Blackstone River Bikeway – Segment 1A

Portions of Providence Assessor's Lot 8/ Plat 17; Lots 66, 446, & 456/Plat 15; and a Portion of Beach Street, Providence, RI

PREPARED FOR

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PREPARED BY



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Introduction

On behalf of our client, the Rhode Island Department of Environmental Management (RIDEM) Division of Planning and Development, Vanasse Hangen Brustlin, Inc. (VHB) has completed this Remedial Action Work Plan (RAWP) for the proposed Blackstone River Bikeway – Segment 1A. Segment 1A of the bikeway extends from East Transit Street northerly towards Pitman Street along the Seekonk River in Providence, Rhode Island. Specifically, the bikeway segment will include portions of Lot 8 on Assessor's Plat Map 17; a portion of Beach Street (a paper street shown on Assessor's Plat Map 17); and Lots 35, 66, 446, 456, 480 and 487 on Assessor's Plat Map 15 in Providence, Rhode Island. A Project Location Map is included as **Figure 1**. Portions of Segment 1A, as shown on **Figure 2**, are proposed to cross the following properties that are RIDEM identified State Hazardous Waste Sites (SHWS) with existing Environmental Land Usage Restrictions (ELURs) recorded:

- ➤ East Transit Boat Ramp (SHWS ETBR-HWM), the area of Beach Street on Plat Map 17; and
- ➤ EPOCH Senior Living Center (SHWS KOFF-HWM), Lot 35 on Plat Map 15.

The RIDEM Division of Planning and Development and Office of Waste Management is aware of these ELURs and associated Soil Management Plans (SMPs) and any proposed construction activities on these sites will be in accordance with the applicable provisions of their respective ELURs. The RIDEM file number for the Site (which only refers to Portions of Providence Assessor's Lot 8/ Plat 17; Lots 66, 446, & 456/Plat 15; and a Portion of Beach Street, Providence, RI) is SR-28-1774.

This RAWP has been prepared in accordance with Section 9.0 of the *Rhode Island Rules* and *Regulations for the Investigation and Remediation of Hazardous Materials Releases* (Remediation Regulations) to detail the remedy recommended in the Site



Investigation Report (SIR) and approved by the RIDEM Office of Waste Management (OWM) in a Program Letter dated August 12, 2015 relative to impacts to soils identified during site investigation activities. This plan was prepared with consideration to the following reports and correspondence:

- Preliminary Site Investigation (PSI), prepared by VHB, dated February 3, 2015;
- ➤ Hazardous Material Release Notification Form, prepared by RIDEM Division of Planning and Development, dated May 29, 2015;
- ➤ Voluntary Procedure Letter, prepared by RIDEM OWM, dated June 12, 2015;
- Pre-Site Investigation Public Notice Letter, prepared by VHB, dated June 24, 2015;
- ➤ Summary of Pre-Site Investigation Public Notice, prepared by VHB, dated July 23, 2015;
- ➤ Site Investigation Report, prepared by VHB, dated July 24, 2015;
- > Program Letter, prepared by RIDEM OWM, dated August 12, 2015; and
- Post-Site Investigation Public Notice Letter, prepared by VHB, dated August 12, 2015.

VHB performed these investigations for the RIDEM Division of Planning and Development to support their efforts to construct a recreational bikeway along the proposed 0.70-mile stretch of land in Providence, Rhode Island. A Project Location Map is included as **Figure 1**.

Pursuant to the Rhode Island General Laws, Title 23, *Health and Śafety*, Chapter 23-19.14, *Industrial Property Remediation and Reuse Act*, Section 23-19.14-5, *Environmental Equity and Public Participation*, a public meeting was advertised and held at the Fox Point Library on July 7, 2015. Following the 10-day public comment period, VHB submitted a response to public comments on July 23, 2015.

Site investigation activities were summarized in a report submitted to the RIDEM OWM on July 30, 2015. The RIDEM OWM issued a Program Letter on August 12, 2015.

Public notice was subsequently conducted at all abutting property owners, tenants, and the City of Providence, regarding the substantive findings of the completed investigation in accordance with Rules 7.07 and 7.09 of <u>Remediation Regulations</u>. The opportunity for public review and comment on the technical feasibility of the proposed remedial alternatives commenced on August 13, 2015 and the period closed August 27, 2015, with no comments received.



This RAWP presents a remedial action to eliminate direct exposure to impacted soils in portions of the proposed bikeway right-of-way. Direct exposure to impacted soils at the Site will be managed via soil excavation and and construction of the bikeway which will serve as an engineered soil cap. Environmental Land Usage Restrictions (ELURs) which will include Soil Management Plans (SMPs) will be recorded for the regulated capped properties that the bikeway travels through after construction is complete.

VHB prepared a draft ELUR (attached as **Appendix E**) on behalf of the Client. The draft ELUR proposes:

- > Prohibiting the use of groundwater at the Site for drinking water;
- ➤ The Site's capped areas are to remain in place and be maintained in good condition, as needed;
- ➤ RIDEM notification and appropriate SMP compliance should future soil excavation/disturbances be required unless otherwise exempt; and
- ➤ Annual evaluation of the properties for ELUR compliance.

Implementation of the RAWP is proposed to commence concurrently with redevelopment of the Site. This RAWP has been prepared on behalf of and for the exclusive use of RIDEM and the Rhode Island Department of Transportation. Limitations associated with this practice are included in **Appendix A**.



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Site Description and Overview

Location and Site Description

Segment 1A of the Blackstone River Bikeway, hereinafter referred to as the Site or Segment 1A, is located along the Seekonk River in Providence, Rhode Island. The Site consists of the approximate 0.71-mile strip of land that will be used to construct the bikeway, beginning at the exit ramp for Interstate Route 195 Westbound Exit 3 south of Gano Park in Providence Rhode Island, and ending at Pitman Street in Providence, Rhode Island. The Site is identified by the City of Providence Tax Assessor's Department as Lot 8 on Assessor's Plat Map 17; a portion of Beach Street (a paper street shown on Assessor's Plat Map 17); and Lots 35, 66, 446, 456, 480 and 487 on Assessor's Plat Map 15 in Providence, Rhode Island. A Site Location Map is included as Figure 1.

The land south of the railroad tracks, Plat 17, Lot 8 and Plat 15, Lots 66, 446, and 456 is currently vacant and used by the City of Providence for recreational purposes, including athletic fields, a boat ramp, and a public dog park. The land north of the railroad tracks is currently occupied by residential and commercial buildings. Lot 487 on Plat 15 is occupied by a commercial shopping plaza, which includes Eastside Marketplace. Lot 35 on Plat 15 is occupied by a senior living center. Lot 480 on Plat 15 is occupied by an old mill building, which is currently occupied by the Salvation Army.

Environmental Setting

The mean surface elevation of the Site is approximately 5 feet above sea level (USGS Topographic Map, Providence, RI, 1987). The topography of the Site is relatively flat, with the major topographical feature being a man made earthen berm in Gano Park and the railroad bed. The material used to construct the berm is not known, but is



suspected to be materials resulting from the leveling of tenement houses historically located in the Fox Point area. Both the earthern berm and the railroad bridge are approximately 10 feet higher in elevation then the surrounding areas.

According to the Unired States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) *Web Soil Survey*, soils at the Site consist of Udorthents-Urban land complex. Udorthents-Urban land complex consists of approximately 70 percent Udorthents and similar soils, 20 percent Urban land, and 10 percent minor components. The parent material of this soil consists of human transported material. The slope for Udorthents-Urban land complex is generally from 0 to 15 percent.

Groundwater at the majority of the Site is classified by the RIDEM as GB. Such groundwater resources are known or presumed to be unsuitable for public or private drinking water uses without treatment due to known or presumed degradation.

The nearest surface water body to the Site is the Seekonk River. According to the RIDEM Water Quality Regulations, the Seekonk River is classified as a "SB1{a}" surface water body. Class SB1{a} waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for aquacultural uses, navigation, and industrial cooling. These waters shall have good aesthetic value. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges. These water will likely be impacted by combined sewer overflows in accordance with approved CSO Facilities Plans and in compliance with rule 19.E.1 of these regulations and the Rhode Island CSO policy. Therefore, primary contact recreational activities; shellfishing uses; and fish and wildlife habitat will likely be restricted.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for the Providence County, Rhode Island (Community Panel No. 44007C0309J, dated September 18, 2013), the Site is located in both an "Other Flood Areas" and a Special Flood Hazard Areas (SFHA). SDHAs denote 100-year flood zone, which has a one percent chance of being equaled or exceeded in any given year. Specifically, the Site is located in SFHA Zone VE, which is a coastal flood zone with velocity hazard (wave action) and where Base Flood Elevations have been determined. The "Other Flood Areas" indicates that the remainder of the Site is in areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, and areas

Site Operational History

The Site was historically part of the Seekonk River. The land proposed for bikeway development was reclaimed by filling in portions of the Seekonk River from the early 1950s to the mid 1960s. Railroad tracks were constructed, bisecting the proposed



bikeway, sometime between 1894 and 1939. The railroad tracks ceased operation around 1976. Once the area was filled in, the land to the south of the railroad tracks was historically vacant and has been used by the City of Providence for recreational purposes. The land north of the railroad tracks was developed, starting in the 1960s, for commercial and residential use. Lot 487 on Plat Map 15 was developed sometime between 1962 and 1972 for commercial purposes.



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Summary of Site Soil and Groundwater Conditions

Site Investigation activities in accordance with the *Remediation Regulations* have been completed at the Site by VHB. Pertinent data from the assessment has been included in the following reports previously submitted to the RIDEM.

- > Preliminary Site Investigation, prepared by VHB, dated February 3, 2015; and
- > Site Investigation Report, prepared by VHB, dated July 24, 2015.

The following section further outlines the constituents of concern identified in soil at the Site and the selected remedy to address the requirements of the RIDEM Site Remediation Regulations.

Soil

Laboratory analytical results from subsurface investigation sampling events indicate concentrations of arsenic, lead, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyene that exceed the RIDEM Residential Direct Exposure Criteria (RDEC). Laboratory analytical results from subsurface investigation sampling events also indicate concentrations of arsenic, lead, and benzo(a)pyrene that exceen the RIDEM Industrial/Commercial Direct Exposure Criteria (I/CDEC).



Groundwater

Due to the shallow nature of the proposed development work at the Site, groundwater is not expected to be impacted. Therefore, groundwater analysis was not conducted and no remedial actions are proposed.

The ELUR will prohibit the use of groundwater at the Site for drinking water.



4

Remedial Activities

As detailed in Section 9.0 of the <u>Remediation Regulations</u>, this work plan describes the remedial action necessary under these regulations.

Remedial Objectives

The remedial objective for this Site as recommended in the SIR and approved by RIDEM is to reduce possible direct exposure to impacted soils via limited soil excavation, capping, and institutional controls. Remediation will be conducted concurrently with construction.

In accordance with Section 9.02 of the <u>Remediation Regulations</u>, this Section addresses remedial objectives for all potentially impacted media (soil, groundwater, surface water, sediment, and air) for the Site. Remedial objectives for each of the media prescribed by the regulations are discussed below.

Soil

The remedial objective for soil is to reduce possible direct exposure to impacted soils and entrainment through wind and run-off via limited excavation and regrading or interment, capping and institutional controls. Exceedances of the RIDEM RDEC and/or the I/CDEC were detected in several areas along the proposed bikeway alignment. Where needed, remedial excavations will occur at the locations where soil data indicated exceedances of RIDEM criteria. The horizontal extent of the capping will include the entire bikeway due to exceedances of various chemical contaminants in each of the seven hand auger locations advanced south of the railroad tracks and areas of existing regulated soils north of the railroad tracks. Some areas will be excavated and/or regraded prior to capping to achieve the design grade and some will be capped directly, depending on existing and proposed grades. Some impacted soils



from those areas requiring excavation will be transferred to other regulated areas of the Site that require filling to raise the existing grade prior to capping. Any excavated or regraded contaminated soils not intered beneath the cap in a regulated portion of the Site will be disposed of at an off-Site licensed facility.

Since contaminated soil will be left in place beneath the cap, an ELUR will be required for the Site. The ELUR will require that capped portions of the Site remain in place, any soil disturbed post-remediation be managed in accordance with a RIDEMapproved Soil Management Plan (SMP), and the groundwater at the Site not be used as a source of drinking water.

As RIDOT plans to acquire the land area required to build the bikeway, the ELUR for the property north of the railroad tracks (EPOCH Senior Living Center: Lot 35 on Plat Map 15) will need to be modified to reflect the new property bounds and re-filed with the RIDEM and City Hall. The modification of the ELUR is the legal responsibility of the property owner.

Since the RIDOT land acquisitions include an area of the EPOCH Senior Living Center Property along the riverbank which was not capped but where access was restricted via vegetative plantings, supplemental plantings and/or fencing shall be considered to discourage access to said areas.

Groundwater

Groundwater investigation was not part of the Site Investigation activities at the Site. Due to relatively shallow depth of excavations, dewatering activities are not anticipated. Capping will limit infiltration of storm water through impacted soils. After construction of the bikeway, the ELUR will prohibit the use of groundwater below the Site for drinking water.

Air

Constituents of concern identified during the Site Investigation are not commonly associated with adverse impacts to ambient or indoor air. Therefore, no remedial objectives for air are proposed. However, dust control measures will be required during construction, and earthwork activities. Refer to "Dust Control" sub-section below for information pertaining to fugitive dust issues.

Surface Water/Sediment

Entrainment of impacted soil through wind and storm water runoff has the potential to impact adjacent surface water and sediments. By capping impacted soil, the potential for migration through entrainment will be eliminated. Surface and erosion



runoff controls will also be provided as detailed in the "Soil Stockpile Management/Erosion Control" sub-section below.

Proposed Remedy

Remedial actions will be conducted concurrently with Site redevelopment. Site redevelopment is dependent upon funding, but public advertising of the project by the RIDOT is slated to be in the Fall of 2015. The remedial action will consist of the encapsulation of soil over most of the Site in order to eliminate direct exposure (refer to **Figure 3a and 3b**). Some juristictional soils may be re-graded and placed within regulated areas of lower elevation prior to being capped. Some existing paved areas are proposed to be left undisturbed (with the exception of striping/painting) as a capin-place. These areas are located between Pittman Street and the northernmost terminus of the 1A bikeway segment.

The following minimum encapsulation methods are proposed for the Blackstone River Bikeway - Segment 1A in its entirety with the exception of any existing paved areas that are to be left undisturbed as a cap-in-place.

- 1) 10 inches of clean fill underlain with a geotextile fabric; or
- 2) Four inches of pavement above six inches of a clean fill sub-grade.

Since impacted soil will be left in place with a cap, an ELUR will be required for the Site. An ELUR is a legal document drafted for the purpose of placing a notice of restrictions on the use or physical condition of a property for the protection of human health. The ELUR will require that the capped portions of the property remain in place, any soil disturbed post-remediation will be managed in accordance with a RIDEM approved Soil Management Plan (SMP), and that groundwater at the Site is not used as a source of drinking water. A copy of the draft ELUR for this property is included in **Appendix E**. Upon completion of the proposed redevelopment construction activities and RIDEM approval, the ELUR will be filed in the city property records.

If any of the RIDOT land acquisitions include uncapped areas of properties that installed vegetation as part of the remedial action, such as areas along the riverbank of the EPOCH Senior Living Center Property, attempts to maintain the existing vegetation will be made. If deemed necessary, supplemental plantings and/or fencing shall be considered to discourage access to any significant uncapped areas.

The proposed remedy will meet the remedial objectives as follows:



- 1) The use of a cap will prevent migration of hazardous substances by eliminating soil exposure to wind;
- 2) The use of the cap will physically prevent direct contact with impacted soil beneath the cap;
- 3) Maintenance of existing restrictive vegetative barriers with fencing and/or vegetation will minimize the potential for direct contact with impacted soils in uncapped areas;
- 4) Volatilization is not a concern for the Site; however, the cap will prevent entrainment of contaminants through wind and rain; and
- 5) Surface runoff will be controlled through the use of erosion controls during construction as described herein.

Points of Compliance

During Site construction activities, the construction superintendent, along with the assistance of a VHB representative, will monitor construction to document that the engineered controls are properly constructed in accordance with the RAWP. Operation logs will be kept and submitted upon the completion of the project.

The proper installation and documented maintenance of the cap is the Point of Compliance. The area subject to the ELUR, which includes the engineered barrier, will be inspected on a yearly basis to document the long-term integrity of the cap. The inspection will be documented in a written report, which will be forwarded to the Department annually.

Proposed Schedule

The proposed Site remedy consists of soil encapsulation via engineered controls and implementation of an ELUR. The remedial actions will be completed concurrently with Site redevelopment construction. Construction of the bikeway is targeted to being in the Fall of 2016.

The Remedial Action Closure Report, draft ELUR and draft SMP will be submitted within 30 days following the completion of the remedial action. The ELUR and SMP will be finalized by the Client within 60 days following the approval by RIDEM and will be recorded with the City of Providence. A recorded copy of the ELUR will be forwarded to RIDEM within 15 days of filing.



Contractors and/or Consultants

The project is still in the design stage and a Site contractor has not been selected yet. VHB will document construction activities and installation of the engineered cap and is available to conduct the yearly cap inspections as requested.

Design Standards and Technical Specifications

The following minimum encapsulation methods are proposed for the Blackstone River Bikeway - Segment 1A in its entirety with the exception of areas of existing pavement or roadways which will be maintained as a cap-in-place.

- 1) 10 inches of clean fill underlain with a geotextile fabric; or
- 2) Four inches of pavement above six inches of a clean fill sub-grade.

A figure depicting the specifications of these cap types is attached as Exhibit D of the ELUR (located in **Appendix E** of this document). **Appendix B** contains engineering drawings provided by VHB showing typical cross sections of the impacted trail segments, impacted soil sample locations, and compliance points.

In areas where geotextile will be used as the engineered barrier/cap, the fabric will possess a minimum puncture strength of 120 pounds and minimum burst strength of 400 pounds per square inch in accordance with RIDEM guidance.

All soil imported to the Site for construction of the cap will meet the RDEC or will be certified to be non-jurisdictional. Clean fill and loam proposed to be used at the Site will be sampled and approved prior to importation to the Site. Clean fill and loam will be sampled for arsenic at a frequency of one sample per 500 cubic yards. One-quarter of the total number of compliance samples of clean fill and loam will be sampled for VOCs, Polycyclic Aromatic Hydrocarbons (PAHs), Total Metals (RCRA 13) and TPH.

Soil Stockpile Management

Temporary stockpiling of Site soil may be necessary for the work to be conducted at the Site. The locations of temporary stockpiles will be at the discretion of the contractor. All excavated material which requires stockpiling (with the exception of clean fill/loam imported to the Site) as detailed in previous section, will be temporarily stockpiled on 6-mil polyethylene sheeting and covered with 6-mil polyethylene sheeting in a contractor-designated stockpile area on Site. The stockpiles



will be covered whenever there is no active excavation being conducted. Stockpiles of clean imported soil will be sufficiently separated from impacted Site soil to avoid comingling of the materials.

Dust Control

All reasonable precautions will be taken to prevent the excessive generation of dust during soil excavation, stockpiling, loading, and other soil handling activities. Work at the Site must comply with all applicable federal, state, and local regulations, including the RIDEM <u>Air Pollution Control Regulations</u>, and specifically Regulation No. 5 regarding control of fugitive dust. Dust control measures must be implemented as required, to prevent airborne particulate matter from leaving the Site at all times. Dust control measures (wetting soils and the use of calcium chloride) shall be implemented on an as needed basis (i.e. visual evidence of airborne dust) throughout the project. All stockpiles shall be inspected on a daily basis to ensure compliance with RIDEM <u>Air Pollution Control Regulations</u>. VHB will conduct periodic Site visits to ensure dust control measures are being implemented if necessary. This information will then be recorded in the operating log.

Sedimentation and Erosion Control

Prior to the start of excavation activities, sediment and erosion controls consisting of compost filter socks, silt fencing or other equivalent methods proposed by the construction contractor will be installed at the Site. A stabilized construction entrance to reduce the tracking of soils into the area roadways will also be installed in areas where the Site entrances/exits intersect public roadways.

Health and Safety Plan

A Health and Safety Plan will be developed by the contractor for implementation with consideration to OSHA regulations. A copy of VHB's site-specific plan is attached as **Appendix C**.

Operating Log

An Operating Log that conforms with the requirements of Rule 9.14 of the <u>Remediation Regulations</u> will be utilized and maintained during all remedial actions. The Operating Logs will detail information such as the thickness, composition, and



location of the cap and will also document earthwork activities and monitoring to ensure that the appropriate regulations are complied with. A copy of the Operating Log template is include as **Appendix D**. The Operating Log will be readily available at the Site during construction. The Responsible Party will keep a copy of the Operating Log for a minimum of three years following completion of the remedy. All information will be summarized in a Remedial Action Closure Report submitted to the Department.

Management of Remediation Waste

Any remediation waste generated will be managed in accordance with state and federal requirements and disposal documentation will be provided to RIDEM. If excess Site soil is generated, the material will be sampled for the appropriate disposal parameters and disposed of at a permitted facility. Copies of disposal paperwork (e.g., weight slips) will be included in the Remedial Action Closure Report.

Security Procedures

Security will be addressed by the utilization of temporary construction fencing. Access will be controlled by the use of a gate. The fence will be secured at the conclusion of each workday during the construction project by the construction superintendent.

Shutdown, Closure, and Post-Closure Requirements

Upon Completion of the project, a Closure Report will be submitted to the Department outlining all field activities that were completed. The report will also include a schedule for yearly cap inspection and the results. Any maintenance necessary to repair or maintain the cap will also be noted.

Institutional Controls and Notices

As indicated, an ELUR will be recorded for the property in the City of Providence Land Evidence Records. The ELUR and SMP will be finalized by the Client within 60 days following the approval by RIDEM and will be recorded with the City of Providence. A recorded copy of the ELUR will be forwarded to RIDEM by the



Responsible Party within 15 days of filing. A copy of the draft ELUR and EMP are attached as **Appendix E**.

Compliance Determination

Successful completion of the Site capping activities documented in the periodic Operating Logs will be used to demonstrate compliance with the work plan. All information associated with these actions will be submitted to RIDEM as required.



Certification Statements

VHB submits the following statements of certification.

Certification by Preparer:

Vanasse Hangen Brustlin, Inc. has prepared this RAWP for contaminated soil in accordance with the requirements of Section 9.00 of the Remediation Regulations and certifies the accuracy of the information contained in the report to the best of our knowledge.

Prepared by: Shelby A. Miller
Environmental Scientist

Prepared by: Peter M. Grivers, P.E., LSP
Senior Project Manager

9/10/2015

Date

9/10/2015

Certification by Civil Engineer

Engineering drawings and cross section views of the proposed trail provided in **Appendix B** are designed and stamped by Vanasse Hangen Brustlin, Inc. of Providence, Rhode Island. Bid specifications/contract documents including soil volumes, quantities, estimating, and formal construction drawings are to be provided by Vanasse Hangen Brustlin, Inc. on behalf of the State of Rhode Island.

Scott A. D'Amelio, P.E. Scott A. D'Amelio, P.E. Date

Project Manager



Certification by Owner/Operator

I certify that the information contained in this report is a complete and accurate representation of the conditions at the Site and the proposed remedial activities to the best of my knowledge.

Owner/Operator Name



6 References

Environmental Data Resources, Inc. Certified Sanborn® Map Report (No. 4117038.3), October 29, 2014.

Environmental Data Resources, Inc. The EDR Radius Map™ Report with GeoCheck® (No. 4117038.2s), October 27, 2014.

Federal Emergency Management Agency Flood Insurance Rate Map, Providence County, Rhode Island, Community Panel No. 44007C0309J, dated September 18, 2013.

Hermes, O.D., L.P. Gromet and D.P. Murray, Bedrock Geologic Map of Rhode Island, 1994.

Providence Department of Inspections and Standards, December 2014.

Providence Fire Department, December 2014.

Providence Tax Assessor's Office, December 2014.

Rhode Island Department of Environmental Management Environmental Resources Map, accessed July 2015.

Rhode Island Department of Environmental Management Groundwater Classification and Well Head Protection Area Map. 2010.

Rhode Island Department of Environmental Management and Vanasse Hangen Brustlin, Inc., Hazardous Material Release Notification, May 2015.

Rhode Island Department of Environmental Management Rules and Regulations for Groundwater Quality, June 2010.



Rhode Island Department of Environmental Management Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, November 2011.

Rhode Island Department of Environmental Management Topo Map & Aerial Photo Viewer, July 2015.

Rhode Island Department of Environmental Management Water Quality Regulations, December 2010.

Statewide Planning Program Aerial Photographs dated 1939, 1951-52, 1962, 1972, 1976, 1981, 1988, 1992, and 2008.

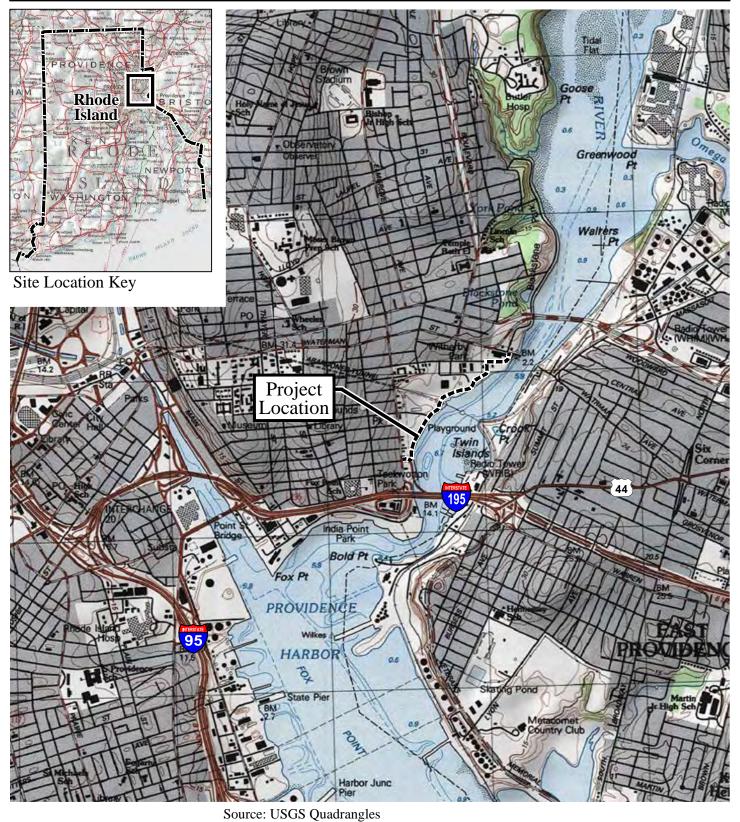
U.S. Department of Agriculture Web Soil Survey, July 2015.

Vanasse Hangen Brustlin, Inc., Preliminary Site Investigation, February 2015.

Vanasse Hangen Brustlin, Inc., Site Investigation Report, July 2015.



Figures

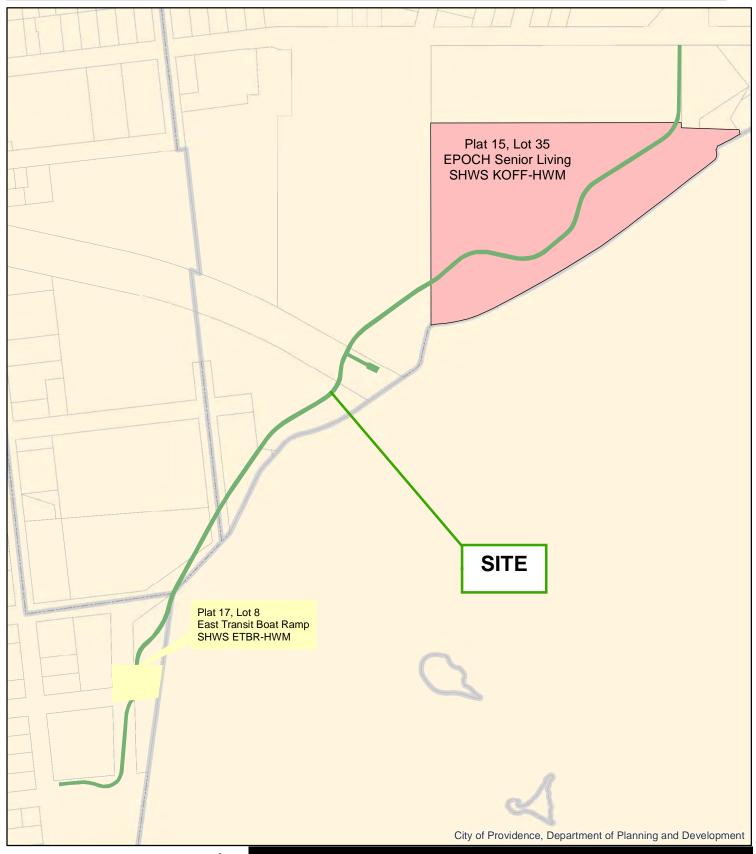




Project Location Map Segment 1A Blackstone River Bikeway Providence, Rhode Island

Figure 1

Vanasse Hangen Brustlin, Inc.





