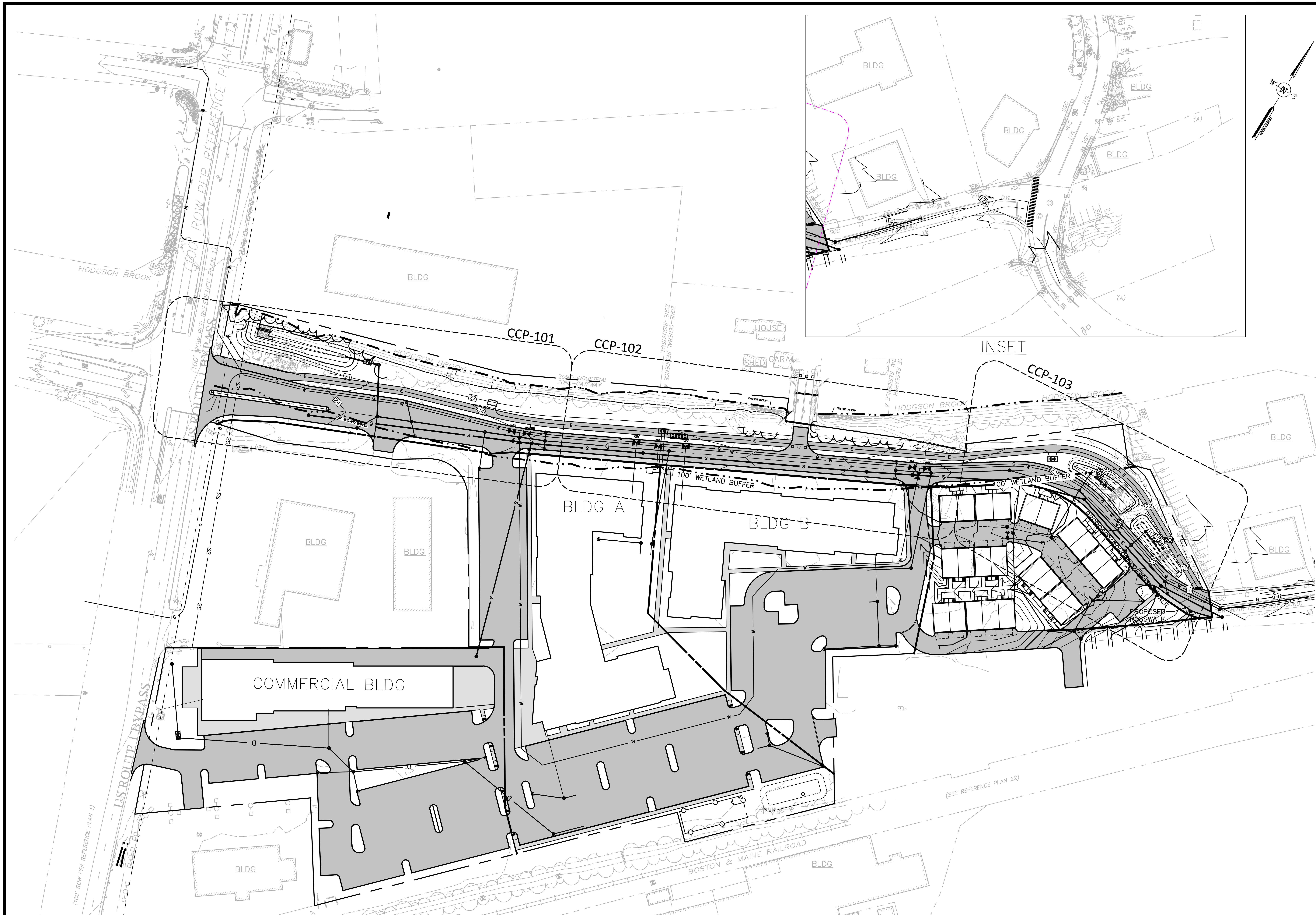

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LAYER STATE:

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

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VERT.: 1"=60'
DATUM:
HORZ.: NAD83
VERT.: NAVD88
GRAPHIC SCALE 60 30 0 60

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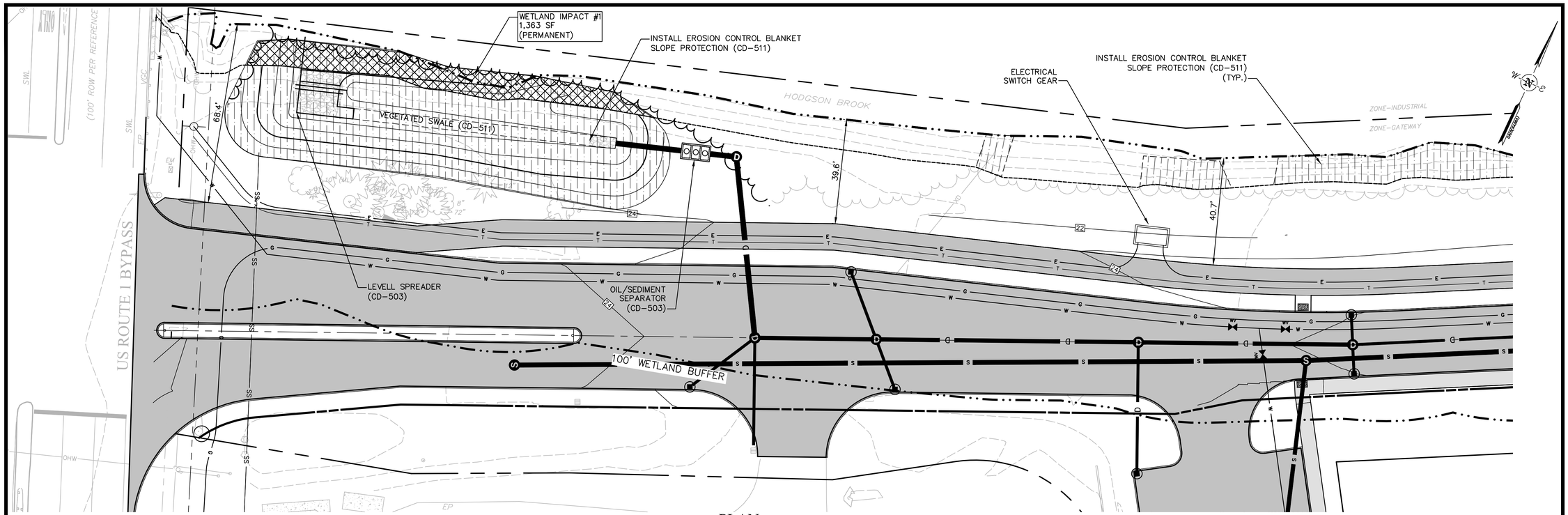
CATE STREET DEVELOPMENT, LLC
OVERALL PRPOSED SITE PLAN
WEST END YARDS
PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

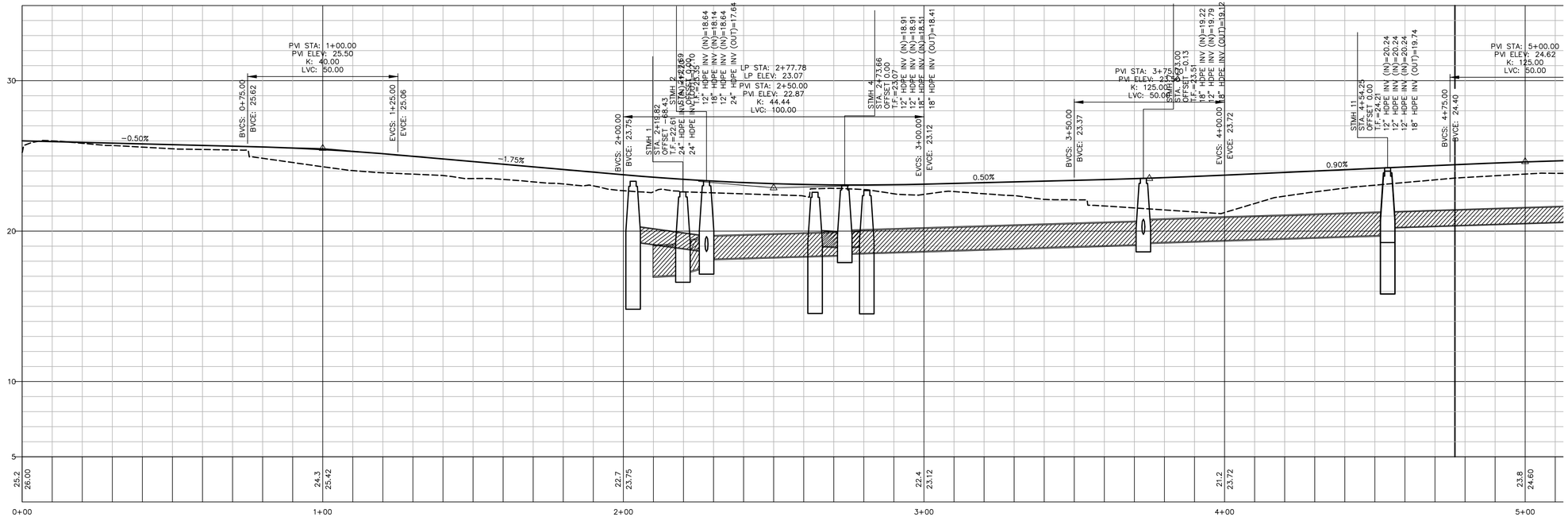
CCP-100



PLAN

SEE STREAM BUFFER RESTORATION NOTES ON CN-001

SCALE: 1 INCH = 20 FT.



PROFILE

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VERT: 1 INCH = 4 FT.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: 1" = 20'
VERT.: 1" = 4'
DATUM: HORZ.: NAD83
VERT.: NGVD29
GRAPHIC SCALE 0 20 40

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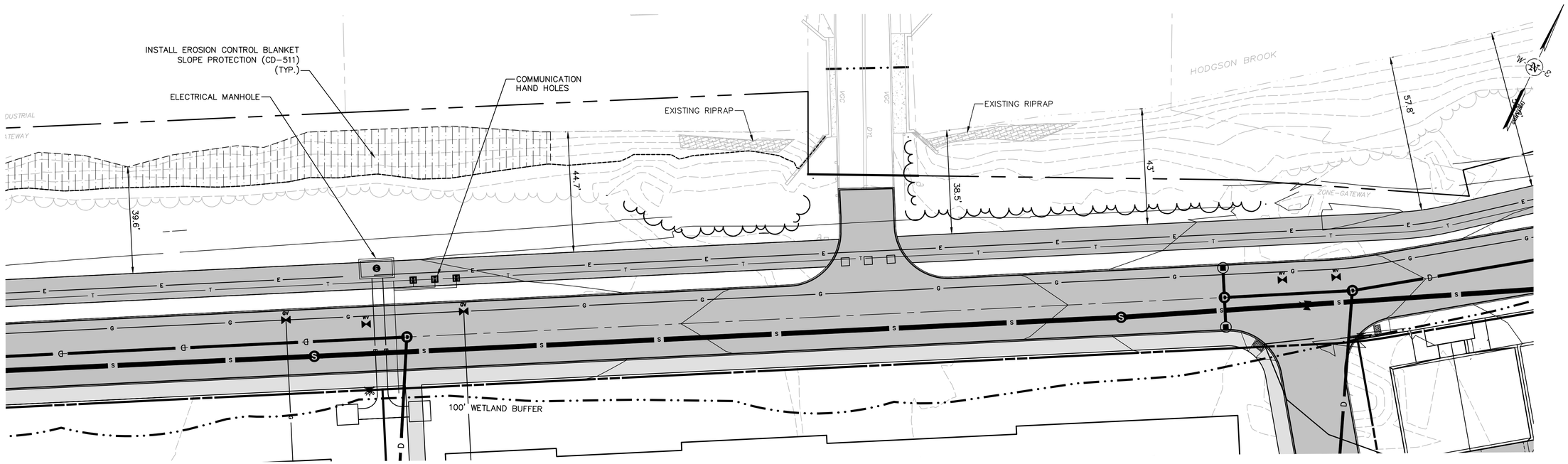
ROADWAY PLAN & PROFILE

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CCP-101



SEE STREAM BUFFER RESTORATION NOTES ON CN-001

PLAN

20 0 20 40

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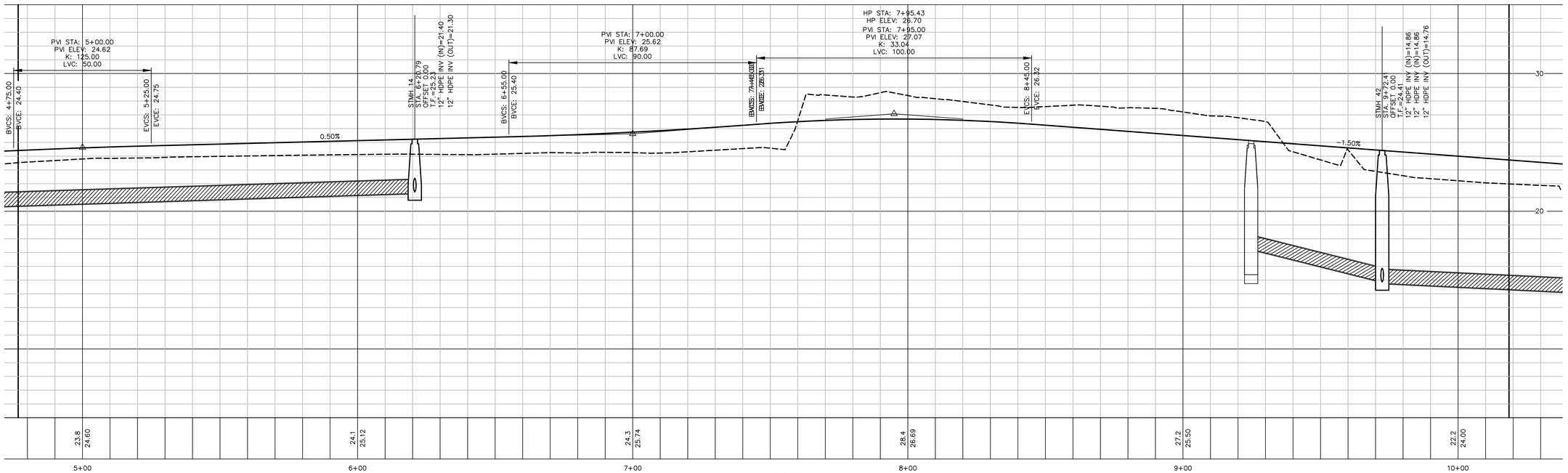

PROFILE

20 0 20 40

4 0 4 8

HORIZ: 1 INCH = 20 FT.
VERT: 1 INCH = 4 FT.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: VERT.:
DATUM: HORZ.: NAD83 VERT.: NGVD29
GRAPHIC SCALE 0

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WEST END YARDS

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PROJ. No.: 20180317.A10
DATE: 03/05/2019

CCP-102

File Path: F:\P2018\0317A10\Civil\Dwg\20180317A10_CONCOM 03.05.2019.dwg Layout: CCP-102 Plotted: Wed, March 06, 2019 - 12:40 PM User: ddugal
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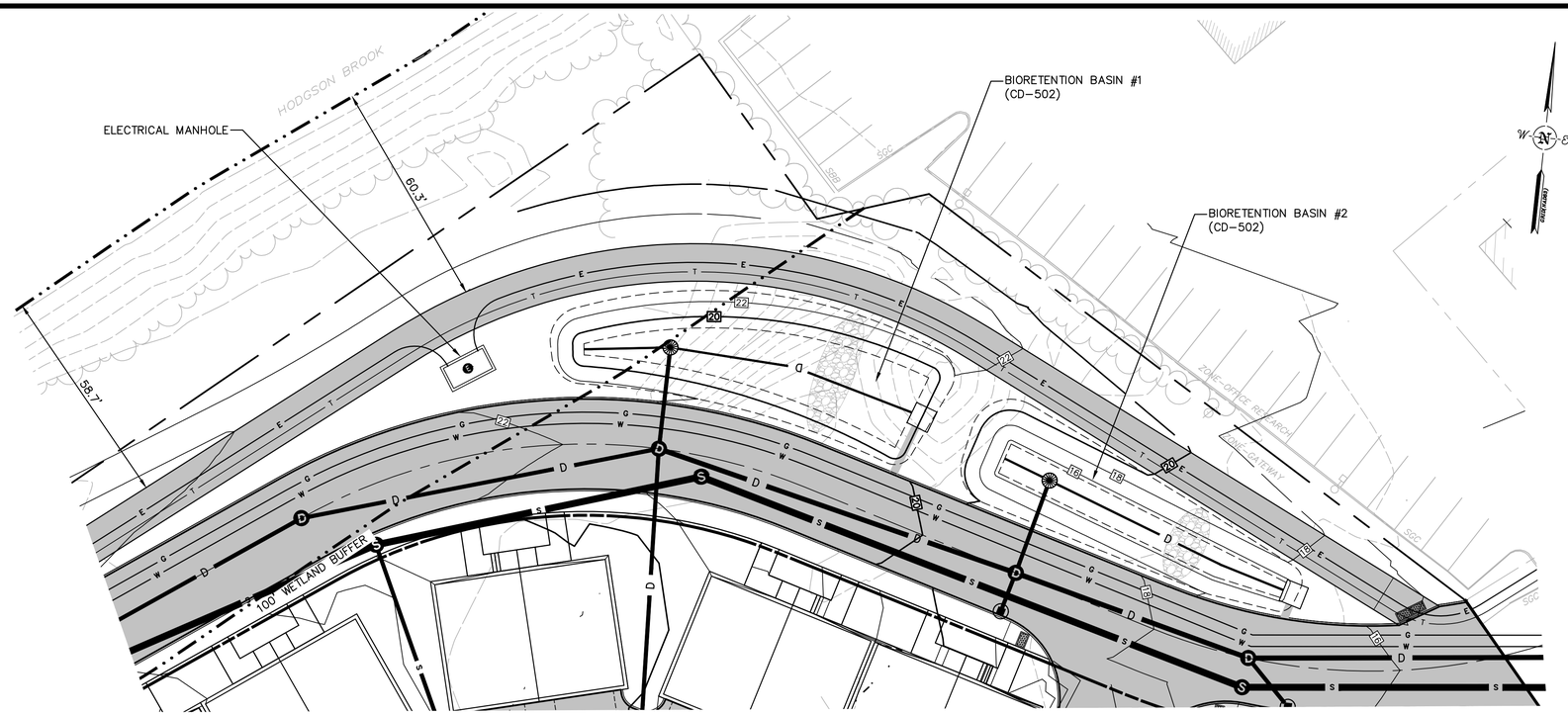
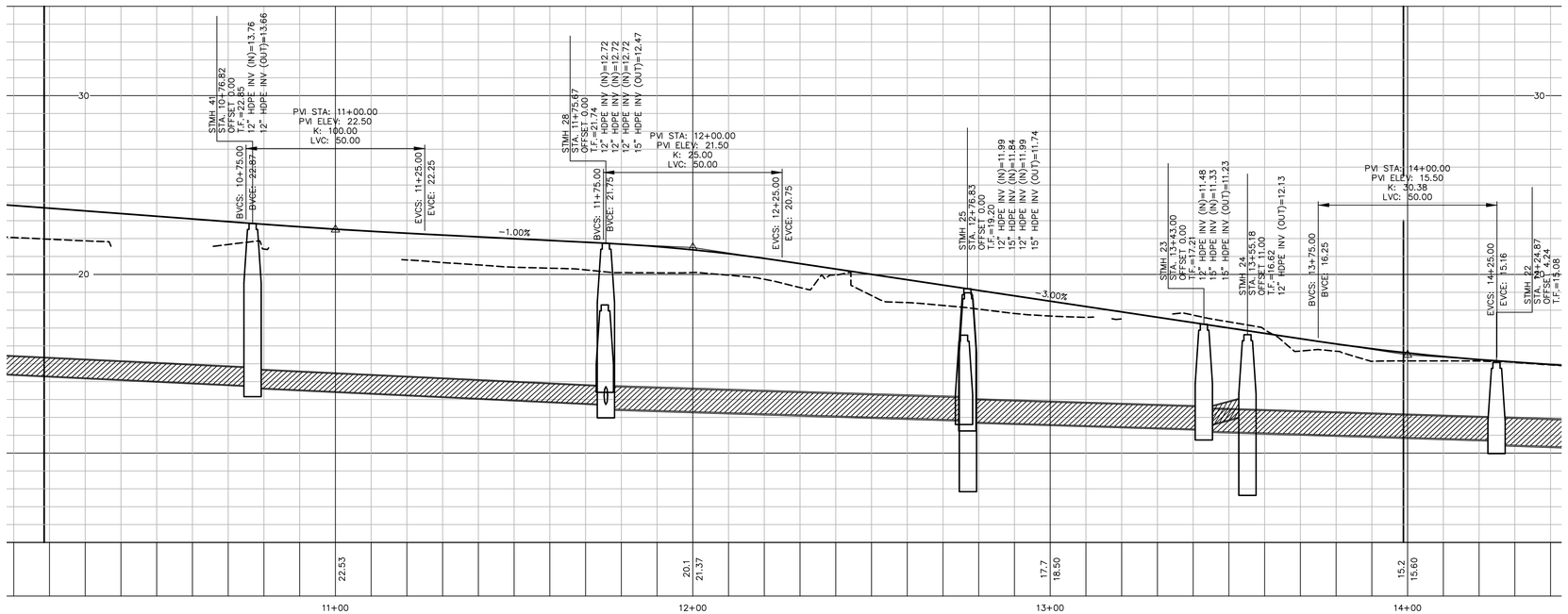


PLAN

SCALE: 1 INCH = 20 FT.

SEE STREAM BUFFER RESTORATION NOTES ON CN-001



PROFILE

HORIZ: 1 INCH = 20 FT.
VERT: 1 INCH = 4 FT.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: VERT.:
DATUM: HORZ.: NAD83 VERT.: NGVD29
GRAPHIC SCALE

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ROADWAY PLAN & PROFILE

WEST END YARDS

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PROJ. No.: 20180317.A10
DATE: 03/05/2019

CCP-103

File Path: F:\P2018\0317A10\Civil\3Dwg\20180317A10_CONCOM 03.05.2019.dwg Layout: CCP-103 Plotted: Wed, March 06, 2019 - 12:43 PM User: ddugal
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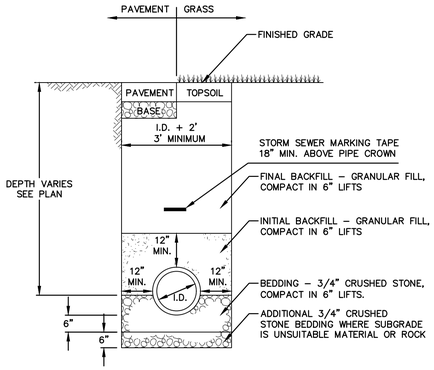


STORM SEWER TRENCH

NOT TO SCALE

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. 3FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"–24" (100mm–600mm); 6" (150mm) FOR 30"–60" (750mm–1500mm).
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR 1 IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM 02321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON–TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. FOR TRAFFIC APPLICATIONS WITH LESS THAN FOUR FEET OF COVER, EMBEDMENT OF THE PIPE SHALL BE USING ONLY A CLASS I OR CLASS II BACKFILL.

HDPE DRAINAGE PIPE NOTES

NOT TO SCALE

1. ALL SECTIONS SHALL BE CONCRETE, CLASS AA (4,000 PSI)
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER L.F. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER L.F.
4. RISERS OF 1'–4" MAY BE USED TO REACH THE DESIRED ELEVATION.
5. THE STRUCTURES SHALL BE DESIGNED FOR H–20 LOADING.
6. ADJUSTING THE FRAME TO GRADE MAY BE DONE WITH PRECAST CONCRETE GRADE RINGS OR CLAY BRICKS (2 COURSES MAX.). FRAME TO BE SET IN A FULL BED OF MORTAR.
8. SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
9. PIPE ELEVATIONS SHOWN ON THE PLAN SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
10. PIPE ENDS SHALL PROJECT NO MORE THAN 3–INCHES BEYOND THE INSIDE WALL OF THE STRUCTURE.
11. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4–INCHES HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING ONE STRIP OF BUTYL RUBBER SEALANT OR APPROVED FLEXIBLE SEALANT.
12. STEPS ARE NOT ALLOWED.

CATCH BASIN SPECIFIC NOTES:

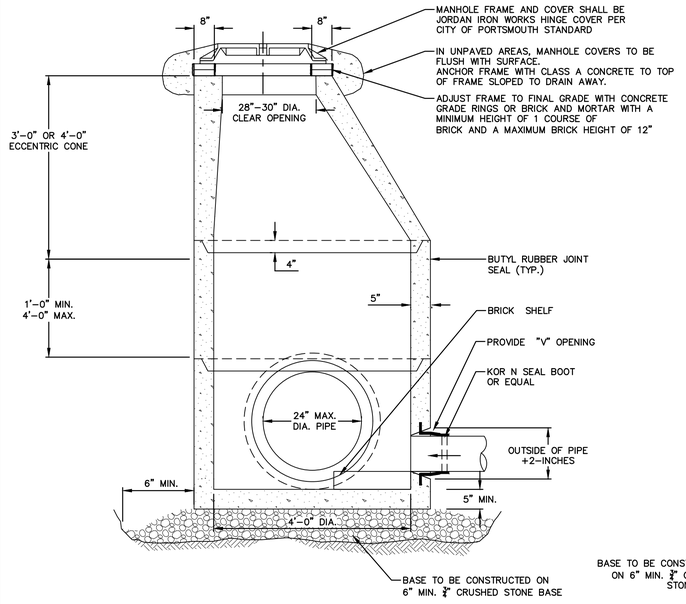
13. CONE SECTIONS MAY BE CONCENTRIC OR ECCENTRIC FOR CATCH BASINS.
14. "ELIMINATOR" OIL/WATER SEPARATORS SHALL BE INSTALLED TIGHT TO THE INSIDE OF THE CATCH BASINS ON THE OUTLET PIPE.

DRAIN MANHOLE SPECIFIC NOTES:

15. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12–INCHES OF INSIDE SURFACE BETWEEN THE HOLES, NO MORE THAN 75% OF A HORIZONTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3–INCHES TO ANY JOINT.

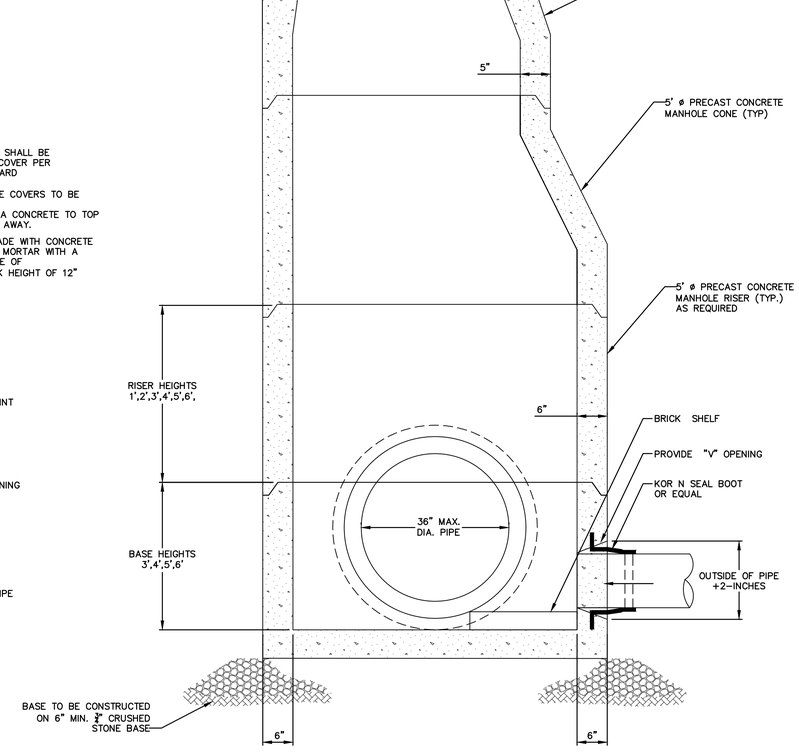
PRECAST DRAINAGE STRUCTURE NOTES

NOT TO SCALE



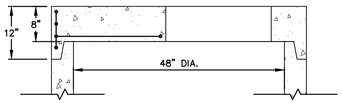
4' PRECAST DRAIN MANHOLE

SCALE: N.T.S.



