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NOTICE OF INTENT

*Filing Under the Massachusetts Wetlands Protection Act
M.G.L. Chapter 131, Section 40*

**Kings Cove MCP Phase II Work
Bridge Street, Weymouth, MA**

SEPTEMBER 2020

PREPARED FOR

Algonquin Gas Transmission, LLC

PREPARED BY

SWCA Environmental Consultants

KINGS COVE MCP PHASE II WORK

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TABLE OF CONTENTS

ATTACHMENT A – PHASE II WORK NARRATIVE

Introduction.....	1
Preemption Statement.....	2
Site Description	2
Phase II Work	3
Kings Cove Beach	3
Test Pits.....	3
Borings.....	3
Surface Soil Sampling.....	4
Sediment Sampling	4
Geophysical Survey	4
Potential Asbestos Containing Material.....	4
Surface Water Sampling	4
Kings Cove Park.....	4
Soil Borings	5
Monitoring Wells.....	5
Geophysical Investigation.....	5
Utility Investigation	5
Potential Asbestos Containing Material.....	5
Algonquin Property	5
Monitoring Well	5
Resource Areas and Impacts.....	6
Designated Port Area.....	7
Coastal Beach.....	7
Coastal Bank.....	7
Lands Subject to Coastal Storm Flowage.....	7
Land Subject to Tidal Action	8
Land Under the Ocean.....	8
Land Containing Shellfish.....	8
200-ft Riverfront Area.....	8
100-foot Buffer Zone.....	9
Other Ecological Issues	9
WPA Resource Areas	9
Rare Species Habitat.....	9
Other Protected Resources.....	9
Minimization of Potential Resource Area Impacts	9
Erosion & Sediment Control and Best Management Practices	10
Kings Cove Beach.....	10
Kings Cove Park	10
Algonquin Property.....	11
Schedule and Duration of Investigations	11

Regulatory Compliance	11
Summary.....	14
References Cited/Literature Cited	15

Appendices

Appendix A.	WPA Form 3, NOI fees, and Site Access Authorization
Appendix B.	Figures and Site Plan
Appendix C.	Representative Photographs
Appendix D.	Manufacturer Equipment Specification Sheets
Appendix E.	Algonquin Erosion and Sediment Control Plan
Appendix F.	Abutter Information

Tables

Table 1. Summary of Proposed Impacts	6
Table 2. General Provisions of the Wetlands Protection Act (310 CMR 10.03)	11
Table 3. General Provisions of Coastal Resource Areas (310 CMR 10.24)	12
Table 4. Performance Standards for Designated Port Areas (310 CMR 10.26(3-7))	13
Table 5. Performance Standards for Coastal Beach (310 CMR 10.27(3-4))	13
Table 6. Performance Standards for Coastal Bank (310 CMR 10.30(3-8)).....	14

INTRODUCTION

On behalf of Algonquin Gas Transmission, LLC (Algonquin), SWCA Environmental Consultants (SWCA) has prepared this Notice of Intent (NOI) application regarding Phase II Comprehensive Site Investigation work under Massachusetts General Laws Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000, *et seq.* (MCP) (the “Phase II Work”) at three properties along Bridge Street including Weymouth Assessors Block-Lot-ID 6-63-1 (the “Algonquin Property”), Weymouth Assessors Block-Lot ID 6-63-3 owned by Calpine Fore River Energy and Weymouth Assessors Block-Lot IDs 6-63-4 (the “Kings Cove Property”). As a result of the presence of Oil and/or Hazardous Materials (OHM) associated with historic filling, the Massachusetts Department of Environmental Protection (MassDEP) has assigned Release Tracking Number (RTN) 4-28186 to the King’s Cove Property. MassDEP has assigned RTN 4-26230 and RTN 4-26243 to the Algonquin Property. A completed “WPA Form 3” is included in Appendix A as well as completed copies of the Affidavit of Service and Site Access Authorization forms. Appendix A also includes copies of the WPA filing fee checks for the Town of Weymouth and MassDEP.

The Phase II Work area covered under this NOI application includes Coastal Beach, Coastal Bank, Land Subject to Tidal Action (LSTA), Designated Port Area (DPA), Land Subject to Coastal Storm Flowage (LSCSF), 100-foot Buffer Zone, and 200-foot Riverfront Area within the Kings Cove Property. No work will occur within any resource area below mean low tide. Access to the Coastal Beach area will be from Bridge Street via an Algonquin-owned parcel of land (Weymouth Assessors Map Block ID 6-63-4). Access to the Kings Cove Park area of the Kings Cove Property will be from the loop road park entrance located north of Bridge Street. The Site Plans (see Appendix B) depict the extent of the Phase II Work. Kings Cove Park, a portion of the Kings Cove Property, is subject to a certain Conservation Restriction and used for passive recreation. The eastern portion of the Kings Cove Property consists of shoreline that adjoins the Kings Cove waterbody; a small area on the western side of the Kings Cove Property adjoins the Fore River. The Algonquin Property borders the Weymouth Fore River to the west and the Kings Cove Property to the east, and Massachusetts Water Resource Authority (MWRA) property to the north (Weymouth Assessors Map Block ID 6-63-2).

The Phase II Work that is the subject of this NOI consists of the following investigation activities within Coastal Beach, LSCSF, LSTA, Designated Port Area (DPA), 100-foot, and 200-foot RFA:

- 5 monitoring wells (four of the soil borings will be completed as monitoring wells),
- 5 test pits,
- 10 soil borings,
- 21 surface soil borings, collected to a depth of 0-3 feet (hand or “soft” dug),
- approximately 9 underground utility samples (soft dug) advanced to the depth of the utility below ground surface (bgs),
- approximately 30 sediment samples,
- limited vegetation trimming.

Additional Phase II Work will also be completed outside of any jurisdictional area. This investigation work includes:

- 3 monitoring wells, and
- 1 surface sample.

This NOI has been developed in accordance with the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40) (WPA) and its implementing regulations (310 CMR 10.00, *et seq.*). The Phase II Work within Coastal Beach, LSCSF, LSTA, Coastal Bank, DPA, 100-foot Buffer Zone, and 200-foot RFA is regulated under the WPA and meets the definition of a limited project at 310 CMR 10.24(7)(c)6. (“Assessment, monitoring, containment, mitigation, and remediation of...a release of or threat of release of oil and/or hazardous waste material in accordance with the *Massachusetts Contingency Plan*...”). Accordingly, Algonquin requests an Order of Conditions (OOC) for the Phase II Work located in areas of the Site subject to jurisdiction.

The Phase II Work is not subject to the Massachusetts Stormwater Standards as there are no changes from existing conditions attributable to the Phase II Work. More specifically, the Phase II Work will not result in an increase in volume or velocity of stormwater flows and will not result in an increase in impervious area or result in any grade changes.

Seven hard copies and a digital copy of this NOI and associated documents are submitted to the Commission. A digital copy of the application and documents has been sent to MassDEP.

Preemption Statement

Notwithstanding anything to the contrary in this NOI, nothing stated herein shall be construed to indicate that any state, regional, or local agency referred to has the power to impose any requirement inconsistent with Federal law or to refuse to issue or to unreasonably delay the issuance or processing of any state, regional, or local permit, license, certificate, approval, review, or other requirement: nor shall this correspondence be construed to limit Algonquin’s legal rights under the Natural Gas Act (15 U.S.C. §717 *et seq.*) (NGA), Natural Gas Pipeline Safety Act (49 U.S.C. §60101 *et seq.*) (NGPSA), or the United States Constitution, including, but not limited to, the Supremacy Clause and Commerce Clause.

SITE DESCRIPTION

A Site Location Map shown on the Site Plans in Appendix B depicts the general location of the Phase II Work. The area of the Phase II Work generally consists of historic fill, steep coastal banks, tidal habitats, and the maintained grounds of Kings Cove Park. The Phase II Work area has been heavily altered by previous anthropogenic impacts.

The limits of the Phase II Work are depicted in the Site Plans in Appendix B. The Phase II Work Area is bounded on the west by the Fore River and on the east by the Coastal Beach associated with Kings Cove. A mix of non-native materials including coal clinkers and fire bricks as well as waterborne refuse and debris are present on the Coastal Beach. A constructed rock revetment and Coastal Bank composed of historic fill material separate the Coastal Beach from Kings Cove Park. Representative photographs of the Phase II Work area and adjacent areas are included in Appendix C.

Kings Cove Park consists of a mix of manicured lawn, paved walkways and landscaper planted shrubs and trees. The unmaintained boundaries of the park are vegetated with a mix of introduced herbaceous plants species, shrubs, and small trees. Many of the plants found in these areas are considered invasive (e.g., buckthorn, common reed, and oriental bittersweet).

The topography of the Site slopes east from a high of elevation (ele.) ± 19 -ft at the top of Coastal Bank within Kings Cove Property, then steeply slopes to ele ± 9 -ft at the toe of the Coastal Bank slope and continues to gently slope east to a low of ele ± 0 -ft. According to the Web Soil Survey (Natural Resources Conservation Service [NRCS] 2019), three soils are mapped within and adjacent to the Site. One soil,

Udorthents, wet substratum, is listed as hydric (NRCS 2020) and occurs in the central and northern portions of the Phase II Work area.

According to the Federal Emergency Management Agency (FEMA) Floodplain Insurance Rate Maps (FIRMs) (Map Nos. 25021C0227F) (FEMA 2014), portions of the Site are located within the 100-year floodplain (i.e., Land Subject to Coastal Storm Flowage). A copy of the most recent FIRMs can be found in Appendix B.

PHASE II WORK

The Phase II Work consists of investigations to determine the nature and extent of OHM on the Algonquin Property and the Kings Cove Property. Algonquin has assumed responsibility for the response actions required under the MCP on the Kings Cove Property, including the Phase II Work that is the subject of this NOI.

Additional investigations are necessary to determine the nature and extent of OHM including determining the potential presence of asbestos containing material (PACM), geophysical investigations, and surface and subsurface investigations to evaluate the nature and thickness of fill and to assess groundwater quality. The following subsections describe these elements of the Phase II Work.

Kings Cove Beach

Test pits, soil borings, and soil, sediment, and surface water sampling will be done to assess potential fill-related impacts as described in the attached Site Plans. An excavator and tracked drill rig will be used and will access the Coastal Beach on the southeastern end of the Kings Cove Property via 0 Bridge Street, Assessors Map 6, Parcel 63, Lot 4.

Test Pits

Five test pits are planned on the Coastal Beach. The test pits will be dug with a compact excavator (see manufacturer specification sheets in Appendix D). The pits are anticipated to extend to a depth of ± 5 -feet or ± 1 -foot below the maximum depth of impacted material, whichever is less. Soil samples will be collected from each of the test pits. Excavated soil will be temporarily placed adjacent to the pit while the sampling work is conducted. Once investigations on the test pit are complete, excavated native material will be returned to the test pit in the same sequence it was removed, and pre-construction grades will be restored. All work will be conducted above the mean low tide line and will occur in the “dry” during low tide conditions. No work will occur in the “wet” during high tide conditions. All test pits will be backfilled and restored to original grade and all equipment will be removed from the beach each day prior to high tide. Erosion and Sedimentation (E&S) controls and best management practices (BMPs) will be employed during the survey, as needed.

Borings

A track mounted drill rig will be mobilized to the beach to collect ten soil borings to define the nature and extent of the fill in this area (see manufacturer specification sheets in Appendix D). Soil samples will be collected from each of the borings. As with the test pits, no work will occur in the “wet” during high tide. However, given the longer duration of drilling activities, it is possible a boring will not be completed prior to the tide coming back in. In this situation, a well casing (i.e., ± 8 -inch diameter steel pipe used to keep the boring open during drilling which is removed after the boring is completed) will be left on the beach until the next work day. Regardless, all mechanical equipment will be removed from the shoreline

before high tide on each workday. E&S controls and best management practices (BMPs) will be employed during the survey, as needed.

Surface Soil Sampling

In addition to soil samples collected from the soil borings, surface soil samples will be collected from higher elevations on the Kings Cove Property (i.e., above mean high water [MHW]). Surface soil samples will be collected at depth intervals of ± 0 to ± 1 -ft and ± 1 -ft to a maximum of ± 3 -ft. Approximately 22 samples will be collected from each depth interval with 21 samples occurring within resource areas and 1 sample within 100-foot buffer zone.

Sediment Sampling

Sediment samples will be collected at a depth of ± 0 – 6-inches along three sample lines oriented parallel to the shoreline on the Kings Cove Property. The Site Plans depict the locations of the sediment sampling lines. The first line would be located below MHW and run along the length of the Coastal Beach with a north-south orientation. The remaining two lines will be parallel to the first line but would be located ± 30 -ft and ± 60 -ft seaward from the first line. Approximately 10 sediment samples will be collected per line for a total of 30 samples within the Kings Cove Property.

Geophysical Survey

Geophysical investigations will be performed to provide information on the thickness of fill material along the Kings Cove Property and shoreline. One or more of the following geophysical methods may be used during these investigations: ground penetrating radar (GPR), multichannel analysis of surface waves (MASW); and electrical resistivity tomography. To conduct the geophysical survey, some herbaceous vegetation and shrubs may need to be cut or trimmed by hand on the survey transect lines to allow the equipment to travel unimpeded along the ground surface. The geophysical survey does not require earth disturbance.

Potential Asbestos Containing Material

A survey will be conducted by a licensed asbestos inspector of the Phase II Work area, including Kings Cove Beach. The survey work is included in the description of the test pits and bores below and the impacts of that Phase II Work is described above.

Surface Water Sampling

Up to ten surface water samples will be collected from the Coastal Beach on the Kings Cove Property during sediment sampling. Access will be via foot and will not require any mechanical equipment, soil disturbance, or alteration of vegetation.

Kings Cove Park

Surface and subsurface investigations will be conducted to evaluate the nature and thickness of the fill underlying the Park and to assess groundwater quality in this area. These investigation activities will only result in temporary impacts to the Park; no permanent impacts are proposed as part of the Phase II Work. Public access to the Park will be maintained during the investigation work. Once the study has been completed, the work areas will be restored to their pre-construction condition including restoration of grades and stabilization of exposed soils with native seed and weed free straw.

Soil Borings

Ten soil borings will be advanced within the area identified on the Site Plan in Appendix B. A subset of these borings will be extended until native material is reached. Other borings will be focused on characterizing the shallow fill placed during construction of the Park and the deeper underlying fill; the borings will extend to the depth of the fill or to ± 15 -feet, whichever is less. The borings will be advanced using a track mounted hollow stem auger drill rig (see Appendix D). It will be necessary to soft dig (i.e., use hand tools or a truck-mounted vacuum excavator) shallow portions of the boring locations at the Park because of the presence of underground utilities (see Appendix D for manufacturer specification sheet). Samples will be collected from the 0 to 1-foot interval, 1 to 3-foot interval, at the water table (or at the depth of observed contamination) and/or in native material.

Monitoring Wells

Four soil borings will be completed as monitoring wells within Kings Cove Park. The wells will be constructed of 2-inch schedule 40 PVC well material with a 10-foot long, 10-slot screen installed to straddle the water table. The wells will be completed with an 8-inch flush mounted road box.

Geophysical Investigation

Geophysical investigations will be performed in the Park to provide information on the thickness of fill material that was placed during construction of Kings Cove Park and to locate underground utilities beneath the Park. One or more of the following geophysical methods may be used during these investigations: GPR, MASW, and electrical resistivity tomography. To conduct the GPR survey, some herbaceous vegetation and shrubs may need to be cut by hand in the unmaintained, fringe areas of the Park to allow the equipment to travel on the ground surface along the survey transect lines. Where the geophysics indicates that the thickness of the recently placed fill is less than 3-feet thick, shallow borings may be advanced in some areas to evaluate the nature and thickness of the fill in these areas.

Utility Investigation

The results of the geophysical investigations will be used to identify the locations of the existing utilities in the Park and utility backfill material will be characterized as part of the investigation. For each utility identified (e.g., electric, gas, water, etc.), nine locations will be sampled along the length of the corridor. One or more soil samples will be collected along each utility to access contaminant concentrations to the depth of the utility (e.g., for a utility line at a depth of six feet, a 0 to 3-foot sample and a 3 to 6-foot sample may be collected).

Potential Asbestos Containing Material

A survey will be conducted by a licensed asbestos inspector of the Phase II Work area. The survey work is included in the description of the bores and the impacts of that Phase II Work is described above.

Algonquin Property

Monitoring Well

One monitoring well (MW-613) will be installed on the northwestern portion of the Algonquin Property near the Fore River shoreline (see Site Plans in Appendix B). The well will be constructed of 2-inch

schedule 40 PVC well material with a 10-foot long, 10-slot screen installed to straddle the water table. The well will be completed with an 8-inch flush mounted road box.

RESOURCE AREAS AND IMPACTS

SWCA delineated the limits of the resource areas within and in proximity to the Phase II Work area on July 7, 2020. There are no inland resource areas within the Phase II Work area. Coastal resource areas were identified in accordance with routine methodologies detailed in the U.S. Army Corps of Engineers (USACE) Regulatory Guidance Letter No. 05-05¹ as well as MassDEP Policy 92-1² and in accordance with 310 CMR 10.00. Additionally, the limits of resource areas approved under a separate, previously issued OOC (DEP File No. SE 81-1170), were utilized to determine the extent of Coastal Bank on the Kings Cove Property.

The Site Plan (Appendix B) depicts the limits of the on-site regulatory resource areas. Representative photographs of the Phase II Work area are provided in Appendix C. The following sections describe each portion of the Phase II Work area including the jurisdictional areas and potential impacts.

The Phase II Work will characterize potential hazardous materials within the Phase II Work area. The Phase II Work includes test pits, soil borings, and soil, sediment, and surface water sampling. A geophysical investigation and asbestos survey will also be conducted. No permanent impacts are proposed. Temporary disturbance will occur during the investigation work (i.e., test pit excavation, boring advancement, and limited vegetation cutting) within Coastal Beach, Coastal Bank, LSCSF, LSTA, and Designated Port Area. No permanent impacts are proposed. The Site Plan in Appendix B depicts the locations of the proposed impacts. Table 1 provides a summary of proposed impacts.

Table 1. Summary of Proposed Impacts

Resource Area	Temporary Impacts	Permanent Impacts
Land Under the Ocean	0-sf	0-sf
Designated Port Areas	342-sf	0-sf
Coastal Beach	208-sf	0-sf
Coastal Bank	0-sf	0-sf
Land Containing Shellfish	0-sf	0-sf
Land Subject to Coastal Storm Flowage	66-sf	0-sf
Land Subject to Tidal Action	208-sf	0-sf
200-foot Riverfront Area	8-sf	0-sf
100-ft Buffer Zone	71-sf	0-sf

Note: Many resource areas overlap each other; therefore, impact numbers within each resource area are not independent.

¹ U.S. Army Corps of Engineers. 2005. Ordinary High Water Mark Identification. Regional Guidance Letter No. 05-05.

² Massachusetts Department of Environmental Protection. 1992. Definition and Delineation Criteria for Coastal Bank. MassDEP Policy 92-1.

Designated Port Area

The Phase II Work will occur within the limits of the Weymouth Fore River Designated Port Area (DPA). The boundaries of the DPA are depicted on the Figure in Appendix B. Within the Phase II Work area, the DPA is comprised of coastal beach, coastal bank, LSCSF, and RFA. The habitats within these resource areas and the potential impacts of the Phase II Work on those resource areas are described below.

Coastal Beach

Coastal Beach is defined at 310 CMR 10.27(2) as, "...unconsolidated sediment subjected to wave, tidal, and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bank line, or the seaward edge of existing human-made structures." Within the Phase II Work Area, Coastal Beach extends from the mean low water line to the coastal bank. This resource area generally consists of sands combined with relic non-native fill material and refuse.

Phase II Work impacts to Coastal Beach include four borings, four test pits, and approximately five surface samples. Each test pit will temporarily impact approximately ± 48 -sf, each bore will impact approximately ± 4 -sf, and ± 0.75 -sf for each surface sample for a total of approximately 208-sf of temporary impacts. Once completed, each test pit/bore/surface sample will be backfilled with native material to pre-existing grades. E&S controls as well as construction BMPs will be implemented to reduce adverse impacts to adjacent areas. All work will occur in the dry at low tide; no work will occur in the wet.

Coastal Bank

Coastal Bank in the Phase II Work area occurs between coastal beach and the upland areas of the Kings Cove Property and generally occur at the top of the steep banks between Kings Cove Park and the adjacent Coastal Beach. Coastal Banks are defined at 310 CMR 10.30 as, "the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland." The previously approved limits of coastal bank approved under DEP File No. SE 81-1170 in 2019 were utilized for delineating the limits of this resource area in the northern portion of the Site. Other Coastal Bank on the Kings Cove Property was delineated in the field and then confirmed or amended, where appropriate, via land survey data in accordance with MassDEP Policy 92-1.

On-site, the Coastal Banks are generally vegetated with early successional herbaceous plants, shrubs, and small trees; however, it has been previously impacted by various anthropogenic alterations including grading and refuse.

There will be no direct or indirect impacts to coastal banks in connection with the Phase II Work. Phase II Work will be within ± 5 -lf of the coastal bank boundary; however, the Phase II Work will occur beyond the toe of slope within the Coastal Beach. Construction BMPs will be implemented to protect the coastal banks from any unintentional adverse impact.

Lands Subject to Coastal Storm Flowage

LSCSF is defined at 310 CMR 10.04 as, "land subject to any inundation caused by coastal storms up to and including that [are] caused by the 100-year storm, surge of record or storm of record, whichever is

greater.” All investigation work involves the collection of subsurface samples from test pits and bores resulting in only minor, temporary disturbance to soil and sediment. These activities will not alter the topography of the surface and will not permanently impact LSCSF. A total of ±66-sf of temporary impacts to LSCSF will result from borings, test pits, and surface samples.

Land Subject to Tidal Action

Land Subject to Tidal Action (LSTA) is defined at 310 CMR 10.04 as, “land subject to the periodic rise and fall of a coastal water body, including spring tides.” Within the Site, LSTA occurs between the mean low tide line to the east and approximately the toe of slope adjacent to the Coastal Banks to the west. This resource area is dominated by Coastal Beach and consists of unconsolidated sand, relic non-native fill, and refuse. This area is nearly devoid of vegetation. The impacts to LSTA are discussed above in the paragraph regarding Coastal Beach; no additional temporary or permanent impacts to LSTA are proposed

Land Under the Ocean

Land Under the Ocean (LUO) occurs outside of the Phase II Work area adjacent to the Kings Cove Property, seaward of the mean low water line. This resource area generally consists of sandy substrate combined with relic non-native fill material. There is no LUO within the Phase II Work area that is the subject of this NOI. There will be no direct or indirect impacts to LUO in connection with the Phase II Work. Test pit #5, the farthest east test pit or bore, is located ±85-ft west of the delineated LUO. To prevent any adverse impacts to LUO, sediment controls will be installed and implemented during the Phase II Work.

Land Containing Shellfish

Land Containing Shellfish (LCS) is defined at 310 CMR 10.34 as, “land under the ocean, tidal flats, rocky intertidal shores, salt marshes, and land under salt ponds when any such land contains shellfish.” There is no LCS on the Kings Cove Property. According to available mapping resources from the Massachusetts Geographic Information Online Mapping Tool (OLIVER), LUO within Kings Cove is a suitable area for soft-shell clam (*Mya arenaria*). There will be no direct or indirect impacts to LCS in connection with the Phase II Work. E&S controls and BMPs will be implemented during construction to avoid any unintentional adverse impacts.

200-foot Riverfront Area

Perennial streams are afforded a 200-foot Riverfront Area (RFA) that is regulated as a resource area under the WPA. RFA extends from the mean high water (MHW) of perennial streams and can overlap with other resource areas such as LSCSF; there is no 100-foot buffer zone associated with RFA. Within the Phase II Work area, the 200-foot RFA extends from the Coastal Bank of the Weymouth Fore River perpendicularly landward as show on the Site Plans in Appendix B. Within the Phase II Work Area, RFA consists of the undeveloped land west of the MWRA access road on the Algonquin Property and the maintained lawn, landscaped shrubs, and paved pedestrian walkway located in the northern tip of the Kings Cove Property. The Phase II Work in RFA includes one boring and one monitoring well (±8-sf of temporary impact). There are no permanent impacts proposed within RFA.

The proposed boring and monitoring well must be located within the RFA to collect the necessary data for the Phase II Work. There are no viable alternatives to these two sampling locations.

100-foot Buffer Zone

While not a regulated resource area, the 100-foot buffer zone is a jurisdictional area under the WPA. Therefore, impacts within the 100-foot buffer zone are reviewable under 310 CMR 10.00. The buffer zone extends from the Coastal Bank 100 feet perpendicularly into the Kings Cove Park portion of the Phase II Work area on the Kings Cove Property. The 100-foot buffer zone also extends into the Algonquin Property along the Weymouth Fore River. Within the Kings Cove Park portion of the Phase II Work area, the buffer zone largely consists of maintained lawn and landscaped shrubs and trees, paved walkways, and unmaintained herbaceous-shrub growth along the park fringes. Dominant species in the unmaintained areas along the park fringes include buckthorn, multiflora rose (*Rosa multiflora*), black locust (*Robinia pseudoacacia*), staghorn sumac (*Rhus typhina*), goldenrod (*Solidago* spp.), oriental bittersweet (*Celastrus orbiculatus*), and various forbs and grasses. The 100-foot buffer zone on the Algonquin Property is undeveloped and vegetated with grasses and forbs.

Within the 100-foot Buffer Zone, impacts include minor and temporary disturbances to the ground surface in select locations to install soil borings and monitoring wells. Some localized vegetation hand trimming will also be needed in the unmaintained vegetated fringe areas of the park to allow the GPR equipment to travel freely along the survey transects. This vegetation cutting will not result in any impacts to the adjacent Coastal Bank. Temporary impacts include five monitoring wells, six borings, seven underground utilities, and 15 surface soil samples for a total of ±71-sf.

Other Ecological Issues

WPA Resource Areas

The Phase II Work area does not contain any other resource areas regulated under the WPA including any inland resource areas, Riverfront Area, Coastal Dunes, Barrier Beaches, Rocky Intertidal Shores, Salt Marsh, Land Under Salt Ponds, or Fish Runs.

Rare Species Habitat

SWCA reviewed the most recent available mapping for Priority or Estimated Habitat for Rare Species via MassDEP's Online Viewer (OLIVER). No such habitat occurs within or in proximity to the Phase II Work area. Additionally, the Site does not contain any potential or certified vernal pools.

Other Protected Resources

SWCA reviewed the most recent mapping available on MassDEP's OLIVER for the presence of any other protected resources within or in proximity to the Site including areas of critical environmental concern (ACECs), outstanding resource waters (ORWs), priority natural vegetation communities, and wellhead protection areas. No such resources were identified within the Phase II Work area.

MINIMIZATION OF POTENTIAL RESOURCE AREA IMPACTS

During construction, Algonquin and its contractors will comply with provisions in Algonquin's Erosion and Sediment Control Plan (E&SC Plan) provided in Appendix E. Algonquin proposes to install sedimentation control barriers as needed between the construction work area and adjacent resource areas, to prevent migration of sediments into the adjacent wetlands as depicted on the Site plan (Appendix B).

Proposed impacts to the regulated resource areas within the Phase II Work Area have been avoided, minimized, and mitigated to the maximum extent practicable. More specifically, impacts within resource areas have been reduced by limiting the number of test pits and bores to the minimum necessary for the Phase II Work. Additionally, impacts to Coastal Bank have been reduced by limiting vegetation hand cutting necessary to complete the geophysical investigation.

Erosion & Sediment Control and Best Management Practices

Kings Cove Beach

During the Phase II Work, Algonquin's contractors will comply with the provisions of Algonquin's E&SC Plan, including BMPs, provided in Appendix E. E&S controls consisting of straw wattles are proposed for installation between the Phase II Work areas and adjacent resource areas. The sedimentation controls will be placed adjacent to Phase II Work areas to limit disturbance and prevent sediment from entering adjacent areas during the Phase II Work. Any Phase II Work debris and sediment shall be kept on-site and shall not be permitted to migrate beyond the Phase II Work areas. Wattles will be installed around each individual test pit / bore hole before breaking ground and the wattles will remain in place until the test pit / bore has been completed and will be removed once the area has been restored. All E&S controls will be removed prior to the tide coming in. On-site controls will be inspected frequently, and any necessary maintenance and/or repairs will be promptly completed.

E&S controls will be installed between the Phase II Work area and adjacent resource areas prior to the start of investigation work at the beginning of each day.

Timber mats are not proposed because the substrate of Kings Cove Beach provides sufficient support to accommodate the tracked excavator and drill rig necessary to complete the test pits and bore holes without the equipment becoming stuck or causing deep rutting on the beach. Additionally, the narrow window of time available to complete the digs due to the changing tides prohibits the use of timber mats. Any areas of rutting observed during the Phase II Work will be restored to the original pre-construction contours following completion of the test pit or bore. A copy of Algonquin's E&SC Plan that includes BMPs that may be utilized during construction is provided in Appendix E.

By defining and conducting the Phase II Work as described above, including the implementation of E&S Controls and BMPs, impacts to resource areas will be avoided, minimized, and mitigated to the maximum extent practicable. To avoid unnecessary impacts, all Phase II Work will occur in the dry at low tide. Any Phase II Work impacts will be temporary and there will be no permanent impacts.

The Contractor will have adequate spill kits on-site and ready for use in the event of a spill. The Contractor will also have proper secondary containment equipment on-site to minimize potential impacts from leaks.

Kings Cove Park

The Contractor will surround the active soil boring operation with straw wattles within the Park to prevent the migration of any loose soil out of the work area. Once the boring work is completed, the Contractor will restore disturbed soils with a mixture of seed and mulch. Herbaceous vegetation that must be cut back during the work for equipment access will grow back during the spring-summer of 2021. No tree removal is anticipated, although some tree limbs may need to be trimmed. Disturbed soils will be seeded and mulched, and any landscaped shrubs removed or damaged during the work will be replanted or replaced.

Algonquin Property

The Contractor will surround the active well installation operation with straw wattles to prevent the migration of any loose soil out of the work area. Once the work is completed, the Contractor will restore disturbed soils with a mixture of seed and mulch. Herbaceous vegetation that must be cut back during the work for equipment access will grow back during the spring-summer of 2021. No tree removal is proposed.

SCHEDULE AND DURATION OF INVESTIGATIONS

The investigation work is expected to commence in October 2020 and continue until December 2020. The investigation work on the Coastal Beach is anticipated to take approximately two or three weeks to complete and is dependent on tides. The work in Kings Cove Park is anticipated to take approximately four to six weeks to complete and the well installation on the Algonquin Property is estimated to take one day to complete. The Park will remain open during the investigation work. The Contractor will delineate the work areas with high visibility construction fencing to establish a defined work area while still maintaining public access to the Kings Cove Conservation Restriction area.

REGULATORY COMPLIANCE

Work subject to the WPA and its implementing regulations must comply with the applicable general provisions and performance standards. The following tables provide a detailed overview of the general provisions and performance standards under 310 CMR 10.00 that are applicable to the Phase II Work and how the Phase II Work meets those standards.

General provisions and performance standards are included in the WPA regulations at 310 CMR 10.00 *et seq.* However, some resource areas, such as LSCSF and LSTA, do not have specific performance standards. Applicable general provisions and performance standards relevant to the Phase II Work are described below.

Table 2. General Provisions of the Wetlands Protection Act (310 CMR 10.03)

Citation	Regulation	Compliance
310 CMR 10.03(1)(a)1.	The area is not significant to the protection of any of the interests identified in the WPA.	There are no permanent impacts proposed as part of the Phase II Work. Temporary impacts associated with the test pits/bores and limited vegetation hand cutting for geophysical survey are necessary to correctly classify the depth, distribution, extent, etc. of potential hazardous material contamination. Although the Site is significant to the prevention of storm damage and the protection of land containing only temporary impacts are anticipated which are unavoidable to complete the Phase II Work. Those unavoidable impacts will be restored addressed no later than when the Phase II Work is complete.
310 CMR 10.03(1)(a)2.	Work within a resource area will contribute to the protection of the interests of the WPA.	The Phase II Work that is the subject of this NOI will be located within an area subject to regulation but will not adversely affect any resource areas.
310 CMR 10.03(1)(a)3.	Work within the buffer zone will contribute to the protection of the interests of the WPA.	Work within the buffer zone is necessary to characterize and survey the extent of OHM within the Phase II Work area. All work is temporary and will not result in any adverse impacts to

		regulated resource areas and will not diminish the ability of the Phase II Work area to contribute to the interests of the WPA.
310 CMR 10.03(1)(b)	Claims of work outside of any jurisdictional area impacting a jurisdictional area must demonstrate the work has had an adverse impact.	Not applicable.
310 CMR 10.03(2)	Credible evidence from a competent source to support the position taken when contesting MassDEP's position.	Not applicable.
310 CMR 10.03(3)	Installation of subsurface sewage disposal systems.	Not applicable.
310 CMR 10.03(4)	Presumption concerning point-source discharges.	Not applicable.
310 CMR 10.03(5)	Each resource area is presumed to be significant to the interests of the WPA.	The only resource areas proposed to be impacted include Designated Port Area, Coastal Beach, and Coastal Bank. All impacts are temporary and all areas impacted will be restored to their pre-construction condition. Erosion and sedimentation controls will be implemented as well as construction BMPs. Lastly, coastal beach within the proposed workspace has been heavily altered by anthropogenic impacts including fill material and refuse.
310 CMR 10.03(6)	Presumption concerning the application of herbicides.	Not applicable.
310 CMR 10.03(7)(a)	Filing fees for NOIs pursuant to the WPA.	Copies of checks are included in Appendix A. The Phase II Work meets the requirements of Category 3.d., "Any activity associated with the clean up of hazardous waste."

Table 3. General Provisions of Coastal Resource Areas (310 CMR 10.24)

Citation	Regulation	Compliance
310 CMR 10.24(1)	Significance of resource areas with no presumption to the protection of the interests of the WPA and work within the buffer zone reviewable under the Regulations.	Six resource areas protected under the WPA occur within Site (i.e., Coastal Bank, LSCSF, LSTA, Coastal Beach, DPA, and RFA). Some of these resource areas contain presumptions under the Regulations (310 CMR 10.30(1), 310 CMR 10.27(1), 310 CMR 10.26(1) and 310 CMR 10.58(3), respectively).
310 CMR 10.24(2)	Work in one resource area that will adversely affect another resource area.	The proposed work will temporarily impact DPA, Coastal Beach, LSCSF, LSTA, and RFA and will not adversely impact any other resource area. Potential adverse impacts to other resource areas will be prevented via erosion and sediment controls and BMPs.
310 CMR 10.24(3)	Determinations finding a resource area is not significant to an interest of the WPA.	Not applicable. The on-Site resource areas are significant to the interests of the WPA. However, within the proposed workspace, this area has been heavily impacted by anthropogenic alterations. Additionally, the proposed impacts are temporary in nature and the areas impacted will be restored to pre-existing conditions following construction. Moreover, erosion and sediment controls combined with BMPs will be implemented to prevent adverse impacts that may otherwise adversely impact any interest of the WPA.
310 CMR 10.24(4)	Compliance with other applicable laws, sites subject to Restriction Orders, and National	The proposed Phase II Work complies with all applicable federal and state laws and regulations.

Citation	Regulation	Compliance
	Pollutant Discharge Elimination System (NPDES).	The Site is not subject to any Restriction Order and it is not subject to NPDES as less than 1-ac of land will be disturbed.
310 CMR 10.24(5)	ACECs	Not applicable.
310 CMR 10.24(6)	Projects that may be permitted under the WPA.	As a limited project under 310 CMR 10.24(7)(c)6., the proposed work meets the "may be permitted" requirement under this regulation. Additionally, no work will begin until all regulatory approvals and reviews described therein have been completed.
310 CMR 10.24(7)	Permit conditions that will contribute to the protection of the interests of the WPA for limited projects.	The Phase II Work meets the limited project definition under 310 CMR 10.24(7)(c)6. for work completed under the MCP.
310 CMR 10.24(8)	Ecological restoration projects.	Not applicable.
310 CMR 10.24(9)	Operation and maintenance (O&M) plans for projects involving the construction, repair, replacement, or expansion of public or private infrastructure	No applicable.
310 CMR 10.24(10)	Stream crossings.	Not applicable.

Table 4. Performance Standards for Designated Port Areas (310 CMR 10.26(3-7))

Citation	Regulation	Compliance
310 CMR 10.26(3).	Projects impacting LUO in DPAs to be constructed to minimize impacts to marine fisheries.	Not applicable.
310 CMR 10.26(4)	Project impacting LUO in DPAs to minimize adverse impacts to storm damage prevention or flood control.	Not applicable.

Table 5. Performance Standards for Coastal Beach (310 CMR 10.27(3-4))

Citation	Regulation	Compliance
310 CMR 10.27(3).	Projects shall not increase erosion, decrease volume, or change the form of a Coastal Beach.	Phase II Work will only result in temporary impacts. All test pits/bores/samples will be backfilled with native material to pre-existing grades. Erosion and sediment controls will be installed during construction and BMPs will be implemented. All work will occur in the dry during low tide and no work will occur in the wet. All equipment will be removed at the end of each workday to avoid any equipment being in the wet during high tide.
310 CMR 10.27(4)	Groin, jetty, solid pier, or solid fill structures that interfere with littoral drift.	Not applicable.
310 CMR 10.27(5)	Beach nourishment	Not applicable.
310 CMR 10.27(6)	No adverse effect on marine fisheries for projects on tidal flats.	Not applicable.
310 CMR 10.27(7)	Rare species	Not applicable.

Table 6. Performance Standards for Coastal Bank (310 CMR 10.30(3-8))

Citation	Regulation	Compliance
310 CMR 10.30(3).	Coastal engineering structures only permitted when required to prevent storm damage to buildings constructed prior to August 10, 1978.	Not applicable.
310 CMR 10.30(4)	No adverse impacts due to wave action on the movement of sediments.	The proposed Phase II Work on the Coastal Beach will not result in adverse impacts to wave action in Kings Cove or the movement of sediments on the Coastal Beach.
310 CMR 10.30(5)	Orders of Conditions and Certificates of Compliance for new buildings within 100-ft landward of the top of bank.	Not applicable.
310 CMR 10.30(6)	No adverse impacts to the stability of the Coastal Bank.	The Phase II Work will not result in any impacts that jeopardize the stability of the Coastal Banks. Limited vegetation cutting that is necessary for the geophysical investigation will be mitigated by restoring the cleared areas with native vegetation and a native seed mix to restabilize the Coastal Banks.
310 CMR 10.30(7)	Coastal engineering structures	Not applicable.
310 CMR 10.30(8)	Rare species	Not applicable.

SUMMARY

The Phase II Work that is the subject of this NOI will not adversely impact jurisdictional resource areas. The Phase II Work has been designed to avoid and minimize impacts to resource areas. The Phase II Work will not change existing grades and will maintain the functions and values of the existing on-Site habitats as well as maintain and protect the interests of the WPA. E&S controls will be installed and BMPs will be employed to protect the resource areas. Following the completion of each test pit / bore, the Phase II Work area will be backfilled with native material to pre-work conditions, including pre-existing grade. The limited vegetation cutting necessary to complete the geophysical investigation will not adversely impact resource areas because of natural regrowth of herbaceous plants, proposed seeding and mulching of disturbed soils and replanting or replacing landscaped shrubs that are removed during Phase II Work.

The Phase II Work meets the qualifications of a Limited Project under 310 CMR 10.24(7)(c)6. The applicable performance standards of the WPA have been met to the maximum extent practicable. Therefore, Algonquin respectfully requests an Order of Conditions for the Phase II Work.

REFERENCES CITED/LITERATURE CITED

- Federal Emergency Management Agency (FEMA). 2014. Flood Insurance Rate Map (FIRM), Norfolk County, Massachusetts, Map No. 25021C0227F.
- Massachusetts Department of Environmental Protection. 1992. Definition and Delineation Criteria for Coastal Bank. MassDEP Policy 92-1.
- Natural Resources Conservation Services (NRCS). 2019. Web Soil Survey. Available online at <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed July 30, 2020.
- NRCS. 2020. State Soil Data Access (SDA) Hydric Soils List. Available at https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316619.html. Accessed July 30, 2020.
- U.S. Army Corps of Engineers. 2005. Ordinary High Water Mark Identification. Regional Guidance Letter No. 05-05.