Site Detail Map

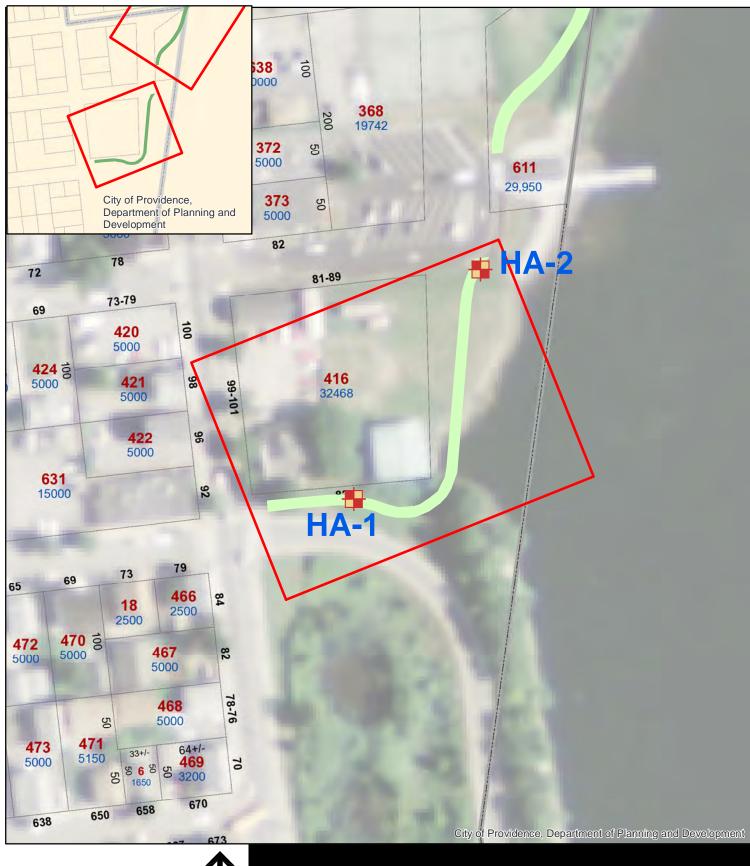
Figure 2 September 11, 2015

Legend



Blackstone River Bikeway - Segment 1A East Transit Street to Pitman Street Providence, Rhode Island 02906





Legend



Hand Auger Locations

Proposed Bikeway Segment 1A

Parcel Outlines

Sample Location Map

Blackstone River Bikeway - Segment 1A East Transit Street to Pitman Street Providence, Rhode Island 02906

Figure 3a July 24, 2015





Legend



Hand Auger Locations



Proposed Bikeway Segment 1A



Parcel Outlines

Sample Location Map

Blackstone River Bikeway - Segment 1A East Transit Street to Pitman Street Providence, Rhode Island 02906 Figure 3b July 24, 2015





Appendix A – Limitations



Limitations

Blackstone River Bikeway Segment 1A Providence, Rhode Island

This report has been prepared for the sole and exclusive use of Vanasse Hangen Brustlin, Inc., The Rhode Island Department of Transportation, and the Rhode Island Department of Environmental Management and is subject to the issued in connection with the Agreement and provisions thereof. Any use or reliance upon information provided in this report, without the specific written authorization of Client and VHB, shall be at the User's sole risk.

In conducting this work plan, VHB has obtained and relied upon information from multiple sources to form certain conclusions regarding potential environmental issues at and in the vicinity of the subject property. Except as otherwise noted, no attempt has been made to verify the accuracy or completeness of such information.

No attempt has been made to assess the compliance status of any past or present Owner or Operator of the Site with any federal, state, or local laws or regulations.

The findings, observations, and conclusions presented in this report are limited by the scope of services outlined in our Agreement, which regulates schedule and budgetary constraints imposed, by the Client for the current phase of environmental assessment. Furthermore, the assessment has been performed in accordance with generally accepted engineering practices. No other warranty, expressed or implied, is made.

The assessment presented in this report is based solely upon information gathered to date. Should further environmental or other relevant information be developed at a later date, the Client should bring the information to the attention of VHB as soon as possible. Based upon an evaluation, VHB may modify the report and its conclusions.



Appendix B – Construction Plans

INDEX VOLUME 1 - BIKEWAY

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	STANDARD PLAN SYMBOLS & STANDARD LEGENI
3-4	STANDARD NOTES 1 & 2
5	JOB SPECIFIC PLAN SYMBOLS, LEGEND & NOTES
6-7	TYPICAL SECTIONS NOs. 1-2
8-10	GENERAL PLAN & PROFILE NOs. 1-3
11-12	LOCATION PLAN NOs. 1-2
13-15	SIGNING & STRIPING PLAN NOs. 1-3
16-17 11-12	DETAIL PLAN NOs. 1-2

STATE OF RHODE ISLAND



DEPARTMENT OF TRANSPORTATION

PLAN, PROFILE AND SECTIONS OF PROPOSED

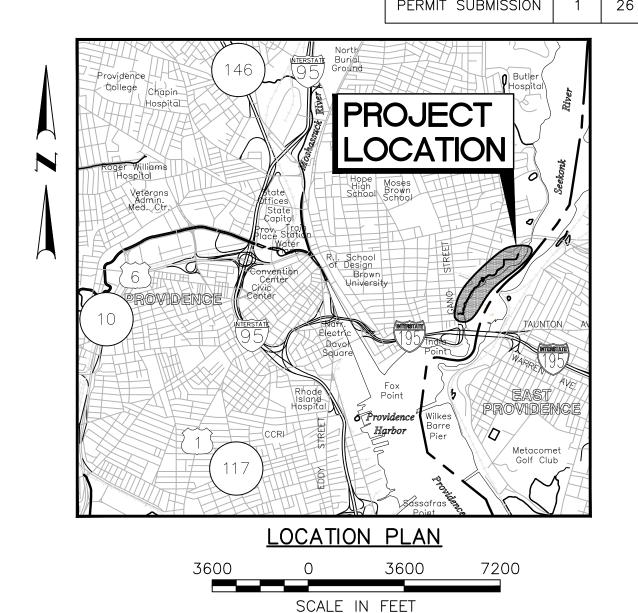
BLACKSTONE RIVER BIKEWAY SEGMENT 1A

VOLUME 1

FROM GANO STREET/TRENTON STREET TO WATERMAN STREET

CITY OF PROVIDENCE COUNTY OF PROVIDENCE

R.I. CONTRACT NO. 2014-XX-XXX F.A. PROJECT NO. XXX-XXXX (XXX)



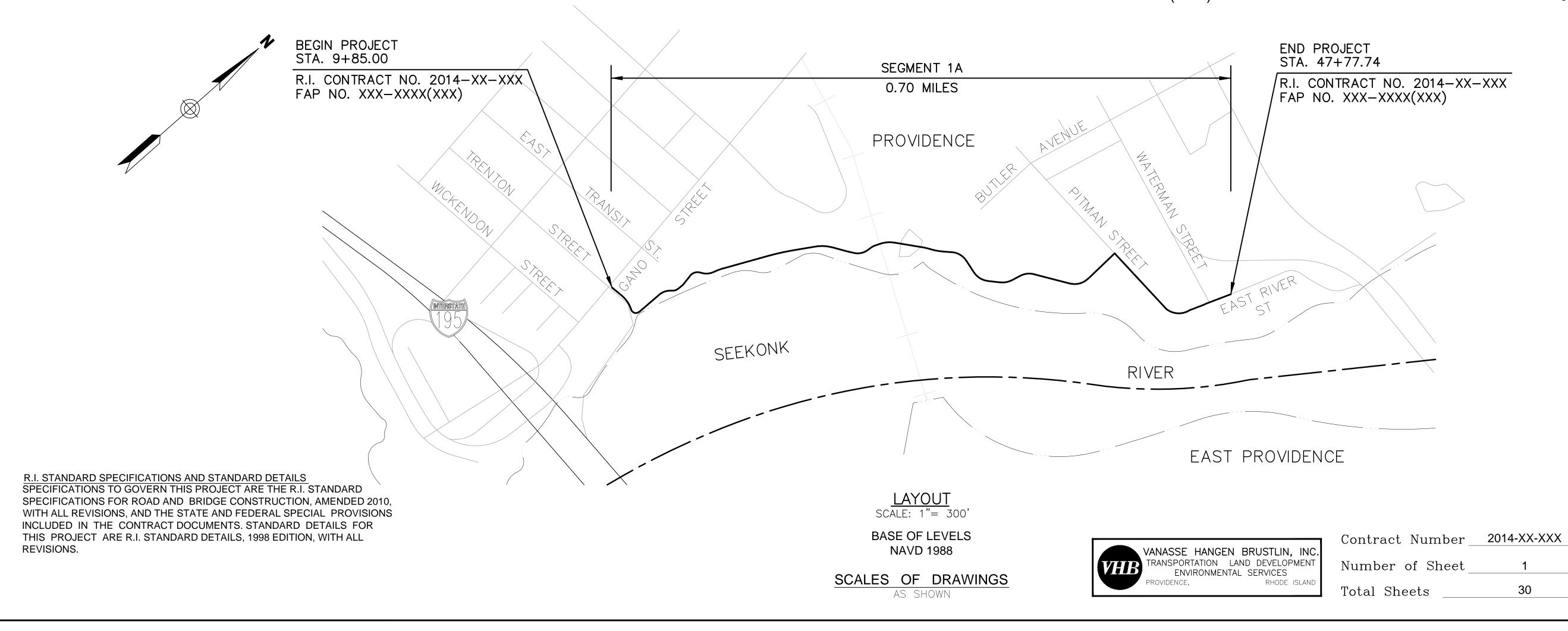
PAVEMENT STRUCTURE

BIKEWAY PAVEMENT

2" CLASS 4.75 HOT MIX ASPHALT

2" CLASS 12.5 HOT MIX ASPHALT

6" GRAVEL BORROW SUBBASE COURSE



PERMIT SUBMISSION

R.I. DEPARTMENT OF TRANSP	
APPROVED	
DEPUTY CHIEF ENGINEER	DATE
APPROVED	
CHIEF ENGINEER	DATE
APPROVED	
DIRECTOR	DATE
DEPARTMENT OF TRANSPOR FEDERAL HIGHWAY ADMINIST	
APPROVED	
DIVISION ADMINISTRATOR	DATE

		NIE VA/								FED. ROAD STATE FEDERAL AID FISCAL SHEET TOTA
<u>EXISTING</u>	EDGE OF PAVEMENT	<u>NEW</u>	1.1.0	UNDERDRAIN	7.4.2	GRANITE TRANSITION CURB (VERTICAL FACE TO SLOPE FACE)	AB	ADJUST CATCH BASIN TO GRADE		DIV. NO. STATE PROJECT NO. YEAR NO. SHEE
	BERM		1.3.0	CONCRETE CONNECTING COLLAR	7.5.0	BITUMINOUS CONCRETE LIP CURB	ABM	ADJUST CATCH BASIN TO MANHOLE		RI 2 30
	CURB		2.1.0	CONCRETE HEADWALLS FOR PIPE CULVERTS	(7.5.1A)	BITUMINOUS BERM (CONSTRUCTION METHOD A)	AC	ADJUST CURB STOP TO GRADE	NFH	NEW FIRE HYDRANT WITH GATE VALVE PERMIT SUBMISSION 2 25
	GUARDRAIL		2.2.0	STANDARD HEADWALLS FOR MULTIPLE 3'-6" TO 7'-0' PIPE CULVERTS	7.5.1B	BITUMINOUS BERM (CONSTRUCTION METHOD B)	AD	ADJUST DRAINAGE MANHOLE TO GRADE	NIC	NOT IN THIS CONSTRUCTION CONTRACT
∘ MB	MAILBOX	1	2.3.0 (D	IA.) PRECAST CONCRETE FLARED END SECTION	7.6.0	CURB SETTING DETAIL	AE	ADJUST ELECTRIC MANHOLE TO GRADE	NWB	FURNISH AND INSTALL NEW WATER GATE VALVE BOX
-○- NO.	UTILITY POLE	- ●- NO.	3.2.0	BRICK/SOLID BLOCK 4'-0" ROUND MANHOLE	8.2.0	BITUMINOUS CONCRETE DITCH	AFC	ADJUST FRAME AND COVER TO GRADE	NWVB	FURNISH AND INSTALL NEW WATER GATE VALVE AND BOX
\rightarrow	POLE GUY	∳ GUY ≺	(3.2.1) (D	IA.) BRICK/SOLID BLOCK 5'-0" OR 6'-0" ROUND MANHOLE	8.3.0	RIP-RAP DITCH	AFG	ADJUST FRAME AND GRATE TO GRADE	NWCB	FURNISH AND INSTALL NEW WATER CURB STOP BOX
\$	LUMINARE	← ★	3.3.0	BRICK/SOLID BLOCK TYPE "D" SQUARE CATCH BASIN	8.4.0	PAVED WATERWAY	AG	ADJUST GAS GATE BOX TO GRADE	NWSB	FURNISH AND INSTALL NEW WATER CURB STOP AND BOX
SIGN	SIGN	.	3.3.2	BRICK/SOLID BLOCK TYPE "F" SQUARE CATCH BASIN	9.1.0	BALED HAY EROSION CHECK	AHH	ADJUST HANDHOLE TO GRADE	PCD	PERMANENT CHECK DAM
(SIZE)SD	SUBDRAIN	N(SIZE)SD- — — → — — — — — — (Length — → Size)	3.3.3	SOLID BLOCK FLUSH SQUARE CATCH BASIN	9.2.0	SILT FENCE DETAIL	AS	ADJUST SANITARY SEWER MANHOLE TO GRADE		4" PLANTABLE SOIL AND SEED
(SIZE)D — — — —	STORMDRAIN	(Length → Size)	3.4.0	BRICK/SOLID BLOCK TYPE "D" ROUND CATCH BASIN	9.3.0	BALED HAY DITCH EROSION CHECK AND SILT FENCE COMBINED	AT	ADJUST TELEPHONE MANHOLE TO GRADE		RECONSTRUCT TYPE "D" CATCH BASIN, TO CATCH BASIN WITH GUTTER INLET
(SIZE)S — — — —	SANITARY SEWER		3.4.1	BRICK/SOLID BLOCK ROUND CATCH BASIN WITH GUTTER INLET	9.4.0	BALED HAY DITCH AND SWALE EROSION CHECK	AW	ADJUST WATER GATE BOX TO GRADE		R.I.D.O.T. COMMUNICATIONS MANHOLE
(SIZE)W — — — —	WATER MAIN	N(SIZE)W — — —	3.4.2	BRICK/SOLID BLOCK TYPE "F" ROUND CATCH BASIN	9.5.0	LOG AND HAY CHECK DAM	BCD	BITUMINOUS CONCRETE DRIVEWAY 3" BITUMINOUS CONCRETE TYPE I-2		REMOVE, HANDLE, HAUL, TRIM, RESET CURB EDGING, STRAIGHT, CIRCULAR (ALL TYPES)
(SIZE)G — — — — — — — — — — — — — — — — — — —	GAS MAIN TELEPHONE DUCT	N(SIZE)G — — — — — — N-#(SIZE)T - — — — — — — — — — — — — — — — — — —	3.4.3	BRICK/SOLID BLOCK TYPE "R" CATCH BASIN	9.7.0	DEWATERING BASIN		8" GRAVEL BORROW SUBBASE COURSE	RLP	RELOCATE LAMP POST
(SIZE)E — — — — — — — —	ELECTRIC DUCT	N-#(SIZE)E	3.4.4	SOLID BLOCK FLUSH ROUND CATCH BASIN	9.8.0	BALED HAY CATCH BASIN INLET PROTECTION	BPS	BUILD NEW STRUCTURE OVER EXISTING PIPE	RMB	RELOCATE MAILBOX (BY OTHERS)
(3121)1	PLUG AND CAP PIPE	——————————————————————————————————————	3.4.5 (D	IA.) BRICK/SOLID BLOCK 5'-0" OR 6'-0" ROUND CATCH BASIN	9.9.0	CONSTRUCTION ACCESS	CCB	CLEAN CATCH BASIN	RPM	REMOVE PAVEMENT MARKINGS
	ABANDONED UTILITY		3.5.0	SOLID BLOCK SHALLOW TYPE "F" SQUARE CATCH BASIN	10.1.0	WET STONE MASONRY RETAINING WALL	CCP	CUT AND CAP PIPE WITH RESTRAINT (ALL SIZES)	RRP	RIP-RAP PAD (SEE DETAIL)
\triangleleft	FLARED END SECTION	.	3.5.1)(S	IZE) SOLID BLOCK SHALLOW 5'-0" OR 6'-0" SQUARE CATCH BASIN	10.2.0	RUBBLE MASONRY WALL	CFP	CLEAN AND FLUSH PIPE	RRS	REMOVE AND RELOCATE SIGN
	HEADWALL		3.6.0	BRICK/SOLID BLOCK DROP INLET	10.3.0	CONCRETE RETAINING WALL	CG	CLEARING AND GRUBBING	RUP	RELOCATE UTILITY POLE (BY OTHERS)
- ∨ WG OR GG	WATER OR GAS GATE	⊗	3.7.0 (D	IA.) BRICK/SOLID BLOCK ROUND MANHOLE OR CATCH BASIN GREATER THAN 12'-0"	10.4.0	STONE MASONRY STEPS	CMH	CLEAN MANHOLE	SB	STONE BAFFLE
□ СВ	CATCH BASIN		4.2.0	PRECAST 4'-0" ROUND MANHOLE	14.1.0	CONCRETE HIGHWAY BOUND	CP (DEF	PTH) COLD PLANE	SBAE	STEEL BEAM BRIDGE CONNECTION APPROACH END (W/O NESTED RAIL
ОМН	MANHOLE	•	4.2.1	PRECAST 5'-0" ROUND MANHOLE	15.1.0	POST AND MOUNTINGS FOR RURAL MAILBOX	CPP	CUT AND PLUG PIPE (ALL TYPES, ALL SIZES)		STEEL BEAM BRIDGE CONNECTION TRAILING END (W/NESTED RAIL)
+Ō- HYD	HYDRANT	•♣•	4.2.2	PRECAST 6'-0" ROUND MANHOLE	15.2.0 (NO	O.) POST AND MULTIPLE MOUNTINGS FOR RURAL MAILBOXES	DB	REMOVE AND DISPOSE BITUMINOUS CURB	SD-	STRUCTURAL DISPOSITION — SEE CS PAGES OF SPECIFICATION
1+00	BASELINE OR CENTERLINE	1+00	4.3.0 (S	IZE) PRECAST 4'-0" OR 6'-0" SQUARE MANHOLE OR CATCH BASIN	18.2.0	PRECAST TYPE "A" HANDHOLE	DC	REMOVE AND DISPOSE CONCRETE CURB	SF	REMOVE AND STOCKPILE FENCE
EXIST. S.H.L. PLAT NO. XX	STATE HIGHWAY LINE	NEW S.H.L. PLAT NO. XX	4.4.0 (D	IA.) PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN	18.2.2	HEAVY DUTY TYPE "H" HANDHOLE	DCB	REMOVE AND DISPOSE CATCH BASIN	SGA	SPECIAL GRADED AGGREGATE
EXIST. S.F.L. PLAT NO. XX	STATE FREEWAY LINE	NEW S.F.L. PLAT NO. XX	4.5.0	PRECAST CONCRETE DROP INLET	18.3.0	ALUMINUM LIGHTING STANDARDS	DDI	REMOVE AND DISPOSE DROP INLET	SGC	REMOVE AND STOCKPILE GRANITE CURB
<u>EXIST.</u> <u>P.E.B.</u>	PERMANENT EASEMENT LINE	NEW_P.E.B.	4.5.1	PRECAST CONCRETE DROP INLET LATERAL OUTLET	20.2.0	BI-DIRECTIONAL CONTROL DEVICE	DF	REMOVE AND DISPOSE FENCE		REMOVE AND STOCKPILE GUARDRAIL
EXISTT.E.B.	TEMPORARY EASEMENT LINE	NEW_ T.E.B.	4.5.2	PRECAST CONCRETE DROP INLET LONGITUDINAL OUTLET	24.6.1)	STREET SIGN MOUNTING DETAIL	DFC	REMOVE AND DISPOSE FRAME AND COVER	SH	REMOVE AND STOCKPILE HYDRANT
CITY NAME	PROPERTY LINE		5.3.0	CATCH BASIN AND MANHOLE STEP	26.2.0	POLYETHYLENE DRUM WITH MARKINGS	DFE	REMOVE AND DISPOSE FLARED END SECTION	SS	REMOVE AND STOCKPILE SIGN
TOWN NAME	CITY OR TOWN LINE		5.4.0	CONCRETE COLLARS	26.3.0	PVC PLASTIC PIPE TYPE III BARRICADE	DFG	REMOVE AND DISPOSE FRAME AND GRATE	STS	REMOVE AND STOCKPILE TRAFFIC SIGNAL SYSTEM
-) (- L PWW	PAVED WATERWAY		6.1.0	LIGHT-DUTY SQUARE FRAME AND ROUND COVER	31.1.0	CHAIN LINK FENCE 3'-0" TO 4'-0"	DFH	REMOVE AND DISPOSE FIRE HYDRANT	TB	CONCRETE THRUST BLOCK
ELEV	CONTOUR LINE	ELEV	6.1.1	HEAVY DUTY SQUARE FRAME AND ROUND COVER	31.2.0	CHAIN LINK FENCE 5'-0" TO 6'-0"	DFP	REMOVE AND DISPOSE FLEXIBLE PAVEMENT	TEP	TIE EXISTING PIPE INTO NEW STRUCTURE
	OPEN DITCH	=======================================	6.2.0	LIGHT-DUTY ROUND FRAME AND COVER	31.2.1)	CHAIN LINK FENCE 5'-0" TO 6'-0" INTERMEDIATE POST	DG	REMOVE AND DISPOSE GUARDRAIL	TNP	TIE NEW PIPE INTO EXISTING STRUCTURE
⊡ R.I.H.B.	R.I. HIGHWAY BOUND	•	6.2.1	HEAVY-DUTY ROUND FRAME AND COVER	(31.3.0)	WOVEN WIRE RIGHT-OF-WAY FENCE (STEEL POST)	DH	REMOVE AND DISPOSE HEADWALL	TBT	THRIE BEAM TRANSITION
□ S.B.	STONE BOUND	•	6.3.0	SQUARE FRAME AND GRATE	34.1.0	TYPICAL GUARDRAIL INSTALLATION	DHB	REMOVE AND DISPOSE HIGHWAY BOUND	TBBC	THRIE BEAM BRIDGE CONNECTION
	RETAINING WALL		6.3.1	SQUARE FRAME AND GRATE	34.2.0	STEEL BEAM GUARDRAIL	DHH	REMOVE AND DISPOSE HANDHOLE	П	TREE TRIMMING
•0000000000000000000000000000000000000	FIELD STONE WALL	• NO	6.3.2	SQUARE FRAME AND GRATE (BICYCLE SAFE)	34.2.1)	STEEL BEAM GUARDRAIL DETAILS	DL	REMOVE AND DISPOSE LIGHT AND FOUNDATION	WCM	4" WOOD CHIP MULCH
TYPE	BORINGS	NO.	6.3.3	HIGH CAPACITY FRAME AND GRATE	34.2.2	STEEL BEAM GUARDRAIL DOUBLE FACED ASSEMBLY	DMB	REMOVE AND DISPOSE MEDIAN BARRIER	(4DY)	4" EPOXY RESIN PAVEMENT MARKINGS — DOUBLE YELLOW
X X X	FENCE WOOD OR BRUSH LINE	XXX	6.3.4	HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)	(34.2.3)	STEEL BEAM GUARDRAIL FIXTURES	DMH	REMOVE AND DISPOSE MANHOLE		6" EPOXY RESIN PAVEMENT MARKINGS — WHITE
on on the second	TREES		6.4.0	ROUND FRAME AND GRATE	(34.2.5)	STEEL BEAM GUARDRAIL REFLECTORIZED TRIANGULAR DELINEATOI	\sim	REMOVE AND DISPOSE MEDIAN MARKER	12W	12" EPOXY RESIN PAVEMENT MARKINGS — WHITE
(NAME)	RIVER OR STREAM		(7.1.0S)	PRECAST CONCRETE CURB (STRAIGHT)	(34.3.1)	GUARDRAIL END SECTION	DOW	REMOVE AND DISPOSE OBSERVATION WELL		6" PREFORMED PATTERNED MARKING (HIGH PERFORMANCE TAPE)
	WETLAND AREA		(7.1.0C)	PRECAST CONCRETE CURB (CIRCULAR)	34.3.2	TERMINAL END SECTION (SINGLE FACE)	DP	REMOVE AND DISPOSE PIPE		4" EPOXY RESIN PAVEMENT MARKINGS — YELLOW
NO.			7.1.1	3'-0' PRECAST CONCRETE TRANSITION CURB	34.3.3	ANCHORAGE DETAILS APPROACH END SECTION	DPB			6" EPOXY RESIN PAVEMENT MARKINGS — YELLOW
TYPE MATERIAL	BUILDING		7.1.2	6'-0" PRECAST CONCRETE TRANSITION CURB	34.3.4	ANCHORAGE DETAILS TRAILING END SECTION	DRB	REMOVE AND DISPOSE RIGID BASE		PROFILE GRADE LINE
	FOUNDATION		7.1.4	PRECAST 2'-0" RADIUS CORNER	34.4.0	STEEL BACKED TIMBER GUARDRAIL	DS	REMOVE AND DISPOSE SIGN	= : = :	_
	BUILDING TO BE REMOVED		7.1.5	PRECAST CONCRETE INLET STONE (FOR SQUARE CATCH BASIN)	34.4.1)	STEEL BACKED TIMBER GUARDRAIL TERMINAL SECTION—TYPE 1	DSS	REMOVE AND DISPOSE TRAFFIC SIGNAL SYSTEM		
	RAILROAD TRACKS		7.1.6	PRECAST CONCRETE INLET STONE (FOR ROUND CATCH BASIN)	40.1.0	DOUBLE-FACED PRECAST MEDIAN BARRIER	DSW	REMOVE AND DISPOSE SIDEWALK		
	CUT AND MATCH	777777777777777777777777777777777777777	7.1.7	PRECAST CONCRETE APRON STONE (FOR SQUARE CATCH BASIN)		SINGLE-FACED PRECAST MEDIAN BARRIER	DTD	REMOVE AND DISPOSE TELEPHONE DUCT BANKS		
	RIP-RAP		7.1.7	PRECAST CONCRETE APRON STONE (FOR ROUND CATCH BASIN)		SINGLE-FACED PRECAST MEDIAN BARRIER SINGLE-FACED PRECAST MEDIAN BARRIER	DUP	REMOVE AND DISPOSE TELEPHONE DUCT BANKS REMOVE AND DISPOSE UTILITY POLE		
	CUT SLOPE		7.0.00	PRECAST CONCRETE AFRON STONE (FOR ROUND CATCH BASIN) PRECAST CONCRETE SLOPED FACE CURB (STRAIGHT)	40.2.1)	PRECAST MEDIAN BARRIER TRANSITION UNIT	DWW	REMOVE AND DISPOSE PAVED WATERWAY		
		TOP OF SLOPE ROADWAY	(7.2.0C)	PRECAST CONCRETE SLOPED FACE CURB (STRAIGHT) PRECAST CONCRETE SLOPED FACE CURB (CIRCULAR)		PRECAST MEDIAN BARRIER TRANSITION UNIT PRECAST MEDIAN BARRIER FOR TEMPORARY TRAFFIC CONTROL	FF	FILTER FABRIC RIPRAP FLARED END UNDERLAYMENT		
	FILL SLOPE				(40.5.0)			FILTER FABRIC RIPRAP FLARED END UNDERLAYMENT FLARED GUARDRAIL END TREATMENT		
	ROCK CUT	ROCK SHELF ROCK V V CUT	7.2.1	PRECAST CONCRETE SLOPED FACE TRANSITION CURB PRECAST CONCRETE TRANSITION CURB	(43.1.0)	CEMENT CONCRETE SIDEWALK	GET			
00.00		<u>ROCK_V_V_V_COI</u>		(VERTICAL FACE TO SPLOPED FACE)	(43.2.0)	BITUMINOUS CONCRETE SIDEWALK	(IA)	IMPACT ATTENUATOR		
00 _× 00	SPOT GRADE AREA GRADED TO DRAIN	X	(7.3.0S)	GRANITE CURB (STRAIGHT)	(43.3.0)	WHEELCHAIR RAMP	(IDL)	IMPERVIOUS DITCH LINER	REVISIONS	RHODE ISLAND
	BALED HAY RI STD 9.1.0	ELEV. X——	(7.3.0C)	GRANITE CURB (CIRCULAR)	(43.3.1)	WHEELCHAIR RAMP FOR LIMITED RIGHT-OF-WAY AREAS	LOD	LIMIT OF DISTURBANCE	NO. DATE 1 6/07	TRB DEPARTMENT OF TRANSPORTATIO
	BALED HAY & SILT FENCE		7.3.1	3'-0" GRANITE TRANSITION CURB	(43.4.0)	DRIVEWAY DEVELOPMENT FOR 3'-0" TRANSITION CURB	LOR	LIMIT OF REGRADING		
	RI STD. 9.3.0		7.3.2	6'-0" GRANITE TRANSITION CURB	(43.4.1)	DRIVEWAY DEVELOPMENT FOR 6'-0" TRANSITION CURB	(LS)	4" LOAM AND SEED		BLACKSTONE RIVER BIKEWAY
			7.3.3	GRANITE WHEELCHAIR RAMP TRANSITION CURB	43.5.0	CEMENT CONCRETE DRIVEWAYS				SEGMENT 1A
<u>△</u>	EDGE OF WETLAND		(7.3.4)	GRANITE 2'-0" RADIUS CORNER	48.1.0	DETECTABLE WARNING SYSTEM				
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	EDGE OF WETLAND WETLAND PERIMETER		\sim		(-··	TREE PROTECTION REVICE			- i	•
ASSF		V	7.3.5	GRANITE INLET STONE (FOR SQUARE CATCH BASIN)	(51.1.0)	TREE PROTECTION DEVICE				PROVIDENCE, RHODE ISLAN
	WETLAND PERIMETER		\sim	GRANITE INLET STONE (FOR SQUARE CATCH BASIN) GRANITE INLET STONE (FOR ROUND CATCH BASIN)	51.1.1	DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES				
ASSF	WETLAND PERIMETER AREA SUBJECT TO STORM FLOW 100-YEAR FLOOD PLAIN LIMIT OF DISTURBANCE	LIMIT OF DISTURBANCE	7.3.5		<u>51.1.1</u> <u>51.2.0</u>					
ASSF	WETLAND PERIMETER AREA SUBJECT TO STORM FLOW 100-YEAR FLOOD PLAIN		7.3.5	GRANITE INLET STONE (FOR ROUND CATCH BASIN)	51.1.1	DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES		VANASSE HANGEN BRUSTLIN, IN		
ASSF —	WETLAND PERIMETER AREA SUBJECT TO STORM FLOW 100-YEAR FLOOD PLAIN LIMIT OF DISTURBANCE	LIMIT OF DISTURBANCE	7.3.5 7.3.6 7.3.7	GRANITE INLET STONE (FOR ROUND CATCH BASIN) GRANITE APRON STONE (FOR SQUARE CATCH BASIN)	<u>51.1.1</u> <u>51.2.0</u>	DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES SHRUB PROTECTION DEVICE		TRANSPORTATION LAND DEVELOPMENT ENVIRONMENTAL SERVICES	IT	STANDARD PLAN SYMBOLS 8
ASSF	WETLAND PERIMETER AREA SUBJECT TO STORM FLOW 100-YEAR FLOOD PLAIN LIMIT OF DISTURBANCE	LIMIT OF DISTURBANCE	7.3.5 7.3.6 7.3.7 7.3.8	GRANITE INLET STONE (FOR ROUND CATCH BASIN) GRANITE APRON STONE (FOR SQUARE CATCH BASIN) GRANITE APRON STONE (FOR ROUND CATCH BASIN)	51.1.1 51.2.0 51.3.0	DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES SHRUB PROTECTION DEVICE TREE WELL		TRANSPORTATION LAND DEVELOPMEN	IT	STANDARD PLAN SYMBOLS 8