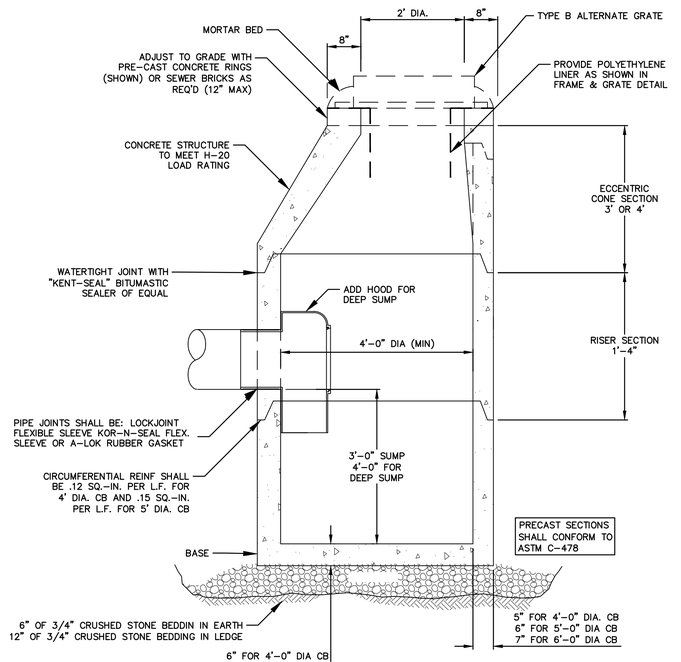
5' PRECAST DRAIN MANHOLE

SCALE: N.T.S.



PRECAST CATCH BASIN

SCALE: N.T.S.



PRECAST CATCH BASIN

SCALE: N.T.S.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: NTS VERT.:
DATUM: HORZ.: VERT.:
0
GRAPHIC SCALE

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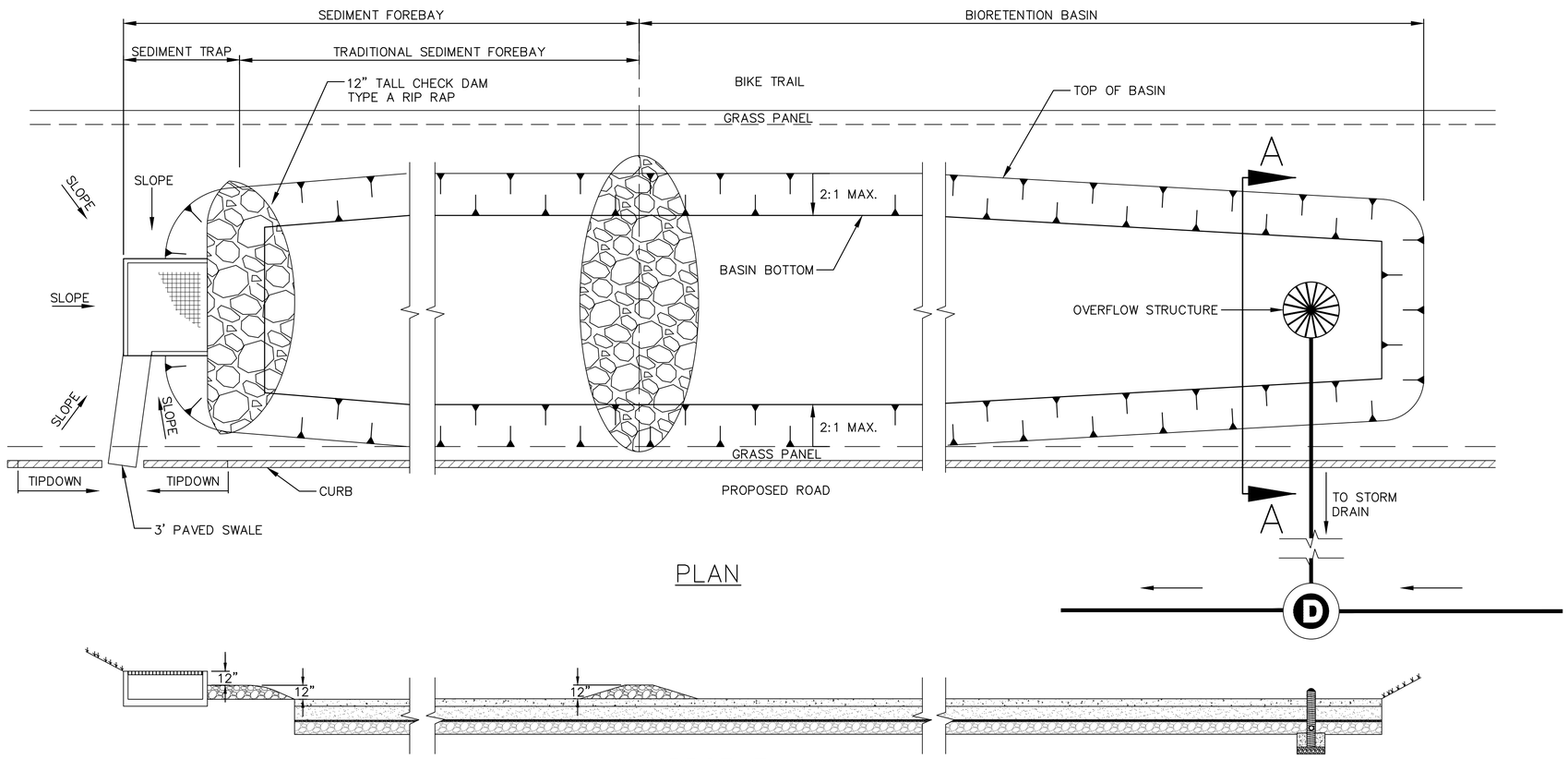
DETAILS

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CD-501

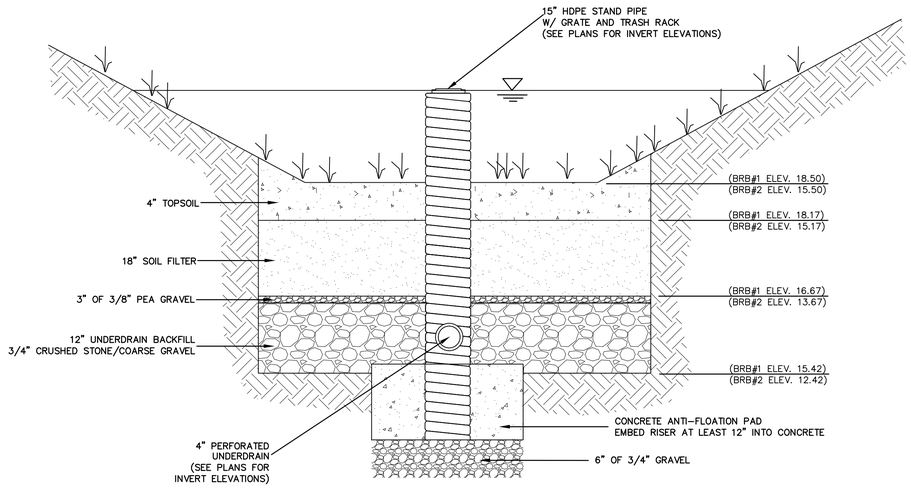


PLAN

PROFILE

BIORETENTION SYSTEM TYPICAL SECTION

SCALE: NOT TO SCALE



SECTION A–A

NOT TO SCALE

CONSTRUCTION NOTES:

1. DO NOT PLACE THE BIORETENTION SYSTEM INTO SERVICE UNTIL THE BMP HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
2. DO NOT DISCHARGE SEDIMENT–LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF AND WATER FROM EXCAVATIONS) TO THE BIORETENTION SYSTEM DURING ANY STAGE OF CONSTRUCTION.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

MAINTENANCE NOTES:

1. SYSTEMS SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION.
2. PRETREATMENT MEASURES SHOULD BE INSPECTED AT LEAST TWICE ANNUALLY, AND CLEANED OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY.
3. TRASH AND DEBRIS SHOULD BE REMOVED AT EACH INSPECTION.
4. AT LEAST ONCE ANNUALLY, SYSTEM SHOULD BE INSPECTED FOR DRAWDOWN TIME. IF BIORETENTION SYSTEM DOES NOT DRAIN WITHIN 72–HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE FILTRATION FUNCTION OR INFILTRATION FUNCTION (AS APPLICABLE), INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER MEDIA.
5. VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

BIORETENTION SYSTEM NOTES

NOT TO SCALE

TABLE 4-3 FILTER MIXTURES

COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-33 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
	70 TO 80	10	85 TO 100
		20	70 TO 100
		50	15 TO 40
LOAMY COARSE SAND		200	8 TO 15

SOIL FILTER MIXTURES

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

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UPPER SQUARE BUSINESS CENTER
5 FLETCHER STREET, SUITE 1
KENNEBUNK, MAINE 04043
207.363.0669
www.fando.com

CATE STREET DEVELOPMENT, LLC

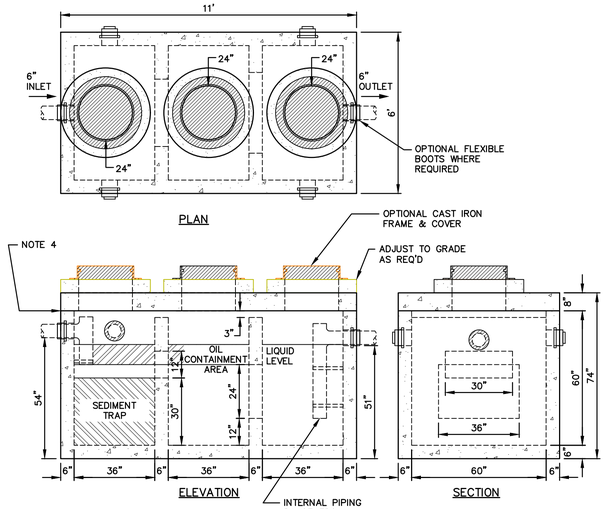
DETAILS

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CD-502



PLAN

ELEVATION

SECTION

GENERAL NOTES
1. CONCRETE: FC = 5,000 PSI @ 28 DAYS MINIMUM TYPE III CEMENT
2. STEEL REINFORCEMENT CONFORMS TO LATEST ASTM SPECIFICATIONS: ASTM-A615 GRADE 60 BLACK DEFORMED BARS
3. DESIGN LOADING: AASHTO-HS20-44 DESIGN SPECIFIED AS ACI 318-08, AASHTO-1992
4. BUTYL RUBBER JOINT SEALANT PROVIDED
5. FLEXIBLE SLEEVES PROVIDED ALL PIPE CONNECTIONS
6. PIPE SIZES AND COMPARTMENT CONFIGURATIONS PER JOB SPECIFICATIONS

EST WEIGHTS:
TOP SLAB – 6,500 LBS
BASE – 20,500 LBS
TOTAL: 27,000 LBS

1,500 GALLON 3-COMPARTMENT HS-20 OIL & SEDIMENT SEPARATOR (PHOENIX PRECAST PRODUCTS)

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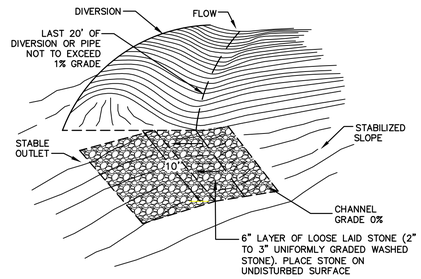
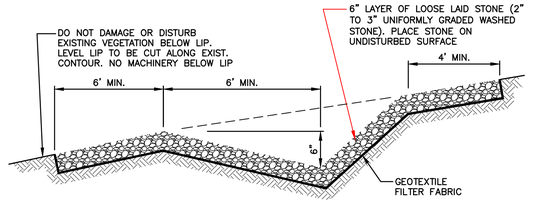


PLAN VIEW

CONSTRUCTION SPECIFICATIONS
1. SPREADERS SHALL BE INSTALLED WITH LEVEL INSTRUMENT. CONSTRUCT LEVEL LIP TO 0% GRADE TO ENSURE UNIFORM SHEET FLOW. LEVEL SPREADER SHALL BE CONSTRUCTED ON UNDISTURBED SOIL (NOT FILL).
2. SELECT GEOTEXTILE FABRIC BASED ON UNDISTURBED SOILS (SAND, SILTS, CLAY, ETC.)
3. PLACE 6" LAYER OF UNIFORMLY GRADED STONE 2" TO 3" IN DIAMETER. TAKE TO FORM SMOOTH UNIFORM SURFACE. DO NOT FILL VOIDS IN STONE.
4. THE INLET DITCH SHALL NOT EXCEED A 1% GRADE FOR AT LEAST 20 FEET BEFORE ENTERING THE SPREADER.
5. STORM RUN-OFF CONVERTED TO SHEET FLOW ACROSS OUTLET APRON SHALL FLOW ONTO STABILIZED AREA. RUN-OFF SHALL NOT BE RECONCENTRATED IMMEDIATELY BELOW THE POINT OF DISCHARGE.
6. CONSTRUCTION OF LEVEL LIP SPREADER SHALL BE UPHILL SIDE ONLY. LEVEL LIP AND AREA BELOW SPREADER SHALL BE AT EXISTING GRADE AND UNDISTURBED BY EARTHWORK OR EQUIPMENT.
7. CONSTRUCT SPREADER WITH LIP AT EXISTING ELEVATION AS SPECIFIED.
8. DOWN GRADIENT RECEIVING AREA MUST BE NATURALLY WELL VEGETATED.

MAINTENANCE NOTES:
1. THE LEVEL SPREADER SHOULD BE CHECKED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE IF THE LIP HAS BEEN DAMAGED AND TO DETERMINE THAT THE DESIGN CONDITIONS HAVE NOT CHANGED.
2. ANY DETRIMENTAL ACCUMULATION OF SEDIMENTS SHOULD BE REMOVED.
3. IF RILLING HAS TAKEN PLACE ON THE LIP, THEN THE DAMAGE SHOULD BE REPAIRED AND RE-VEGETATED.
4. THE VEGETATION SHOULD BE MOWED OCCASIONALLY TO CONTROL WEEDS AND THE ENCROACHMENT OF WOODY VEGETATION. CLIPPINGS SHOULD BE REMOVED AND DISPOSED OF OUTSIDE THE SPREADER AND AWAY FROM THE OUTLET AREA.



CROSS SECTION

STONE LINED LEVEL SPREADER

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CD-503

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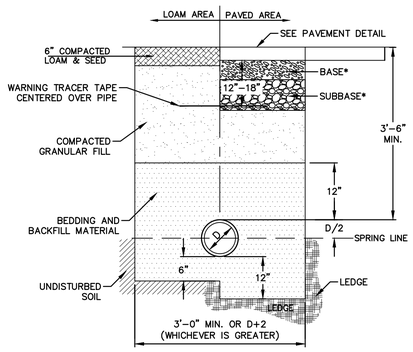
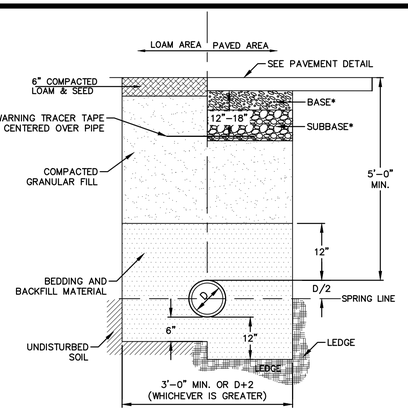
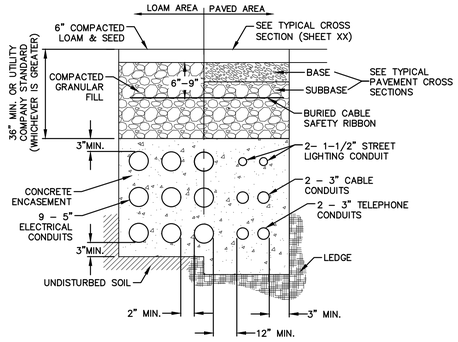


GAS TRENCH
NOT TO SCALE

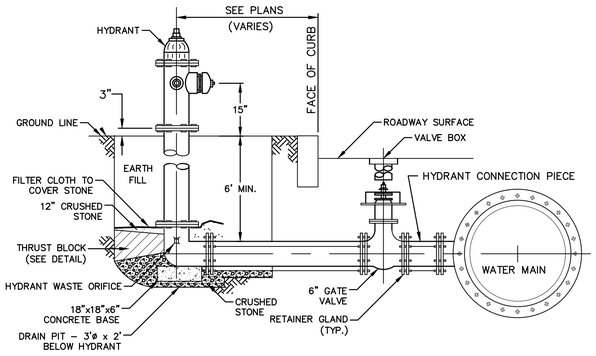


WATER TRENCH SECTION
NOT TO SCALE



ELECTRICAL AND COMMUNICATION CONDUIT
NOT TO SCALE

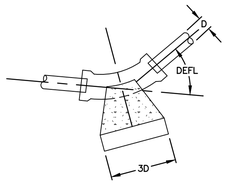
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL OR AS SHOWN ON CONDUIT PLAN.
2. DIMENSIONS SHOWN REPRESENTS OWNER'S MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT MAY NOT BE LESS THAN SHOWN.
3. NO CONDUIT SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 35" TO 48" RADIUS.?????



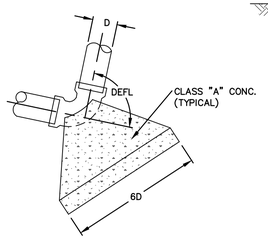
FIRE HYDRANT
NOT TO SCALE

PPE DIA. (INCHES)	MINIMUM THRUST BLOCK VOLUME (CUBIC YARDS)
4	0.2
6	0.25
8	0.3
10	0.35
12	0.4
16	0.7

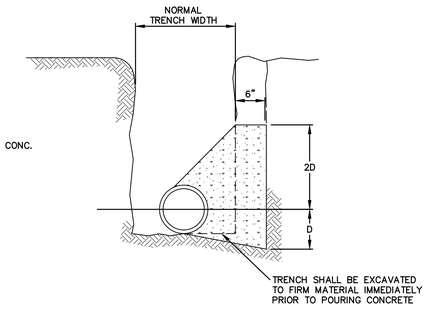
PPE DIA. (INCHES)	MINIMUM THRUST BLOCK VOLUME (CUBIC YARDS)
4	0.25
6	0.3
8	0.5
10	0.7
12	1.0
16	1.6



PLAN ELBOW – DEFL. LESS THAN 50



PLAN ELBOW – DEFL. MORE THAN 50



SECTION

CONCRETE THRUST BLOCKS
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5 FLETCHER STREET, SUITE 1
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PROJ. No.: 20180317.A10
DATE: 03/05/2019

CD-504

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MANHOLE NOTES

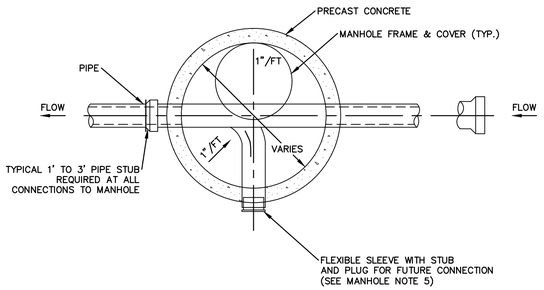
1. ALL PIPES SHALL BE CUT FLUSH WITH INSIDE WALL OF STRUCTURE.
2. MANHOLES SHALL BE PLACED ON 8" MINIMUM CRUSHED STONE BASE.
3. MORTAR IN LIFTING HOLES AFTER INSTALLING RUBBER PLUGS.
4. MANHOLES SHALL RECEIVE A BITUMINOUS DAMP-PROOFING PRIOR TO DELIVERY TO THE SITE.
5. PROVIDE WATERTIGHT STUB AND FLEXIBLE SLEEVE AS NOTED ON THE DRAWING OR AS DIRECTED BY THE ENGINEER.
6. PIPE TO MANHOLE JOINTS SHALL BE SEALED WATERTIGHT BY USE OF PRE-MOLDED ELASTOMERIC SEALED JOINTS CAST INTO CONCRETE MANHOLE BASE AND SHALL CONFORM TO ASTM C 443 AND ASTM C 923M.
7. MANHOLE FRAME AND COVERS SHALL BE OF THE TYPE INDICATED BELOW OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED.

LOCATION	TYPE
GUTTERS, LOW LYING, WET UNPAVED AREAS	BOLTED & GASKETED (BOLTS SHALL BE 1/2" STAINLESS STEEL.)
NORMALLY DRY UNPAVED AND PAVED AREAS	STANDARD

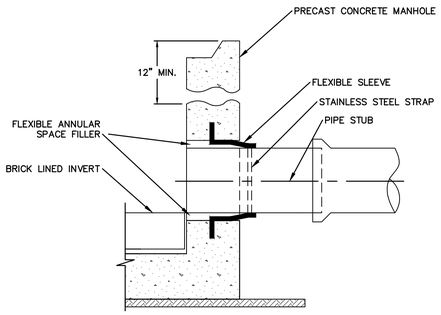
VALVE STRUCTURES WATERTIGHT
THE COVER SHALL HAVE THE WORDS "SANITARY SEWER", "CONFINED SPACE PERMIT REQUIRED" CAST INTO THE COVER IN 2" LETTERS.

8. MANHOLE STEPS SHALL BE STEEL REINFORCED POLYPROPYLENE OR ALUMINUM.
9. WHERE THE DIFFERENCE IN ELEVATION BETWEEN THE INCOMING SEWER AND THE MANHOLE INVERT IS 24" OR LESS, THE INVERT SHALL BE FILLETED.
10. PAYMENT DEPTHS ARE MEASURED FROM TOP OF CONE TO INVERT OF STRUCTURE.

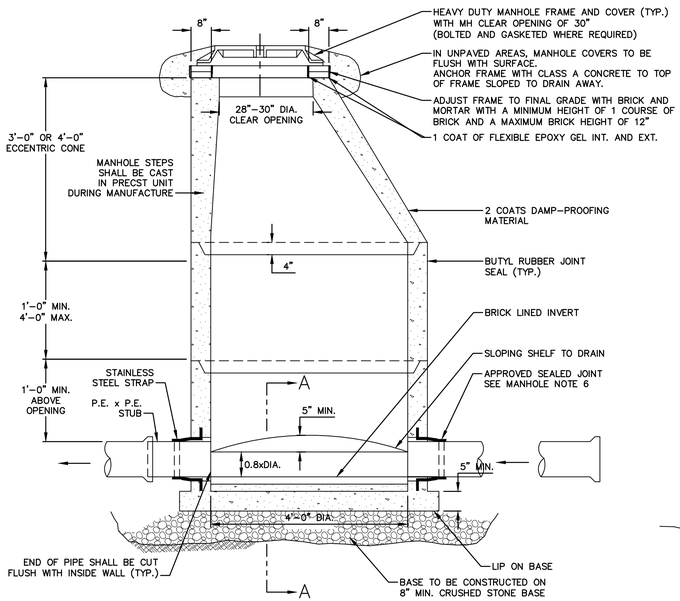
MANHOLE NOTES
SCALE: N.T.S.

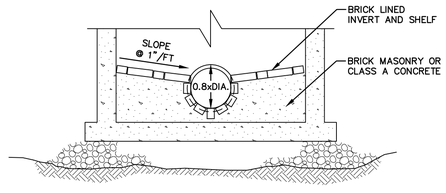


MANHOLE PLAN VIEW
SCALE: N.T.S.



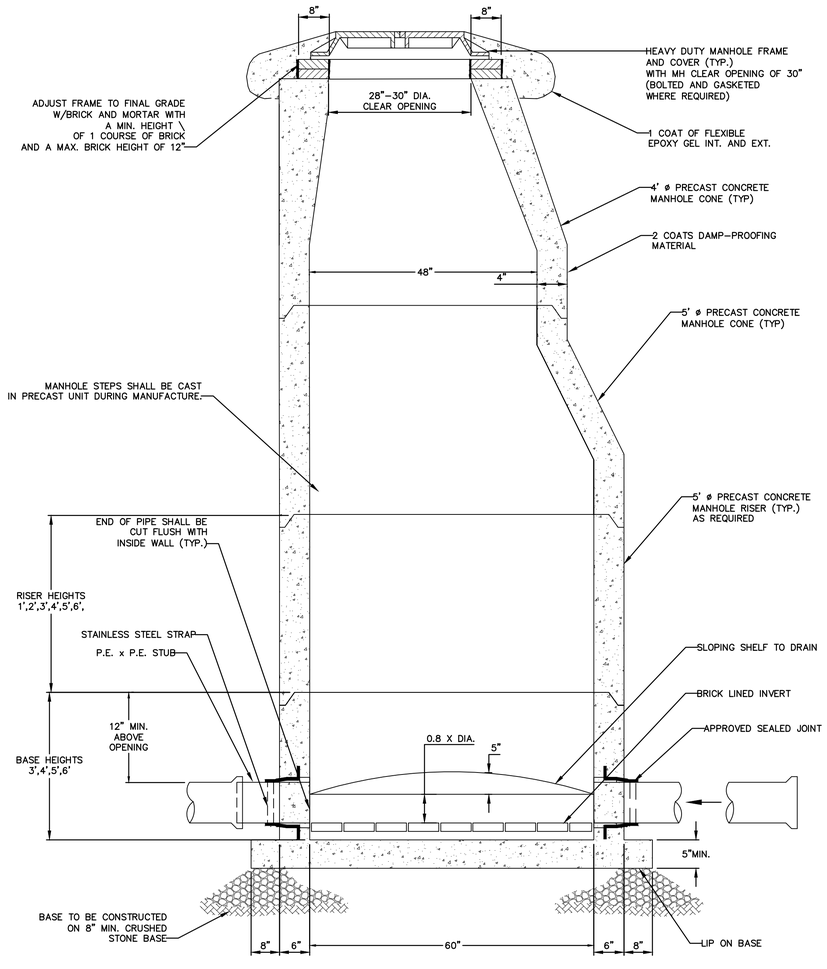
FLEXIBLE SLEEVE
SCALE: N.T.S.





SECTION A-A

4' PRECAST MANHOLE
SCALE: N.T.S.



5' PRECAST MANHOLE
SCALE: N.T.S.

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5 FLETCHER STREET, SUITE 1
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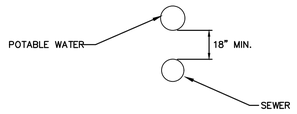
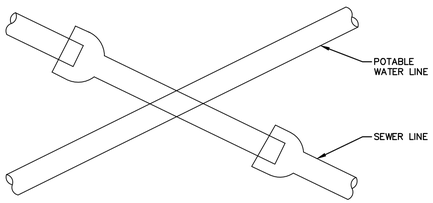


SECTION VIEW



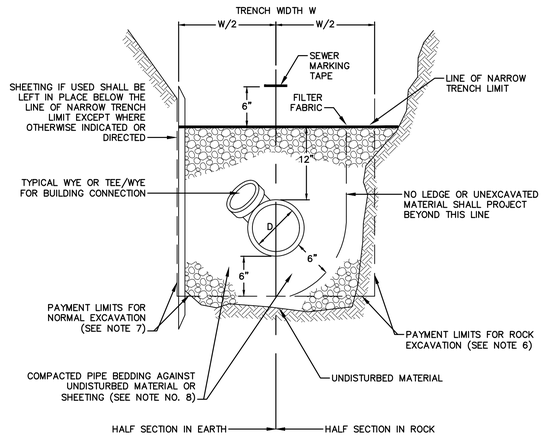
PLAN VIEW

SEWER AND WATER CROSSING NOTES

1. SEWER JOINTS SHALL BE EQUIDISTANT FROM AND LOCATED AS FAR AS POSSIBLE AWAY FROM THE WATER LINE
2. IF THE VERTICAL SEPARATION BETWEEN THE BOTTOM OF THE WATER MAIN AND THE TOP OF THE SEWER IS LESS THAN 18 INCHES (WATER MAIN IS ABOVE SEWER), USE ONE OF THE FOLLOWING PROCEDURES: A) THE WATER MAIN SHALL BE RECONSTRUCTED FOR A DISTANCE OF 10 FEET ON EACH SIDE OF SEWER WITH RUBBER-GASKETED MECHANICAL JOINT PIPE ONE FULL LENGTH WATER MAIN SHOULD BE CENTERED OVER SEWER, B) CONSTRUCT BOTH THE WATER & SEWER PIPE OF RUBBER-GASKETED, CEMENT-LINED DUCTILE IRON PIPE OR EQUIVALENT AND PRESSURE TEST BOTH PIPES, OR C) ENCASE BOTH PIPES IN CONCRETE.