APPENDIX A

WPA Form 3 and Copies of Fee Checks



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

Bridge Street

a. Street Address

Weymouth

b. City/Town

02191

c. Zip Code

Latitude and Longitude:

6

f. Assessors Map/Plat Number

d. Latitude

63-1, 63-3, and 63-4

g. Parcel /Lot Number

e. Longitude

2. Applicant:

Gus

a. First Name

McLachlan

b. Last Name

Algonquin Gas Transmission, LLC

c. Organization

890 Winter Street, Suite 300

d. Street Address

Waltham

e. City/Town

MA

f. State

02451

g. Zip Code

617.560.1335

h. Phone Number

i. Fax Number

gus.mclachlan@enbridge.com

j. Email Address

3. Property owner (required if different from applicant): ☒ Check if more than one owner

a. First Name

b. Last Name

Calpine Fore River Energy / Algonquin Gas Transmission, LLC

c. Organization

717 Texas Avenue, Suite 1000 / 890 Winter Street, Suite 300

d. Street Address

Houston / Waltham

e. City/Town

TX / MA

f. State

77002 / 02451

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Richard

a. First Name

Paquette

b. Last Name

SWCA Environmental Consultants

c. Company

8 Science Park Road

d. Street Address

Scarborough

e. City/Town

ME

f. State

04074

g. Zip Code

207.292.1590

h. Phone Number

i. Fax Number

richard.paquette@swca.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$1,100

a. Total Fee Paid

\$1,075.00

b. State Fee Paid

\$2,175.00

c. City/Town Fee Paid



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

A. General Information (continued)

6. General Project Description:

Phase II Comprehensive Site Investigation work under Massachusetts General Laws Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.0000, et seq. (MCP) (the "Phase II Work") at three properties along Bridge Street.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- | | |
|---|---|
| 1. ☐ Single Family Home | 2. ☐ Residential Subdivision |
| 3. ☐ Commercial/Industrial | 4. ☐ Dock/Pier |
| 5. ☐ Utilities | 6. ☐ Coastal engineering Structure |
| 7. ☐ Agriculture (e.g., cranberries, forestry) | 8. ☐ Transportation |
| 9. ☒ Other | |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☒ Yes ☐ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)
- 310 CMR 10.24(7)(c)6.

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Norfolk

a. County

34726

c. Book

b. Certificate # (if registered land)

482

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☒ Riverfront Area	Weymouth Fore River 1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- ☐ 25 ft. - Designated Densely Developed Areas only
- ☐ 100 ft. - New agricultural projects only
- ☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 120,500
square feet

4. Proposed alteration of the Riverfront Area:

8 8 0
a. total square feet b. square feet within 100 ft. c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☒ No

3. ☒ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. ☒ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☒ Land Under the Ocean	0 1. square feet	
	0 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☒ Coastal Beaches	208 1. square feet	0 2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet	
	2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged	
l. ☒ Land Subject to Coastal Storm Flowage	208 1. square feet	
4. ☐ Restoration/Enhancement		
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.		
a. square feet of BVW	b. square feet of Salt Marsh	
5. ☐ Project Involves Stream Crossings		
a. number of new stream crossings	b. number of replacement stream crossings	



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

C. Other Applicable Standards and Requirements

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

August 2017

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

C. Other Applicable Standards and Requirements (cont'd)

- (c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhosp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
 2. ☐ Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____
 3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.
3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
- a. ☐ Not applicable – project is in inland resource area only b. ☒ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users:

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 - a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 - b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 - a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 - a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 - a. ☐ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☐ A portion of the site constitutes redevelopment
 3. ☐ Proprietary BMPs are included in the Stormwater Management System.
 - b. ☒ No. Check why the project is exempt:
 1. ☐ Single-family house
 2. ☐ Emergency road repair
 3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Atlantic Bridge, Kings Cove Investigation, Overall Site Plan

a. Plan Title

VHB

b. Prepared By

Sep. 1, 2020

d. Final Revision Date

Mark Costa

c. Signed and Stamped by

1" = 60'

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☒ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☐ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

1541

9/1/2020

2. Municipal Check Number

1542

3. Check date

9/1/2020

4. State Check Number

SWCA Environmental Consultants

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Weymouth

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

September 2, 2020

2. Date

3. Signature of Property Owner (if different)

4. Date

September 2, 2020

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

Christopher Jones

3. Signature of Property Owner (if different)

2. Date

9/3/2020

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
NOI Wetland Fee Transmittal Form
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

Bridge Street

a. Street Address

1542

c. Check number

Weymouth

b. City/Town

\$1,075.00

d. Fee amount

2. Applicant Mailing Address:

Gus

a. First Name

McLachlan

b. Last Name

Algonquin Gas Transmission

c. Organization

890 Winter Street, Suite 300

d. Mailing Address

Waltham

e. City/Town

MA

f. State

02451

g. Zip Code

617.560.1335

h. Phone Number

i. Fax Number

gus.mcchachlan@enbridge.com

j. Email Address

3. Property Owner (if different):

a. First Name

b. Last Name

Calpine Fore River Energy / Algonquin Gas Transmission

c. Organization

717 Texas Avenue, Suite 1000 / 890 Winter Street, Suite 300

d. Mailing Address

Houston / Waltham

e. City/Town

TX / MA

f. State

77002 / 02451

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 4.I.	1	1	\$1,450.00
Step 5/Total Project Fee:			\$2,175.00

Step 6/Fee Payments:

Total Project Fee:	\$2,175.00
	a. Total Fee from Step 5
State share of filing Fee:	\$1,075.00
	b. 1/2 Total Fee less \$12.50
City/Town share of filling Fee:	\$1,100.00
	c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

SITE ACCESS AUTHORIZATION

DATE: September 2, 2020

PROJECT: Kings Cove MCP Phase II MCP Work

TO: **Weymouth Conservation Commission and Conservation Administrator**

FROM: Algonquin Gas Transmission, LLC

LOCATION: Bridge Street (Map 6, Parcel/Lot 63-1 and 63-4)
(Hereafter referred to as the property)

I (We) hereby authorize the individual members of the Conservation Commission and its agents to enter upon the property for the purpose of gathering information prior to issuing a Determination of Applicability or an Order of Conditions and for the purpose of enforcing the Order of Conditions prior to the issuance of a Certificate of Compliance.

TIME: FROM THE PRESENT TO DATE OF ISSUANCE OF CERTIFICATE OF COMPLIANCE

PROPERTY OWNER:  **DATE:** September 2, 2020

APPENDIX B

Figures and Site Plan



Massachusetts Office of Coastal Zone Management
251 Causeway Street, Suite 800
Boston, MA 02114
www.mass.gov/czm

Weymouth Fore River

Designated Port Area (DPA)

For planning purposes only. In the event of conflict between this map and the accompanying written description, CZM shall issue a written clarification pursuant to the Designated Port Area (DPA) regulations at 301 CMR 25.00.



- Point of Beginning
- Chapter 91 Presumptive Line
- Assessor's Parcel
- Designated Port Area Boundary
- Municipal Boundary



Base map: MassGIS 1:5,000 Color Ortho Imagery, 2001.
Map coordinate system: North American Datum of 1983,
Massachusetts State Plane Coordinate System,
Mainland Zone (FIPS zone 2001), meters.

0 1,000 2,000 3,000 4,000
Feet

March 2011

DWG. TITLE	
GENERAL	
WEYM-A-3001	GENERAL NOTES
WEYM-A-3002	OVERALL SITE PLAN
WEYM-A-3003	SITE PLAN - 1
WEYM-A-3004	SITE PLAN - 2
WEYM-A-3005	DETAILS
WEYM-A-0108	EXISTING CONDITIONS

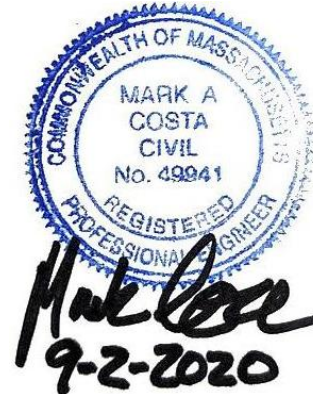
KINGS COVE PHASE 2 WORK
ALGONQUIN GAS TRANSMISSION, LLC
NORFOLK COUNTY, MASSACHUSETTS
SEPTEMBER 2020



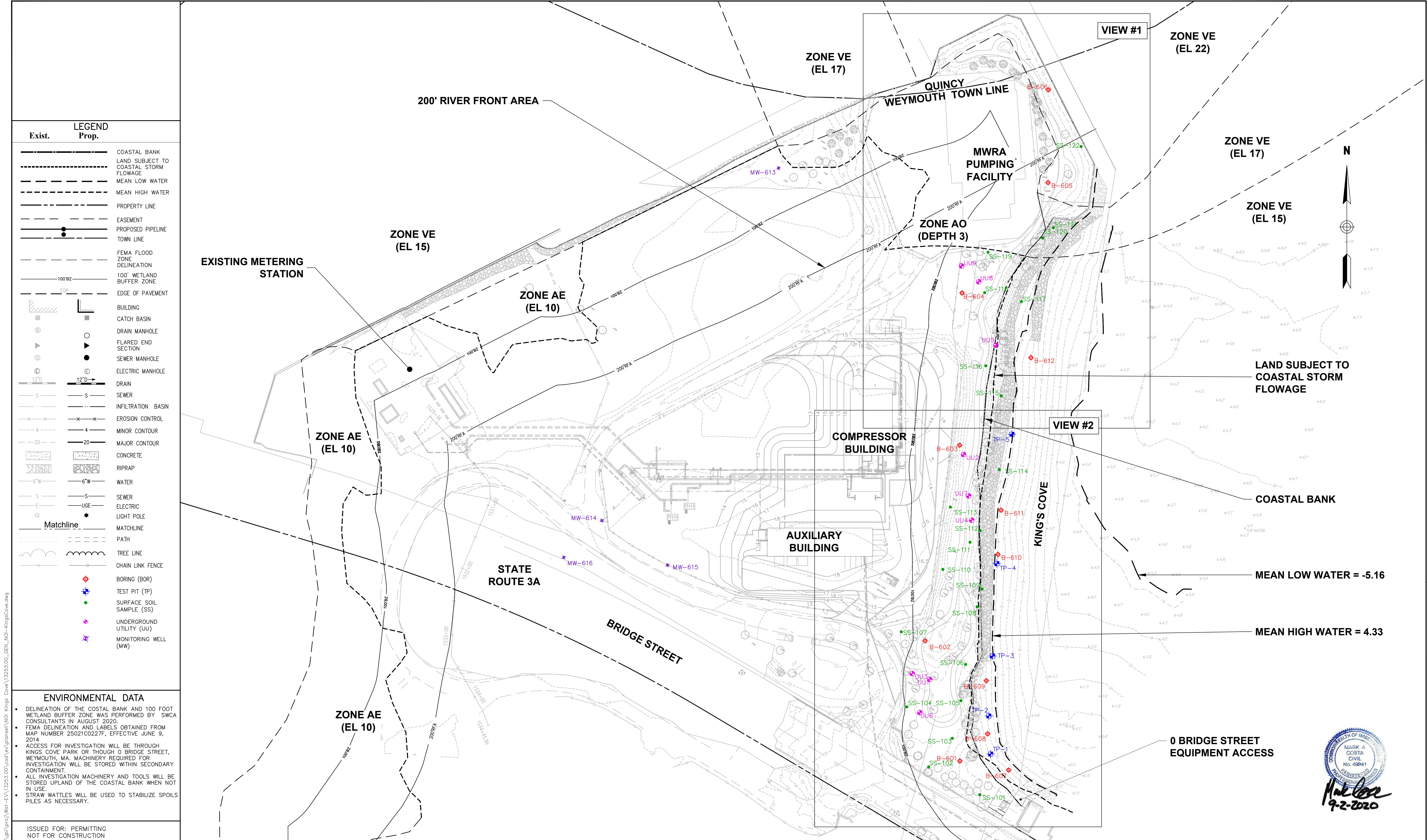
DATE	ISSUE	LEAD DFRS.	SECT. SUPV.	APPROVALS		
				PROJ. ENG./ DESIGN ENG.	PROJ. MGR./ DESIGN MGR.	PROJECT DIRECTOR
9-3-2020	☐ PRELIMINARY (P2)	_____	_____	_____	_____	_____
_____	☐ PRELIMINARY (P3)	_____	_____	_____	_____	_____
_____	☐ BID	_____	_____	_____	_____	_____
_____	☐ CONSTRUCTION	_____	_____	_____	_____	_____
_____	☐ AS-CONSTRUCTED	_____	_____	_____	_____	_____

ASSESSORS PLAT
MAP: 6
BLOCK: 63
LOT: 1

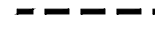
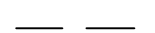
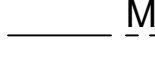
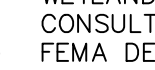
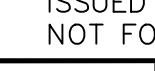
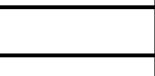
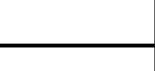
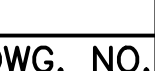
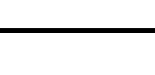
EXHIBIT A
CONTRACT NO. E- _____
PLANT W.B.S. NO. _____
PIPELINE W.O. NO. CE.000089.005.
YEAR 2020



Algonquin Gas Transmission, LLC
5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400



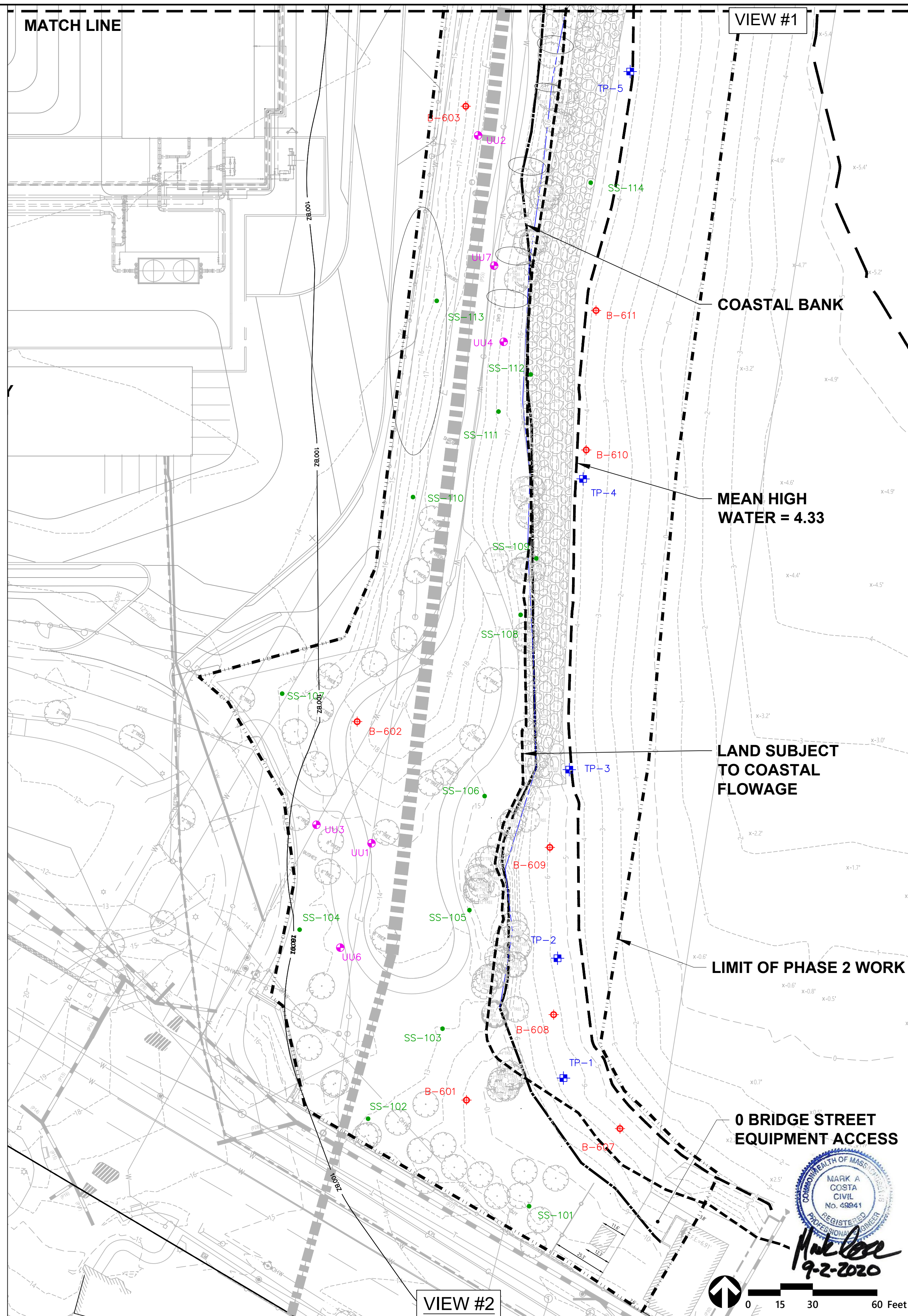
										 <i>Vannasse Hangen Brustlin, Inc.</i>	ENGINEERING APPROVALS		KINGS COVE PHASE 2 WORK			 Algonquin Gas Transmission, LLC 5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400		
											DRAWN BY: AHF	BID	CONSTRUCTION		OVERALL SITE PLAN			
DWG. NO.	DESCRIPTION				REV	DSN	CK	DESCRIPTION		ITEM NO.	DESCRIPTION		LN. FT.	LOC.: WEYMOUTH, MA				
REFERENCE DRAWINGS				REVISIONS				MATERIALS						YEAR: 2020	CE.000089.005	SCALE: 1"=60'	DWG.: WEYM-A-3002	REV.:

Exist.	Prop.	LEGEND
		COASTAL BANK
		LAND SUBJECT TO COASTAL STORM FLOWAGE
		MEAN LOW WATER
		MEAN HIGH WATER
		PROPERTY LINE
		EASEMENT
		PROPOSED PIPELINE
		TOWN LINE
		FEMA FLOOD ZONE
		DELINEATION
		100' WETLAND BUFFER ZONE
		EDGE OF PAVEMENT
		BUILDING
		CATCH BASIN
		DRAIN MANHOLE
		FLARED END SECTION
		SEWER MANHOLE
		ELECTRIC MANHOLE
		DRAIN
		SEWER
		INFILTRATION BASIN
		EROSION CONTROL
		MINOR CONTOUR
		MAJOR CONTOUR
		CONCRETE
		RIPRAP
		WATER
		SEWER
		ELECTRIC
		LIGHT POLE
		MATCHLINE
		PATH
		TREE LINE
		CHAIN LINK FENCE
		BORING (BOR)
		TEST PIT (TP)
		SURFACE SOIL SAMPLE (SS)
		UNDERGROUND UTILITY (UU)
		MONITORING WELL (MW)
		SELECTIVE CLIPPING OF GROUND COVER OR LIMB TRIMMING

ENVIRONMENTAL DATA

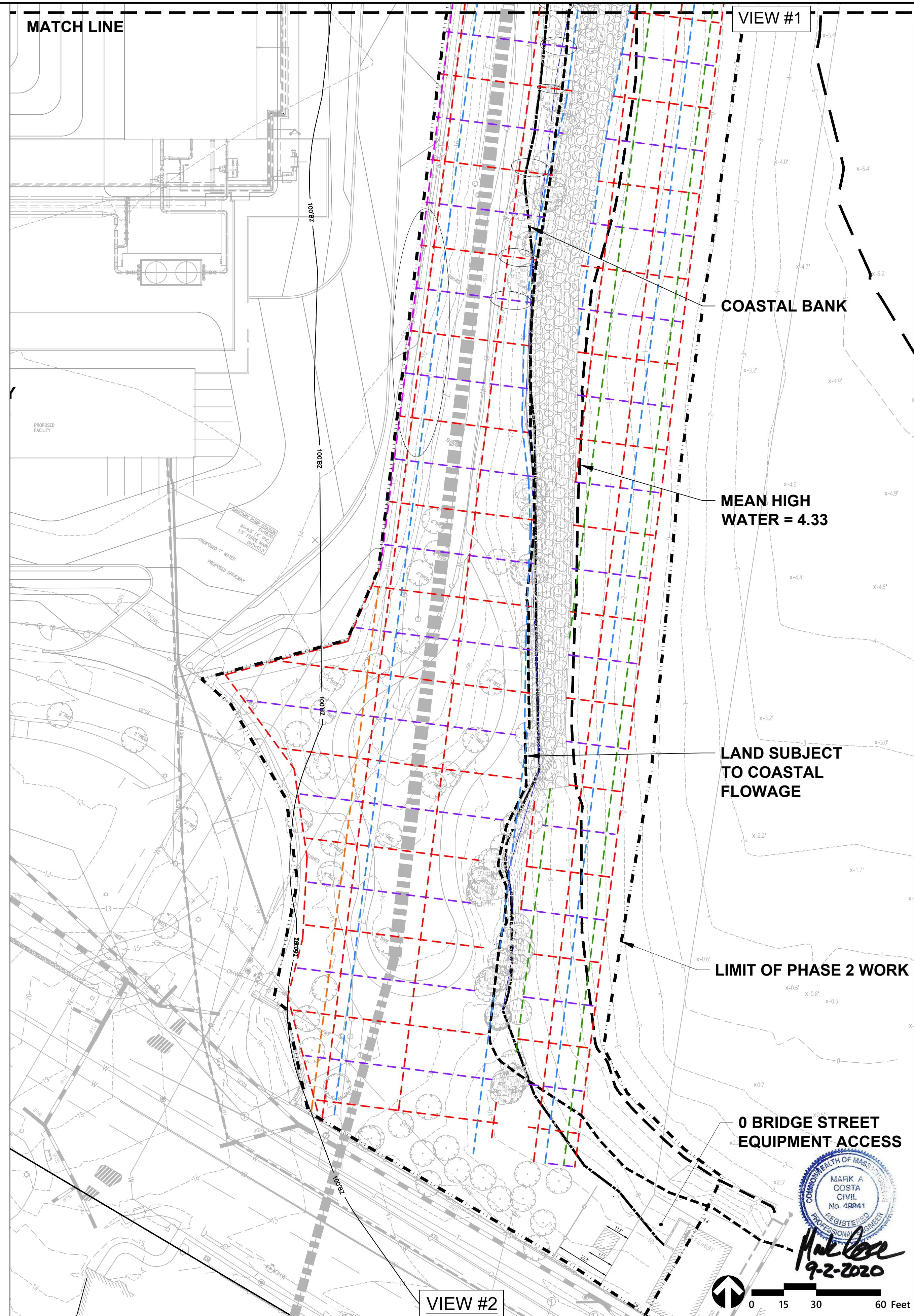
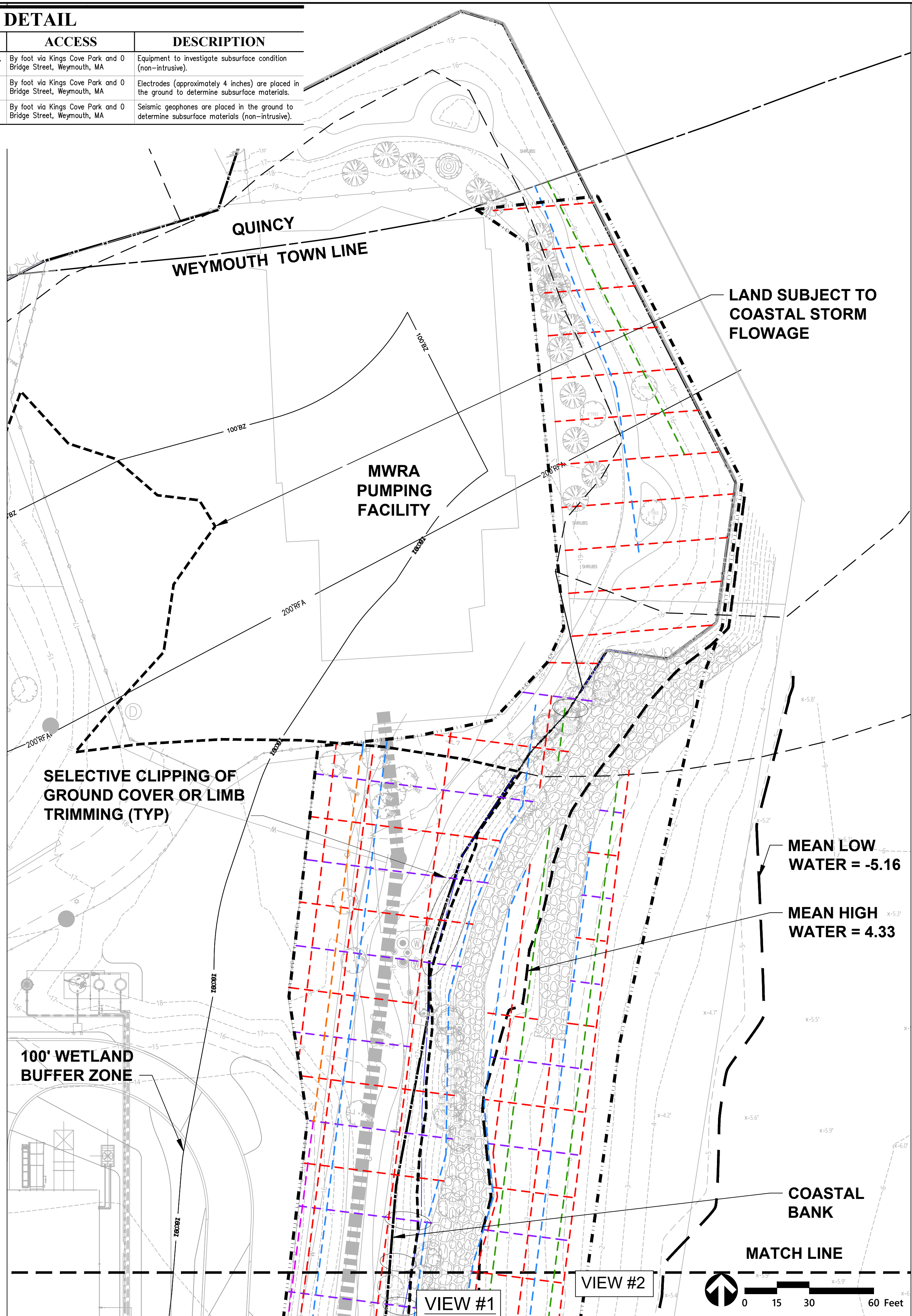
- DELINEATION OF THE COASTAL BANK AND 100 FOOT WETLAND BUFFER ZONE WAS PERFORMED BY SWCA CONSULTANTS IN AUGUST 2020.
- FEMA DELINEATION AND LABELS OBTAINED FROM MAP NUMBER 25021C0227F, EFFECTIVE JUNE 9, 2014.
- ACCESS FOR INVESTIGATION WILL BE THROUGH KINGS COVE PARK OR THOUGH O BRIDGE STREET, WEYMOUTH, MA. MACHINERY REQUIRED FOR INVESTIGATION WILL BE STORED WITHIN SECONDARY CONFINEMENT.
- ALL INVESTIGATION MACHINERY AND TOOLS WILL BE STORED UPLAND OF THE COASTAL BANK WHEN NOT IN USE.
- STRAW WATTLES WILL BE USED TO STABILIZE SPOILS PILES AS NECESSARY.

ISSUED FOR: PERMITTING
NOT FOR CONSTRUCTION



 Vanasse Hangen Brustlin, Inc.		ENGINEERING APPROVALS				KINGS COVE PHASE 2 WORK SITE PLAN – 1			 Algonquin Gas Transmission, LLC 5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400	
	DRAWN BY: ECS	BID		CONSTRUCTION						
	TITLE	SIGNATURE	DATE	SIGNATURE	DATE	YEAR: 2020	CE.000089.005	SCALE: 1"=30'	DWG.: WEYM-A-3003	REV.:

Exist.	Prop.	LEGEND
		COASTAL BANK
		LAND SUBJECT TO COASTAL STORM FLOWAGE
		MEAN LOW WATER
		MEAN HIGH WATER
		PROPERTY LINE
		EASEMENT
		PROPOSED PIPELINE
		TOWN LINE
		FEMA FLOOD ZONE
		DELINEATION
		100' WETLAND BUFFER ZONE
		EDGE OF PAVEMENT
		BUILDING
		CATCH BASIN
		DRAIN MANHOLE
		FLARED END SECTION
		SEWER MANHOLE
		ELECTRIC MANHOLE
		DRAIN
		SEWER
		INFILTRATION BASIN
		EROSION CONTROL
		MINOR CONTOUR
		MAJOR CONTOUR
		CONCRETE
		RIPRAP
		WATER
		SEWER
		ELECTRIC
		LIGHT POLE
		MATCHLINE
		PATH
		TREE LINE
		CHAIN LINK FENCE
		BORING (BOR)
		TEST PIT (TP)
		SURFACE SOIL SAMPLE (SS)
		UNDERGROUND UTILITY (UU)
		MONITORING WELL (MW)
		SELECTIVE CLIPPING OF GROUND COVER OR LIMB TRIMMING
SUBSURFACE INVESTIGATION GPR MASW ERT + MASW ERT GPR + ERT GPR + ERT + MASW		
ENVIRONMENTAL DATA		
- DELINEATION OF THE COASTAL BANK AND 100 FOOT WETLAND BUFFER ZONE WAS PERFORMED BY SWCA CONSULTANTS IN AUGUST 2020. - FEMA DELINEATION AND LABELS OBTAINED FROM MAP NUMBER 25021C0227F, EFFECTIVE JUNE 9, 2014 - ACCESS FOR INVESTIGATION WILL BE THROUGH KINGS COVE PARK OR THOUGH O BRIDGE STREET, WEYMOUTH, MA. MACHINERY REQUIRED FOR INVESTIGATION WILL BE STORED WITHIN SECONDARY CONTAINMENT. - ALL INVESTIGATION MACHINERY AND TOOLS WILL BE STORED UPLAND OF THE COASTAL BANK WHEN NOT IN USE. - STRAW WATTLES WILL BE USED TO STABILIZE SPOILS PILES AS NECESSARY.		
ISSUED FOR: PERMITTING NOT FOR CONSTRUCTION		



IG #									
	DWG. NO.	DESCRIPTION	REV	DSN	CK	DESCRIPTION	ITEM NO.	DESCRIPTION	LN. FT.
	REFERENCE DRAWINGS			REVISIONS			MATERIALS		



	ENGINEERING APPROVALS				KINGS COVE PHASE 2 WORK SITE PLAN - 2			 Algonquin Gas Transmission, LLC 5400 Westheimer Ct. Houston, TX 77056-5310 713 / 627-5400	
DRAWN BY: ECS	BID		CONSTRUCTION						
					LOC.: WEYMOUTH, MA				
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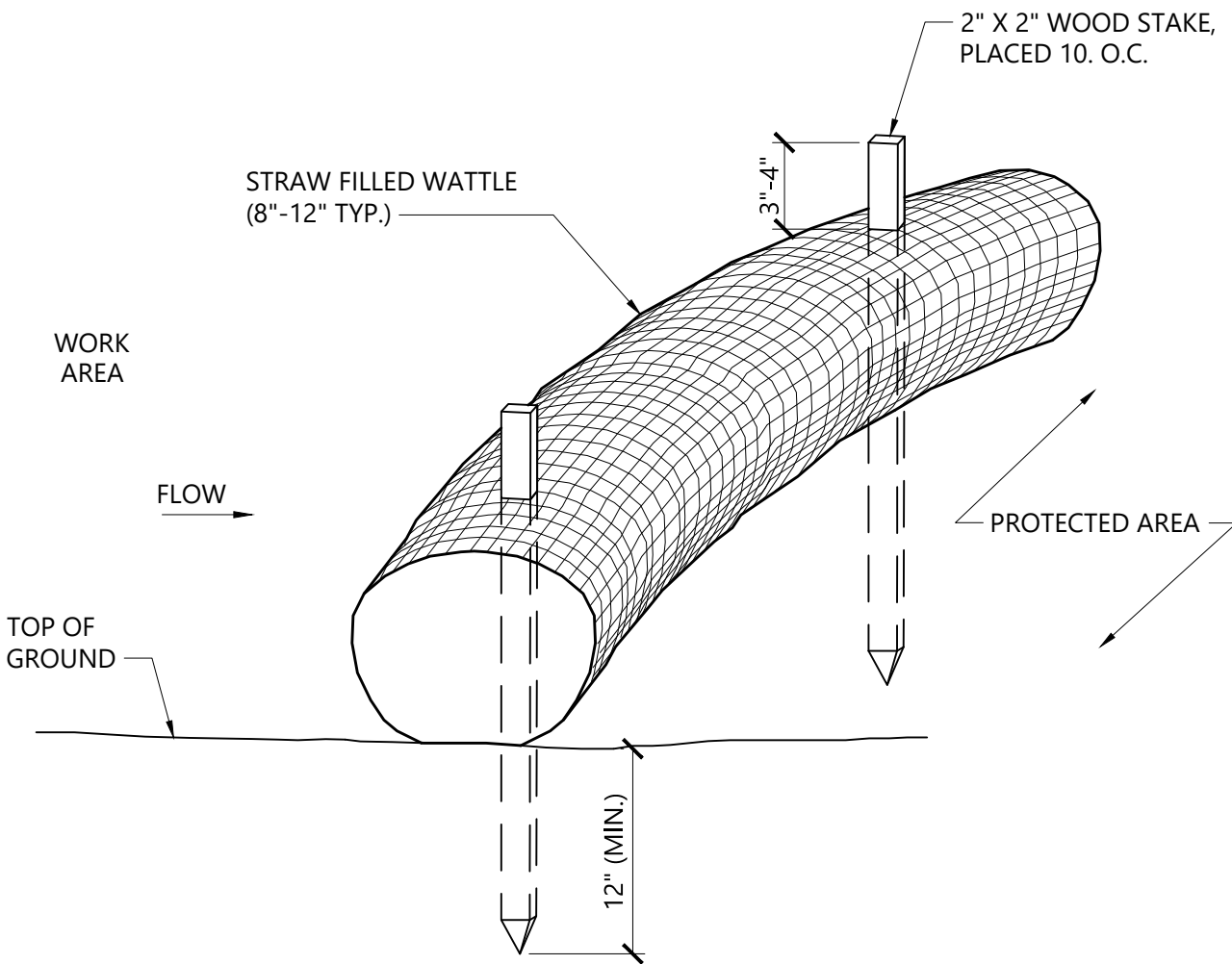
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LEGEND	
Exist.	Prop.
	COASTAL BANK
	LAND SUBJECT TO COASTAL STORM FLOWAGE
	MEAN LOW WATER
	MEAN HIGH WATER
	PROPERTY LINE
	EASEMENT
	PROPOSED PIPELINE
	TOWN LINE
	FEMA FLOOD ZONE DELINEATION
	'100' WETLAND BUFFER ZONE
	EDGE OF PAVEMENT
	BUILDING
	CATCH BASIN
	DRAIN MANHOLE
	FLARED END SECTION
	SEWER MANHOLE
	ELECTRIC MANHOLE
	DRAIN
	SEWER
	INFILTRATION BASIN
	EROSION CONTROL
	MINOR CONTOUR
	MAJOR CONTOUR
	CONCRETE
	RIPRAP
	WATER
	SEWER
	ELECTRIC
	LIGHT POLE
	MATCHLINE
	PATH
	TREE LINE
	CHAIN LINK FENCE
	BORING (BOR)
	TEST PIT (TP)
	SURFACE SOIL SAMPLE (SS)
	UNDERGROUND UTILITY (UU)
	MONITORING WELL (MW)
	SELECTIVE CLIPPING OF GROUND COVER OR LIMB TRIMMING

ENVIRONMENTAL DATA

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- ALL INVESTIGATION MACHINERY AND TOOLS WILL BE STORED UPLAND OF THE COASTAL BANK WHEN NOT IN USE.
- STRAW WATTLES WILL BE USED TO STABILIZE SPOILS PILES AS NECESSARY.

ISSUED FOR: PERMITTING
NOT FOR CONSTRUCTION



NOTES

1. STRAW WATTLE SHALL BE AS MANUFACTURED BY EARTHSAVER OR APPROVED EQUAL.
2. STRAW WATTLES SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. STRAW WATTLE SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. TEMPORARY STRAW WATTLES TO BE REMOVED BY CONTRACTOR. ALL OTHERS TO REMAIN IN PLACE UNLESS DIRECTED OTHERWISE BY ENGINEER.
5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

Straw Wattle - Erosion Control Barrier

N.T.S.

Source: VHB

1/16

LD_659

ENVIRONMENTAL DATA

- DELINEATION OF THE COSTAL BANK AND 100 FOOT WETLAND BUFFER ZONE WAS PERFORMED BY SWCA CONSULTANTS IN AUGUST 2020.
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- STRAW WATTLES WILL BE USED TO STABILIZE SPOILS PILLS AS NECESSARY.

ISSUED FOR: PERMITTING
NOT FOR CONSTRUCTION

[illegible]

RIGHT-OF-WAY
TRACT NUMBERS
OWNERSHIP/AGENCY

SURVEY DATA

SURVEY COMPANY: VHB INC.

FIELD BOOK:

PAGES:

	DRAIN MANHOLE
	CATCH BASIN
	SEWER MANHOLE
	ELECTRIC MANHOLE
	TELEPHONE MANHOLE
	MANHOLE
	HAND HOLE
	WATER GATE
	FIRE HYDRANT
	GAS GATE
	BOLLARD w/LIGHT
	STREET SIGN
	LIGHT POLE
	UTILITY POLE
	GUY POLE
	GUY WIRE
	MONITORING WELL
	FLOOD LIGHT
	WELL
	MARSH
	F.F.E. = 45.27'
	FINISHED FLOOR ELEVATION
	CNO
	NPV
	DYL
	DASHED WHITE LINE
	SYL
	EDGE OF PAVEMENT
	CONCRETE CURB
	VERTICAL GRANITE CURB
	SLOPED GRANITE EDGE
	BITUMINOUS BERM
	BITUMINOUS CURB
	GUARD RAIL
	CHAIN LINK FENCE
	DRAINAGE LINE
	SEWER LINE
	OVERHEAD WIRE
	UNDERGROUND ELECTRIC
	TELEPHONE LINE
	GAS LINE
	WATER LINE
	STONE WALL
	TREE LINE
	100-FT BUFFER ZONE
	100-FT RIVER FRONT AREA
	200-FT RIVER FRONT AREA
	LIMIT MEAN ANNUAL HIGH WATER
	LIMIT OF BANK
	VEGETATED WETLAND BOUNDARY

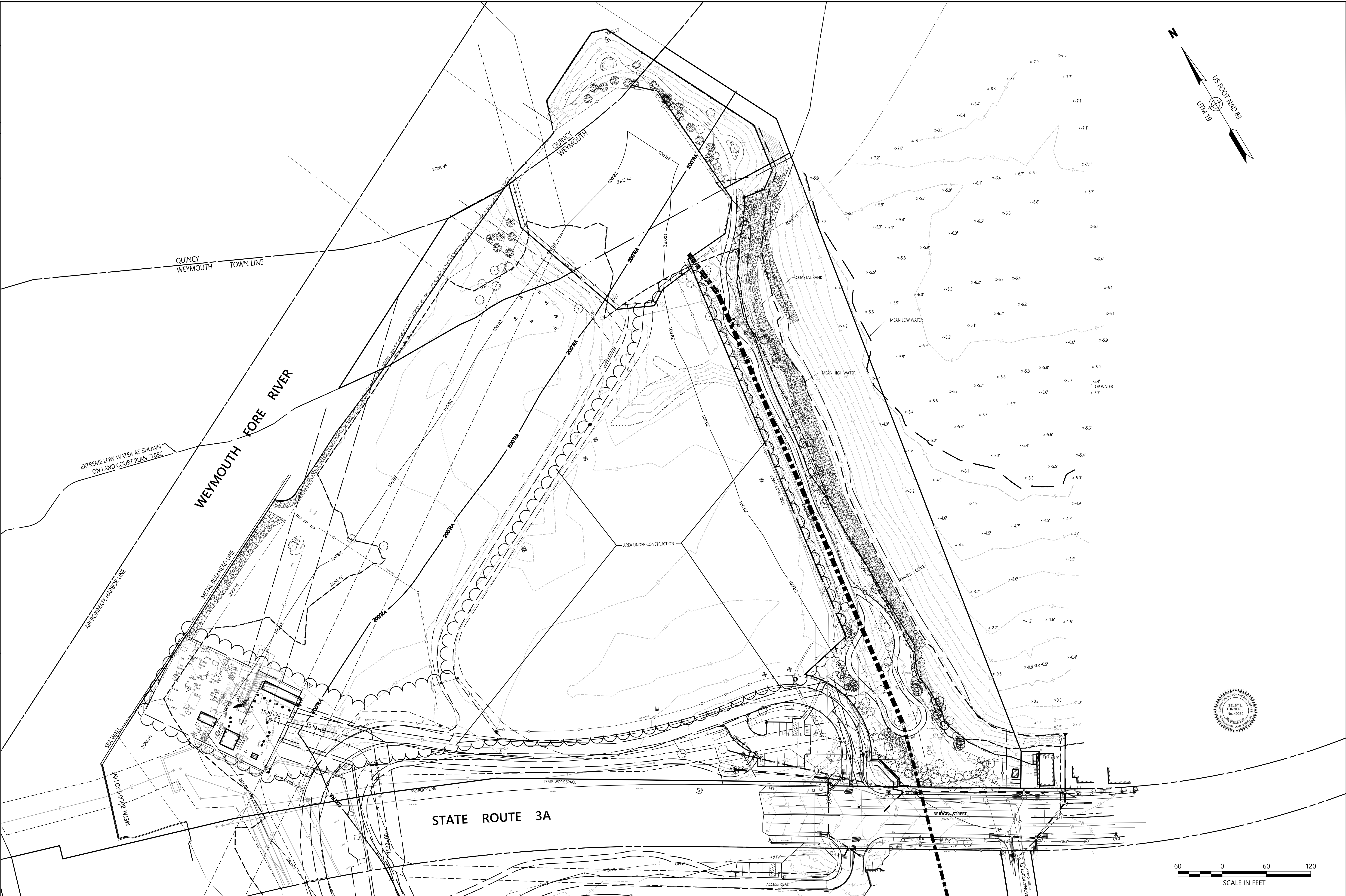
1. THE PROPERTY LINES SHOWN ON THIS PLAN ARE A COMBINATION OF FIELD EVIDENCE, RECORD PLANS G/S.
2. THE EXISTING CONDITIONS SHOWN ON THIS PLAN WERE THE RESULT OF AN ON THE GROUND SURVEY PERFORMED IN AUGUST 2014 AND SUPPLEMENTED IN JUNE OF 2020.
3. HORIZONTAL DATUM IS BASED ON UTM 19 PROJECTIONS, NAD 1983. VERTICAL DATUM IS BASED ON GPS OBSERVATION IN NAVD 88.
4. THE COASTAL BANK SHOWN ON THIS PLAN WAS DELINEATED IN THE WINTER OF 2015 BY TRC ENVIRONMENTAL CORP. AND FIELD SURVEYED BY WHB IN DECEMBER OF 2015.
5. PROPOSED CONSTRUCTION AND TYPICALS WERE DESIGNED TO SUPPORT THE 2016 ALIGNMENT BY BASIC AND ARE SHOWN FOR GRAPHICAL PURPOSES ONLY.
6. WATER AND SEWER DESIGN ALIGNMENT BASED ON ORIGINAL ROUTE AS SHOWN ON NOI DATED 5-8-2016.