GENERAL NOTES:

- 1. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.
- 2. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE TRAVEL LANE SO AS NOT TO CAUSE A SAFETY HAZARD, IN ACCORDANCE WITH SECTION 106.06 OF THE R.I.D.O.T. STANDARD SPECIFICATION, LATEST EDITION.
- 3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING HIM TO CONSTRUCT THE PROJECT IN CONFORMITY WITH THE PLANS AND SPECIFICATIONS. SURVEY WILL BE PROVIDED BY THE CONTRACTOR. THE RESIDENT ENGINEER WILL NOT AUTHORIZE CONSTRUCTION ACTIVITIES TO BEGIN UNTIL HE IS SATISFIED THAT ALL GROUND CONTROL HAS BEEN ESTABLISHED, TIED DOWN, AND DULY RECORDED IN STANDARD FIELD BOOKS.
- 4. ALL R.I. STD. 9.9.0 CONSTRUCTION ACCESS ROADS SHALL BE CONSTRUCTED PRIOR TO ANY ROADWAY ACCEPTING CONSTRUCTION TRAFFIC.
- 5. THE FREQUENCY AND APPLICATION RATES FOR THE DUST CONTROL ITEMS WILL BE AS DIRECTED BY THE ENGINEER.
- 6. ALL SIDEWALK AND DRIVEWAYS DESIGNATED FOR REPLACEMENT SHALL BE CUT AND MATCHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- 7. ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON THE CONCRETE BASE OR COLD PLANED PAVEMENT, AND ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 3 DAYS, AND/OR AS DIRECTED BY THE ENGINEER. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS. ALL APPLICATIONS ON BOTH HORIZONTAL AND VERTICAL SURFACES SHALL BE PAID FOR UNDER THE CONTRACT UNIT BID PRICE FOR CODE 403.0300 "ASPHALT EMULSION TACK COAT."
- 8. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED WITH THE PERMISSION OF THE ENGINEER.
- 9. UNDER NO CIRCUMSTANCE WILL THE CONTRACTOR BE ALLOWED TO STOCKPILE REMOVED PAVEMENT MATERIALS WITHIN THE PROJECT LIMITS.
- 10. CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT. ALL CLEANING AND SWEEPING SHALL BE DONE TO THE SATISFACTION OF THE ENGINEER.
- 11. PRIOR TO INSTALLATION, ALL SIGNS, MOUNTINGS AND LOCATIONS SHALL BE APPROVED OR MODIFIED BY THE ENGINEER.
- 12. THE COORDINATE SYSTEM, IF SHOWN, IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM.
- 13. PAVEMENT OPERATIONS FOR CURBED SECTIONS: IN AREAS WHERE CURBING IS SET TO FINISH LINE AND GRADE. THE CONTRACTOR WILL NOT BE REQUIRED TO UTILIZE THE SENSOR AND SKY-TYPE DEVICE FOR AUTOMATIC GRADE CONTROL. BUT WILL BE ALLOWED TO MANUALLY ADJUST THE BITUMINOUS PAVER FOR CONTROLLING GRADE.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS, ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.
- 15. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.
- 16. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING OPERATIONS, FLOW TO EXISTING DRAINAGE STRUCTURES HAS BEEN REESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; IT SHALL BE CONSIDERED INCIDENTAL TO PAVING AND COLD PLANING OPERATIONS.
- 17. ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED. ALSO, EMBANKMENT CONSTRUCTION SHALL CONFORM TO SECTION 202.03.2 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- 18. IF THIS PROJECT IS ON A HURRICANE EVACUATION AND DIVERSIONARY ROUTE, AS DESIGNATED ON THE COVERSHEET, THE CONTRACTOR IS ADVISED THAT UPON 12 (TWELVE) HOURS NOTICE THE ROADWAY SHALL BE OPEN TO EVACUEES AND EMERGENCY PERSONNEL. ANY EXTRA WORK NECESSARY TO COMPLY WITH THIS REQUIREMENT WILL BE REIMBURSED UNDER FORCE ACCOUNT PROCEDURES.
- 19. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVALS ISSUED FOR THE PROJECT FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM). AND/OR THE ARMY CORPS OF ENGINEERS (ACOE). AND/OR THE COASTAL RESOURCES MANAGEMENT COUNCIL (CRMC). COPIES OF EACH OF THESE PERMITS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH THESE CONDITIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
- 20. FOR ALL PROJECTS INVOLVING KNOWN SITE REMEDIATION ISSUES, THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE CONSTRUCTION RELATED PROVISIONS, CONDITIONS, AND STIPULATIONS OF ANY REMEDIAL PLANS DEVELOPED FOR THE PROJECT. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THESE DOCUMENTS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
- 21. NO UNPROTECTED CONSTRUCTED FEATURE MAY PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. HEADWALL, DRAINAGE INLET, ETC.
- 22. THE REMAINING SECTION OR STUB OF A BREAKAWAY BASE MAY NOT PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. SIGN POSTS, LIGHT POLES, FIRE HYDRANTS, ETC.

DRAINAGE AND EROSION CONTROL NOTES:

- 1. FOR ALL PROJECTS WITH AT LEAST ONE(1) ACRE OF SOIL DISTURBANCE. R.I.D.O.T. IS REQUIRED TO DEVELOP AND ENFORCE A SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO REMAIN IN COMPLIANCE WITH THE RIPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS OF THE GENERAL PERMIT AND THE SITE SPECIFIC SWPPP FOR THIS PROJECT. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH ADHERENCE TO THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).
- 2. NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE RESIDENT ENGINEER OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION, IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.
- STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR BUFFER ZONE AREAS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODABLE MATERIAL SHALL ALSO BE SEEDED AND RINGED WITH R.I. STD. 9.1.0 TO STABILIZE.
- 4. IF THE PLANS INCLUDE SPECIFIC AREAS FOR PLACEMENT OF CONSTRUCTION DEWATERING BASINS AND/OR EQUIPMENT AND MATERIALS STORAGE AND STOCKPILING. AND IF THE CONTRACTOR ELECTS TO UTILIZE ANY OTHER AREAS FOR THESE PURPOSES, THIS SHALL BE APPROVED BY THE ENGINEER ONLY AFTER OBTAINING ANY NECESSARY PERMITS AND/OR PERMIT MODIFICATIONS FROM THE APPROPRIATE REGULATORY AUTHORITY(IES). ANY PERMITTING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED AT NO COST TO THE STATE. THE ENGINEER WILL COORDINATE SUBMISSION OF ANY REQUIRED PERMIT APPLICATION MATERIALS WITH THE R.I.D.O.T. OFFICE OF ENVIRONMENTAL PROGRAMS.
- 5. JUTE MESH SHALL BE USED TO STABILIZE PLANTABLE SOIL AND/OR LOAM IN ALL DITCHES, ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS, AND ON ALL SLOPES WITHIN WATER QUALITY BASINS. JUTE MESH IN DITCHES SHALL EXTEND TO AN ELEVATION 2 FEET ABOVE THE BOTTOM OF THE DITCH.
- 6. SEEDING ON ALL SLOPES 3 TO 1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.
 - a. SEEDING TYPE I.
 - b. ADHESIVE MULCH STABILIZER
- 7. UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.
- 8. PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING PIPES AND/OR STRUCTURES WHICH ARE TO BE CONNECTED. ANY VARIATION FOUND FROM THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION. WORK CAN COMMENCE ONLY UPON THE ENGINEER'S
- 9. ALL DRAINAGE AND UTILITY STRUCTURES WITHIN THE PAVED ROADWAY SHALL BE ADJUSTED TO GRADE WITH THE SURROUNDING PAVEMENT PRIOR TO THE WINTER
- 10. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.
- 11. CATCH BASIN RIM GRADES NOTED ON PLANS ARE DEPRESSED 0.1' LOWER THAN THE GUTTER GRADE. RIM ELEVATIONS SHOWN ARE FINAL GRADES. THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTED IN THIS CONTRACT OR AS DIRECTED BY THE ENGINEER.
- 12. PROVISIONS FOR CLEARING TO ACCESS OUTFALLS DURING THE CLEANING AND FLUSHING OF THE CLOSED DRAINAGE SYSTEM SHALL BE KEPT TO A MINIMUM.
 - a. ANY VEGETATIVE CLEARING SHALL BE LIMITED TO BRUSH AND TREES LESS THAN 3" DIAMETER.
 - NO HEAVY EQUIPMENT MAY ENCROACH UPON VEGETATED PERIMETER OR RIVERBANK WETLANDS AS WELL AS BIOLOGICAL WETLANDS.
- 13. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL DEVICES FOR OUTLET PROTECTION PRIOR TO CLEANING AND FLUSHING STORM WATER DRAINAGE. EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL FLUSHED SEDIMENTS ARE REMOVED. AT ALL OUTFALL LOCATIONS WHERE PIPES ARE TO BE CLEANED AND FLUSHED, OUTLET PROTECTION (R.I. STD. 9.1.0 OR 9.3.0) SHALL BE INSTALLED TO TRAP SEDIMENTS. THESE SEDIMENTS SHALL THEN BE REMOVED AND DISPOSED OF LEGALLY BEFORE THE OUTLET PROTECTION DEVICES ARE REMOVED. IF OUTLET PROTECTION AT THE OUTFALL IS NOT FEASIBLE, THEN THE OUTLET PIPE OF THE LAST DRAINAGE STRUCTURE TO BE CLEANED SHALL BE PLUGGED TO CAPTURE ALL MATERIALS FLUSHED FROM PIPES. AFTER THE MATERIALS ARE REMOVED FROM THE DRAINAGE STRUCTURE, THE OUTLET SHALL BE UNPLUGGED TO RESUME NORMAL FUNCTIONING.
- 14. R.I. STD. 9.8.0 BALED HAY INLET PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS AND INLETS WHENEVER SUBBASE IS EXPOSED, AND SHALL REMAIN IN PLACE UNTIL THE ABUTTING GROUND SURFACES ARE STABILIZED.
- 15. WHERE BALED HAY INLET PROTECTION AND SILT FENCES ARE USED AT CATCH BASINS, THEY SHALL BE REMOVED AT THE END OF THE PROJECT OR AS DIRECTED BY THE ENGINEER IN ORDER TO PREVENT CLOGGING OF THE INLET.

DRAINAGE AND EROSION CONTROL NOTES (CONTINUED):

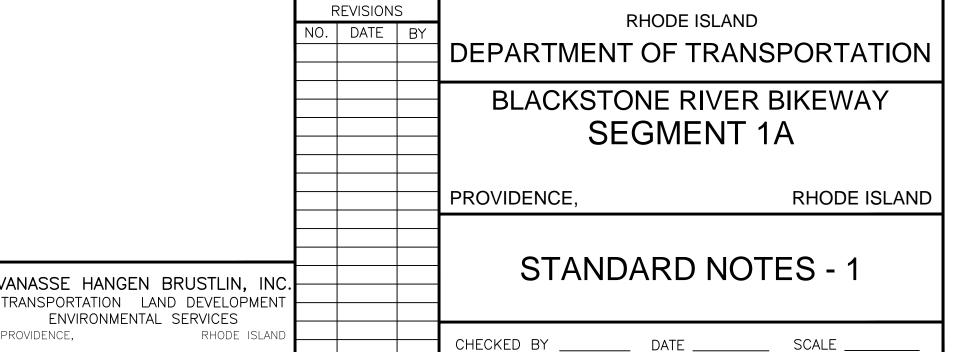
- 16. DETENTION AND RETENTION BASINS MAY BE ROUGH GRADED AND STABILIZED WITH VEGETATION AND/OR OTHER EROSION CONTROL MEASURES AS REQUIRED BY THE ENGINEER PRIOR TO USE AS TEMPORARY SEDIMENTATION BASINS DURING PROJECT CONSTRUCTION. FINAL BASIN CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL SOURCES OF SEDIMENT HAVE BEEN ELIMINATED, FINAL ROADSIDE VEGETATION IS ESTABLISHED AND USE OF TEMPORARY BASINS IS NO LONGER REQUIRED AS DIRECTED BY THE ENGINEER. ANY ISSUES RELATING TO EROSION AND/OR SEDIMENT TRANSPORT INTO WETLAND AREAS RESULTING FROM SUCH USE OF SEDIMENTATION BASINS DURING CONSTRUCTION SHALL BE THE RESPONSIBILTY OF THE CONTRACTOR. ANY CORRECTIVE ACTION REQUIRED TO RESOLVE SUCH ISSUES SHALL BE COMPLETED BY THE CONTRACTOR.
- 17. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED
- 18. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.
- 19. ALL HAY BALES. SILT FENCE OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED, IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEED WILL CONFORM TO R.I.D.O.T. STANDARD TEMPORARY SEED MIX.
- 20. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE STATE.
- 21. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN SUBSECTION L.02.03 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- 22. ADDITIONAL EROSION CONTROLS, SHALL BE INSTALLED AS DIRECTED BY THE RESIDENT ENGINEER. THESE ADDITIONAL ITEMS WILL BE PAID AT THE UNIT PRICE FOR THAT BID

	FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTA SHEE
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UTILITY NOTES:

ROVIDENCE,

- 1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. BUILDING SERVICE CONNECTIONS (ELECTRIC, GAS, TELEPHONE, WATER AND SANITARY) ARE NOT SHOWN. CONTRACTOR IS TO ASSUME SERVICES ARE PRESENT TO ALL BUILDINGS.
- 2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH CHAPTER 39-1.2 OF THE R.I. GENERAL LAWS ENTITLED "EXCAVATION NEAR UNDERGROUND UTILITY FACILITIES", WITH AMENDMENTS EFFECTIVE AS OF NOVEMBER 1, 2009 AND, WHEN NECESSARY, BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE STATE.
- 3. ALL EXISTING UTILITIES TO BE ABANDONED SHALL BE CAPPED.
- 4. EXISTING WATER SERVICES SHALL BE RECONNECTED TO THE NEW WATER MAINS.
- 5. UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES TO REMAIN.
- 6. FIRE HYDRANTS SHALL NOT BE REMOVED FROM SERVICE WITHOUT WRITTEN AUTHORIZATION FROM THE FIRE DEPARTMENT OR THE WATER AUTHORITY.
- 7. ALL NEW WATER LINES SHALL BE DISINFECTED TO THE SATISFACTION OF THE WATER AUTHORITY IN ACCORDANCE WITH THE SPECIFICATIONS.
- 8. ALL UTILITY POLE RELATED WORK SHALL BE BY OTHERS.



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LANDSCAPE NOTES:

- 1. ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (A RECOGNIZED GROWER OF PLANT MATERIAL) IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION. ALL PLANT MATERIAL MUST BE NURSERY GROWN; NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
- 2. ALL PLANT SUBSTITUTIONS AND/OR CHANGES IN PLANT LOCATION MUST BE APPROVED IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- 3. ALL PLANT MATERIAL IS TO BE FIELD LOCATED BY A REPRESENTATIVE FROM THE R.I.D.O.T. LANDSCAPE ARCHITECTURE UNIT.
- 4. A R.I.D.O.T. LANDSCAPE REPRESENTATIVE MUST BE ON SITE TO APPROVE ALL TRIMMING AND CLEARING NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.
- 5. ANY TOPSOIL USED AS PLANTABLE SOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS, AND SHALL CONFORM TO SECTION M.18 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- 6. ALL TREES AND SHRUBS SHALL BE MULCHED WITH PINE BARK MULCH IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
- 7. ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED
- 8. PROVIDE A MINIMUM 6'-8" BRANCHING STANDARD ON ALL TREES INSTALLED ADJACENT TO SIDEWALKS AND/OR PEDESTRIAN ACCESS AREAS.

STRUCTURAL NOTES FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS:

GENERAL

1. ALL SUPPORT DESIGNS AND ASSOCIATED SHOP DRAWING REVIEWS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION, OF THE <u>AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS (THE "SPECIFICATIONS")</u>, INCLUDING THE LATEST INTERIM SPECIFICATIONS, EXCEPT AS MODIFIED HEREIN.

CONSTRUCTION DRAWINGS AND DETAILS

- 1. THE FOLLOWING NOTES SHALL BE INCLUDED ON ALL PLANS AND/OR SHOP DRAWINGS IN REFERENCE TO ANCHOR BOLTS:
 - "PRETENSIONING OF ALL ANCHOR NUTS IS REQUIRED, AND SHALL BE ACCOMPLISHED BY TIGHTENING TO 1/6TH TURN BEYOND THE SNUG—TIGHT POSITION."
 - THE MAXIMUM CLEARANCE BETWEEN THE BOTTOM OF THE LEVELING NUTS AND THE TOP OF THE CONCRETE IS CRITICAL AND SHALL NOT EXCEED THE AMOUNT SPECIFIED ON THIS DRAWING."
- 2. THE USE OF GROUT UNDER BASE PLATES SHALL GENERALLY NOT BE PERMITTED. IF SPECIFIC CONDITIONS WARRANT ITS USE, THE GROUT SHALL NOT BE CONSIDERED LOAD CARRYING; LOADS SHALL BE DIRECTLY SUPPORTED BY THE ANCHOR BOLTS. ADEQUATE DRAINAGE SHALL BE PROVIDED.
- 3. THE DAMPENING EFFECTS OF VIBRATION MITIGATION DEVICES SHALL NOT BE CONSIDERED IN THE DESIGN OF STRUCTURAL SUPPORTS FOR SIGNS AND TRAFFIC SIGNALS. IF THE CONTRACTOR CHOOSES TO USE THESE DEVICES FOR WARRANTY PURPOSES, THE TYPE OF DEVICES PROPOSED SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO FABRICATION OF SUPPORTS.

TRAFFIC SIGNAL NOTES:

- 1. ALL SALVAGED TRAFFIC SIGNAL EQUIPMENT SHALL BE DELIVERED TO THE R.I.D.O.T. MAINTENANCE HEADQUARTERS, 360 LINCOLN AVENUE, WARWICK, RHODE ISLAND, 02888.
- 2. BACK PLATES SHALL BE INSTALLED ON ALL TRAFFIC SIGNAL HEADS.
- 3. THE CONTRACTOR SHALL SUPPLY AND INSTALL ON THE UPPER LEFT HAND CORNER OF THE BACK OF THE CONTROLLER CABINET DOOR A LAMINATED INTERSECTION GRAPHIC AND TABLE DEPICTING THE TRAFFIC DETECTOR RELAY CHANNEL ASSIGNMENTS. THE DIAGRAM SHALL BE A GRAPHIC OF THE INDIVIDUAL INTERSECTION ORIENTED SIMILAR TO THE PLANS SHOWING THE LOCATIONS OF EACH OF THE LOOP DETECTORS. THE DIAGRAM SHALL, AT A MINIMUM, INCLUDE DETECTOR NUMBERS, STREET NAME LABELS, NORTH ARROW, AND CONTROLLER CABINET LOCATION. THE ASSIGNMENT INFORMATION SHALL BE INCLUDED IN A TABLE WHICH SHALL INCLUDE, AT A MINIMUM, THE APPROACH NAME, DETECTOR NUMBER, TERMINAL NUMBER, DETECTOR RACK SLOT NUMBER, RELAY NUMBER, RELAY CHANNEL NUMBER, AND PHASE ASSOCIATED WITH EACH DETECTOR.
- 4. TRAFFIC CONTROLLER CABINETS, UNLESS OTHERWISE NOTED, SHALL BE NEMA TS2 TYPE 1 CABINET SIZE 6 ("P" TYPE) WITH NOMINAL DIMENSIONS OF 52"Hx44"Wx24"D.
- 5. ALL DELAY AND EXTENSION TIMES, AS CALLED FOR ON THE PLANS, FOR PROPOSED LOOP DETECTORS SHALL BE PROGRAMMED IN THE TRAFFIC SIGNAL CONTROLLER AND NOT THE DETECTOR RELAY.
- 6. A BARE GROUND WIRE SHALL BE PLACED IN ALL PVC CONDUITS AND SHALL BE BONDED TO GROUND RODS IN ACCORDANCE WITH SECTION T.03 OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- 7. THE FINAL POSITION OF SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, DETECTORS, AND STOP LINE AND CROSSWALK PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD ACCORDING TO ACTUAL INTERSECTION CHARACTERISTICS.
- 8. A 2' MINIMUM BUFFER SHALL BE PROVIDED BETWEEN THE CURB AND ALL LATERAL OBSTRUCTIONS (INCLUDING ALL SIGNAL POLES AND TRAFFIC/PEDESTRIAN SIGNAL HEADS) TO PROVIDE ADEQUATE CLEARANCE FOR TURNING VEHICLES.
- ALL FOUNDATIONS MUST HAVE CONES OR BARRELS BOLTED TO FOUNDATION BASES UNTIL ACTUAL POLE IS INSTALLED.
- 10. WHEN PLACING TRAFFIC SIGNAL HANDHOLES OR CONDUIT IN EXISTING PORTLAND CEMENT CONCRETE SIDEWALKS, THE ENTIRE SIDEWALK SQUARE OF CONCRETE SHALL BE REPLACED IN ACCORDANCE WITH R.I. STD. 43.1.0. NO PATCHES WILL BE ALLOWED.
- 11. ALL PEDESTRIAN PUSHBUTTONS SHALL BE COMPLIANT WITH "THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES" (ADAAG) AND SHALL INCLUDE A PRESSURE—ACTIVATED (NON—MOVING) BUTTON. SIGNS APPLICABLE TO PUSHBUTTON ACTUATION SHALL BE INSTALLED SUCH THAT THE CROSSING ASSIGNED TO EACH BUTTON IS CLEARLY INDICATED. IF SITE CONDITIONS DO NOT ALLOW PEDESTRIAN PUSHBUTTONS TO BE INSTALLED WHERE CALLED FOR ON THE PLANS, THE R.I.D.O.T. TRAFFIC ENGINEERING UNIT SHALL BE CONSULTED WITH THROUGH AN R.F.I. PRIOR TO INSTALLING THE PUSHBUTTONS. THE FINAL PLACEMENT OF ALL PEDESTRIAN PUSHBUTTONS SHALL BE IN ACCORDANCE WITH ADAAG AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- 12. ALL LOOP DETECTORS SHALL BE CENTERED WITHIN EACH LANE AS DELINEATED, UNLESS OTHERWISE DIMENSIONED ON PLANS.
- 13. ALL LOOP DETECTORS SHALL BE CUT INTO THE FINAL PAVEMENT SURFACE COURSE.
- 14. TRAFFIC SIGNAL CONTROLLERS SHALL BE WIRED SO THAT ANY FIRE PRE-EMPTION SHALL OVERRIDE MANUAL (PUSH BUTTON) OPERATION.
- 15. THE CONTRACTOR SHALL WORK CONTINUOUSLY TO RESTORE TRAFFIC SIGNAL OPERATION TO ITS INTENDED PURPOSE WHEN REPLACING THE TRAFFIC SIGNAL EQUIPMENT. A POLICE DETAIL IS REQUIRED TO DIRECT TRAFFIC AT THE INTERSECTION AT ALL TIMES WHEN THE TRAFFIC SIGNAL IS INOPERATIVE. AT NO TIME SHALL THE CONTRACTOR LEAVE THE SITE BEFORE RESTORING FULL TRAFFIC OPERATIONS.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
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		PERMIT SUBMIS	SSION	4	25

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

- 1.
 ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS, CHANNELIZING DEVICES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST FOITION
- THE CONTRACTOR SHALL COVER ALL EXISTING AND/OR TEMPORARY SIGNS
 THAT ARE NOT RELEVANT TO THE TRAFFIC CONTROL REQUIRED DURING ANY
 PARTICULAR STAGE OF THE CONTRACT.
- ADVANCE FLAGPERSON SIGNS (W20-7A) SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A FLAGPERSON OR A POLICE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLATE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.
- POLICE OFFICERS (AND <u>NOT</u> FLAGPERSONS) SHALL BE UTILIZED WHEN WORK WILL IMPACT SIGNALIZED INTERSECTIONS AND LIMITED ACCESS HIGHWAYS.
- POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET—UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET—UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.
- ARROW PANELS SHALL BE SET IN THE FLASHING FOUR CORNERS CAUTION MODE UNLESS UTILIZED FOR A MERGING TAPER. ARROW PANELS SET IN THE FLASHING ARROW MODE SHALL NOT BE UTILIZED FOR LANE SHIFTS.
- TEMPORARY CONSTRUCTION SIGNS AND OTHER WORKZONE TRAFFIC CONTROL DEVICES THAT ARE DAMAGED OR REQUIRE RELOCATION SHALL BE REPLACED AND / OR RELOCATED UNDER THE PAY ITEM FOR "MAINTENANCE AND MOVEMENT TRAFFIC PROTECTION."
- THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. THEY MAY BE PARKED WITHIN THE STATE RIGHT-OF-WAY ONLY IN AREAS 30' BEYOND THE OUTSIDE EDGE OF THE TRAVEL LANES AND/OR IN AREAS APPROVED BY THE ENGINEER.
- TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.
- THE INTENDED VEHICLE PATHS THROUGH EACH WORK ZONE SHALL BE CLEARLY MARKED AT ALL TIMES. WATERBORNE PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE THE END OF THE WORK SHIFT ON ALL COLD—PLANED AND NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT.

REVISIONS
NO. DATE BY
DEPARTMENT OF TRANSPORTATION
BLACKSTONE RIVER BIKEWAY
SEGMENT 1A

PROVIDENCE, RHODE ISLAND

VANASSE HANGEN BRUSTLIN, INC.
TRANSPORTATION LAND DEVELOPMENT

RHODE ISLAND

STANDARD NOTES - 2

CHECKED BY

ENVIRONMENTAL SERVICES

RHODE ISLAN

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ED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI			5	30
		PERMIT SUBMIS	SION	5	25

JOB SPECIFIC GENERAL LEGEND

(4BYL)	4" EPOXY RESIN PAVEMENT MARKINGS -
	BROKEN YELLOW LINE

4 W	4"	EPOXY	RESIN	PAVEMENT	MARKINGS	_	WHITE

- 6DWL DASHED WHITE LINE-LANE DROP
- 24CW CROSS WALK
- 7.1.9 PRECAST CONCRETE RAMP STONE, R.I. STD.
- MODIFIED CONCRETE RETAINING WALL
- 43.1.0M STAMPED AND COLORED CONCRETE
- BLM BIKE LANE MARKING
- BLS BIKE LANE DOTTED LINE MARKING
- BOL STEEL BOLLARD
- (SEE DETAIL PLAN NO. 2)
- BR SPLIT RAIL BICYCLE RAILING (SEE DETAIL PLAN NO. 1)
- BWP BIKEWAY PAVEMENT

 2" CLASS 4.75 HOT MIX ASPHALT

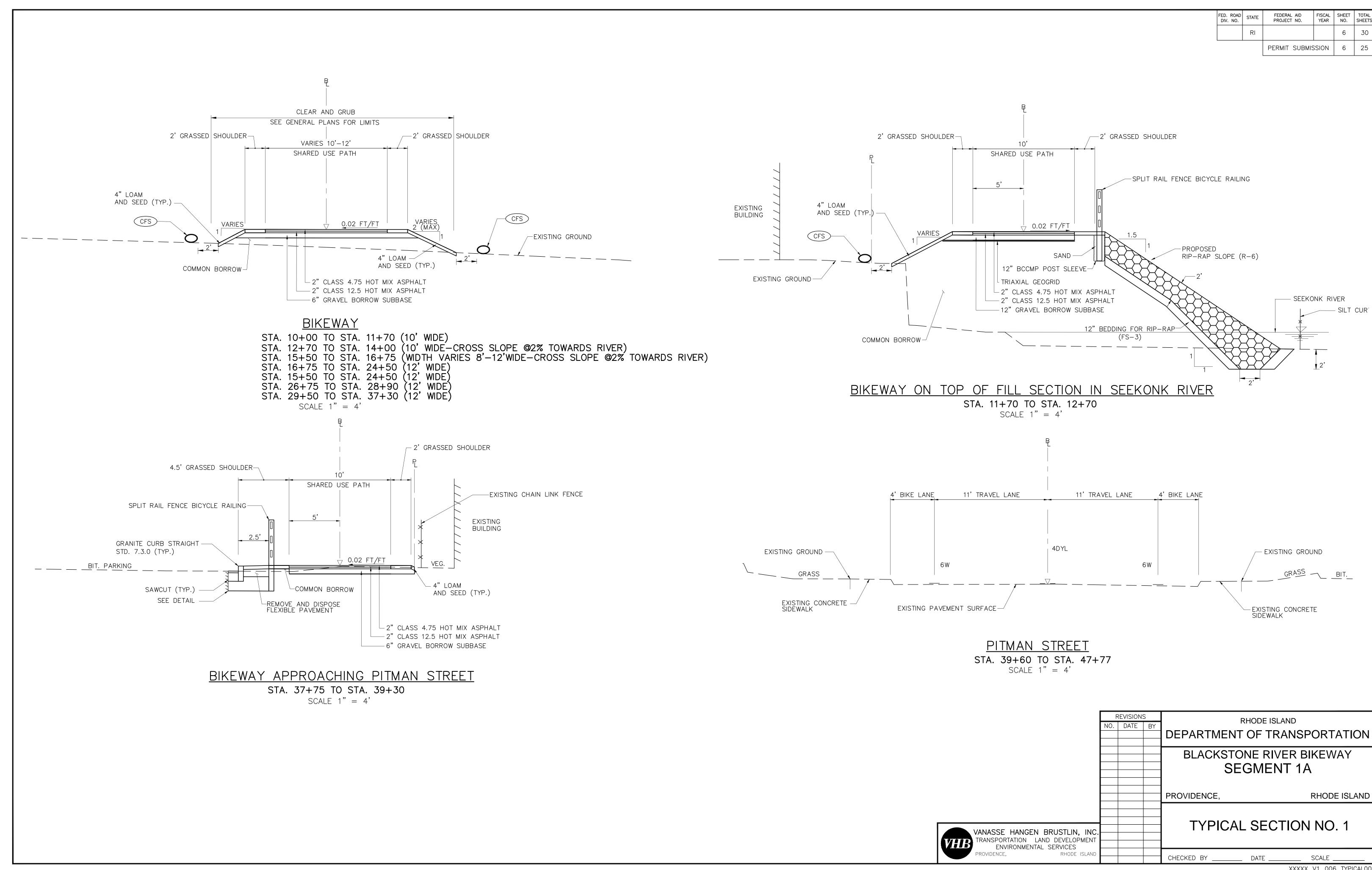
 2" CLASS 12.5 HOT MIX ASPHALT

6" GRAVEL BORROW SUBBASE COURSE

- CFS COMPOST FILTER SOCK
- CSP CLEAN AND SWEEP PAVEMENT
- DRT REMOVE AND DISPOSE RAILROAD TRACKS
- DT REMOVE AND DISPOSE TREE
- DW REMOVE AND DISPOSE WALL
- DYL DOUBLE YELLOW LINE
- ERS MECHANICALLY STABILIZED EARTH SLOPE (SEE DETAIL PLAN NO. 1)
 - (322 321/112 1 2/11/110)
 - GRANITE BENCH
 (SEE DETAIL PLAN NO. 1)
- OV 2" MODIFIED CLASS 9.5 HOT MIX ASPHALT OVERLAY
- REMOVE AND RESET FENCE
- SC SELECTIVE CLEARING
- YL YIELD LINE MARKINGS