CROSSING OF SEWER & POTABLE WATER LINES

NOT TO SCALE



TYPICAL SEWER TRENCH

NOT TO SCALE

SANITARY SEWER PIPE TRENCH NOTES

1. DEPTH OF SEWER SHALL BE AS SHOWN ON DRAWINGS.
2. SEWER TRENCHES MAY BE EXCAVATED WIDER THAN TRENCH WIDTH W ABOVE THE "LINE OF NARROW TRENCH LIMIT." AT THE CONTRACTORS EXPENSE.
3. BELOW THE "LINE OF NARROW TRENCH LIMIT" THE TRENCH SHALL NOT BE EXCAVATED BEYOND THE TRENCH WIDTH W.
4. IF EXCAVATION AND BACKFILL BELOW NORMAL DEPTH IS REQUIRED, SHEETING MAY BE ORDERED.
5. SHEETING, IF USED, IN ALL CASES SHALL BE LEFT IN PLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE SEWER PIPE, UNLESS OTHERWISE INDICATED OR DIRECTED BY THE ENGINEER.
6. ALL ROCK WITHIN 3'-0" HORIZONTALLY OF THE ENDS OF BUILDING CONNECTIONS, BRANCHES AND STUBS, AND DOWN TO A HORIZONTAL PLANE 6" BELOW THE BOTTOMS OF SUCH ITEMS SHALL BE REMOVED.
7. TRENCH WIDTHS AND PAYMENT LIMIT SHALL BE AS FOLLOWS:

NUMBER OF PIPE IN TRENCH	DIAMETER PIPE "D"	TRENCH WIDTH "W"	PAYMENT LIMIT
ONE	12" AND SMALLER	4'-0"	4'-0"
TWO	12" AND SMALLER	7'-0"	7'-0"

8. WHERE CONCRETE ENCASEMENT IS CALLED FOR BY THE PLANS, OR WHEN DIRECTED BY THE ENGINEER, REPLACE BEDDING AND BACKFILL BELOW THE "LINE OF NARROW TRENCH LIMIT" WITH CLASS "A" CONCRETE.
9. SEWER MARKING TAPE SHALL BE INSTALLED A MINIMUM OF 18" ABOVE THE SANITARY SEWER, FORCE MAIN AND SERVICE CONNECTION PIPE.
10. SANITARY SEWER PIPE AND SERVICE CONNECTION PIPE SHALL HAVE FILTER FABRIC INSTALLED ON TOP OF THE PIPE BEDDING AS SHOWN ON THE DETAILS.

SANITARY SEWER PIPE TRENCH NOTES

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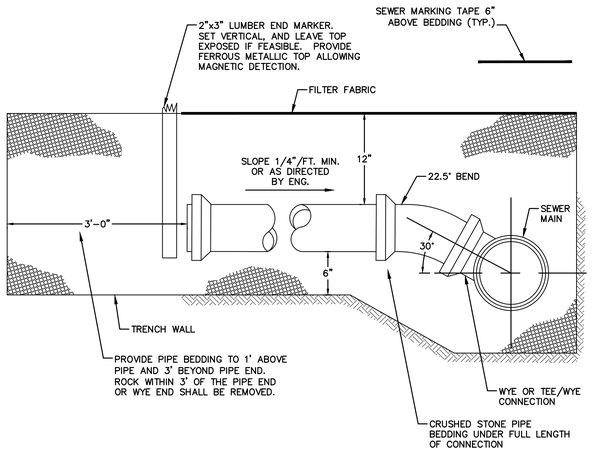
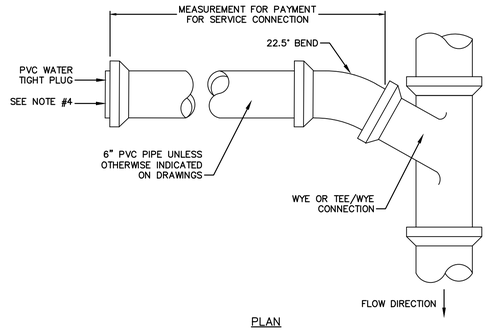


ELEVATION



PLAN

SERVICE CONNECTION NOTES

1. NO LEDGE OR UNEXCAVATED MATERIAL SHALL PROJECT WITHIN 6" OF THE PIPE IN ANY DIRECTION
2. EXACT LOCATION AND ELEVATION OF SERVICE CONNECTIONS TO BE DETERMINED AND SET IN THE FIELD DURING CONSTRUCTION
3. EXACT LOCATION OF WYES/TEES, WHERE DIRECTED TO BE INSTALLED, SHALL BE SET IN THE FIELD DURING CONSTRUCTION
4. PROVIDE DI TO PVC TRANSITION COUPLING AT END OF DI SERVICE CONNECTION

SERVICE CONNECTIONS

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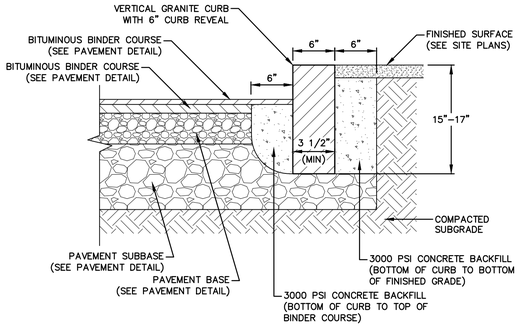
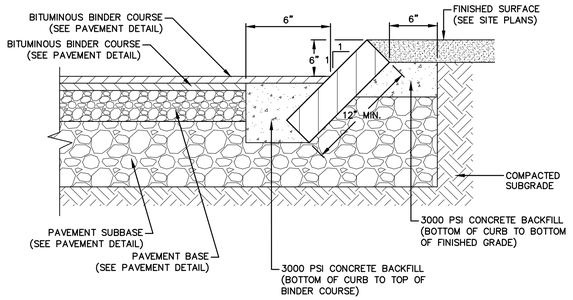


VERTICAL GRANITE CURB INSTALLED

SCALE: NOT TO SCALE



SLOPED GRANITE CURB INSTALLED

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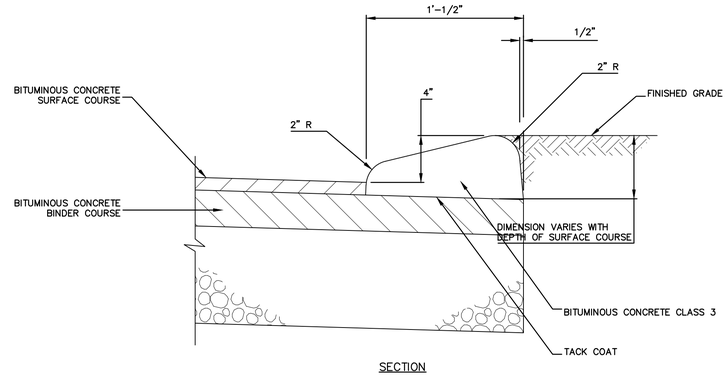
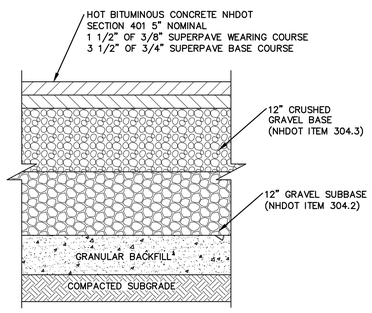


SECTION

BITUMINOUS CONCRETE CAPE COD CURB

NOT TO SCALE



TYPICAL PAVEMENT SECTION

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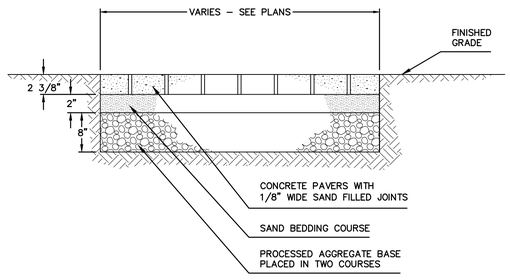
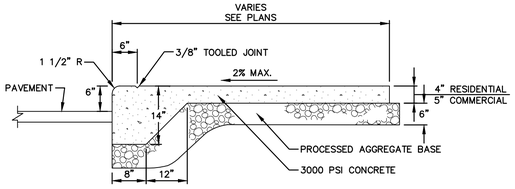


CONCRETE PAVER SIDEWALK

NOT TO SCALE



MONOLITHIC CONCRETE CURB AND WALK

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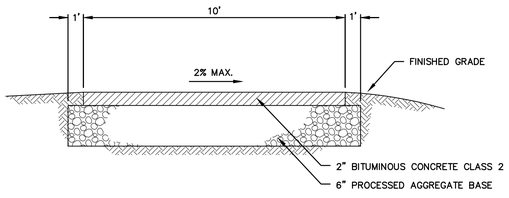
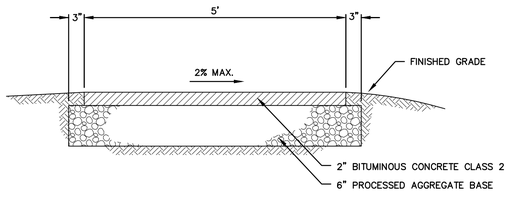


BITUMINOUS CONCRETE MULTI–USE TRAIL

NOT TO SCALE



BITUMINOUS CONCRETE SIDEWALK

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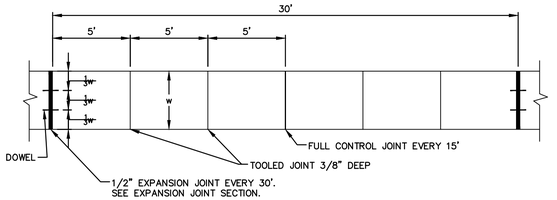

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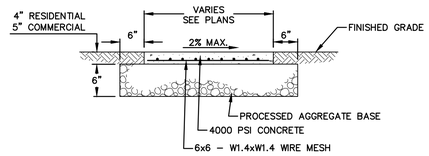
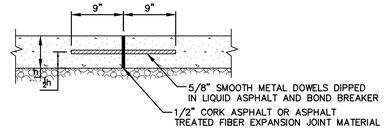


SIDEWALK SECTION



EXPANSION JOINT SECTION

CONCRETE SIDEWALK

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No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: NTS VERT.:
DATUM: HORZ.: VERT.:
0 GRAPHIC SCALE

FUSS & O'NEILL
UPPER SQUARE BUSINESS CENTER
5 FLETCHER STREET, SUITE 1
KENNEBUNK, MAINE 04043
207.363.0669
www.fando.com

CATE STREET DEVELOPMENT, LLC

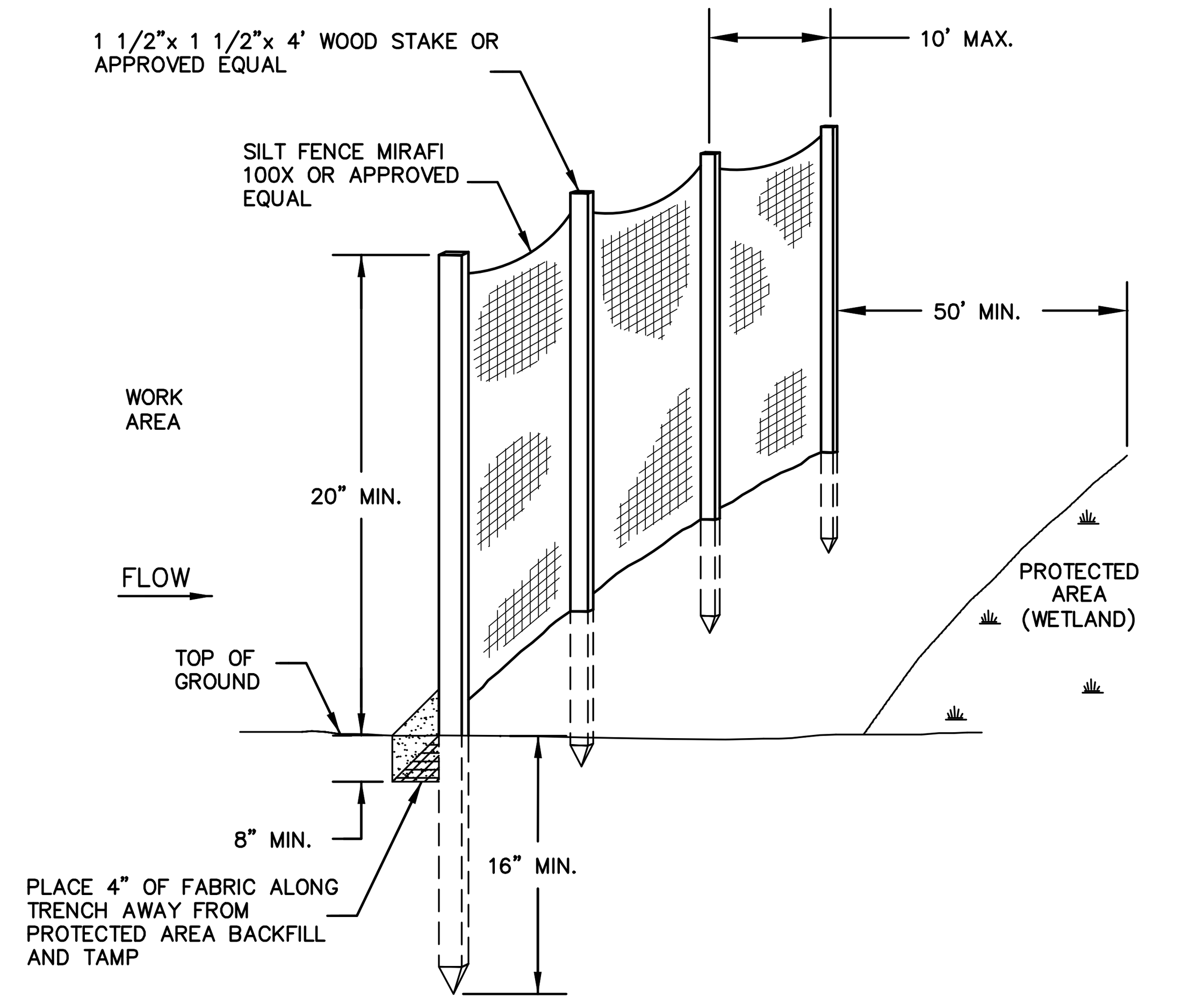
DETAILS

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CD-509



MAINTENANCE REQUIREMENTS:

1. FENCES SHOULD BE INSPECTED AND MAINTAINED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALLS;

2. SEDIMENT DEPOSITION SHOULD BE REMOVED, AT A MINIMUM, WHEN DEPOSITION ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FENCE, AND MOVED TO AN APPROPRIATE LOCATION SO THE SEDIMENT IS NOT READILY TRANSPORTED BACK TOWARD THE SILT FENCE.

3. SILT FENCES SHOULD BE REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHOULD BE REPLACED WITH A TEMPORARY CHECK DAM.

4. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL IS NECESSARY; THE FABRIC SHOULD BE REPLACED PROMPTLY.

5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE PREPARED AND SEEDED.

6. IF THERE IS EVIDENCE OF END FLOW ON PROPERLY INSTALLED BARRIERS, EXTEND BARRIERS UPHILL OR CONSIDER REPLACING THEM WITH OTHER MEASURES, SUCH AS TEMPORARY DIVERSIONS AND SEDIMENT TRAPS.

7. SILT FENCES HAVE A USEFUL LIFE OF ONE SEASON. ON LONGER CONSTRUCTION PROJECTS, SILT FENCE SHOULD BE REPAIRED PERIODICALLY AS REQUIRED TO MAINTAIN EFFECTIVENESS.

CONSTRUCTION SPECIFICATIONS:

1. FENCES SHOULD BE USED IN AREAS WHERE EROSION WILL OCCUR ONLY IN THE FORM OF SHEET EROSION AND THERE IS NO CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY ABOVE THE FENCE. SEDIMENT BARRIERS SHOULD BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE OF THE CONTRIBUTING DRAINAGE AREA ABOVE THEM.

2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA ABOVE THE FENCE SHOULD BE LESS THAN 1A ACRE PER 100 LINEAR FEET OF FENCE;

3. THE MAXIMUM LENGTH OF SLOPE ABOVE THE FENCE SHOULD BE 100 FEET;

4. THE MAXIMUM SLOPE ABOVE THE FENCE SHOULD BE 2:1;

5. FENCES SHOULD BE INSTALLED FOLLOWING THE CONTOUR OF THE LAND AS CLOSELY AS POSSIBLE, AND
   A. THE ENDS OF THE FENCE SHOULD BE FLARED UPSLOPE;
   B. THE FABRIC SHOULD BE EMBEDDED A MINIMUM OF 8 INCHES IN DEPTH AND 4 INCHES IN WIDTH IN A TRENCH EXCAVATED INTO THE GROUND, OR IF SITE CONDITIONS INCLUDE FROZEN GROUND, LEDGE, OR THE PRESENCE OF HEAVY ROOTS, THE BASE OF THE FABRIC SHOULD BE EMBEDDED WITH A MINIMUM THICKNESS OF 8 INCHES OF 3/4-INCH STONE;
   C. THE SOIL SHOULD BE COMPACTED OVER THE EMBEDDED FABRIC;
   D. SUPPORT POSTS SHOULD BE SIZED AND ANCHORED ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS WITH MAXIMUM POST SPACING OF 6 FEET;
   E. ADJOINING SECTIONS OF THE FENCE SHOULD BE OVERLAPPED BY A MINIMUM OF 6 INCHES (24 INCHES IS PREFERRED), FOLDED AND STAPLED TO A SUPPORT POST. IF METAL POSTS ARE USED, FABRIC SHOULD BE WIRE-TIED DIRECTLY TO THE POSTS WITH THREE DIAGONAL TIES.

6. SILT FENCING SHOULD NOT BE STAPLED OR NAILED TO TREES.

7. THE FILTER FABRIC SHOULD BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHOULD BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER.

8. THE FILTER FABRIC SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MINIMUM OF 6 MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF 0 DEGREES FAHRENHEIT TO 120 DEGREES FAHRENHEIT.

9. POSTS FOR SILT FENCES SHOULD BE EITHER 4-INCH DIAMETER WOOD OR 1.33 POUNDS PER LINEAR FOOT STEEL WITH A MINIMUM LENGTH OF 5 FEET. STEEL POSTS SHOULD HAVE, PROJECTIONS FOR FASTENING WIRE TO THEM. POSTS SHOULD BE PLACED ON THE DOWN SLOPE SIDE OF THE FABRIC.

10. THE HEIGHT OF A SILT FENCE SHOULD NOT EXCEED 36 INCHES AS HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE.

11. THE FILTER FABRIC SHOULD BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY; FILTER CLOTH SHOULD BE SPLICED TOGETHER ONLY AT SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.

12. A MANUFACTURED SILT FENCE SYSTEM WITH INTEGRAL POSTS MAY BE USED.

13. POST SPACING SHOULD NOT EXCEED 6 FEET.

14. A TRENCH SHOULD BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UP GRADIENT FROM THE BARRIER.

15. THE STANDARD STRENGTH OF FILTER FABRIC SHOULD BE STAPLED OR WIRED TO THE POST, AND 8 INCHES OF THE FABRIC SHOULD BE EXTENDED INTO THE TRENCH. THE FABRIC SHOULD NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

16. THE TRENCH SHOULD BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.

17. SILT FENCE MAY BE INSTALLED BY "SLICING" USING MECHANICAL EQUIPMENT SPECIFICALLY DESIGNED FOR THIS PROCEDURE. THE SLICING METHOD USES AN IMPLEMENT TOWED BEHIND A TRACTOR TO "PLOW" OR SLICE THE SILT FENCE MATERIAL INTO THE SOIL. THE SLICING METHOD MINIMALLY DISRUPTS THE SOIL UPWARD AND SLIGHTLY DISPLACES THE SOIL, MAINTAINING THE SOIL'S PROFILE AND CREATING AN OPTIMAL CONDITION FOR SUBSEQUENT MECHANICAL COMPACTION.

18. SILT FENCES SHOULD BE INSTALLED WITH "SMILES" OR "J-HOOKS" TO REDUCE THE DRAINAGE AREA THAT ANY SEGMENT WILL IMPOUND.

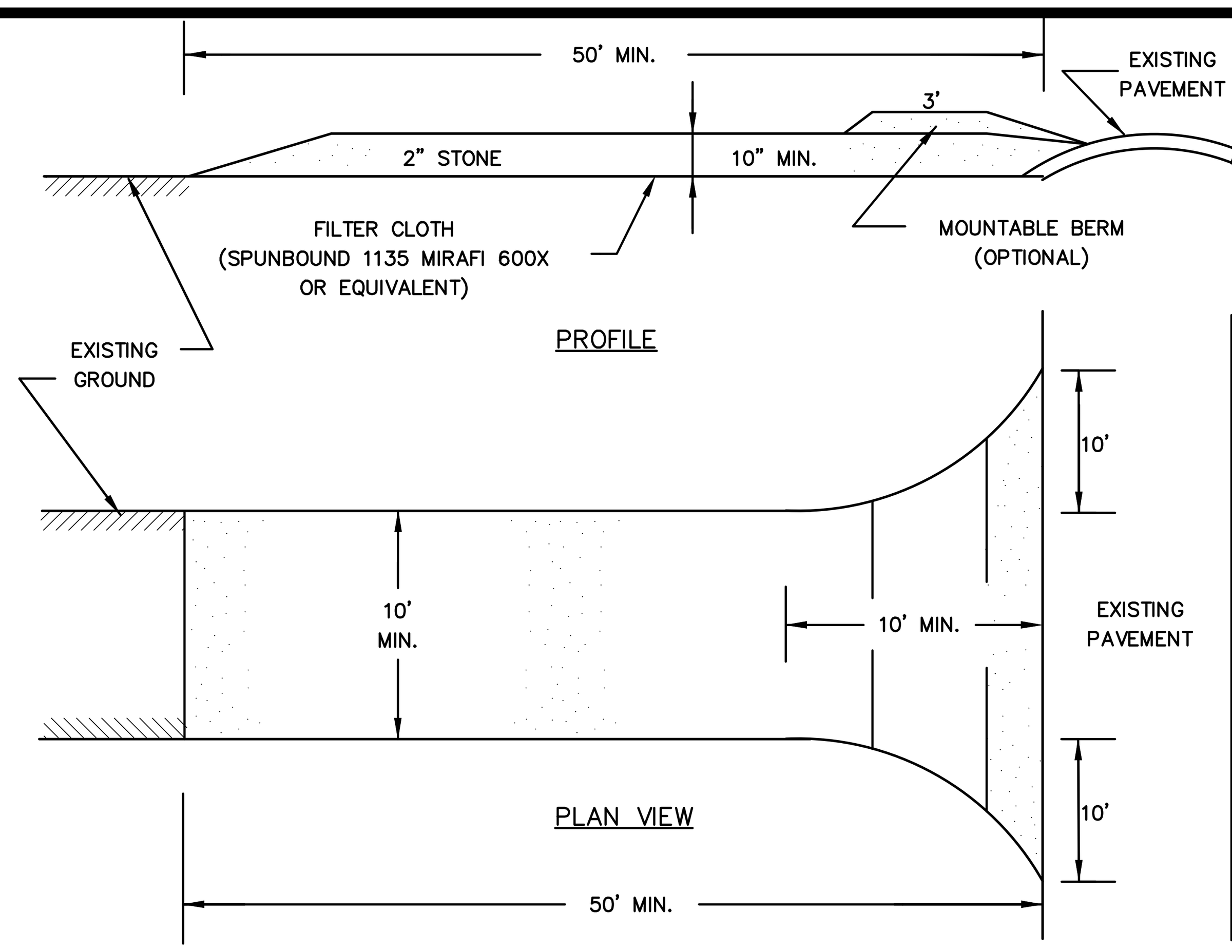
19. THE ENDS OF THE FENCE SHOULD BE TURNED UPHILL.

20. SILT FENCES PLACED AT THE TOE OF A SLOPE SHOULD BE SET AT LEAST 6 FEET FROM THE TOE M ALLOW SPACE FOR SHALLOW PONDING AND TO ALLOW FOR MAINTENANCE ACCESS WITHOUT DISTURBING THE SLOPE.

21. SILT FENCES SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.

SILT FENCE BARRIER

NOT TO SCALE



MAINTENANCE REQUIREMENTS:

1. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHOULD BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL, REGRADED ON SITE, AND STABILIZED. THE ENTRANCE SHOULD TEN BE RECONSTRUCTED.
2. THE CONTRACTOR SHOULD SWEEP THE PAVEMENT AT EXITS WHENEVER SOIL MATERIALS ARE TRACKED ONTO THE ADJACENT PAVEMENT OR TRAVELED WAY.
3. WHEN WHEEL WASHING IS REQUIRED, IT SHOULD BE CONDUCTED ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT-TRAPPING DEVICE. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

CONSTRUCTION SPECIFICATIONS:

1. THE MINIMUM STONE USED SHOULD BE 3-INCH CRUSHED STONE.
2. THE MINIMUM LENGTH OF THE PAD SHOULD BE 75 FEET, EXCEPT THAT THE MINIMUM LENGTH MAY BE REDUCED TO 50 FEET IF A 3-INCH TO 6-INCH BERM IS INSTALLED AT THE ENTRANCE OF THE PROJECT SITE.
3. THE PAD SHOULD BE THE FULL WIDTH OF CONSTRUCTION ACCESS ROAD OR 10 FEET, WHICHEVER IS GREATER.
4. THE PAD SHOULD SLOPE AWAY FROM THE EXISTING ROADWAY.
5. THE PAD SHOULD BE AT LEAST 6 INCHES THICK.
6. THE GEOTEXTILE FILTER FABRIC SHOULD BE PLACED BETWEEN THE STONE PAD AND THE EARTH SURFACE BELOW THE PAD.
7. THE PAD SHOULD BE MAINTAINED OR REPLACED WHEN MUD AND SOIL PARTICLES CLOG THE VOIDS IN THE STONE SUCH THAT MUD AND SOIL PARTICLES ARE TRACKED OFF-SITE.
8. NATURAL DRAINAGE THAT CROSSES THE LOCATION OF THE STONE PAD SHOULD BE INTERCEPTED AND PIPED BENEATH THE PAD, AS NECESSARY, WITH SUITABLE OUTLET PROTECTION.

USDA-SCS STABILIZED CONSTRUCTION ENTRANCE

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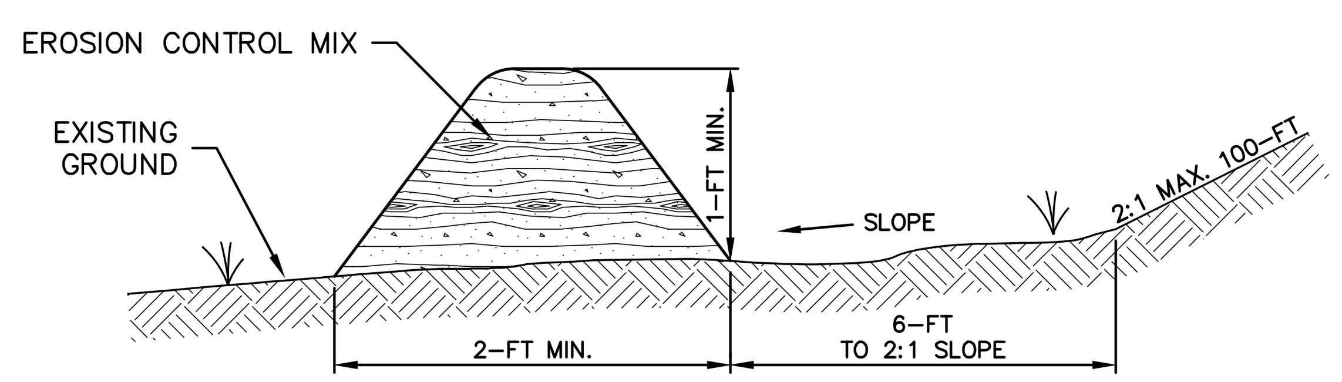

EROSION CONTROL MIX BERM CROSS SECTION

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MAINTENANCE REQUIREMENTS:

1. EROSION CONTROL MIX BERMS SHOULD BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
2. EROSION CONTROL MIX BERMS SHOULD BE REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM.
3. IF THERE ARE SIGNS OF BREACHING OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, THE EROSION CONTROL MIX BERMS SHOULD BE REPLACED WITH OTHER MEASURES TO INTERCEPT AND TRAP SEDIMENT (SUCH AS A DIVERSION BERM DIRECTING RUNOFF TO A SEDIMENT TRAP OR BASIN).
4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT.
5. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE THIRD (1/3) OF THE HEIGHT OF THE BARRIER.
6. EROSION CONTROL MIX BERMS SHOULD BE RESHAPED OR REAPPLIED AS NEEDED.
7. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE BARRIER IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

CONSTRUCTION SPECIFICATIONS:

1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF OF THE PROJECT SITE.
2. EROSION CONTROL MIX MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS.
3. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
4. COMPOSITION OF THE EROSION CONTROL MIX SHOULD BE AS FOLLOWS:
   A. EROSION CONTROL MIX SHALL BE A WELL GRADED MIXTURE OF PARTICLE SIZES FREE OF REFUSE, PHYSICAL CONTAMINANTS, MATERIAL TOXIC TO PLANT GROWTH AND MAY NOT CONTAIN ROCKS LESS THAN 4-INCHES IN DIAMETER;
   B. ORGANIC MATTER = 25-65% DRY WEIGHT BASIS
   C. PARTICLES PASSING BY WEIGHT:

SCREEN:	PASSING BY WEIGHT:
3-INCH	100%
1-INCH	90-100%
3/4-INCH	70-100%
1/4-INCH	30-75%

   D. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
   E. THE MIX SHOULD CONTAIN NO SILTS, CLAYS OR FINE SANDS.
   F. SOLUBLE SALTS CONTENT < 4.0 mmhos/cm
   G. pH OF THE MIX SHOULD BE BETWEEN 5.0 AND 8.0
5. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
6. IT MAY BE NECESSARY TO CUT TALL GRASSES AND WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES IN THE BARRIER THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
7. THE BARRIER MUST BE A MINIMUM OF 12-INCHES TALL AS MEASURED ON THE UPHILL SIDE OF THE BARRIER.
8. THE BARRIER MUST BE A MINIMUM OF 2-FT WIDE.