1. ANY NECESSARY TRENCH DE-WATERING TO BE DIRECTED TO FILTER BASIN OR EQUIVALENT IN A MANNER SO AS NOT TO CAUSE EROSION/SEDIMENTATION.
2. CONTRACTOR TO COMPLY WITH ALL APPLICABLE PROVISIONS OF SPECTRA'S ENVIRONMENTAL CONSTRUCTION EROSION/SEDIMENTATION CONTROL PLAN.
3. THE FINAL IMPLEMENTATION AND LOCATION OF EROSION AND SEDIMENT CONTROLS WILL BE DETERMINED BY A SPECTRA INSPECTOR.
4. PUBLIC PARKING AREAS, PARK AND ACCESS SHALL BE MAINTAINED DURING CONSTRUCTION.

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DWG. NO.	DESCRIPTION	REV	DSN	CK	DESCRIPTION	ITEM NO.	DESCRIPTION	LN.	FT.
	REFERENCE DRAWINGS				REVISIONS		MATERIALS		



	ENGINEERING APPROVALS				KINGS COVE PHASE-2 EXISTING CONDITIONS				
DRAWN BY: SLT	BID		CONSTRUCTION						
					LOC.: WEYMOUTH, MASSACHUSETTS			Algonquin Gas Transmission, LLC 5400 Westheimer Ct, Houston, TX 77056-5310 713/627-5400	
TITLE	SIGNATURE	DATE	SIGNATURE	DATE	YEAR: 2020	CE.000089.005	SCALE: 1"=60'	DWG.:WEYM-A-0108	REV.:



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IG.#

APPENDIX C

Site Photos



Photo 1. Typical view of the southern portion of the site.



Photo 2. Additional view of the proposed test pit/bore locations.



Photo 3. View of the intertidal zone at low tide.



Photo 4. Typical view of refuse in the area.



Photo 5. Additional view of the project area.

APPENDIX D
Manufacturer Equipment Specification Sheets



Mobile Drill Intl

YOUR DRILL RIG SALES AND SERVICE EXPERTS SINCE 1947

B48 Great Multi-Purpose Rig

Compact Mechanical Drill



**Geotechnical
Environmental**

Environmental • Geotechnical • Mineral Exploration • Rotary

B48 Drilling Benefits

- 40+ Years of being the international standard for the geotechnical market
- Hollow stem auger, continuous flight auger, diamond core and rotary drilling capable
- Designed for angle drilling
- 10-speed rotary head: 8,611 ft-lb [11,675 Nm] of torque and 856 RPM
- Pulldown Force: 16,200 lbs [7,348.2 kg]
- Retract Force: 24,000 lbs [10,886.2 kg]
- Sized for mounting on a variety of carriers to provide go-anywhere versatility

B48

**Compact
Hydraulic
Drill**

PERFORMANCE SPECIFICATIONS

Hydraulic Feed System

Pulldown force: 16,200 lbs [7,348.2 kg]
Retract force: 24,000 lbs [10,886.2 kg]
Feed speed, down: 0-71 ft/min [21.6 m/min]
Feed speed, retract: 0-48 ft/min [14.6 m/min]
Feed stroke: 6 ft [1.83 m]
Angle Drilling

Power Unit

Deck engines: Cummins, Deutz Diesel
PTO: Transmission or transfer case

Hydraulic Pumps

Primary pump: 36 gpm [136.3 l/min]
Auxiliary pump: 24 gpm [90.9 l/min]

Drill Head Rotary

STANDARD HEAD

10-SPEEDS

Open bore: 4-5/8 in [118 mm]
Maximum rotary speed: 856 rpm
Maximum torque: 8,611 ft-lb [11,675 Nm]

C-SERIES HEAD

INFINATELY VARIABLE SPEEDS

Open bore: 5-1/8 in [130 mm]
Maximum rotary speed: 1,300 rpm
Maximum torque: 2,750 ft-lb [3,728 Nm]

X-SERIES HEAD

8-SPEEDS

Open bore: 5-1/8 in [130 mm]
Maximum rotary speed: 1,020 rpm
Maximum torque: 10,100 ft-lb [13,693 Nm]

Estimated Operating Capacities (Standard Rotary Head)

Hollow stem augers, 3-1/4 in [82.6 mm] ID: 175 ft [53.3 m]
Continuous flight auger, 6 in [152.4 mm] OD: 300 ft [91.4 m]
Continuous flight auger, 14 in [355.6 mm] OD: 60 ft [18.3 m]
Rotary drilling, NW: 1,500 ft [457 m]
Diamond core drilling, N Wireline: 1,600 ft [468 m]
Note: Above drilling capacities may vary according to subsurface conditions and rotary head option.

SPT Automatic Hammer

ASTM D-1586 standards, standard duty and heavy duty
140 lb [63.5 kg], 170 lb [77.1 kg]
300 lb [136.1 kg]
340 lb [154.2 kg] slugs available
Hydraulic self compensating

Leveling Jacks

Single front/dual rear, 24 in [609.6 mm] or
36 in [914.4 mm] stroke

Hoist

MAIN—SINGLE LINE CAPACITY: 8,500 lbs [3,855.5 kg]

Line speed: 0-75 ft/min [0-22.9 m/min]

Line speed - Reverse: 0-325 ft/min [0-99.06 m/min]

Cable diameter: 1/2 in (.500) [12.7 mm]

Cable length: 100 ft [30.5 m] standard

AUXILIARY—SINGLE LINE CAPACITY: 4,500 lbs [2,041.2 kg]

Line speed: 0-135 ft/min [41.2 m/min]

Cable diameter: 5/16 in (.325) [8.3 mm]

Cable length: 75 ft [22.9 m] standard

SAFE-T DRIVER—SINGLE LINE CAPACITY: 900 lbs [408.2 kg]

Line speed: variable up, freefall down

Cable diameter: 1/4 in (.250) [6.4 mm]

Cable length: 300 ft [91.4 m] standard

WIRELINE—SINGLE LINE CAPACITY: 1,200 lbs [544.3 kg]

Line speed: 0-500 ft/min [0-152.4 m/min]

Cable diameter: 3/16 in (.185) [4.7 mm]

Cable length: 400 ft [121.9 m] standard

Winch capacity: 3,500 ft [1,066.8 m] cable

Optional Equipment

- Mast: 21 ft [6.4 m] or 31 ft [9.5 m]
- In-out slide base/side-to-side slide base
- Adjustable auger guide support
- Above deck combination auger/rod rack
- Front mounted auger rack
- Swing out under body auger racks
- Water pumps
- Hydraulic chuck
- Break out wrench
- Rod clamp
- And much more!

Mounting Options

Truck, trailer, track carrier

NOTE: Engineering specifications are theoretical, actual performance will be different, specifications are subject to change without notice.



HYDRAULIC EXCAVATOR

Takeuchi
From World First to World Leader

TB260



Product Features & Specifications

ENGINE

- U.S. EPA Final Tier 4 Compliant
- Turbocharged
- DOC+DPF Exhaust After Treatment
- Automatic Fuel Bleed System
- Dual Element Air Filter
- Automatic Idle
- Working Modes: Power, Eco, and High Altitude
- Engine Preheat Starting Aid
- High Capacity Radiator and Hydraulic Oil Cooler
- High Capacity Fuel Filters

ELECTRICAL

- Multi-Informational Display (canopy)
- 5.7" Color Multi-Informational Display (cab)
- Sealed Rocker Switches
- 12 volt System with 55 amp Alternator
- Halogen Work Lights: Two Forward Facing and One on the Right and Left Sides
- Travel Alarm
- Horn

TAKEUCHI FLEET MANAGEMENT

- 2 Year Standard Service
- Minimize Downtime
- Remote Diagnostics
- Utilization Tracking
- Proactive Maintenance
- Control Costs

UNDERCARRIAGE AND FRAME

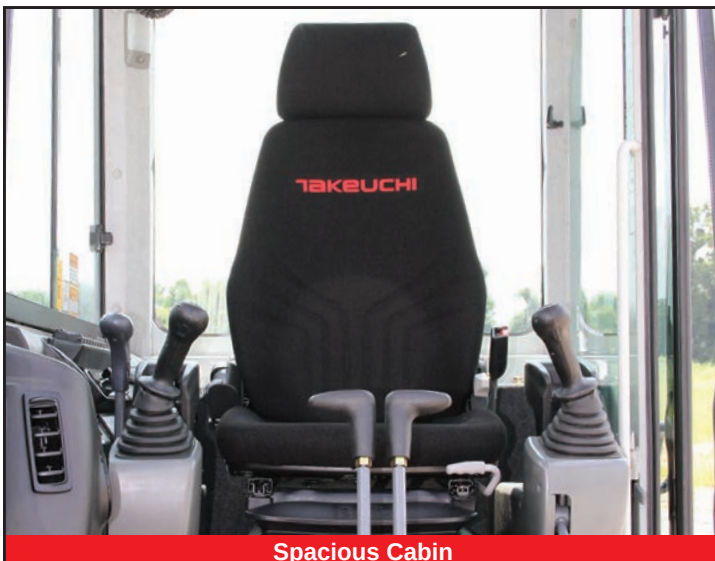
- Triple Flanged Track Rollers
- 2-Speed Travel with Automatic Shift
- High Torque Planetary Final Drive
- Heavy Duty Dozer Blade with Float
- Large Wrap Around Counterweight
- 15.7" Rubber Tracks
- 15.7" Steel Tracks (optional)
- 15.7" Segmented Rubber Tracks (optional)
- Power Angle Blade with Float and Bolt-on Cutting Edge (optional)

OPERATOR'S STATION

- ROPS / OPG Level 1 Four Post Canopy
- Deluxe High Back Suspension Seat
- Adjustable Arm Rests
- 2" Retractable Seat Belt
- 3" Retractable Seat Belt (optional)
- Cab with Air Conditioner, Heat Defrost, Windshield Wiper and Washer, Skylight with Sunshade, AM / FM / MP3 Radio, 12v Power Outlet (optional)

HYDRAULIC & WORKING EQUIPMENT

- Variable Displacement, Open Center Hydraulics
- Cushioned Boom, Arm, and Swing Cylinders
- Hydraulic Pilot Controls
- Proportional Auxiliary Controls with Detent
- Adjustable Auxiliary Flow
- Large Hydraulic Reservoir with Fluid Level Sight Gauge
- Primary and Secondary Auxiliary Hydraulic Circuit Plumbed to Arm
- Multiple Attachment Presets
- Flow Selector Valve, Primary Auxiliary Circuit
- Pattern Change Valve (ISO or SAE)
- Boom Holding Valve with Lift Overload Alarm
- Pilot Accumulator
- Main Boom Cylinder Guard
- Long Arm with Integrated Thumb Mount
- Dual Pin Position Bucket (optional)
- Mechanical Bucket Quick Coupler (optional)
- Main Pin Hydraulic Thumb (optional)



Spacious Cabin



Automotive Styled Interior

TOUGH, POWERFUL, RELIABLE



Large Floor with Foot Rest



Wraparound Counterweight



Triple Flanged Track Rollers



Work Lights

Known for its dependability and outstanding performance in the field, the TB260 offers lockable service access panels, automotive styled interior, and a smooth and powerful hydraulic system. Primary and secondary auxiliary hydraulic circuits and a high capacity hydraulic system make the TB260 an excellent attachment platform, and a pattern change valve located under the side cover allows the operator to choose their preferred operational control pattern before entering the machine. Once

in the cabin the operator will enjoy a deluxe high back suspension seat, a spacious interior that is comfortable and includes conveniently positioned rocker switches to control additional functions, and the dial throttle allows the operator to control engine speed effortlessly. Additional features include a U.S. EPA Final Tier 4 compliant engine with DOC and DPF, automatic idle, heavy duty cooling module, and a large wraparound counterweight that protects engine components from damage.



Large lockable service hoods provide vandalism protection and outstanding maintenance access.

OPERATING PERFORMANCE

Operating Weight - Canopy	12,125 lb	(5,500 kg)
Cab	12,645 lb	(5,735 kg)
Maximum Bucket Breakout Force	12,756 lb	(5,786 kg)
Maximum Arm Digging Force	5,755 lb	(2,610 kg)
Arm Length	5 ft 10.1 in	(1,780 mm)
Slew Speed	9.4 rpm	
Traction Force	14,006 lb	(6,353 kg)
Ground Pressure - Canopy	4.4 psi	(30.2 kPa)
Cab	4.6 psi	(31.5 kPa)
Max Travel Speed		
Low Range	1.7 mph	(2.8 km / hr)
High Range	3.0 mph	(4.9 km / hr)

HYDRAULIC SYSTEM

Total Hydraulic Flow	45.3 gpm	(171.5 Lpm)
Auxiliary Flow - Primary Circuit	27.0 gpm	(102.2 Lpm)
Auxiliary Flow - Secondary Circuit	11.6 gpm	(43.9 Lpm)
Hydraulic System Pressure	3,480 psi	(24.0 MPa)

ENGINE

Make / Model	Yanmar / 4TNV86CT	
Displacement	127.6 cu in	(2.1 L)
Horsepower @ 2,400 rpm	47.6 hp	(35.5 kW)
Maximum Torque @ 1,560 rpm	130.5 ft-lb	(177.0 Nm)

FLUID CAPACITIES

Engine Lubrication	7.8 qt	(7.4 L)
Cooling System	11.6 qt	(11.0 L)
Fuel Tank Capacity	21.3 gal	(81.0 L)
Fuel Consumption (65% of Full Load)	1.6 gal / hr	(6.3 L / hr)
Hydraulic Reservoir Capacity	12.9 gal	(49.0 L)
Hydraulic System Capacity	23.8 gal	(90.0 L)



Canopy Display



Cab Display



Long Arm with Thumb Mount



Multi-Function Switch Bank

TB260 Lifting Capacities at Ground Level*

Lift Point Radius from Rotation Axis		9 ft (2,743 mm)		12 ft (3,657 mm)	
	Lifting Capacities Over Front, Blade Down	6,660 lb	(3,021 kg)	4,296 lb	(1,949 kg)
	Lifting Capacities Over Side	3,142 lb	(1,425 kg)	2,080 lb	(943 kg)

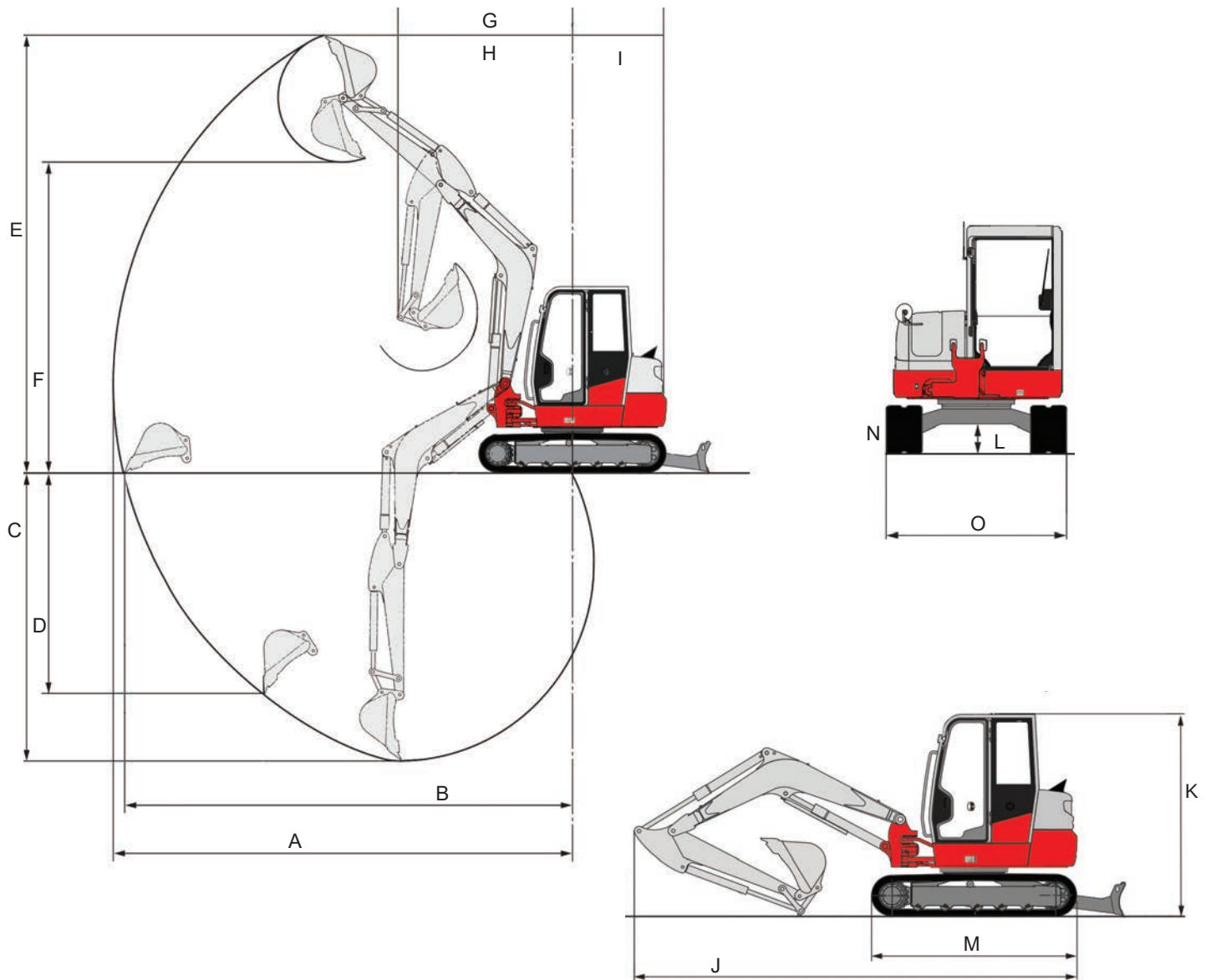
* Ratings based on ISO10567 and do not exceed 87% of hydraulic lift or 75% of tipping load.

ATTACHMENTS

Takeuchi now offers attachments for all of your Takeuchi equipment.

See your authorized Takeuchi dealer for additional information and attachment options.

TB260 Compact Excavator



MACHINE DIMENSIONS

A	Maximum Reach	20 ft 6.9 in	(6,270 mm)
B	Maximum Reach at Ground Level	20 ft 1.4 in	(6,132 mm)
C	Maximum Digging Depth	12 ft 9.4 in	(3,895 mm)
D	Maximum Vertical Digging Depth	9 ft 9.3 in	(2,980 mm)
E	Maximum Dig Height	19 ft 5.9 in	(5,940 mm)
F	Maximum Dumping Height	13 ft 10.1 in	(4,220 mm)
G	Front Swing Radius	7 ft 11.3 in	(2,420 mm)
H	Front Swing Radius with Boom Offset	6 ft 5.8 in	(1,975 mm)
I	Tail Swing (Slew) Radius	4 ft 3.1 in	(1,300 mm)
J	Transport Length	18 ft 2.5 in	(5,550 mm)
K	Transport Height	8 ft 5.4 in	(2,575 mm)
L	Ground Clearance	13.1 in	(330 mm)
M	Undercarriage Length	8 ft 5.3 in	(2,575 mm)
N	Track Width (Rubber)	15.7 in	(400 mm)
O	Undercarriage Width	6 ft 6.7 in	(2,000 mm)



2 YEAR
2,000 HOUR
FULL MACHINE
WARRANTY

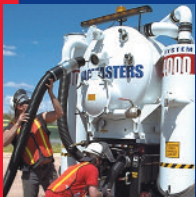


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In accordance with our established policy of continued improvement, specifications and
features are subject to change without notice. Pictures may show options other than
standard equipment.

FORM: TB260 Compact Excavator Spec Sheet - Oct. 2019
(TFM) s/n (CNP) 126101274 - 126101275, 126101302 ~ (TFM) s/n (CAB) 126101605 ~

TAKEUCHI
From World First to World Leader

The World's Most Powerful Air-Vacuum Excavation System!



VACMASTERS
SYSTEM 4000

VACMASTERS SYSTEM 4000

Groundbreaking Performance in Rock-hard Soil



The SYSTEM 4000 is the workhorse of vacuum excavators, with the brute force to dig deep down with air, exposing utilities in even the hardest soils without harming them. Now you can dig faster, easier, and safer in soil that's hard, wet, sunbaked, or compact, including ground frost.

Punch out more potholes faster in harder soil than ever before!

The world's most powerful air-vacuum excavation system gives you the power to pothole like never before — with high-velocity, supersonic air that explodes the soil from within for easy vacuuming and quick backfilling — all done on a non-CDL chassis.

The 4000 is:

- 50% more powerful than its predecessor, the SYSTEM 3, yet simple for a two-man crew to operate.
- Turbo-diesel powered, yet quiet.
- State-of-the-art, yet easy to maintain.
- Versatile, uses air yet has water (as a backup).
- Safe, yet powerful.

Our air technology does the work of water faster, easier, and safer.

It's no secret. Vacuum excavation is the best way to get to buried utilities for verification or repair. Using pick and shovel crews is dangerous, labor intensive, and expensive. Potholing with water and then vacuuming the wet spoils is cumbersome, messy, and could damage the very utilities you are trying to locate or repair. VACMASTERS has pioneered the use of air in making potholing safe, efficient, less costly, and protective of the buried infrastructure.



Use VACMASTERS air-vacuum excavation for:

- Underground utility location and verification
- Natural gas pipeline bell joint leak repair
- Cathodic protection installation
- Gas or water line service terminations or installations
- Manway and valve box cleaning and maintenance

Potholing with air offers you these benefits.

Speed — pothole in 7–8 minutes on average. **Safety** — for operator and buried utilities. **Efficiency** — no mud hauling, disposal costs, or return with backfill. **DOT Friendly** — won't harm roadbase.

There's a VACMASTERS air-vacuum excavation system* designed to handle your jobs, big or small.

SYSTEM 6000 — Largest, most powerful, boom operation, trenches and potholes.

SYSTEM 5000 — Modest size, big power, dig and vacuum fast in all soil conditions. Efficient backfilling. Multiple uses.

SYSTEM 4000 — Mid-priced, versatile, our most powerful non-CDL system, great all-round air-vacuum excavation system.

SYSTEM 3000 — Highly maneuverable, smaller, goes where the big systems can't and potholes with force.

SYSTEM 1000 — Affordable, trailer, truck, or skid mounted air-vacuum excavation.

*All have water on board as a backup and for cleanup purposes.

To see VACMASTERS air in action, view our demo at www.vacmasters.com or for more information, call 1-800-466-7825 or e-mail us.

VACMASTERS

The Leader in Air-Vacuum Excavation

5879 West 58th Avenue, Arvada, CO 80002
303-467-3801 • 1-800-466-7825
E-mail: sales@vacmasters.com
www.vacmasters.com

SYSTEM 4000 Benefits

POWERFUL AIR DIGGING ACTION

- Our high-pressure/high-volume air combined with our Air-Tec™ nozzle breaks up the hardest soils in record time.
- Allows operators to enjoy the economic and safety advantages of air 95% of the time.

SELECTABLE AIR OR WATER DIGGING

- Allows crews to use air 95% of the time, with water available when needed.
- Effective digging in all soil conditions

FAST-ACTING INTERCEPTOR CANISTER

- Rear-mounted soil collection canister holds and dispenses soil for quick, easy backfilling.
- Keeps dry and wet spoils separate.

SINGLE-ENGINE DESIGN

- Powerful John Deere Turbo-Diesel engine drives all systems: vacuum, air, and water.
- One engine to operate and maintain
- Quality system components mean readily available service

SELF-PURGING FILTRATION SYSTEM

- Reverse-flow air automatically cleans the filters. Less required maintenance means more time on the job.

HYDRAULIC POWERED DUMPING

- Quick, easy emptying of large spoils tank

SUPERVISORY CONTROL PANEL

- Automatic monitoring of all systems with auto shutdown

REMOTE OPERATION

- Operate up to 200 ft. away for areas difficult to access

QUIET OPERATION

- High-efficiency absorption chamber silencer and enclosed power head minimize noise

SLURRY VACUUM MODE

- Vacuum directional boring slurry or clean out valve boxes, catch basins, underground vaults, etc.

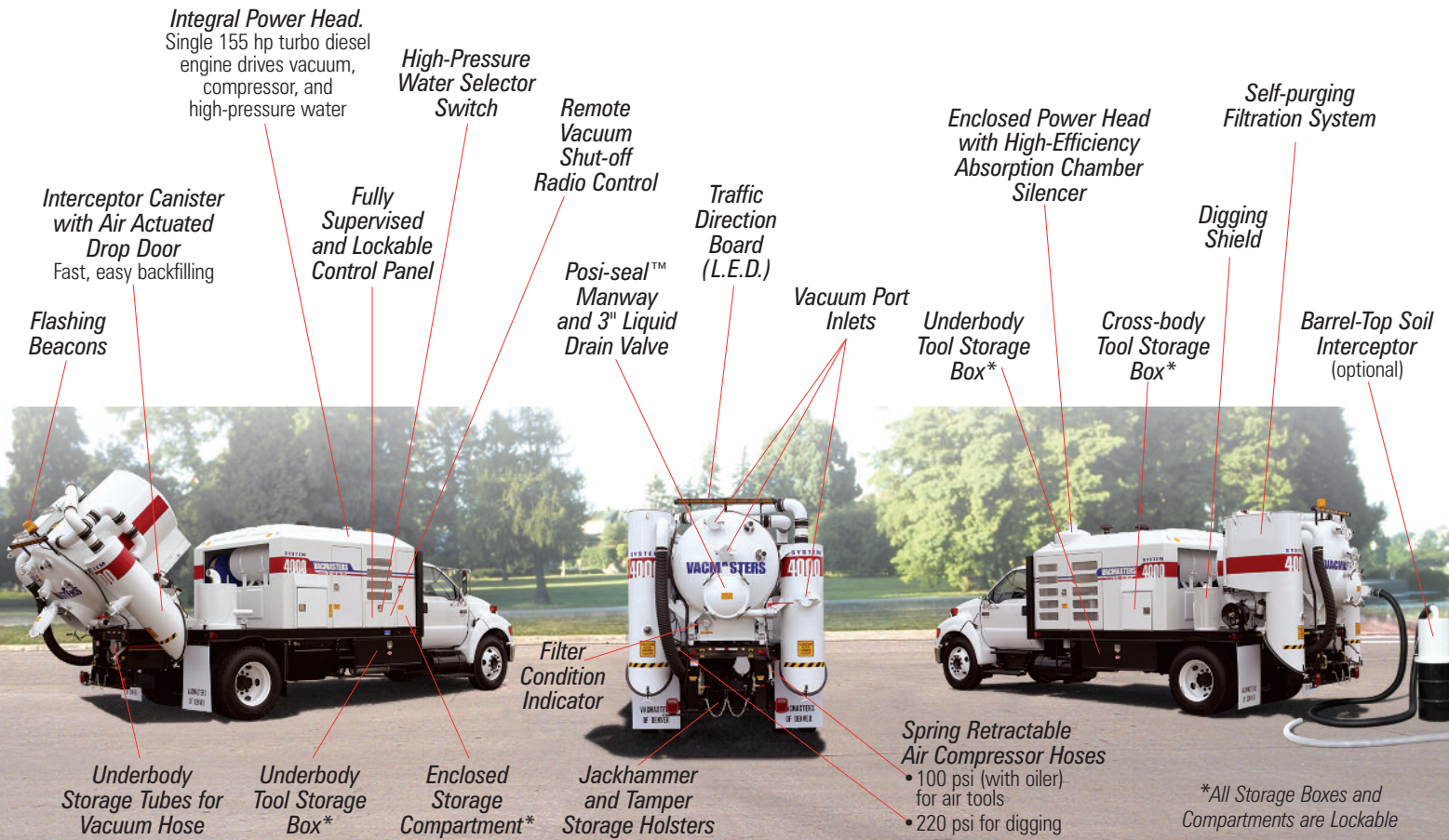
LOW-MAINTENANCE DESIGN

- Monitor and maintain oil levels, follow recommended checks and adjustments... that's it!

ADDITIONAL BENEFITS OF POTHOLING WITH AIR

- Digs faster than water in most soils
- Collected spoils remain dry for fast, efficient backfilling
- Eliminates mud disposal problems
- Safer for utilities and operator
- Air won't damage roadbase

SYSTEM 4000 Features



*All Storage Boxes and Compartments are Lockable

SYSTEM 4000 Specifications

POWER SOURCE

Engine Type: 6-Cylinder Diesel
Model: John Deere Tier 4 Final
Power Rating: 155 hp
Fuel System: interconnected to truck system
Power Transfer: direct belt drive

OPERATIONAL DATA

Vacuum: 1,220 CFM Max.
16" Hg Max. Vacuum (4" hose)
Compressor: 300 cfm @ 220 psi (Air Lance)
300 cfm @ 100 psi (Air Tools)
High-Pressure Water: 0–3,000 psi @ 4 gpm
Low-Pressure Water: 0–1,000 psi for clean up

TANK CAPACITIES

450-gallon spoils tank w/hydraulic hoist
800-gallon tank optional
85-gallon water tank

OPERATOR CONTROL PANEL INSTRUMENTATION

Fully Supervised, Automatic Shut-Down

- Engine RPM, temperature, oil pressure
- Compressor air pressure, temperature

DIMENSIONS and WEIGHTS

Length: 27' 4"
Width: 8' 0"
Height: 10' 10"
GVW: 26,000 (non-CDL)
Empty Wt. (lbs.) 22,500*

*Standard Configuration

HOSES

25' of 4" Smooth-Bore Plastic Vacuum Hose
33' of 4" Smooth-Bore Rubber Vacuum Hose
50' of 1" High-Pressure Air Hose
50' of 3/4" Air Hose for air tools
50' of 3/8" High-Pressure Water Hose

STANDARD EQUIPMENT

- (2) Retractable Air Compressor Hose Reels (*high and low pressure*)
- Fiberglass Air Lance w/Air-Tec™ Nozzle
- Underbody Storage Tube for Vacuum Hose
- (2) Underbody Storage Boxes (18"H x 60"L x 18"W)
- Traffic Direction Board (L.E.D.)
- High-Pressure Water Wand
- Low-Pressure Water Wash-Down Wand
- Digging Shield
- Jackhammer and Tamper Holsters
- Winterizing Kit for water system
- (2) Flashing Beacons
- Cross Body Storage Box (22"H x 96"L x 22"W)
- Work Lights

OPTIONAL EQUIPMENT

- Sandblast System
- Core Drill Generator Package
- Towing Hitches
- Barrel-top Soil Interceptor

APPENDIX E

Algonquin Erosion and Sedimentation Control Plan

EROSION AND SEDIMENTATION CONTROL PLAN

Company: Algonquin Gas Transmission, LLC

Project: Kings Cove Phase II Site Characterization

Location: Weymouth, MA

Person Responsible (ECP Lead): Mike Tyrrell

Prepared by:

Environmental Construction Permitting
5400 Westheimer Court
Houston, Texas 77056-5310

Revised version issued June 6, 2014

TABLE OF CONTENTS

DEFINITIONS	vii
1. INTRODUCTION	1
1.1 Purpose of this Plan.....	1
1.2 Guidelines and Requirements.....	1
1.3 Surveys, Permits & Notifications.....	2
1.4 Inquiries.....	2
2. SUPERVISION AND INSPECTION	3
2.1 Role & Responsibilities of the Environmental Inspector.....	3
2.2 Environmental Training for Construction.....	5
3. CONSTRUCTION TECHNIQUES FOR NATURAL GAS FACILITIES	6
3.1 Typical ROW Requirements.....	6
3.2 Access Roads & Access Points.....	6
3.3 Pipe and Contractor Wareyards.....	8
3.4 Off-ROW Disturbance.....	8
3.5 Construction Sequence for Pipeline Installation.....	9
3.5.1 Clearing & Flagging.....	10
3.5.2 Temporary Sediment Barriers.....	11
3.5.3 Grading.....	11
3.5.3.1 Topsoil Segregation.....	11
3.5.3.2 Tree Stump Removal and Disposal.....	12
3.5.3.3 Rock Management.....	13
3.5.4 Temporary Slope Breakers.....	13
3.5.5 Trenching.....	14
3.5.5.1 Temporary Trench Plugs.....	14
3.5.6 Trench & Site Dewatering.....	15
3.5.7 Pipe Installation.....	15
3.5.7.1 Stringing and Bending.....	15
3.5.7.2 Welding.....	16
3.5.7.3 Lowering-in and Tie-ins.....	16
3.5.8 Backfilling.....	16
3.5.8.1 Permanent Trench Breakers.....	16
3.5.9 Hydrostatic Testing.....	17
3.5.10 Pipeline Abandonment and Removal.....	19
3.6 ROW Restoration & Final Cleanup.....	19
3.6.1 Permanent Erosion Control.....	20
3.6.1.1 Permanent Slope Breakers.....	20
3.6.1.2 Erosion Control Fabric.....	21
3.6.2 Revegetation and Seeding.....	22
3.6.3 Mulch.....	23
3.6.4 Frozen Conditions & Winter Construction.....	23
3.6.5 Unauthorized Vehicle Access to ROW.....	24
3.7 Aboveground Facility Construction.....	24

4. SPECIAL CONSTRUCTION METHODS	27
4.1 Agricultural Areas.....	27
4.1.1 Drain Tiles.....	27
4.1.2 Irrigation.....	27
4.1.3 Soil Compaction Mitigation & Restoration.....	27
4.2 Road Crossings.....	28
4.3 Residential Areas.....	28
4.3.1 Stove Pipe Technique.....	29
4.3.2 Drag Section Technique.....	29
4.3.3 Residential Area Cleanup and Restoration.....	29
4.4 Horizontal Directional Drill Method.....	30
5. WATERBODY CROSSINGS	31
5.1 General Waterbody Procedures.....	31
5.1.1 Time Windows for Instream Work.....	32
5.1.2 Equipment Bridges.....	32
5.1.3 Clearing and Grading near Waterbodies.....	33
5.1.4 Temporary Erosion and Sediment Controls at Waterbodies.....	33
5.2 Types of Waterbody Crossing Methods.....	34
5.2.1 Flume Crossing.....	34
5.2.2 Dam-and-Pump Crossing.....	35
5.2.3 Wet Crossing.....	35
5.3 FERC Waterbody Classifications.....	36
5.3.1 Minor Waterbodies.....	36
5.3.2 Intermediate Waterbodies.....	37
5.3.3 Major Waterbodies.....	37
5.4 Restoration.....	37
6. WETLAND CROSSINGS	39
6.1 General Wetland Procedures.....	39
6.2 Clearing and Grading at Wetlands.....	40
6.3 Temporary Erosion & Sediment Control at Wetlands.....	40
6.4 Wetland Crossing Procedure.....	41
6.4.1 Push-pull Technique.....	42
6.5 Wetland Cleanup and Restoration.....	42
7. SPILL PREVENTION & RESPONSE	44
7.1 SPCC / PPC Plan.....	44
7.2 Spill Prevention Measures.....	44
7.3 Spill Cleanup & Response.....	45
8. POST-CONSTRUCTION ACTIVITIES	46
8.1 Post-Construction Monitoring.....	46
8.2 Post-Construction Maintenance.....	47
8.2.1 Uplands	47
8.2.2 Waterbodies and Wetlands.....	47
8.3 Reporting.....	48

APPENDIX A – E&SCP FIGURES

APPENDIX B – WATERBODY REFERENCE CITING FERC REQUIREMENTS

APPENDIX C – SEED MIX RECOMMENDATIONS

Figure Number	CATEGORY ABBREVIATION / Figure Name
<u>CONSTRUCTION WORK AREAS (CW)</u>	
CW-1	Typical Trench Detail
CW-2	Right-of-Way Topsoil Segregation Techniques
CW-3	Typical Construction Widths Acquiring New Permanent Right-of-Way
CW-4	Typical Construction Widths Not Acquiring New Permanent Right-of-Way (Single Line System)
CW-5	Typical Construction Widths Not Acquiring New Permanent Right-of-Way (Multiple Line System)
<u>ACCESS ROADS & ROAD CROSSINGS (RD)</u>	
RD-1	Access Road Cross Section
RD-2	Rock Access Pad
RD-3	Typical Temporary Access Road Through Wetlands
RD-4	Typical Paved Road Crossing Control Measures (Open Cut)
RD-5	Typical Paved Road Crossing Control Measures (Bored)
<u>EROSION CONTROLS (EC)</u>	
EC-1	Silt Fence Detail
EC-2	Straw Bale Detail
EC-3	Straw Bale Check Dam in a Drainageway
EC-4	Rock-lined Drainage Swale
EC-5	Storm Drain Inlet Protection
EC-6	Temporary Trench Plug Options
EC-7	Temporary Slope Breaker
EC-8	Permanent Slope Breaker
EC-9	Chevron Slope Breaker
EC-10	Trench Breaker Detail (Sack)
EC-11	Trench Breaker Detail (Foam)
EC-12	Permanent Trench Breaker Options
EC-13	Erosion Control Fabric/Blanket Installation
EC-14	Typical Erosion Control Blankets on Slopes

LIST OF FIGURES, continued

Figure Number	CATEGORY ABBREVIATION / Figure Name
<u>WATER DISCHARGES (WD)</u>	
WD-1	Filter Bag
WD-2	Discharge Structure for Hydrostatic Test Water
WD-2	Options for Small Water Discharges
WD-3	Discharge of Hydrostatic Test Water to a Surface Water
<u>BRIDGES (BR)</u>	
BR-1	Temporary Equipment Bridge (Equipment Pads with or without Culverts)
BR-2	Temporary Equipment Bridge (Crushed Stone with Culverts)
BR-3	Temporary Equipment Bridge (Flexi-float or Portable Bridge)
<u>WATERBODY & WETLAND CROSSINGS (WC)</u>	
WC-1	Typical Standard Wetland Crossing
WC-2	Typical Wet Waterbody Crossing
WC-3	Typical Flume Waterbody Crossing
WC-4	Typical Dam-and-Pump Waterbody Crossing
WC-5	Typical Erosion Control Blankets on Streambanks
WC-6	Typical Rip-Rap Placement
<u>SPECIAL USE / AGRICULTURAL & RESIDENTIAL AREAS (SU)</u>	
SU-1	Drain Tile Repair Procedure

DEFINITIONS

7(c) – Activities authorized under a project-specific Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC), pursuant to Section 7(c) of the Natural Gas Act, to transport or sell natural gas, as well as construct, acquire, extend, alter or operate specific natural gas facilities that provide natural gas service.