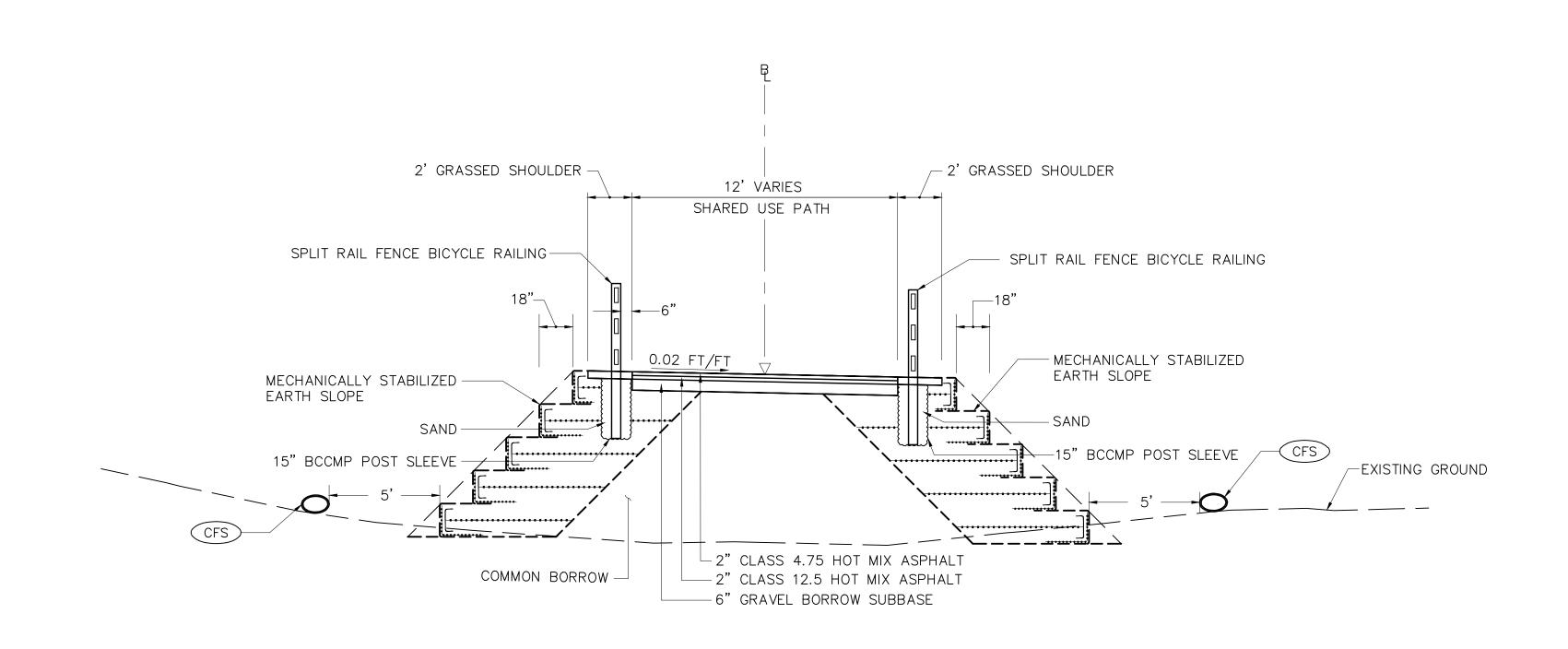
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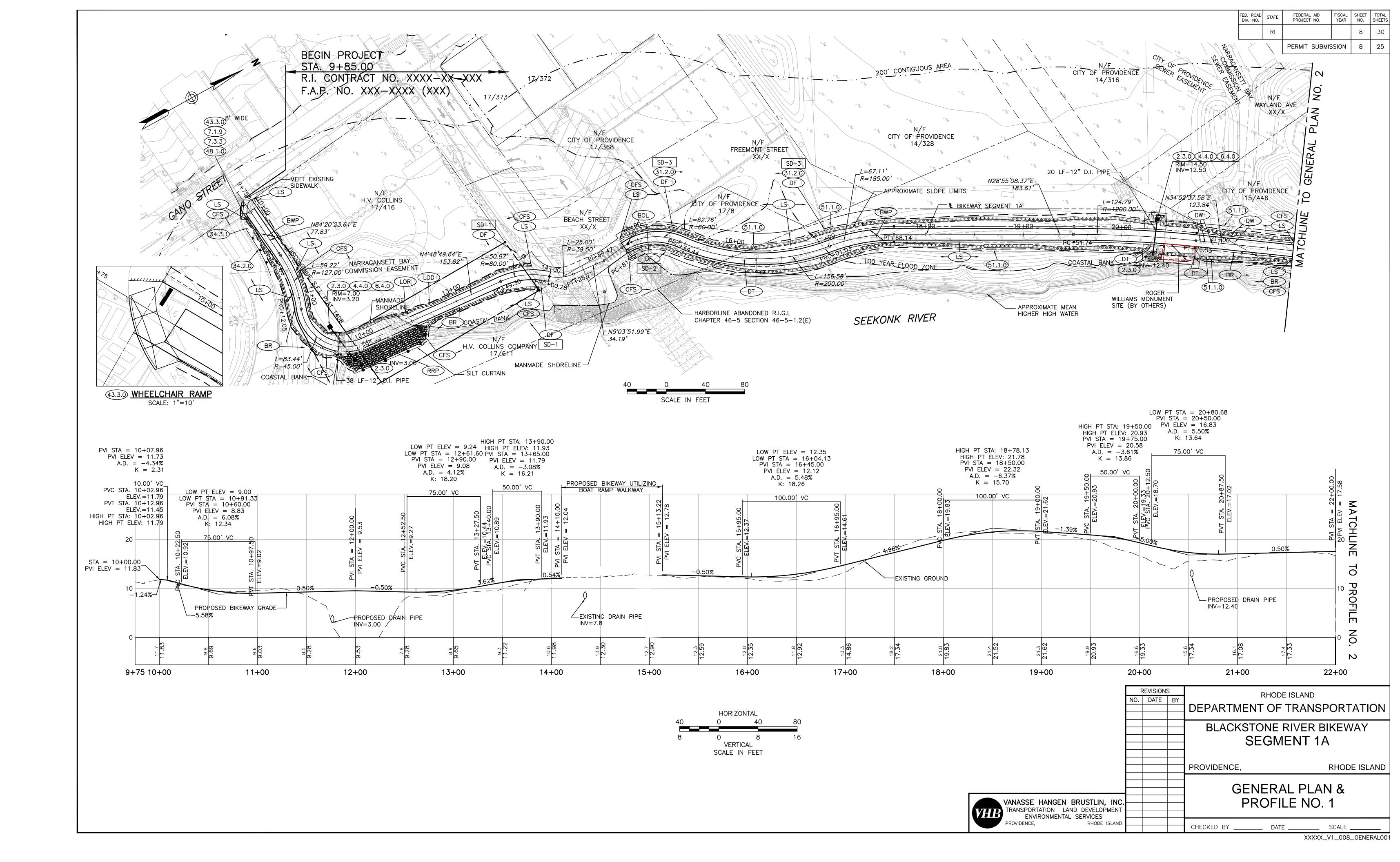
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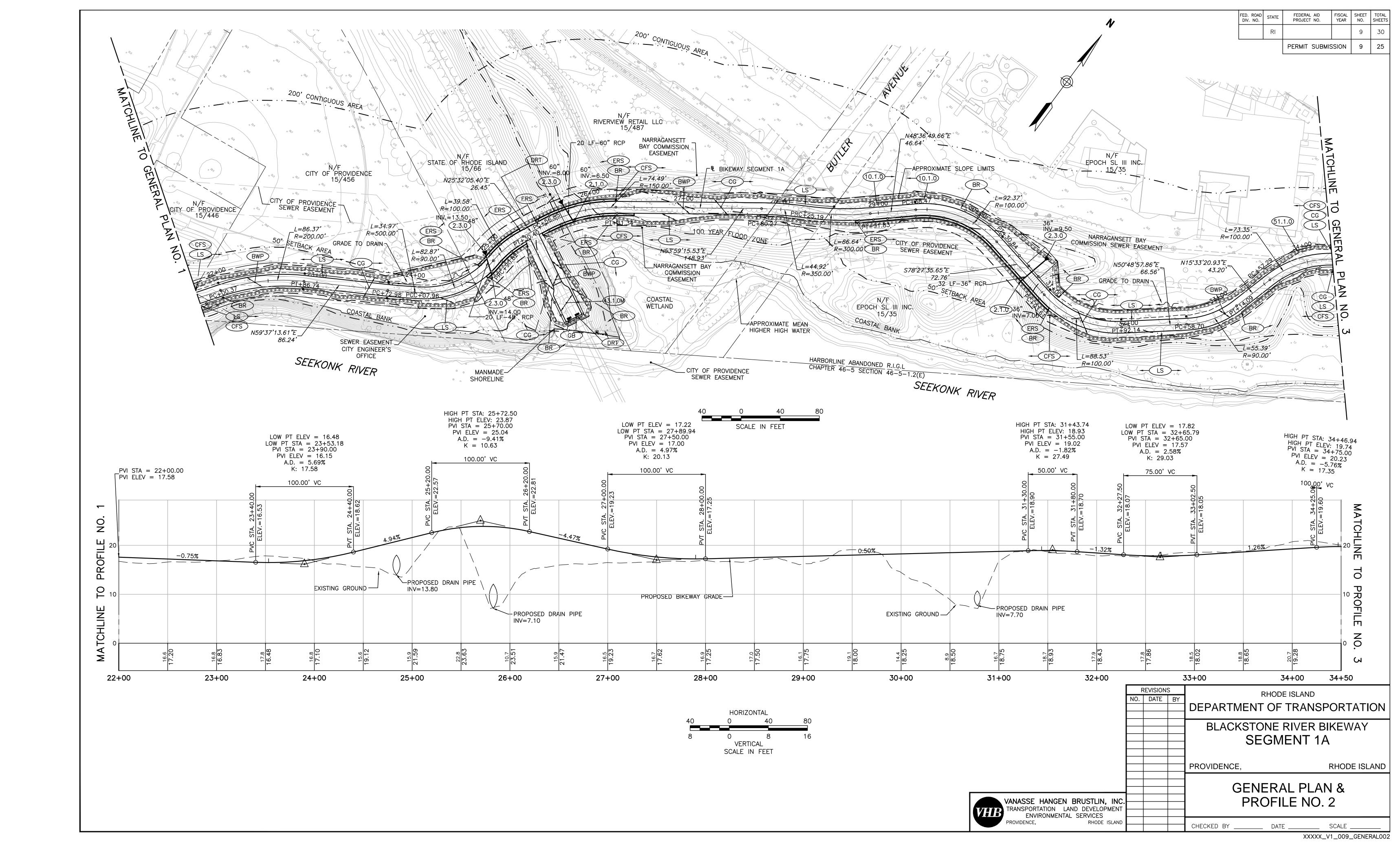


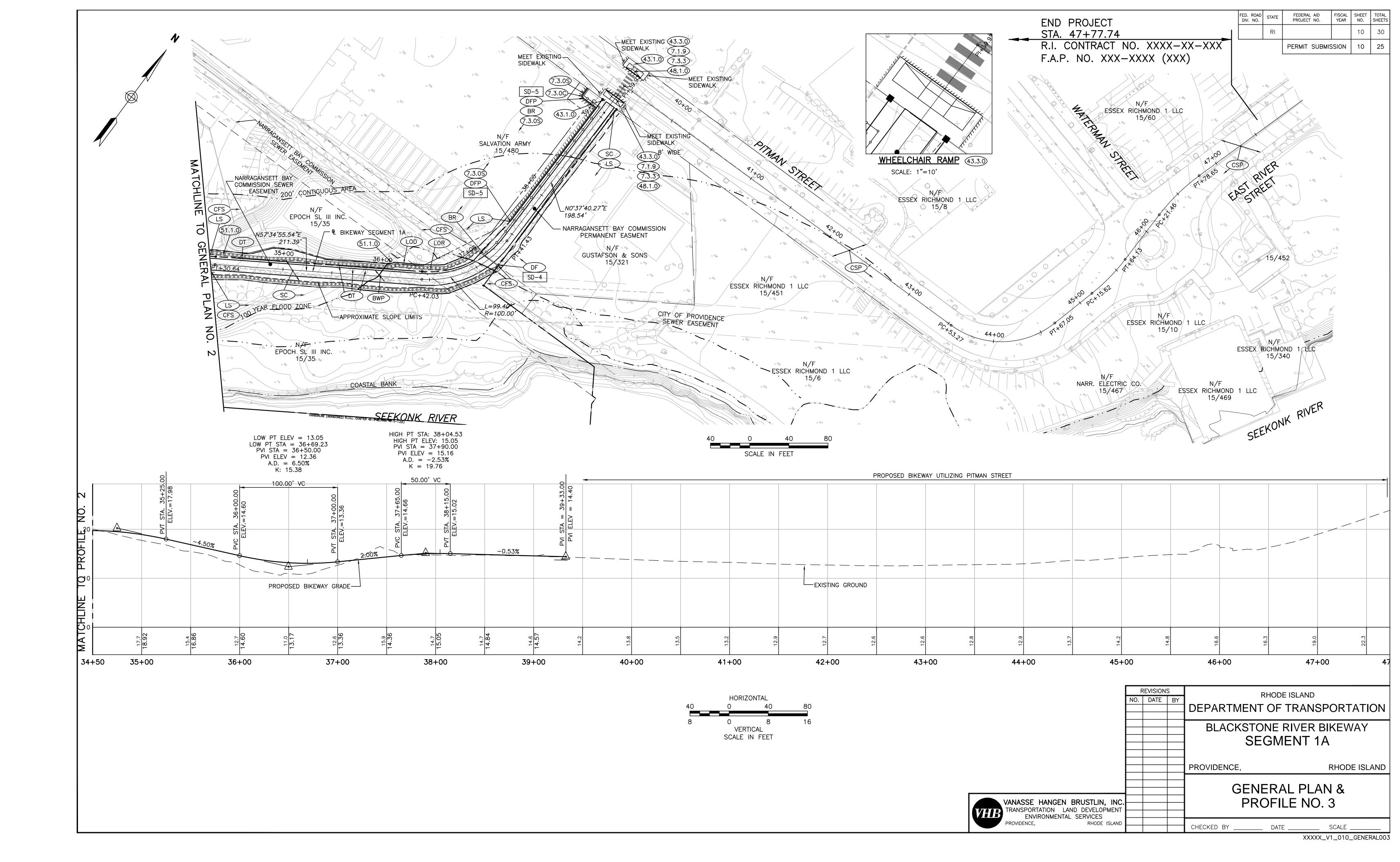
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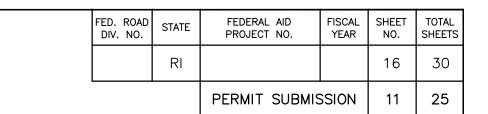
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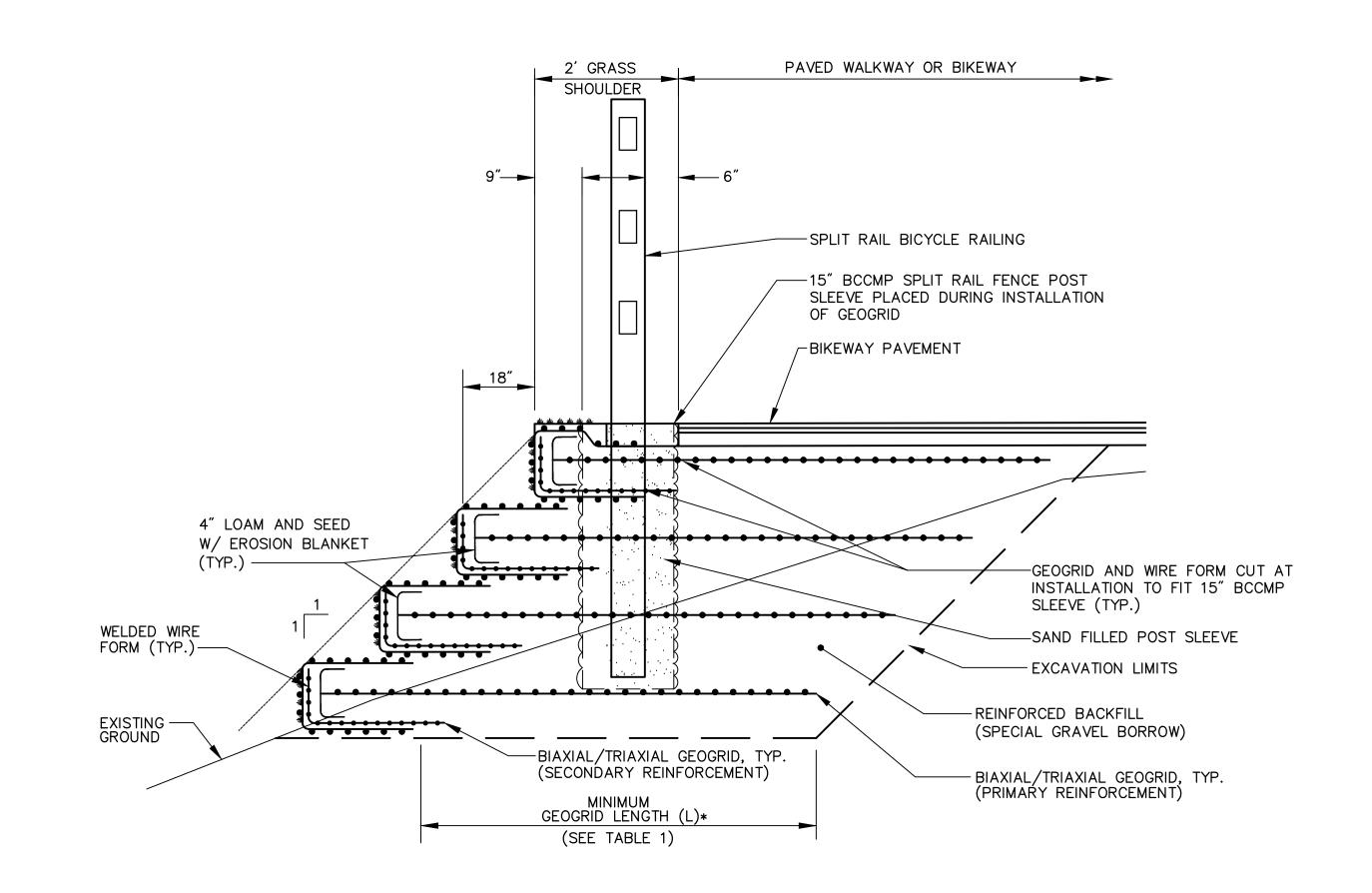
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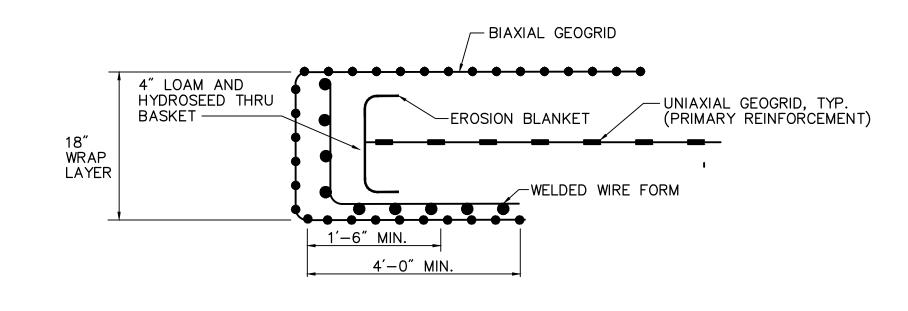






MECHANICALLY STABILIZED EARTH SLOPE (ERS)

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TYPICAL DETAIL AT SLOPE FACE

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DESIGN TABLE I

SLOPE DESIGN TABLE

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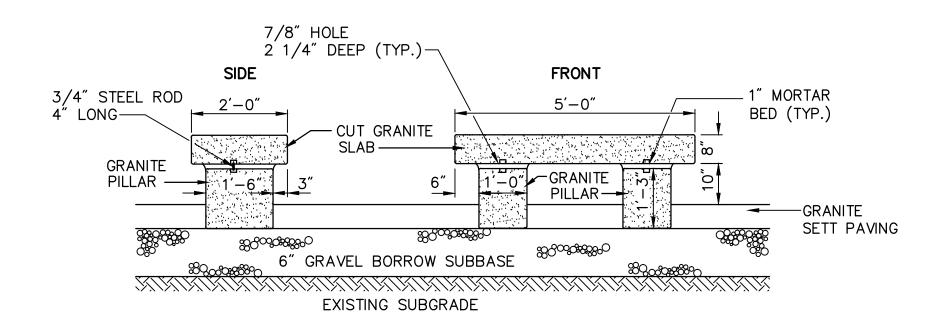
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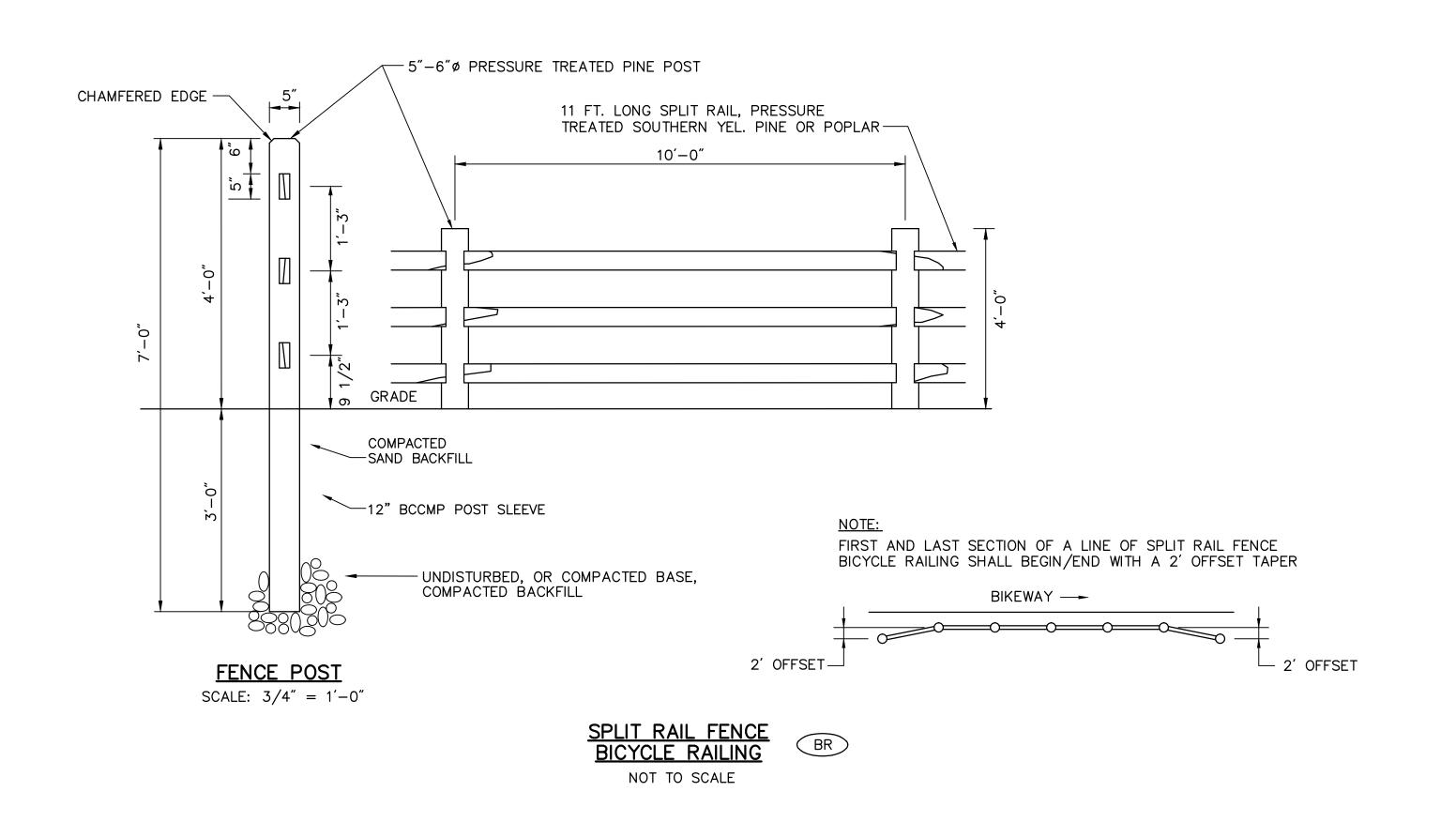
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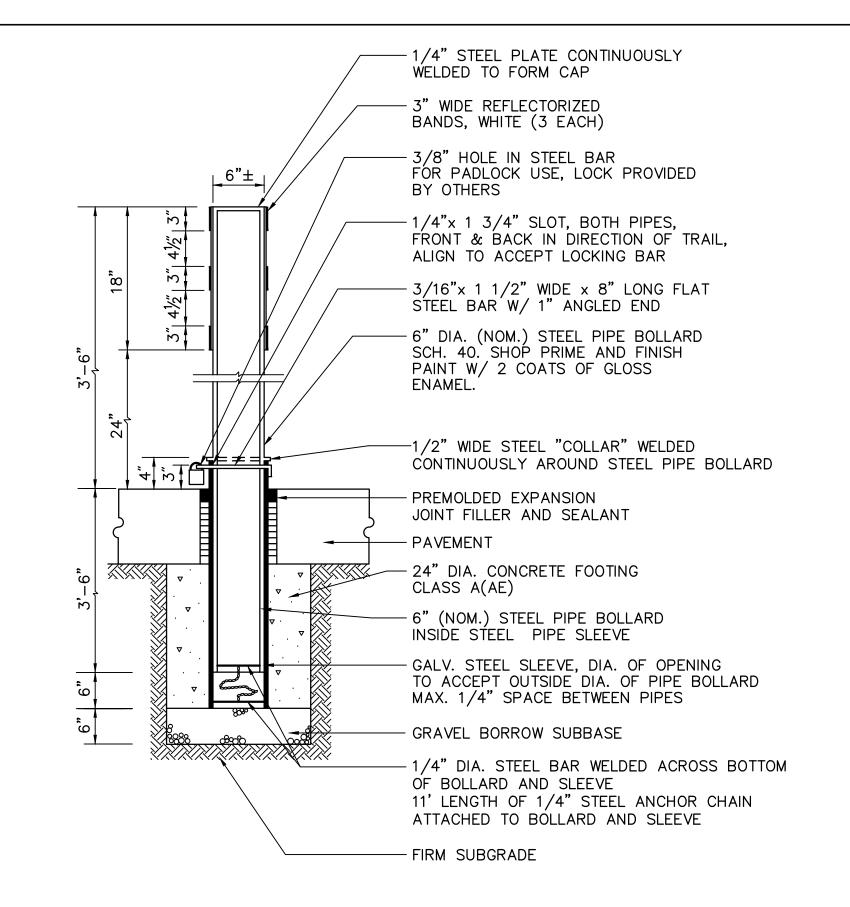
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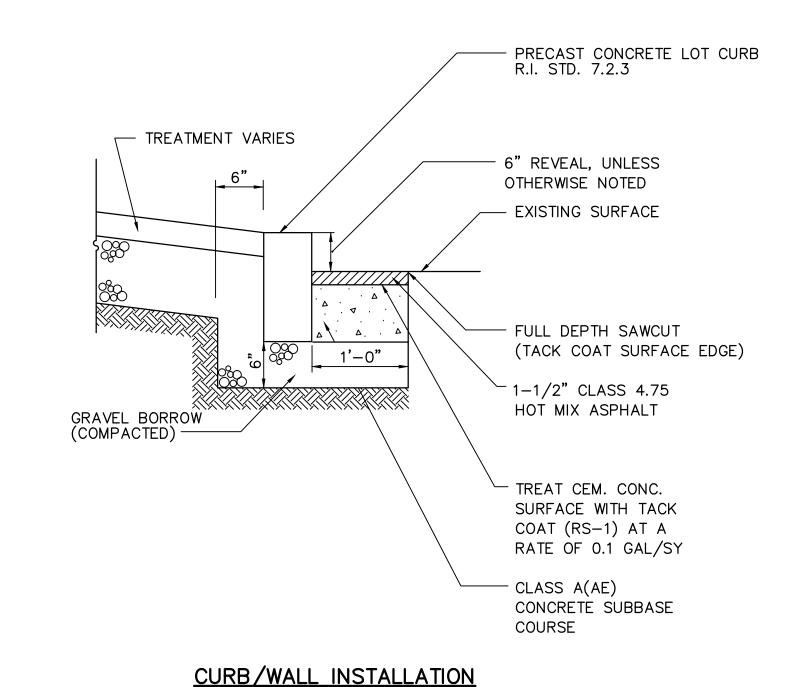
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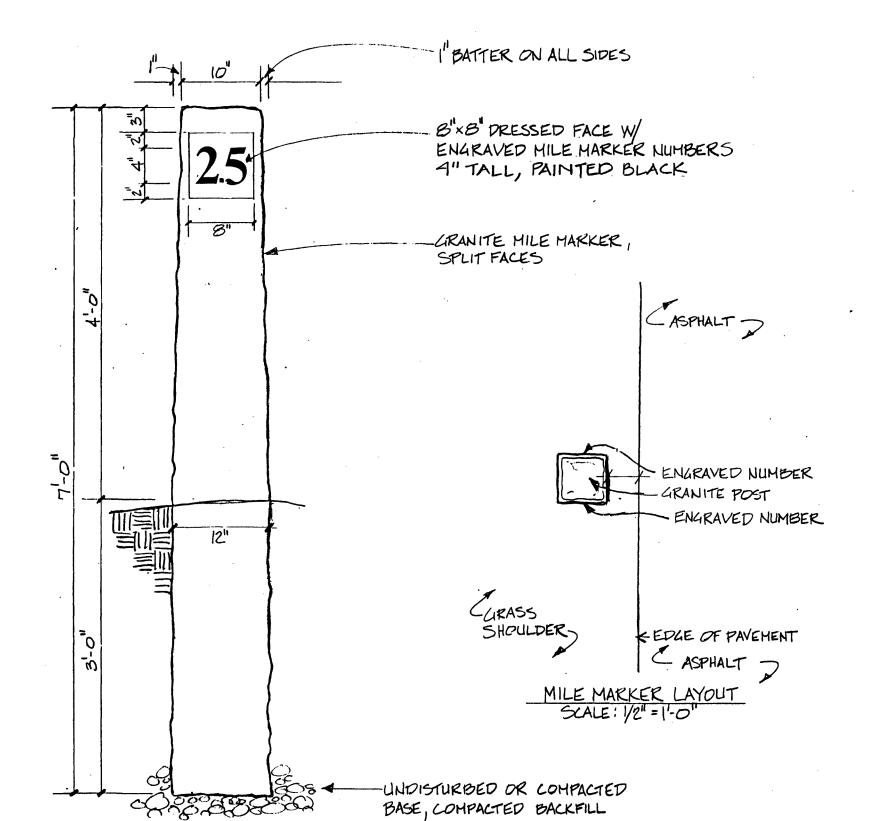
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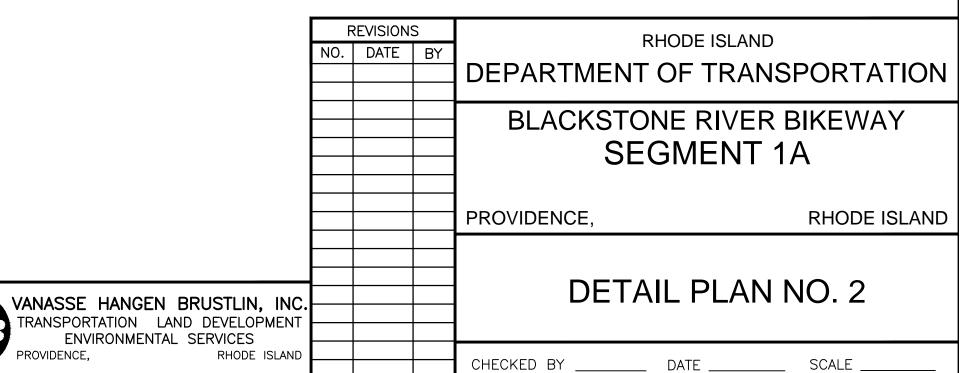
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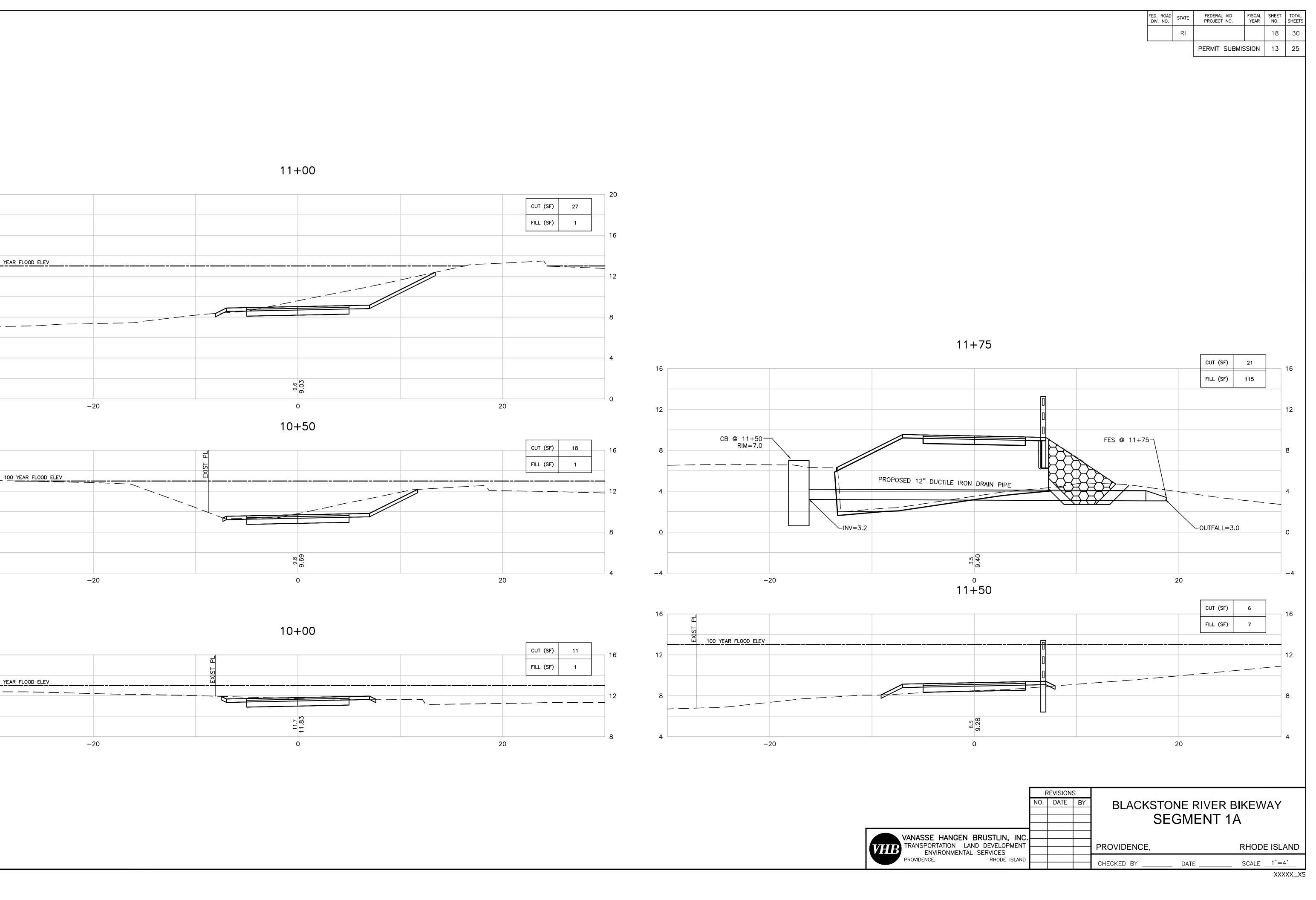