CONTINUOUS CONTAINED BERM (ALTERNATIVE):

1. AN ALTERNATIVE PRODUCT, THE CONTINUOUS CONTAINED BERM (OR "FILTER SOCK") CAN BE AN EFFECTIVE SEDIMENT BARRIER AS IT ADDS CONTAINMENT AND STABILITY TO A BERM OF EROSION CONTROL MIX.
2. IN THE EVENT THAT USE OF CONTINUOUS CONTAINED BERM IS DESIRED, THE PRODUCT SELECTED SHOULD BE REVIEWED AND APPROVED BY THE DESIGN ENGINEER.
3. INSTALLATION OF CONTINUOUS CONTAINED BERMS SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE MANUFACTURER.

EROSION CONTROL MIX BERM DETAIL

WINTER STABILIZATION & CONSTRUCTION PRACTICES:

MAINTENANCE REQUIREMENTS:

1. MAINTENANCE MEASURES SHOULD BE PERFORMED THROUGHOUT CONSTRUCTION, INCLUDING OVER THE WINTER PERIOD. AFTER EACH RAINFALL, SNOWSTORM, OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHOULD CONDUCT INSPECTION OF ALL INSTALLED EROSION CONTROL PRACTICES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUED FUNCTION.

2. FOR ANY AREA STABILIZED BY TEMPORARY OR PERMANENT SEEDING PRIOR TO THE ONSET OF THE WINTER SEASON, THE CONTRACTOR SHOULD CONDUCT AN INSPECTION IN THE SPRING TO ASCERTAIN THE CONDITION OF THE VEGETATION AND REPAIR ANY DAMAGED AREAS OR BARE SPOTS AND RESEED AS REQUIRED TO ACHIEVE AN ESTABLISHED VEGETATIVE COVER (AT LEAST 85% OF AREA VEGETATED WITH HEALTHY, VIGOROUS GROWTH.)

SPECIFICATIONS:

THE FOLLOWING STABILIZATION TECHNIQUES SHOULD BE EMPLOYED DURING THE PERIOD FROM OCTOBER 15 THROUGH MAY 15.

1. THE AREA OF EXPOSED, UNSTABILIZED SOIL SHOULD BE LIMITED TO 1-ACRE AND SHOULD BE PROTECTED AGAINST EROSION BY THE METHODS DISCUSSED IN NHSMM, VOL. 3 AND ELSEWHERE IN THIS PLAN SET, PRIOR TO ANY THAW OR SPRING MELT EVENT. STABILIZATION AS FOLLOWS SHOULD BE COMPLETED WITHIN A DAY OF ESTABLISHING THE GRADE THAT IS FINAL OR THAT OTHERWISE WILL EXIST FOR MORE THAN 5 DAYS:
2. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF LESS THAN 15% WHICH DO NOT EXHIBIT A MINIMUM 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15, SHOULD BE SEEDED AND COVERED WITH 3 TO 4 TONS OF HAY OR STRAW MULCH PER ACRE SECURED WITH ANCHORED NETTING, OR 2 INCHES OF EROSION CONTROL MIX (REFER TO NHSMM, VOL. 3 FOR SPECIFICATION).

3. ALL PROPOSED VEGETATED AREAS HAVING A SLOPE OF GREATER THAN 15% WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15 SHOULD BE SEEDED AND COVERED WITH A PROPERLY INSTALLED EROSION CONTROL BLANKET OR WITH A MINIMUM OF 4 INCHES OF EROSION CONTROL MIX, UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER. NOTE THAT COMPOST BLANKETS SHOULD NOT EXCEED 2 INCHES IN THICKNESS OR THEY MAY OVERHEAT.
4. ALL STONE COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.

5. INSTALLATION OF ANCHORED HAY MULCH OR EROSION CONTROL MIX SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH.

6. ALL MULCH APPLIED DURING WINTER SHOULD BE ANCHORED (I.E. BY NETTING, TRACKING, WOOD CELLULOSE FIBER).

7. WITHIN 24 HOURS OF STOCKPILING SOIL MATERIALS SHOULD BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A 4 INCH LAYER OF EROSION CONTROL MIX. MULCH SHOULD BE RE-ESTABLISHED PRIOR TO ANY RAIN OR SNOWFALL. NO SOIL STOCKPILE SHOULD BE PLACED (EVEN COVERED WITH MULCH) WITHIN 100-FT OF ANY WETLAND OR OTHER WATER RESOURCE AREA.

8. FROZEN MATERIAL (I.E. FROST LAYER REMOVED DURING WINTER CONSTRUCTION) SHOULD BE STOCKPILED SEPARATELY AND IN A LOCATION AWAY FROM ANY AREA NEEDING PROTECTION. FROZEN MATERIAL STOCKPILES CAN MELT IN SPRING AND BECOME UNWORKABLE AND DIFFICULT TO TRANSPORT DUE TO HIGH SOIL MOISTURE CONTENT.

9. INSTALLATION OF EROSION CONTROL BLANKETS SHOULD NOT OCCUR OVER SNOW OF GREATER THAN 1 INCH IN DEPTH OR ON FROZEN GROUND.

10. ALL GRASS-LINED DITCHES AND CHANNELS SHOULD BE CONSTRUCTED BY SEPTEMBER 1. ALL DITCHES AND SWALES WHICH DO NOT EXHIBIT 85% VEGETATIVE GROWTH BY OR ARE DISTURBED AFTER OCTOBER 15, SHOULD BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS AS DETERMINED BY A PROFESSIONAL ENGINEER. IF STONE LINING IS NECESSARY, THE CONTRACTOR MAY NEED TO RE-GRADE THE DITCH AS REQUIRED TO PROVIDE ADEQUATE CROSS-SECTION AFTER ALLOWING FOR PLACEMENT OF THE STONE.

11. ALL STONE LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED AND STABILIZED BY OCTOBER 15.

12. AFTER NOVEMBER 15, INCOMPLETE ROAD OR PARKING AREAS WHERE ACTIVE CONSTRUCTION HAS STOPPED FOR THE WINTER SHOULD BE PROTECTED WITH A MINIMUM 3 INCH LAYER OF SAND AND GRAVEL WITH A GRADATION THAT IS LESS THAN 12% OF THE SAND PORTION, OR MATERIAL PASSING THE NUMBER 4 SIEVE, BY WEIGHT, PASSES THE NUMBER 200 SIEVE.

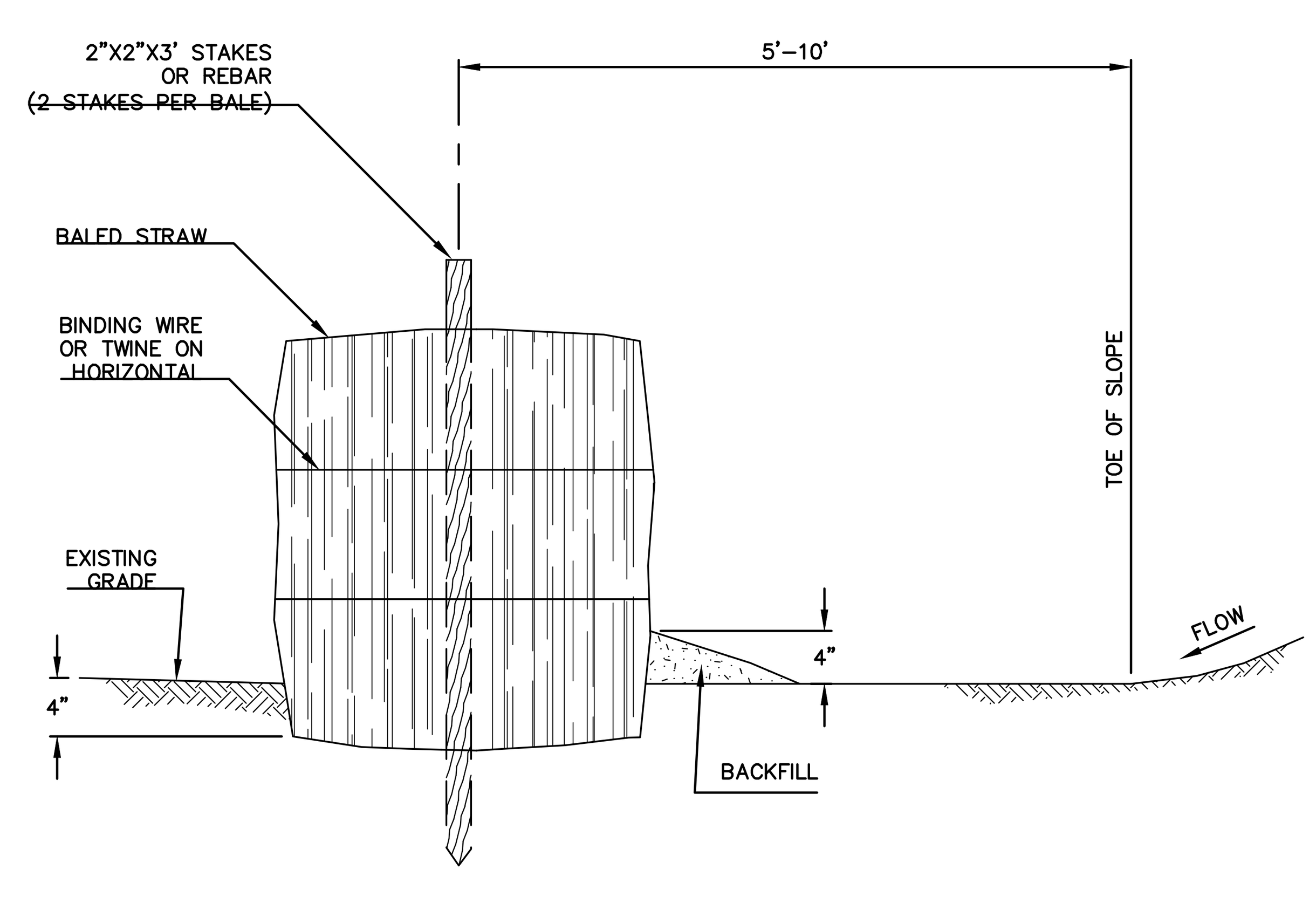
13. SEDIMENT BARRIERS THAT ARE INSTALLED DURING FROZEN CONDITIONS SHOULD CONSIST OF EROSION CONTROL MIX BERMS, OR CONTINUOUS CONTAINED BERMS. SILT FENCES AND HAY BALES SHOULD NOT BE INSTALLED WHEN FROZEN CONDITIONS PREVENT PROPER EMBEDMENT OF THESE BARRIERS.

DUST CONTROL PRACTICES:

1. APPLY DUST CONTROL MEASURES AS NECESSARY TO MAINTAIN CONTROL OF DUST ON SITE.
2. WATER APPLICATION:
   A) MOISTEN EXPOSED SOIL SURFACES PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST.
   B) AVOID EXCESSIVE APPLICATION OF WATER THAT WOULD RESULT IN MOBILIZING SEDIMENT AND SUBSEQUENT DEPOSITION IN NATURAL WATERBODIES.
3. STONE APPLICATION:
   A) COVER SURFACE WITH CRUSHED OR COARSE GRAVEL.
   B) IN AREAS NEAR WATERWAYS USE ONLY CHEMICALLY STABILIZED OR WASHED AGGREGATE.
4. REFER TO "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3 CONSTRUCTION PHASE EROSION AND SEDIMENT CONTROLS, DECEMBER 2008" FOR OTHER ALLOWABLE DUST CONTROL PRACTICES (I.E. COMMERCIAL TACKIFIERS OR CHEMICAL TREATMENTS SUCH AS CALCIUM CHLORIDE, ETC.)

INVASIVE SPECIES NOTE:

THE CONTRACTOR SHALL TAKE STEPS TO PREVENT THE SPREAD OF INVASIVE PLANT, INSECT, AND FUNGAL SPECIES BY MEETING THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES. http://gencourt.state.nh.us/rules/state_agencies/agr3800.html



TOE OF SLOPE STRAW BALE BARRIER

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GENERAL CONSTRUCTION PHASING:

1. STABILIZATION:
   A SITE IS DEEMED STABILIZED WHEN IT IS IN A CONDITION IN WHICH THE SOIL ON SITE WILL NOT EXPERIENCE ACCELERATED OR UNNATURAL EROSION UNDER THE CONDITIONS OF A 10-YEAR STORM EVENT, SUCH AS BUT NOT LIMITED TO:

A) IN AREAS THAT WILL NOT BE PAVED:
   i) A MINIMUM OF 85% VEGETATIVE COVER HAS BEEN ESTABLISHED;
   ii) A MINIMUM OF 3-INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR A CERTIFIED COMPOST BLANKET HAS BEEN INSTALLED, OR;
   iii) EROSION CONTROL BLANKETS HAVE BEEN INSTALLED.

B) IN AREAS TO BE PAVED:
   i) BASE COURSE GRAVELS HAVE BEEN INSTALLED.

2. TEMPORARY STABILIZATION:
   ALL AREAS OF EXPOSED OR DISTURBED SOIL SHOULD BE TEMPORARILY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 45 DAYS FROM THE TIME OF INITIAL DISTURBANCE, UNLESS A SHORTER TIME IS SPECIFIED BY LOCAL AUTHORITIES, THE CONSTRUCTION SEQUENCE APPROVED AS PART OF THE ISSUED PERMIT OR AN INDEPENDENT MONITOR.

3. PERMANENT STABILIZATION:
   ALL AREAS OF EXPOSED OR DISTURBED SOIL SHOULD BE PERMANENTLY STABILIZED AS SOON AS PRACTICABLE BUT NO LATER THAN 3 DAYS FOLLOWING FINAL GRADING.

4. MAXIMUM AREA OF DISTURBANCE:
   THE AREA OF UNSTABILIZED SOIL SHOULD NOT EXCEED 5 ACRES AT ANY TIME.

5. ONLY DISTURB, CLEAR, OR GRADE AREAS NECESSARY FOR CONSTRUCTION.
   A) FLAG OR OTHERWISE DELINEATE AREAS NOT TO BE DISTURBED.
   B) EXCLUDE VEHICLES AND CONSTRUCTION EQUIPMENT FROM THESE AREAS TO PRESERVE NATURAL VEGETATION.

6. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHOULD BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN DEPICTED ON SHEET CE-101.

7. ALL EROSION AND SEDIMENT CONTROL PRACTICES AND MEASURES SHOULD BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN DEPICTED ON SHEET CE-101.

8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHOULD BE STOCKPILED IN THE AMOUNT NECESSARY TO COMPLETE FINISHED GRADING AND BE PROTECTED FROM EROSION.

9. STOCKPILES, BORROW AREAS AND SPOILS SHALL BE STABILIZED AS DESCRIBED UNDER "SOIL STOCKPILE PRACTICES".

10. SLOPES SHOULD NOT BE CREATED SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTIES WITHOUT ADEQUATE PROTECTION AGAINST SEDIMENTATION, EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED DAMAGE.

11. AREAS TO BE FILLED SHOULD BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND/OR OTHER OBJECTIONABLE MATERIALS.

12. AREAS SHOULD BE SCARIFIED TO A MINIMUM DEPTH OF 3-INCHES PRIOR TO PLACEMENT OF TOPSOIL. TOPSOIL SHOULD BE PLACED WITHOUT SIGNIFICANT COMPACTION TO PROVIDE A LOOSE BEDDING FOR PLACEMENT OF SEED.

13. ALL FILLS SHOULD BE COMPACTED IN ACCORDANCE WITH PROJECT SPECIFICATIONS TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, SITE UTILITIES, CONDUITS AND OTHER FACILITIES, SHOULD BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

14. IN GENERAL, FILLS SHOULD BE COMPACTED IN LAYERS RANGING FROM 6 TO 24 INCHES IN THICKNESS. THE CONTRACTOR SHOULD REVIEW THE PROJECT GEOTECHNICAL REPORT AND/OR THE "PROJECT SPECIFIC PHASING NOTES" FOR SPECIFIC GUIDANCE.

15. ANY AND ALL FILL MATERIAL SHOULD BE FREE OF BRUSH, RUBBISH, ROCKS (LARGER THAN 3/4 THE DEPTH OF THE LIFT BEING INSTALLED), LOGS, STUMPS, BUILDING DEBRIS, FROZEN MATERIAL AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS.

16. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE (I.E. CLAY, SILT) MATERIALS ARE SUSCEPTIBLE TO ACCELERATED SETTLEMENT AND POTENTIAL ACCELERATED EROSION. WORK IN AREAS OF THESE MATERIALS SHOULD BE PERFORMED UNDER THE DIRECTION OF A PROFESSIONAL ENGINEER.

17. THE OUTER FACE OF THE FILL SLOPE SHOULD BE ALLOWED TO STAY LOOSE, NOT ROLLED OR COMPACTED, OR BLADE SMOOTHED. A BULLDOZER MAY RUN UP AND DOWN THE FILL SLOPE SO THE DOZER TREADS (CLEAT TRACKS) CREATE GROOVES PERPENDICULAR TO THE SLOPE. IF THE SOIL IS NOT TOO MOIST, EXCESSIVE COMPACTION WILL NOT OCCUR. SEE "SURFACE ROUGHENING" IN THE NHSMM, VOL.3.

18. ROUGHEN THE SURFACE OF ALL SLOPES DURING THE CONSTRUCTION OPERATION TO RETAIN WATER, INCREASE INFILTRATION AND FACILITATE VEGETATION ESTABLISHMENT.

19. USE SLOPE BREAKS, SUCH AS DIVERSIONS, BENCHES, OR CONTOUR FURROWS AS APPROPRIATE TO REDUCE THE LENGTH OF CUT-FILL SLOPES TO LIMIT SHEET AND RILL EROSION AND PREVENT GULLY EROSION. ALL BENCHES SHOULD BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF CONSTRUCTION.

20. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHOULD BE EVALUATED BY A PROFESSIONAL ENGINEER (PREFERABLY THE DESIGN ENGINEER) TO DETERMINE IF THE PROPOSED DESIGN SHOULD BE REVISED TO PROPERLY MANAGE THE CONDITION.

21. STABILIZE ALL GRADED AREAS (AS ABOVE) WITH VEGETATION, CRUSHED STONE, COMPOST BLANKET, OR OTHER GROUND COVER AS SOON AS GRADING IS COMPLETE OR IF WORK IS INTERRUPTED FOR 21 WORKING DAYS OR MORE. USE MULCH OR OTHER APPROVED METHODS TO STABILIZE AREAS TEMPORARILY WHERE FINAL GRADING MUST BE DELAYED.

22. ALL GRADED AREAS SHOULD BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

ABOVE NOTES EXCERPTED, ADAPTED AND REFERENCED FROM "NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3 CONSTRUCTION PHASE EROSION AND SEDIMENT CONTROLS, DECEMBER 2008" (NHSMM, VOL. 3)

SOIL STOCKPILE PRACTICES:

1. LOCATE STOCKPILES A MINIMUM OF 50-FT. AWAY FROM CONCENTRATED FLOWS OF STORMWATER, DRAINAGE COURSES OR INLETS.

2. PROTECT ALL STOCKPILES FROM STORMWATER RUN-ON USING TEMPORARY PERIMETER MEASURES SUCH AS DIVERSIONS, BERMS, SANDBAGS OR OTHER APPROVED PRACTICES.

3. STOCKPILES SHOULD BE SURROUNDED BY SEDIMENT BARRIERS AS DESCRIBED ON THE PLANS AND IN NHSMM VOL. 3. TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILE.

4. IMPLEMENT WIND EROSION CONTROL PRACTICES AS APPROPRIATE ON ALL STOCKPILED MATERIAL.

5. PLACE BAGGED MATERIALS ON PALLETS OR UNDERCOVER.

PROTECTION OF INACTIVE STOCKPILES:

6. INACTIVE SOIL STOCKPILES SHOULD BE COVERED WITH ANCHORED TARPS OR PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY SEED AND MULCH OR OTHER TEMPORARY STABILIZATION PRACTICE) AND TEMPORARY PERIMETER SEDIMENT BARRIERS (I.E. SILT FENCE, ETC.) AT ALL TIMES.

7. INACTIVE STOCKPILES OF CONCRETE RUBBLE, ASPHALT CONCRETE RUBBLE, AGGREGATE MATERIALS, AND SIMILAR MATERIALS SHOULD BE PROTECTED WITH TEMPORARY SEDIMENT PERIMETER BARRIERS (I.E. SILT FENCE, ETC.) AT ALL TIMES. IF THE MATERIALS ARE A SOURCE OF DUST, THEY SHOULD ALSO BE COVERED.

PROTECTION OF ACTIVE STOCKPILES:

8. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY LINEAR SEDIMENT BARRIERS (I.E. SILT FENCE, ETC.) PRIOR TO THE ONSET OF PRECIPITATION. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIAL FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.

9. WHEN A STORM IS PREDICTED, STOCKPILES SHOULD BE PROTECTED WITH AN ANCHORED PROTECTIVE COVERING.

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: NTS VERT.:
DATUM: HORZ.: VERT.:
0
GRAPHIC SCALE

FUSS & O'NEILL
UPPER SQUARE BUSINESS CENTER
5 FLETCHER STREET, SUITE 1
KENNEBUNK, MAINE 04043
207.363.0669
www.fando.com

CATE STREET DEVELOPMENT, LLC

DETAILS

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CD-510

File Path: F:\P2018\0317\A10\Civil3\Dwg\20180317A10_DET01.dwg Layout: CD-510-ECP Plotted: Wed, March 06, 2019 - 11:57 AM User: rlundborn
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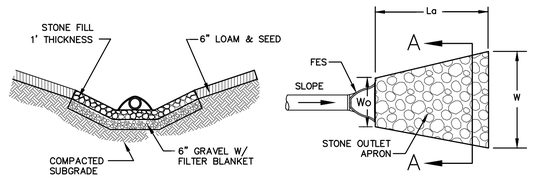
MS VIEW:
LAYER STATE:

D10=10"
RIP-RAP GRADATION

% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE (INCHES)		
100	15	TO	20
85	13	TO	18
50	10	TO	15
15	3	TO	5

APRON DIMENSION TABLE

PIPE OUTLET	Wo	W	La	T	d50
24" HDPE OUTLET	6.0'	11'	8'	12"	3"



SECTION A-A

PLAN VIEW

STONE: D50 = 6"
WELL GRADED WITH SUFFICIENT SAND
AND GRAVEL TO FILL THE VOIDS

THE HEIGHT OF THE STRUCTURAL LINING ALONG THE CHANNEL SIDES SHALL BEGIN AT THE ELEVATION EQUAL TO THE TOP OF THE CONDUIT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.

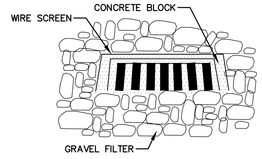
NOTES:
1. ALL PIPE CULVERTS SHALL HAVE END SECTIONS OR HEADWALLS. END SECTION MATERIAL AND MANUFACTURER SHALL MATCH THAT OF THE PIPE CULVERT.
2. THE LARGEST RIP-RAP SIZE DETERMINED DURING HYDROLOGIC ANALYSIS HAS BEEN USED FOR ALL OUTLETS FOR ECONOMY AND SIMPLICITY.
3. APRON LENGTHS, WIDTHS AND THICKNESSES HAVE BEEN ROUNDED UP TO WHOLE NUMBERS FOR EASE OF CONSTRUCTION.

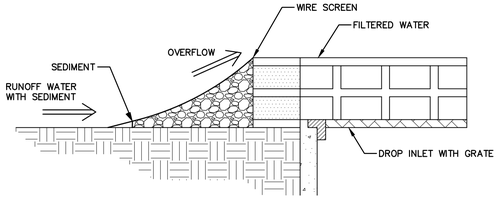
CONSTRUCTION SPECIFICATIONS:
1. PREPARE THE SUB-GRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIP-RAP TO THE GRADES SHOWN ON THE PLANS.
2. MINIMUM 6" SAND/GRAVEL BEDDING OR GEOTEXTILE FABRIC REQUIRED UNDER ALL ROCK RIP-RAP.
3. THE ROCK OR GRAVEL USED FOR FILTER OR RIP-RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF ROCK RIP-RAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO (2) PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
5. STONE FOR THE RIP-RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
6. RIP-RAP SIZE CHOSEN FOR THE WORST CASE OF ALL OUTLETS. ALL RIP-RAP USED FOR PIPE OUTLET PROTECTION WILL HAVE THE SAME GRADATION AND THICKNESS.

MAINTENANCE NOTES:
1. OUTLETS SHALL BE INSPECTED AND CLEANED ANNUALLY AND AFTER ANY MAJOR STORM EVENT. ANY EROSION OR DAMAGE TO THE RIP-RAP SHALL BE REPAIRED IMMEDIATELY.
2. THE CHANNEL IMMEDIATELY DOWNSTREAM FROM THE OUTLET SHOULD BE CHECKED TO SEE THAT NO EROSION IS OCCURRING.
3. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

RIP RAP APRON OUTLET PROTECTION

NOT TO SCALE





BLOCK AND GRAVEL INLET SEDIMENT FILTER

NOT TO SCALE

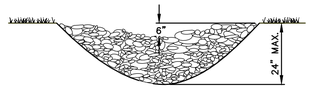
CONSTRUCTION SPECIFICATIONS:
1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDE IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4-INCH, 8-INCH AND 12-INCH WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH AND NO GREATER THAN 24 INCHES HIGH
2. WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS SHALL BE USED.
3. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN ABOVE. STONE GRADATION SHALL BE WELL GRADED WITH THE MAXIMUM STONE SIZE OF 6 INCHES AND MINIMUM STONE SIZE OF 1 INCH.
4. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED.

MAINTENANCE NOTES:
1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

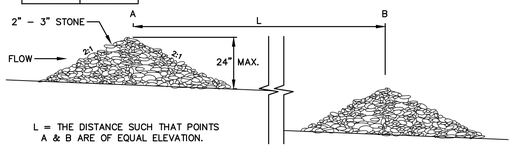
SEDIMENTATION CONTROL AT CATCH BASINS

NOT TO SCALE

SPACING BETWEEN CHECK DAMS	
SLOPE (FT/FT)	LENGTH (FT)
0.020	75
0.030	50
0.040	37
0.050	30
0.080	19
0.100	15
0.120	13
0.150	10



DRAINAGEWAY CROSS-SECTION



L = THE DISTANCE SUCH THAT POINTS A & B ARE OF EQUAL ELEVATION.