Abandonment – Permanent reduction in the availability for service of a FERC jurisdictional facility, including facility modifications which would result in changes to certificated parameters (e.g., permanently operating compressors at lower than certificated horsepower or pipelines at lower than certificated design pressures) as well as changes in operating status (e.g., abandoned-in-place, idled and not maintained, decommissioned or removed facilities). Abandonment of pipe or facilities may be authorized under the blanket certificate or a project-specific Order of Abandonment by FERC, in accordance with Section 7(b) of the Natural Gas Act.

Agricultural Land – Actively cultivated and rotated land used for the production of crops including but not limited to corn, grains, orchards, vineyards and hayfields.

Blanket Certificate Project – Blanket certificate authorization is obtained from FERC by the Company and allows the Company to construct, modify, acquire, operate, and abandon a limited set of natural gas facilities, and offer a set of services without the need for further activity-specific certificate authorizations. Regulations for FERC’s Blanket Certificate program are provided under Title 18 CFR Part 157, Subpart F. Examples of these projects include, but is not limited to, pipe replacements requiring new permanent right-of-way (ROW) or temporary workspace outside of the original construction footprint, miscellaneous pipe rearrangements, new receipt and delivery points, abandonments, temporary compression facilities, underground storage field remediation and maintenance activities, and underground storage testing and development activities.

Chief Inspector – Person, designated by the Company, responsible for the quality assurance of construction activities on a project by managing on-site project inspection staff and ensuring the construction contractor meets the requirements of the Company’s construction specifications, permits, and any plans and drawings related to specific construction activities. All inspectors on the project report to the Chief Inspector and the Chief Inspector reports to the Company’s Construction Superintendant.

Clearance Package/Permit Book – The document issued by the Company’s Environmental Construction Permitting (ECP) Department that contains all of the necessary environmental permits, clearances, plans and other requirements specific to a project. The Clearance Package/Permit Book is also included as part of the construction contract.

Deviation – A change to the placement of work limits, structures specified in the construction drawings, or changes in the design of control measures as set forth in the E&SCP, with the exception of minor variations from specifications in the typical E&SCP figures (refer to Appendix A) that are required due to site-specific conditions and which are designed to achieve an equivalent or greater degree of environmental protection.

Environmental Inspector (EI) – On-site Company representative responsible for inspecting and verifying site compliance with environmental conditions identified in the E&SCP as well as project-specific terms

and conditions contained within the Clearance Package / Permit Book. The environmental inspector will perform the duties that are outlined in Section 2.1 of this plan.

Ephemeral stream – Waterbody which flows water only during precipitation events in a typical year and for a short duration after the events. Runoff from rainfall is the primary source of water for stream flow. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream.

Intermediate waterbody – Defined by FERC as a waterbody greater than 10 feet wide but less than or equal to 100 feet wide, measured from water's edge to water's edge at the time of construction.

Intermittent stream – Waterbody which flows during certain times of the year when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Line List – A list prepared by the Company of project-specific instructions for all properties affected by the project, specifying each property owner, the length of crossing, and any special instructions or restrictions for construction crew(s).

Major waterbody – Defined by FERC as a waterbody greater than 100 feet wide, measured at the water's edge at the time of construction.

Minor waterbody – Defined by FERC as a waterbody less than or equal to 10 feet wide, measured at the water's edge at the time of construction.

Pasture – Non-forested land used for grazing of domesticated livestock (horses, cattle, sheep, etc.). Pasture receives periodic renovation and treatments such as tillage, fertilization, mowing, weed control, and may be irrigated. Typical vegetation consists primarily of grasses, herbaceous plants, legumes, and forbs.

Perennial stream – Waterbody which flows water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow and runoff from rainfall is a supplemental source of water for stream flow.

Riparian area – Ecosystems that occupy the transitional zone between terrestrial and aquatic ecosystems. Typical examples of riparian areas include floodplains, streambanks, and lakeshores.

Spill Prevention, Control and Countermeasure Plan /

Preparedness, Prevention and Contingency Plan for Construction Projects (SPCC / PPC Plan) – Company document that contains measures to prevent or reduce the risk of spills or accidental exposure of oil or hazardous materials associated with construction activities, as well as procedures to be employed in the event of a spill, including measures that provide for prompt and effective cleanup of spills, notifications and proper disposal of waste generated during cleanup.

State-designated waterbody – Waterbodies specifically identified or recognized by the States or authorized Indian Tribe for water use, value or quality. Designations take into consideration the protection and propagation fish, shellfish and wildlife, as well as use and value for public water supplies, agricultural,

industrial, recreational and other purposes, such as navigation. FERC's Procedures contain specific requirements with regards to state-designated fisheries.

Sensitive resource area – Areas (defined by FERC) that include wetlands, waterbodies, cultural resource sites, or sensitive species habitats.

Take up-and-Relay Pipeline Construction – Also called “lift and relay”, Company construction terminology for the removal of existing pipe and installation of new pipe at the same alignment within the existing permanent easement.

Wetland – Areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support and, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Types of wetlands include swamps, marshes, bogs, sloughs, wet meadows, mudflats and natural ponds.

Waterbody – Any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing during construction, as well as other permanent waterbodies such as ponds and lakes.

1. INTRODUCTION

1.1 Purpose of this Plan

This Erosion and Sedimentation Control Plan (E&SCP) has been prepared for use by the Company and its contractors as a guidance manual for minimizing erosion of disturbed soils and transportation of sediments off the construction ROW and into sensitive resource and residential areas during natural gas construction projects. The procedures developed in this plan, which represent the Company's best management practices, are designed to accommodate varying field conditions while achieving compliance with regulatory requirements and protecting environmentally sensitive areas.

This E&SCP is designed to provide guidelines, best management practices and typical techniques for the installation and implementation of soil erosion and sediment control measures while permitting adequate flexibility to use the most appropriate best management practice measures based on site-specific conditions. The intent of the E&SCP is to provide general information on the pipeline construction process and sequence, and to describe specific measures that will be employed during and following construction to minimize impacts to the environment.

Figures provided in Appendix A of this plan illustrate typical and minimum requirements of best management practices for design and utilization of construction workspace areas, access roads and erosion controls, as well as construction methods for special use areas (e.g., agricultural and residential land) and crossing of features during pipeline construction, including wetlands, waterbodies and roads. References to specific figure numbers provided in Appendix A are indicated throughout the E&SCP.

The goal of the E&SCP is to preserve the integrity of environmentally sensitive areas and to maintain existing water quality by:

- Minimizing the extent and duration of disturbance;
- Diverting runoff to stabilized areas;
- Installing temporary and permanent erosion control measures; and
- Establishing an effective inspection and maintenance program.

The E&SCP is intended to be used on Company projects that have been authorized by Federal Energy Regulatory Commission (FERC) pursuant to Section 7(b) and/or 7(c) of the Natural Gas Act to construct, acquire, alter, abandon or operate gas facilities or to provide gas services. This plan is also intended to be used for projects that are conducted under Company's blanket certificate which are regulated under 18 CFR Part 157, Subpart F. All blanket certificate projects that involve ground disturbance or changes to operational air and noise emissions are subject to the FERC's standard environmental conditions, including adherence to FERC's *Upland Erosion Control, Revegetation and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), May 2013 Version.

1.2 Guidelines and Requirements

The measures described in this E&SCP have been developed based on guidelines from the FERC, United States Army Corps of Engineers (COE), the United States Fish and Wildlife Service, the United States Department of Agriculture, the Natural Resource Conservation Service, and various state agencies as well

as from the Company's significant experience and practical knowledge of pipeline construction and effective environmental protection measures. Lessons and insights gained during pipeline construction projects and comments from agency representatives are also incorporated into this E&SCP.

In accordance with FERC regulations, projects under the jurisdiction of Section 7 or the Company's blanket certificate are required to comply with the FERC's Plan and Procedures unless written approval to deviate from the Plan or Procedures is received from the Director of the Office of Energy Projects and the appropriate state agency. This revised version of the E&SCP is consistent with the requirements of FERC's Plan and Procedures (May 2013 version).

If conflicts or differences occur between project-specific conditions of appropriate federal and state agencies and the best management practices described in this E&SCP, consult with the Company Environmental Construction Permitting Department (ECP) representative or ECP Lead. The more stringent or site-specific requirement is typically applicable unless otherwise approved by ECP. With the exception of minor variations from the typical figures that may be required due to site-specific conditions and are designed to achieve an equivalent or greater degree of environmental protection, any deviations from the construction drawings or changes in the design of control measures as set forth in this E&SCP must be approved by the Company's ECP Lead and the appropriate permitting agency prior to implementation. Measures and practices identified within this plan are to be implemented during construction unless otherwise specified by project-specific permit conditions.

1.3 Surveys, Permits & Notifications

The Company shall perform the required environmental field surveys and acquire the necessary environmental permits, clearances and authorizations prior to start of construction of the project. The Company shall notify the appropriate federal, state, and local agencies prior to, during, and/or subsequent to the construction of the project, as identified in the Clearance Package/Permit Book.

1.4 Inquiries

Inquiries regarding this E&SCP should be addressed to the ECP Department at the address shown on the front cover. For field conditions requiring an immediate response, contact the designated person responsible at the address shown on the front cover.

2. SUPERVISION AND INSPECTION

To effectively mitigate project-related impacts, the E&SCP must be properly implemented in the field. Quick and appropriate decisions in the field regarding critical issues such as stream and wetland crossings, placement of erosion controls, trench dewatering, spoil containment, and other construction-related items are essential.

To ensure that the E&SCP is properly implemented, at least one Environmental Inspector (EI) will be designated by the Company for each construction spread during active construction or restoration activities. The EI is responsible for verifying environmental compliance on the construction spread, and performing the duties that are outlined in Section 2.1 below.

2.1 Role & Responsibilities of the Environmental Inspector

EIs will have the authority to stop activities that violate the environmental conditions of the FERC's Orders (if applicable), stipulations of other environmental permits or approvals, or landowner easement agreements, as well as order appropriate corrective action.

The EI will have peer status with all other activity inspectors and will report directly to the Chief Inspector who has overall authority on the construction spread or project.

The number and experience of EIs assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected. On 7(c) and other large construction projects, the person designated as the EI will typically be a dedicated role for each construction spread. On blanket certificate projects and any other small construction activities carried out under this E&SCP, the EI role may be carried out by the Chief Inspector or another designated and properly trained Company Inspector on site, at the discretion of the Company. In such instances, the Company may employ additional periodic oversight of the EI by an environmental specialist.

At a minimum, the EI shall be responsible for:

1. Inspecting construction activities for compliance with the requirements of this E&SCP, the construction drawings, the environmental conditions of the FERC's Orders (if applicable), proposed mitigation measures, other federal or state and local (if applicable) environmental permits and approvals, and environmental requirements in landowner easement agreements;
2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;
3. Verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;
4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, including waterbodies and wetlands, or areas with special requirements along the construction work area;
5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the design of slope breakers will not cause erosion or direct water into sensitive resource areas, including cultural resource sites, wetlands, waterbodies and sensitive species habitats;
7. Verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitat; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;
8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;
9. Advising the Chief Inspector when environmental conditions (such as wet weather, severe storm events or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing excessive compaction;
10. Ensuring restoration of contours and topsoil;
11. Verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner, and is considered clean and free of hazardous materials;
12. Ensuring that the appropriate erosion/sediment control and stabilization needs are implemented in all areas, including ensuring that erosion and sediment controls are properly installed and maintained daily to prevent sediment flow into sensitive resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;
13. Inspecting and ensuring the maintenance of temporary erosion and sediment control measures at least:
 - a. On a daily basis in areas of active construction or equipment operation;
 - b. On a weekly basis in areas with no construction or equipment operation; and
 - c. Within 24 hours of each 0.5 inch of rainfall.
14. Ensuring the repair of all ineffective temporary erosion and sediment control measures within 24 hours of identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;
15. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase;
16. Ensuring proper seed mixes, rates and restoration methods are used, and obtaining documentation;
17. Ensuring that the Contractor implements and complies with the Company's *Spill Prevention, Control and Countermeasure Plan & Preparedness, Prevention and Contingency Plan for*

Construction Projects (SPCC/PPC Plan), the Company's *Waste Management Plan*, and other Company environmental documents and standard operating procedures;

18. Verifying that locations for any disposal of excess construction materials for beneficial reuse comply with this E&SCP and any applicable permits / clearances; and,
19. Keeping records of compliance with the environmental conditions of the FERC's Orders and the mitigation measures proposed by the Company in the application submitted to the FERC (if applicable), and other federal or state environmental permits during active construction and restoration. Records should include photo documentation.

2.2 Environmental Training for Construction

Environmental training will be given to both the Company personnel and contractor personnel whose activities have the potential to impact the environment during pipeline construction. All construction personnel from the Chief Inspector, EI, craft inspectors, contractor job superintendent to loggers, welders, equipment operators, and laborers will be given some form of environmental training. The level of training will be commensurate with the type of duties of the personnel. At the discretion of the Company, environmental training for personnel may also be required on projects where it is not required by FERC.

Training will be given prior to the start of construction and throughout the construction process, as needed, and will cover the following issues:

- Specifics of this E&SCP and other Company plans;
- Job or activity specific permit requirements;
- Company policies and commitments;
- Cultural resource procedures and restrictions;
- Threatened and endangered species procedures and restrictions; and
- Any other pertinent information related to the job.

In addition to the EI, all other construction personnel are expected to play an important role in maintaining strict compliance with all permit conditions, and to promptly report any conditions that are perceived as having the potential to threaten environmental protection to the appropriate inspector during construction.

3. CONSTRUCTION TECHNIQUES FOR NATURAL GAS FACILITIES

3.1 Typical ROW Requirements

Pipeline construction workspace requirements are a function of pipe diameter, equipment size, topography, geological rock formations, location of construction such as at road crossings or river crossings, pipeline crossovers, methods of construction such as boring or open-cut construction, or existing soil conditions encountered during construction. As the diameter of the pipeline being installed increases, so does the depth of trench, excavated spoil material, equipment size, and ultimately the amount of construction work space that will be required to construct a project. See Figure CW-1 for a detail of a typical trench and Figures CW-3, CW-4 and CW-5 for typical construction ROW widths. All workspace locations for a given project will be shown on the construction drawings.

Additional construction ROW may be required at specific locations including, but not limited to, steep side or vertical slopes, road crossings, pipeline crossovers, areas requiring supplemental topsoil segregation, and staging areas associated with wetland and waterbody crossings. In particular, as shown on the construction drawings, the construction ROW width may be expanded up to 25 feet for the following situations / areas without approval from the FERC, however, prior approval is required from the EI or ECP:

- Accommodate full construction ROW topsoil segregation;
- Ensure safe construction where topographic conditions, such as side-slopes, or soil limitations exist; and
- Facilitate truck turn-arounds where no reasonable alternative access exists in limited, upland, non-riparian or non-forested areas.

All construction activities, including staging areas and additional spoil storage areas, are restricted to the construction ROW limits identified on the construction drawings, except for specific activities in limited, non-wetland and non-riparian areas that are allowed by the FERC Plan and Procedures (i.e. slope breakers, energy-dissipating devices, dewatering structures, and drain tile system repairs). Use of these limited areas is subject to landowner or land management agency approval and compliance with all applicable survey, permit, and reporting requirements; therefore, prior Company approval is required to use these areas. In some cases, federal, state and local permits and authorizations may require additional approvals.

Minor field realignments and workspace shifts per landowner needs and requirements are only allowed if construction activities remain within the environmental field survey area, comply with project-specific environmental permits and landowner easements, and do not affect new landowners or sensitive resource areas.

3.2 Access Roads & Access Points

To the extent practical, all access to the construction ROW will be limited to existing roads and will be minimized in wetlands. However, additional access roads to the construction ROW may be required at various points along the project where other road crossings (paved or gravel state/local roads) do not exist. Examples of types of access used include pipeline ROWs, abandoned town roads, railroad ROWs, power line service roads, logging roads and farm roads. Improvements to access roads (i.e., grading, placing gravel, replacing/installing culverts, and trimming overhanging vegetation) may be required due to the size

and nature of the equipment that would utilize the road (Figure RD-1). The following conditions apply to the use of all access roads:

1. During construction and restoration activities, access to the ROW is limited to the use of new or existing access roads identified on the construction drawings.
2. The only access roads that can be used in wetlands, other than the construction ROW, are those existing roads requiring no modification or improvements, other than routine repair, and posing no impact on the wetland.
3. The construction ROW may be used for access across wetlands when the wetland soil is firm enough to avoid rutting or the construction ROW has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats). However, access is not allowed through wetlands that are specifically being avoided by HDD or would not otherwise be impacted by the project.
4. In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction ROW.
5. Blanket certificate projects may not have construction drawings available in which case access to the ROW will be identified in the Clearance Package / Permit Book.
6. Maintain safe and accessible conditions at all road crossings and access points during construction and restoration. Access road maintenance through the construction sequence may include grading and the addition of gravel or stone when necessary.
7. Maintain access roads in a stable manner to prevent off-ROW impacts, including impacts to adjacent and/or nearby sensitive resource areas, and implement all appropriate erosion and sediment control measures for construction/improvement of access roads.
8. Minimize the use of tracked equipment on public roadways.
9. Remove any soil or gravel spilled or tracked onto roadways daily or more frequent as necessary to maintain safe road conditions.
10. Repair any damages to roadway surfaces, shoulders, and bar ditches.
11. If crushed stone/rock access pads are used in residential or agricultural areas, stone shall be placed on synthetic, nonwoven geotextile fabric to facilitate removal after construction (Figure RD-2).
12. All access roads across a waterbody must use an equipment bridge in accordance with Section 5.1.2.
13. For access through a saturated wetland, use timber mats or an equivalent, unless otherwise authorized by agency permits (Figure RD-3).

14. Limit construction equipment operating in wetland areas to that needed to clear the ROW, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction ROW. All other construction equipment shall use access roads located in upland areas to the maximum extent practical.

3.3 Pipe and Contractor Wareyards

Pipe and contractor wareyards are required for storing and staging equipment, pipe, fuel, oil, pipe fabrication, and other construction-related materials and preparations. The Contractor shall perform the following measures at pipe and contractor wareyards:

1. Strip and segregate topsoil in agricultural lands;
2. Install erosion and sediment control structures as directed by the EI or identified on the construction drawings, and as outlined in this E&SCP and the SPCC/PPC Plan. Maintain controls throughout construction and restoration activities;
3. Implement and comply with the SPCC/PPC Plan and the Waste Management Plan, including the completion of any required site-specific forms and attachments; and,
4. Restore and revegetate all disturbed areas in accordance with the measures outlined in this E&SCP, landowner agreements and/or as directed by the EI. At a minimum, the area must be returned to preconstruction contours and stabilized prior to contractor demobilization.

3.4 Off-ROW Disturbance

All construction activities are restricted to the construction ROW limits identified on the construction drawings, except for specific activities in limited, non-wetland and non-riparian areas that are allowed by the FERC Plan and Procedures. Activities allowed to occur off-ROW are limited to the installation of slope breakers, energy-dissipating devices and dewatering structures, as well as repairs to drain tile. Minor field realignment and workspace shifts per landowner needs and requirements are only allowed if construction activities remain within the environmental field survey area, maintain compliance with project-specific environmental permits and landowner easements, do not affect new landowners or environmental resources, and do not require the operation of heavy equipment off ROW. In the event that inadvertent off-ROW disturbance occurs, the following measures will be implemented:

1. The EI will immediately report the occurrence to the Chief Inspector and ROW Agent;
2. The conditions that caused the disturbance will be evaluated by the Chief Inspector and the EI, and they will determine whether work at the location can proceed under those conditions; and
3. If determined to be necessary by the Chief Inspector and EI, one or more of the following corrective actions will be taken: immediate restoration of the preconstruction contours, seeding and mulching of the disturbed area, and/or installation of erosion or sediment control devices, conduct additional tailgate or employee/contractor training, and investigation of the issue to develop lessons learned for future issue prevention.
4. The Company's ECP Department will be notified.

3.5 Construction Sequence for Pipeline Installation

Natural gas pipelines are installed using conventional overland buried pipeline construction techniques. These activities are necessary for the installation of a stable, safe, and reliable transmission facility consistent with U.S. Department of Transportation (U.S.DOT) requirements and regulations. This section provides an overview of the equipment and operations necessary for the installation of a natural gas pipeline, describes potential impacts that may occur from each operation, and identifies the measures that will be implemented to control these potential impacts. This section also discusses in detail the erosion and sediment control techniques that typically apply to each construction activity including clearing, grading, trenching, lowering-in of pipe, backfilling, and hydrostatic testing. Pipe abandonment in-place or removal, which may be associated with a pipeline replacement activity or occur as an independent activity on an existing pipeline, are also covered at the end of this section. ROW restoration is the final step in the typical construction sequence and will be addressed in Section 3.6.

Installation of the pipeline typically proceeds in a linear manner from one end of the construction spread to the other in an assembly line or "mainline" fashion. However, different stages may be running in parallel on different physical segments of the project. In some cases, this means that full completion of one of the construction sequence stages described below may not occur before the next construction sequence stage is initiated. Construction sequencing should be planned to limit the amount and duration of open trench sections, as necessary, to prevent excessive erosion or sediment flow into sensitive environmental resource areas. This is due to the Company's effort to adhere to strict construction schedules in order to minimize safety concerns, landowner effects, and environmental disturbance. The spacing between the individual crews responsible for each interdependent activity is based on anticipated rate of linear progress. The activities listed below are typically performed in the following sequence:

- Surveying and flagging the ROW;
- Clearing the ROW;
- Installing temporary sediment barriers;
- Grading the ROW;
- Installing temporary slope breakers;
- Trenching/excavating the trench;
- Pipe stringing and bending;
- Welding and weld inspection;
- Lowering the pipe into the trench;
- Backfilling the trench;
- Hydrostatic testing of pipe; and
- ROW restoration and clean-up.

Obstacles to the mainline technique are often encountered and are not considered to be out of the ordinary. These obstacles, which include side hill crossings, rock, wetlands, streams, roads and residential areas, do not normally interrupt the assembly line flow.

3.5.1 Clearing & Flagging

Clearing operations include the removal of vegetation within the construction ROW. Various clearing methods are employed depending on tree size, contour of the land, and the ability of the ground to support clearing equipment. Vegetative clearing can be accomplished either by hand or by cutting equipment. The following procedures will be standard practice during clearing:

1. Prior to beginning the removal of vegetation,
 - a. The limits of clearing will be established and visibly marked before clearing;
 - b. Signs and highly visible flagging will also be used to mark the boundaries of sensitive resource areas, including waterbodies and wetlands, and/or areas with special requirements along the construction work area, in accordance with the construction drawings;
 - c. Flagging or marking shall be maintained throughout construction;
 - d. Trees to be protected per landowner requests or as otherwise directed will be clearly marked;
2. All construction activities and ground disturbance will be confined to within the construction ROW shown on the construction drawings (with the limited exception of compliance activities described above in Section 3.4);
3. All brush and trees will be felled into the construction ROW to minimize damage to trees and structures adjacent to the ROW. Trees that inadvertently fall beyond the edge of the ROW will be immediately moved onto the ROW and disturbed areas will be immediately stabilized, per landowner approval;
4. Trees will be chipped and removed or cut into lengths identified by the landowner and then stacked at the edge of the ROW or removed. Trees may be burned depending on local and state restrictions, applicable permits, construction Line List stipulations, and landowner agreements;
5. Brush and limbs may be disposed of in one or more of the following ways depending on local restrictions, applicable permits, construction Line List stipulations, and landowner agreements:
 - a. Stockpiled along the edge of the ROW;
 - b. Burned;
 - c. Chipped, spread across the ROW in upland areas, and plowed in at the discretion of the Chief Inspector or EI (excess material must be removed);
 - d. Used as part of erosion control mix material; or
 - e. Hauled off site to a Company-approved location.
6. Existing surface drainage patterns shall not be altered by the placement of timber or brush piles at the edge of the construction ROW.

3.5.2 Temporary Sediment Barriers

Sediment barriers, which are temporary sediment controls intended to minimize the flow and deposition of sediment beyond approved workspaces or into sensitive resource areas, shall be installed following vegetative clearing operations. They may be constructed of materials such as silt fence, staked straw bales, compacted earth (e.g., drivable berms across travel lanes), sand bags, or other appropriate materials (Figures EC-1, EC-2, EC-3 and EC-5). Where allowed by regulatory agencies, hay bales may be used in lieu of straw bales with the following restrictions: hay bales shall not be used for mulching and the Contractor is responsible for their removal and disposal.

1. Install temporary sediment barriers at the base of slopes greater than 5% where the base of the slope is less than 50 feet from a road crossing, waterbody and/or wetland in accordance with Sections 5.1.4 and 6.3 respectively.
2. Do not stake or trench in place straw bales used on equipment bridges or on mats across the travel lane.
3. Inspect temporary sediment barriers daily in areas of active construction to ensure proper functioning and maintenance. In other areas with no construction or equipment operation, sediment barriers will be inspected and maintained on a weekly basis throughout construction, and within 24 hours of each 0.5 inch of rainfall. Conduct an inspection within 24 hours once a storm event has produced 0.5 inch of rainfall, even if the storm event is still continuing.
4. Maintain all temporary sediment barriers in place until permanent revegetation measures are successful or the upland areas adjacent to wetlands, waterbodies, or roads are stabilized.
5. Remove temporary sediment barriers from an area when replaced by permanent erosion or sediment control measures or when the area has been successfully restored as specified in Section 8.1.

3.5.3 Grading

The construction ROW will be graded as needed to provide a level workspace for safe operation of heavy equipment used in pipeline construction. The following procedures will be standard practice during grading:

3.5.3.1 Topsoil Segregation

During construction, topsoil and subsoil will be disturbed by grading of the right-of-way, trench excavation, and by heavy equipment moving along the right-of-way. Implementation of proper topsoil segregation is intended to mitigate these construction impacts and promote or facilitate post-construction revegetation success.

Topsoil segregation methods will be used in all residential areas (except where the topsoil is being replaced), wetlands (except areas where standing water is present or soils are saturated), cultivated or rotated croplands, managed pastures, hayfields, and other areas at the landowner's or land managing agency's request. Either the "ditch plus spoil side" or the "full right-of-way" segregation method will be used, as illustrated in Figure CW-2.

- a. Prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (“ditch plus spoil side” method) as stipulated in the Construction Contract or Line List.
- b. Segregate at least 12 inches of topsoil in deep soils with more than 12 inches of topsoil. In soils with less than 12 inches of topsoil, make every effort to segregate the entire topsoil layer.
- c. Within wetlands, segregate the top 12 inches of topsoil within the trenchline, except in areas where standing water is present or soils are saturated.
- d. In residential areas, importation of topsoil (i.e. topsoil replacement) is an acceptable alternative to topsoil segregation, if approved by the landowner and Chief Inspector.
- e. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.
- f. Leave gaps in the topsoil piles and spoil piles for the installation of temporary slope breakers to allow water to be diverted off the construction ROW.
- g. Never use topsoil for padding the pipe, constructing temporary slope breakers, trench breakers or trench plugs, improving or maintaining roads, or as a fill material.
- h. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, tackifiers, or functional equivalents, where necessary.

3.5.3.2 Tree Stump Removal and Disposal

- a. Remove tree stumps in upland areas along the entire width of the permanent ROW to allow adequate clearance for the safe operation of vehicles and equipment. Stumps within the temporary ROW will be removed or ground below the surface in accordance with Company construction specifications to allow the safe passage of equipment, as determined by the Chief Inspector or EI.
- b. In wetlands, limit pulling of tree stumps and grading activities to directly over the trenchline.
- c. Dispose of stumps by one of the following methods with the approval of the Chief Inspector and the landowner and in accordance with regulatory requirements:
 - Buried at a Company-approved off-site location (except in wetlands and agricultural areas);
 - Burned on construction ROW;
 - Chipped, spread across the construction ROW in upland areas, and plowed in;
 - Used as erosion control mix material;
 - Ground to grade in wetlands, excess chips will be removed for proper disposal; or
 - Hauled off-site.

- d. Grading operations and tree stump removal in wetland areas will be conducted in accordance with Section 6.2.

3.5.3.3 Rock Management

Rock, including blast rock, will be used, removed or disposed of in one of the following ways:

- a. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. (Rock that is not returned to the trench shall be considered construction material or waste, unless approved for use as mulch or for some other use on the construction work areas by the land owner or land managing agency.);
- b. Windrowed per written landowner agreement with the Company;
- c. Removed and disposed of at a Company-approved landfill; or
- d. Used as riprap for streambank stabilization as allowed by applicable regulatory agency(ies) and provided the rock is uncontaminated and free of soil and other debris (Figure WC-6).

3.5.4 Temporary Slope Breakers

Temporary slope breakers, also called interceptor dikes, are temporary erosion control measures intended to reduce runoff velocity and divert water off the construction ROW. Temporary slope breakers may be constructed of materials such as compacted soil, silt fence, staked straw bales, or sand bags. Segregated topsoil may not be used for constructing temporary slope breakers. If permitted by regulatory agency(ies), hay bales may be used in lieu of straw bales except for mulching. If hay bales are used, the Contractor is responsible for their removal and Company-approved disposal.

1. Install temporary slope breakers on all disturbed areas as necessary following grading operations (Figure EC-7) to avoid excessive erosion. Unless otherwise specified by permit conditions, temporary slope breakers must be installed on slopes greater than 5% at the recommended spacing interval indicated below (Closer spacing should be used if necessary):

<u>Slope (%)</u>	<u>Spacing (feet)</u>
< 5	No structure
5 – 15	300
> 15 – 30	200
> 30	100

2. Direct the outfall of each slope breaker to a stable, well vegetated area or construct an energy-dissipating device (silt fence, staked straw bales, erosion control fabric) at the end of the slope breaker.
3. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resource areas.
4. Install temporary slope breakers across the entire construction ROW along slopes greater than 5 % where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings.

5. Inspect temporary slope breakers daily in areas of active construction to insure proper functioning and maintenance. In other areas, the slope breakers will be inspected and maintained on a weekly basis throughout construction, and within 24 hours of each 0.5 inch of rainfall. Repairs should be made within 24 hours of identification, if possible.

Drivable berms, which are smaller versions of slope breakers constructed of compacted soil or sand bags, may be used in place of staked straw bales at the entrances and exits of travel lanes at road crossings, waterbodies, and wetlands. They are installed across the width of the travel lane at the start of the equipment crossing and made low enough to allow equipment and other vehicles to pass. Yet, they should function to reduce and divert water runoff from sensitive resource areas.

3.5.5 Trenching

The trench centerline will be staked after the construction ROW has been prepared. In general, a trench will be excavated to a depth that will permit burial of the pipe with a minimum of 3 feet of cover (Figure CW-1). Overland trenching may be accomplished using a conventional backhoe or a rotary wheel-ditching machine. In shale or rocky areas where the use of the conventional excavation equipment is limited, a tractor-drawn ripper or rock hammer may be employed to break and loosen hard substratum material. In areas where rock cannot be ripped or hammered, drilling and blasting may be required. A backhoe may then be used to remove rock and soil from the ditch.

The following procedures will be standard practice during ditching:

- Flag drainage tiles damaged during ditching activities for repair;
- Place spoil in additional extra work areas or at least 10 feet away from the waterbody's edge in the construction ROW. Spoil will be contained with erosion and sediment control devices to prevent spoil materials or sediment-laden water from transferring into waterbodies and wetlands or off of the ROW; and,
- If temporary erosion or sediment controls are damaged or removed during trenching, they shall be repaired and/or replaced before the end of the work day.

3.5.5.1 Temporary Trench Plugs

Temporary trench plugs are barriers within the ditch that are intended to segment the continuous open trench prior to backfill. They typically consist of unexcavated portions of the ditch (hard plug), compacted subsoil or sandbags (soft plug) placed across the ditch, or some functional equivalent. Along steep slopes, they serve to reduce erosion and sedimentation in the trench and minimize dewatering problems at the base of slopes where sensitive environments such as waterbodies and wetlands are frequently located. In addition, they provide access across the trench for wildlife and livestock.

- a. Do not use topsoil for constructing trench plugs.
- b. Coordinate with the landowner to identify optimal locations for the placement of temporary hard plugs designed to provide access for livestock.
- c. Temporary trench plugs may be used in conjunction with slope breakers to prevent water in the trench from overflowing into sensitive resource areas (Figure EC-6).

Attempt to divert trench overflow to a well-vegetated off-ROW location or construct an energy-dissipating device.

- d. Position temporary trench plugs, as necessary, to reduce trenchline erosion and minimize the volume and velocity of trench water flow at the base of slopes.

3.5.6 Trench & Site Dewatering

Dewatering may be periodically conducted to remove accumulated groundwater or precipitation from the construction ROW, including from within the trenchline. The need for erosion controls as well as the type of control used will vary depending on the type and amount of sediment within the water, and volume and rate of discharge.

1. Conduct dewatering (on or off the construction ROW) in such a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody or wetland.
2. Elevate and screen the intake of each hose used to withdraw the water from the trench to minimize pumping of deposited sediments.
3. Water may be discharged into areas where adequate vegetation is present adjacent to the construction ROW to function as a filter medium.
4. Where vegetation is absent or in the vicinity of waterbody / wetland areas, water will be pumped into a discharge structure that accommodates the anticipated discharge volumes as well as type and amount of sediment within the water being discharged, including
 - a. a filter bag, as illustrated in Figure WD-1, or
 - b. a structure composed of sediment barriers (Options for these types of controls are illustrated in Figure WD-2 and WD-3.).

A structure that is more typically used for discharges of hydrostatic test water, as illustrated in Figure WD-2, may be necessary for large volumes of water.

5. When using filter bags, secure the discharge hose to the bag with a clamp.
6. Remove dewatering structures as soon as practicable after the completion of dewatering activities.

3.5.7 Pipe Installation

During all phases of the pipe installation process, ensure that all roadway crossings and access points are safe and accessible conditions. Repair damaged temporary erosion controls by the end of the work day. If portions of slope breakers are removed from the travel lane to facilitate safe work conditions, they shall be restored prior to the end of the work day.

3.5.7.1 Stringing and Bending

Following trench excavation, pipe sections will be delivered to the construction site by truck or tracked vehicle, and strung out along the trench. Individual pipe sections will be placed on temporary supports or wooden skids and staggered to allow room for work on the exposed ends. Certain pipe sections will be bent, as necessary, to conform to changes in slope and direction of the trench.

All rope bands should be collected and disposed of properly.

3.5.7.2 Welding

Once the bending operation is complete, the pipe sections will be welded together on supports using approved welding procedures that comply with Company welding specifications. After welding, the welds will be inspected radiographically or ultrasonically to ensure their structural integrity.

3.5.7.3 Lowering-in and Tie-ins

Lowering-in consists of placing the completed pipeline sections into the trench typically using two or more sideboom tractors acting in unison and spaced so as not to buckle or otherwise damage the pipe. The pipeline will be lifted from the supports, swung out over the trench, and lowered directly into the trench. The equipment uses a “leap frogging” technique requiring sufficient area to safely move around other tractors within the construction ROW to gain an advanced position on the pipe. The unwelded ends of the completed pipeline segments (typically present at road crossings, stream crossings, etc.) are then welded together or “tied-in” by specialized tie-in crews.

3.5.8 Backfilling

Backfilling consists of covering the pipe with the earth removed from the trench or with other fill material hauled to the site when the existing trench spoil is not adequate for backfill. Backfilling will follow lowering-in of the pipeline as close as is practical.

In areas where the trench bottom is irregularly shaped due to consolidated rock or where the excavated spoil materials are unacceptable for backfilling around the pipe, padding material may be required to prevent damage to the pipe. This padding material will generally consist of sand or screened spoil materials from trench excavation.

1. Under no circumstances shall topsoil be used as padding material.
2. Excess rock, including blast rock, may be used to backfill the trench only to the top of the existing bedrock profile in accordance with Company specifications. Rock that is not used to backfill the trench will be managed as described in Section 3.5.3.3.
3. Any excess material will be spread within the ROW in upland areas and land contours will be roughed-in to match adjacent topography.
4. The trench may be backfilled with a crown over the pipe to compensate for compaction and settling. Openings will be left in the completed trench crown to restore pre-construction drainage patterns. Crowning shall not be used in wetland areas.

3.5.8.1 Permanent Trench Breakers

Permanent trench breakers are intended to slow subsurface water flow and erosion along the trench and around the pipe in sloping terrain. An engineer or similarly qualified professional shall determine the need for and spacing of permanent trench breakers. However, trench breakers will not be installed within a wetland.

Permanent trench breakers will be constructed with sand bags, polyurethane foam, or an equivalent as identified in the permit requirements (Figure EC-10 and EC-11). Topsoil shall not be used to construct trench breakers. Sakrete may be used at the discretion of the Chief Inspector on severe slopes greater than 30 percent.

Permanent trench breakers, which are used in conjunction with slope breakers, shall be installed at the locations shown on the construction drawings, at the same spacing interval as and upslope of permanent slope breakers, or as otherwise determined by an engineer or similarly qualified professional, such as the EI (Figure EC-12). At a minimum, install trench breakers:

- a. At the base of slopes greater than 5% where the base of the slope is less than 50 feet from a waterbody or wetland;
- b. Where needed to avoid draining of a resource, including at wetland boundaries where the pipeline trench may drain a wetland, and/or seal the trench bottom as necessary to maintain the original wetland hydrology; and,
- c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

3.5.9 Hydrostatic Testing

Once the pipeline is completed and before it is placed into service, it will be hydrostatically tested for structural integrity. Hydrostatic testing involves filling the pipeline with clean water and maintaining a test pressure in excess of normal operating pressures for a specified period of time (typically 8 hours). The testing procedure involves filling the pipeline with water, performing the pressure test, and discharging the test water.

The following general hydrostatic testing procedures shall be adhered to for all projects. Environmental conditions for hydrostatic testing activities are also addressed in the project-specific Hydrostatic Test Clearance Package that is issued by ECP if permits are required for water appropriation and/or discharge. During planning and permitting of test events:

1. Identify the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location. Use only the water sources identified in the Clearance Package/Permit Book.
 - a. Do not use water from or discharge into state-designated exceptional value waters, waterbodies that provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and/or local permitting agencies grant written permission.
2. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.
3. Attempt to locate discharge sites in a well-vegetated and stabilized area, if practical, at least 50-feet from adjacent waterbody/wetland areas.

4. Apply for and obtain state-issued water withdrawal permits and National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

During preparation for testing, including appropriation of source water and preparing discharge/outfall site:

1. At least 48 hours before testing activities, the EI shall notify appropriate state agencies (as identified in the relevant permit for hydrostatic test discharges) of the intent to use specific test water sources (unless waived in writing).
2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, the use of secondary containment, operation and refueling of those pumps will be addressed and conducted in accordance with the SPCC/PPC Plan.
3. Screen the intake hose to minimize the potential for entrainment of fish and other aquatic life.
4. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.
5. Install all discharge structures in a well-vegetated and stabilized area, if practical, and attempt to maintain at least a 50-foot vegetated buffer from adjacent waterbody/wetland areas. If an adequate buffer is not available, sediment barriers or similar sediment control measure must be installed.

During the discharge of hydrostatic test water on-site:

1. Discharge water only at the locations shown on the construction drawings or locations identified in the Clearance Package/Permit Book or ECP's Hydrostatic Test Clearance Package.
2. Regulate rate of discharge water and use energy dissipation device(s) and sediment barriers, as necessary, to prevent erosion, streambed scour to aquatic resources, sedimentation, flooding or excessive stream flow (Figures WD-2 and WD-3).
3. Use absorbent booms as necessary during discharge from existing pipe or as stipulated by the applicable NPDES permit.
4. The test water may be discharged through an appropriate filtration system including holding tanks or frac tanks and/or carbon filters if needed to meet effluent limitations or conditions stipulated in the NPDES permit.
5. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate federal, state, and local permitting agencies grant written permission.
6. The EI or appropriate designee shall sample and test the source water and discharge water in accordance with the permit requirements.

3.5.10 Pipeline Abandonment and Removal

Pipeline abandonment and removal activities may occur when gas service is no longer needed, such as the abandonment of a lateral to a customer receipt or delivery point. Removal or in-place abandonment of pipe can also be conducted as part of an expansion or maintenance project, such as the lift-and-relay of existing pipe, the replacement or relocation of an existing pipeline due to road or highway modifications, or activities required to maintain compliance with U.S.DOT requirements.