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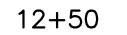


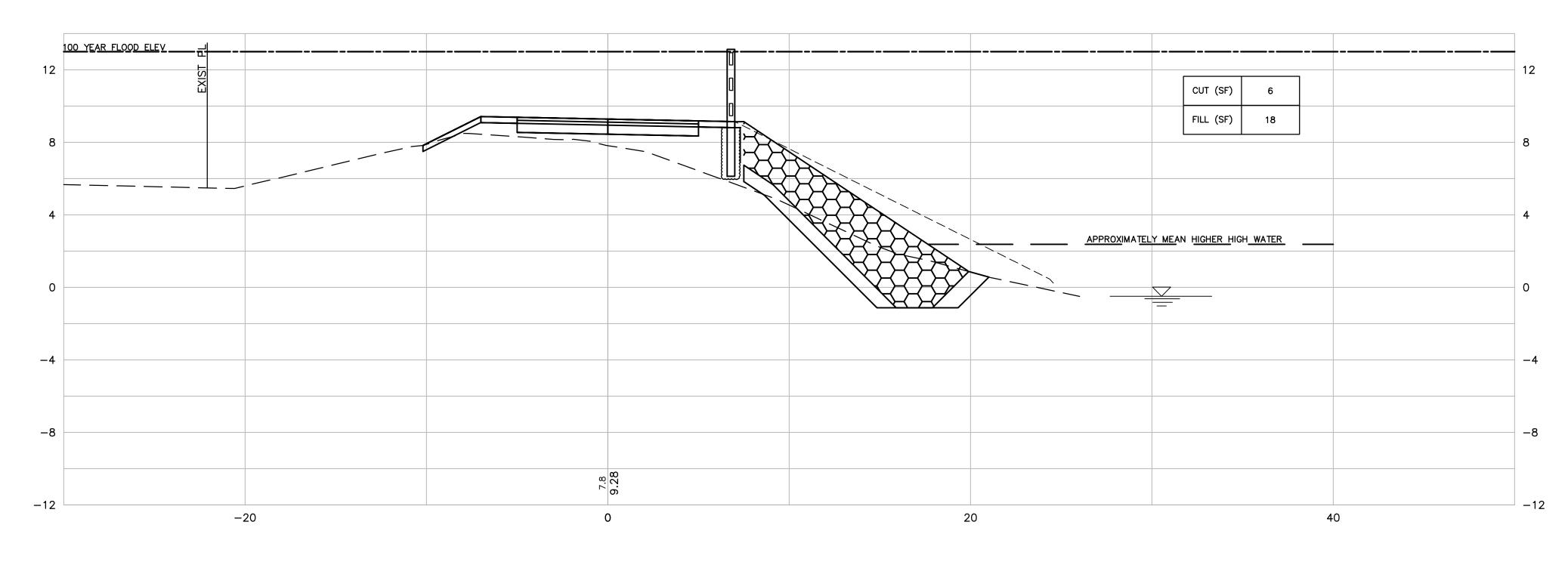
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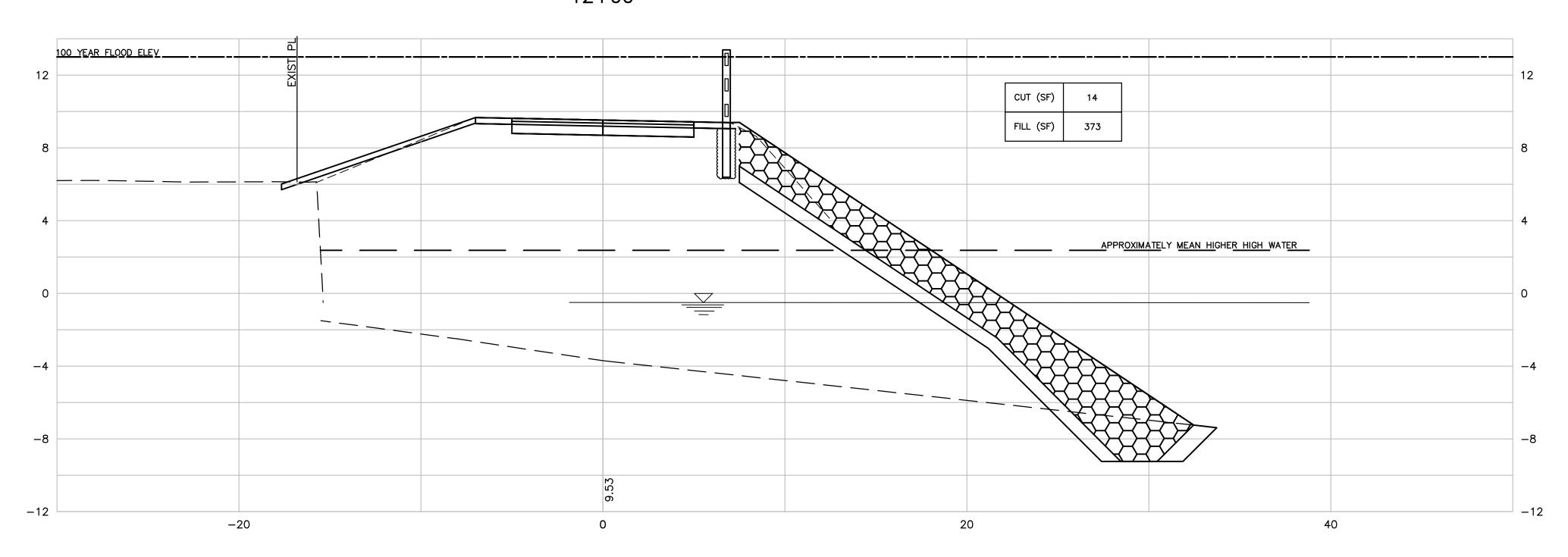
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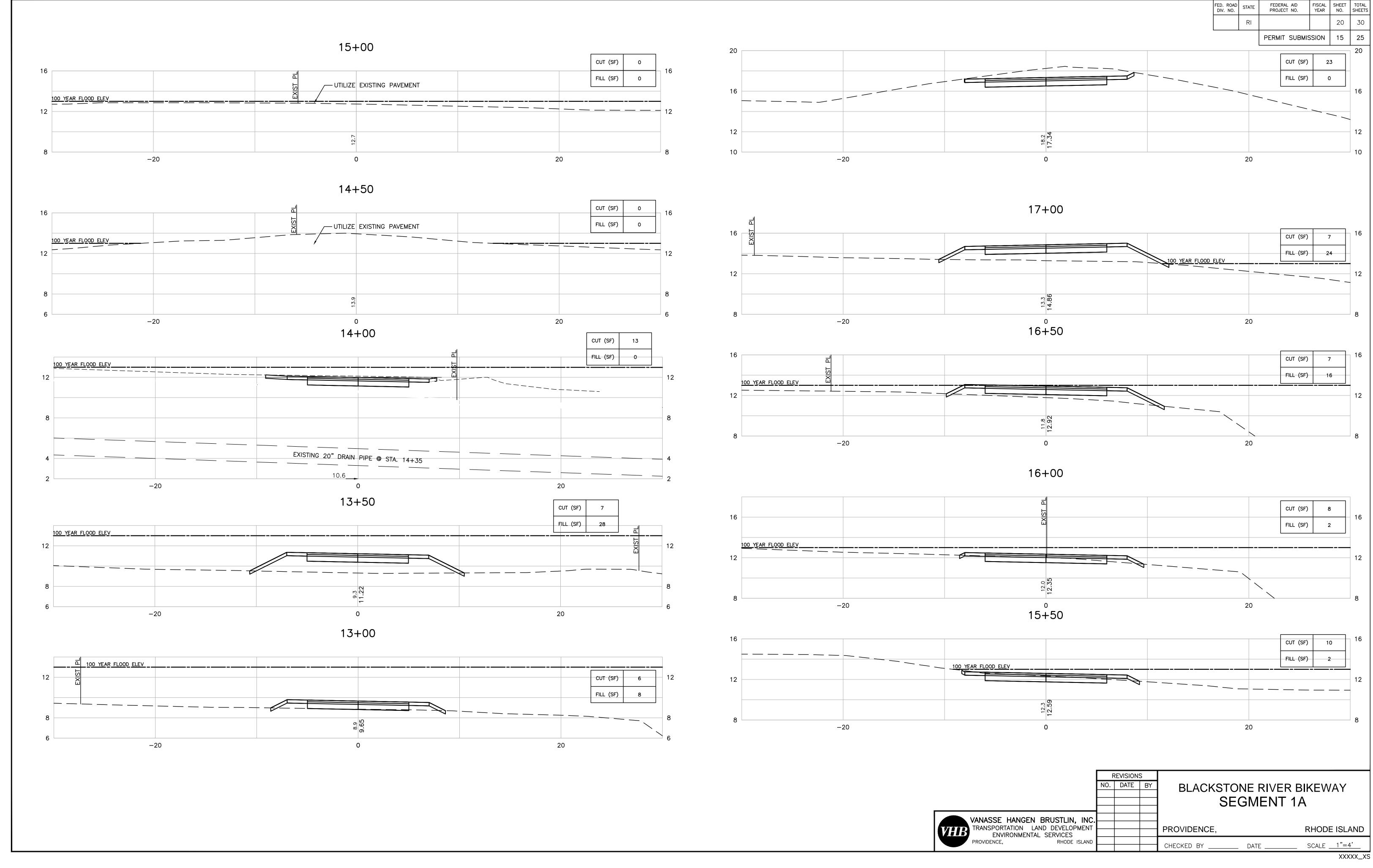


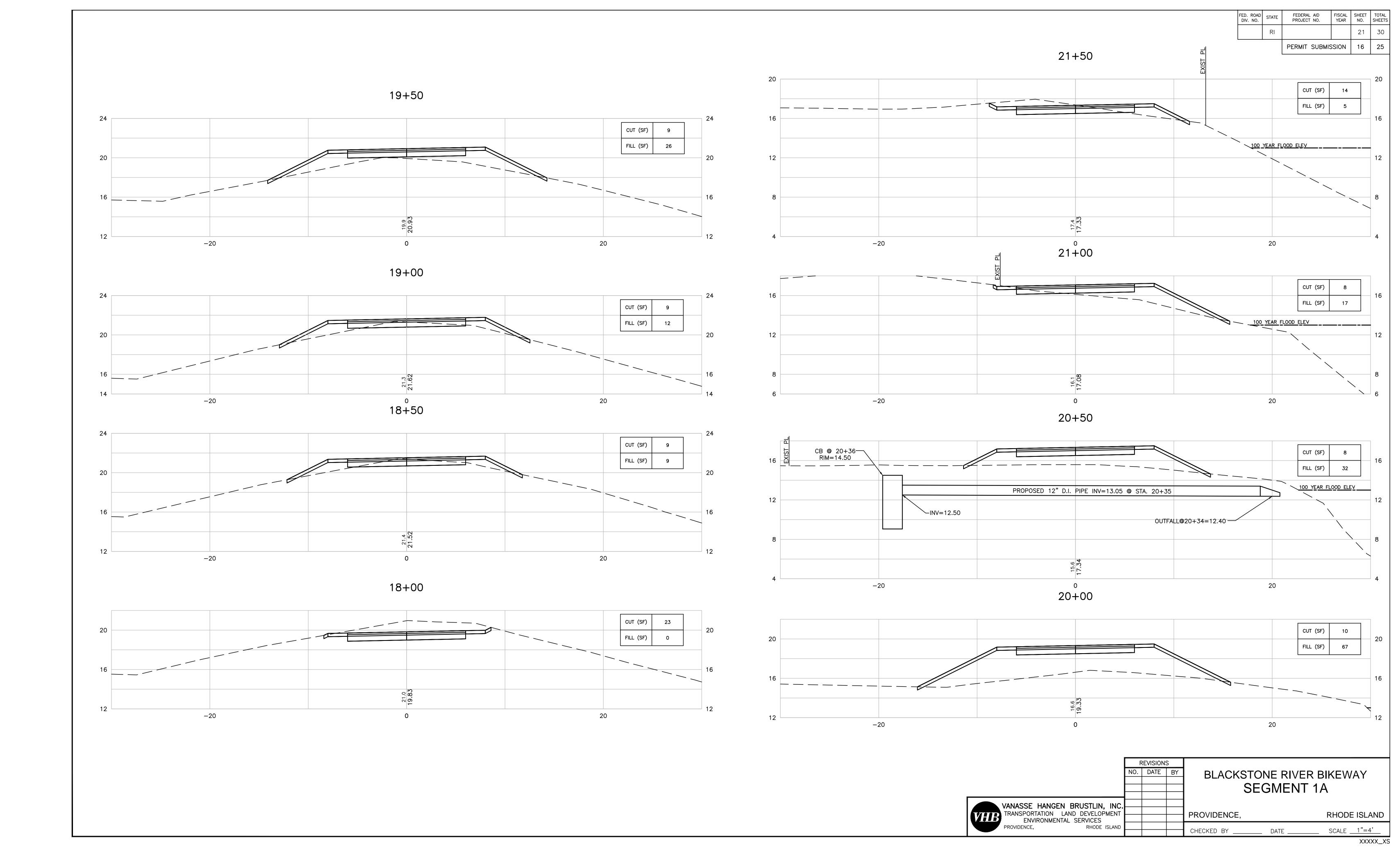


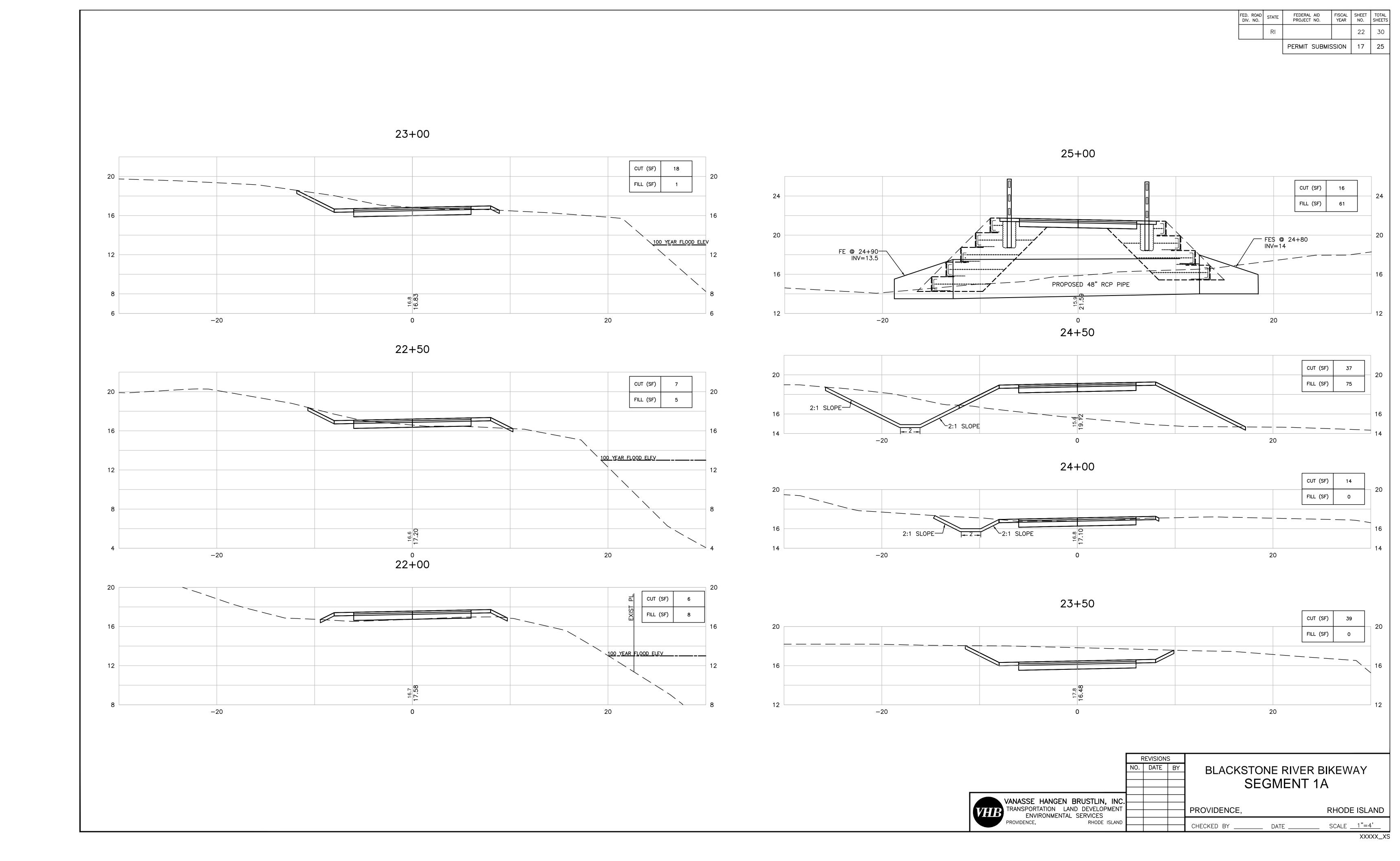
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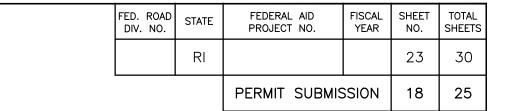


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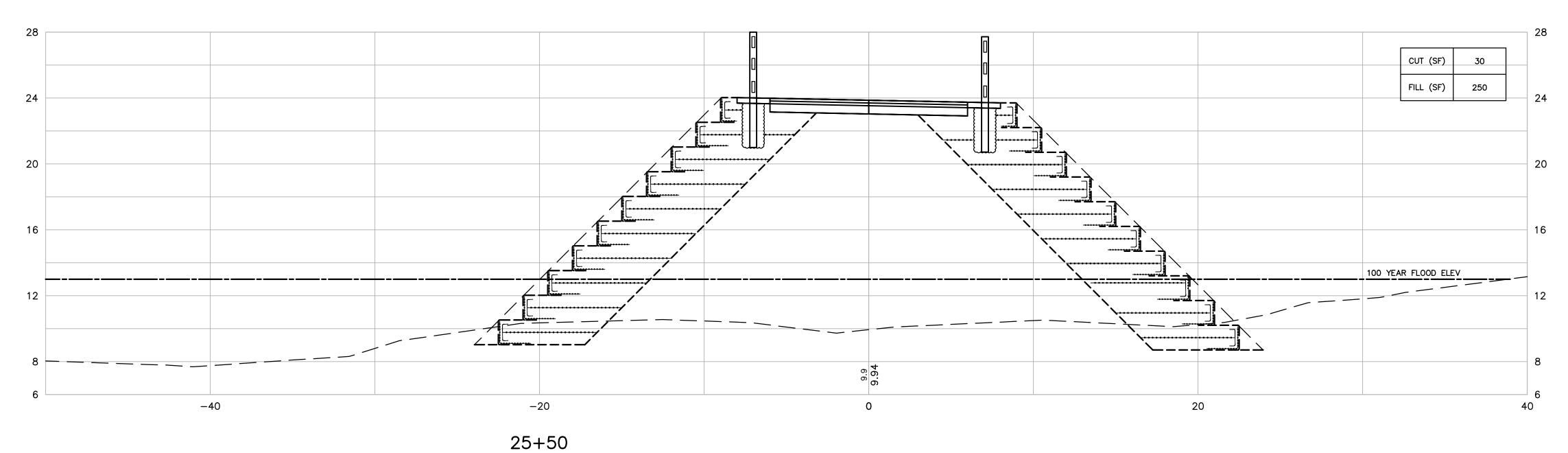


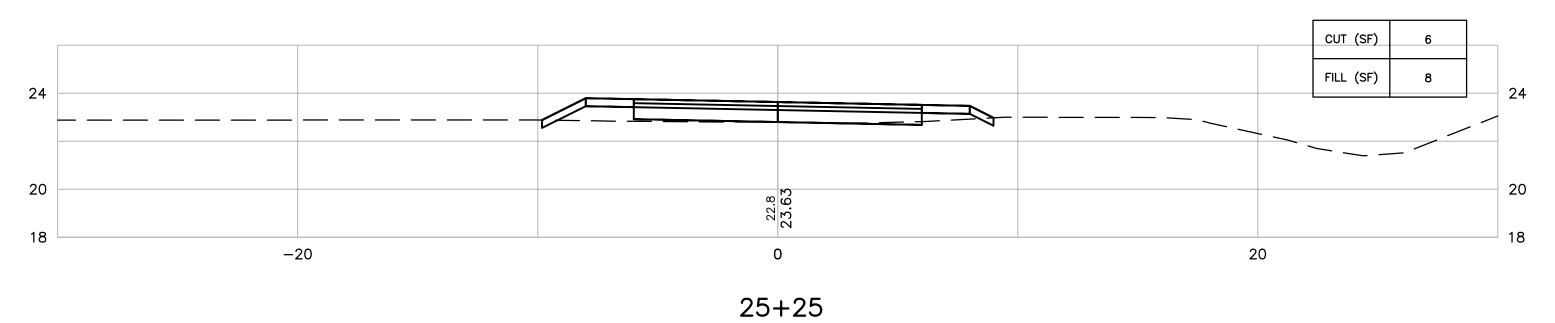


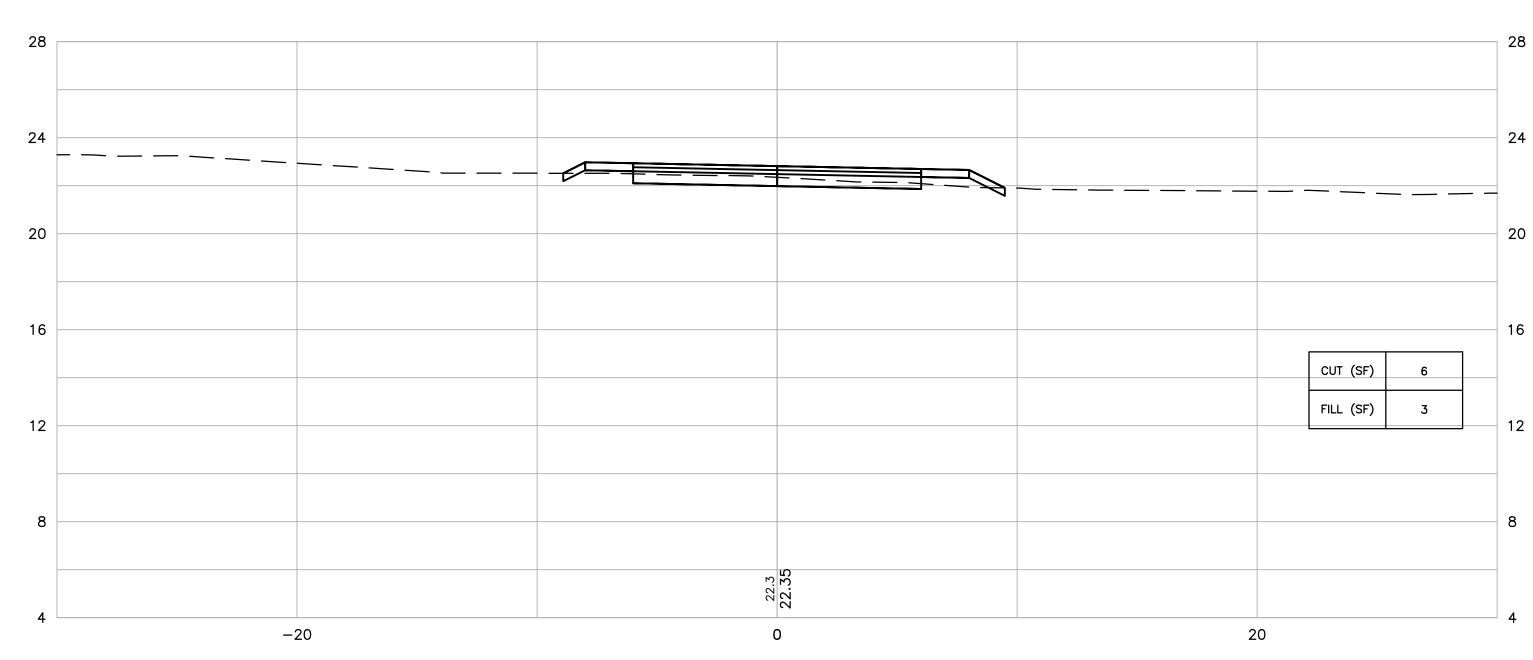




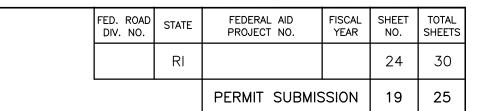
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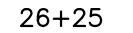