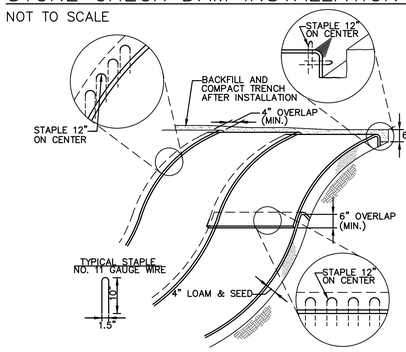
SPACING BETWEEN STONE CHECK DAMS

CONSTRUCTION SPECIFICATIONS:
1. STRUCTURES SHALL BE INSTALLED ACCORDING TO THE DIMENSIONS SHOWN ON THE PLANS AT THE APPROPRIATE SPACING.
2. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER SO THAT EROSION, AIR AND WATER POLLUTION WILL BE MINIMIZED.
3. STRUCTURES SHALL BE REMOVED FROM THE CHANNEL WHEN THEIR USEFUL LIFE HAS BEEN COMPLETED.

MAINTENANCE NOTES:
1. TEMPORARY GRADE STABILIZATION STRUCTURES SHOULD BE INSPECTED AFTER EACH STORM AND DAILY DURING PROLONGED STORM EVENTS. ANY DAMAGE TO THE STRUCTURES SHALL BE REPAIRED IMMEDIATELY.
2. PARTICULAR ATTENTION SHOULD BE GIVEN TO END RUN AND EROSION AT THE DOWNSTREAM TOE OF THE STRUCTURE.
3. WHEN REMOVING THE STRUCTURES, THE DISTURBED AREAS SHALL BE BROUGHT UP TO EXISTING CHANNEL GRADE AND THE AREAS PREPARED, SEEDED AND MULCHED
4. SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURES WHEN IT REACHES 1/2 THE ORIGINAL HEIGHT OF THE STRUCTURE.

STONE CHECK DAM INSTALLATION DETAIL

NOT TO SCALE



SLOPE INSTALLATION

MAINTENANCE REQUIREMENTS:
1. ALL BLANKET AND MATS SHOULD BE INSPECTED WEEKLY DURING THE CONSTRUCTION PERIOD, AND AFTER ANY RAINFALL EVENT EXCEEDING 1/2 INCH IN A 24-HOUR PERIOD.
2. ANY FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUT OF THE SLOPE, DISPLACEMENT OF THE MAT, OR DAMAGE TO THE MAT OCCURS, THE AFFECTED SLOPE SHALL BE REPAIRED AND RESEEDED, AND THE AFFECTED AREA OF MAT SHALL BE RE-INSTALLED.

CONSTRUCTION SPECIFICATIONS:
1. MANUFACTURE'S INSTALLATION INSTRUCTIONS:
   A. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
   B. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM)PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
   C. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
   D. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
   E. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.
2. SITE PREPARATION:
   A. PROPER SITE PREPARATION IS ESSENTIAL TO ENSURE COMPLETE CONTACT OF THE PROTECTION MATTING WITH THE SOIL.
   B. GRADE AND SHAPE AREA IF INSTALLATION.
   C. REMOVE ALL ROCKS, CLODS, TRASH, VEGETATIVE OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED BLANKETS WILL HAVE DIRECT CONTACT WITH THE SOIL.
   D. PREPARE SEEDBED BY LOOSENING 2-3 INCHES OF TOPSOIL ABOVE FINAL GRADE.
   E. INCORPORATE AMENDMENTS, SUCH AS LIME AND FERTILIZER, INTO SOIL ACCORDING TO SOIL TEST AND THE SEEDING PLAN.
3. SEEDING:
   A. SEED AREA BEFORE BLANKET INSTALLATION FOR EROSION CONTROL AND REVEGETATION. SEEDING AFTER MAT INSTALLATION IS OFTEN SPECIFIED FOR TURF REINFORCEMENT APPLICATIONS. WHEN SEEDING PRIOR TO BLANKET INSTALLATION, ALL CHECK SLOTS AND OTHER AREAS DISTURBED DURING INSTALLATION MUST BE RESEEDED.
   B. WHEN SOIL FILLING IS SPECIFIED, SEED THE MATTING AND THE ENTIRE DISTURBED AREA AFTER INSTALLATION AND PRIOR TO FILLING THE MAT WITH SOIL.

EROSION CONTROL - BLANKET SLOPE PROTECTION

NOT TO SCALE

PERMANENT VEGETATION:

SPECIFICATIONS:

SITE PREPARATION:
1. INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
2. GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
3. RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
4. ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR O THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.

SEEDBED PREPARATION:
1. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY AND SILT SOILS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.
2. REMOVE FROM THE SURFACE ALL STONES 2INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE CLODS, LUMPS, TRASH OR OTHER UNSUITABLE MATERIAL.
3. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.
4. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
5. IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWING SEASON.
6. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL FERTILIZER AND LIMESTONE MAY BE APPLIED AT THE FOLLOWING RATES:

   LIMESTONE APPLICATION RATE = 3 TONS/ACRE (138 LB./1,000-SF)*

   *EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE

   FERTILIZER APPLICATION RATE = 600 LB./ACRE (13.8 LB./1,000-SF)*

   *LOW PHOSPHATE FERTILIZER (N-P205-K20) OR EQUIVALENT
7. FERTILIZER SHOULD BE RESTRICTED TO LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 AND 250-FT FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25-FT OF A SURFACE WATER BODY. THESE ARE THE REQUIREMENTS FOR ANY WATER BODY PROTECTED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT.

SEEDING:
1. INOCULATE ALL LEGUME SEED WITH THE CORRECT TYPE OF INOCULANT.
2. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULTIPACKER TYPE SEEDER OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE.
3. WHERE FEASIBLE EXCEPT WHERE EITHER CULTIPACKER TYPE SEEDER OR HYDROSEEDER IS USED, THE SEEDBED SHOULD BE FIRMED FOLLOWING SEEDING OPERATIONS WITH A ROLLER, OR LIGHT DRAG.
4. SPRING SEEDING USUALLY GIVES THE BEST RESULTS FOR ALL SEED MIXES OR WITH LEGUMES. PERMANENT SEEDING SHOULD BE COMPLETED 45 DAYS PRIOR TO FIRST KILLING FROST. WHEN CROWN VETCH IS SEEDED IN LATE SUMMER AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SPECIFIED SEEDING DATES, MULCH ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL 3. AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
5. AREAS SEEDED BETWEEN MAY 15 AND AUGUST 15 SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL 3.
6. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.

HYDROSEEDING:
1. WHEN HYDROSEEDING (HYDRAULIC APPLICATION), PREPARE THE SEEDBED AS SPECIFIED ABOVE OR BY HAND RAKING TO LOOSEN AND SMOOTH THE SOIL AND REMOVE SURFACE STONES LARGER THAN 2 INCHES IN DIAMETER.
2. SLOPES BUST BE NO STEEPER THAN 2:1 (2 FEET HORIZONTALLY BY 1 FOOT VERTICALLY.
3. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. THE USE OF FIBER MULCH ON CRITICAL AREAS IS NOT RECOMMENDED (UNLESS IT IS USED TO HOLD STRAW OR HAY). BETTER PROTECTION IS GAINED BY USING STRAW MULCH AND HOLDING IT WITH ADHESIVE MATERIALS OR 500 POUNDS PER ACRE OF WOOD FIBER MULCH.
4. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.

MAINTENANCE REQUIREMENTS:
1. PERMANENT SEEDED AREAS SHOULD BE INSPECTED AT LEAST MONTHLY DURING THE COURSE OF CONSTRUCTION. INSPECTION, MAINTENANCE AND CORRECTIVE ACTIONS SHOULD CONTINUE UNTIL THE OWNER ASSUMES PERMANENT OPERATION OF THE SITE.
2. SEEDED AREAS SHOULD BE MOWED AS REQUIRED TO MAINTAIN A HEALTHY STAND OF VEGETATION. MOWING HEIGHT AND FREQUENCY DEPEND OF TYPE OF GRASS COVER.
3. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS.
4. AT A MINIMUM 85% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION.
5. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (I.E. MULCH, ETC.) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

PERMANENT VEGETATION SEEDING RECOMMENDATIONS

USE	MIXTURE	SPECIES	LBS./ACRE	LBS./ 1,000-SF
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	TALL FESCUE CREEPING RED FESCUE REDTOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER	A	TALL FESCUE CREEPING RED FESCUE REDTOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY RECREATION SITES	A	TALL FESCUE CREEPING RED FESCUE REDTOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
PLAY AREAS AND ATHLETIC FIELDS (TOPSOIL ESSENTIAL FOR GOOD TURF)	F	CREEPING RED FESCUE KENTUCKY BLUEGRASS TOTAL	50 50 100	1.15 1.15 2.30

SOURCES:
1. NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3, TABLES 4-2 AND 4-3
2. MINNICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

TEMPORARY VEGETATION:

SPECIFICATIONS:

SITE PREPARATION:
1. INSTALL NEEDED EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILTATION BARRIERS, DIVERSIONS, AND SEDIMENT TRAPS.
2. GRADE AS NEEDED FOR THE ACCESS OF EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING.
3. RUNOFF SHOULD BE DIVERTED FROM THE SEEDBED AREA.
4. ON SLOPES 4:1 OR STEEPER, THE FINAL PREPARATION SHOULD INCLUDE CREATING HORIZONTAL GROOVES PERPENDICULAR O THE DIRECTION OF THE SLOPE TO CATCH SEED AND REDUCE RUNOFF.

SEEDBED PREPARATION:
1. STONES AND TRASH SHOULD BE REMOVED SO AS NOT TO INTERFERE WITH THE SEEDING AREA.
2. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF 2 INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED.
3. IF APPLICABLE, FERTILIZER AND ORGANIC SOIL AMENDMENTS SHOULD BE APPLIED DURING THE GROWNG SEASON.
4. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL FERTILIZER AND LIMESTONE MAY BE APPLIED AT THE FOLLOWING RATES:

   LIMESTONE APPLICATION RATE = 3 TONS/ACRE (138 LB./1,000-SF)*

   *EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE

   FERTILIZER APPLICATION RATE = 600 LB./ACRE (13.8 LB./1,000-SF)*

   *LOW PHOSPHATE FERTILIZER (N-P205-K20) OR EQUIVALENT
5. FERTILIZER SHOULD BE RESTRICTED TO LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZER WHEN APPLIED TO AREAS BETWEEN 25 AND 250-FT FROM A SURFACE WATER BODY. NO FERTILIZER EXCEPT LIMESTONE SHOULD BE APPLIED WITHIN 25-FT OF A SURFACE WATER BODY. THESE ARE THE REQUIREMENTS FOR ANY WATER BODY PROTECTED BY THE COMPREHENSIVE SHORELAND PROTECTION ACT.

SEEDING:
1. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL CULTIPACKER TYPE SEEDER OR HYDRO SEEDER (SLURRY INCLUDING SEED AND FERTILIZER). NORMAL SEEDING DEPTH IS FROM 1/4 TO 1/2 INCH. HYDROSEEDING THAT INCLUDES MULCH MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.
2. TEMPORARY SEED SHOULD TYPICALLY OCCUR PRIOR TO SEPTEMBER 15.
3. AREAS SEEDED BETWEEN MAY 15 AND AUGUST 15 SHOULD BE COVERED WITH HAY OR STRAW MULCH, ACCORDING TO THE "TEMPORARY AND PERMANENT MULCHING" PRACTICE DESCRIBED IN THE NHSSM, VOL 3.
4. VEGETATED GROWTH COVERING AT LEAST 85% OF THE DISTURBED AREA SHOULD BE ACHIEVED PRIOR TO OCTOBER 15. IF THIS CONDITION IS NOT ACHIEVED, IMPLEMENT OTHER TEMPORARY STABILIZATION MEASURES FOR OVERWINTER PROTECTION.

MAINTENANCE REQUIREMENTS:
1. TEMPORARY SEEDING SHOULD BE INSPECTED WEEKLY AFTER ANY RAINFALL EXCEEDING 1/2 INCH IN 24 HOURS ON ACTIVE CONSTRUCTION SITES. TEMPORARY SEEDING SHOULD BE INSPECTED JUST PRIOR TO SEPTEMBER 15, TO ASCERTAIN WHETHER ADDITIONAL SEEDING IS REQUIRED TO PROVIDE STABILIZATION OVER THE WINTER PERIOD.
2. BASED ON INSPECTION, AREAS SHOULD BE RESEEDED TO ACHIEVE FULL STABILIZATION OF EXPOSED SOILS. IF IT IS TOO LATE IN THE PLANTING SEASON TO APPLY ADDITIONAL SEED, THEN OTHER TEMPORARY STABILIZATION MEASURES SHOULD BE IMPLEMENTED.
3. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHOULD BE MADE AND AREAS SHOULD BE RESEEDED, WITH OTHER TEMPORARY MEASURES (I.E. MULCH, ETC.) USED TO PROVIDE EROSION PROTECTION DURING THE PERIOD OF VEGETATION ESTABLISHMENT.

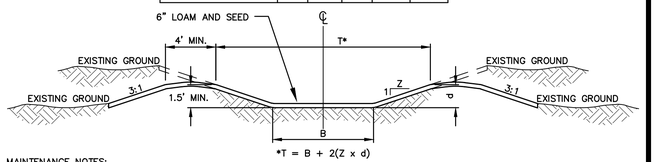
TEMPORARY VEGETATION SEEDING RECOMMENDATIONS

SPECIES	PER ACRE BUSHELS (BU) OR POUNDS (LBS.)	PER 1,000-SF	REMARKS
WINTER RYE	2.5 BU OR 112 LBS.	2.5 LBS.	BEST FOR FALL SEEDING. SEED FROM AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.
OATS	2.5 BU OR 80 LBS.	2.0 LBS.	BEST FOR SPRING SEEDING. SEED NO LATER THAN MAY 15 FOR SUMMER PROTECTION. SEED TO A DEPTH OF 1 INCH.
ANNUAL RYEGRASS	40 LBS.	1.0 LB.	GROWS QUICKLY, BUT IS OF SHORT DURATION. USE WHERE APPEARANCES ARE IMPORTANT. SEED EARLY SPRING AND/OR BETWEEN AUGUST 15 AND SEPTEMBER 15. COVER THE SEED WITH NO MORE THAN 0.25 INCH OF SOIL.
PERENNIAL RYEGRASS	30 LBS.	0.7 LBS.	BEST FOR FALL SEEDING. SEED FROM AUGUST 15 TO SEPTEMBER 15 FOR BEST COVER. SEED TO A DEPTH OF 1 INCH.

SOURCES:
1. NEW HAMPSHIRE STORMWATER MANAGEMENT MANUAL, VOLUME 3, TABLE 4-1
2. MINNICK, E.L. AND H.T. MARSHALL, (AUGUST 1992)

SWALE DIMENSION TABLE

LOCATION	B	d	Z	T	LENGTH
WHERE SHOWN	4-FT	2-FT	3-FT	20-FT	AS SHOWN



*T = B + 2(Z x d)

MAINTENANCE NOTES:
1. THE SWALE(S) SHALL BE MOWED WITH THE REST OF THE SITES LAWN AREAS TO PROMOTE HEALTHY GROWTH AND PREVENT THE ENCROACHMENT OF WEEDS AND WOODY VEGETATION. DO NOT MOW GRASS IN SWALE(S) TOO SHORT. THIS WILL REDUCE THE SWALES FILTERING ABILITY.
2. THE SWALE(S) SHOULD BE FERTILIZED ON AN AS NECESSARY BASIS, TO KEEP THE GRASS HEALTHY. OVER FERTILIZATION COULD RESULT IN THE SWALE(S) BECOMING A SOURCE OF POLLUTION TO THE SURROUNDING WETLAND AREAS.
3. THE SWALE(S) SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND RE-VEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

VEGETATED SWALE DETAIL

NOT TO SCALE

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER

SCALE: HORZ.: NTS VERT.:
DATUM: HORZ.: VERT.:
0 GRAPHIC SCALE

FUSS & O'NEILL
UPPER SQUARE BUSINESS CENTER
5 FLETCHER STREET, SUITE 1
KENNEBUNK, MAINE 04043
207.363.0669
www.fando.com

CATE STREET DEVELOPMENT, LLC

DETAILS

WEST END YARDS

PORTSMOUTH NEW HAMPSHIRE

PROJ. No.: 20180317.A10
DATE: 03/05/2019

CD-511

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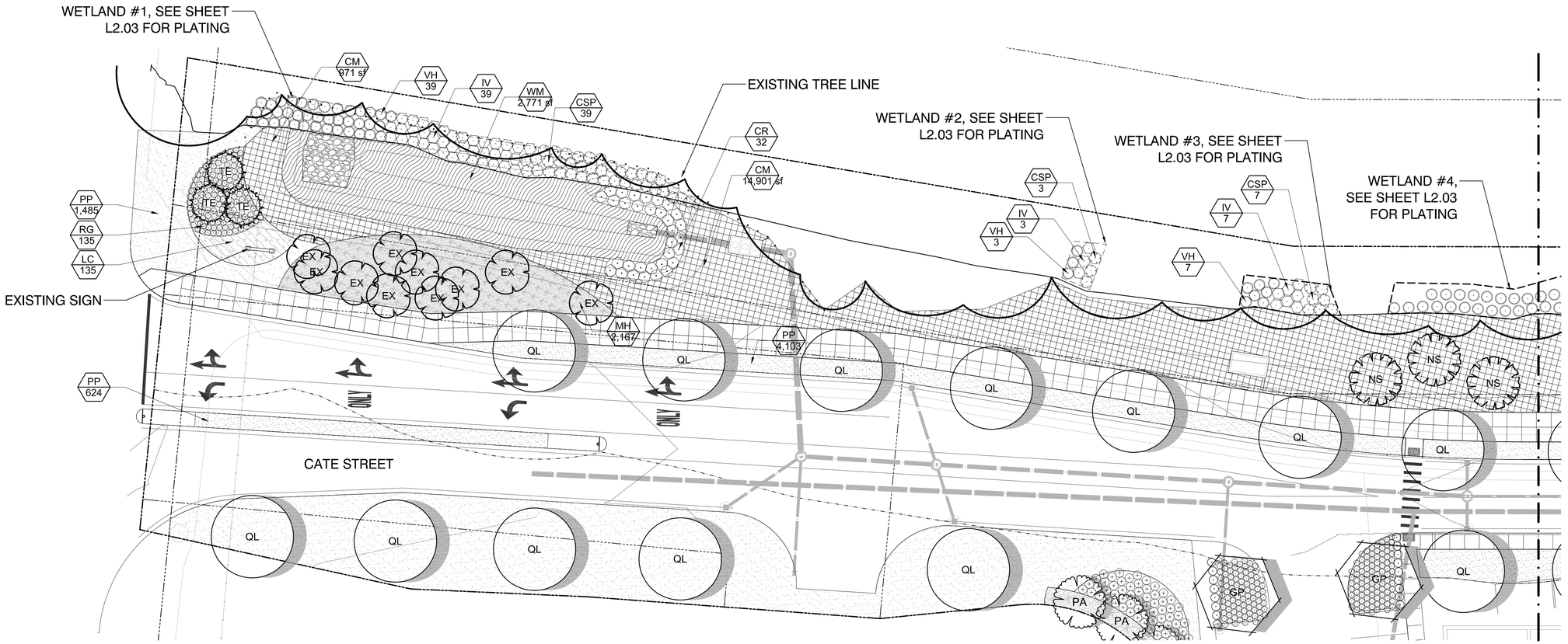
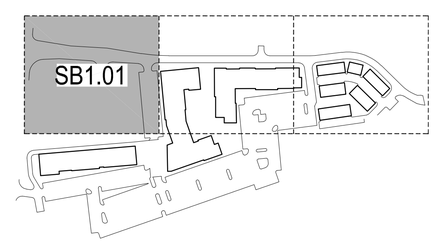


NOTE: FOR AREA OF INVASIVE SPECIES REMOVAL, SEE DETAIL SHEET L2.03 FOR PLANT LIST

PLANT SCHEDULE BUFFER LANDSCAPE

TREES	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	SPACING
AR	12	Acer rubrum / Red Maple	8 - 10` HT, #10		As Shown
BN	3	Betula nigra / River Birch Multi-Trunk	2.5" cal.		
EX	10	Existing Tree / Existing Tree	-		
NS	6	Nyssa sylvatica / Sour Gum	1.5" cal,	B & B	
QL	25	Quercus robur x bicolor `Long` / Regal Prince Oak	3" cal,		
TE	5	Thuja occidentalis `Emerald` / Emerald Arborvitae	6` min.	B & B	6` hgt.
SHRUBS	QTY	BOTANICAL NAME / COMMON NAME	CONTAINER	MIN. SIZE	SPACING
CA	46	Clethra alnifolia / Summersweet Clethra	1 gal		36" o.c.
CR	73	Cornus sericea / Red Twig Dogwood	1 gal		48" o.c.
CS	101	Clethra alnifolia `Ruby Spice` / Ruby Spice Clethra	3 gal		3` o.c.
CSP	81	Clethra alnifolia / Sweet Pepper Clethra	3 gal		4` o.c.
HA	78	Hydrangea arborescens / Wild Hydrangea	3 gal		4` o.c.
IG	68	Ilex glabra / Inkberry Holly	3 gal		3` o.c.
IV	81	Ilex verticillata / Winterberry	2 gal,		4` o.c.
IW	95	Ilex verticillata / Winterberry	1 gal		42" o.c.
MP	81	Myrica pensylvanica / Northern Bayberry	3 gal		36" o.c.
RG	135	Rhus aromatica `Gro-Low` / Gro-Low Fragrant Sumac	3 gal,		24" o.c.
VH	135	Vaccinium corymbosum / Highbush Blueberry	2 gal.		4` o.c.
GROUND COVERS	QTY	BOTANICAL NAME / COMMON NAME	CONTAINER	MIN. SIZE	SPACING
CM	28,227 sf	Conservation Seed Mix / Conservation Seed	SF		
LC	135	Liriope spicata / Creeping Lily Turf	1 gal,		18" o.c.
MH	2,167	Hardwood Mulch / Hardwood Mulch	SF		
PP	10,318	Poa pratensis / Kentucky Bluegrass	SF		
WM	4,631 sf	Wetland Seed Mix / Wetland Seed	SF		



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Scale 1" = 20'

SITE solutions
LANDSCAPE ARCHITECTURE+ LAND PLANNING
3715 Northside Parkway T: 404.705.9411
300 Northcreek, Bldg. 300 F: 404.705.9491
Atlanta, Georgia 30327 www.sitesolutionsla.com

PROFESSIONAL STAMP:

WEST END YARDS

PREPARED FOR

TORRINGTON PROPERTIES

SHEET STATUS

MARK	DATE	BY	RELEASE
A	03/06/2019	SS	CON COM SUBMITTAL

SHEET TITLE:

STREAM BUFFER PLAN

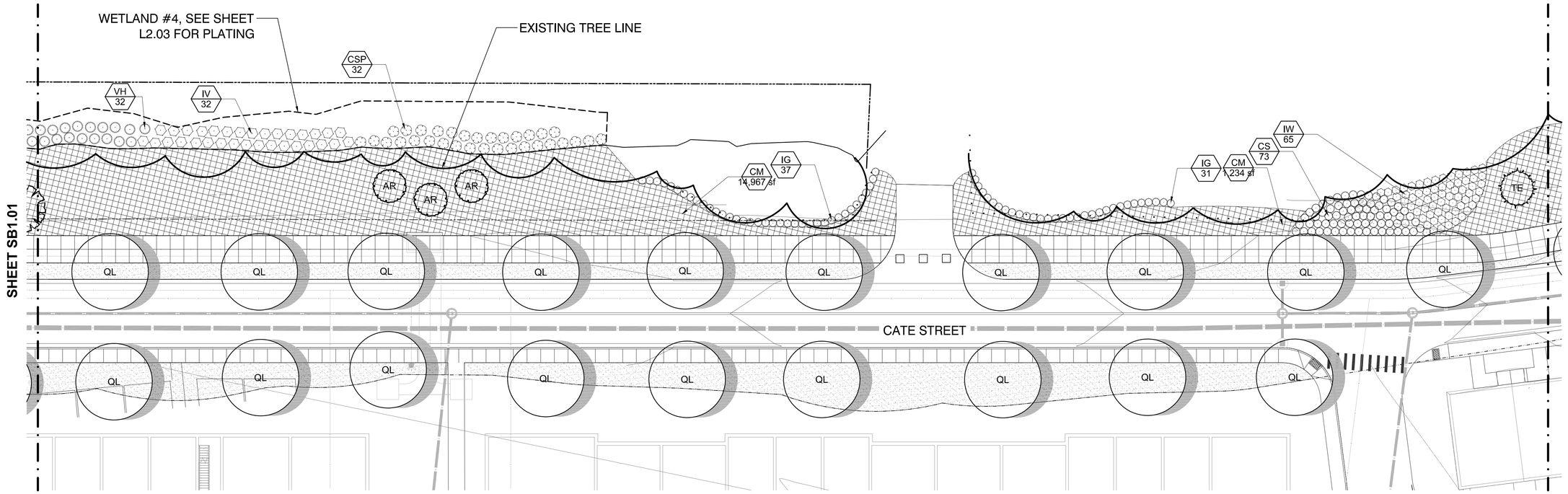
PROJECT NUMBER:

18041.00

SB1.01

DATE: 03.06.2019

PERMIT ISSUE



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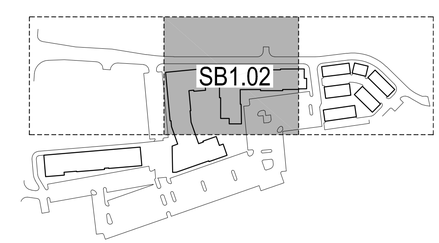

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PROFESSIONAL STAMP:

WEST END YARDS

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TORRINGTON PROPERTIES

SHEET STATUS

MARK	DATE	BY	RELEASE
A	03/06/2019	SS	CON COM SUBMITTAL

SHEET TITLE:

STREAM BUFFER PLAN

PROJECT NUMBER:

18041.00

SB1.02

DATE: 03.06.2019

PERMIT ISSUE

SHEET SB1.02

PLANT SCHEDULE BUFFER LANDSCAPE

TREES	QTY	BOTANICAL NAME / COMMON NAME	SIZE	ROOT	SPACING
AR	12	Acer rubrum / Red Maple	8 - 10` HT, #10		As Shown
BN	3	Betula nigra / River Birch Multi-Trunk	2.5" cal.		
EX	10	Existing Tree / Existing Tree	-		
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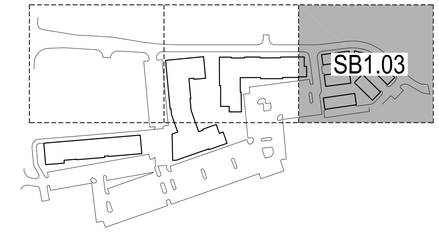

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Scale 1" = 20'

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PROFESSIONAL STAMP:

WEST END YARDS

PREPARED FOR

TORRINGTON PROPERTIES

SHEET STATUS

MARK	DATE	BY	RELEASE
A	03/06/2019	SS	CON COM SUBMITTAL

SHEET TITLE:

STREAM BUFFER PLAN

PROJECT NUMBER:

18041.00

SB1.03

DATE: 03.06.2019

PERMIT ISSUE

NEW ENGLAND WETLAND PLANTS, INC
820 WEST STREET, AMHERST, MA 01002
PHONE: 413-548-8000 FAX 413-549-4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Erosion Control/Restoration Mix For Detention Basins and Moist Sites

Botanical Name	Common Name	Indicator
Elymus riparius	Riverbank Wild Rye	FACW
Schizachyrium scoparium	Little Bluestem	FACU
Festuca rubra	Red Fescue	FACU
Andropogon gerardii	Big Bluestem	FAC
Panicum virgatum	Switch Grass	FAC
Vernonia noveboracensis	New York ironweed	FACW+
Agrostis perennans	Upland Bentgrass	FACU
Bidens cernua	Nodding Bur Marigold	OBL
Eupatorium maculatum (Eutrochium maculatum)	Spotted Joe Pye Weed	OBL
Eupatorium perfoliatum	Boneset	FACW
Aster novae-angliae (Symphyotrichum novae-anglia	New England Aster	FACW-
Scirpus cyperinus	Wool Grass	FACW
Juncus effusus	Soft Rush	FACW+

PRICE PER LB. $34.00 MIN. QUANITY 3 LBS. **TOTAL:** $102.00 APPLY: 35 LBS/ACRE :1250 sq ft/lb

The New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites contains a selection of native grasses and wildflowers designed to colonize generally moist, recently disturbed sites where quick growth of vegetation is desired to stabilize the soil surface. It is an appropriate seed mix for ecologically sensitive restorations that require stabilization as well as long-term establishment of native vegetation. This mix is particularly appropriate for detention basins that do not hold standing water. Many of the plants in this mix can tolerate infrequent inundation, but not constant flooding. The mix may be applied by hand, by mechanical spreader, or by hydro-seeder. After sowing, lightly rake, roll or cultipack to insure good seed-to-soil contact. Best results are obtained with a Spring or late Summer seeding. Late Fall and Winter dormant seeding requires an increase in the application rate. A light mulching of clean, weed-free straw is recommended

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

1 SPEC: WETLAND SEED MIX

N.T.S.