Abandonment approval from FERC, such as project-specific Section 7(b) Order or blanket certificate authorization, is required prior to abandoning facilities or services. Abandonment of FERC-regulated natural gas pipelines or storage facilities, either in place or by removal, must follow FERC's regulations.

Where removal of a section of existing pipeline is required, construction activities typically proceed in a construction sequence similar to what has been described above in Section 3.5, except that instead of the pipeline installation step, the existing pipeline would be cut and removed from the trench. If the pipeline removal is associated with a lift-and-relay project or a replacement, then the new pipeline installation would follow the removal of the old pipe. Pipe that is abandoned by removal will be handled, taken off-site and properly disposed of or recycled in accordance with Company procedures.

When a pipeline is abandoned in place, typically work involves only relatively small excavations to remove above-ground appurtenances and meters, as well as expose the pipe in certain locations, cut it, fill with grout or blanket gas and cap the ends of the pipe, in accordance with agency and Company requirements.

Mitigation measures for pipeline abandonment and removal activities, such as erosion control measures, will follow the same requirements outlined within the E&SCP for pipeline installation in order to minimize erosion and enhance revegetation, as well as mitigate the extent and duration of project-related disturbance to wetlands and waterbodies.

3.6 ROW Restoration & Final Cleanup

Restoration of the ROW will begin after pipeline construction activities have been completed. Restoration measures include the re-establishment of final grades and drainage patterns as well as the installation of permanent erosion and sediment control devices to minimize post-construction erosion. Residential areas will be restored in accordance with Section 4.3.3. Property shall be restored as close to its preconstruction condition as practical unless otherwise specified by the landowner.

1. The Contractor shall make every reasonable effort to complete final cleanup of an area (including final grading, topsoil replacement and installation of permanent erosion control structures) within 20 days after backfilling the trench in that area (within 10 days in residential areas). If seasonal or other weather conditions prevent compliance with these timeframes, continue to inspect and maintain temporary erosion and sediment controls (i.e. temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup. If construction or restoration unexpectedly continues into the winter season, follow the requirements of Frozen Conditions & Winter Construction, Section 3.6.4.

2. Seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting.
3. If construction or restoration unexpectedly cannot be completed and is delayed until the next recommended growing season, the winter stabilization measures shall be followed.
4. Grade the ROW to pre-construction contours, with the exception of the installation of any permanent measures required herein.
5. Spread segregated topsoil back across the graded ROW to its original profile.
6. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction ROW shall be similar to adjacent areas not disturbed by construction. The landowner or land managing agency may approve other provisions in writing.
7. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion and sediment control structures are installed, regularly inspected and maintained. When access is no longer required, the travel lane must be removed and the ROW restored.
8. Remove all construction debris (used filter bags, skids, trash, etc.) from all construction work areas unless the landowner or land managing agency approves leaving material onsite for beneficial reuse, stabilization, or habitat restoration. Grade or till the ROW to leave the soil in the proper condition for planting.

3.6.1 Permanent Erosion Control

3.6.1.1 Permanent Slope Breakers

Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction ROW, and prevent sediment deposition into sensitive resources. Permanent slope breakers will be constructed of compacted soil (Figure EC-8). Stone or some functional equivalent may be used when approved by the Company.

- a. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, at the locations shown on the construction drawings.
- b. Use spacing recommendations obtained from the local soil conservation authority or land managing agency. If not shown on the construction drawings or in the absence of written recommendations, use the following spacing (same as temporary slope breaker spacing) unless closer spacing is necessary to avoid excessive erosion on the construction ROW:

<u>Slope (%)</u>	<u>Spacing (feet)</u>
< 5	No structure
5 – 15	300
> 15 – 30	200
> 30	100

- c. A permanent trench breaker will be located immediately upslope of the slope breaker.
- d. Install permanent slope breakers across the construction ROW at the base of slopes adjacent to roads. When the ROW parallels an existing utility ROW, permanent slope breakers may be installed to match existing slope breakers on the adjacent undisturbed utility ROW.
- e. Install permanent slope breakers across the construction ROW at the base of slopes greater than 5% that are less than 50 feet from a wetland or waterbody, or as needed to prevent sediment transport into a wetland or waterbody.
- f. Construct slope breakers with a 2 to 8 percent outslope to divert surface flow to a stable vegetative area without causing water to pool or erode behind the slope breaker. In the absence of a stable vegetative area, install an energy-dissipating device at the end of the slope breaker.
- g. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction ROW to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction ROW, they are subject to compliance with all applicable survey and permit requirements.
- h. Install chevron-style slope breakers on slopes as appropriate (Figure EC-9).
- i. Where drainage is insufficient in upland areas, install a rock-lined drainage swale as approved by the EI. The drainage swale is generally 8 feet wide and a maximum of 18-24 inches deep (Figure EC-4).

3.6.1.2 Erosion Control Fabric / Blankets

Erosion control fabric or blankets are used during restoration, including as mulch, to slow down stormwater and stabilize soil until vegetation becomes established. Examples of these erosion controls include jute thatching or bonded fiber blankets. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat, unless the product is specifically designed to minimize harm to wildlife.

Install erosion control fabric or blankets where necessary or as recommended by the EI

- a. at slope breaker outlets and drainage swales (Figure EC-7, EC-8 and EC-4);
- b. on slopes adjacent to roads or waterbodies (Figure EC-14); and
- c. on waterbody banks at the time of final bank recontouring (Figure WC-5).

Anchor the erosion control fabric or blanket with staples or other appropriate devices in accordance with the manufacturers' recommendations (Figure EC-13). Evaluate flow conditions to determine if erosion control fabric is suitable as an effective vegetation stabilization technique on waterbody banks. High-velocity erosion control fabric should be used on the swale side of permanent slope breakers.

3.6.2 *Revegetation and Seeding*

Successful revegetation of soils disturbed by project-related activities is essential. Seeding will be conducted using the following requirements:

1. Fertilize and add soil pH modifiers in accordance with the recommendations in Appendix C. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as practicable after application;
2. Seed all disturbed areas within 6 working days of final grading, weather and soil conditions permitting;
3. Prepare seedbed in disturbed areas to a depth of 3 to 4 inches to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed;
4. Seed disturbed areas in accordance with the seed mixes, rates, and dates in Appendix C, except in upland areas where landowners or a land management agency may request alternative seed mixes, however, seeding is not required in cultivated croplands unless requested by the landowner;
5. Perform seeding of permanent vegetation within the recommended seeding dates as outlined in Appendix C. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in Section 3.5.2 and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Dormant seeding or temporary seeding of annual species may also be used, if necessary, to establish cover, as approved by the EI. Mulch in accordance with Section 3.6.3. Lawns may be seeded on a schedule established with the landowner;
6. Base seeding rates on Pure Live Seed (PLS);
7. Use seed within 12 months of seed testing;
8. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydroseeding); and,
9. Uniformly apply and cover seed in accordance with the appropriate seed mix from Appendix C, in the absence of any recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary.
 - a. A seed drill equipped with a cultipacker is preferred for application but, where permitted by regulatory agencies, broadcast or hydroseeding can be used at double the recommended seeding rates.

- b. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding.
- c. In rocky soils, or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the EI.

3.6.3 Mulch

Mulch is intended to stabilize the soil surface and shall consist of weed-free straw, wood fiber hydromulch, erosion control fabric or some functional equivalent as approved by the EI and Chief Inspector.

1. Mulch all disturbed upland areas (except cultivated cropland) **before** seeding if:
 - a. Final cleanup, including final grading and installation of permanent erosion control measures, is not completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas); or
 - b. Construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

NOTE: When mulching before seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

2. Apply mulch on all slopes (except in cultivated cropland) concurrent with or immediately after seeding, where necessary, to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the ROW at a rate of 2 tons/acre of straw or equivalent.
3. Mulch with woodchips only under the following conditions with prior approval from the Chief Inspector or the EI:
 - a. Do not use more than 1 ton/acre; and
 - b. Add the equivalent of 11 lbs/acre available nitrogen (at least 50% of which is slow release).
4. Ensure that mulch is anchored to minimize loss by wind and water. Anchoring may be achieved by wet soil conditions, when approved by the EI, mechanical means, or use of liquid mulch binders.
5. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands and waterbodies, except where the product is certified environmentally non-toxic by the appropriate state or federal agency or independent standards-setting organization.
6. If used, install erosion control fabric or blankets in accordance with Section 3.6.1.2.

3.6.4 Frozen Conditions & Winter Construction

Winter weather may not provide suitable conditions for soil handling or restoration of disturbed areas. In the event that the construction occurs too late in the year for cleanup activities to adequately proceed or if construction is planned to occur during winter weather conditions, the Company will develop a project-specific Winter Construction Plan that addresses:

- Winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);
- Stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and,
- Final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

The Winter Construction Plan will be provided within the project-specific Clearance Package / Permit Book. Section 7(c) and prior notice projects are required to file the Winter Construction Plan for the review and written approval by the FERC. (The requirement to file a plan does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.)

3.6.5 Unauthorized Vehicle Access to ROW

The Company will offer to install and maintain measures to control unauthorized vehicle access to the ROW based on requests by the manager or owner of forested lands. These measures may include:

- Signs;
- Fences with locking gates;
- Permanent access roads;
- Slash and timber barriers, pipe barriers, or a line of boulders across the ROW; or
- Conifers or other appropriate shrubs with a mature height of 4 feet or less across the ROW.

3.7 Aboveground Facility Construction

Construction at aboveground facilities, including compressor stations, meter stations, valve sites, and other facilities, will follow the same best management practices identified for pipeline installation and removal on the ROW. Work activities in this category can include installation of new aboveground facilities, modification or relocation of facilities at existing compressor station sites, upgrades or installations at existing meter station sites, construction of new receipt or delivery points, and a variety of other activities. Certain project types covered in this section may trigger additional stormwater permitting. Check with the ECP Lead to ensure that all stormwater requirements are met prior to construction.

1. Aboveground facilities shall not be located in any wetland, except as permitted or where the location of such facilities outside of wetlands would prohibit compliance with U.S.DOT regulations.
2. Install temporary sediment barriers at the base of slopes adjacent to roads and at waterbodies and wetlands in accordance with Sections 5.1.4 and 6.3 respectively.
3. Inspect temporary sediment barriers daily in areas of active construction to ensure proper functioning and maintenance. In other areas with no construction or equipment operation, sediment barriers will be inspected and maintained on a weekly basis throughout construction, and within 24 hours of each

0.5 inch of rainfall. Conduct an inspection within 24 hours once a storm event has produced 0.5 inch of rainfall, even if the storm event is still continuing.

4. If a waterbody is present on or immediately adjacent to an existing facility property where work is being conducted, install sediment barriers as necessary along the edge of the construction area to contain spoil and sediment within the work area.
5. All extra work areas should be located at least 50 feet away from the water's edge of a waterbody or a wetland, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. FERC approval is necessary for the use of work areas if these setback conditions cannot be met.
6. Wetland boundaries and buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and /or highly visible flagging until construction-related ground disturbing activities are complete.
7. When work is required within a wetland at an existing facility, and standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment or operate normal equipment on timber riprap, prefabricated equipment mats or terra mats. Do not use more than two layers of timber riprap to stabilize the work area.
8. Maintain all temporary sediment barriers in place until permanent revegetation measures are successful or the upland areas adjacent to wetlands, waterbodies and roads are stabilized.
9. Remove temporary sediment barriers from an area when replaced by permanent erosion or sediment control measures or when the area has been successfully restored as specified in Section 8.1.
10. Temporary slope breakers are to be installed on all disturbed areas as necessary to avoid excessive erosion as described in Section 3.5.4.
11. Where required for work in wetlands (except areas where standing water is present or soils are saturated) segregate topsoil as described in Section 3.5.3.1.
12. Place spoil at least 10 feet upgradient from the edge of waterbodies or as indicated on construction drawings. Spoil will be contained with erosion and sediment control devices to prevent spoil materials or silt-laden water from transferring into waterbodies and wetlands or off of the facility property.
13. If required, dewatering should be conducted as described in Section 3.5.6.
14. The Contractor shall make every reasonable effort to complete final cleanup of an area (including final grading and installation of permanent erosion control structures) within 20 days after ground disturbing activities are completed. If seasonal or other weather conditions prevent compliance with these time frames, continue to inspect and maintain temporary erosion and sediment controls (temporary slope breakers and sediment barriers) until conditions allow completion of cleanup. Cleanup shall be conducted in accordance with Section 3.6 of this document.

15. Grade to contours shown on construction drawings or site plans or return grade to pre-construction contours.
16. New gravel, stone and paving at the site shall be placed in accordance with construction drawings. No additional gravel, stone, or paving shall be added without prior approval by ECP.
17. Install permanent erosion controls and post-construction stormwater measures at the locations shown on the construction drawings.
18. Disturbed soils will be seeded within 6 working days of final grading, weather and soil conditions permitting, unless permit conditions indicate otherwise.
19. Remove all timber riprap and prefabricated equipment mats in any wetlands upon completion of construction.

4. SPECIAL CONSTRUCTION METHODS

The Company will utilize the following specialized construction procedures for agricultural areas, road crossings, and residential areas along the pipeline project, when applicable. The project construction drawings, Line Lists, and Construction Contract will indicate the locations where specialized construction methods will be used.

4.1 Agricultural Areas

The following sections identify construction procedures and best practices for activities within actively cultivated or rotated land used for the production of crops including but not limited to corn, grains, orchards, vineyards and hayfields.

4.1.1 Drain Tiles

Develop procedures for constructing through drain-tiled areas and repairing drain tiles after construction. Engage qualified drain tile specialists, as needed, to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialist from the project area, if available.

1. Attempt to locate existing drain tiles.
2. Probe all drainage tile systems within the area of disturbance to check for damage.
3. Ensure that the depth of cover over the new pipeline is sufficient to avoid interference with drain tile systems (existing or proposed). For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).
4. Repair damaged drain tiles to their original or better condition (Figure SU-1). Filter-covered drain tiles may not be used unless the local soil conservation authorities and the landowner agree in writing prior to construction.

4.1.2 Irrigation

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties. Repair any damage to irrigation systems as soon as practical.

4.1.3 Soil Compaction Mitigation & Restoration

The following measures are to be employed during decompaction and restoration of soil within agricultural areas disturbed by construction activities:

1. In agricultural areas, test topsoil and subsoil disturbed by construction activities for compaction at regular intervals. Use penetrometers or other appropriate devices to conduct tests. In order to approximate preconstruction conditions, conduct tests on the same soil type under similar moisture conditions in undisturbed areas.
2. Plow severely compacted soils with a paraplow or other deep tillage implement;
 - a. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.
 - b. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Soils imported for use within agricultural areas are to be certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner.
4. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.

4.2 Road Crossings

The "open cut" method is typically used when installing the pipeline across small roads (Figure RD-4). Traffic is diverted while the trench is excavated across the road and the pipeline is installed. An open cut crossing may involve closing the road to all traffic and constructing an adequate detour around the crossing area, or excavating one-half of the road at a time allowing through traffic to be maintained. Any detour constructed around the crossing area must remain within the approved construction workspace. After completing the crossing, all backfill is compacted, the road bed is repaired and the road surface is replaced.

Bores are often used to install the pipeline across highways, major roads with heavy traffic, and railroads (Figure RD-5), unless the crossing permit allows an open cut crossing. Similar to a directional drill, as discussed in Section 4.4, the road bore is accomplished with a horizontal drill rig or boring machine. The boring machine drills a hole under the road to allow insertion of the pipe. Typically, a dummy pipe section is pulled through which is welded to the line pipe. The dummy pipe is pulled back through placing the line pipe in the crossing. In some instances, a casing (another larger pipe) is installed in the hole and the pipeline is inserted inside the casing. Casings typically are not installed today, although some states require casings on rail crossings. Casings also may be used in soils where it is difficult to pull pipe. The benefit of the road bore is that it allows installation of the pipeline without disrupting traffic.

Access roads shall be used and maintained in accordance with Section 3.2.

4.3 Residential Areas

Specialized construction procedures will be utilized in areas of heavy residential or commercial/ industrial congestion where residences or business establishments lie within 50 feet from the edge of the construction ROW.

1. Install safety fence at the edge of the construction ROW for a distance of 100 feet on either side of the residence or business establishment.
2. For a distance of 100 feet on either side any residence or business establishment, maintain a minimum distance of 25 feet between any structure and the edge of the construction work area. If a distance of 25 feet cannot be maintained, refer to Section 4.3.2.
3. If crushed stone/rock access pads are used in residential areas, rock shall be placed on nonwoven synthetic geotextile fabric to facilitate rock removal after construction.
4. Attempt to leave mature trees and landscaping intact within the construction work area unless the trees and landscaping interfere with the installation techniques or present unsafe working conditions, or as specified in landowner agreements.

5. Prevent the mixing of subsoil and topsoil by implementing segregation methods in all residential areas, except where the topsoil is being replaced, as stipulated in Section 3.5.3.1, unless the landowner or land managing agency specifically approves otherwise.

In addition to the aforementioned specialized procedures, smaller "spreads" of labor and equipment, operating independent of the mainline work force, will utilize either the stove pipe or drag section pipeline construction techniques in those areas of congestion where a minimum distance of 25 feet cannot be maintained between the residence (or business establishment) and the edge of the construction work area. In no case shall the temporary work area be located within 10 feet of a residence unless the landowner agrees in writing, or the area is within the existing maintained ROW.

The following techniques shall be utilized for a distance of 100 feet on either side of the residence or business establishment at the locations identified in the Company Construction Contract and/or Line List. Refer to site-specific residential construction plans, as applicable.

4.3.1 Stove Pipe Technique

The stove pipe construction technique is a less efficient alternative to the mainline method of construction, typically used when the pipeline is to be installed in very close proximity to an existing structure or when an open trench would adversely impact a commercial/industrial establishment. The technique involves installing one joint of pipe at a time whereby the welding, weld inspection, and coating activities are all performed in the open trench. At the end of each day after the pipe is lowered-in, the trench is backfilled and/or covered with steel plates or timber mats. The length of excavation performed each day cannot exceed the amount of pipe installed.

4.3.2 Drag Section Technique

The drag section construction technique, while less efficient than the mainline method, is normally preferred over the stove pipe alternative. This technique involves the trenching, installation, and backfill of a prefabricated length of pipe containing several segments all in one day. At the end of each day after the pipe is lowered-in, the trench is backfilled and/or covered with steel plates or timber mats. Use of the drag section technique will typically require adequate staging areas outside of the residential and/or commercial/industrial congestion for assembly of the prefabricated sections.

4.3.3 Residential Area Cleanup and Restoration

Restore all lawn areas and landscaping immediately following cleanup operations, or as specified in landowner agreements, including

1. Perform appropriate soil compaction mitigation in severely compacted residential areas.
2. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields. The size, density, and distribution of rock on the construction work area shall be similar to adjacent areas not disturbed by construction. The landowner or land management agency may approve other provisions in writing.
3. Importation of topsoil is an acceptable alternative to topsoil segregation. Soils imported for use within residential areas are to be certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner.

4. Reseed all disturbed lawns with a seed mixture acceptable to landowner or comparable to the adjoining lawn.

In residential areas, complete final grading, topsoil replacement, and installation of permanent erosion control structures within 10 days after backfilling the trench. Mulch all disturbed areas before seeding if final grading and installation of permanent erosion control measures will not be completed within 10 days after the trench in that area is backfilled in residential areas. If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

Landowners shall be compensated for damages in a fair and reasonable manner, and as specified in the damage provision within the controlling easement on each property.

4.4 Horizontal Directional Drill Method

Horizontal Directional Drilling (HDD) is a trenchless crossing method that can help avoid direct impacts to sensitive resources (e.g., waterbodies and wetlands) or infrastructure (e.g., roads and railways) by directionally drilling beneath them. HDD installation typically is carried out in three stages:

1. Directional drilling of a small diameter pilot hole;
2. Enlarging the pilot hole to a sufficient diameter to accommodate the pipeline; and,
3. Pulling the prefabricated pipeline, or pull string, into the enlarged bore hole.

For each waterbody or wetland that would be crossed using the HDD method, the Company will prepare a project-specific HDD Plan that includes:

- Site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;
- Justification that disturbed areas are limited to the minimum needed to construct the crossing;
- Identification of any aboveground disturbance or clearing between the HDD entry and exit workspaces during construction;
- A description of how an inadvertent release of drilling mud would be contained and cleaned up; and
- A contingency plan for crossing the waterbody or wetland in the event the HDD is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

The HDD Plan will be provided within the project-specific Clearance Package / Permit Book.

Section 7(c) and prior notice projects are required to file HDD plans for the review and written approval by the FERC. (This requirement to file a plan does not apply to projects constructed under the automatic authorization provisions in the FERC's regulations.)

During post-construction maintenance activities, do not conduct any routine vegetation mowing or clearing in riparian areas or wetlands that are between HDD entry and exit points.

5. WATERBODY CROSSINGS

The intent of these procedures is to minimize the extent and duration of project related disturbances within waterbodies. The following section describes the construction procedures and mitigation measures that will be used for pipeline installations at waterbodies. The length of the crossing, the sensitivity of the area, existing conditions at the time of the crossing, and permit requirements will determine the most appropriate measures to be used.

The *Waterbody Reference Citing FERC Requirements* in Appendix B summarizes general waterbody crossing methods and requirements identified in the FERC Procedures. These tables provide a brief reference of the restrictions on construction techniques for waterbody crossings; equipment bridges; construction time windows. However, as more stringent agency specific requirements may exist, refer to the Clearance Package / Permit Book for project-specific requirements.

5.1 General Waterbody Procedures

Pipeline construction across waterbody channels may result in short term water quality impacts. The following general procedures are to be followed to minimize or avoid impacts at waterbody crossings:

1. Crossings of waterbodies may proceed using standard upland construction techniques when they are dry or frozen and not flowing provided that the EI verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature. In the event of perceptible flow, all applicable requirements of Section 5 must be followed.
2. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.
3. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.
4. Perform mobilization of construction equipment, trench excavation, and backfilling in a manner that will minimize the potential for erosion and sedimentation within the waterbody channel.
5. Locate all extra work areas, such as staging and additional spoil storage areas, at least 50 feet away from water's edge, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. Site-specific written approval by FERC is required for all extra work areas with a less than 50-foot setback and associated measures to be used to ensure the waterbody is adequately protected.
6. Implement erosion control measures to confine water quality impacts within the immediate construction area and to minimize impacts to downstream areas.
7. Place all spoil from the waterbody within the construction ROW at least 10 feet from the water's edge or in the extra work areas shown on the construction drawings.
8. Maintain adequate flow rates to protect aquatic life and prevent the interruption of existing downstream uses.
9. Dewater trench in accordance with the procedures described in Section 3.5.6.

5.1.1 Time Windows for Instream Work

Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work must occur during the following time windows:

- Coldwater fisheries – June 1 through September 30; and
- Coolwater and warmwater fisheries – June 1 through November 30.

Installation or removal of equipment bridges above the top of bank is not subject to the aforementioned time windows.

5.1.2 Equipment Bridges

Equipment bridges may be installed and used where needed to allow equipment access across waterbodies.

1. Until the equipment bridge is installed, only clearing equipment and equipment necessary for installation of equipment bridges may cross the waterbody, and the number of crossings shall be limited to one crossing per piece of equipment, unless otherwise authorized by the appropriate permitting agency. EI approval is required prior to equipment crossing a waterbody without an equipment bridge.
2. Construct and maintain equipment bridges that allow unrestricted flow and prevent sediment from entering the waterbody. The Construction Contract agreement and/or permit conditions may specify the type of bridge to be used. Examples of bridges are provided below:
 - a. Equipment pads with or without culvert(s), as illustrated in Figure BR-1;
 - b. Clean crushed stone and culvert(s), as illustrated in Figure BR-2;
 - c. Flexi-float or portable bridges, as illustrated in Figure BR-3;
 - d. Double equipment pads, geotextile fabric and sideboards with or without culvert(s); or
 - e. Railroad car bridges without culverts.
3. Design and maintain each equipment bridge to withstand the highest flows that would occur. Align culverts/flumes to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of culverts.
4. Do not use soil to construct or stabilize equipment bridges.
5. Design and maintain equipment bridges to prevent sediment from entering the waterbody.
6. Remove temporary equipment bridges as soon as practicable after permanent seeding.
7. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the ROW is available, remove temporary equipment bridges as soon as practicable after final cleanup.
8. Obtain any necessary approval or authorization from the COE and/or the appropriate state agency for temporary and permanent bridges.

5.1.3 Clearing and Grading near Waterbodies

1. Confine construction activities and ground disturbance to the construction ROW boundaries, as shown on the construction drawings. Restrict extra work areas (such as staging areas and additional spoil storage areas) to only those shown on the construction drawings.
2. If the pipeline parallels a waterbody, maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the ROW except where maintaining this offset will result in greater environmental impact.
3. Clear the ROW adjacent to all waterbodies *up to the high water bank* (where discernible). *Within 10 feet of the high water bank*, trees shall be cut to ground level and with little to no ground disturbance. **Do not grub** this 10-foot vegetative strip with equipment.
4. Immediately remove all cut trees and branches that inadvertently fall into a waterbody and stockpile in an upland area within the construction ROW for disposal.
5. Grade the ROW adjacent to waterbodies *up to within 10 feet of the high water bank*, leaving an ungrubbed vegetative strip intact.
6. Clearing and grading operations may proceed through the 10-foot vegetative strip **only on the working side of the ROW** in order to install the equipment bridge and travel lane. Use temporary sediment barriers to prevent the flow of bank spoil into the waterbody.

5.1.4 Temporary Erosion and Sediment Controls at Waterbodies

Install sediment barriers immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and repaired or reinstalled as necessary (such as after backfilling of the trench), until replacement by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in Section 3.5, however, the following specific measures must be implemented at stream crossings:

1. Install sediment barriers across the entire construction ROW at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody.
2. Install sediment barriers along the edge of the construction ROW as necessary to contain spoil within the construction ROW and prevent sediment flow into the waterbody where waterbodies are adjacent to the construction ROW or parallel to the construction ROW and the ROW slopes toward the waterbody.
3. Removable or temporary sediment barriers, such as slope breakers or drivable berms as described in Section 3.5.4, may be used in lieu of sediment barriers in front of equipment bridges or timber mats across the travel lane. Removable sediment barriers can be removed during the construction day, but must be reinstalled after construction has stopped for the day or whenever heavy precipitation is imminent.
4. Use temporary trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody. Trench plugs shall be of sufficient size to withstand upslope water pressure.

5.2 Types of Waterbody Crossing Methods

Waterbody crossing techniques allowed for use on a project will be determined by agency consultations and permits. Construction at waterbodies will be conducted using two principal crossing methods, a “dry” crossing and a “wet” crossing. The “dry” or “dry-ditch” crossing procedure is further divided into a flume crossing and a dam-and-pump crossing methods. These methods are designed to maintain downstream flow at all times and to isolate the construction zone from the stream flow by channeling the water flow through a flume pipe or by damming the flow and pumping the water around the construction area. The overall objective is to minimize siltation of the waterbody and to facilitate trench excavation of saturated spoil. The two “dry” crossings are further described below in Sections 5.2.1 and 5.2.2.

The “wet” or “open-cut” crossing method involves trenching in the waterbody without isolating the construction zone from the stream flow. The objective of this method is to complete the waterbody crossing as quickly as practical in order to minimize the duration of impacts to aquatic resources. The wet crossing method is further described below in Section 5.2.3.

All streams, their classifications, timing windows, applicable permits and crossing procedures will be identified in the project-specific Clearance Package/Permit Book and on the construction drawings. Unless approved otherwise by the appropriate federal or state agency, pipeline construction and installation must occur using one of the two “dry” crossing methods for waterbodies state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally designated as critical habitat. The flume and dam-and-pump crossing methods are applicable to waterbodies up to 30 feet wide (possibly wider depending on flow volume and rate) at the water’s edge at the time of construction.

5.2.1 Flume Crossing

The flume crossing method utilizes a flume pipe(s) to transport stream flow across the disturbed area and allows trenching to be done in drier conditions (Figure WC-3). The flume pipe(s) installed across the trench will be sized to accommodate anticipated stream flows. Flumes are generally not recommended for use on a waterbody with a broad unconfined channel, unstable banks, a permeable substrate, excessive stream flow, or where the installation and construction of the flume crossing will adversely affect the bed or banks of the stream.

The flume waterbody crossing shall be installed as follows:

1. Install flume pipe(s) after blasting and other rock breaking measures (if required), but before trenching;
2. Properly align flume pipe(s) to prevent bank erosion and streambed scour;
3. Use sand bags or equivalent dam diversion structure to provide a seal at either end of the flume to channel water flow (some modifications to the stream bottom may be required to achieve an effective seal);
4. **Do not remove flume pipe** during trenching, pipe laying (thread pipe underneath the flume pipe(s)), or backfilling activities, or initial streambed restoration efforts, except for crossings where a dam-and-pump method (as described in Section 5.2.2 below) has been established as an alternative measure to redirect stream flow; and

5. Remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

5.2.2 Dam-and-Pump Crossing

The dam-and-pump crossing method is presented as an alternative dry crossing procedure to the flume crossing (in limited cases, it may be used in combination with a flume crossing). The dam-and-pump method is accomplished by utilizing pumps to transport stream flow across the disturbed area (Figure WC-4). This method involves placing sandbags across the existing stream channel upstream from the proposed crossing to stop water flow and downstream from the crossing to isolate the work area. Pumps are used to pump the water across the disturbed area and back into the stream further downstream.

The dam-and-pump procedure allows for more space and flexibility during trenching and pipe installation, which shortens the duration of time spent at the waterbody. The dam-and-pump method may be used for crossings of waterbodies where pumps can adequately transfer stream flow volumes around the work area, and where there are no concerns about sensitive species passage.

The dam-and-pump crossing method shall be installed as follows:

1. Install and properly seal sandbags at the upstream and downstream location of the crossing;
2. Create an in-stream sump using sandbags if a natural sump is unavailable for the intake hose;
3. Initiate pumping of the stream around the work area prior to excavating the trench;
4. Monitor dam and pumps at all times to ensure proper operation until the waterbody crossing is completed; and,
5. Remove the sandbag dams, pumps and hoses and return normal flow back to the waterbody following installation and restoration of the streambed.

Implementation of the dam-and-pump crossing method will meet the following performance criteria:

- Use sufficient pumps, including onsite backup pumps, to maintain downstream flows;
- Construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
- Screen all intake hoses to minimize the entrainment of fish and other aquatic life
- Prevent streambed scour at pump discharge; and
- Continuously monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

5.2.3 Wet Crossing

Open-cut crossings involve excavating a trench for the pipeline across the bottom of the waterbody to be crossed (Figure WC-2). Depending on the depth of the water, construction equipment may be placed on barges or other floating platforms to excavate the pipe trench.

This construction technique is typically used to cross waterbodies that are not state-designated, such as ephemeral drainage ditches, and ephemeral and intermittent streams, as well as intermediate and major waterbodies with substantial flows that cannot be effectively flumed or pumped around the construction zone using one of the dry crossing techniques.

5.3 FERC Waterbody Classifications

In the FERC Procedures, a “waterbody” is defined to include any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes. Waterbodies have been further divided into three classifications by FERC depending on the width of the feature, which dictate construction limitations or requirements.

5.3.1 Minor Waterbodies

FERC defines a “minor waterbody” as a waterbody less than or equal to 10 feet wide at the water’s edge at the time of crossing. Minor waterbodies shall be crossed in accordance with the following requirements:

1. All spoil from minor waterbody crossings must be placed in the construction ROW at least 10 feet from the water’s edge or in additional extra work areas as described above in Section 5.1.
2. Unless approved otherwise by the appropriate federal or state agency, utilize a dry crossing construction technique to install crossings at all minor waterbodies that are state-designated fisheries or federally designated as critical habitat, as identified in the Clearance Package/ Permit Book (Figures WC-3 or WC-4).
 - a. All construction equipment must use an equipment bridge to cross state-designated fisheries as specified in Section 5.1.2.
3. Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the wet crossing method, with the following restrictions:
 - a. Except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period;
 - b. Limit use of equipment operating in the waterbody to that needed to construct the crossing;
 - c. If a flume is installed within the waterbody during mainline activities, it can be removed just prior to lowering in the pipeline (The 24-hour timeframe starts as soon as the flume is removed.); and,
 - d. Equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification or protected status (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in Section 5.1.2.

5.3.2 Intermediate Waterbodies

FERC defines an "intermediate waterbody" as a waterbody greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing. Intermediate waterbodies shall be crossed in accordance with the following requirements:

1. All spoil from intermediate waterbody crossings must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas as described above in Section 5.1.
2. Unless approved otherwise by the appropriate federal or state agency, install the pipeline using a dry crossing method for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are
 - a. state-designated as either coldwater or significant coolwater or warmwater fisheries, or
 - b. federally designated as critical habitat.
3. Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the wet crossing method, with the following restrictions:
 - a. Complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;
 - b. Limit use of equipment operating in the waterbody to that needed to construct the crossing; and,
 - c. All other construction equipment must cross on an equipment bridge as specified in Section 5.1.2.

5.3.3 Major Waterbodies

FERC defines a "major waterbody" as a waterbody greater than 100 feet wide at the water's edge at the time of crossing. Before construction, the Company shall prepare and file for the review and written approval by the FERC a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing, however the scaled drawings are not required for any offshore portions of pipeline projects. (The requirement to file major waterbody crossing plans does not apply to projects constructed under the automatic authorization provisions of the FERC's regulations.) This site-specific plan must be developed in consultation with the appropriate state and federal agencies and shall include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

Upland spoil from major waterbody crossings must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas as described in Section 5.2.

5.4 Restoration

Restore and stabilize the waterbody banks and channel in accordance with this section.

1. Return all waterbody banks to preconstruction contours or to stable angle of repose as approved by the EI.
2. Use clean gravel or native cobbles for the upper 12 inches of trench backfill in all waterbodies identified in the Clearance Package/Permit Book as coldwater fisheries, unless otherwise specified by state-specific agency recommendations or permit conditions.
3. For wet crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing the crossing.
4. For dry crossings, complete bank stabilization before returning flow to the waterbody channel.
5. Limit the use of rock riprap to areas where flow conditions preclude effective vegetation stabilization techniques such as seeding and erosion control fabric, unless otherwise specified by COE and state permits. Limit the placement of rock riprap to the slopes along the disturbed waterbody crossing. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.
6. Install erosion control fabric, in accordance with Section 3.6.1.2, or a functional equivalent on waterbody banks at the time of final bank contouring (Figure EC-13, WC-5). Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife.
7. Revegetate disturbed riparian areas with native species of conservation grasses, legumes and woody species similar in density to adjacent undisturbed lands.
8. In the event that final cleanup is deferred more than 20 days after the trench is backfilled, all slopes within 100 feet of waterbodies shall be mulched with 3 tons/acre of straw.
9. Remove all temporary sediment barriers when replaced by permanent erosion controls or when restoration of adjacent upland areas is successful as specified in Section 8.1.
10. Install a permanent slope breaker and a trench breaker at the base of slopes greater than 5% that are less than 50 feet from each waterbody crossed.

6. WETLAND CROSSINGS

The term “wetland” as used in this plan includes any area that satisfies the requirements of the current federal methodology for identifying and delineating wetlands. The requirements outlined below do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoil segregation requirements, apply to these agricultural wetlands.

Wetland boundaries are identified on the construction drawings and within the Clearance Package / Permit Book. Wetlands are delineated prior to construction using current federal methodology and summarized within a wetland delineation report, which identifies the following information for all wetlands that would be affected by the construction ROW:

- Location, including pipeline milepost if crossed by centerline;
- National Wetland Inventory (NWI) classification;
- Crossing length in feet;
- Area of permanent and temporary disturbance that would occur in each wetland, sorted by NWI classification type.

6.1 General Wetland Procedures

Crossing procedures are to comply with COE, or its delegated agency, permit terms and conditions. Project-specific permits or authorizations issued by the COE or other appropriate agency(ies) are provided in the Clearance Package / Permit Book. Implement the following general requirements during planning and construction near or across wetlands:

1. Route the pipeline to avoid wetland areas to the maximum extent possible.
2. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.
3. Identify site-specific areas where excessively wide trenches could occur and/or where spoil piles could be difficult to maintain because existing soils lack adequate unconfined compressive strength.
4. Limit construction activity and ground disturbance in wetland areas to a construction ROW width of 75 feet or as shown on the construction drawings. Only with prior written approval from the FERC, construction ROW width within the boundaries of federally delineated wetlands may be expanded beyond 75 feet if required by site-specific topographic conditions or soil limitations.
5. All extra work areas must be located at least 50 feet away from wetland boundaries, except where the adjacent upland consists of cultivated or rotated cropland or other disturbed land. Only with prior written approval from the FERC, the Company can locate extra work areas closer than 50 feet from the wetland if site-specific conditions justify a less than 50-foot setback.

6. Aboveground facilities shall not be located in any wetland, except as permitted or where the location of such facilities outside of wetlands would prohibit compliance with U.S.DOT regulations.
7. In the event a waterbody crossing is located within or adjacent to a wetland crossing, the Company must file a site-specific crossing plan for review and obtain written approval by the FERC before construction if all measures of Sections V. and VI. of the FERC Procedures cannot be met.
8. Limit construction equipment operating in wetland areas to that needed to clear the ROW, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction ROW. All other construction equipment shall use access roads located in upland areas to the maximum extent practical. Refer to Section 3.2 for other requirements and restrictions pertaining to access to the construction ROW or use of roads across wetlands.

6.2 Clearing and Grading at Wetlands

1. Wetland boundaries and buffers (e.g., extra work area setbacks, refueling restrictions) must be clearly marked in the field with signs and /or highly visible flagging until construction-related ground disturbing activities are complete.
2. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment or operate normal equipment on timber riprap, prefabricated equipment mats or terra mats on the working side of the ROW during clearing operations.
3. Attempt to use no more than two layers of timber riprap to stabilize the ROW. If approved by the COE, woody debris can be burned in wetlands as long as it is in accordance with state and local regulations, ensuring that all woody debris is removed for disposal.
4. Cut vegetation just above ground level and grind stumps to ground level, leaving existing root systems in place and remove any excess vegetation (e.g., wood chips). Immediately remove all cut trees, limbs and branches from the wetland and stockpile in an upland area on ROW for disposal.
5. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction ROW in wetlands unless the Chief Inspector and EI determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction ROW.
6. Do not cut trees outside of the construction ROW to obtain timber for riprap or equipment mats.
7. Cleared materials, such as slash, logs, brush, and wood chips, shall not be permanently placed within wetland areas.

6.3 Temporary Erosion & Sediment Control at Wetlands

Install sediment barriers immediately after initial ground disturbance at the following locations:

- Within the ROW at the edge of the boundary between wetland and upland;
- At the base of slopes greater than 5% where the base of the slope is less than 50 feet from a wetland;

- Across the entire ROW immediately upslope of the wetland boundary to contain spoil within the construction ROW and prevent sediment flow into the wetland;
- Along the edge of the ROW, where the ROW slopes toward the wetland, to protect adjacent, off ROW wetland; and
- Along the edge of the ROW as necessary to contain spoil and prevent sediment from migrating outside the construction ROW in areas where a wetland is both within and adjacent to the construction ROW.

Maintain all sediment barriers throughout construction and reinstall as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete in accordance with Section 8.1. Remove the sediment barriers during right-of-way cleanup.

6.4 Wetland Crossing Procedure

Procedures used to install a pipeline across wetlands vary depending on the level of soil stability and saturation encountered during construction. The following best management practices are to be employed during standard wetland crossings:

1. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.
2. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to stabilize the ROW.
3. Perform topsoil segregation in accordance with Section 3.5.3.1, including segregating the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated. Immediately after backfilling is complete, restore the segregated topsoil to its original location.
4. If required, dewatering should be conducted as described in Section 3.5.6.
5. Minimize the length of time that topsoil is segregated and the trench is open. Do not trench the wetland until the pipeline is assembled and ready for lowering-in.
6. Use “push-pull” or “float” construction techniques to place the pipe in the trench where water and other site conditions allow (Refer to Section 6.4.1 below).
7. Install permanent trench breakers at the wetland boundaries and/or seal the trench bottom as necessary to maintain the original wetland hydrology at locations where the pipeline trench may drain a wetland.
8. Install a permanent slope breaker and a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas for each wetland crossed.
9. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5% where the base of the slope is less than 50 feet from the wetland, or as needed to prevent

sediment transport into the wetland. In some areas, with the approval of the EI, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

10. Restore segregated topsoil to its original position after backfilling is complete. When required, additional fill material imported from off the ROW must be approved by the EI.
11. Preconstruction wetland contours and flow regimes will be restored to the extent practical.