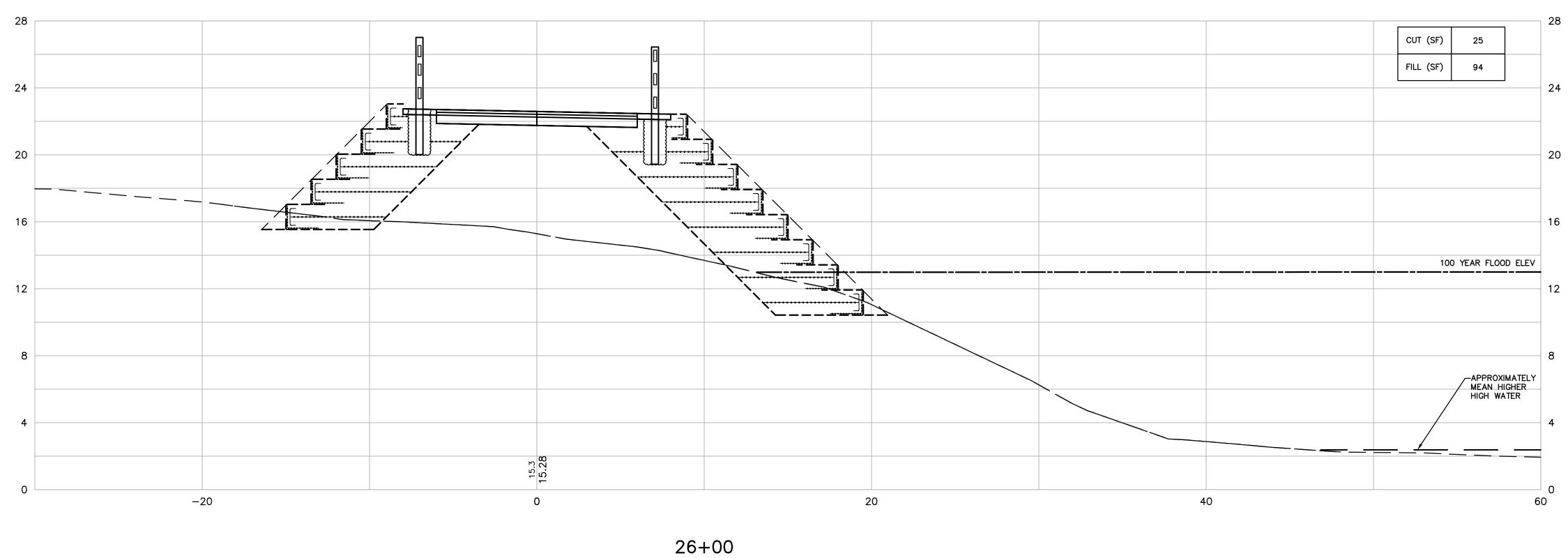


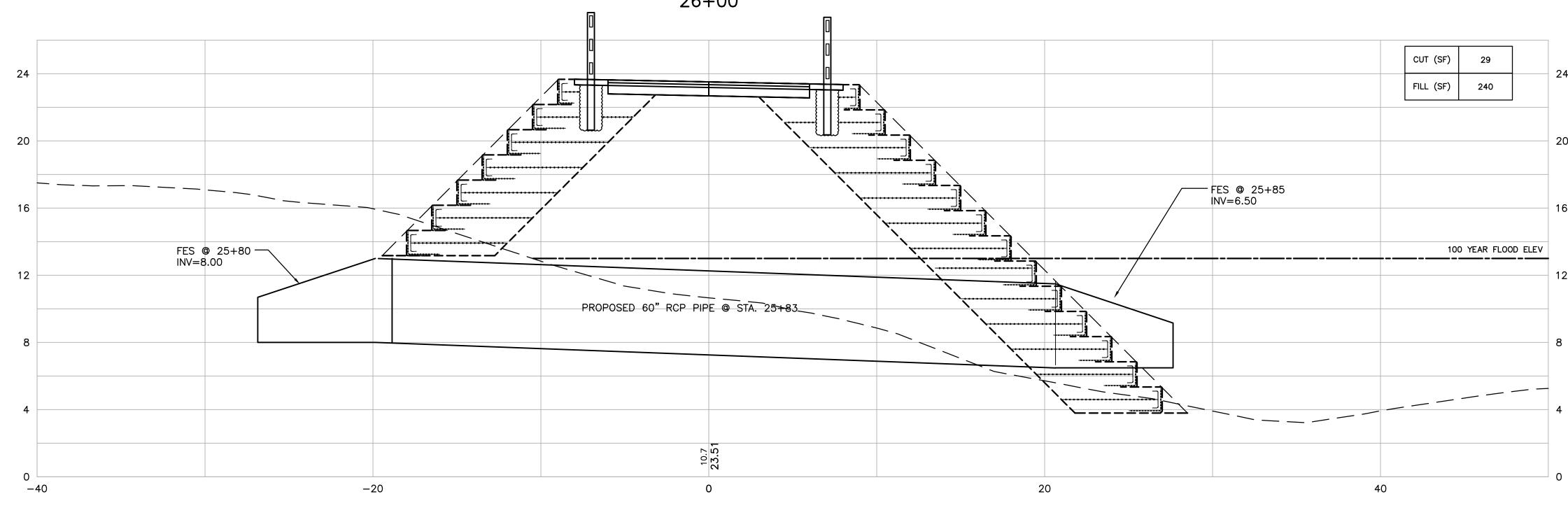


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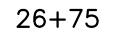


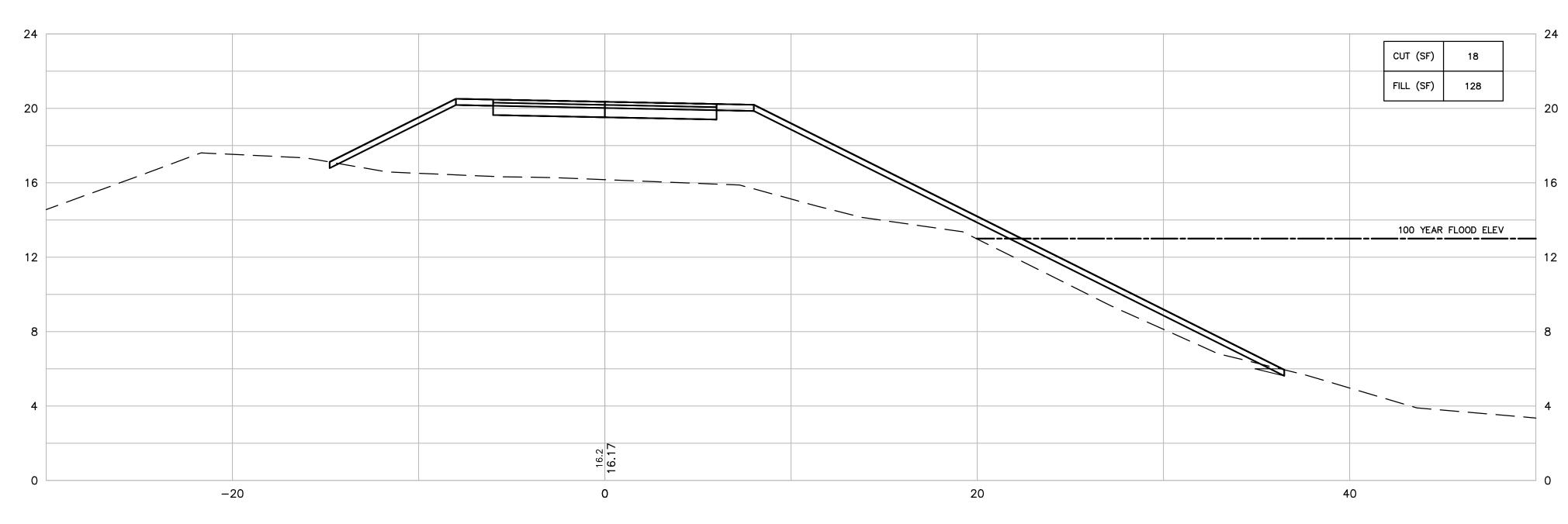
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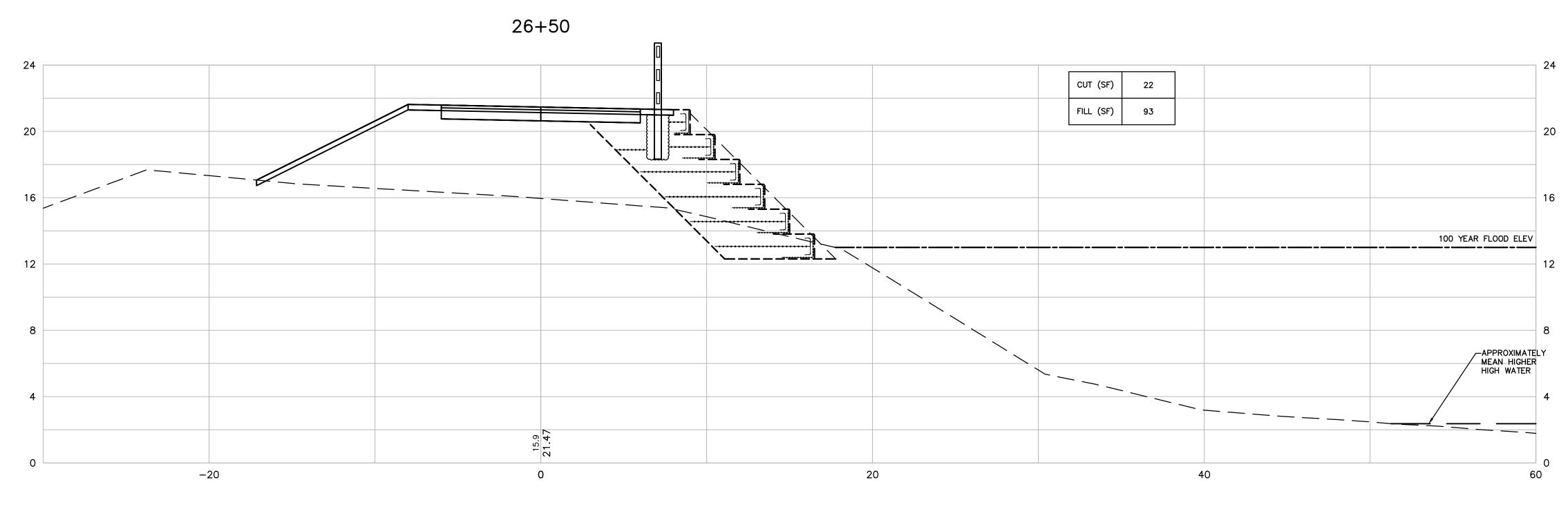
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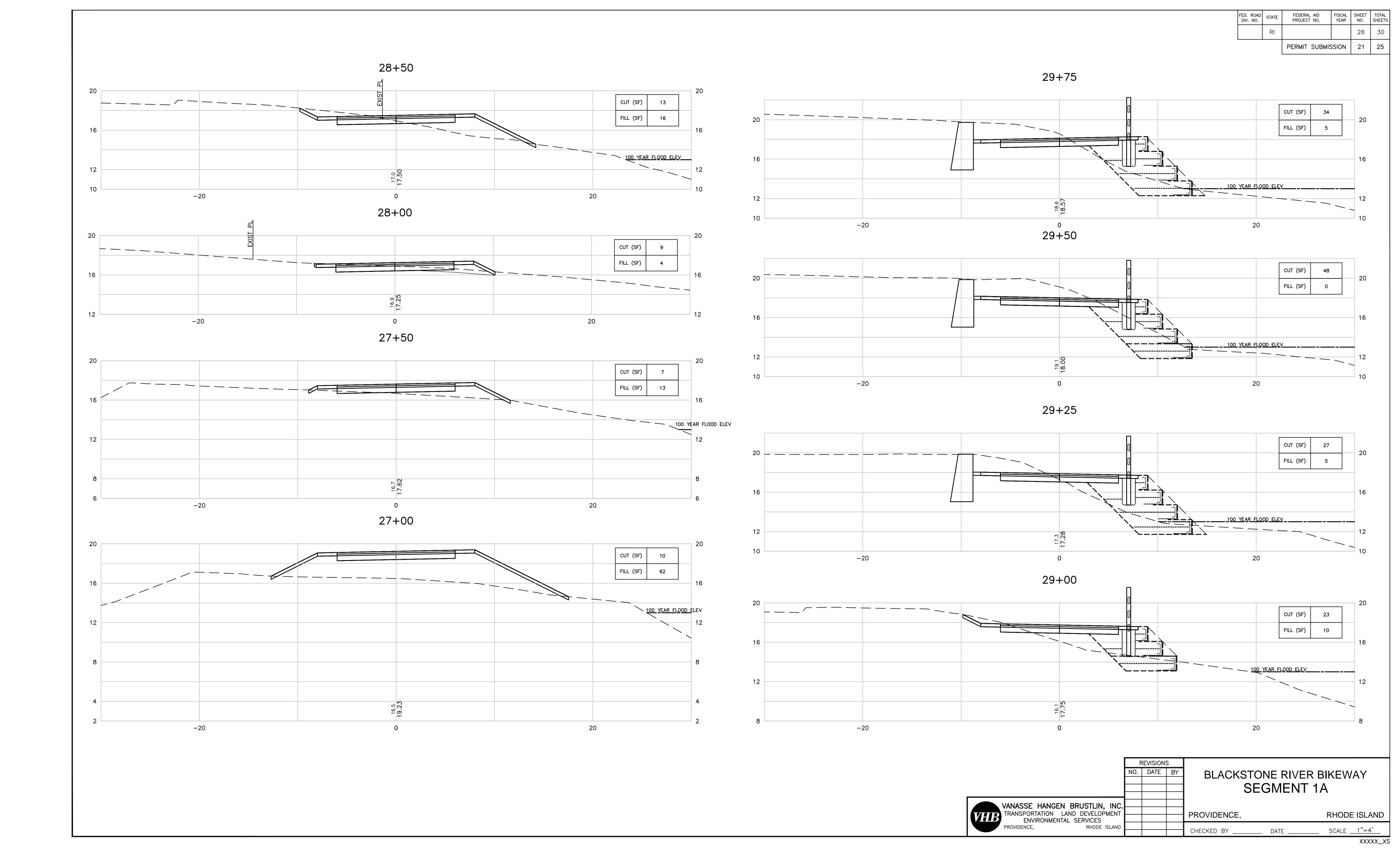
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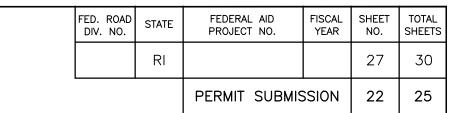


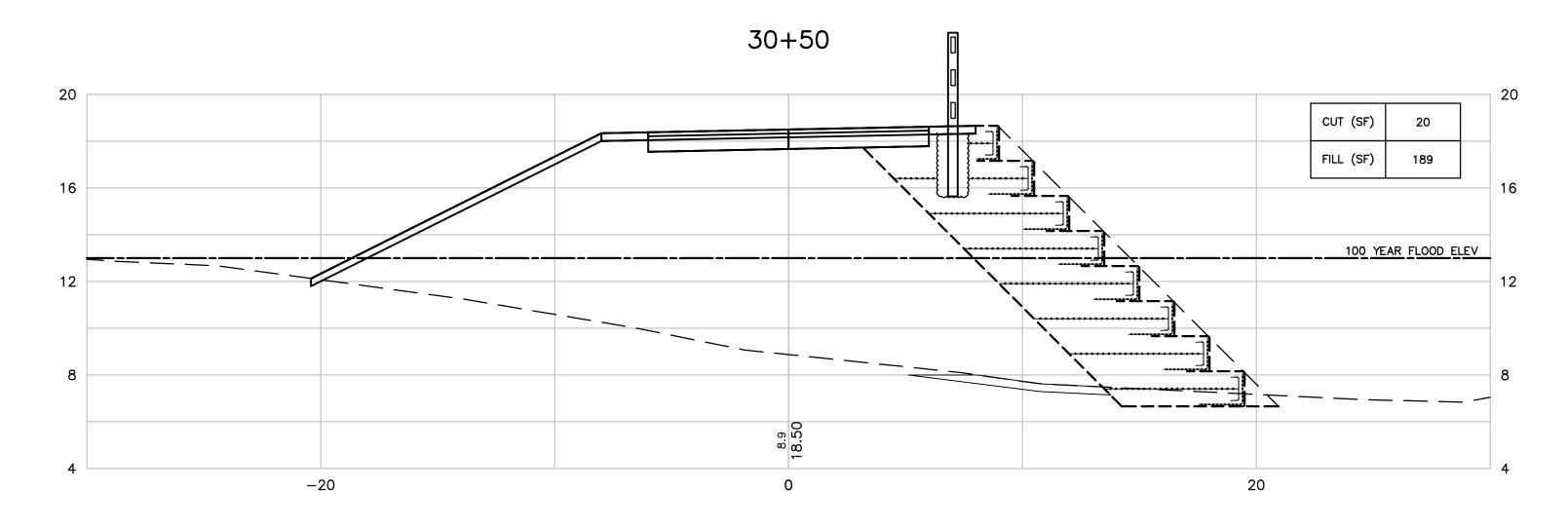


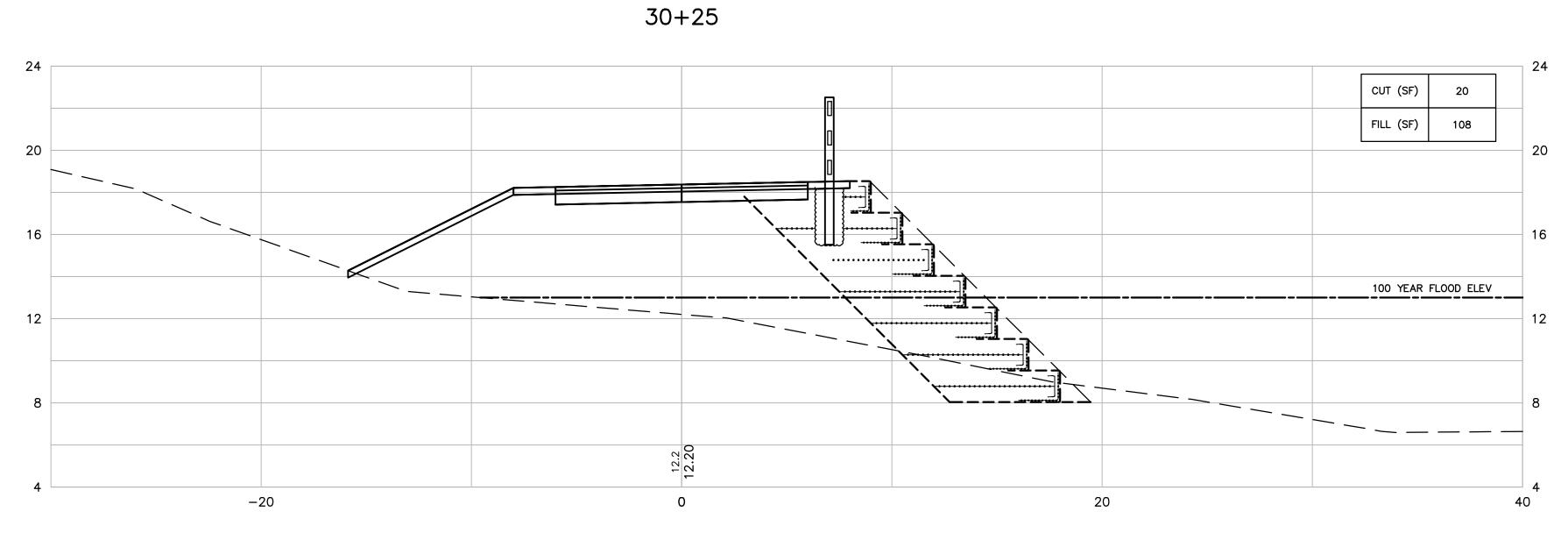


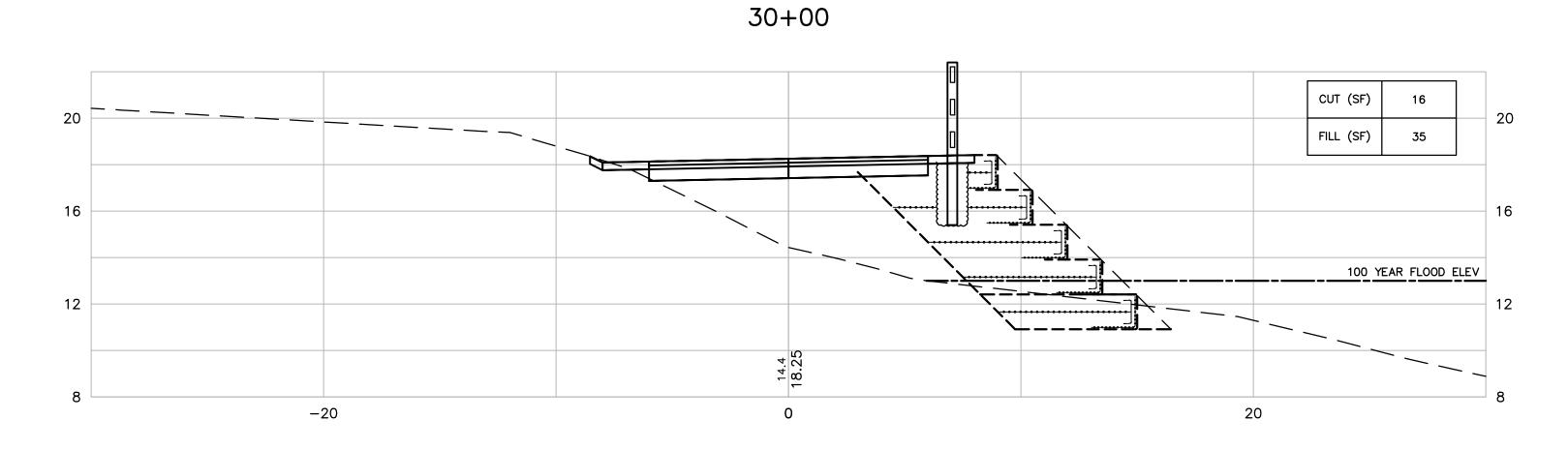
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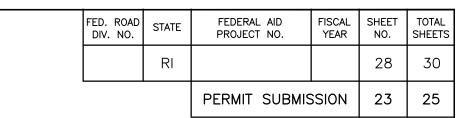


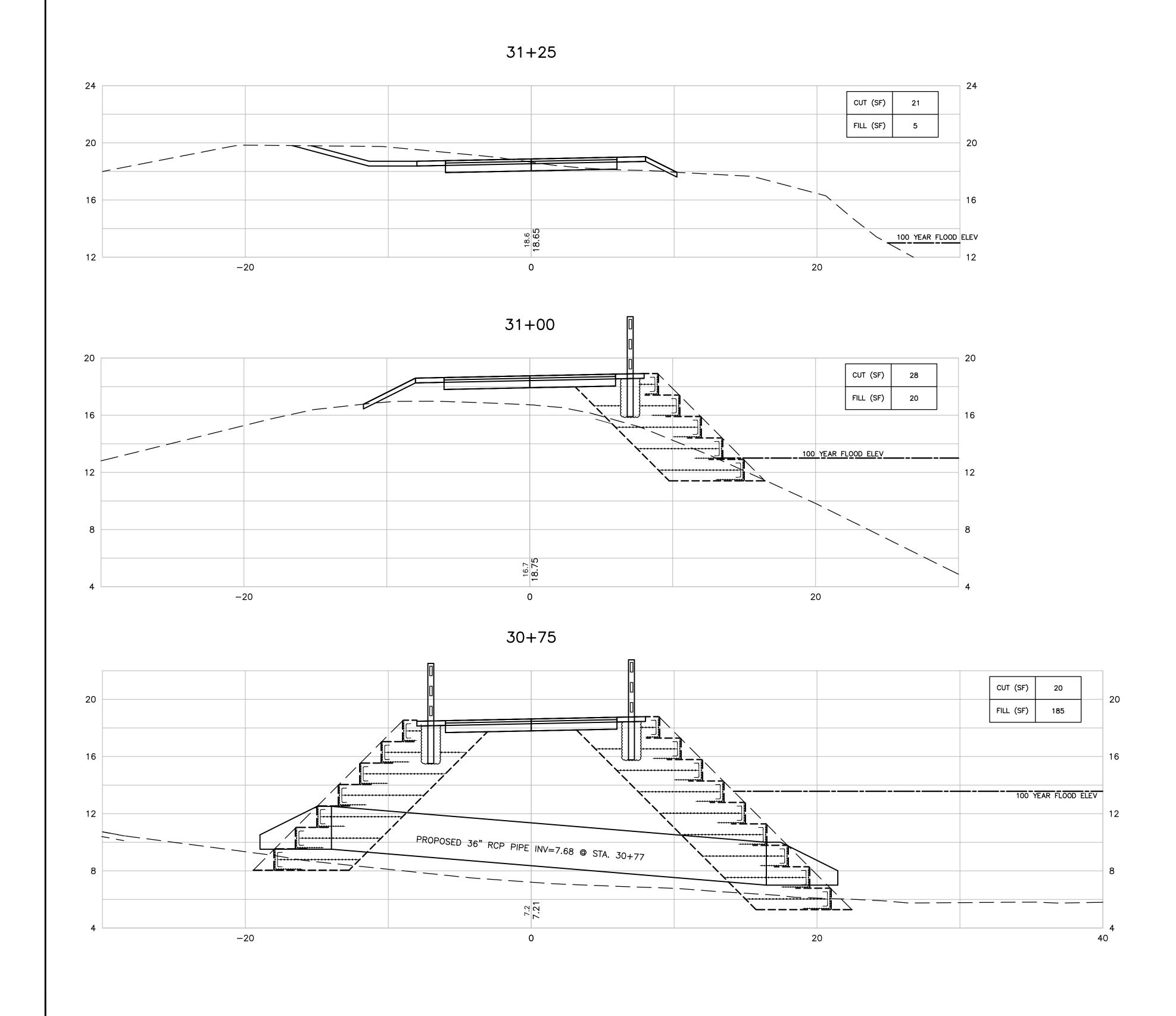


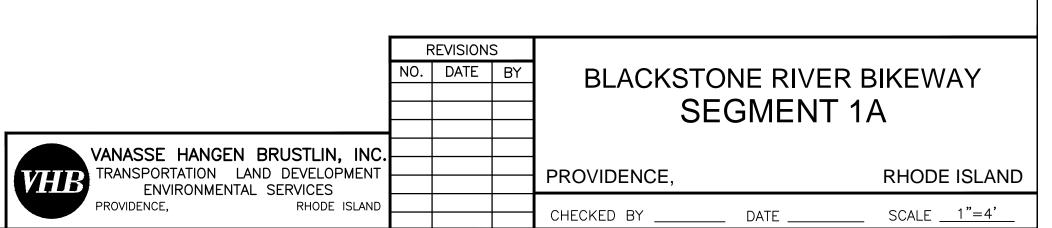


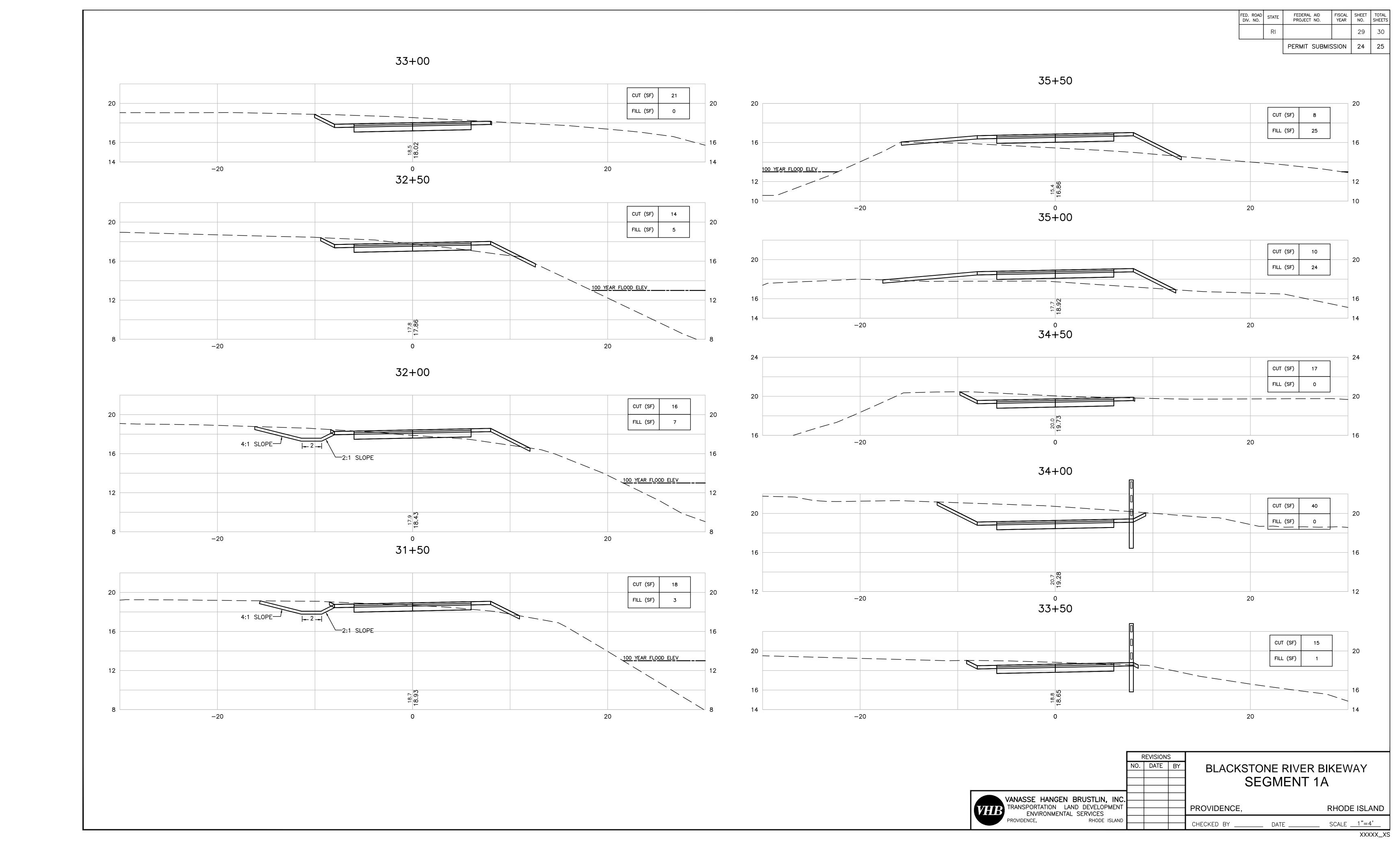


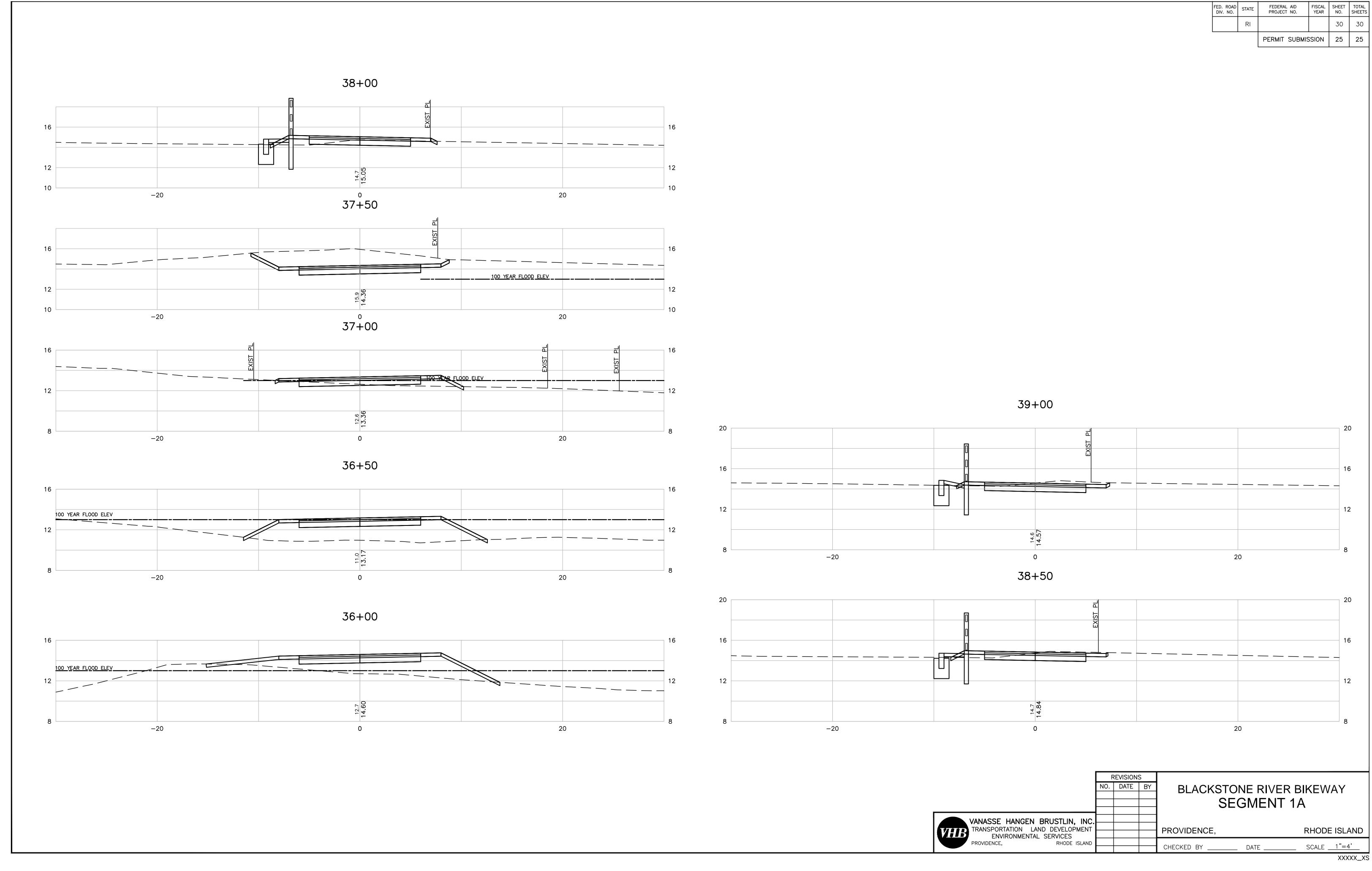
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PROVIDENCE, RHODE ISLAND				CHECKED BY DATE SCALE 1"=4"
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Appendix C – Health and Safety Plan