NEW ENGLAND WETLAND PLANTS, INC
820 WEST STREET, AMHERST, MA 01002
PHONE: 413-548-8000 FAX 413-549-4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

New England Conservation/Wildlife Mix

Botanical Name	Common Name	Indicator
Elymus virginicus	Virginia Wild Rye	FACW-
Schizachyrium scoparium	Little Bluestem	FACU
Andropogon gerardii	Big Bluestem	FAC
Festuca rubra	Red Fescue	FACU
Sorghastrum nutans	Indian Grass	UPL
Panicum virgatum	Switch Grass	FAC
Chamaecrista fasciculata	Partridge Pea	FACU
Desmodium paniculatum	Panicledleaf Tick Trefoil	
Verbena hastata	Blue Vervain	FACW
Asclepias tuberosa	Butterfly Milkweed	NI
Rudbeckia hirta	Black Eyed Susan	FACU-
Helenium autumnale	Common Sneezeweed	FACW+
Aster pilosus (Symphyotrichum pilosum)	Heath Aster	UPL
Solidago juncea	Early Goldenrod	
Agrostis perennans	Upland Bentgrass	FACU

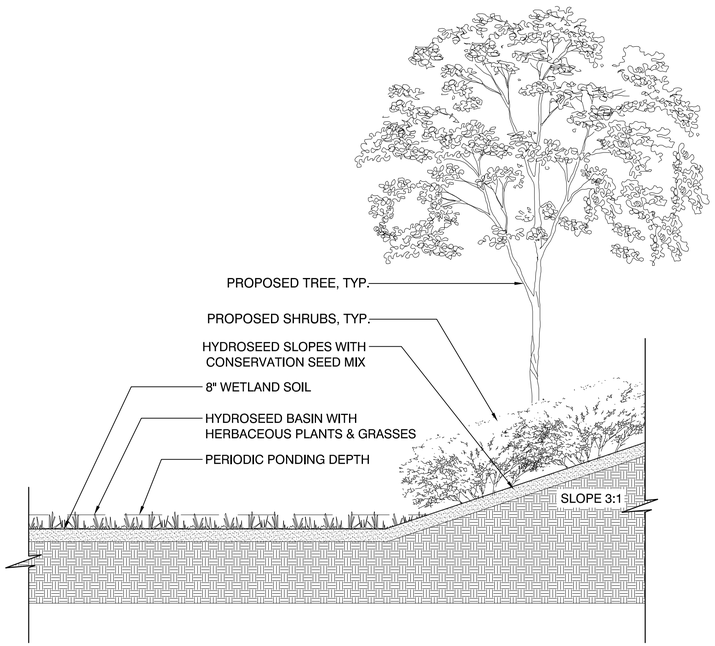
PRICE PER LB $36.50 MIN. QUANITY 2 LBS. **TOTAL:** $73.00 APPLY: 25 LBS/ACRE :1750 sq ft/lb

The New England Conservation/Wildlife Mix provides a permanent cover of grasses, wildflowers, and legumes
For both good erosion control and wildlife habitat value. The mix is designed to be a no maintenance seeding, and is appropriate for cut and fill slopes, detention basin side slopes, and disturbed areas adjacent to commercial and residential projects.

New England Wetland Plants, Inc. may modify seed mixes at any time depending upon seed availability. The design criteria and ecological function of the mix will remain unchanged. Price is $/bulk pound, FOB warehouse, Plus SH and applicable taxes.

2 SPEC: CONSERVATION SEED MIX

N.T.S.



3 DETAIL: WATER CONSERVATION POND

1/4" = 1'-0"

RESTORATION SEQUENCE NOTES:

1. EROSION CONTROL WILL BE PLACED AROUND ALL JURISDICTIONAL WETLANDS PRIOR TO THE START OF WORK.
2. INITIAL WORK FOR INVASIVE SPECIES REMOVAL WILL BE PERFORMED WITH GUIDANCE BY STAFF FROM GES INC.
3. INVASIVE SPECIES REMOVAL WILL IDEALLY BE DONE ONCE THE VEGETATION IS MATURE DURING THE LATE SPRING OR EARLY SUMMER TO AID IN IDENTIFICATION. INVASIVE SPECIES VEGETATION WILL INITAILLY BE CUT AS NEEDED TO AVOID THE POTENTIAL SPREAD OF SEEDS. ANY MATERIAL IN "SEED" WILL BE BAGGED AND DISPOSED OF PROPERLY.
4. ALL WORK WILL BE PERFORMED FROM THE UPPER AREA OF THE SITE BY LONG REACH EXCAVATORS. ANY SMALL-SCALE WORK WILL BE DONE BY HAND TO REDUCE BANK IMPACTS AND ELIMINATE ANY UNNEEDED WEEKENING OF THE STABILITY OF THE BANK. NO WORK WILL BE PERFORMED FROM WITHIN THE STREAM.
5. EXCAVATION WORK WILL BEGIN BY REMOVING REMAINING ROOT MATERIAL AND "SEED BANK" FROM THE SLOPE AND ANY DEBRIS.
6. ALL FILL MATERIAL, INCLUDING PAVEMENT, CINDER BLOCKS, CEMENT, TRASH, I.E, BUCKETS, COUCHES, APPLIANCES, EXERCISE EQUIPMENT, ETC., WILL BE REMOVED AND DISPOSED OF PROPERLY.
7. ANY CULVERTS EXISTING IN THE BANK TO BE REMOVED WILL BE SAW CUT OR CRUSHED AND REMOVED. THE REMANING PORTIONS OF CULVERTS WILL BE LEFT IN PLACE AND WILL BE FILLED WITH CEMENT TO CLOSE THEM OFF. THIS WILL REDUCE THE ADDITIONAL BANK IMPACT RESULTING FROM THEIR REMOVAL ENTIRELY.
8. ANY DEBRIS REMOVAL NEAR MATURE TREE ROOTS WILL BE PERFORMED BY HAND SHOVEL OR SMALL MACHINE TO REDUCE DAMAGE TO ROOT STRUCTURE.
9. CLEAN TOP SOIL WILL BE ADDED TO AREAS OF REMOVED MATERIALS, INCLUDING CULVERT ENDS. THIS MATERIAL WILL BE LEVELED TO CREATE A SMOOTH BANK TO BE PLANTED.
10. THE FOLLOWING SPECIES WILL BE PLANTED IN RANDOM SPACING AT THE SPECIFIED NUMBERS AND SPACING IN EACH RESTORATION AREA BELOW: HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM), WINTERBERRY (ILEX VERTICILATTA), SWEET PEPPER BUSH (CLETHERA ALNIFOLIA). ANY EXPOSED AREAS WILL BE SEEDED WITH AN EROSION CONTROL SEED MIX @ 35LBS/ACRE. THIS WORK WILL BE PERFOMRED BY HAND TOOLS. ALL PLANTS ARE TO BE IN 1-2 GALLON POTS AS AVAILABLE AT THE TIME OF THE PLANTING. PLANTS WILL BE LAID OUT PER THE RESTORATION PLAN IN RANDOM ORDER. HOLES WILL BE DUG BY HAND FOR PLANTING. ONCE PLANTED THE HOLES WILL BE BROUGHT LEVEL WITH ADDITIONAL SOIL. THE ENTIRE EXPOSED SLOPES WILL BE SEEDED AS SPECIFIED AND WILL BE COVERED WITH JUTE MATTING AFTER TO ELIMINATE EROSION. SUPPLEMENTAL WATERING WILL OCCUR SHOULD THERE NOT BE SIGNIFICANT RAINFALL.

IMPACT AREA 1 WILL HAVE 1,875 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH A TOTAL OF 117 PLANTS AT A SPACING OF 4' OC

39- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),

39- WINTERBERRY (ILEX VERTICILATTA)

39- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

IMPACT AREA 2 WILL HAVE 148 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH A TOTAL OF 9 PLANTS AT A SPACING OF 4' OC

3- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),

3- WINTERBERRY (ILEX VERTICILATTA)

3- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

IMPACT AREA 3 WILL HAVE 344 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH 21 TOTAL PLANTS AT 4' OC SPACING

7- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),

7- WINTERBERRY (ILEX VERTICILATTA)

7- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

IMPACT AREA 4 WILL HAVE 3,412 SF OF DISTURBANCE. THIS WILL BE PLANTED WITH A TOTAL OF 96 PLANTS AT A SPACING OF 6' OC.

32- HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM),

32- WINTERBERRY (ILEX VERTICILATTA)

32- SWEET PEPPER BUSH (CLETHERA ALNIFOLIA),

10. MONITORING OF THE RESTORATION AREAS WILL BE DONE UNDER THE DIRECTION OF THE NHDES WETLANDS BUREAU, AS THESE AREAS FALL UNDER THEIR JURISDICTON.

4 DETAIL: RESTORATION SEQUENCE NOTES

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SHEET STATUS

MARK	DATE	BY	RELEASE
A	03/06/2019	SS	CON COM SUBMITTAL

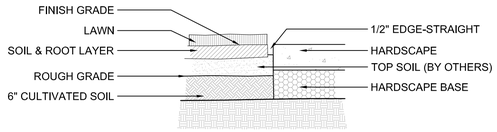
SHEET TITLE:
LANDSCAPE DETAILS

PROJECT NUMBER:
18041.00

L2.01

DATE: 03.06.2019

PERMIT ISSUE



INSTALLATION NOTES:

1. GENERAL CONTRACTOR TO PROVIDE GRADES TO WITHIN TWO TENTH OF A FOOT FOR PROPOSED GRADES.
2. CULTIVATE TO A DEPTH OF 6".
3. FINE GRADE AS REQUIRED TO REACH FINISH GRADE PER CIVIL DRAWINGS.
4. APPLY LIME AND FERTILIZER, AS SPECIFIED.
5. APPLY PRE-EMERGENT HERBICIDE PER MANUFACTURE'S RECOMMENDATION.
6. LAY SOD & ROLL LEVEL.
7. WATER ENTIRE AREA THOROUGHLY.
8. 1. INSTALL SOD SO THAT THE TOP OF SOIL & ROOT LAYER IS LEVEL WITH TOP OF PAVEMENT

1 SECTION: TYP. SOD INSTALLATION

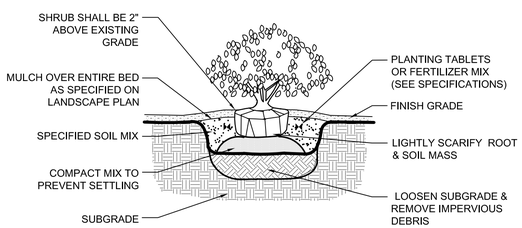
SCALE: N.T.S.

NOTES:

1. TRENCH EDGE IS TO BE LOCATED BETWEEN ALL PLANTING BEDS & LAWN AREAS.

2 SECTION: TRENCH EDGE

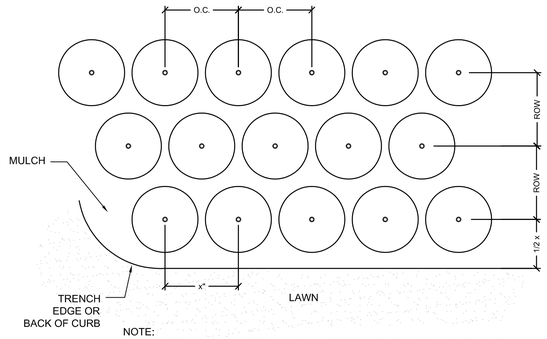
SCALE: NTS



NOTES:
1. IF ROOTBALL IS WRAPPED IN NON-BIODEGRADEABLE BURLAP, REMOVE ENTIRE WRAP AFTER PLACED IN PIT.

3 SECTION: TYP. CONTAINERIZED SHRUB PLANTING

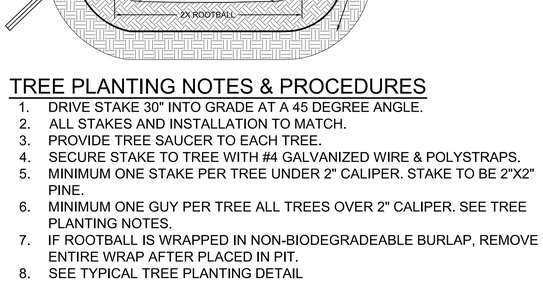
SCALE: NTS



NOTE:
1. IF ROOTBALL IS WRAPPED IN NON-BIODEGRADEABLE BURLAP, REMOVE ENTIRE WRAP AFTER PLACED IN PIT.
2. "X"= TYP. ON CENTER SPACING AS SHOWN ON PLANT SCHEDULE
3. ALL ROWS TO BE STRAIGHT AND PARALLEL

4 PLAN: TYP. PLAN MASS SPACING

SCALE: NTS

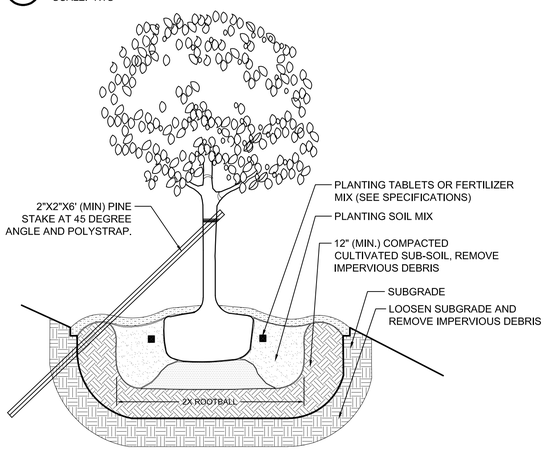


NOTES:

1. IF ROOTBALL IS WRAPPED IN NON-BIODEGRADEABLE BURLAP, REMOVE ENTIRE WRAP AFTER PLACED IN PIT.
2. "X"= TYP. ON CENTER SPACING AS SHOWN ON PLANT SCHEDULE
3. ALL ROWS TO BE STRAIGHT AND PARALLEL
4. TYP. BED INSTALLATION DETAIL FOR ERICACEOUS PLANT MATERIAL (RHODODENDRON, AZALEAS, PIERIS, ECT.)

5 SECTION: TYP. ERICACEOUS PLANT MATERIAL INSTALL.

SCALE: NTS

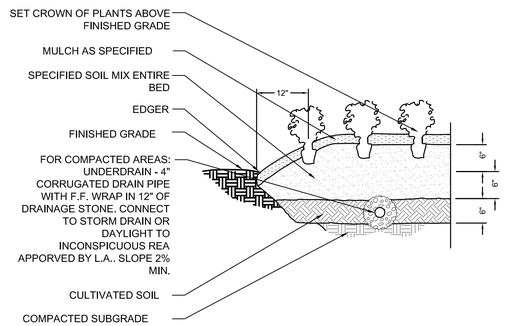


TREE PLANTING NOTES & PROCEDURES

1. DRIVE STAKE 30" INTO GRADE AT A 45 DEGREE ANGLE.
2. ALL STAKES AND INSTALLATION TO MATCH.
3. PROVIDE TREE SAUCER TO EACH TREE.
4. SECURE STAKE TO TREE WITH #4 GALVANIZED WIRE & POLYSTRAPS.
5. MINIMUM ONE STAKE PER TREE UNDER 2" CALIPER. STAKE TO BE 2"X2" PINE.
6. MINIMUM ONE GUY PER TREE ALL TREES OVER 2" CALIPER. SEE TREE PLANTING NOTES.
7. IF ROOTBALL IS WRAPPED IN NON-BIODEGRADEABLE BURLAP, REMOVE ENTIRE WRAP AFTER PLACED IN PIT.
8. SEE TYPICAL TREE PLANTING DETAIL

6 SECTION: TYP. TREE PLANTING ON SLOPE

SCALE: NTS

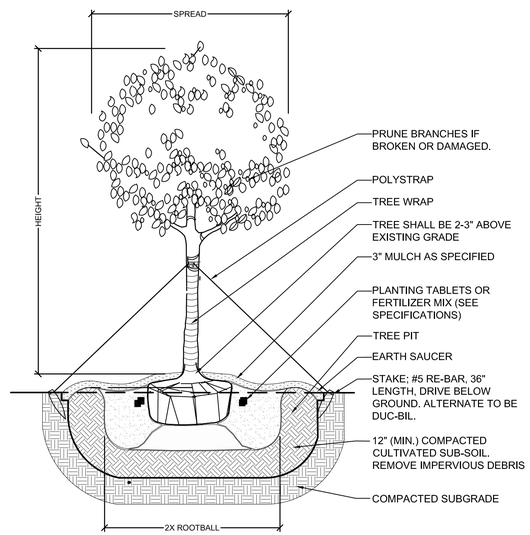


NOTES:

1. REFER TO SPECIFICATIONS FOR FERTILIZATION REQUIREMENTS.

7 SECTION: SEASONAL COLOR & PERENNIAL BED PREP.

SCALE: NTS

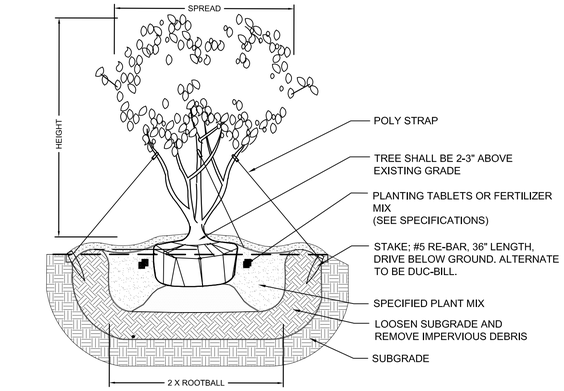


TREE PLANTING NOTES & PROCEDURES

1. EXCAVATE TREE PIT TO A DEPTH EQUAL TO DEPTH OF ROOTBALL PLUS 24", AND A WIDTH EQUAL TO TWO (2) TIMES THE DIAMETER OF THE ROOTBALL.
2. FILL TREE PIT WITH WATER AND CONFIRM PERCOLATION RATE. (NOTIFY LANDSCAPE ARCHITECT IF POOR DRAINAGE CON DITIONS EXIST.)
3. INSTALL TREE PER DETAIL AVOIDING DAMAGE TO ROOTBALL OR TREE TRUNK.
4. ADD SPECIFIED FERTILIZER TABLETS & MYCORRHIZAL TRANSPLANT INOCULANT.
5. REMOVE BURLAP ON TOP 1/3 OF TREE ROOTBALL. REMOVE BURLAP ON TOP 1/3 OF TREE ROOTBALL.
6. IMMEDIATELY SOAK TREE PIT WITH WATER AND REMOVE ANY AIR POCKETS THAT MAY HAVE OCCURRED DURING BACKFILLING.

8 SECTION: TYPICAL TREE PLANTING

SCALE: NTS



9 SECTION: TYP. MULTI TRUNK TREE PLANTING 6` & UP

SCALE: NTS

1. Contractor to carefully examine the contract documents and existing conditions before submitting bid proposal or commencing work.
2. Damage to existing utilities or site improvements caused by the contractor are the full responsibility of contractor.
3. Contractor's base bid to include all materials, labor, permits, equipment, tools, insurance, ETC. to perform the work as described in the contract documents.
4. Contractor to complete work within schedule established by owner.
5. Contractor to provide one year warranty for all material from date of substantial completion.
6. Provide unit price for all materials (installed cost) listed on the plant schedule.
7. Contractor to provide interim maintenance (watering, pruning, fertilizing, guying, mowing, trimming, adequate drainage of ponding areas, edging, weeding, mulching, application of insecticides/herbicides, and general landscape clean-up) until substantial completion notice is provided by the owner or landscape architect.
8. Perform work in compliance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for permits required by local authorities.
9. Topsoil shall be natural, fertile, friable, sandy clay loam capable of sustaining plant growth, free of stones, stumps, ETC.
10. For all turf lawn areas spread 2-3" of topsoil into existing soil to a depth of 6" below finish grade. Hand rake finished grades to provide even contours.
11. All planted material shall be equivalent in quality to specimen grade or better, as noted by the American Association of Nurserymen, latest edition. All trees of lesser quality shall be rejected by the city arborist.
12. Plant material to be free of disease, insect pests, eggs, or larvae. Damaged plant material shall be rejected.
13. Mulch to be clean, fresh, new, double shredded bark, 3 inches deep.
14. Test plant beds and plant pits for adequate drainage. Work shall be made by the contractor at no additional cost to owner. Hardpan or moisture barriers shall be broken, or drain pipes to be installed to provide proper drainage of plant areas. Plant pits shall be excavated to the bottom of the pit. Fill each plant plt with water and observe the plt for 2 hours. If the water has not dissipated by 50% within 2 hours, notify the landscape architect of such in writing before installing plants in the questionable area(s), otherwise contractor shall be held liable for the livability of the plant. In hardpan conditions where water does not drain within 2 hours, install drain pipes as per tree planting in compacted soil area detail.
15. Trees shall be Installed 2-3" above finish grade in hardpan areas unless otherwise directed to provide drainage.
16. Plant beds shall be neatly edged using a 3" wide by 6" wide deep trench. Provide 2/1 side slope behind trench edge.
17. Ground cover, shrub mass beds shall be cultivated to a depth of 12 inches below grade to break through compacted or hardpan soil. Remove all stones, roots, and Inferlor material. Add specified soil amendments and fertilizer. Elevate entire bed 6 inches above original grade. Rake to a consistent smooth surface. Install plants, edge bed area, mulch and water thoroughly.
18. Set all plants plumb and turned so that the most attractive side is viewed.
19. Plants shall be measured to their main structure, not tip to tip of branches.
20. Remove top one-third burlap of B & B wrapping. Remove all binding. If rootball Is wrapped In non-biodegradeable burlap, remove entire wrap after placed in pit.
21. Tree pit and shrub pit to be twice the size of the root mass. Fill with plant mix. See details.
22. Broken root balls for trees shall be rejected.
23. Any plant materials shipped to site in uncovered vehicles/ trailer shall be rejected regardless of season.
24. Space shrubs, ground cover, and seasonal color evenly and in straight rows.
25. All tree scars over 1 -1/2" shall be rejected and tree to be replaced.
26. All shrubs to be dense and full. All trees to have a symmetrical growth habit (360 degrees) unless uncharacteristic to plant type.
27. Scarify root mass of shrubs and ground cover before installing.
28. Remove all excess growth of trees and shrubs as directed by landscape architect. Do not cut central leader.
29. Layout all plant material according to landscape drawings. Receive approval of all layouts before installation. Adjustments to the layout shall be made by the landscape architect. Landscape contractor to make adjustments to layout at no addltional cost to the owner. Landscape contractor responslble for adjustment of layout in order to avoid utilities. Notify landscape architect of contemplated adjustments to the layout and receive approval before commencing.
30. General contractor to provide grades to two-tenths (.20+) of a foot of proposed finish grades.
31. All shrubs shall be dense and well-branched from bottom to top and all sides. "Leggy" shrubs will be rejected by L.A.
32. Owner or landscape architecture shall review project at completion of installation for substantial completion. Final completion shall be given at the end of the warranty period If all Items are completed to the owner's satisfaction. Contractor shall be notified in writing of substantial and final completion dates.
33. See civil drawings for further information regarding: erosion sediment control information, locations of existing and proposed structures, paving, driveways, cut and fill areas, and retention areas, limits of construction, locations of existing and proposed utilities or easements.
34. Contractor shall collect three (3) soil samples of existing soil from areas on site to receive planting for testing. Each soil sample shall be approximately 1 kg. (1 gal. zlp lock bag) In volume and will receive the following tests by A&L Agricultural Labs:
- s1-a
- s3
- texture analysis
- infiltration

34. Sight lines may not be obstructed between a height of 30-inches and 84-inches above the crown of the roadway surface. The property owner must maintain all landscaping according to this requirement at all times.

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SHEET STATUS

MARK	DATE	BY	RELEASE
A	03/06/2019	SS	CON COM SUBMITTAL

SHEET TITLE:

LANDSCAPE DETAILS

PROJECT NUMBER:

18041.00

L2.02

DATE: 03.06.2019

PERMIT ISSUE

New Hampshire Invasive Species Committee

NH Invasive Plant Species Watch List

Approved by the ISC April 11, 2018

The NH Invasive Plant Species Watch List is a non-regulatory reference tool that serves to:

a. identify potentially invasive non-native plant species based on degree of invasive qualities (e.g., aggressive growth, rapid reproduction, and/or lack of natural herbivores) and presence (but not necessarily abundance) in NH and/or nearby elsewhere in New England;
b. inform prevention (e.g., early detection/rapid response), monitoring, and management decision-making for species that may impact NH's ecosystems or economy; and
c. increase awareness of invasive plant species.