6.4.1 Push-pull Technique

The “push-pull” or “float” or “drag section” method may be utilized during wetland crossings if conditions are suitable at the time of construction. Sufficient, naturally present groundwater volumes that fill the excavated trench are required to facilitate this installation method. This method may be used to install the pipeline if the wetland to be crossed contains standing water or saturated and/or unstable soils.

- Trenching equipment will excavate a trench across the wetland, either using low-ground-weight equipment or working on timber matting.
- While the trench is being excavated, the pipeline crossing sections will be assembled and welded together in uplands.
- Prefabricated pipeline crossing sections will then be pushed or pulled into the trench; floated across the wetland and released into the trench if the trench is filled with water; or, carried into position with sideboom tractors supported on equipment mats.
- The excavating equipment will “walk through” the wetland by carrying timber mats and repositioning the mats as it operates from one mat to the next through the wetland during trenching, backfilling, and cleanup activities.

6.5 Wetland Cleanup and Restoration

1. Restore pre-construction wetland contours to maintain the wetland hydrology.
2. Revegetate the ROW with annual ryegrass at 40 lbs/acre PLS or with the recommended Wetland Seed Mix in Appendix C or project-specific seed mix where applicable, unless standing water is present or unless prohibited by state or land management agency.
3. **Do not use lime, mulch or fertilizer in wetland areas** unless required in writing by the appropriate federal or state agency, as identified in the Clearance Package/Permit Book.
4. In the event that final cleanup is deferred more than 20 days after the trench is backfilled, all slopes adjacent to wetlands shall be mulched with 3 tons/acre of straw for a minimum of 100 feet on each side of the crossing.
5. Remove all project-related material used to support equipment on the construction ROW, including timber riprap and prefabricated equipment mats, upon completion of construction.
6. Develop specific procedures in coordination with the appropriate federal or state agency, where necessary, to prevent the invasion or spread of invasive vegetation (such as purple loosestrife and phragmites).

7. Ensure that all disturbed areas permanently revegetate in accordance with Section 8.1.
8. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are successful as specified in Section 8.1.

7. SPILL PREVENTION & RESPONSE

7.1 SPCC / PPC Plan

The Company and Contractor shall adhere to the SPCC/PPC Plan at all times. This plan has been prepared to meet the requirements of several federal regulations and guidelines: the FERC's Plan and Procedures; Oil Pollution Act; Federal Water Pollution Control Act; Comprehensive Environmental Response, Compensation and Liability Act of 1980; the Resource Conservation and Recovery Act; Toxic Substances Control Act; and, the Clean Water Act.

The purpose of the SPCC/PPC Plan is to reduce the probability and risk of a potential spill or release of oil or hazardous materials during construction-related activities. The objectives of this plan are to identify and address:

- The type and quantity of material handled, stored, or used on site during construction;
- Measures to be taken for spill preparedness and prevention;
- Emergency response procedures;
- Spill incident reporting/notification procedures; and
- Local emergency response team arrangements.

7.2 Spill Prevention Measures

Structure operations in a manner that reduce the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. At a minimum,

1. All employees handling fuels and other hazardous materials are to be properly trained.
2. All equipment shall be in good operating order and inspected on a regular basis.
3. Fuel trucks transporting fuel to on-site equipment should travel only on approved access roads.
4. All equipment is to be parked overnight and/or fueled at least 100 feet from any wetland or waterbody. These activities can occur closer only if the EI determines that there is no reasonable alternative, and appropriate steps have been taken (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill.
5. Do not store hazardous materials, including chemicals, fuels, and lubricating oils within 100 feet of a wetland, waterbody or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas. If the 100-foot setback cannot be met, this activity can be performed within the 100-foot setback, with EI approval, if done in accordance with the SPCC/PPC Plan.
6. Do not perform fondu or concrete coating activities within 100 feet of any wetland or waterbody boundary, unless the location is an existing industrial site designated for such use. If the 100-foot setback cannot be met, these activities can be performed within the 100-foot setback, if the EI determines that there is no reasonable alternative and appropriate steps have been taken (including

secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill.

7. Pumps operating within 100 feet of a waterbody or wetland boundary shall utilize appropriate secondary containment systems to prevent spills; and
8. Bulk storage of hazardous materials, including chemicals, fuels, and lubricating oils have appropriate secondary containment systems to prevent spills.

7.3 Spill Cleanup & Response

Structure operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum,

1. Ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills and unanticipated discoveries of contamination;
2. Ensure that each construction crew has on hand sufficient tools and material to stop leaks; and,
3. Know the contact names and telephone numbers for all local, state, and federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

8. POST-CONSTRUCTION ACTIVITIES

8.1 Post-Construction Monitoring

Projects conducted under the blanket certificate or a project-specific Section 7 Order, shall meet the monitoring requirements set forth in this section. Company personnel shall perform the following:

1. Establish and implement a program to monitor the success of restoration upon completion of construction and restoration activities.
2. Conduct follow-up inspections of all disturbed upland areas as necessary, to determine the success of revegetation and address landowner concerns. At a minimum, conduct inspections after the first and second growing seasons.
3. In nonagricultural upland areas, revegetation shall be considered successful if the vegetative cover is sufficient to prevent the erosion of soils on the disturbed ROW and density and cover are similar to that in adjacent undisturbed area. Sufficient coverage in upland areas is defined when vegetation has a uniform 70 percent vegetative coverage.
4. In agricultural areas, revegetation shall be considered successful when upon visual survey, growth and vigor are similar to adjacent undisturbed portions of the same field, unless the easement agreement specifies otherwise.
5. In wetlands, monitor and record the success of revegetation annually, until wetland revegetation is successful:
 - a. Wetland revegetation will be considered successful when the affected wetland satisfies the current federal definition for a wetland (i.e. soils, hydrology, and vegetation);
 - b. Vegetation should be at least 80 percent of either the cover documented for the wetland prior to construction, or at least 80 percent of the cover in adjacent wetland areas that were not disturbed by construction;
 - c. If natural rather than active revegetation was used, the plant species composition must be consistent with early successional wetland plant communities in the affected ecoregion;
 - d. Invasive species and noxious weeds should be absent unless they are abundant in adjacent areas that were not disturbed by construction; and,
 - e. For any wetland where revegetation is not successful at the end of 3 years after construction, the Company shall develop and implement (in consultation with a professional wetland ecologist) a remedial plan to actively revegetate the wetland.
6. Inspect all remaining temporary erosion and sediment controls during routine patrols to ensure proper functioning. Any deficiencies found will be reported and corrected as needed. Once the area has revegetated and stabilized, the erosion controls will be removed.
7. Revegetation efforts (such as fertilizing or reseeding) will continue until revegetation is successful.

8. Restoration shall be considered successful if the ROW surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless otherwise approved by the land owner or land managing agency), revegetation is successful, and proper drainage has been restored.
9. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in agricultural areas until restoration is successful.
10. Make efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, throughout the life of the project. Maintain signs, gates, and vehicle trails as necessary.

8.2 Post-Construction Maintenance

Routine maintenance of the ROW is required to allow continued access for routine pipeline patrols, maintaining access in the event of emergency repairs, and visibility during aerial patrols. Where the newly established pipeline ROW is located on other existing ROWs not affiliated with the Company, the easement holder or owner will continue to maintain their ROWs using procedures specified in their vegetative management programs.

Projects conducted under this E&SCP and subject to the FERC Plan and Procedures, shall meet the maintenance requirements set forth in this section. The following requirements restrict the amount of vegetation maintenance that can occur within new ROW.

8.2.1 Uplands

In upland areas, maintenance of the ROW will involve clearing the entire ROW of woody vegetation.

1. Routine vegetation mowing or clearing over the full width of the permanent ROW in uplands shall be conducted no more frequently than once every 3 years. However, to facilitate periodic corrosion and leak surveys, a 10-foot wide corridor centered on the pipeline may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state.
2. Routine vegetation mowing or clearing shall not occur between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency of the U.S. Fish and Wildlife Service.

8.2.2 Waterbodies and Wetlands

1. Do not conduct routine vegetation mowing or clearing over the full width of the permanent ROW in wetlands or riparian areas.
 - a. Limit routine vegetation mowing or clearing practices adjacent to waterbodies to allow a riparian strip that measures 25 feet back from the waterbody's mean high water mark. This riparian strip will be allowed to permanently revegetate with native plant species across the entire construction ROW.
 - b. To facilitate periodic corrosion and leak surveys within wetlands and the 25-foot-wide riparian strip adjacent to waterbodies, a corridor up to 10 feet wide centered on the pipeline

may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state.

- c. Trees located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent ROW.
2. Do not conduct any routine vegetation mowing or clearing in riparian areas or wetlands that are between HDD entry and exit points.
3. Herbicides or pesticides shall not be used in or within 100 feet of a wetland or waterbody, except as specified by the federal or state agency.
4. Time of year restrictions apply to routine mowing as well as selective clearing of trees within riparian or wetland areas. These activities are prohibited between April 15 – August 1 of any year.

8.3 Reporting

The Company shall maintain records that identify by milepost:

1. Method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;
2. Acreage treated;
3. Dates of backfilling and seeding;
4. The location of any subsurface drainage repairs or improvements made during restoration;
5. Names of landowners requesting special seeding treatment and a description of the follow-up actions; and
6. Any problem areas and how they were addressed.

The Contractor is responsible for providing the EI with the information and documentation on applications, rates, and types of fertilizer, pH modifying agents, seed and mulch that are used during a project.

For the FERC-authorized projects, other than projects conducted under the blanket certificate, the Company will file quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.

A wetland revegetation monitoring report identifying the status of the wetland revegetation efforts will be filed at the end of 3 years following construction, and annually thereafter documenting progress within the wetland until revegetation is successful. The requirements to file wetland restoration reports with FERC does not apply to projects authorized under the blanket certificate (i.e. automatic and prior notice) or advanced notice provisions in the FERC regulations.

APPENDIX A

E&SCP FIGURES

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FIGURE NUMBER	STANDARD NUMBER	DRAWING TITLE
CONSTRUCTION WORKAREAS (CW)		
CW-1	ES-0001	TYPICAL TRENCH DETAIL
CW-2	ES-0002	RIGHT-OF-WAY TOPSOIL SEGREGATION TECHNIQUES
CW-3	ES-0003	TYPICAL CONSTRUCTION WIDTHS ACQUIRING NEW PERMANENT RIGHT-OF-WAY
CW-4	ES-0004	TYPICAL CONSTRUCTION WIDTHS NOT ACQUIRING NEW PERMANENT RIGHT-OF-WAY (SINGLE LINE SYSTEM)
CW-5	ES-0005	TYPICAL CONSTRUCTION WIDTHS NOT ACQUIRING NEW PERMANENT RIGHT-OF-WAY (MULTIPLE LINE SYSTEM)
ACCESS ROADS & ROAD CROSSINGS (RD)		
RD-1	ES-0006	ACCESS ROAD CROSS SECTION
RD-2	ES-0007	ROCK ACCESS PAD
RD-3	ES-0008	TYPICAL TEMPORARY ACCESS ROAD THROUGH WETLANDS
RD-4	ES-0009	TYPICAL PAVED ROAD CROSSING CONTROL MEASURES (OPEN CUT)
RD-5	ES-0010	TYPICAL PAVED ROAD CROSSING CONTROL MEASURES (BORED)
EROSION CONTROLS (EC)		
EC-1	ES-0011	SILT FENCE DETAIL
EC-2	ES-0012	STRAW BALE DETAIL
EC-3	ES-0013	STRAW BALE CHECK DAM IN A DRAINAGEWAY
EC-4	ES-0014	ROCK-LINED DRAINAGE SWALE
EC-5	ES-0015	STORM DRAIN INLET PROTECTION
EC-6	ES-0016	TEMPORARY TRENCH PLUG OPTIONS
EC-7	ES-0017	TEMPORARY SLOPE BREAKERS
EC-8	ES-0018	PERMANENT SLOPE BREAKERS
EC-9	ES-0019	CHEVRON SLOPE BREAKER
EC-10	ES-0020	TRENCH BREAKER DETAIL (SACK)
EC-11	ES-0021	TRENCH BREAKER DETAIL (FOAM)
EC-12	ES-0022	PERMANENT TRENCH BREAKER OPTIONS
EC-13	ES-0023	EROSION CONTROL FABRIC INSTALLATION
EC-14	ES-0024	TYPICAL EROSION CONTROL BLANKETS ON SLOPES
WATER DISCHARGES (WD)		
WD-1	ES-0025	FILTER BAG
WD-2	ES-0026	DISCHARGE STRUCTURE FOR HYDROSTATIC TEST WATER
WD-3	ES-0027	OPTIONS FOR SMALL WATER DISCHARGES
WD-4	ES-0028	DISCHARGE OF HYDROSTATIC TEST WATER TO A SURFACE WATER
BRIDGES (BR)		
BR-1	ES-0029	TEMPORARY EQUIPMENT BRIDGE (EQUIPMENT PADS WITH OR WITHOUT CULVERTS)
BR-2	ES-0030	TEMPORARY EQUIPMENT BRIDGE (CRUSHED STONE WITH CULVERTS)
BR-3	ES-0031	TEMPORARY EQUIPMENT BRIDGE (FLEXI-FLOAT OR PORTABLE BRIDGE)
WATERBODY AND WETLAND CROSSINGS (WC)		
WC-1	ES-0032	TYPICAL STANDARD WETLAND CROSSING
WC-2	ES-0033	TYPICAL WET WATERBODY CROSSING
WC-3	ES-0034	TYPICAL FLUME WATERBODY CROSSING
WC-4	ES-0035	TYPICAL DAM-AND-PUMP WATERBODY CROSSING
WC-5	ES-0036	TYPICAL EROSION CONTROL BLANKETS ON STREAMBANKS
WC-6	ES-0037	TYPICAL RIP-RAP PLACEMENT
SPECIAL USE / AGRICULTURAL AREAS (SU)		
SU-1	ES-0038	DRAIN TILE REPAIR PROCEDURE

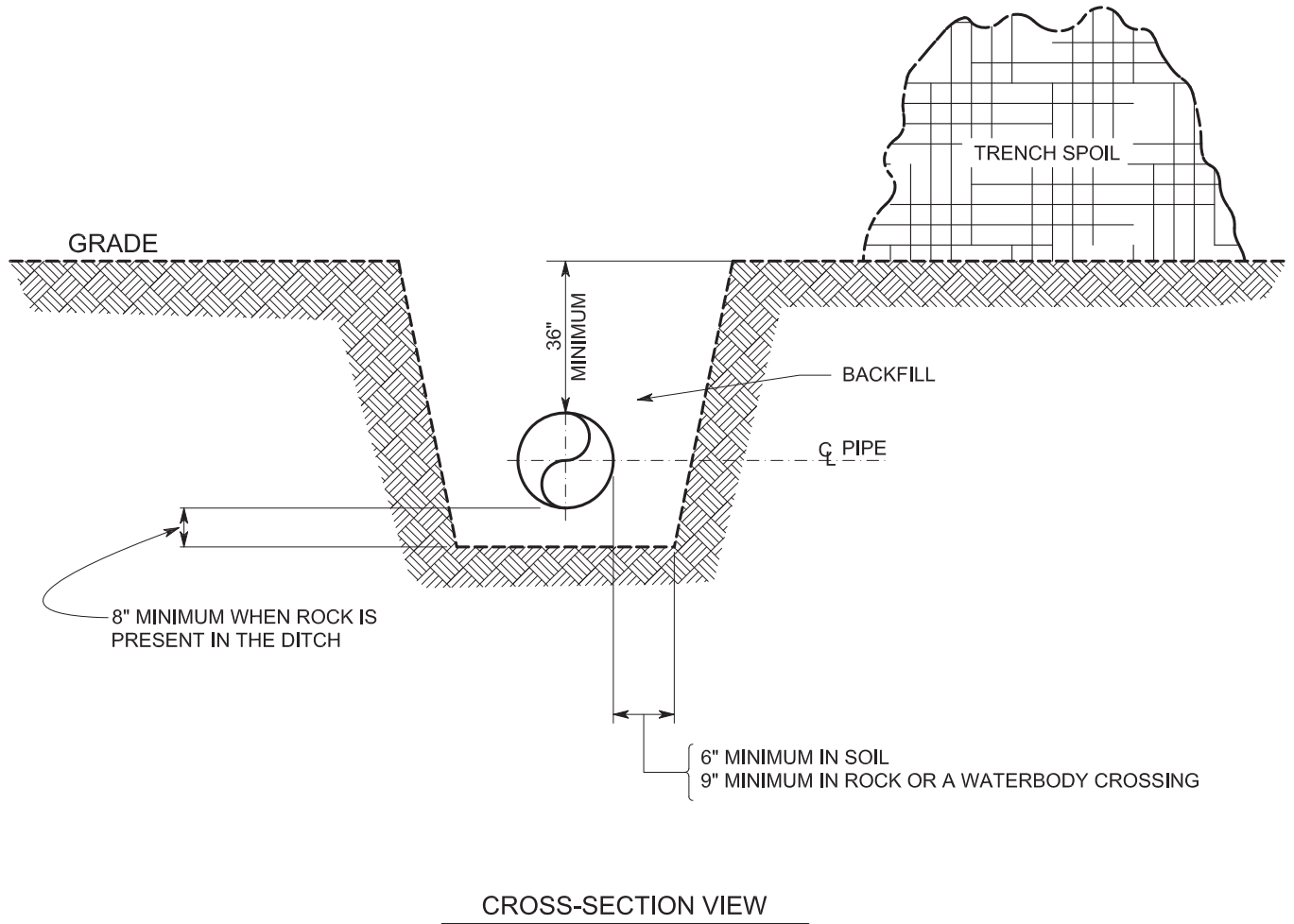
INDEX OF FIGURES

APPENDIX A

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NOTES:

1. ALL PRECONSTRUCTION CONTOURS WILL BE RE-ESTABLISHED UPON COMPLETION OF PIPE INSTALLATION. EXCEPT IN WETLANDS, A CROWN MAY BE LEFT TO ACCOUNT FOR DITCH SETTLING, AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. IN COLD WATER FISHERY STREAMS, THE TOP 12" OF THE TRENCH WILL BE BACKFILLED WITH CLEAN GRAVEL OR NATIVE COBBLES UNLESS OTHERWISE SPECIFIED BY THE PERMITTING AGENCY.

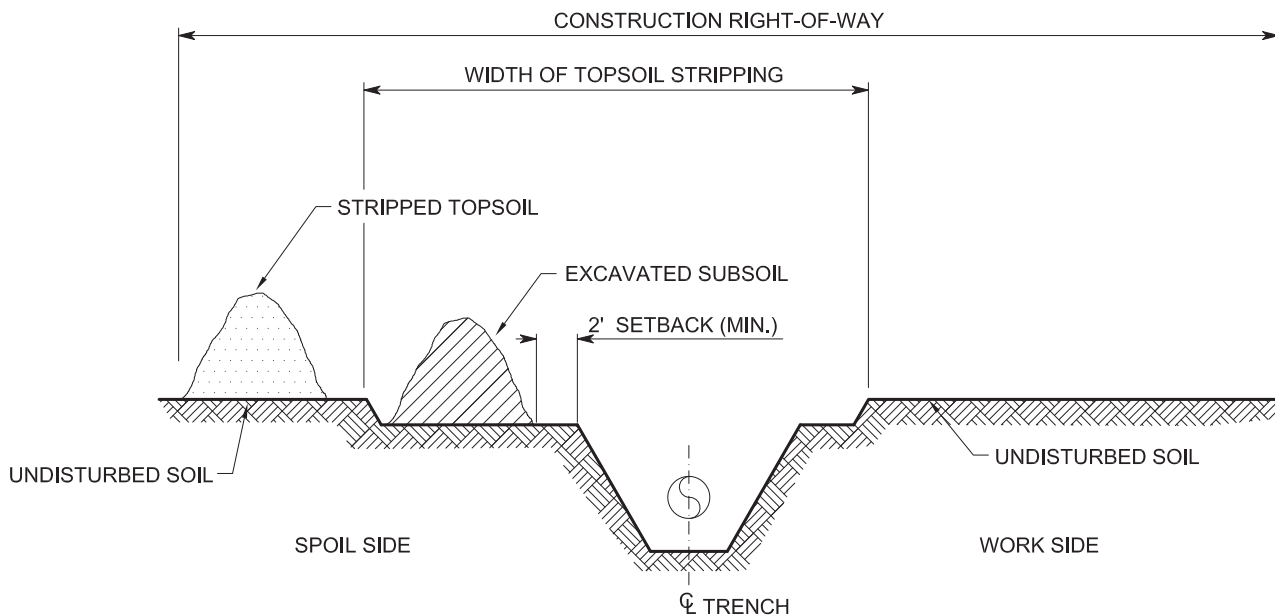
TYPICAL TRENCH DETAIL

FIGURE CW-1

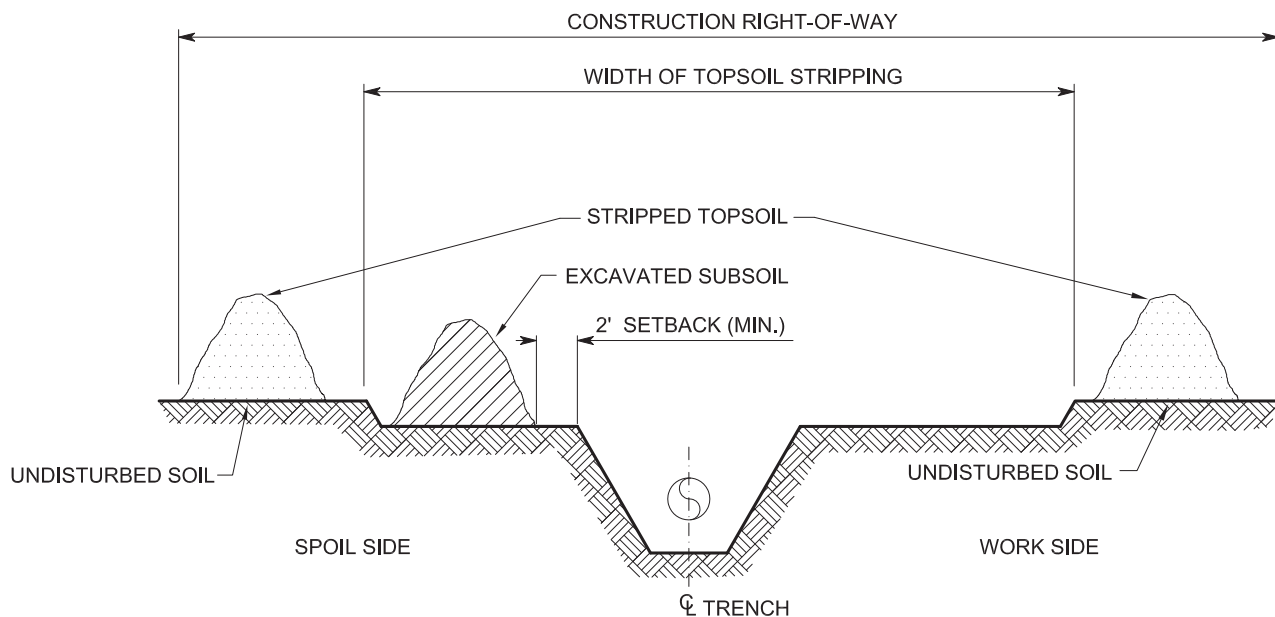
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DITCH PLUS SPOILSIDE TOPSOIL SEGREGATION



FULL RIGHT-OF-WAY TOPSOIL STRIPPING

NOTES:

1. TOPSOIL MAY BE STORED IN LOCATIONS AS SHOWN ABOVE OR AT OTHER COMPANY APPROVED LOCATIONS WITHIN THE CONSTRUCTION R.O.W.
2. LEAVE GAPS IN SPOIL PILES FOR WATER RUN-OFF.
3. MAINTAIN SEPARATION OF SALVAGED TOPSOIL AND SUBSOIL THROUGHOUT ALL CONSTRUCTION ACTIVITIES.
4. STABILIZE TOPSOIL PILES AND MINIMIZE LOSS DUE TO WATER OR WIND EROSION WITH USE OF SEDIMENT BARRIERS, MULCH, TEMPORARY SEEDING, TACKIFIERS OR FUNCTIONAL EQUIVALENTS, WHERE NECESSARY.

RIGHT-OF-WAY TOPSOIL
SEGREGATION TECHNIQUES

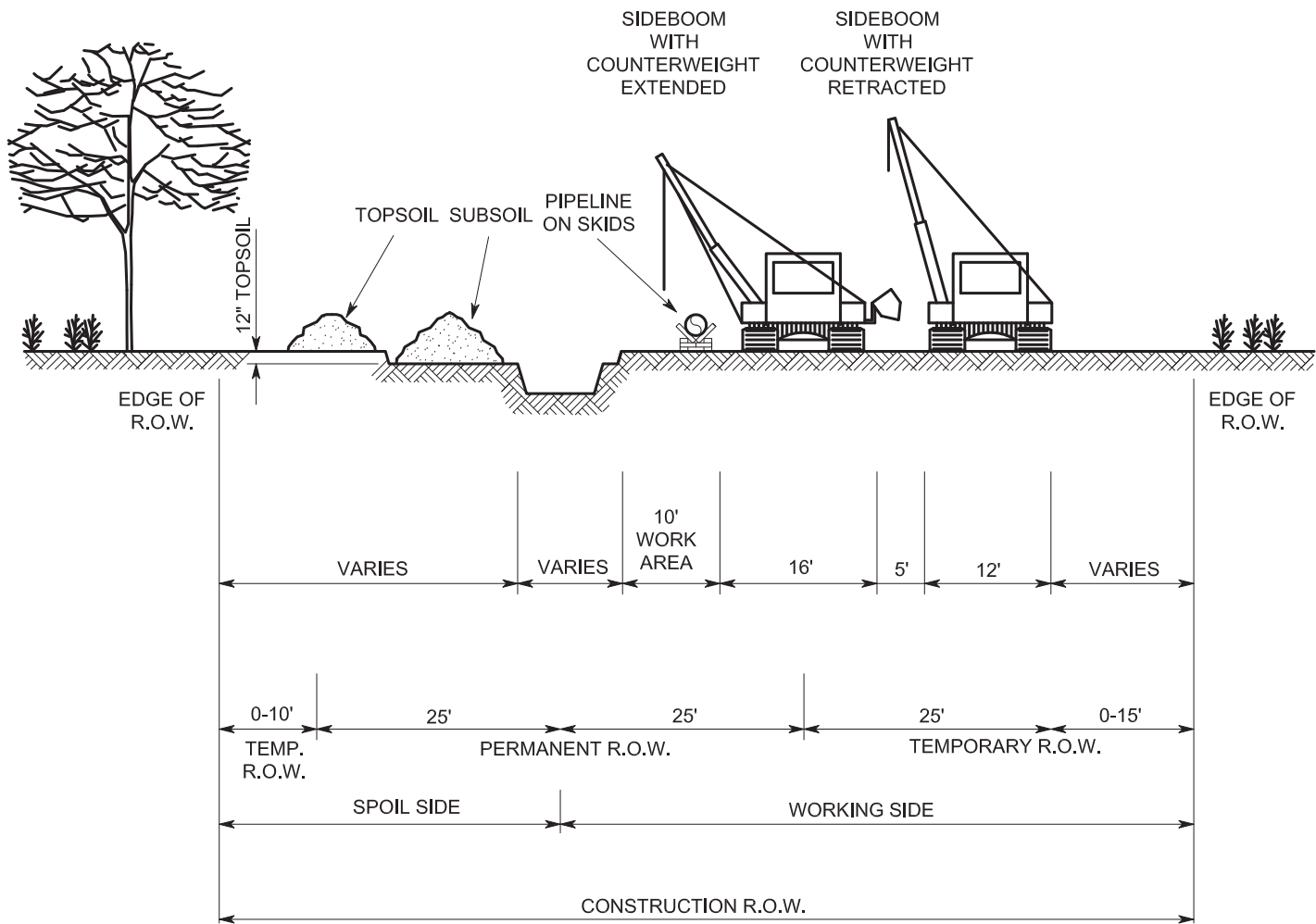
FIGURE CW-2

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PIPE DIAMETER	SPOIL SIDE (FT.)	WORKING SIDE (FT.)	CONSTRUCTION R.O.W. (FT.)
12" OR LESS	25	50	75
14" - 30"	35	50	85
36" - 42"	35	65	100
WETLANDS	25	50	75

NOTES:

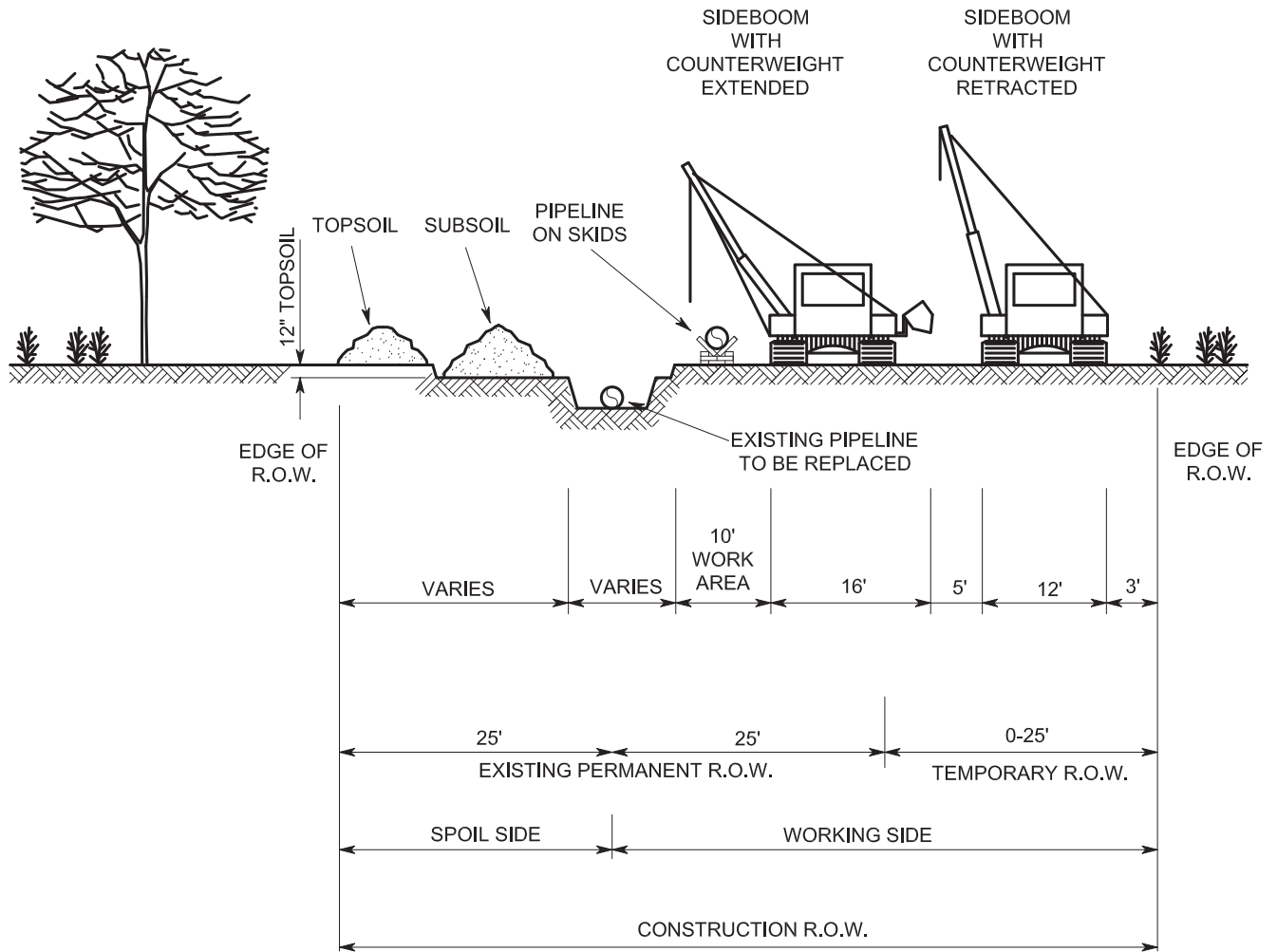
- ALTHOUGH THE DIMENSIONS SHOWN ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS. UNLESS OTHERWISE INDICATED ON THE ALIGNMENT SHEETS, THE MAXIMUM WIDTH OF THE CONSTRUCTION RIGHT-OF-WAY SHALL BE AS SHOWN IN THE TABLE FOR THE APPROPRIATE PIPE DIAMETER.
- TOPSOIL SEGREGATION METHODS WILL BE USED IN ALL RESIDENTIAL AREAS AND WHEN THE CONSTRUCTION ROW IS WIDER THAN 30 FEET IN CULTIVATED OR ROTATED AGRICULTURAL LANDS, MANAGED PASTURES, HAYFIELDS, AND OTHER AREAS AT THE LANDOWNER'S OR LAND MANAGEMENT AGENCY'S REQUEST. FOR WETLANDS, SEGREGATE THE TOP 12 INCHES OF TOPSOIL WITHIN THE DITCH LINE, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT OR SOILS ARE SATURATED.

**TYPICAL CONSTRUCTION WIDTHS ACQUIRING
NEW PERMANENT RIGHT-OF-WAY**

FIGURE CW-3

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PIPE DIAMETER	SPOIL SIDE (FT.)	WORKING SIDE (FT.)	CONSTRUCTION R.O.W. (FT.)
12" OR LESS	25	25	50
14" - 30"	25	50	75
36" - 42"	25	50	75
WETLANDS	25	50	75

NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS. UNLESS OTHERWISE INDICATED ON THE ALIGNMENT SHEETS, THE MAXIMUM WIDTH OF THE CONSTRUCTION RIGHT-OF-WAY SHALL BE AS SHOWN IN THE TABLE FOR THE APPROPRIATE PIPE DIAMETER.
- TOPSOIL SEGREGATION METHODS WILL BE USED IN ALL RESIDENTIAL AREAS AND WHEN THE CONSTRUCTION ROW IS WIDER THAN 30 FEET IN CULTIVATED OR ROTATED AGRICULTURAL LANDS, MANAGED PASTURES, HAYFIELDS, AND OTHER AREAS AT THE LANDOWNER'S OR LAND MANAGEMENT AGENCY'S REQUEST. FOR WETLANDS, SEGREGATE THE TOP 12 INCHES OF TOPSOIL WITHIN THE DITCH LINE, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT OR SOILS ARE SATURATED.
- IF THE WORKING SIDE MUST BE GREATER THAN THE VALUES SHOWN IN THE TABLE, COMPANY MUST REQUEST APPROVAL FROM THE F.E.R.C.

TYPICAL CONSTRUCTION WIDTHS NOT
ACQUIRING NEW PERMANENT RIGHT-OF-WAY
(SINGLE LINE SYSTEM)

FIGURE CW-4

DWG.

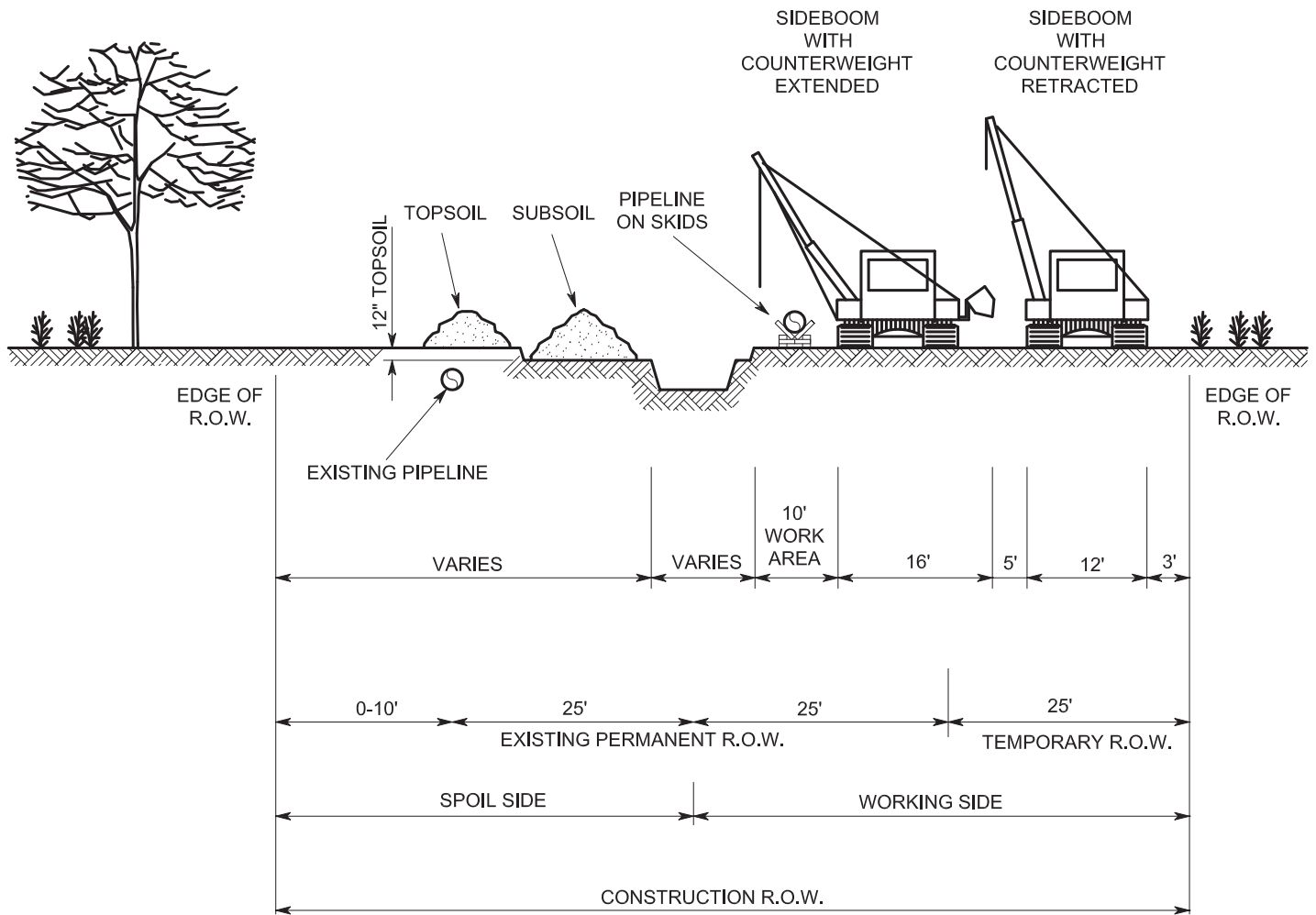
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PIPE DIAMETER	SPOIL SIDE (FT.)	WORKING SIDE (FT.)	CONSTRUCTION R.O.W. (FT.)
12" OR LESS	25	50	75
14" - 30"	35	50	85
36" - 42"	35	50	85
WETLANDS	25	50	75

NOTES:

- ALTHOUGH THE DIMENSIONS SHOWN ARE TYPICAL, SOME VARIATIONS MAY EXIST DUE TO SITE SPECIFIC CONDITIONS. UNLESS OTHERWISE INDICATED ON THE ALIGNMENT SHEETS, THE MAXIMUM WIDTH OF THE CONSTRUCTION RIGHT-OF-WAY SHALL BE AS SHOWN IN THE TABLE FOR THE APPROPRIATE PIPE DIAMETER.
- TOPSOIL SEGREGATION METHODS WILL BE USED IN ALL RESIDENTIAL AREAS AND WHEN THE CONSTRUCTION ROW IS WIDER THAN 30 FEET IN CULTIVATED OR ROTATED AGRICULTURAL LANDS, MANAGED PASTURES, HAYFIELDS, AND OTHER AREAS AT THE LANDOWNER'S OR LAND MANAGEMENT AGENCY'S REQUEST. FOR WETLANDS, SEGREGATE THE TOP 12 INCHES OF TOPSOIL WITHIN THE DITCH LINE, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT OR SOILS ARE SATURATED.
- IF THE WORKING SIDE MUST BE GREATER THAN 50 FEET (i.e. TEMPORARY WORKSPACE IS GREATER THAN 25 FEET), COMPANY MUST REQUEST APPROVAL FROM THE F.E.R.C.

TYPICAL CONSTRUCTION WIDTHS NOT
ACQUIRING NEW PERMANENT RIGHT-OF-WAY
(MULTIPLE LINE SYSTEM)

FIGURE CW-5

DWG.