Blackstone River Bikeway – Segment 1A

Providence, Rhode Island

PREPARED BY



1 Cedar Street, Suite 400 Providence, RI 02903 401.272.8100

SEPTEMBER 11, 2015

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VHB Site-Specific Health and Safety Plan

Introduction

This Site-Specific Health and Safety Plan (HASP) has been prepared by Vanasse Hangen Brustlin, Inc. (VHB) for the sole and exclusive use by VHB personnel while working at the Blackstone River Bikeway – Segment 1A in Providence, Rhode Island (the Site). VHB's work at the Site is being conducted at the request of the Rhode Island Department of Transportation (RIDOT) and the Rhode Island Department of Environmental Management (RIDEM). This work is subject to the scope of services provided in the contract between VHB and the State of Rhode Island and Providence Plantations dated October 1992 and the contract amendment dated February 8, 2013 and any subsequent contract amendments. Use or reliance upon information provided in this HASP by any party other than VHB, shall be at the User's sole risk.

In preparing this HASP, VHB has obtained and relied upon information from multiple sources to form certain conclusions regarding potential environmental issues at and in the vicinity of the Site. Except as otherwise noted, no attempt has been made to verify the accuracy or completeness of such information.

The guidance presented in this HASP is based solely upon information gathered to date. Should further environmental or other relevant information be developed at a later date, VHB will evaluate and modify the HASP as appropriate. This HASP is established for field work consisting of construction observation and associated soil sampling as needed during Site redevelopment activities and is not relevant for any other services or tasks.

General Site Information

Site Name: Blackstone River Bikeway – Segment 1 A

Portions of Providence Assessor's Lot 8/Plat 17; Lots 66, 446 & 456/

Plat 15 and a Portion of Beach Street

Providence, Rhode Island



Table 1 – Emergency Information and Local Resources
Providence, Rhode Island

Public and Private Resources	Telephone Numbers
Ambulance	911
Rhode Island Hospital	911 or (401) 729-2000
Providence Fire Department (Emergency)	911 or 401-272-3344
Providence Police Department (Emergency)	911 or 401-272-1111
Rhode Island Hospital – Emergency Room	911 or 401-444-5411
National Poison Control Center	800-682-9211
DIG SAFE Reporting Line	888-344-7233

Nearest Hospital: Rhode Island Hospital

593 Eddy Street

Providence, Rhode Island

Directions: 1. Head west on Power Street toward Gano Street (374 feet);

2. Turn left onto Gano Street (0.3 miles);

3. Turn right onto the US-44 W/I-195 W/US-6 W ramp (0.1

mile);

4. Merge onto I-195 W/US-6 W (0.6 miles);

5. Use the 2nd from the right lane to take exit 1B S for

Interstate 95 S toward New York (0.3 miles);

6. Keep right to continue on Exit 1B, follow signs for Eddy

Street (0.2 miles);

7. Turn right onto Eddy Street (0.2 miles); and

8. Rhode Island Hospital will be on the left.

A map depicting the emergency hospital route is attached.

Site/Hazard Overview

Site Description and History

Segment 1A of the Blackstone River Bikeway, hereinafter referred to as the Site or Segment 1A, is located along the Seekonk River in Providence, Rhode Island. The Site consists of the approximate 0.71-mile strip of land that will be used to construct the bikeway, beginning at the exit ramp for Interstate Route 195 Westbound Exit 3 south of Gano Park in Providence Rhode Island, and ending at Pitman Street in Providence,



Rhode Island. The Site is identified by the City of Providence Tax Assessor's Department as Lot 8 on Assessor's Plat Map 17; a portion of Beach Street (a paper street shown on Assessor's Plat Map 17); and Lots 35, 66, 446, 456, 480 and 487 on Assessor's Plat Map 15 in Providence, Rhode Island (refer to **Figures**). The land south of the railroad tracks, Plat 17, Lot 8 and Plat 15, Lots 66, 446, and 456 is currently vacant and is owned and used by the City of Providence for recreational purposes, including athletic fields, a boat ramp, and a public dog park. The land north of the railroad tracks is currently occupied by residential and commercial buildings. Lot 487 on Plat 15 is occupied by a commercial shopping plaza, which includes Eastside Marketplace, and is owned by Riverview Retail LLC. Lot 35 on Plat 15 is occupied by a senior living center and is owned by EPOCH SL III Inc. Lot 480 on Plat 15 is occupied by an old mill building, which is currently owned and occupied by the Salvation Army.

The Site was historically part of the Seekonk River. The land proposed for bikeway development was reclaimed by filling in portions of the Seekonk River from the early 1950s to the mid 1960s. Railroad tracks were constructed, bisecting the proposed bikeway, sometime between 1894 and 1939. The railroad tracks ceased operation around 1976. Once the area was filled in, the land to the south of the railroad tracks was historically vacant and has been used by the City of Providence for recreational purposes. The land north of the railroad tracks was developed, starting in the 1960s, for commercial and residential use. Lot 487 on Plat Map 15 was developed sometime between 1962 and 1972 for commercial purposes.

The Site is bounded to the north by a commercial property which contains a small shopping plaza and grocery store (East Side Marketplace); to the south by the Interstate 195 west Exit 3 off-ramp; to the west by recreational land (athletic fields); and to the east by the Seekonk River.

Regulatory Exceedances Summary

VHB has previously completed a Site Investigation for the property and discovered several chemical constitutents above applicable Rhode Island Department of Environmental Management (RIDEM) Criteria.

- Residential Direct Exposure Criteria Arsenic, Lead, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene, Benzo(a)pyrene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene
- ➤ Industrial Commercial Direct Exposure Criteria Arsenic, Lead, Benzo(a)pyrene
- ➤ GA Leachability Criteria None



- Upper Concentration Limits None
- GN Groundwater Objectives None

Tasks

VHB staff will document encapsulation of the impacted Site soil in accordance with the RIDEM-approved Remedial Action Work Plan (RAWP). The work will be conducted pursuant to VHB's Remedial Action Work Plan and the RIDEM Remedial Approval Letter.

Hazard Assessment

Table 2 - Hazards of Concern (Check all that apply):

X	Heat Stress	X	Excavation/Trenching		Radiological
X	Cold Stress	X	General Construction		Biological
	Explosion/Flammable	X	Inorganic Chemicals	X	Noise
	Confined Space		Volatile Organic Chemicals		Corrosives
X	Physical Hazard		Other (Specify):		

The dangers that may be attributed to these hazards are discussed below.

Heat Stress

During the summer months, warm weather may become a health factor. Personnel working on-Site may have to wear protective clothing, which would increase the chance of workers suffering from heat-related problems. The situation will be monitored on days when the ambient temperature exceeds 70°F. Workers must be briefed on the signs and symptoms of heat-related problems and on preventative measures.

The three levels of Heat Stress are:

- > Heat Cramps
- ➤ Heat Exhaustion
- ➤ Heat Stroke

Symptoms of heat cramps include painful muscle spasms. Treatment includes providing liquid with electrolytes.



Weakness, fatigue, dizziness, heavy sweating, headache, nausea, fainting and pale, cool moist skin are all symptoms of heat exhaustion. Treatment includes resting in a cool place and providing plenty of liquids with electrolytes if the person is conscious; if unconscious, seek medical help immediately.

Symptoms of heat stroke are very dry, hot skin, mottled blue or red appearance, confusion, convulsions, rapidly rising temperature and unconsciousness. If any person experiences these symptoms, seek medical attention immediately. **Heat stroke** is a life-threatening emergency.

Cold Stress

During the winter months, cold weather may become a health factor. Personnel working on-Site may have to wear protective clothing to protect themselves from winf and other cold weather exposures that may lead to hypothermia and frostbite. The situation will be monitored periodically on days when the ambient temperature is below 32°F, or when the local weather forcasting agencies suggest a wind chill factor of 32°F or lower. Workers must be briefed on the signs and symptoms of frostbite and on preventative measures if work is performed when the ambient temperature is below 32°F.

Frostbite occurs when skin tissue and blood vessels are damaged from exposure to temperatures below 32 degrees Fahrenheit. It most commonly affects the toes, fingers, earlobes, chin, cheeks and nose, body parts that are often left uncovered in cold temperatures. Frostbite can occur gradually or rapidly. The speed with which the process progresses depends upon how cold or windy the temperature conditions are and the duration of exposure to those conditions.

Frostbite has three stages of progression:

- > Frostnip
- Superficial Frostbite
- Deep Frostbite

Frostnip – In this stage, the individual experiences a pins and needles sensation with the skin turning very white and soft. No blistering occurs. This stage produces no permanent damage and may be reversed by soaking in warm water or breathing warm breath on the affected area.

Superficial Frostbite – In this stage, blistering may occur. The skin feels numb, waxy, and frozen. Ice crystals form in the skin cells and the rest of the skin remains flexible.



Deep Frostbite – This is the most serious stage of frostbite. In this stage, blood vessels, muscles, tendons, nerves and bone may be frozen. This stage can lead to permanent damage, blood clots, and gangrene, in severe cases. No feeling is experienced in the affected area and there is usually no blistering. Serious infection and loss of limbs frequently occurs after frostbite reaches this stage. However, even with deep frostbite, some frozen limbs may be saved if medical attention is obtained as soon as possible.

Frostbite risk can be reduced by practicing the following:

- Wear several layers of clothing when in extremely cold conditions since the air pockets between the layers will help to retain warmth.
- ➤ Limit the use of alcohol and smoking tobacco. Alcohol causes the clood to cool quickly and tobacco inhibits circulation to extremeties.
- Avoid going outdoors during extremely cold weather.
- When outside, shield the face and other body parts from the cold wind and temperatures by wearing protective clothing, scarves, earmuffs, gloves, etc.
- Wear waterproof skin moisturizer on exposed areas.
- Do not spend extended periods in extreme temperatures when exhausted, or when wet.

If, after being in extremely cold conditions, any of the following are experienced, seek emergency care.

- Skin swelling
- Loss of limb function and absence of pain
- Drastic skin color changes
- Blisters
- Slurred speech
- Memory loss

Physical Hazards

The operation of heavy equipment poses hazards. Physical hazards may be associated with the malfunction, misuse, or improper operation of such equipment. Personnel not directly involved with equipment operation should stand a safe distance away from the machinery. Personnel should wear hard-hats, eye protection, hearing protection, and steel toe boots whenever working within established work zones. Personnel should be aware of these physical obstacles at all times and take the necessary precautions to avoid them while at the Site.



The Site may contain rough or unfamiliar terrain that can lead to injury. Slips, trips, and falls are the most common accidents caused by varying terrain. These accidencts may result in cuts, bruises, and sprains. Falls may result in broken bones. Carefully examine unfamiliar terrain. Look out for holes, undergrowth, and open water.

VHB staff shall wear boots with good ankle support and good traction, long pants, long-sleeved shirts, and long socks in the field. Under no circumstances will shorts, tube tops, muscle shirts, or sandals be worn on any VHB work sites.

Excavation/Trenching

Personnel should stand upwind of soil excavations to avoid being exposed to any dust generated during the excavation. During soil excavation operations, if any unusual odors or other unexpected observations are noted, all work must stop immediately. All personnel will retreat to a safe distance away from the excavation, and the VHB project manager will be notified of the situation before any additional action is taken.

General Construction

The greatest potential hazard at most Sites is related to the operation of heavy equipment, especially in the case of malfunction, misuse or improper operation. Personnel not directly involved with equipment operation should stand a safe distance away from the machinery. Personnel should wear hard-hats, eye and hearing protection, steel toe boots, and reflective safety vests when working near heavy equipment and any time there is a potential hazard from overhead or falling objects.

Inorganic Chemicals

Contaminants may be encountered in the form of soil dusts containing various metals (specifically arsenic and lead). To the extent possible, care shall be taken not to disturb dusty areas during the Site activities. In the event that visible emissions are released during Site activities, dust control in the form of water shall be sufficiently sprayed to reduce visible emission. Protective gloves should be worn when contacting soil, such as during measurements, screening or any required stockpile sampling.

Noise

Elevated noise levels may be encountered during the project due to construction equipment. Persons working in close proximity to construction equipment shall wear



sufficient hearing protection. This equipment may include foam earplugs or foam earmuffs. Hand signals must me used for communication in these situations. Hand signals shall be established and practived prior to donning protective hearing equipment.

Chemical Exposures

Table 3 summarizes chemicals that are known to be present at the Site due to VHB's previous Site Investigation activities at the property, including the associated symptoms of acute exposure to such contaminants. Since additional unsuspected hazards may exist at the Site, periodic evaluation of Site conditions will be performed during all on-Site activities.

Table 3 - Known Chemical Contaminants

Chemical Contaminant	Potential Hazard	OSHA Std. (8-Hour TWA)	NIOSH Std. (8-Hour TWA)*
Arsenic	Toxic by inhalation, skin absorption, skin and/or eye contact and ingestion. Affects liver, kidneys, skin, lungs, and lymphatic system.	0.010 mg/m ³	0.002 mg/m ³
Lead	Toxic by ingestion, inhalation, and skin and/or eye contact. Affects eyes, GI tract, CNS, kidneys, blood, and gingival tissue.	0.05 mg/m ³	0.1 mg/m ³
PAHs	Toxic by inhalation and skin and/or eye contact. Affects respiratory system, skin, bladder, and kidneys.	0.2 mg/m ³	0.1 mg/m ³

^{*} See Appendix A and Appendix C (NIOSH Pocket Guide) for chemical properties and hazards. Minimize workplace exposure concentrations; limit number of workers exposed.

Symptoms of Chemical Exposure

On-Site workers should be aware of the specific symptoms of acute chemical exposure listed in **Table 3**. In general, workers should also be aware of some indiciations of toxic effects of chemical exposure which are described below:

- Observable by others:
 - o Changes in complexion, skin discoloration
 - o Lack of coordination
 - o Changes in demeanor
 - o Papillary response
 - Changes in speech pattern
 - o Difficulty breathing
- Non-Observable by Others:



- Headaches
- Dizziness
- o Blurred Vision
- o Cramps
- Irritation of eyes, skin, or respiratory tract
- Nausea
- o Chills

First Aid

General first aid procedures for exposure include, but are not limited to, the following procedures:

- ➤ If contaminant contacts the eyes, irrigate immediately with large amounts of water;
- ➤ If contaminant contacts the skin, wash with soap and water promptly;
- ➤ If contaminant is inhaled, move the exposed person to fresh air at once. If the worker's breathing has stopped, perform artificial respiration <u>ONLY</u> if appropriately trained and currently certified by the Red Cross of equivalent. Request appropriate medical attention as soon as possible by dialing 911 or other relevant telephone numbers listed in **Table 1**.

On-Site personnel shall keep a First-Aid kit at the Site during Site activities.

On-Site Control

A Site-Safety Officer will be designated to coordinate access control to the work zone. No unauthorized personnel should enter the work zone to perform waste site cleanup activities without theappropriate 40-hour OSHA Site Worker Safety Training. Control boundaries have been established as follows:

- Exclusion Zone: A 10-foot perimeter around the soil excavations will be treated as the Exclusion Zone.
- ➤ Contaminant Reduction Zone: A designated area outside of the Exclusion Zone will be treated as the Contaminant Reduction Zone. All equipment will be decontaminated in this zone prior to being transferred to the Support Zone.
- > Support Zone: The remainder of the Site outside of the Contaminant Reduction Zone will be considered the Support Zone.



Table 4 - On-Site Personnel

Site Safety Officer:	Shelby Miller - 339.223.2798
Regulatory Authority:	Rhode Island Department of Environmental Management
State Agency Reps.:	Nicholas Noons 401.222.2797 x7517
Local Agency:	N/A
Contractors:	TBD
Emergency Contacts:	Peter Grivers - 401.935.5080

Action Levels and Personnel Protection

The initial level of personnel protection will be Level D.

Level D personnel protection will include:

- ➤ Chemical-resistant or leather gloves;
- ➤ Boots/shoes, leather or chemical-resistant, steel toe and shank;
- > Safety glasses or chemical splash goggles (optional unless required for specific job function);
- ➤ Hard-hat;
- > Hearing Protection.

Field monitoring action levels are presented in **Table 5**:

Table 5 - Action Levels

Location	Action Level	Response
Exclusion Zone	10 ppm TVOC in the ambient air	Shut down operations, and allow area to equilibrate with background air quality before re-starting operations. If conditions above 10 ppm persist, VHB personnel should leave the work area and the Project Manager should be contacted. It is possible that personnel may upgrade to level C
Exclusion Zone	10 mg/m³ particulate	Shut down operations and allow area to equilibrate with background air quality before re-starting operations. If conditions above 10 ppm persist, VHB personnel should leave the work area and the Project Manager should be contacted. It is possible that personnel may upgrade to level
Exclusion Zone	Any detection of TVOC in the ambient air	Modify work practices to minimize volatilization of contaminants
Exclusion Zone	5 ppm TVOC	Stop work until controls are identified that will reduce volatilization of contaminants. Do not restart work unless authorized by the project manger, department director, and/or the health and safety coordinator.



General Safety Requirement

All persons entering and/or working on the Site shall follow the following General Safety Procedures:

- ➤ No employee or subcontractor may be allowed on-site without the prior knowledge and consent of the Site Safety Officer and review of these Health and Safety Procedures. All VHB personnel engaged in this project will sign the Health and Safety plan to acknowledge that they have read and understand the Health and Safety Plan.
- ➤ There will be no activities conducted on-site without sufficient backup personnel. At a minimum, two persons must be present at the site.
- ➤ All contractor or subcontractor personnel shall bring to the attention of the Site Safety Officer or Supervisors any unsafe condition or practice associated with the site activities that they are unable to correct themselves.
- ➤ There will be no smoking, eating, drinking, chewing gum or tobacco, or applying cosmetics in the restricted area.
- ➤ Hands shall be thoroughly cleaned prior to smoking, eating or other activities outside the restricted area.
- ➤ Team members must avoid unnecessary contamination (i.e., walking through known or suspected "hot" zones or contaminated puddles, kneeling or sitting on the ground, leaning against potentially contaminated barrels or equipment).
- ➤ Respiratory devices may not be worn with beards, long sideburns, or under other conditions that prevent a proper seal.
- ➤ No visitors will be allowed access without the knowledge and consent of the Site Manager and/or Safety Officer. All visitors will be required to be briefed on safety procedures and will be required to be escorted while on-site.
- ➤ All excavations will be conducted in compliance with EPA/OSHA and RIDEM Standards. Excavation greater than four feet deep which require people to work in the excavation will have sides sloped no greater than 45° (1 to 1) or be shored pursuant to OSHA.



Personal Protective Equipment

Based on an evaluation of potential hazards, the following levels of personal protection have been designated for the applicable areas or tasks.

Location	Job Function		Le	vel of F	rotecti	on
Exclusion Zone	Excavation Observation	Α	В	С	D	Other
Contaminant Reduction Zone	Decontamination	Α	В	С	D	Other
Support Zone	Field Vehicle and Supplies	Α	В	С	D	Other

Decontamination Procedures

All non-expendable equipment will be cleaned according to Standard Operating Protocols. This protocol includes:

- ➤ Rinse with tap water
- Wash with Alconox detergent (or soap) and water
- Rinse with distilled or tap water

Construction equipment leaving the Exclusion Zone will be decontaminated in the Support Zone by brushing soil from the equipment using a long-handled brush. The decontamination procedure for Level D requires the disposal of gloves, Tyvek suits (if used), and boot covers (if used) in plastic lined containers on-Site. All non-disposable equipment used on-Site that becomes contaminated will be cleaned by the protocol referenced above.

Emergency Medical Care

The following are qualified on-Site First Aid Responders and/or EMTs:

First Aid equipment is acailable on-Site at the folloing locations:

First Aid Kit: Located in field vehicle Emergency Eye Wash: Water is kept in the field vehicle **Emergency Shower:** Water is kept in the field vehicle N/A

Other (Specify):

Site Resoure(s) and Locations:

Water Supply: Water is kept in the field vehicle Telephones: Portable telephone in field vehicle Communication Systems: Mobile telephones



Other (Specify):	N/A

Emergency Procedures

On-Site personnel will use the following standard emergency procedures. These procedures may be modified as appropriate and required for eac incident. The Site-Safety Officer will be notified of any on-Site emergencies and will be responsible for ensuring that the appropriate procedures are followed.

- **Fire/Explosion:** The fire department will be notified and all personnel moved to a safe distance from the involved area.
- Personal Protective Equipment Failure: If any site worker experiences a failure or malfunction of personal protective equipment that adversely affects the protection factor that person and his/her buddy will immediately leave the Exclusion Zone. Re-entry will not be permitted until the equipment has been repaired or replaced.
- ➤ Other Equipment Failure: If any other equipment on-site fails to operate properly, the Site Manager and Site Safety Officer will be notified and will then evaluate the effect of such failure on continuing operations. If the failure affects personnel safety or prevents completion of the investigation activities, all personnel will leave the Exclusion Zone until the situation is remedied through appropriate action(s).



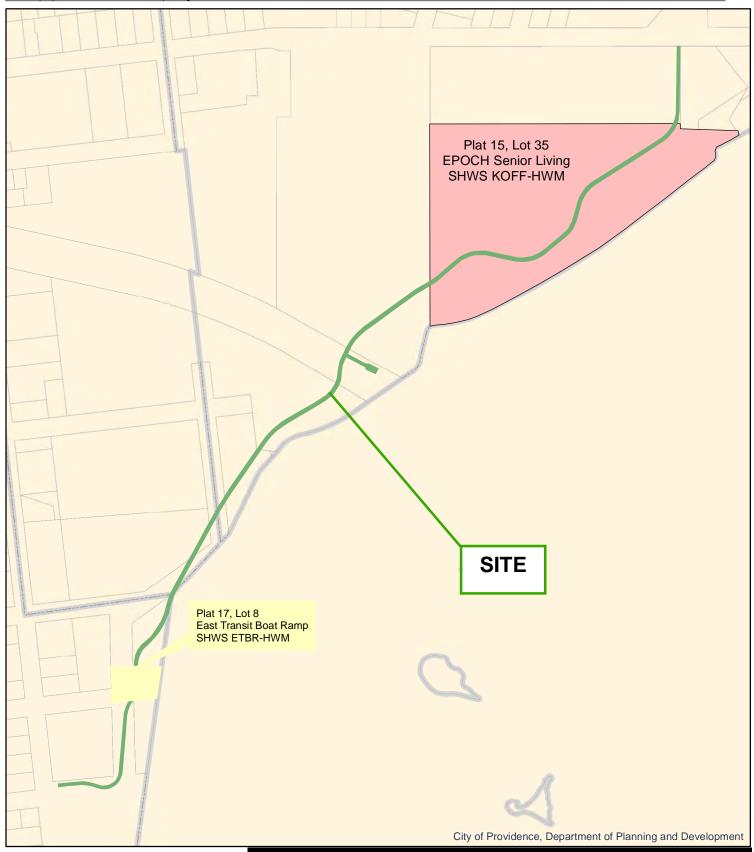
Signature Page

I have read, understood, and agree to comply with the provisions set forth in this Site-specific Health and Safety Plan and as reviewed in the Health and Safety Briefing by the Site-Safety Officer.

	the Site-Safety Officer.		
	Prepared By:		
	Shelby A. Miller	Shelfanish	9/11/2015
	Site-Safety Officer	Signature	Date
	Approved By:	OL un	11
	Peter M. Grivers, P.E., LSP Senior Project Manager	Signature Signature	9/11/20 Date
	Senior Project Manager	Signature	Date
VHB Personnel			
	Signature	D	ate
	¥		



Figures





Site Detail Map

Figure 2 September 11, 2015

Legend



Blackstone River Bikeway - Segment 1A East Transit Street to Pitman Street Providence, Rhode Island 02906



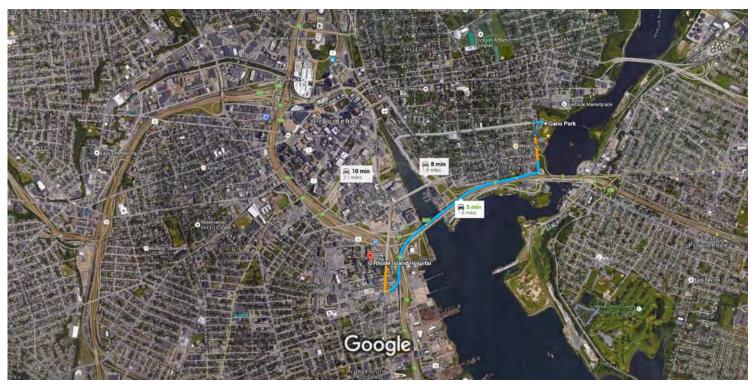


Emergency Hospital Route

Google Maps

Gano Park to Rhode Island Hospital

Drive 1.8 miles, 5 min



Imagery ©2015 Google, Map data ©2015 Google 1000 ft

		Total Career Fil Career	
1	٠.	"ea" weat on "ower "t towar" "and "t	274 (4
4	2.	Turn left onto Gano St	— 374 ft
*	:··	The state of the s	0.3 mi
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			— 0.2 mi

Rhode Island Hospital

m _{er}imm_amar sim _em h_eman_end hribmene ma,⁵. _emr mash _em_{er} _{er}m mine_erm_ema recolorates tracting womanite or suffer reconstructions contains and contains the contains tracting tr results and you affect the your route accordingly. You must affect all stone or notices



Hazardous Substance Fact Sheets for Suspected Site Contaminants



Search the NIOSH Pocket Guide

Enter search terms separated by sp	naces		SEARCH		
Enter scaren terms separated by sp					
Arsenic (orgar	nic	compounds, as As)		
Synonyms & Trade Names Synonyms V	ary depe	endii	ng upon the specific organic arsenic compour	nd.	
CAS No.	RTECS	No.	DOT ID & Guide		
	Convers	sion	IDLH N.D. See: IDLH INDEX (/niosh/idlh/intridl4.html)	<u>!</u>	
Exposure Limits NIOSH REL: none OSHA PEL: TWA 0.5 mg/m ³			Measurement Methods NIOSH 5022		
Physical Description Appearance and compound.	l odor va	ıry d	epending upon the specific organic arsenic		
Properties vary depending upon the specific organic arsenic compound.					
Incompatibilities & Reactivities Varies					
Exposure Routes inhalation, ingestion	on, skin a	and/	or eye contact		
	-		dermatitis; resp distress; diarrhea; kidney gastrointestinal tract, reproductive effects;		
Target Organs Skin, respiratory syst tract, reproductive system	em, kidr	ieys,	central nervous system, liver, gastrointestina	al	
Personal Protection/Sanitation (See proceedes (protect.html)) Recommendations regarding personal Protection/Sanitation			First Aid (See procedures (firstaid.html) Eye: Irrigate immediately Skin: Soap wash immediately		

protective clothing vary depending upon the specific compound.