Scientific Name	Synonyms	Common Name
Abutilon theophrasti Medik.		Velvetleaf Indian-mallow
Acer ginnala Maxim.		Amur maple
Agrostemma githago L. var. *githago*	*Lychnis githago* (L.) Scop.	Common corncockle
Aira caryophyllea L.	*Aspris caryophyllea* (L.) Nash	Common silver-hairgrass
Allium vineale L.		Crow garlic
Amorpha fruticosa L.	*Amorpha fruticosa* L. var. *angustifolia* Pursh; *A. fruticosa* L. var. *oblongifolia* Palmer; *A. fruticosa* L. var. *tennesseensis* (Shuttlw. *ex* Kunze) Palmer	False indigo-bush
Aralia elata (Miq.) Seem.	*Dimorphanthus elatus* Miq.	Japanese angelica-tree
Barbarea vulgaris Ait. f.	*Barbarea arcuata* (Opiz *ex* J. & K. Presl) Reichenb.; *B. stricta*, of authors not Andrz.; *B. vulgaris* var. *arcuata* (Opiz *ex* J. & K. Presl) Fries; *Campe barbarea* (L.) W. Wight *ex* Piper; *C. stricta*, of authors not (Andrz.) W. Wight *ex* Piper; *Erysimum barbarea* L.	Garden yellow-rocket
Brassica juncea (L.) Czern.	*Brassica juncea* (L.) Czern. var. *crispifolia* Bailey; *Sinapis juncea* L.	Chinese mustard
Brassica nigra (L.) W.D.J. Koch	*Sinapis nigra* L.	Black mustard
Bromus tectorum L.	*Anisantha tectorum* (L.) Nevski	Cheat brome
Cardamine impatiens L.		Narrow-leaved bitter-cress
Centaurea jacea L.	*Centaurea debeauxii* Gren. & Godr. ssp. *thuillieri* Dostál; *C. jacea* L. ssp. *decipiens* (Thuill.) Čelak.; *C. jacea* L. ssp. *pratensis* Čelak.; *C. pratensis* Thuill.; *C. thuillieri* (Dostál) J. Duvign. & Lambinon; *Cyanus jacea* (L.) P. Gaertn.; *Jacea pratensis* Lam.	Brown knapweed
Centaurea nigra L.	*Jacea nigra* (L.) Hill	Black knapweed

Scientific Name	Synonyms	Common Name
Chelidonium majus L.	*Chelidonium majus* L. var. *laciniatum* (P. Mill.) Syme; *C. majus* L. var. *plenum* Wehrhahn	Greater celandine
Cirsium palustre (L.) Scop.	*Carduus palustris* L.	Marsh thistle
Cirsium vulgare (Savi) Ten.	*Carduus lanceolatus* L.; *C. vulgaris* Savi; *Cirsium lanceolatum* (L.) Scop.	Common thistle
Convolvulus arvensis L.	*Strophocaulos arvensis* (L.) Small	Field bindweed
Cytisus scoparius (L.) Link	*Spartium scoparium* L.	Scotch broom
Digitaria sanguinalis (L.) Scop.	*Panicum sanguinale* L.	Hairy crabgrass
Eichhornia crassipes (Mart.) Solms-Laubach	*Eichhornia speciosa* Kunth; *Piaropus crassipes* (Mart.) Raf.	Common water-hyacinth
Elymus repens (L.) Gould	*Agropyron repens* (L.) Gould; *Elytrigia repens* (L.) Desv. *ex* B.D. Jackson; *Triticum repens* L.	Creeping wild-rye
Epilobium hirsutum L.		Hairy willow-herb
Epipactis helleborine (L.) Crantz	*Epipactis latifolia* (L.) All.; *Serapias helleborine* L.	Broad-leaved helleborine
Euonymus europaeus L.		European spindle-tree
Euonymus fortunei (Turcz.) Hand.-Mazz	*Euonymus fortunei* (Turcz.) Hand.-Mazz var. *radicans* (Sieb. *ex* Miq.) Rehd.; *E. fortunei* (Turcz.) Hand.-Mazz var. *vegetus* (Rehd.) Rehd.; *E. radicans* Sieb. *ex* Miq. var. *vegetus* Rehd.	Climbing spindle-tree
Festuca filiformis Pourret	*Festuca capillata* Lam.; *F. ovina* L. var. *capillata* (Lam.) Alef.; *F. tenuifolia* Sibthorp	Fine-leaved sheep fescue
Ficaria verna Huds. ssp. *fertilis* (Lawralrée *ex* Laegaard) Stace	*Ficaria verna* Huds. ssp. *bulbifera* A. & D. Löve; *Ranunculus ficaria* L. ssp. *bulbilfer* Lambinon; *R. ficaria* L. ssp. *bulbifera* (Marsden-Jones) Lawalree, an illegitimate name; *R. ficaria* var. *bulbifera* Marsden-Jones	Fig-crowfoot
Froelichia gracilis (Hock.) Moq.	*Oplotheca gracilis* Moq.	Slender cotton-weed
Galium mollugo L.		Whorled bedstraw
Glechoma hederacea L.	*Glechoma hederacea* L. var. *micrantha* Moric.; *G. hederacea* L. var. *parviflora* (Benth.) House; *Nepeta hederacea* (L.) Trevisan	Gill-over-the-ground
Hylotelephium telephium (L.) H. Ohba	*Sedum purpureum* (L.) J.A. Schultes; *S. purpurascens* W.D.J. Koch; *S. telephium* L.	Purple orpine
Kochia scoparia (L.) Schrad.	*Bassia scoparia* (L.) A.J. Scott; *Chenopodium scoparium* L.; *Kochia scoparia* (L.) Schrad. var. *pubescens* Fenzl; *K. scoparia* (L.) Schrad. var. *subvillosa* Moq.	Summer-cypress
Lamium amplexicaule L. var. *amplexicaule*		Common henbit

Scientific Name	Synonyms	Common Name
Lamium purpureum L.	*Lamium dissectum* With.; *L. hybridum*, of authors not Vill.	Red henbit
Lonicera xylosteum L.		Fly honeysuckle
Lupinus polyphyllus Lindl. var. *polyphyllus*	*Lupinus pallidipes* Heller; *L. polyphyllus* Lindl. var. *albiflorus* L.H. Bailey; *L. polyphyllus* Lindl. var. *pallidipes* (Heller) C.P. Sm.	Blue lupine
Lychnis flos-cuculi L. ssp. *flos-cuculi*	*Coronaria flos-cuculi* (L.) A. Braun; *Silene flos-cuculi* (L.) Clairville	Ragged robin lychnis
Lysimachia arvensis (L.) U. Manns & A. Anderb.	*Anagallis arvensis* L.; *A. arvensis* L. var. *caerulea* (Schreb.) Gren. & Godr.; *A. caerulea* Schreb.	Scarlet pimpernel
Lysimachia vulgaris L.		Garden yellow-loosestrife
Miscanthus sinensis Anderss.	*Miscanthus sinensis* Anderss. var. *gracillimus* A.S. Hitchc.	Chinese silvergrass
Mycelis muralis (L.) Dumort.	*Lactuca muralis* (L.) Fresen.	Wall-lettuce
Myosotis scorpioides L.	*Myosotis palustris* (L.) Hill	Water forget-me-not
Nasturtium microphyllum Boenn. *ex* Reichenb.	*Nasturtium officinale* Ait. f. var. *microphyllum* (Boenn. *ex* Reichenb.) Thellung; *Rorippa microphylla* (Boenn. *ex* Reichenb.) Hyl. *ex* A. & D. Löve	One-rowed water-cress
Nasturtium officinale Ait. f.	*Baeumerta nasturtium-aquaticum* (L.) Hayek; *Rorippa nasturtium aquaticum* (L.) Hayek; *Sisymbrium nasturtium-aquaticum* L.	Two-rowed water-cress
Oenanthe javanica (Blume) DC.		Java water dropwort
Persicaria longiseta (Bruijn) Kitagawa	*Persicaria caespitosa* (Blume) Nakai var. *longiseta* (Bruijn) Reed; *Polygonum caespitosum* Blume var. *longisetum* (Bruijn) Steward; *P. longisetum* Bruijn	Oriental lady's-thumb sma'tweed
Phellodendron amurense Rupr.	*Phellodendron amurense* Rupr. var. *sachalinense* F. Schmidt; *P. japonicum* Maxim.; *P. sachalinense* (F. Schmidt) Sarg.	Amur corktree
Poa compressa L.		Flat-stemmed blue grass
Poa nemoralis L.		Wood blue grass
Populus alba L.	*Populus alba* L. var. *bolleana* Lauche	White poplar
Ranunculus repens L.	*Ranunculus repens* L. var. *degenerates* Schur; *R. repens* L. var. *erectus* DC.; *R. repens* L. var. *glabratus* DC.; *R. repens* L. var. *pleniflorus* Fern.; *R. repens* L. var. *villosus* Lamotte	Spot-leaved crowfoot
Raphanus raphanistrum L. ssp. *raphanistrum*		Wild radish

Scientific Name	Synonyms	Common Name
Rhinanthus minor L. ssp. *minor*	*Rhinanthus crista-galli* L., in part; *R. crista-galli* L. var. *fallax* (Wimmer & Grab.) Druce; *R. stenophyllus* (Schur) Schinz & Thellung	Little yellow-rattle
Rumex acetosella L. ssp. *pyrenaicus* (Pourret *ex* Lapeyr.) Akeroyd	*Acetosella vulgaris* (Koch) Fourr. ssp. *pyrenaica* (Pourret *ex* Lapeyr.) Á. Löve; *Rumex acetosella* L. var. *pyrenaicus* (Pourret *ex* Lapeyr.) Timbal-Lagrave; *R. pyrenaicus* Pourret *ex* Lapeyr.	Sheep dock
Securigera varia (L.) Lassen	*Coronilla varia* L.	Purple crown-vetch
Silphium perfoliatum L.		Cup-plant rosinweed
Sinapis arvensis L.	*Brassica arvensis* Rabenh.; *B. kaber* (DC.) L.C. Wheeler; *B. kaber* (DC.) L.C. Wheeler var. *pinnatifida* (Stokes) L.C. Wheeler	Corn charlock
Solanum carolinense L. var. *carolinense*		Carolina nightshade
Solanum dulcamara L.		Climbing nightshade
Sonchus arvensis L.	*Sonchus arvensis* L. ssp. *uliginosus* (Bieb.) Nyman; *S. uliginosus* Bieb.	Field sow-thistle
Sorbaria sorbifolia (L.) A. Braun	*Schizonotus sorbifolius* (L.) Lindl.; *Spiraea sorbifolia* L.	False spiraea
Tanacetum vulgare L.	*Chrysanthemum uliginosum* Pers.; *C. vulgare* (L.) Bernh.	Common tansy
Tussilago farfara L.		Coltsfoot
Typha xglauca Godr.		Hybrid cattail
Valeriana officinalis L.		Common valerian
Vinca minor L.		Lesser periwinkle

Taxonomy: Haines, A. 2015 (November 17). Tracheophyte Checklist of New England. Website: http://www.arthurhaines.com/tracheophyte-checklist.

Fact Sheet:
Prohibited Invasive Plant Species Rules, Agr 3800

New Hampshire
Department of Agriculture, Markets & Food

Updated 01/31/2017

This fact sheet is a synopsis of the adopted rules on invasive plant species and is intended for general use by the nursery and landscape industry, plant growers, plant dealers, general public, State Agencies, and Municipalities. A complete copy of the rules can be accessed on the internet at http://agriculture.nh.gov/topics/plants_insects.htm.

In accordance with the Invasive Species Act, HB 1258-FN, the NH Department of Agriculture, Markets & Food, Division of Plant Industry is the lead state agency responsible for the evaluation, publication and development of rules on invasive plant species for the purpose of protecting the health of native species, the environment, commercial agriculture, forest crop production, or human health. The rule, Agr 3800, states "**No person shall collect, transport, import, export, move, buy, sell, distribute, propagate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1, New Hampshire prohibited invasive species list**".

New Hampshire Prohibited Invasive Plant Species List

Scientific name	Synonyms	Common name
Acer platanoides L.	*Acer platanoides* var. *schwedleri* Nichols.	Norway maple
Ailanthus altissima (P. Mill.) Swingle	*Ailanthus glandulosa* Desv.	Tree of heaven
Alliaria petiolata (Bieb.) Cavara & Grande	*Alliaria alliaria* (L.) Britt.; *Alliaria officinalis* Andrz. *ex* Bieb.; *Erysimum alliaria* L.; *Sisymbrium alliaria* (L.) Scop.	Garlic mustard
Alnus glutinosa (L.) Gaertn.	*Alnus alnus* (L.) Britt.; *Betula alnus* L. var. *glutinosa* L.	European black alder
Berberis thunbergii DC.		Japanese barberry
Berberis vulgaris L.		European barberry
Celastrus orbiculatus Thunb.		Oriental bittersweet
Centaurea stoebe L. ssp. *micranthos* (Gugler) Hayek	*Centaurea biebersteinii* DC.; *Centaurea maculosa* Lam., misapplied; *Centaurea maculosa* Lam. ssp. *micranthos* Gugler	Spotted knapweed
Cynanchum louiseae Kartesz & Gandhi	*Cynanchum nigrum* (L.) Pers.; *Vincetoxicum nigrum* (L.) Pers.	Black swallow-wort
Cynanchum rossicum (Kleopow) Borhidi	*Cynanchum medium*, of authors not R. Br.; *Vincetoxicum medium*, of authors not (R. Br.) Dene.; *Vincetoxicum rossicum* (Kleopow) Barbarich	Pale swallow-wort
Elaeagnus umbellata Thunb. var. *parvifolia* (Royle) Schneid.	*Elaeagnus parvifolia* Royle	Autumn olive
Euonymus alatus (Thunb.) Sieb.	*Celastrus alatus* Thunb.	Burning bush
Frangula alnus P. Mill.	*Rhamnus frangula* L.	Glossy buckthorn
Glyceria maxima (Hartman) Holmb.	*Glyceria spectabilis* Mert. & Koch; *Molinia maxima* Hartman	Reed sweet grass
Heracleum mantegazzianum Sommier & Levier		Giant hogweed
Hesperis matronalis		Dames rocket

Impatiens glandulifera Royle	*Impatiens roylei* Walp.	Ornamental jewelweed
Iris pseudacorus L.		Water-flag
Lepidium latifolium L.	*Cardaria latifolia* (L.) Spach	Perennial peppenweed
Ligustrum obtusifolium Sieb. & Zucc. var. *obtusifolium*	*Ligustrum obtusifolium* var. *leiocalyx* (Nakai) H. Hara	Blunt-leaved privet
Ligustrum vulgare L.		Common privet
Lonicera japonica Thunb.	*Nintooa japonica* (Thunb.) Sweet	Japanese honeysuckle
Lonicera maackii (Rupr.) Herder*		Amur honeysuckle*
Lonicera morrowii Gray*		Morrow's honeysuckle*
Lonicera tatarica L.*		Tartarian honeysuckle*
Lonicera ×bella Zabel*	*Lonicera morrowii* × *L. tatarica*	Bella honeysuckle*
Lysimachia nummularia L.		Moneywort
Microstegium vimineum (Trin.) A. Camus	*Andropogon vimineum* Trin.; *Eulalia viminea* (Trin.) Kuntze	Japanese stilt grass
Persicaria perfoliata (L.) H. Gross	*Ampelygonum perfoliatum* (L.) Roberty & Vautier; *Polygonum perfoliatum* L.	Mile-a-minute weed
Pueraria montana (Lour.) Merr. var. *lobata* (Willd.) Maesen & S. Almeida	*Dolichos lobatus* Willd.; *Pueraria lobata* (Willd.) Ohwi; *Pueraria thunbergiana* (Sieb. & Zucc.) Benth.	Kudzu
Reynoutria japonica Houtt. var. *Japonica*	*Fallopia japonica* (Houtt.) R. Decr.; *Pleuropterus cuspidatus* (Sieb. & Zucc.) Moldenke; *Polygonum cuspidatum* Sieb. & Zucc.	Japanese knotweed
Reynoutria sachalinensis (F. Schmidt ex Maxim.) Nakai	*Fallopia sachalinensis* (F.S. Petrop. ex Maxim.) R. Decr.; *Polygonum sachalinense* F. Schmidt ex Maxim.	Giant knotweed
Reynoutria ×bohemica Chrtek & Chrtková	*Fallopia japonica* × *F. sachalinensis*; *Fallopia ×bohemica* (Chrtek & Chrtková) J.P. Bailey; *Polygonum ×bohemicum* (Chrtek & Chrtková) P.F. Zika & A.L. Jacobson	Bohemia knotweed
Rhamnus cathartica L.		Common buckthorn
Rosa multiflora Thunb. ex Murr.		Multiflora rose

Variance: Persons conducting temporary scientific studies, which may include hybridization of seedless species may apply for a variance to do so by contacting the NH Department of Agriculture, Markets & Food, Division of Plant Industry.

For additional Information

Douglas Cygan, Invasive Species Coordinator
New Hampshire Department of Agriculture
Division of Plant Industry
State Lab Building, Lab D
29 Hazen Drive
Concord, NH 03301
(603) 271-3488
douglas.cygan@agr.nh.gov
http://www.agriculture.nh.gov/divisions/plant-industry/invasive-plants.htm

SITE *solutions*
LANDSCAPE ARCHITECTURE+ LAND PLANNING
3715 Northside Parkway T: 404.705.9411
300 Northcreek, Bldg. 300 F: 404.705.9491
Atlanta, Georgia 30327 www.sitesolutionsla.com

PROFESSIONAL STAMP:

WEST END YARDS

PREPARED FOR

TORRINGTON PROPERTIES

SHEET STATUS

MARK	DATE	BY	RELEASE
A	03/06/2019	SS	CON COM SUBMITTAL

SHEET TITLE:

LANDSCAPE DETAILS

PROJECT NUMBER:
18041.00

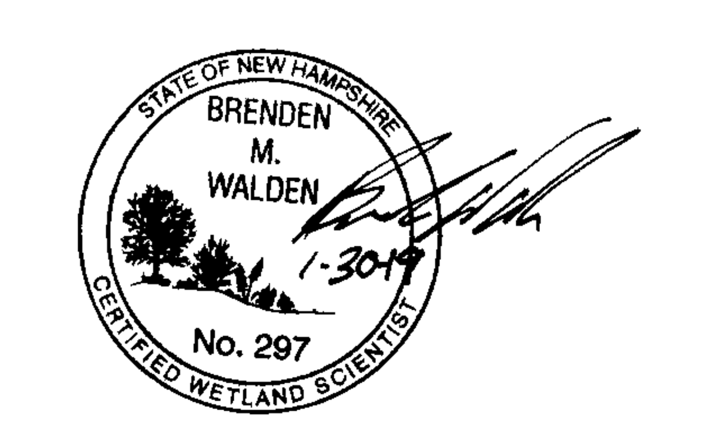
L2.03

DATE: 03.06.2019

PERMIT ISSUE

DRAINAGE STRUCTURES			
CB #1056	CB #1348	CB #3600	CB #4034
RIM ELEV.=23.3'	RIM ELEV.=24.6'	RIM ELEV.=11.1'	RIM ELEV.=10.8'
(A) 4" UNKN. INV.=17.6'	(1347) 12" RCP INV.=19.2'	12" PVC INV.=7.5'	12" PVC INV.=7.5'
(B) 4" UNKN. INV.=17.7'			
	CB #1742	CB #3672	DMH #4035
CB #1071	RIM ELEV.=24.7'	RIM ELEV.=11.9'	RIM ELEV.=11.7'
RIM ELEV.=22.7'	(1743) 12" RCP INV.=19.7'	(3693) 4" PVC INV.=8.2'	(NO VISIBLE PIPES)
(1072) 12" RCP INV.=17.3'		(3895) 4" PVC INV.=8.7'	SUMP=1.3'
	CB #1743	(A) 4" PVC INV.=8.3'	WATER LEVEL=1.8'
CB #1072	RIM ELEV.=24.7'		
RIM ELEV.=23.7'	(1742) 12" RCP INV.=19.5'	CB #3693	CB #4081
(A) 6" CMP INV.=17.6'	(A) 12" RCP INV.=19.5'	RIM ELEV.=11.0'	RIM ELEV.=8.7'
(1071) 12" RCP INV.=17.5'		(3672) 4" PVC INV.=8.2'	(4082) 12" HDPE INV.=5.8'
(1148) 12" CMP INV.=17.5'	CB #1926	(A) 12" PVC INV.=7.9'	
(1347) 15" RCP INV.=17.1'	RIM ELEV.=29.7'		CB #4082
(B) 15" RCP INV.=17.0'	8" PVC INV.=27.9' (OUTFALL)	DMH #3756	RIM ELEV.=8.7'
		RIM ELEV.=11.6'	(4081) 12" HDPE INV.=5.7'
CB #1128	CB #2346	(2360) 12" PVC INV.=7.8'	(4083) 12" HDPE INV.=5.9'
RIM ELEV.=22.7'	RIM ELEV.=15.6'	(A) 12" PVC INV.=7.8'	
(A) 6" PVC INV.=19.4'	(A) 12" RCP INV.=11.3'		DMH #4083
(1186) 12" CMP INV.=18.9'		DMH #3756	RIM ELEV.=8.9'
(1148) 12" CMP INV.=18.8'	CB #2347	RIM ELEV.=11.6'	(3866) 42"WX24H CMP INV.=5.0'
	RIM ELEV.=13.8'	(3760) 12" PVC INV.=7.7'	(4083) 12" HDPE INV.=5.7'
CB #1147	(2348) 15" HDPE INV.=9.7'	(A) 12" PVC INV.=7.8'	(4093) 12" HDPE INV.=5.6'
RIM ELEV.=22.2'			(A) 42"WX24H CMP INV.=5.0'
(A) 6" PVC INV.=18.7'	CB #2348	CB #3758	
(B) 12" CMP INV.=18.3'	RIM ELEV.=13.6'	RIM ELEV.=10.9'	CB #4093
	(2347) 15" HDPE INV.=9.8'	(3760) 12" PVC INV.=8.0'	RIM ELEV.=9.0'
CB #1148	(2349) 15" HDPE INV.=9.8'	(A) 8" PVC INV.=7.9'	(4083) 12" HDPE INV.=5.9'
RIM ELEV.=22.4'			
(A) 6" PVC INV.=18.7'	CB #2349	CB #3760	CB #4181
(1128) 12" CMP INV.=18.1'	RIM ELEV.=13.8'	RIM ELEV.=10.7'	RIM ELEV.=24.7'
(1148) 12" CMP INV.=18.2'	(2348) 15" HDPE INV.=9.1'	(3756) 12" PVC INV.=8.0'	12" CMP INV.=19.7'
	(2350) 15" HDPE INV.=10.3'	(3758) 12" PVC INV.=8.0'	
CB #1186	(3772) 15" HDPE INV.=9.1'		CB #4239
RIM ELEV.=23.5'		DMH #3772	RIM ELEV.=25.0'
(1188) 12" CMP (NOT VISIBLE)	CB #2350	RIM ELEV.=12.2'	12" CMP INV.=20.3'
(1128) 12" CMP INV.=20.0'	RIM ELEV.=12.6'	(2349) 15" HDPE INV.=8.7'	
	(FULL OF SILT & DEBRIS)	(3777) 15" HDPE INV.=8.6'	CB #4545
CB #1188			RIM ELEV.=27.8'
RIM ELEV.=25.7'	CB #2993	CB #3777	(3281) 15" RCP INV.=22.0'
(1186) 8" PVC INV.=22.3'	RIM ELEV.=30.2	RIM ELEV.=10.7'	(A) 18" RCP INV.=21.3'
	(A) 15" RCP INV.=26.2'	(3772) 15" HDPE INV.=7.7'	
CB #1213	(B) 12" UNKN. INV.=26.1'	(4605) 15" HDPE INV.=7.6'	DMH #4603 & 4604
RIM ELEV.=20.3'	(3281) 15" RCP INV.=26.0'		RIM ELEV.=10.3'
(HDWL) 12" HDPE INV.=17.6'		DMH #3866	(4035) 42" RCP INV.=1.0'
	CB #3019	RIM ELEV.=10.2'	(A) 36" RCP INV. (RECESSED)
CB #1251	RIM ELEV.=28.8'	(4083) 42"WX24H CMP INV.=5.3'	(B) UNKN. (RECESSED)
RIM ELEV.=20.9'	(A) 6" PVC INV.=25.4'	(4605) 24" RCP INV.=5.4'	(C) 42" RCP INV.=1.2'
(A) 18" CMP INV.=16.5'		(A) 8" CI INV.=8.0'	
	CB #3065		DMH #4605
CB #1345	RIM ELEV.=31.5'	CB #3895	RIM ELEV.=11.0'
RIM ELEV.=23.3'	WATER ELEV.=27.4'	RIM ELEV.=11.9'	(3579) 24" RCP INV.=4.4'
(1346) 12" RCP INV.=19.1'	(NO PIPES VISIBLE)	(3672) 4" PVC INV.=9.7'	(3777) 15" CMP INV.=7.5'
		(A) 4" PVC INV.=9.9'	(3866) 24" RCP INV.=4.6'
CB #1346	CB #3281		
RIM ELEV.=25'	RIM ELEV.=29.8'	CB #3993	
(1345) 12" RCP INV.=17.4'	(2993) 15" RCP INV.=24.3'	RIM ELEV.=12.6'	
(1347) 15" RCP INV.=15.9'	(4545) 15" RCP INV.=24.2'	(NO VISIBLE PIPES)	
(A) 15" RCP INV.=15.7'		APPEARS TO OPEN TO BROOK	
	DMH #3579	SUMP=1.5'	
CB #1347	RIM ELEV.=11.2'	WATER LEVEL=1.8'	
RIM ELEV.=23.9'	(4035) 36" BRICK TROUGH INV.=2.0'		
(1348) 12" RCP INV.=18.8'	(4605) 24" RCP INV.=4.2'	CB #4002	
(1072) 15" RCP INV.=15.9'	(A) UNKN. INV.=2.0'	RIM ELEV.=12.9'	
(1346) 15" RCP INV.=15.8'		(BOLTED SHUT)	

SEWER STRUCTURES		
SMH #1066	SMH #2434	SMH #3768
RIM ELEV.=23.2'	RIM ELEV.=18.2'	RIM ELEV.=11.4'
(A) 4" PVC INV.=18.5'	(2799) 10" UNKN. INV.=9.7'	(2353) 24" PVC INV.=6.0'
(D) UNKN. INV.=12.3'	(2365) 12" UNKN. INV.=9.7'	(3578) 24" PVC INV.=5.9'
(1152) 10" UNKN. INV.=11.8'		
(C) 4" PVC INV.=16.0'	SMH #2789	SMH #3999
(D) 4" PVC INV.=16.0'	RIM ELEV.=20.1'	RIM ELEV.=12.6'
(1350) UNKN. INV.=11.9'	(SUMP) INV.=9.9'	(4000) 10" PVC INV.=5.9'
(E) UNKN. INV.=11.6'	NO PIPES VISIBLE	(4003) 12" PVC INV.=5.8'
SMH #1152	SMH #2799	SMH #4000
RIM ELEV.=22.6'	RIM ELEV.=23.8'	RIM ELEV.=12.3'
(1066) 10" UNKN. INV.=11.3'	(A) 4" DI INV.=21.1'	(3718) 10" PVC INV.=5.8'
(2799) 10" UNKN. INV.=11.2'	(B) 8" UNKN. INV.=12.1'	(3999) 10" PVC INV.=5.8'
	(1152) 10" UNKN. INV.=10.7'	
SMH #1350	(2434) 10" UNKN. INV.=10.6'	SMH #4003
RIM ELEV.=25.5'		RIM ELEV.=13.3'
(A) 8" CLAY INV.=14.9'	SMH #3280	(3999) 12" PVC INV.=6.5'
(4565) UNKN. INV.=14.7'	RIM ELEV.=29.8'	(A) 10" CI INV.=6.6
(1066) UNKN. INV.=14.4'	(1527) 8" CLAY DROP INLET INV.=21.1'	
	(4565) UNKN. INV.=16.4'	SMH #4102
SMH #1470	(A) 4" CI INV.=23.3'	RIM ELEV.=11.3'
RIM ELEV.=29.4'	(B) UNKN. INV.=16.5'	(3578) 30" PVC INV.=3.7'
FULL OF DEBRIS		(A) 30" PVC INV.=3.6'
	SMH #3578	
SMH #1527	RIM ELEV.=10.9'	SMH #4103
RIM ELEV.=31.6'	(3604) 36" PVC INV.=3.0'	RIM ELEV.=10.5'
(3280) 8" CLAY INV.=24.8'	(3768) 24" PVC INV.=5.8'	(NO VISIBLE PIPES, POSSIBLE
(A) 8" CLAY INV.=25.3'	(4102) 30" PVC INV=3.1'	ELECTRIC MANHOLE)
(B) 8" CLAY INV.=24.7'		
	SMH #3604	SMH #4565
SMH #2353	RIM ELEV.=11.3'	RIM ELEV.=26.4'
RIM ELEV.=12.7'	(3578) 36" PVC INV.=2.5'	PIPES SUBMERGED
(2365) 24" PVC INV.=6.5'	(3636) 36" PVC INV.=2.5'	WATER LEVEL=16.5'
(3768) 24" PVC INV.=6.5'	(3718) 10" PVC INV.=4.7'	SUMP=15.4'
(A) 6" PVC INV.=7.2'		
	SMH #3636	SMH #4607
SMH #2365	RIM ELEV.=10.3'	RIM ELEV.=33.2'
RIM ELEV.=14.4'	(3604) 36" PVC INV.=2.3'	(A) 8" PVC INV.=17.9'
(A) 10" CI INV.=9.3'	(A) 36" PVC INV.=2.2'	(B) 8" PVC INV.=17.7'
(2434) 10" METAL INV.=9.2'		
(2353) 24" METAL INV.=9.2'	SMH #3718	
	RIM ELEV.=11.5'	
	(3604) 10" PVC INV.=5.3'	
	(4000) 10" PVC INV.=5.5'	



30 0 30 60

SCALE: 1 INCH = 30 FT.

TOPOGRAPHIC PLAN
FOR
CATE STREET DEVELOPMENT, LLC
OF
TAX MAP 163, LOTS 33 & 34
TAX MAP 165, LOT 2
TAX MAP 172, LOT 1
TAX MAP 173, LOT 2
CATE STREET & US ROUTE 1 BYPASS
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY
2	1/30/19	REVISE WETLAND NOTE & OWNER INFO.	MWF
1	10/10/18	ADDITIONAL SURVEY AREA	MWF

DRAWN BY: M.T.L.	DATE: DECEMBER 2016
CHECKED BY: M.W.F.	DRAWING NO.: 5517A
JOB NO.: 5517	SHEET 1 OF 5

DOUCET SURVEY INC
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10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

NOTES:

1. REFERENCE: TAX MAP 163, LOT 33
TAX MAP 163, LOT 34
TAX MAP 165, LOT 2
TAX MAP 172, LOT 1
TAX MAP 173, LOT 2

OWNER OF RECORD
CATE STREET DEVELOPMENT, LLC
60 K STREET
BOSTON, MA 02127
R.C.R.D. BOOK 5959, PAGE 109

2. FIELD SURVEY PERFORMED BY P.J.S. & J.C.M. DURING NOVEMBER 2016 USING A TRIMBLE S6 TOTAL STATION, A TRIMBLE R8 SURVEY GRADE GPS UNIT, A TRIMBLE TSC3 DATA COLLECTOR AND A SOKKIA B21 AUTO LEVEL, BY L.P.S. & S.N.F. DURING JULY 2018 AND T.M.M. & J.C.M. IN SEPTEMBER & OCTOBER 2018 USING A TRIMBLE S6 TOTAL STATION WITH A TRIMBLE TSC3 DATA COLLECTOR. TRAVERSE ADJUSTMENT BASED ON LEAST SQUARE ANALYSIS. ADDITONAL FIELD SURVEY PERFORMED BY M.C. DURING NOVEMBER 2016 AND OCTOBER 2018 USING A LEICA HDS SCANNER.

3. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY MARC JACOBS IN NOVEMBER 2016 AND REVIEWED BY GOVE ENVIRONMENTAL SERVICES, INC. DURING APRIL 2018 IN ACCORDING TO THE US ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL, TECHNICAL REPORT Y-87-1, JANUARY 1987 AND REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION, VERSION 2.0, JANUARY 2102 AND FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 4, MAY 2017, NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE.

4. VERTICAL DATUM IS BASED ON NGVD29 PER DISK V 28 1942 ELEV. 25.59..

5. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.

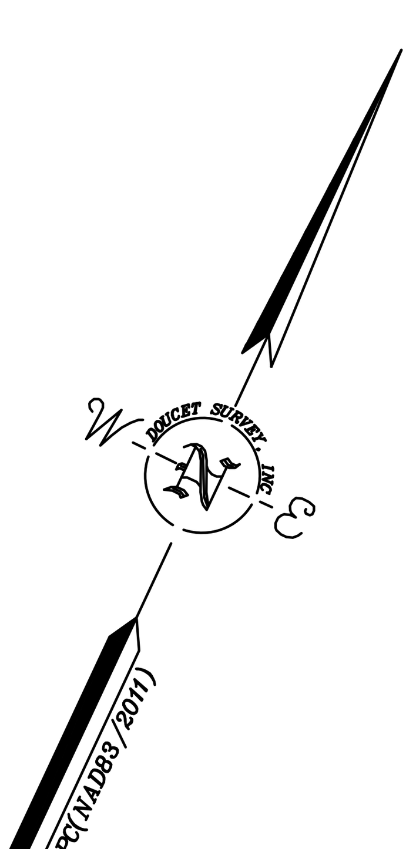
6. PROPER FIELD PROCEDURES WERE FOLLOWED IN ORDER TO GENERATE CONTOURS AT 1' INTERVALS. ANY MODIFICATION OF THIS INTERVAL WILL DIMINISH THE INTEGRITY OF THE DATA, AND DOUCET SURVEY, INC. WILL NOT BE RESPONSIBLE FOR ANY SUCH ALTERATION PERFORMED BY THE USER.

7. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON OBSERVABLE PHYSICAL EVIDENCE AND PAINT MARKS FOUND ON-SITE.

8. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES/TYPES IS SUBJECT TO NUMEROUS FIELD CONDITIONS, INCLUDING; THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS, MANHOLE CONFIGURATION, ETC.

9. ALL ELECTRIC, GAS, TEL. WATER, SEWER AND DRAIN SERVICES ARE SHOWN IN SCHEMATIC FASHION, THEIR LOCATIONS ARE NOT PRECISE OR NECESSARILY ACCURATE. NO WORK WHATSOEVER SHALL BE UNDERTAKEN ON THIS SITE USING THIS PLAN TO LOCATE THE ABOVE SERVICES. CONSULT WITH THE PROPER AUTHORITIES CONCERNED WITH THE SUBJECT SERVICE LOCATIONS FOR INFORMATION REGARDING SUCH. CALL DIG-SAFE AT 1-888-DIG-SAFE.

10. UNDERGROUND UTILITY DATA WAS PROVIDED TO DOUCET SURVEY, INC. BY THE CITY OF PORTSMOUTH GIS DEPARTMENT ON NOVEMBER 15, 2016. THIS DATA IS FOR PLANNING PURPOSES ONLY AND DOUCET SURVEY DOES NOT GUARANTEE THE ACCURACY OR EXISTENCE OF THE DATA PROVIDED. ON-SITE INSPECTION SHOULD BE CONDUCTED PRIOR FINAL DESIGN AND/OR CONSTRUCTION.

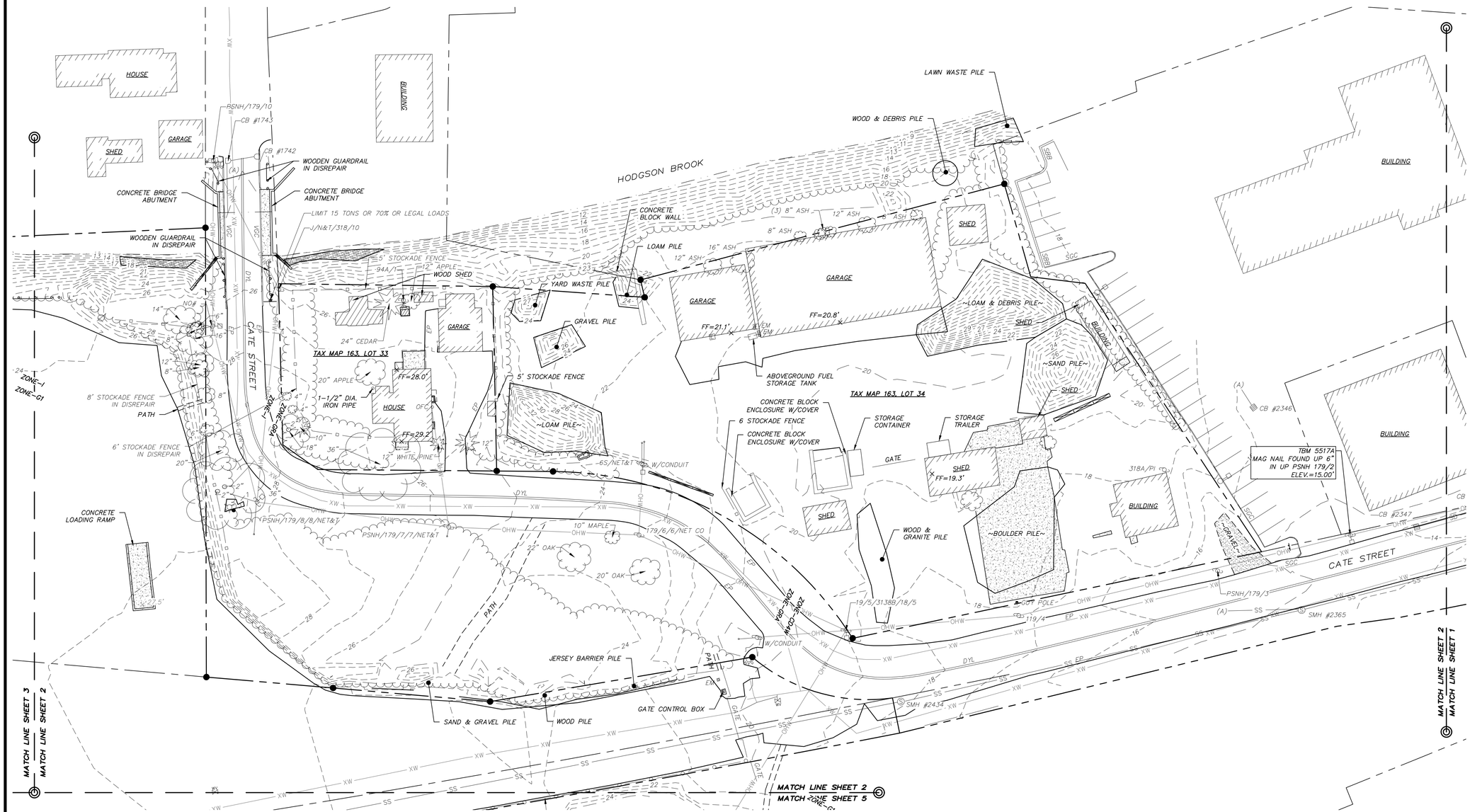


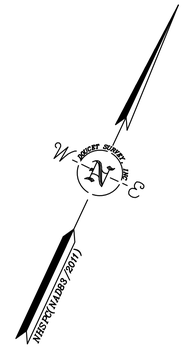
LEGEND

APPROXIMATE LOT LINE
INTERIOR LOT LINE
APPROXIMATE ABUTTER LOT LINE
EASEMENT LINE
STOCKADE FENCE
CHAIN LINK FENCE
GUARDRAIL
OHW OVERHEAD WIRES
SS SEWER LINE
SD DRAIN LINE
G GAS LINE
W WATER LINE
20 MAJOR CONTOUR LINE
22 MINOR CONTOUR LINE
TREE LINE
SHRUB LINE
EDGE OF WETLAND
XS SEWER LINE (SEE NOTE 20)
XD DRAIN LINE (SEE NOTE 20)
XW WATER LINE (SEE NOTE 20)
UTILITY POLE
UTILITY POLE & GUY WIRE
UTILITY POLE W/ LIGHT
LIGHT POLE

SIGN
SIGN (TWO POSTS)
FENCE POST
POST
POST
BOLLARD
FIRE HYDRANT
WV WATER GATE VALVE
SPIGOT
GV GAS GATE VALVE
O.F.C. OIL FILL CAP
ELECTRIC BOX
CATCH BASIN
DRAIN MANHOLE
RD ROOF DRAIN
MANHOLE
SEWER MANHOLE
CLEANOUT
HH HAND HOLE
WETLAND AREA
FLAG POLE
CONIFEROUS TREE
DECIDUOUS TREE

MONITORING WELL
DRAINAGE FLOW DIRECTION ARROW
CONCRETE
CRUSHED STONE
LEDGE OUTCROP
ACCESSIBLE PARKING SPACE
MAST ARM
JERSEY BARRIER
TYP. TYPICAL
FF FINISHED FLOOR
EM ELECTRIC METER
EP EDGE OF PAVEMENT
VGC VERTICAL GRANITE CURB
SGC SLOPED GRANITE CURB
SBB SLOPED BITUMINOUS BERM
SWL SINGLE WHITE LINE
SYL SINGLE YELLOW LINE
DYL DOUBLE YELLOW LINE





STATE OF NEW HAMPSHIRE
BRENDEN M. WALDEN
1-30-19
No. 297
CERTIFIED WETLAND SCIENTIST

30 0 30 60

SCALE: 1 INCH = 30 FT.

TOPOGRAPHIC PLAN

FOR
CATE STREET DEVELOPMENT, LLC
OF
TAX MAP 163, LOTS 33 & 34
TAX MAP 165, LOT 2
TAX MAP 172, LOT 1
TAX MAP 173, LOT 2
CATE STREET & US ROUTE 1 BYPASS
PORTSMOUTH, NEW HAMPSHIRE

NO.	DATE	DESCRIPTION	BY
2	1/30/19	REVISE WETLAND NOTE & OWNER INFO.	MWF
1	10/10/18	ADDITIONAL SURVEY AREA	MWF

DRAWN BY:	M.T.L.	DATE:	DECEMBER 2016
CHECKED BY:	M.W.F.	DRAWING NO.:	5517A
JOB NO.:	5517	SHEET	2 OF 5

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Serving Your Professional Surveying & Mapping Needs
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2 Commerce Drive (Suite 202) Bedford, NH 03110 (603) 614-4060
10 Storer Street (Riverview Suite) Kennebunk, ME (207) 502-7005
http://www.doucetsurvey.com

FILE NAME: T:\PROJECTS\5517 CSE DSE 4 NH\DWG\5517A CSE.dwg LAYOUT NAME: TOPO 02 PLOTTED: Wednesday, January 30, 2019 - 8:35am


SHEET 5
INSET
BUILDING
HODGSON BROOK
DEPTH AT CENTER OF BROOK = 15.3'
CONC. BRIDGE ABUTMENT
PIPE GOES UNDERGROUND
CONC. BRIDGE ABUTMENT
4" PIPE, WRAPPED IN METAL INSULATION
HOSPITAL
GAS PIPELINE
PNSH/26/6A
48" UNK. INV.=15.8'
12" CMP INV.=15.0'
CB #4239
PNSH/264/25
SHOT ON TOP OF 8" PIPE
WRAPPED IN INSULATION
PIPE GOES UNDER GROUND
SMH #4565
15" RCP INV.=14.7'
SMH #2789
US ROUTE 1 BYPASS
KEEP RIGHT
SMH #1350
"THE FRANK JONES
FUNCTION & CONFERENCE CENTER"
HODGSON BROOK
15" CMP INV.=14.6'
15" RCP INV.=14.7'
BORTHWICK AVENUE EXTENSION
(VARIABLE WIDTH PUBLIC R.O.W. PER REF. PLAN #24)
KEEP RIGHT
CONC. PAD W/ TRANSFORMER
KEEP RIGHT
PAVED ISLAND
STOP/DO NOT ENTER
STOP/DO NOT ENTER
~GRASS AREA~
TURN LEFT
TURN RIGHT
ZONE-I
ZONE-G1
CB #4181
KEEP RIGHT
PSNH/264/3
W/POWER DOWN
SIGN IS MISSING
CB #1345
STONE HDW.
12" HDPE INV.=19.0'
CB #1213
CB #1251
~PAVED PARKING LOT~
TAX MAP 173, LOT 2
264/PNSH/2/7809/11
NETT/7809/12
DO NOT ENTER
OUTLET NOT FOUND
48" CONC. INV.=15.5'
~GRAVEL~
CB #1346
1/2" DIA. ROD UP 34"
UHAUL SIGN
PROPANE TANK
SOUTH BYPASS 1
CONCRETE WALL
W/CHAINLINK FENCE
BUILDING
BUILDING
TAX MAP 165, LOT 2
TAX MAP 172, LOT 1
TAX MAP 173, LOT 2
451,599 Sq. Ft.
10.37 Acres
MATCH LINE SHEET 3
MATCH LINE SHEET 2
MATCH LINE SHEET 3
MATCH LINE SHEET 4
MATCH LINE SHEET 3
MATCH LINE SHEET 5
NHSPC (NAD83/2011)
STATE OF NEW HAMPSHIRE
BRENDEN
M.
WALDEN
No. 297
CERTIFIED WETLAND SCIENTIST
1-30-19

SCALE: 1 INCH = 30 FT.

TOPOGRAPHIC PLAN

FOR

CATE STREET DEVELOPMENT, LLC

OF

TAX MAP 163, LOTS 33 & 34

TAX MAP 165, LOT 2

TAX MAP 172, LOT 1

TAX MAP 173, LOT 2

CATE STREET & US ROUTE 1 BYPASS

PORTSMOUTH, NEW HAMPSHIRE

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MATCH LINE SHEET 3
MATCH LINE SHEET 4
MATCH LINE SHEET 3
MATCH LINE SHEET 5
US ROUTE 1 BYPASS
TAX MAP 172, LOT 1
BUILDING
GRASS AREA
FF=24.1'
FF=24.2'
FF=24.0'
2" DIA. PIPE
FIRE PULL BOX
HANDICAP PARKING
PAVEMENT PATCH
CONCRETE WALL W/CHAINLINK FENCE
NO PARKING
STOP
OVERHANG
8" DIA PIPE POSSIBLE CLEAN OUT, NO COVER
TBM C "X" CUT IN BOLT OVER MAIN OUTLET ELEV.=24.93'
TBM 4139B MAG NAIL FOUND UP 12" IN POLE PSNH/264/6 ELEV.=25.56'
TBM 4139A MAG NAIL FOUND UP 6" IN POLE PSNH/242/3 ELEV.=24.86'
PSNH/242/3A W/POWER DOWN
BLANK SIGN
PSNH/242/3X
PSNH/242/4
4/NETT
15" RCP INV.=18.4'
~FADED PARKING STRIPING~
CHAIN LINK FENCE ENCLOSURE
PSNH/242
PSNH/242/5 W/POWER DOWN
30" BRICK INV.=19.9'
BOSTON & MAINE RAILROAD
TRAILER
4"x8" CONCRETE WHISTLE POST
4"x8" CONCRETE WHISTLE POST, MARKED "W"
~ROW OF PINE TREES~
FUEL PUMP ISLAND
COVER
STEEL STEPS
CONCRETE RETAINING WALL
RAMP
STACKED STORAGE CONTAINERS
PATH
MATCH LINE SHEET 4
MATCH LINE SHEET 5
NH SPC (NAD83/2011)
STATE OF NEW HAMPSHIRE
BRENDEN M. WALDEN
No. 297
CERTIFIED WETLAND SCIENTIST
1-30-19
SCALE: 1 INCH = 30 FT.

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FOR
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OF
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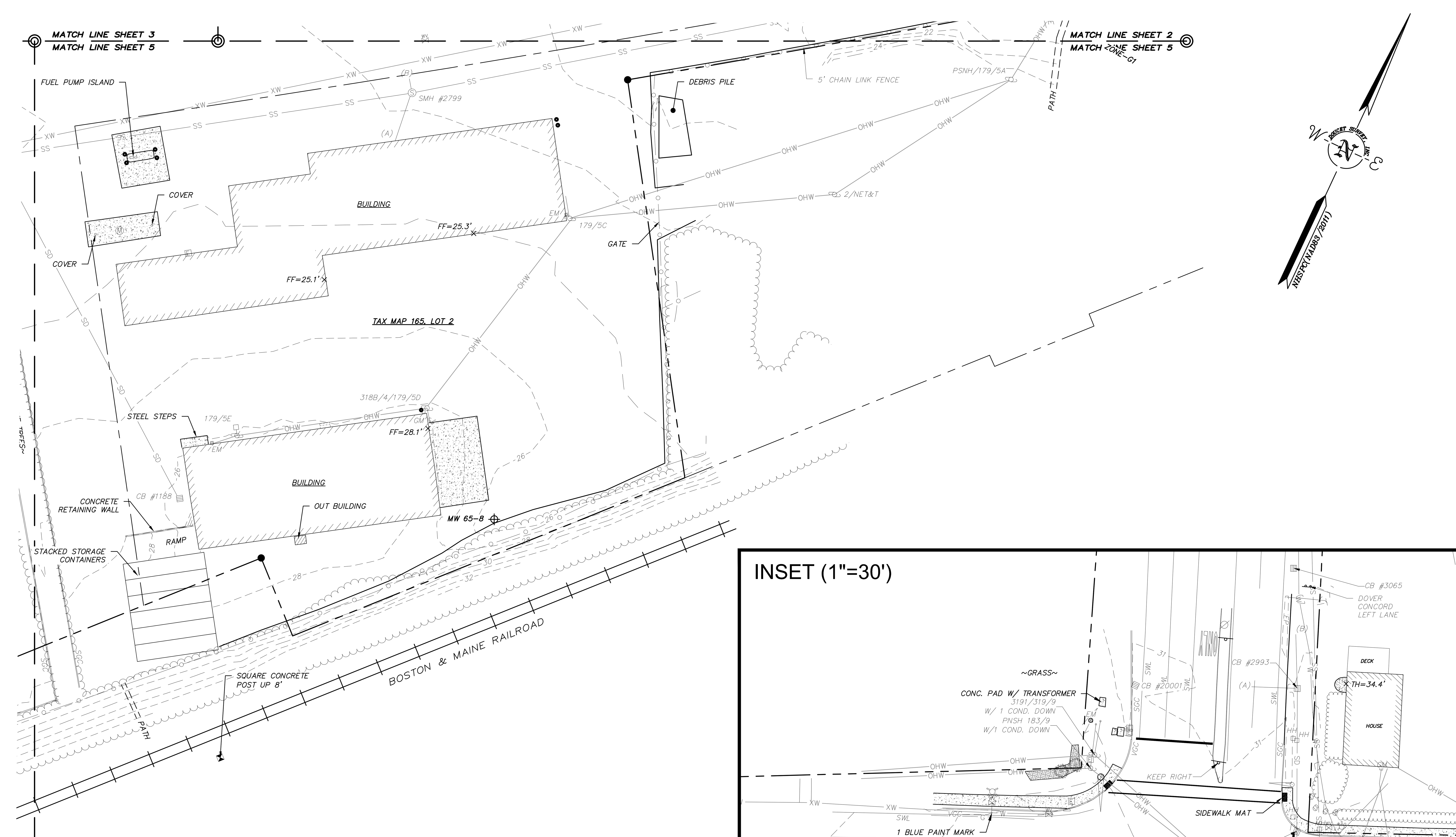
MATCH LINE SHEET 3
MATCH LINE SHEET 5
MATCH LINE SHEET 2
MATCH LINE SHEET 5
FUEL PUMP ISLAND
COVER
COVER
DEBRIS PILE
5' CHAIN LINK FENCE
PATH
BUILDING
FF=25.3'
FF=25.1'
GATE
TAX MAP 165, LOT 2
STEEL STEPS
FF=28.1'
BUILDING
OUT BUILDING
CONCRETE RETAINING WALL
RAMP
STACKED STORAGE CONTAINERS
MW 65-8
SQUARE CONCRETE POST UP 8'
BOSTON & MAINE RAILROAD
PATH
MATCH LINE SHEET 4
MATCH LINE SHEET 5
NHSPC(NAD83/2011)

TOPOGRAPHIC PLAN

FOR

CATE STREET DEVELOPMENT, LLC

OF

TAX MAP 163, LOTS 33 & 34

TAX MAP 165, LOT 2

TAX MAP 172, LOT 1

TAX MAP 173, LOT 2

CATE STREET & US ROUTE 1 BYPASS

PORTSMOUTH, NEW HAMPSHIRE

30 0 30 60

SCALE: 1 INCH = 30 FT.

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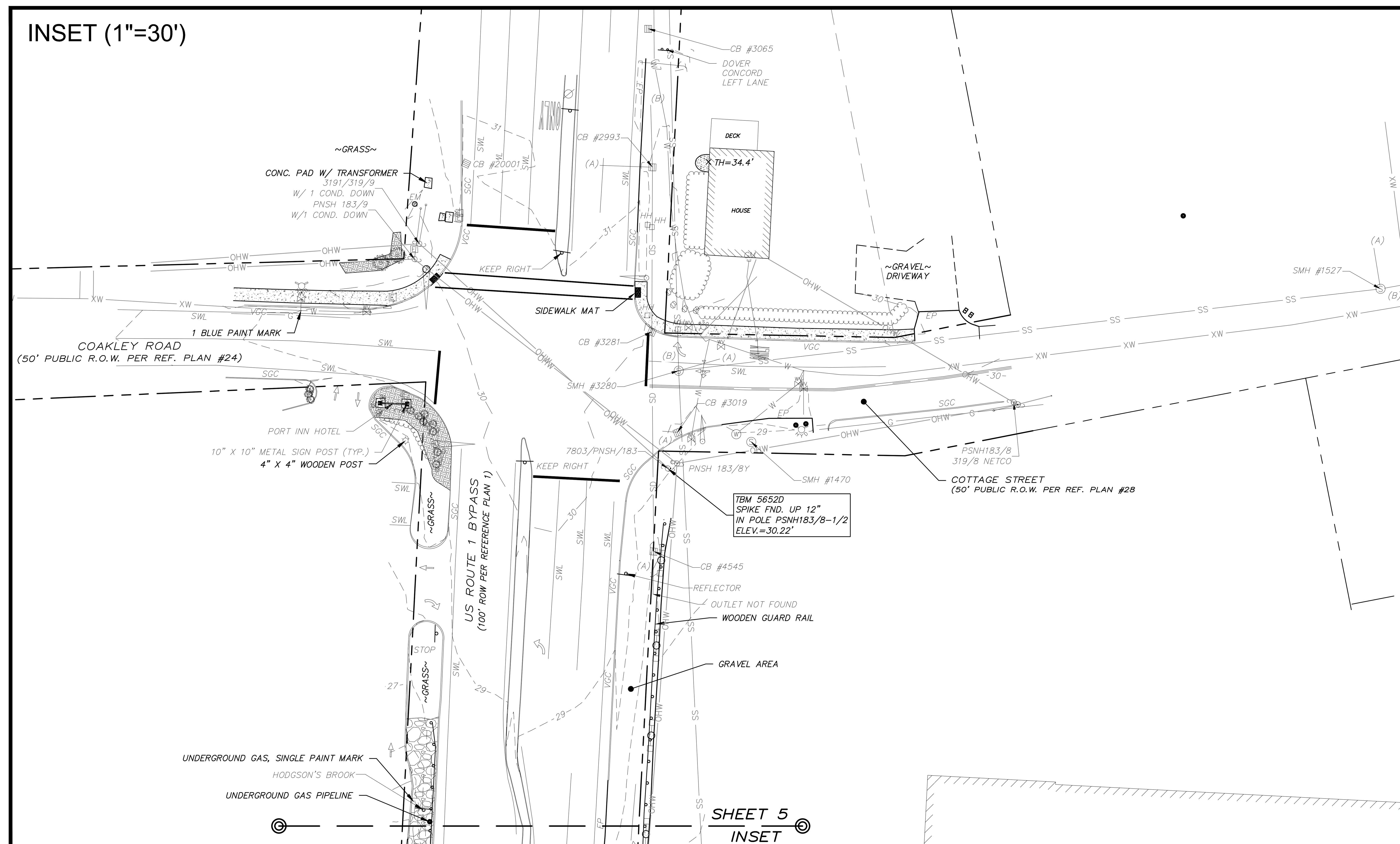
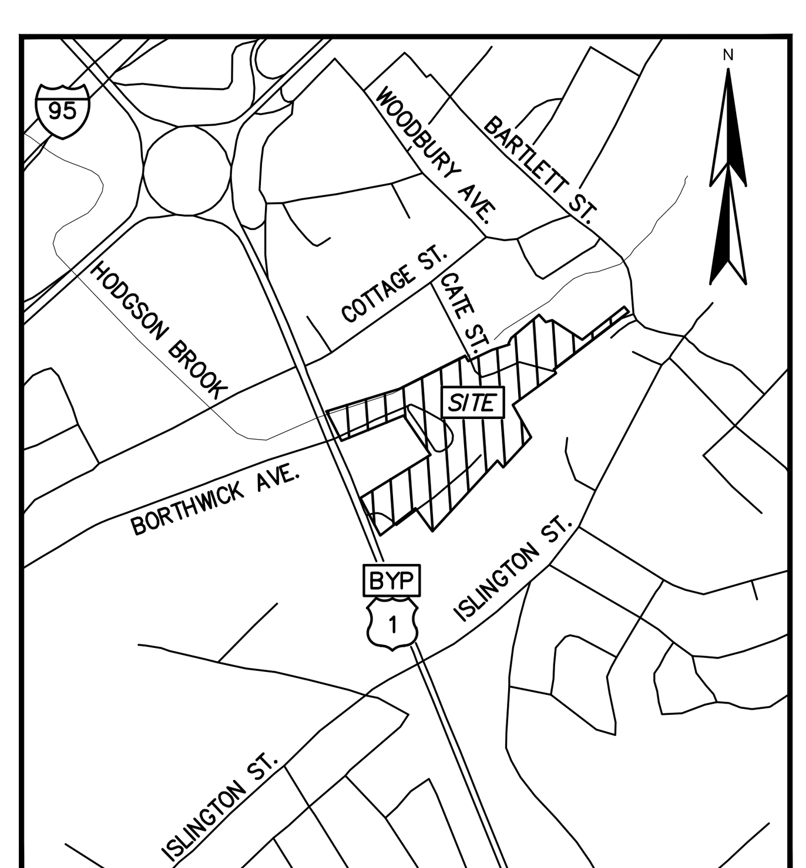

INSET (1"=30')
~GRASS~
CONC. PAD W/ TRANSFORMER
3191/319/9
W/ 1 COND. DOWN
PNSH 183/9
W/1 COND. DOWN
1 BLUE PAINT MARK
COAKLEY ROAD
(50' PUBLIC R.O.W. PER REF. PLAN #24)
PORT INN HOTEL
10" X 10" METAL SIGN POST (TYP.)
4" X 4" WOODEN POST
KEEP RIGHT
SIDEWALK MAT
CB #3065
DOVER CONCORD LEFT LANE
CB #2993
DECK
TH=34.4'
HOUSE
~GRAVEL~ DRIVEWAY
SMH #1527
CB #3281
SMH #3280
CB #3019
PSNH183/8
319/8 NETCO
COTTAGE STREET
(50' PUBLIC R.O.W. PER REF. PLAN #28)
7803/PNSH/183
KEEP RIGHT
PNSH 183/8Y
SMH #1470
TBM 5652D
SPIKE FND. UP 12"
IN POLE PSNH183/8-1/2
ELEV.=30.22'
US ROUTE 1 BYPASS
(100' ROW PER REFERENCE PLAN 1)
~GRASS~
CB #4545
REFLECTOR
OUTLET NOT FOUND
WOODEN GUARD RAIL
GRAVEL AREA
STOP
UNDERGROUND GAS, SINGLE PAINT MARK
HODGSON'S BROOK
UNDERGROUND GAS PIPELINE
SHEET 5
INSET



LOCATION MAP (n.t.s.)