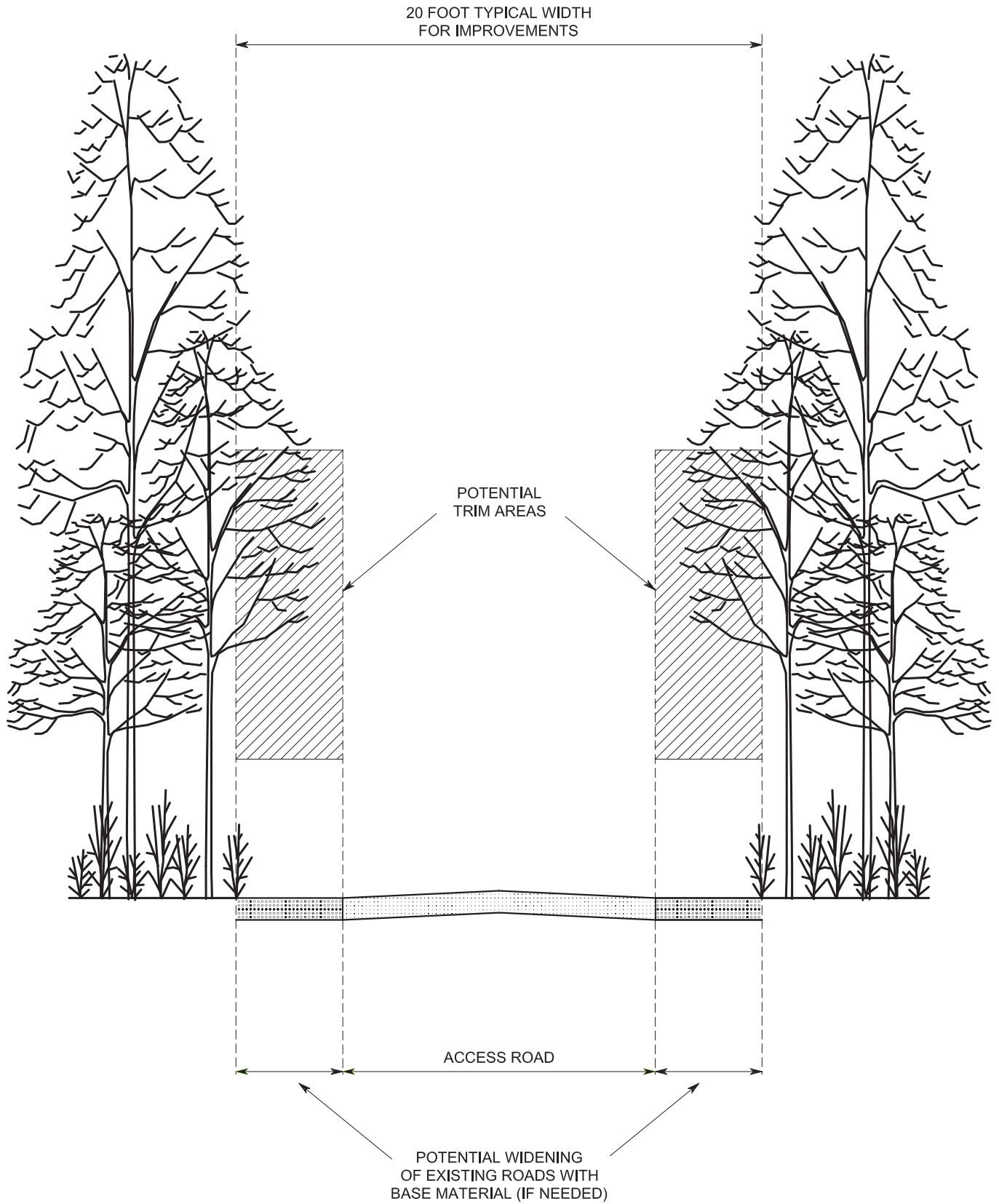
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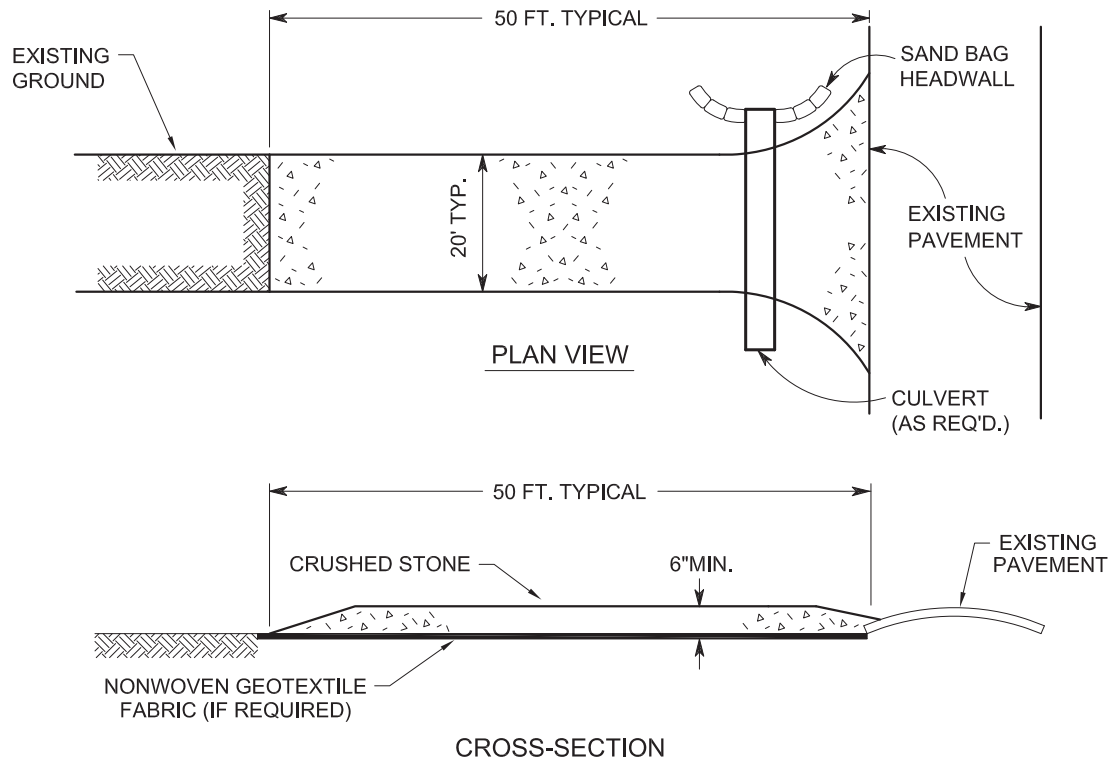


ACCESS ROAD CROSS SECTION

FIGURE RD-1

DWG. ES-0006

REV.



CONSTRUCTION SPECIFICATIONS:

1. STONE SIZE = 4" - 6" AVG. DIAMETER
2. ALL STONE MUST BE PLACED ON NON-WOVEN GEOTEXTILE FABRIC IF USED IN RESIDENTIAL OR AGRICULTURAL AREAS.
3. LENGTH = FIFTY (50) FOOT TYPICAL (IF SITE CONDITIONS ALLOW)
4. WIDTH = TWENTY (20) FOOT TYPICAL.
5. THICKNESS = SIX (6) INCHES MINIMUM.
6. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A DRIVEABLE BERM OR OTHER TEMPORARY EROSION CONTROL DEVICE CAN BE USED.
7. THE ENTRANCE SHALL BE PERIODICALLY INSPECTED AND MAINTAINED IN A CONDITION THAT MINIMIZES TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS. MAINTENANCE MAY INCLUDE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE REPAIR / CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ANY SEDIMENT THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO ROADWAYS MUST BE REMOVED AS SOON AS PRACTICAL.

ROCK ACCESS PAD

FIGURE RD-2

DWG.

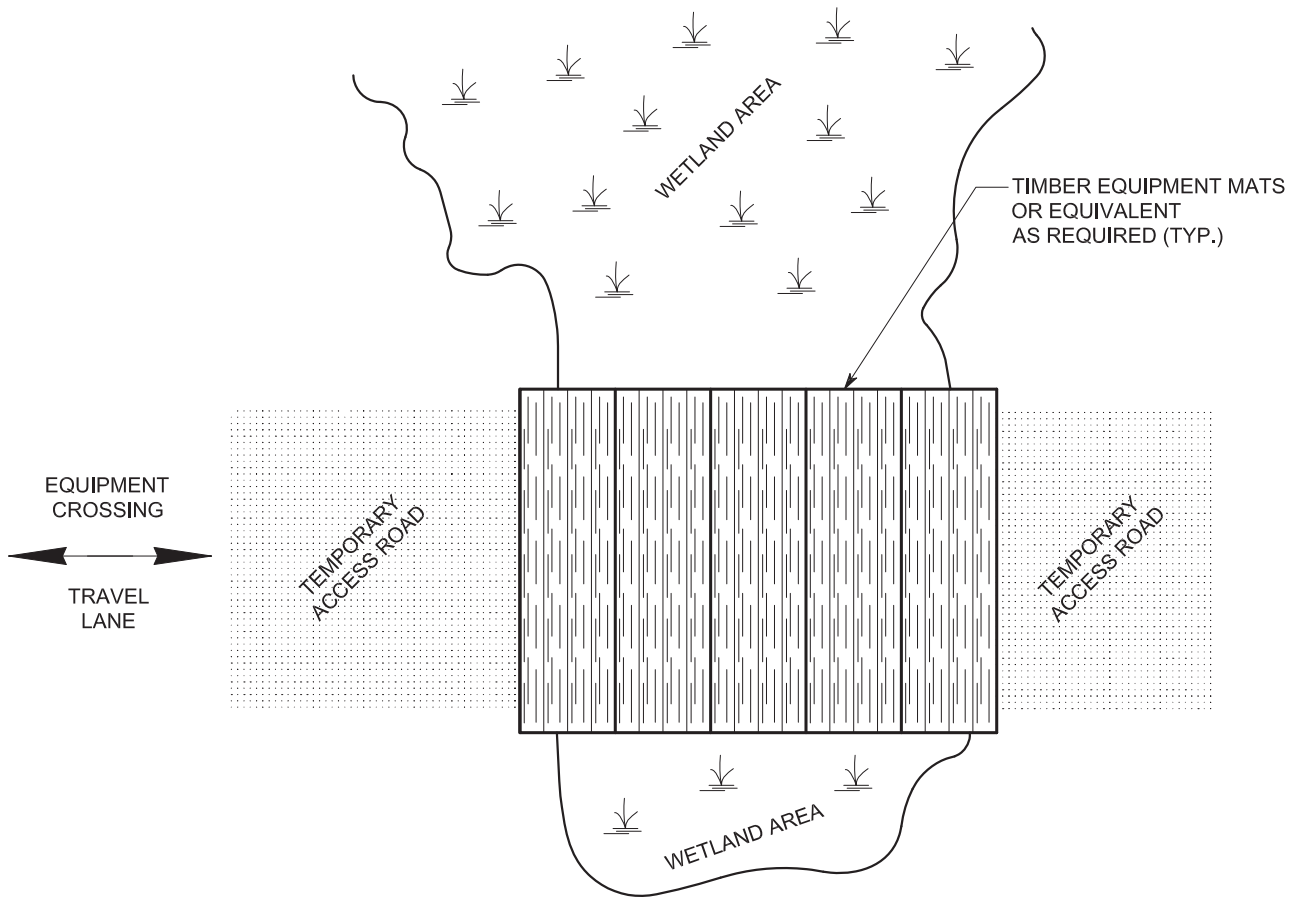
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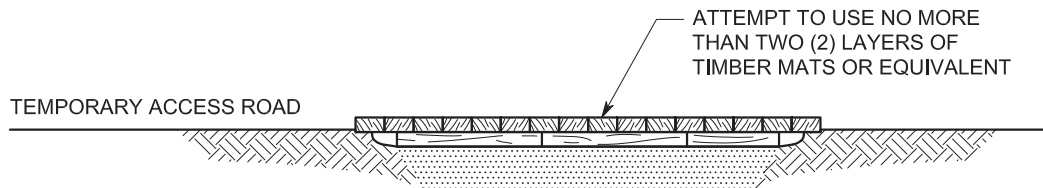
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PLAN VIEW
NOT TO SCALE



CROSS-SECTION
NOT TO SCALE

NOTE:

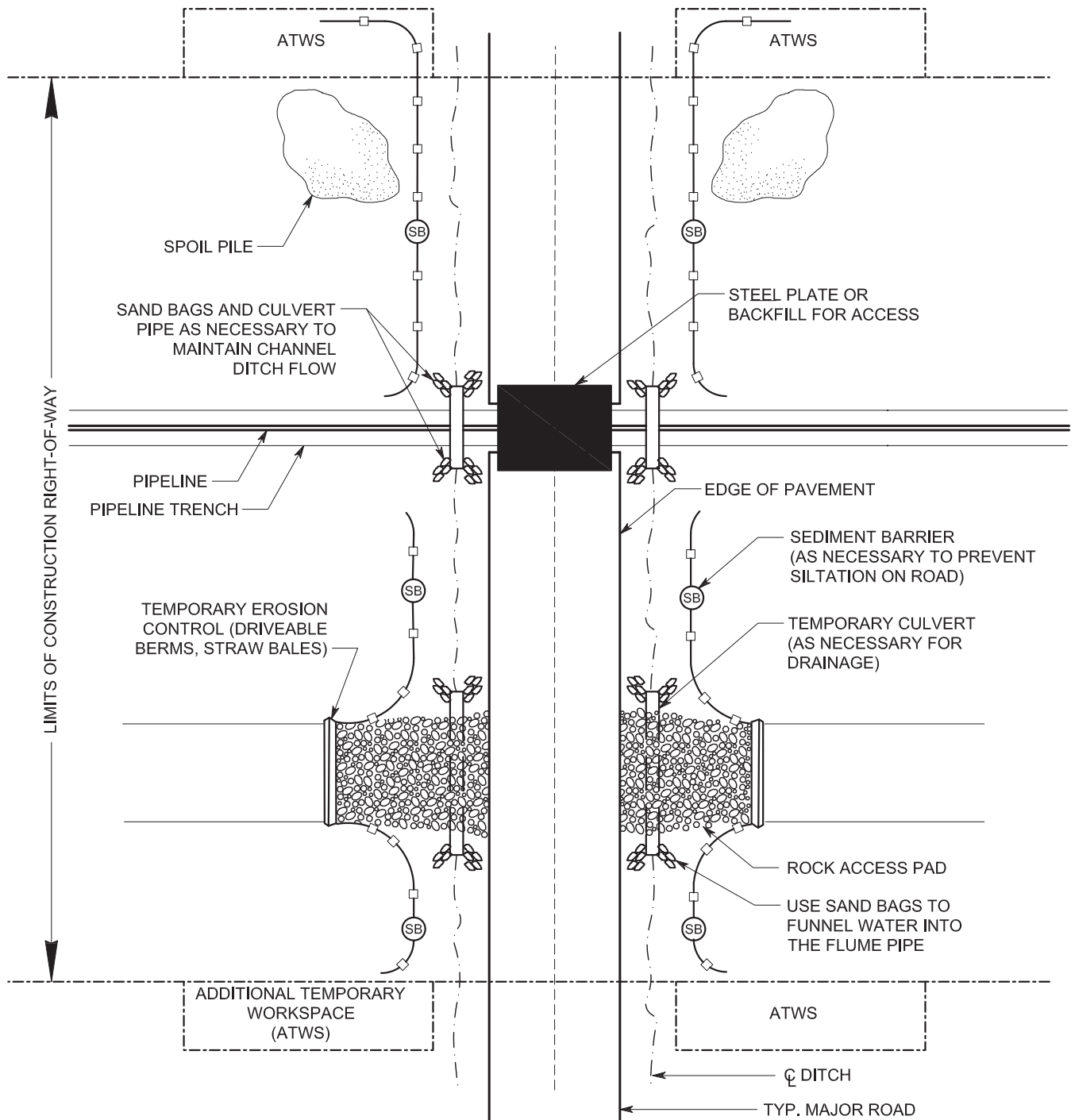
1. SILT FENCE OR STRAW BALES MAY BE USED, AS NECESSARY, TO PREVENT SEDIMENT FROM MIGRATING OUTSIDE OF ACCESS ROAD LIMITS.

TYPICAL TEMPORARY ACCESS ROAD
THROUGH WETLANDS

FIGURE RD-3

DWG. ES-0008

REV.



NOTES:

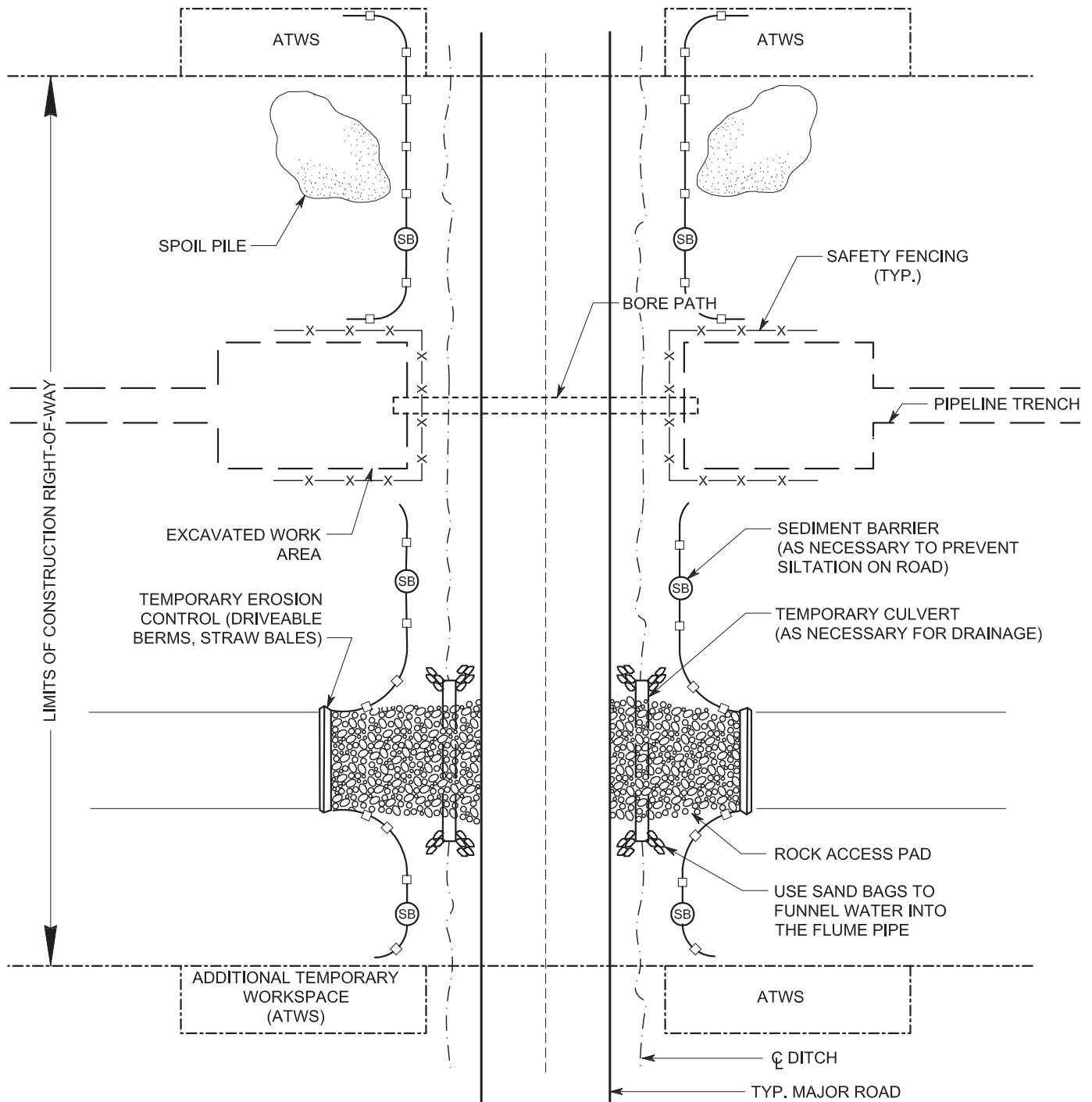
1. FIRST LAY SAND BAGS IN DITCH, THEN PLACE END OF CULVERT IN THE MIDDLE OF THE SAND BAGS BEFORE BUILDING HEAD WALLS TO CULVERT.
2. (SB) TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND/OR STRAW BALES, OR OTHER APPROPRIATE MATERIALS.

TYPICAL PAVED ROAD CROSSING
CONTROL MEASURES (OPEN CUT)

FIGURE RD-4

DWG. ES-0009

REV.



NOTES:

1. BORE PIT DIMENSIONS WILL BE DICTATED BY SITE-SPECIFIC CONDITIONS (E.G. SOIL TYPE, WIDTH OF ROAD, DEPTH OF COVER).
2. (SB) TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND/OR STRAW BALES, OR OTHER APPROPRIATE MATERIALS.

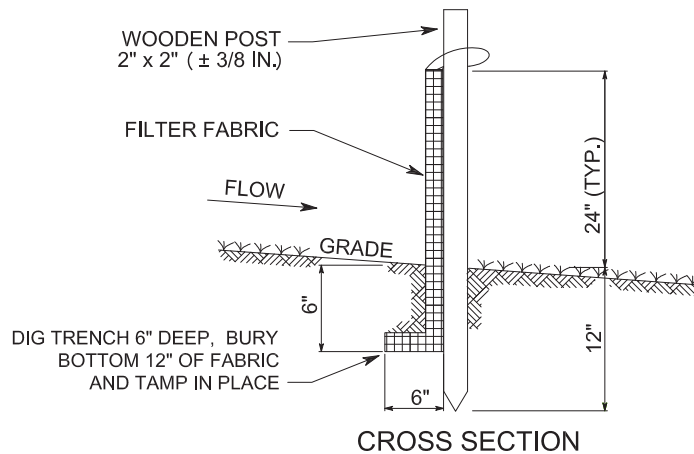
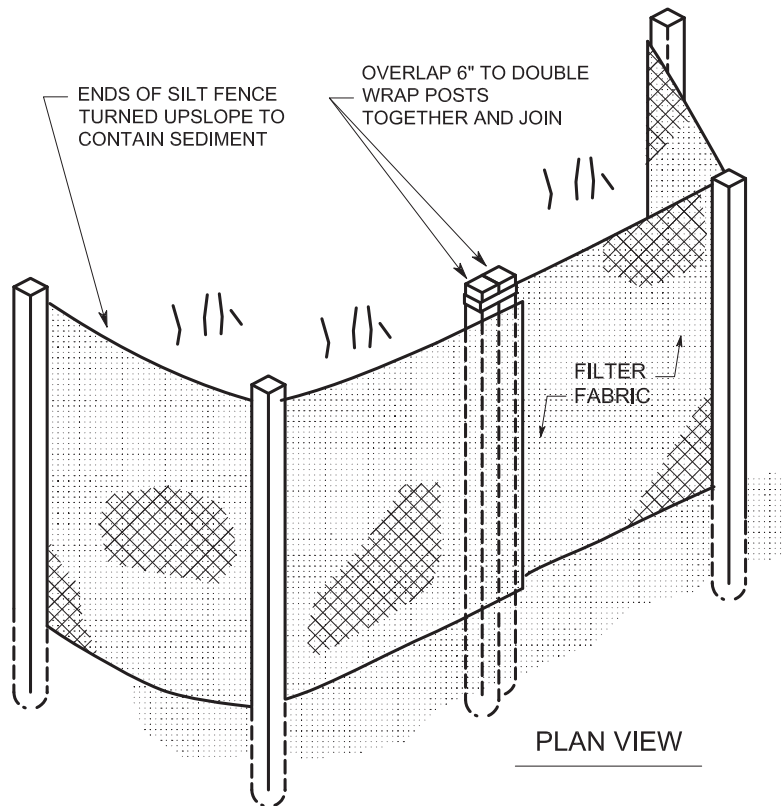
TYPICAL PAVED ROAD CROSSING
CONTROL MEASURES (BORED)

FIGURE RD-5

DWG.

ES-0010

REV.



INSTALLATION REQUIREMENTS:

- WHEN USING SILT FENCE, PLACE IT:
 - ◆ BETWEEN DISTURBED AREAS AND DOWN-SLOPE ENVIRONMENTAL RESOURCE AREAS
 - ◆ AT THE BASE OF ALL SLOPES NEXT TO WETLANDS, WATERBODIES, AND ROAD CROSSINGS
 - ◆ AT THE INLET AND OUTLET OF OPEN DRAINAGE STRUCTURES
 - ◆ APPROXIMATELY 8 FEET BEYOND THE TOE OF THE SLOPE TO GIVE THE SEDIMENT ROOM TO COLLECT (IF POSSIBLE)
- USE SANDBAGS OR BACKFILLING TO KEY IN THE BOTTOM OF THE FABRIC WHERE IT IS NOT FEASIBLE TO TRENCH IT IN (LEDGES, ROCKY SOIL, LARGE ROOTS, ETC.)

MAINTENANCE REQUIREMENTS:

- INSPECT SILT FENCE:
 - ◆ DAILY IN AREAS OF ACTIVE CONSTRUCTION
 - ◆ WEEKLY IN AREAS WITH NO CONSTRUCTION
 - ◆ WITHIN 24 HOURS FOLLOWING EACH RAINFALL EVENT OF ≥ 0.5 INCH.
- REPAIR OR REPLACE SILT FENCE AS NEEDED
- REMOVE ACCUMULATED SEDIMENTS TO AN UPLAND AREA WHEN SEDIMENT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE SILT FENCE.

SILT FENCE DETAIL

FIGURE EC-1

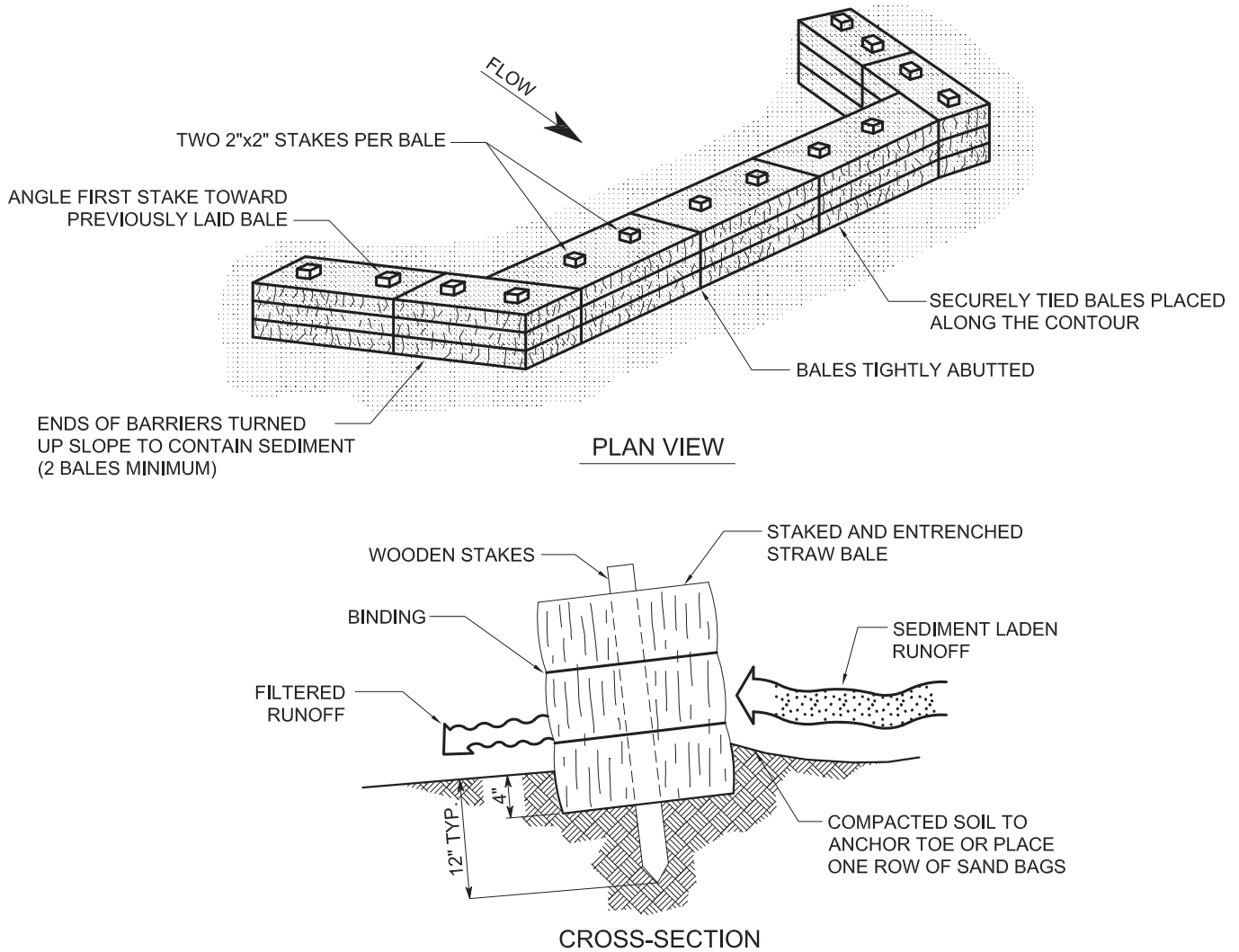
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INSTALLATION REQUIREMENTS:

- WHEN USING STRAW BALES, PLACE THEM:
 - ◆ WITH THEIR ENDS TIGHTLY ABUTTING AND EMBEDDED IN THE SOIL A TYPICAL OF 4".
 - ◆ BETWEEN DISTURBED AREAS AND DOWN-SLOPE ENVIRONMENTAL RESOURCE AREAS.
 - ◆ AT THE BASE OF ALL SLOPES NEXT TO WETLANDS, WATERBODIES, AND ROAD CROSSINGS
 - ◆ AT THE INLET AND OUTLET OF OPEN DRAINAGE STRUCTURES.
 - ◆ APPROXIMATELY 6 FEET BEYOND THE TOE OF THE SLOPE TO GIVE THE SEDIMENT ROOM TO COLLECT.
- KEY IN THE BOTTOM OF THE BALE. IN AREAS WHERE IT IS NOT FEASIBLE TO TRENCH IT IN (LEDGES, ROCKY SOIL, LARGE TREE ROOTS, ETC.), USE NATIVE SOIL AS BACKFILL UP-SLOPE OF THE BALE OR PLACE ONE ROW OF SAND BAGS.
- DO NOT STAKE OR TRENCH IN PLACE STRAW BALES USED ON EQUIPMENT BRIDGES OR ON MATS ACROSS THE TRAVEL LANE.
- IF USED IN CONJUNCTION WITH SILT FENCE, BALES ARE PLACED DOWNSLOPE / UPSLOPE OF THE SILT FENCE AND DO NOT NEED TO BE TRENCHED IN.

MAINTENANCE REQUIREMENTS:

- INSPECT BALES:
 - ◆ DAILY IN AREAS OF ACTIVE CONSTRUCTION.
 - ◆ WEEKLY IN AREAS WITH NO CONSTRUCTION.
 - ◆ WITHIN 24 HOURS FOLLOWING EACH RAINFALL EVENT OF ≥ 0.5 INCH.
- REPAIR OR REPLACE BALES AS NEEDED.
- REMOVE ACCUMULATED SEDIMENTS TO AN UPLAND AREA AS NEEDED.

STRAW BALE DETAIL

FIGURE EC-2

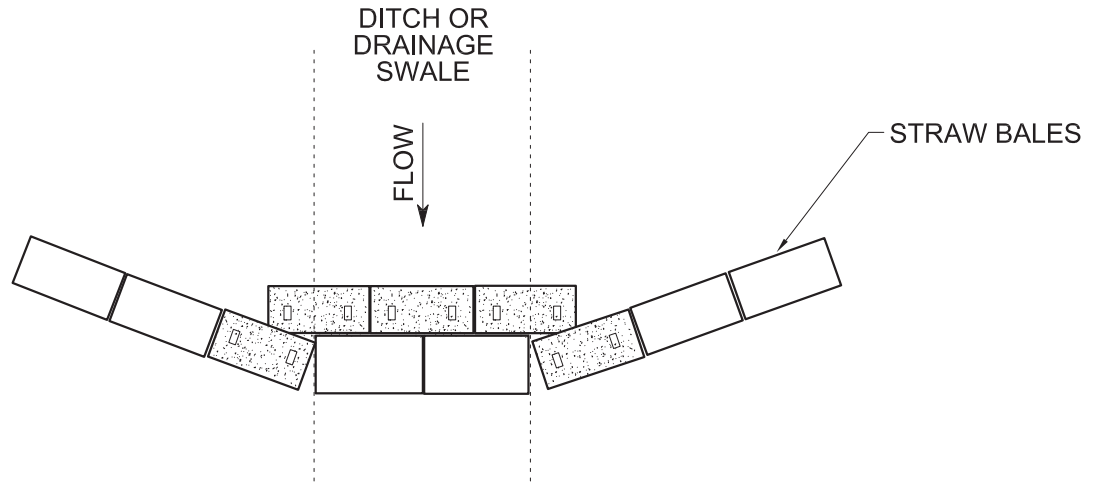
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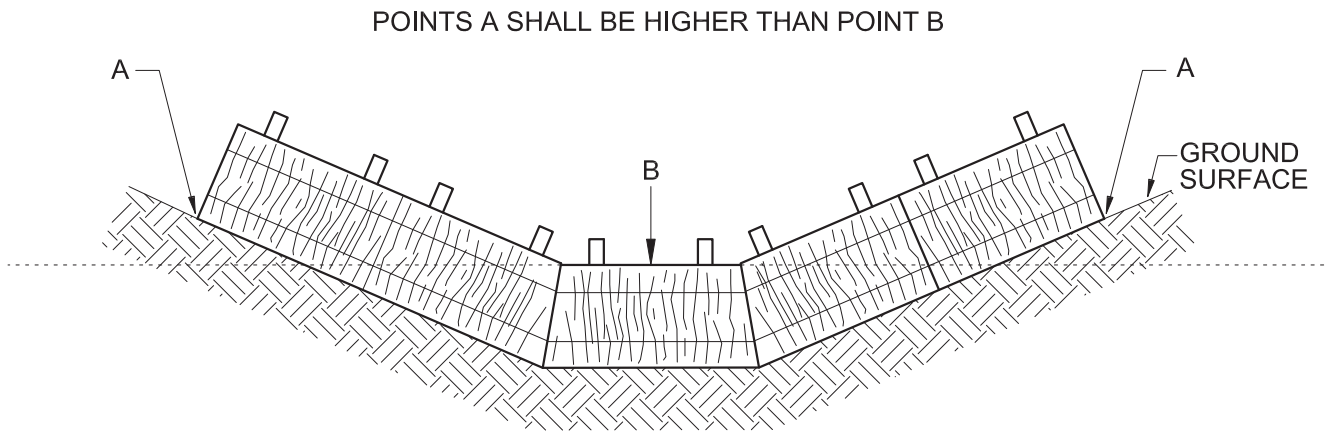
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PLAN VIEW
NOT TO SCALE



CROSS-SECTION
NOT TO SCALE

NOTE:

1. THE NUMBER OF BALES IS DETERMINED BASED ON SITE SPECIFIC FACTORS.

**STRAW BALE CHECK DAM
IN A DRAINAGEWAY**

FIGURE EC-3

DWG.

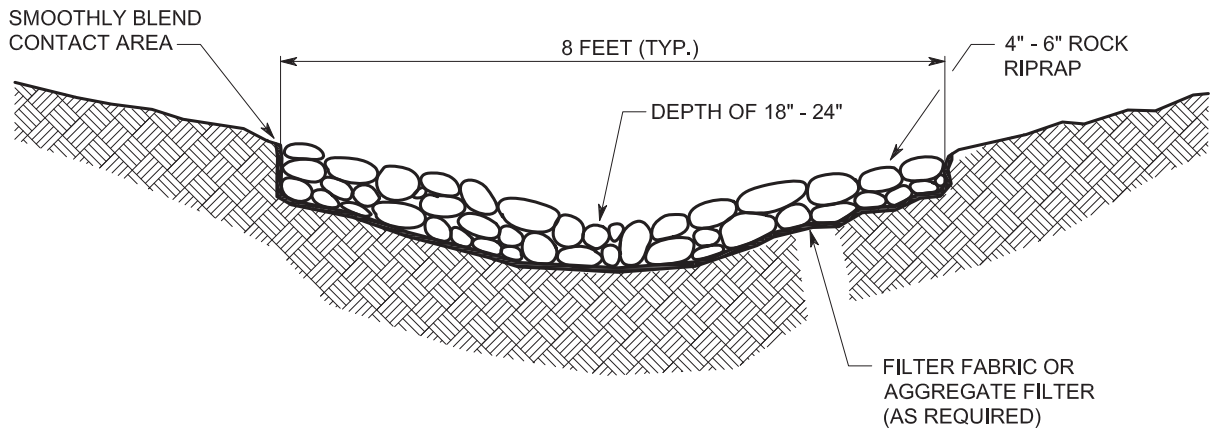
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INSTALLATION REQUIREMENTS:

1. RIPRAP CHANNELS CAN BE CONSTRUCTED WITH GRASS-LINED SLOPES WHERE SITE CONDITIONS WARRANT.
2. STABILIZE CHANNEL INLET POINTS AND INSTALL OUTLET PROTECTION (AS NEEDED) DURING CHANNEL INSTALLATION.
3. INSTALL ENERGY DISSIPATING DEVICE (AS NEEDED) TO PREVENT SCOUR TO THE RECEIVING OUTLET.
4. REMOVE ALL TREES, BRUSH, AND OTHER OBJECTIONABLE MATERIAL FROM THE CHANNEL.
5. INSTALL FILTER FABRIC OR GRAVEL LAYER TO PREVENT PIPING (AS REQUIRED)

MAINTENANCE REQUIREMENTS:

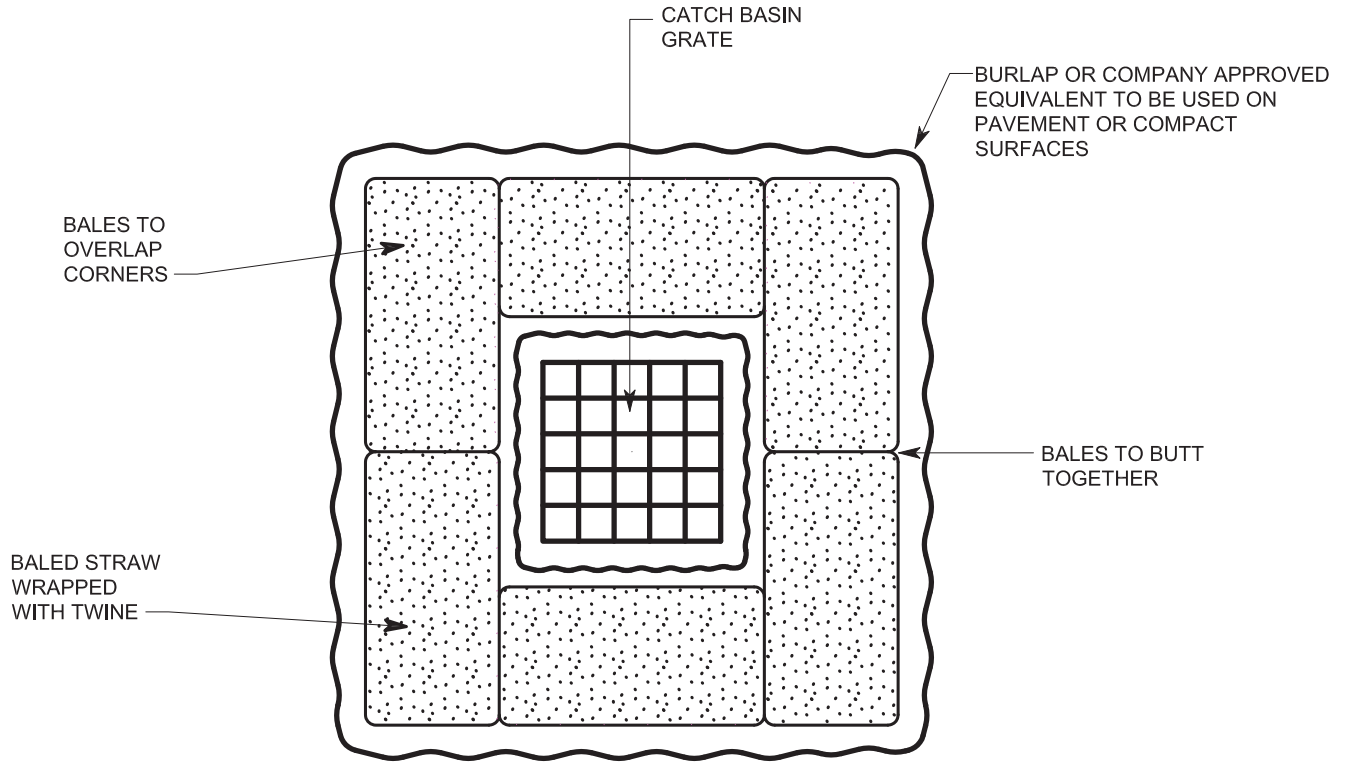
1. INSPECT CHANNEL DURING AND FOLLOWING CONSTRUCTION AND MAKE REPAIRS AS NEEDED.
2. KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.