Recommendations regarding eye protection vary depending upon the specific compound. Recommendations regarding washing the skin vary depending upon the specific compound.

Recommendations regarding the removal of personal protective clothing that becomes wet or contaminated vary depending upon the specific compound.

Recommendations regarding the daily changing of personal protective clothing vary depending upon the specific compound.

Recommendations regarding the need for eyewash or quick drench facilities vary depending upon the specific compound.

Breathing: Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations

Not available.

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html)

Page last reviewed: April 4, 2011 Page last updated: February 13, 2015

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	SEARCH
Enter search terms separated by spaces.	

Coal tar pitch volatiles

Synonyms & Trade Names Synonyms vary depending upon the specific compound (e.g., pyrene, phenanthrene, acridine, chrysene, anthracene & benzo(a)pyrene). [Note: NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products.]

 CAS No.
 GF8655000 (/niosh-rtecs/GF841098.html)
 DOT ID & Guide 2713 153 (http://www.apps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx/guide153/) ← (http://www.cdc.gov/Other/disclaimer.html) (acridine)

 Conversion
 IDLH Ca [80 mg/m³] See: 65996932 (/niosh/idlh/65996932.html)

Exposure Limits NIOSH

REL: Ca TWA 0.1 mg/m³ (cyclohexane-extractable fraction)
See Appendix A (nengapdxa.html) See Appendix C (nengapdxc.html)
OSHA PEL: TWA 0.2 mg/m³ (benzene-soluble fraction)
[1910.1002] See Appendix C

Measurement Methods

OSHA <u>58</u>

(http://www.osha.gov/dts/sltc/methods/organic/orgo58/orgo58.html)
(http://www.cdc.gov/Other/disclaimer.html)
See: NMAM (/niosh/docs/2003-154/) or OSHA Methods

See: NMAM (/niosh/docs/2003-154/) or OSHA Method (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Black or dark-brown amorphous residue.

Properties			
vary			
depending upon the specific			
upon the			
specific			
compound.			
	ï		

Combustible Solids

(nengapdxc.html)

Incompatibilities & Reactivities Strong oxidizers

Exposure Routes inhalation, skin and/or eye contact

Symptoms dermatitis, bronchitis, [potential occupational carcinogen]

Target Organs respiratory system, skin, bladder, kidneys

Cancer Site [lung, kidney & skin cancer]

Personal Protection/Sanitation (See

<u>protection codes (protect.html)</u>)**Skin:** Prevent skin contact**Eyes:** Prevent eye contact

Wash skin: Daily

Remove: No recommendation

Change: Daily

First Aid (See procedures (firstaid.html))

Eye: Irrigate immediately
Skin: Soap wash immediately
Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations

NIOSH

At concentrations above the NIOSH REL, or where there is no REL, at any detectable concentration:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressuredemand or other positive-pressure mode in combination with an auxiliary self-contained positivepressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or backmounted organic vapor canister having an N100, R100, or P100 filter.

<u>Click here (pgintrod.html#nrp)</u> for information on selection of N, R, or P filters.

Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 1415

(/niosh/ipcsneng/neng1415.html) See MEDICAL TESTS: 0054 (/niosh/docs/2005-110/nmed0054.html)

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Lead

Synonyms & Trade Names Lead metal, Plumbum

CAS No. 7439-92-1 RTECS No. OF7525000 (/nioshrtecs/OF72D288.html) **DOT ID & Guide**

Formula Pb

Conversion

IDLH 100 mg/m³ (as Pb)

See: 7439921 (/niosh/idlh/7439921.html)

Exposure Limits NIOSH REL *:

TWA (8-hour) 0.050 mg/m³ See
Appendix C (nengapdxc.html) [*Note:
The REL also applies to other lead
compounds (as Pb) -- see Appendix C.]
OSHA PEL *: [1910.1025] TWA 0.050
mg/m³ See Appendix C
(nengapdxc.html) [*Note: The PEL also
applies to other lead compounds (as
Pb) -- see Appendix C.]

Measurement Methods

NIOSH 7082 (/niosh/docs/2003-154/pdfs/7082.pdf), 7105 (/niosh/docs/2003-154/pdfs/7105.pdf), 7300 (/niosh/docs/2003-154/pdfs/7301.pdf), 7301 (/niosh/docs/2003-154/pdfs/7301.pdf), 7303 (/niosh/docs/2003-154/pdfs/7303.pdf), 7700 (/niosh/docs/2003-154/pdfs/7700.pdf), 7701 (/niosh/docs/2003-154/pdfs/7700.pdf), 7701 (/niosh/docs/2003-154/pdfs/7702.pdf), 9100 (/niosh/docs/2003-154/pdfs/9100.pdf), 9102 (/niosh/docs/2003-154/pdfs/9100.pdf), 9102 (/niosh/docs/2003-154/pdfs/9102.pdf), 9105 (/niosh/docs/2003-154/pdfs/9105.pdf);

OSHA ID121

(http://www.osha.gov/dts/sltc/methods/inorganic/id121/id121.html)

(http://www.osha.gov/Other/disclaimer.html), ID125G
(http://www.osha.gov/dts/sltc/methods/inorganic/id125g/id125g.html)

(http://www.osha.gov/Other/disclaimer.html), ID206
(http://www.osha.gov/dts/sltc/methods/inorganic/id206/id206.html)

(http://www.osha.gov/Other/disclaimer.html)

(http://www.cdc.gov/Other/disclaimer.html)

See: NMAM (/niosh/docs/2003-154/) or OSHA Methods

See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description A heavy, ductile, soft, gray solid.

	BP: 3164°F	MLT: 621°F	Sol: Insoluble	VP: 0 mmHg (approx)	IP: NA
Sp.Gr: 11.34	Fl.P: NA	UEL: NA	LEL: NA		

Noncombustible Solid in bulk form.

Incompatibilities & Reactivities Strong oxidizers, hydrogen peroxide, acids

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension

Target Organs Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue

Personal Protection/Sanitation (See

protection codes (protect.html))

Skin: Prevent skin contact **Eyes:** Prevent eye contact

Wash skin: Daily

Remove: When wet or contaminated

Change: Daily

First Aid (See procedures (firstaid.html))

Eye: Irrigate immediately Skin: Soap flush promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations

(See Appendix E) (nengapdxe.html)

NIOSH/OSHA

Up to 0.5 mg/m³:

(APF = 10) Any air-purifying respirator with an N100, R100, or P100 filter (including N100, R100, and P100 filtering facepieces) except quarter-mask respirators.

<u>Click here (pgintrod.html#nrp)</u> for information on selection of N, R, or P filters.

(APF = 10) Any supplied-air respirator

Up to 1.25 mg/m^3 :

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter.

Up to 2.5 mg/m³:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

Click here (pgintrod.html#nrp) for information on selection of N, R, or P filters.

(APF = 50) Any supplied-air respirator that has a tight-fitting facepiece and is operated in a continuous-flow mode

(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

Up to 50 mg/m3:

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Up to 100 mg/m³:

(APF = 2000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

<u>Click here (pgintrod.html#nrp)</u> for information on selection of N, R, or P filters.

Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0052

(/niosh/ipcsneng/nengoo52.html) See MEDICAL TESTS: <u>0127</u> (/niosh/docs/2005-110/nmed0127.html)

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Petroleum distillates (naphtha)

Synonyms & Trade Names Aliphatic petroleum naphtha, Petroleum naphtha, Rubber solvent

CAS No. 8002- 05-9	RTECS No. SE7449000 (/niosh- rtecs/SE71A9A8.html)	DOT ID & Guide
		IDLH 1100 ppm [10%LEL] See: 8002059 (/niosh/idlh/8002059.html)

Exposure Limits NIOSH REL:

TWA 350 mg/m³ C 1800 mg/m³ [15-minute]

OSHA PEL † (nengapdxg.html): TWA 500 ppm (2000 mg/m³)

Measurement Methods

NIOSH 1550 (/niosh/docs/2003-

<u>154/pdfs/1550.pdf)</u>

See: NMAM (/niosh/docs/2003-154/) or OSHA

<u>Methods</u>

(http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Colorless liquid with a gasoline- or kerosene-like odor. [Note: A mixture of paraffins (C_5 to C_{13}) that may contain a small amount of aromatic hydrocarbons.]

MW: 99 (approx)	BP: 86- 460°F	FRZ: -99°F	Sol: Insoluble	VP: 40 mmHg (approx)	IP: ?
Sp.Gr: 0.63- 0.66	Fl.P: -40 to -86°F	UEL: 5.9%	LEL: 1.1%		

Flammable Liquid

Incompatibilities & Reactivities Strong oxidizers

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms irritation eyes, nose, throat; dizziness, drowsiness, headache, nausea; dry cracked skin; chemical pneumonitis (aspiration liquid)

Target Organs Eyes, skin, respiratory system, central nervous system

Personal Protection/Sanitation (See

protection codes (protect.html)

Skin: Prevent skin contact

Eyes: Prevent eye contact

Wash skin: When contaminated Remove: When wet (flammable)

Change: No recommendation

First Aid (See procedures (firstaid.html))

Eye: Irrigate immediately Skin: Soap wash promptly

Breathing: Respiratory support

Swallow: Medical attention immediately

Respirator Recommendations

NIOSH

Up to 850 ppm:

(APF = 10) Any supplied-air respirator

Up to 1100 ppm:

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode*

(APF = 50) Any self-contained breathing apparatus with a full facepiece

(APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode

(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister

Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: <u>INTRODUCTION</u> (/niosh/npg/pgintrod.html)

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Appendix D – Operating Log Template

Blackstone River Bikeway – Segment 1A, Providence, Rhode Island DAILY OPERATIONS LOG SUMMARY

NAME:	WEATHER:
DATE & TIME:	WIND:
GENERAL CONSTRUCTION ACTIVITY:	
•	
EARTHWORK ACTIVITY:	
•	
SOIL AND EROSION MONITORING:	
•	
DUST MONITORING:	
•	
HEALTH AND SAFETY MONITORING:	
•	
CONVERSATION NOTES:	
•	



Appendix E – Draft ELUR and SMP

Appendix G ENVIRONMENTAL LAND USAGE RESTRICTION

This Declaration of Environmenta	ıl Land l	Usage Restriction ("Restriction") is made on this
day of,	201	by [property owner]the State of Rhode Island, and
its successors and/or assigns (here	einafter,	the "Grantor").

WITNESSETH:

WHEREAS, the Property (or portion thereof identified in the Class I survey which is attached hereto as Exhibit 2A and is made a part hereof) has been determined to contain soil and/or groundwater which is contaminated with certain Hazardous Materials and/or petroleum in excess of applicable **[residential and/or industrial/commercial Direct Exposure Criteria, and/or applicable groundwater objective]** criteria pursuant to the <u>Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases ("Remediation Regulations")</u>;

WHEREAS, the Grantor and the Department have determined that the environmental land use restrictions set forth below are consistent with the regulations adopted by the Rhode Island Department of Environmental Management ("Department") pursuant to R.I.G.L. § 23-19.14-1 and that this restriction shall be a Conservation Restriction pursuant to R.I.G.L. § 34-39-1 et. seq. and shall not be subject to the 30 year limitation provided in R.I.G.L. § 34-4-21;

WHEREAS, the Department's written approval of this Restriction is contained in the document entitled: [Remedial Decision Letter/ Settlement Agreement/ Order of Approval/ Remedial Approval Letter] issued pursuant to the Remediation Regulations;

WHEREAS, to prevent exposure to or migration of Hazardous Substances and to abate hazards to human health and/or the environment, and in accordance with the [Remedial Decision Letter/Remedial Agreement/Order of Approval/Remedial Approval Letter], the Grantor desires to impose certain restrictions upon the use, occupancy, and activities of and at the [Property/Contaminated-Site];

WHEREAS, the Grantor believes that this Restriction will effectively protect public health and the environment from such contamination; and

WHEREAS, the Grantor intends that such restrictions shall run with the land and be binding upon and enforceable against the Grantor and the Grantor's successors and assigns.

NOW, THEREFORE, Grantor agrees as follows:

- **A. Restrictions Applicable to the** [Property/Contaminated-Site]: In accordance with the [Remedial Decision Letter/ Remedial Agreement/ Order of Approval/ Remedial Approval Letter], the use, occupancy and activity of and at the [Property/ Contaminated-Site] is restricted as follows:
 - i. No residential use of the **Property/Contaminated-Site** shall be permitted that is contrary to Department approvals and restrictions contained herein;
 - ii. No groundwater at the [Property/Contaminated-Site] shall be used as potable water;
 - iii. No soil at the [Property/Contaminated-Site] shall be disturbed in any manner without written permission of the Department's Office of Waste Management, except as permitted in the Remedial Action Work Plan (RAWP) or Soil Management Plan (SMP) approved by the Department in a written approval letter dated _____(date) Exhibit B and attached hereto;
 - [iv. Humans engaged in activities at the [Property/Contaminated-Site] shall not be exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved Direct Exposure Criteria set forth in the Remediation Regulations;
 - [v.Water at the [Property/Contaminated-Site] shall be prohibited from infiltrating soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved leachability criteria set forth in the Remediation Regulations;
 - [vi.No subsurface structures shall be constructed on the [Property/Contaminated-Site] over groundwater containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department approved GA or GB Groundwater Objectives set forth in the Remediation Regulations;
 - [vii.[v.] The engineered controls at the [Property/ Contaminated-Site] described in the [RAWP or SMP] contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained to prevent humans engaged in [residential or industrial/commercial] passive recreational activity from being exposed to soils containing Hazardous Materials and/or petroleum in concentrations exceeding the applicable Department-approved [residential and/or industrial/commercial] Direct Exposure Criteria in accordance with the Remediation Regulations; and
 - [viii.The engineered controls at the [Property/ Contaminated-Site] described in the [RAWP or Soil Management Plan SMP] contained in Exhibit B attached hereto shall not be disturbed and shall be properly maintained so that water does not infiltrate soils containing Hazardous Materials and/or petroleum in concentrations

exceeding the applicable Department-approved leachability criteria set forth in the Remediation Regulations.

- B. No action shall be taken, allowed, suffered, or omitted at the **Property**/Contaminated-Site if such action or omission is reasonably likely to:
 - i. Create a risk of migration of Hazardous Materials and/or petroleum;
 - ii. Create a potential hazard to human health or the environment; or
 - iii. Result in the disturbance of any engineering controls utilized at the
 [Property/Contaminated-Site], except as permitted in the Department-approved
 [RAWP or SMP] contained in Exhibit B.
- **C. Emergencies:** In the event of any emergency which presents a significant risk to human health or to the environment, including but not limited to, maintenance and repair of utility lines or a response to emergencies such as fire or flood, the application of Paragraphs A (iii.-viii.) and B above may be suspended, provided such risk cannot be abated without suspending such Paragraphs and the Grantor complies with the following:
 - i. Grantor shall notify the Department's Office of Waste Management in writing of the emergency as soon as possible but no more than three (3) business days after Grantor's having learned of the emergency. (This does not remove Grantor's obligation to notify any other necessary state, local or federal agencies.);
 - ii. Grantor shall limit both the extent and duration of the suspension to the minimum period reasonable and necessary to adequately respond to the emergency;
 - iii. Grantor shall implement reasonable measures necessary to prevent actual, potential, present and future risk to human health and the environment resulting from such suspension;
 - iv. Grantor shall communicate at the time of written notification to the Department its intention to conduct the Emergency Response Actions and provide a schedule to complete the Emergency Response Actions;
 - v. Grantor shall continue to implement the Emergency Response Actions, on the schedule submitted to the Department, to ensure that the <code>[Property/Contaminated-Site]</code> is remediated in accordance with the Remediation Regulations (or applicable variance) or restored to its condition prior to such emergency. Based upon information submitted to the Department at the time the ELUR was recorded pertaining to known environmental conditions at the <code>[Property/Contaminated-Site]</code>, emergency maintenance and repair of utility lines shall only require restoration of the <code>[Property/Contaminated-Site]</code> to its condition prior to the maintenance and repair of the utility lines; and
 - vi. Grantor shall submit to the Department, within ten (10) days after the completion of the Emergency Response Action, a status report describing the emergency activities that

have been completed.

- D. Release of Restriction; Alterations of Subject Area: The Grantor shall not make, or allow or suffer to be made, any alteration of any kind in, to, or about any portion of the [Property/Contaminated-Site] inconsistent with this Restriction unless the Grantor has received the Department's prior written approval for such alteration. If the Department determines that the proposed alteration is significant, the Department may require the amendment of this Restriction. Alterations deemed insignificant by the Department will be approved via a letter from the Department. The Department shall not approve any such alteration and shall not release the [Property/Contaminated-Site] from the provisions of this Restriction unless the Grantor demonstrates to the Department's satisfaction that Grantor has managed the [Property/Contaminated-Site] in accordance with applicable regulations.
- E. Notice of Lessees and Other Holders of Interests in the [Property/Contaminated-Site]: The Grantor, or any future holder of any interest in the [Property/Contaminated-Site], shall cause any lease, grant, or other transfer of any interest in the [Property/Contaminated-Site] to include a provision expressly requiring the lessee, grantee, or transferee to comply with this Restriction. The failure to include such provision shall not affect the validity or applicability of this Restriction to the [Property/Contaminated-Site].
- **F.** Enforceability: If any court of competent jurisdiction determines that any provision of this Restriction is invalid or unenforceable, the Grantor shall notify the Department in writing within fourteen (14) days of such determination.
- **G. Binding Effect:** All of the terms, covenants, and conditions of this Restriction shall run with the land and shall be binding on the Grantor, its successors and assigns, and each Owner and any other party entitled to control, possession or use of the **Property/Contaminated-Sitel** during such period of Ownership or possession.
- **H. Inspection & Non-Compliance:** It shall be the obligation of the Grantor, or any future holder of any interest in the **[Property/Contaminated-Site]**, to provide for annual inspections of the **[Property/Contaminated-Site]** for compliance with the ELUR in accordance with Department requirements.

[An officer or Director of the company with direct knowledge of past and present conditions of the [Property/Contaminated-Site] (the "Company Representative"), or A qualified environmental professional will, on behalf of the Grantor or future holder of any interest in the [Property/Contaminated-Site], evaluate the compliance status of the [Property/Contaminated-Site] on an annual basis. Upon completion of the evaluation, the [Company Representative or] environmental professional will prepare and simultaneously submit to the Department and to the Grantor or future holder of any interest in the [Property/Contaminated-Site] an evaluation report detailing the findings of the inspection, and noting any compliance violations at the [Property/Contaminated-Site]. If the [Property/Contaminated-Site] is determined to be out of compliance with the terms of the ELUR, the Grantor or future holder of any interest in the [Property/Contaminated-Site] shall submit a corrective action plan in writing to the Department within ten (10) days of receipt of the evaluation report, indicating the plans to bring the [Property/Contaminated-Site]

	Site! into compliance with the ELUR, including, at a minimum, a schedule for implementation of the plan.
	In the event of any violation of the terms of this Restriction, which remains uncured more than ninety (90) days after written notice of violation, all Department approvals and agreements relating to the [Property/Contaminated-Site] may be voided at the sole discretion of the Department.
I.	Terms Used Herein: The definitions of terms used herein shall be the same as the definitions contained in Section 3 (DEFINITIONS) of the <u>Remediation Regulations</u> .
	WITNESS WHEREOF, the Grantor has hereunto set (his/her) hand and seal on the day and ar set forth above.
[N	ame of Person(s), company, LLC or LLP] The State of Rhode Island
Ву	Grantor (signature) Grantor (typed name)
	TATE OF RHODE ISLAND DUNTY OF
	In (CITY/TOWN), in said County and State, on the day of, 20, fore me Personally appeared, to me known and known by me to be the rty executing the foregoing instrument and (he/she) acknowledged said instrument by m/her) executed to be (his/her) free act and deed.
	Notary Public:
	My Comm. Expires:

Post Remediation Soil Management Plan Blackstone River Bikeway – Segment 1A Portions of Lot 8/Plat 17, Lots 66, 446, & 456/Plat 15; and a Portion of Beach Street Providence, Rhode Island

This Soil Management Plan (SMP) has been prepared to establish procedures that will be followed should future construction/maintenance activities at the Blackstone River Bikeway – Segment 1A property require the need to manage soils excavated from the subsurface or when existing Site surfaces/Department approved engineered controls (asphalt, concrete, and/or landscaping) are disturbed. The plan serves to supplement, and will be initiated by, the RIDEM notification requirement established by the Environmental Land Use Restriction (ELUR) for the property.

Background

The Property, identified as portions of Lot 8 on Plat Map 17; Lots 35, 66, 446, 456, 480, & 487 on Plat Map 15 and a portion of Beach Street in Providence, Rhode Island, was formerly part of the Seekonk River. The land was created by filling in the river over time. Land south of the railroad tracks that bisect the Site remained vacant and has been used for recreational purposes. Land north of the railroad tracks was developed for industrial and commercial use. The lots that make up the bikeway north of the railroad tracks have recently been used for commercial and residential purposes. The Site was found to contain arsenic, lead, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene during a Site investigation performed at the property. More recently, the Site has been developed with a recreational bike path. The Department approved remedy, as described in the Remedial Decision Letter dated September XX, 2015, included limited excavation of soils that contain concentrations of polycyclic aromatic hydrocarbons that exceed the Department's Residential Direct Exposure Criteria (RDEC) and/or the Industrial/Commercial Direct Exposure Criteria (I/CDEC) and offsite disposal at a licensed facility, encapsulation of any remaining soils that contain exceedances of the Department's RDEC with clean fill materials and paved surfaces to limit exposure to subsurface soils, and an institutional control in the form of a Department approved ELUR. The regulated Site soils are covered with Department approved engineered controls (refer to attached figure), consisting of asphalt pavement and landscaping in order to prevent direct exposure to regulated soils.

Applicable Area

This SMP and affiliated ELUR, which restricts the property to **Industrial/Commercial** use, pertains to the entire Property. See attached Site figure.

Soil Management

The direct exposure pathway is the primary concern at the site. Individuals engaged in activities at the site may be exposed through incidental ingestion, dermal contact, or inhalation of vapors or

entrained soil particles if proper precautions are not taken. Therefore, the following procedures will be followed to minimize the potential of exposure.

During significant or long-term Site work involving intrusive soil activities, the appropriate precautions will be taken to restrict unauthorized access to the property. This will include perimeter fencing where applicable.

During all site/earth work, dust suppression (e.g. watering, etc) techniques must be employed at all times.

In the event that an unexpected observation or situation arises during site work, such activities will immediately stop. Workers will not attempt to handle the situation themselves but will contact the appropriate authority for further direction.

In the event that certain soils on site were not previously characterized, these soils are presumed to be regulated until such time that it is demonstrated to the Department, through sampling and laboratory analysis that they are not regulated. (For example, presumptive remedies or locations of previously inaccessible soil.)

If excess soil is generated/excavated from the Property, the soil is to remain on-site for analytical testing, to be performed by an environmental professional, in order to determine the appropriate disposal and/or management options. The soil must be placed on and covered with polyethylene/plastic sheeting during the entire duration of its staging and secured with appropriate controls to limit the loss of the cover and protect against storm-water and/or wind erosion (e.g. hay bales, silt fencing, rocks, etc).

Excavated soils will be staged and temporarily stored in a designated area of the property. Within reason, the storage location will be selected to limit the unauthorized access to the materials (e.g., away from public roadways/walkways). No regulated soil will be stockpiled onsite for greater than 60 days without prior Department approval.

In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (e.g. drum or lined roll-off) or secondary containment will be utilized.

Soils excavated from the site may not be re-used as fill on residential property. Excavated fill material shall not be re-used as fill on commercial or industrial properties unless it meets the Department's Method 1 Residential Direct Exposure Criteria for all constituents listed in Table 1 of the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). Copies of the laboratory analysis results shall be maintained by the site owner and included in the annual inspection report for the Site, or the closure report if applicable. In the event that the soil does not meet any of these criteria, the material must be properly managed and disposed of off-Site at a licensed facility.

Site soils, which are to be disposed of off-Site, must be done so at a licensed facility in accordance with all local, state, and federal laws. Copies of the material shipping records

associated with the disposal of the material shall be maintained by the site owner and included in the annual inspection report for the Site.

Best soil management practices should be employed at all times and regulated soils should be segregated into separate piles (or cells or containers) as appropriate based upon the results of analytical testing, when multiple reuse options are planned (e.g. reuse on-Site, reuse at a Department approved Industrial/Commercial property, or disposal at a Department approved licensed facility).

All non-disposable equipment used during the soil disturbance activities will be properly decontaminated as appropriate prior to removal from the Site. All disposable equipment used during the soil disturbance activities will be properly containerized and disposed of following completion of the work. All vehicles utilized during the work shall be properly decontaminated as appropriate prior to leaving the Site.

At the completion of Site work, all exposed soils are required to be recapped with Department approved engineered controls for this project (10-inches of clean fill underlain with a geotextile liner or 4 inches of pavement underlain with 6 inches of clean fill) consistent or better than the site surface conditions prior to the work that took place. These measures must also be consistent with the Department approved ELUR recorded on the property. Any clean fill material brought on Site is required to meet the Department's Method 1 Residential Direct Exposure Criteria or be designated by an Environmental Professional as Non-Jurisdictional under the Remediation Regulations. The Annual Inspection Report for the site, or Closure Report if applicable, should include either analytical sampling results from the fill demonstrating compliance or alternatively include written certification by an Environmental Professional that the fill is not jurisdictional.

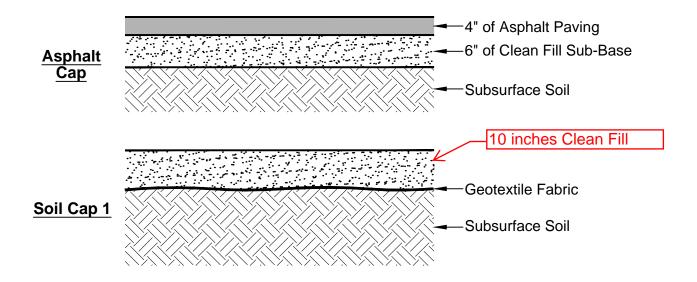
Worker Health and Safety

To ensure the health and safety of on-Site workers, persons involved in the excavation and handling of the material on site are required to wear a minimum of Level D personal protection equipment, including gloves, work boots and eye protection. Workers are also required to wash their hands with soap and water prior to eating, drinking, smoking, or leaving the Site.

Department Approval

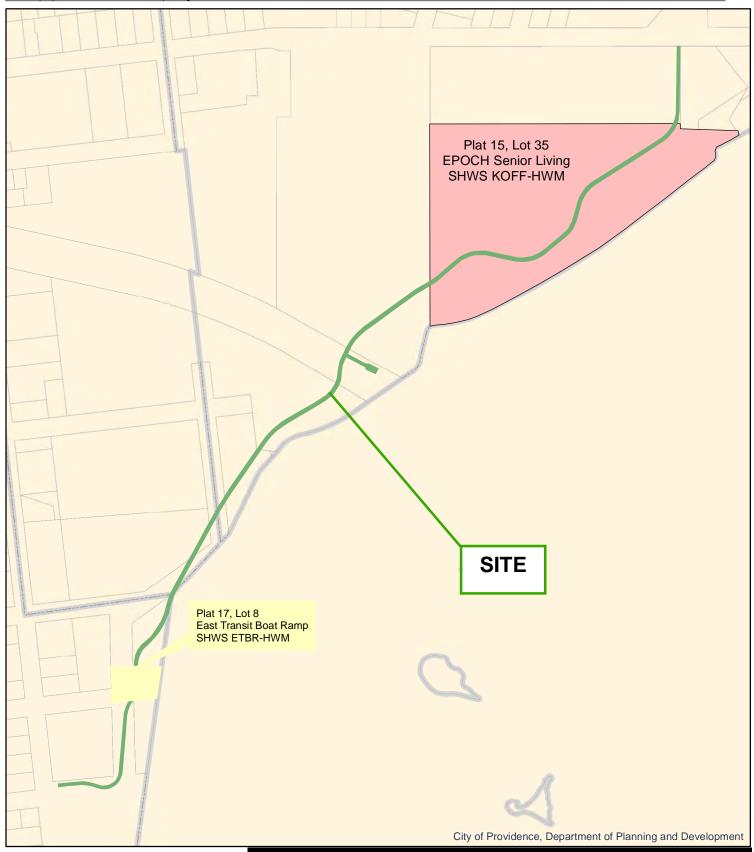
In accordance with Section A iii of the ELUR, no soil at the property is to be disturbed in any manner without prior written permission of the Department's Office of Waste Management, except for minor inspections, maintenance, and landscaping activities that do not disturb the contaminated soil at the Site. As part of the notification process, the Site owner shall provide a brief written description of the anticipated Site activity involving soil excavation. The notification should be submitted to the Department no later than 60 days prior to the proposed initiation of the start of Site activities. The description shall include an estimate of the volume of soil to be excavated, a list of the known and anticipated contaminants of concern, a Site figure clearly identifying the proposed areas to be excavated/disturbed, the duration of the project and the proposed disposal location of the soil.

Following written Notification, the Department will determine the post closure reporting requirements. Significant disturbances of regulated soil will require submission of a Closure Report for Department review and approval documenting that the activities were performed in accordance with this SMP and the Department approved ELUR. Minor disturbances of regulated soil may be documented through the annual certification submitted in accordance with Section H (Inspection & Non-Compliance) of the Department approved ELUR. The Department will also make a determination regarding the necessity of performing Public Notice to abutting property owners/tenants concerning the proposed activities. Work associated with the Notification will not commence until written Department approval has been issued. Once Department approval has been issued, the Department will be notified a minimum of two (2) days prior to the start of activities at the site. Shall any significant alterations to the Department approved plan be necessary, a written description of the proposed deviation, will be submitted to the Department for review and approval prior to initiating such changes.



Engineered Controls Details Blackstone River Bikeway Providence, Rhode Island







Site Detail Map

Figure 2 September 11, 2015

Legend



Blackstone River Bikeway - Segment 1A East Transit Street to Pitman Street Providence, Rhode Island 02906