ROCK-LINED DRAINAGE SWALE

FIGURE EC-4

DWG. ES-0014

REV.

PLAN VIEWNOTES:

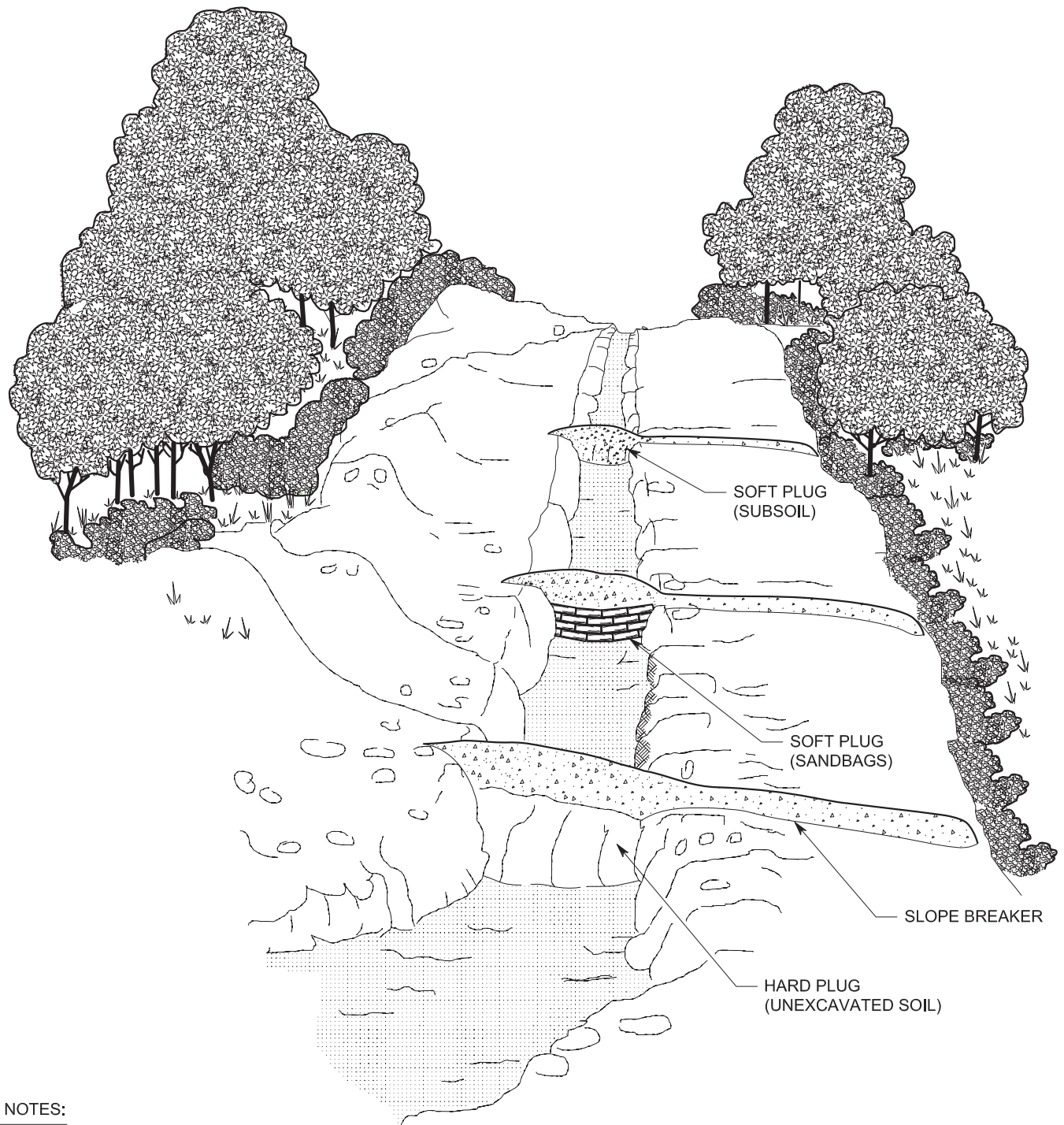
1. SURROUND STREET DRAINAGE STRUCTURE INLET WITH STRAW BALES PRIOR TO CONSTRUCTION AND MAINTAIN UNTIL CONSTRUCTION IS COMPLETED.
2. FOR BALES PLACED ON PAVEMENT (OR COMPACT SURFACES), PLACE BURLAP OR COMPANY APPROVED EQUIVALENT BETWEEN PAVEMENT AND BALE.
3. REMOVE ACCUMULATED SEDIMENT.
4. AN ALTERNATIVE STORM DRAIN INLET PROTECTION MAY USE ONLY FABRIC LINING WITHOUT STRAW BALES BASED ON THE DISCRETION OF THE THE ENVIRONMENTAL INSPECTOR.

STORM DRAIN INLET PROTECTION

FIGURE EC-5

DWG. ES-0015

REV.

**NOTES:**

1. TEMPORARY TRENCH PLUG MATERIALS MAY CONSIST OF UNEXCAVATED PORTIONS OF THE TRENCH (HARD PLUG), COMPACTED SUBSOIL OR SANDBAGS PLACED ACROSS THE DITCH (SOFT PLUG), OR SOME FUNCTIONAL EQUIVALENT. THESE OPTIONS ARE DEPICTED ABOVE. DO NOT USE TOPSOIL FOR TRENCH PLUGS.
2. POSITION TEMPORARY TRENCH PLUGS, AS NECESSARY, TO REDUCE TRENCHLINE EROSION AND MINIMIZE THE VOLUME AND VELOCITY OF TRENCH WATER FLOW AT THE BASE OF SLOPES.
3. TEMPORARY TRENCH PLUGS MAY BE USED IN CONJUNCTION WITH SLOPE BREAKERS TO DIVERT TRENCH WATER OVERFLOW AND PREVENT OVERFLOW INTO SENSITIVE RESOURCE AREAS.
4. DIVERT TRENCH OVERFLOW TO A WELL-VEGETATED OFF-R.O.W. LOCATION OR INSTALL APPROPRIATE ENERGY DISSIPATING DEVICE.
5. USE TEMPORARY TRENCH PLUGS AT WATERBODY CROSSINGS, AS NECESSARY.

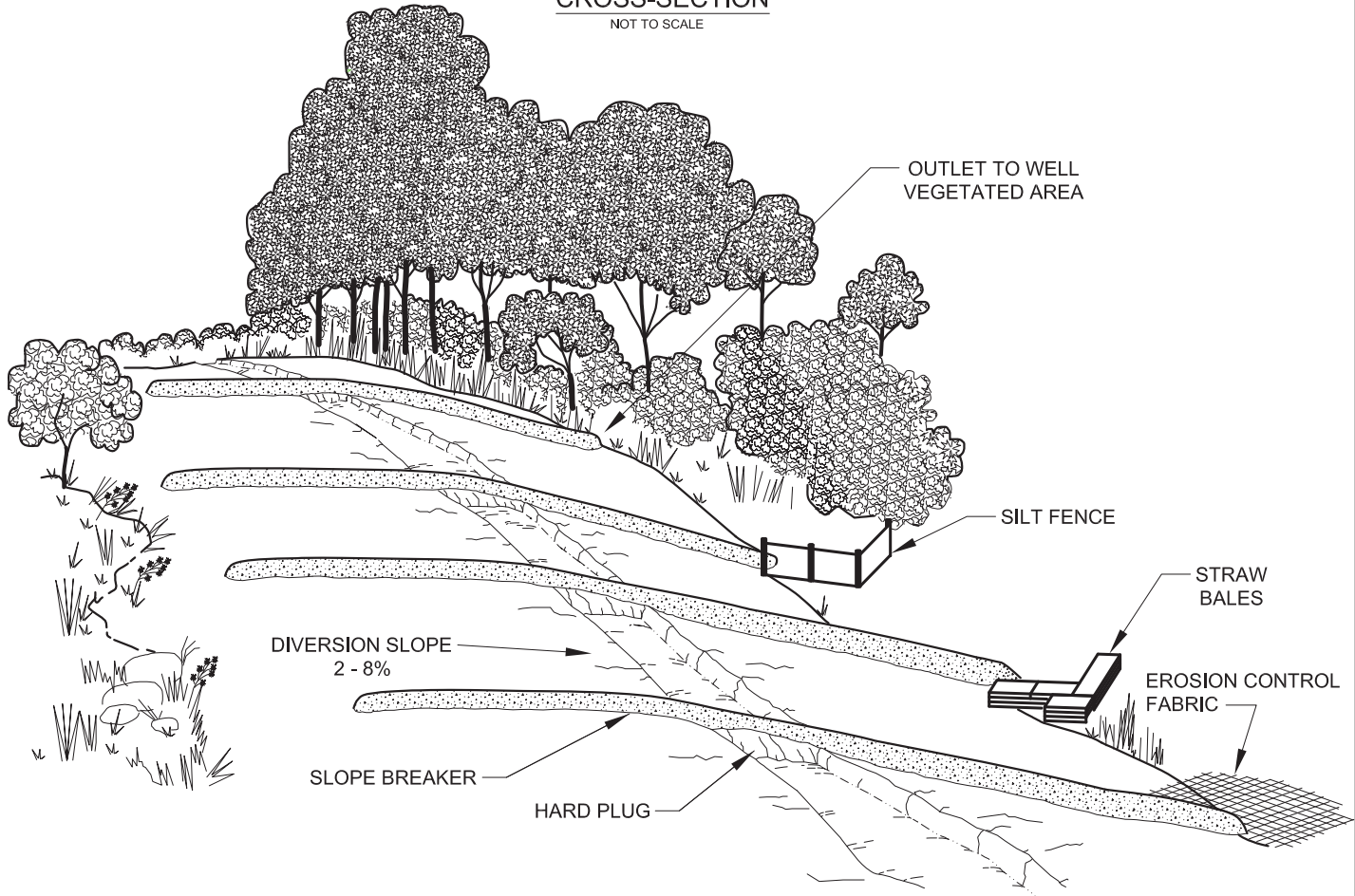
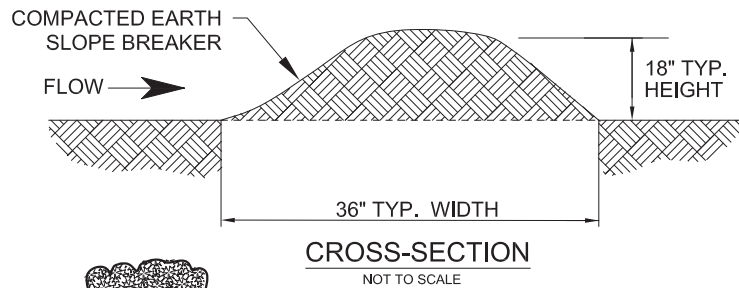
TEMPORARY TRENCH PLUG OPTIONS**FIGURE EC-6**DWG. **ES-0016**

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Wayne Sicora
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INSTALLATION REQUIREMENTS:

- INSTALL SLOPE BREAKERS IN ALL DISTURBED AREAS AS NECESSARY TO AVOID EXCESSIVE EROSION AT THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS APPROVED BY THE ENVIRONMENTAL INSPECTOR (EI).
- MUST BE INSTALLED ON SLOPES GREATER THAN 5% WHERE THE BASE OF THE SLOPE IS LESS THAN 50 FEET FROM A WATERBODY, WETLAND OR ROAD CROSSING AT THE FOLLOWING MINIMUM SPACING:

SLOPE (%)	SPACING (FT.)
5 - 15	300
> 15 - 30	200
> 30	100

- CONSTRUCT USING SAND BAGS, STAKED STRAW BALES, SILT FENCE, OR SOIL.
- INSTALL WITH A 2 - 8% OUTFALL ANGLE.

- POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.
- FILTER RUN-OFF WATER BY CONSTRUCTING THE OUTFALL IN A WELL VEGETATED STABLE AREA, OR BY USING AN ENERGY DISSIPATING DEVICE (SILT FENCE, STRAW BALES, EROSION CONTROL FABRIC). IF NEEDED, THE TYPE OF ENERGY DISSIPATION DEVICE WILL DEPEND ON SITE CONDITIONS (OPTIONS ARE DEPICTED ABOVE).

MAINTENANCE REQUIREMENTS:

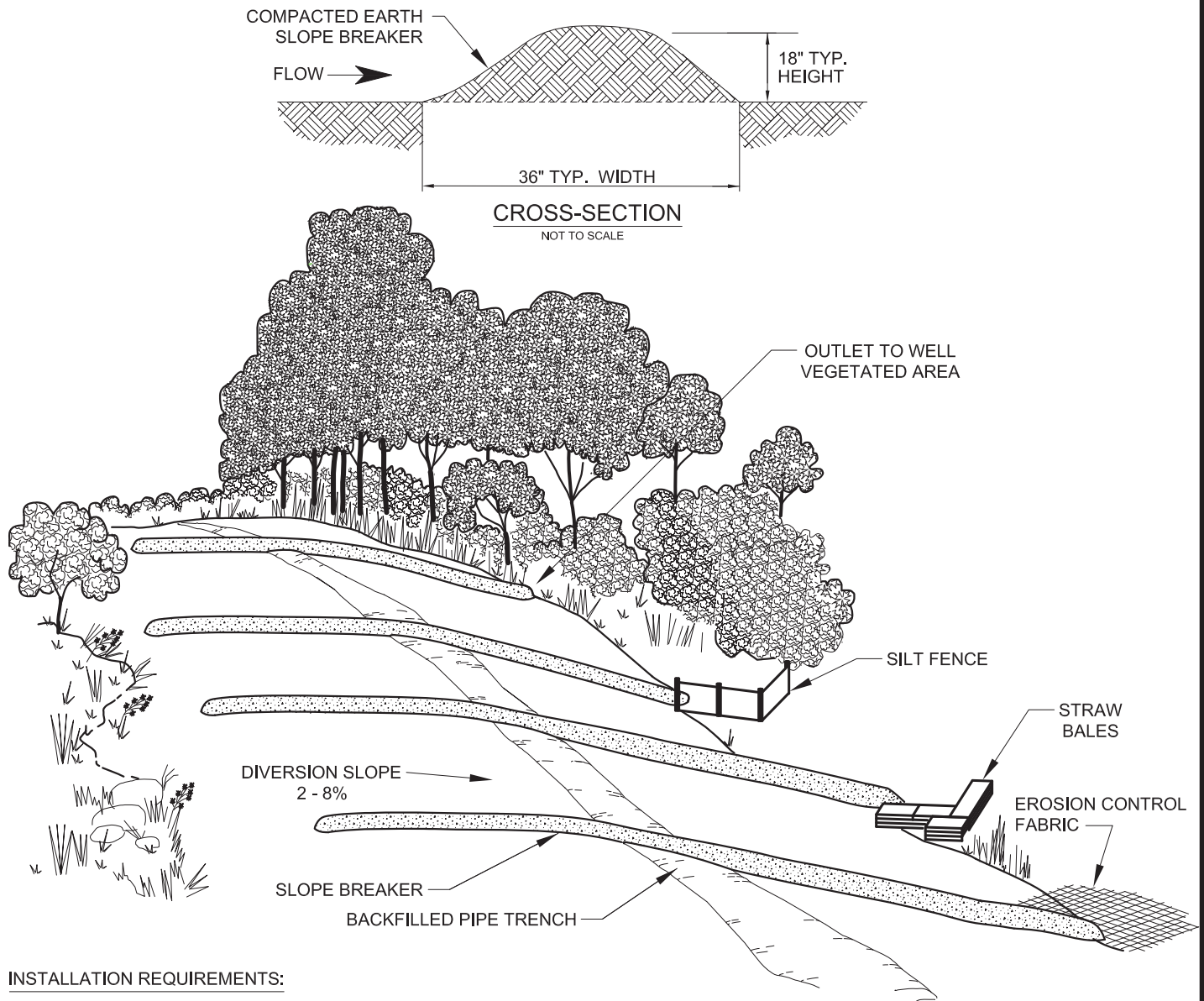
- INSPECT DURING CONSTRUCTION AND MAKE REPAIRS AS NEEDED.
- KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.

TEMPORARY SLOPE BREAKERS

FIGURE EC-7

DWG. ES-0017

REV.

**INSTALLATION REQUIREMENTS:**

- INSTALL AND MAINTAIN IN ALL DISTURBED AREAS TO AVOID EXCESSIVE EROSION, EXCEPT CULTIVATED AREAS AND LAWNS (UNLESS REQUESTED BY THE LANDOWNER), USING SPACING RECOMMENDATIONS OBTAINED FROM THE LOCAL SOIL CONSERVATION AUTHORITY OR LAND MANAGEMENT AGENCY, AT THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS APPROVED BY THE ENVIRONMENTAL INSPECTOR (EI).
- INSTALL ON SLOPES GREATER THAN 5% WHERE THE BASE OF THE SLOPE IS LESS THAN 50 FEET FROM A WATERBODY, WETLAND OR ROAD CROSSING AT THE FOLLOWING MINIMUM SPACING IN THE ABSENCE OF WRITTEN RECOMMENDATIONS:

SLOPE (%)	SPACING (FT.)
5 - 15	300
> 15 - 30	200
> 30	100

- CONSTRUCT USING SOIL, STONE, OR SOME FUNCTIONAL EQUIVALENT.
- INSTALL WITH A 2 - 8% OUTFALL ANGLE.
- POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.

- FILTER RUN-OFF WATER BY CONSTRUCTING THE OUTLET IN A WELL VEGETATED STABLE AREA, OR BY USING AN ENERGY DISSIPATING DEVICE (SILT FENCE, STRAW BALES, EROSION CONTROL FABRIC). IF NEEDED, THE TYPE OF ENERGY DISSIPATION DEVICE WILL DEPEND ON SITE CONDITIONS (OPTIONS ARE DEPICTED ABOVE).
- IF NECESSARY, OUTFALL MAY EXTEND SLIGHTLY, UP TO 4 FEET, BEYOND THE EDGE OF THE CONSTRUCTION RIGHT-OF-WAY, SUBJECT TO ALL APPLICABLE SURVEY REQUIREMENTS.

MAINTENANCE REQUIREMENTS:

- INSPECT DURING AND FOLLOWING CONSTRUCTION AND MAKE REPAIRS AS NEEDED.
- KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.
- SEED AND MULCH PERMANENT SLOPE BREAKERS FOLLOWING CONSTRUCTION.

PERMANENT SLOPE BREAKERS**FIGURE EC-8**

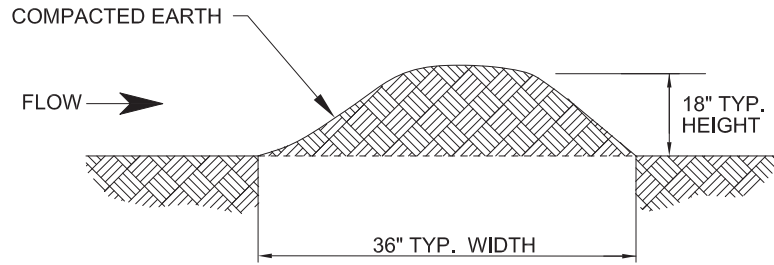
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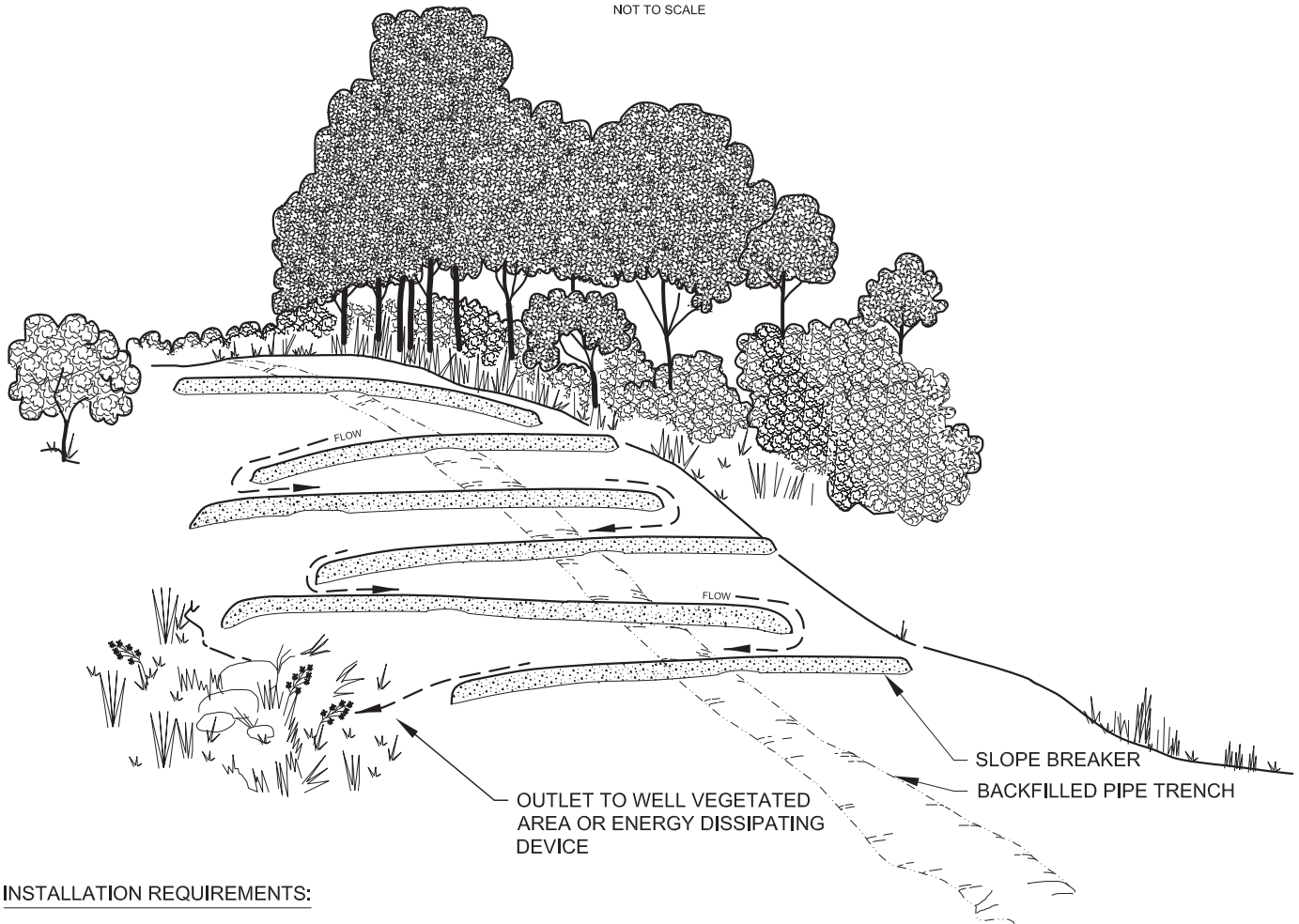
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CROSS-SECTION
NOT TO SCALE



INSTALLATION REQUIREMENTS:

- INSTALL IN ALL AREAS EXCEPT RESIDENTIAL OR AGRICULTURAL (UNLESS AUTHORIZED BY LANDOWNER OR LAND MANAGING AGENCY).
- CONSTRUCT USING EARTH FILLED SACKS OR STAKED STRAW BALES FOR TEMPORARY OR COMPACTED EARTH AND ROCK FOR PERMANENT.
- INSTALL WITH A 2 - 8% OUTFALL ANGLE.
- FOR TEMPORARY CHEVRON SLOPE BREAKERS, POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.
- FILTER RUN-OFF WATER BY CONSTRUCTING AN OUTLET USING AN ENERGY DISSIPATING DEVICE (SILT FENCE, STRAW BALES, EROSION CONTROL FABRIC), AS APPROVED BY THE ENVIRONMENTAL INSPECTOR.

MAINTENANCE REQUIREMENTS:

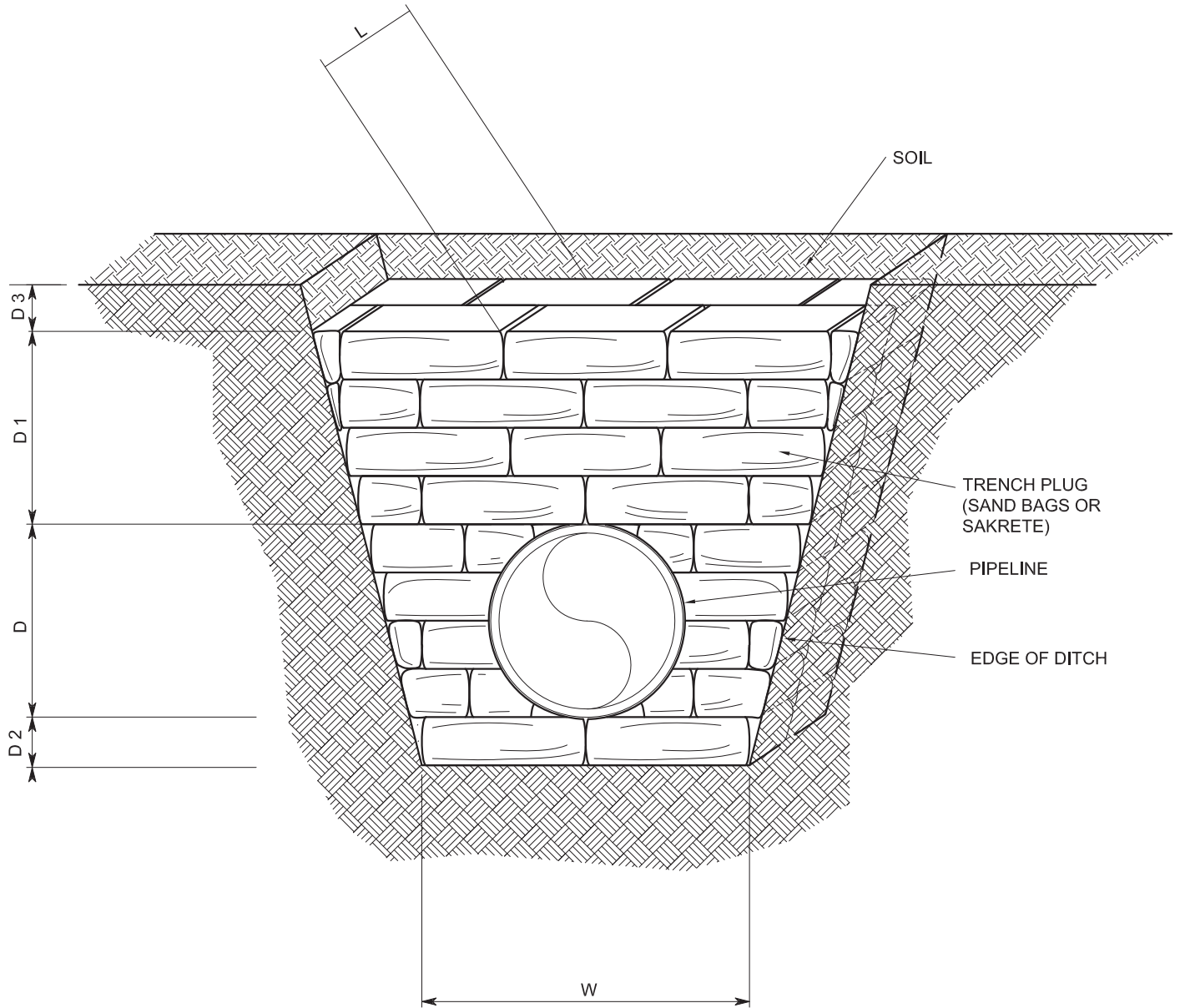
- INSPECT DURING AND FOLLOWING CONSTRUCTION AND MAKE REPAIRS AS NEEDED.
- KEEP THE CHANNEL FREE OF DEBRIS AND OBSTRUCTIONS.
- SEED AND MULCH PERMANENT SLOPE BREAKERS FOLLOWING CONSTRUCTION.

CHEVRON SLOPE BREAKER

FIGURE EC-9

DWG. ES-0019

REV.



D = PIPE DIAMETER
 D1 = APPROXIMATELY 24"
 D2 = APPROXIMATELY 6" (8" MIN. IN ROCK)
 D3 = APPROXIMATELY 12"
 W = D + 2 to 4 FEET
 L = APPROXIMATELY 18" - 24"
 D1 + D3 = 36" MINIMUM

NOTE:

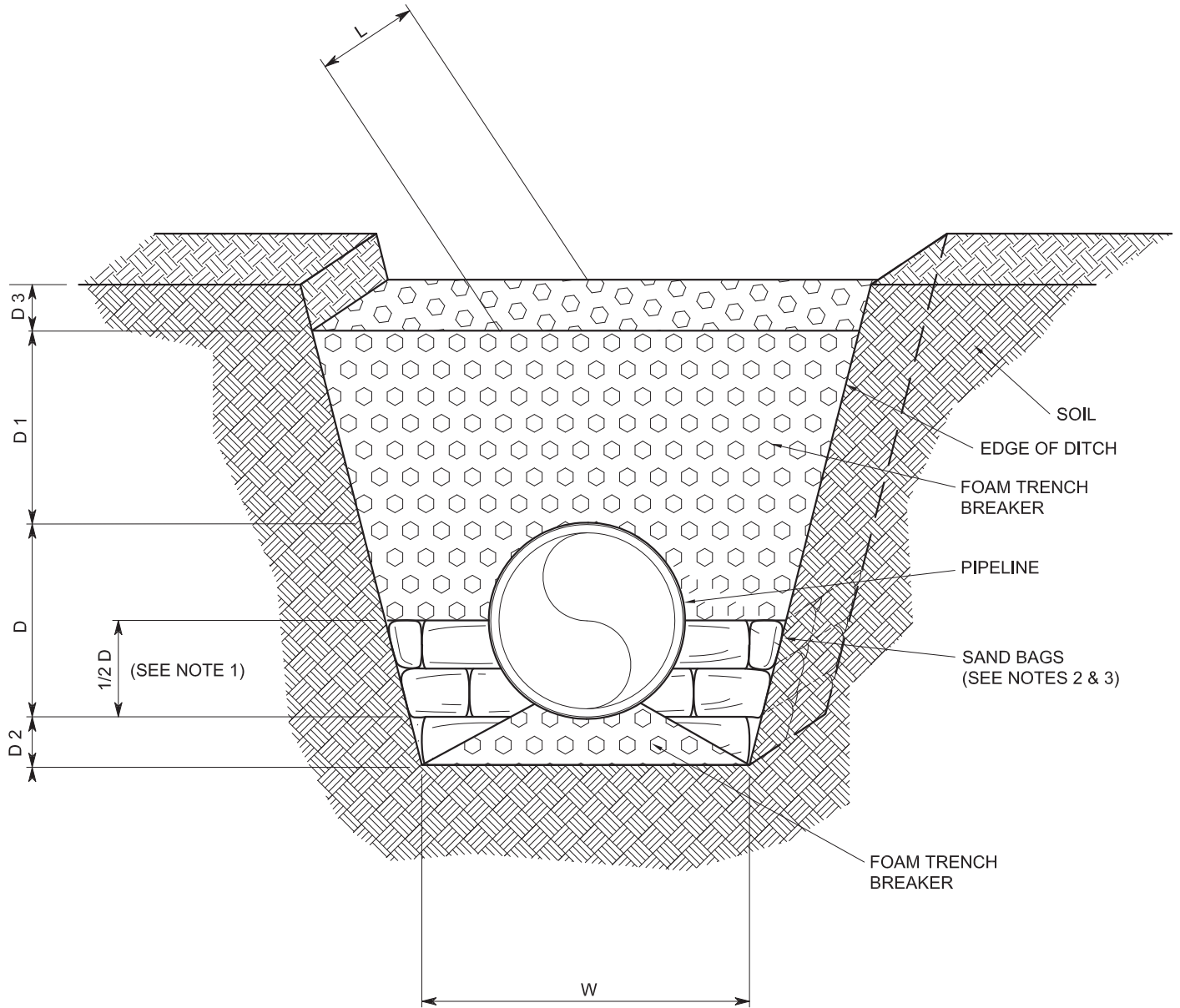
1. USE OF SAKRETE SHALL REQUIRE PRIOR COMPANY APPROVAL.
2. TOPSOIL SHALL NOT BE USED TO CONSTRUCT BREAKERS.
3. DO NOT INSTALL TRENCH BREAKERS WITHIN A WETLAND.

TRENCH BREAKER DETAIL (SACK)

FIGURE EC-10

DWG. ES-0020

REV.



D = PIPE DIAMETER
 D1 = APPROXIMATELY 24"
 D2 = APPROXIMATELY 6" (8" MIN. IN ROCK)
 D3 = APPROXIMATELY 12"
 W = D + 2 to 4 FEET
 L = APPROXIMATELY 18" - 24"
 D1 + D3 = 36" MINIMUM

NOTE:

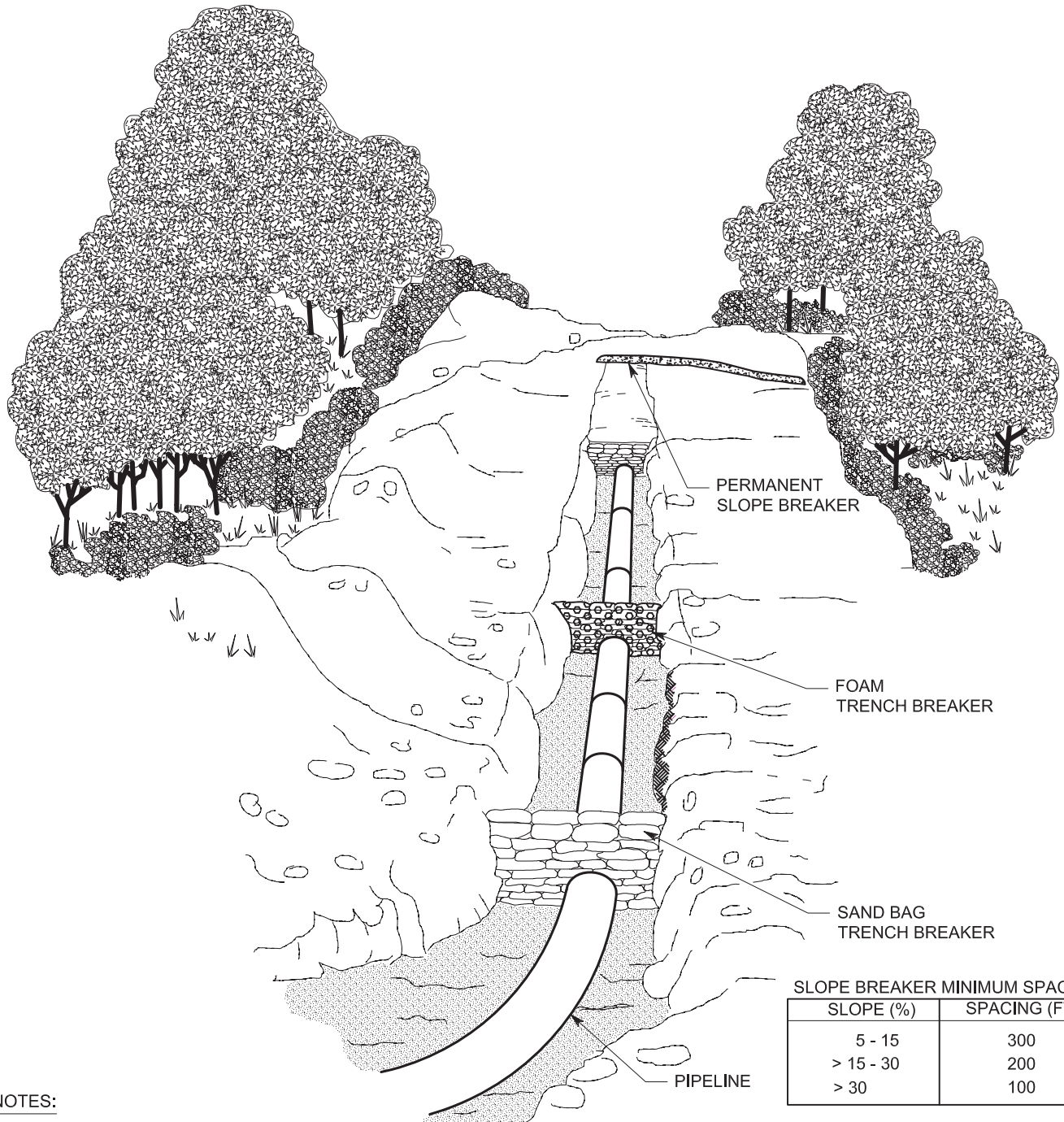
1. A MINIMUM OF TWO LAYERS OF BAGS SHALL BE INSTALLED.
2. THE ADDITION OF SAND BAGS UNDER THE FOAM WILL BE PLACED AS PRESCRIBED IN THE E&S PLAN OR AT THE DISCRETION OF THE ENVIRONMENTAL INSPECTOR (EI).
3. FOAM TRENCH BREAKERS ARE TO BE USED WITHIN UPLAND AREAS. DO NOT USE FOAM TRENCH BREAKERS AT WATERBODY OR WETLAND BOUNDARIES..

TRENCH BREAKER DETAIL (FOAM)

FIGURE EC-11

DWG. ES-0021

REV.



NOTES:

1. PERMANENT TRENCH BREAKER MATERIALS WILL CONSIST OF SAND BAGS, POLYURETHANE FOAM OR SOME FUNCTIONAL EQUIVALENT PLACED ACROSS THE DITCH AS IDENTIFIED IN PERMIT REQUIREMENTS. DO NOT USE TOPSOIL FOR TRENCH BREAKERS. THESE OPTIONS ARE DEPICTED ABOVE.
2. PERMANENT TRENCH BREAKERS, WHICH ARE USED IN CONJUNCTION WITH SLOPE BREAKERS, SHALL BE INSTALLED AT THE LOCATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DETERMINED IN THE FIELD BY THE ENVIRONMENTAL INSPECTOR.
3. AT A MINIMUM, INSTALL A TRENCH BREAKER AT THE BASE OF SLOPES GREATER THAN 5 PERCENT WHERE THE BASE OF THE SLOPE IS LESS THAN 50 FEET FROM A WATERBODY OR WETLAND AND WHERE NEEDED TO AVOID DRAINING A WATERBODY OR WETLAND.
4. INSTALL TRENCH BREAKERS AT WETLAND BOUNDARIES AND/OR SEAL THE TRENCH BOTTOM AS NECESSARY TO MAINTAIN THE ORIGINAL WETLAND HYDROLOGY. DO NOT INSTALL TRENCH BREAKERS WITHIN A WETLAND.
5. IN AGRICULTURAL FIELDS AND RESIDENTIAL AREAS WHERE SLOPE BREAKERS ARE NOT TYPICALLY REQUIRED, INSTALL TRENCH BREAKERS AT THE SAME SPACING AS IF PERMANENT SLOPE BREAKERS WERE REQUIRED.

PERMANENT TRENCH BREAKER OPTIONS

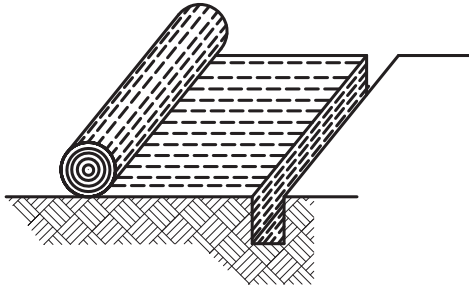
FIGURE EC-12

DWG.

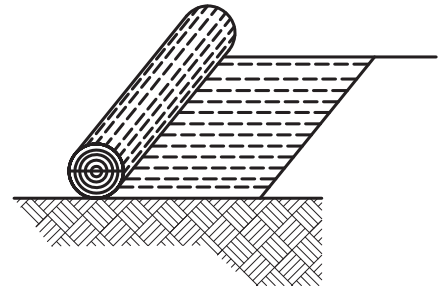
ES-0022

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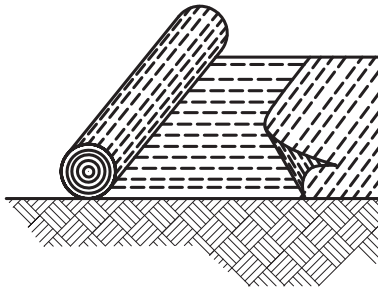
A. BURY THE TOP END OF THE ROLL
IN A 6" TRENCH (TYPICAL)



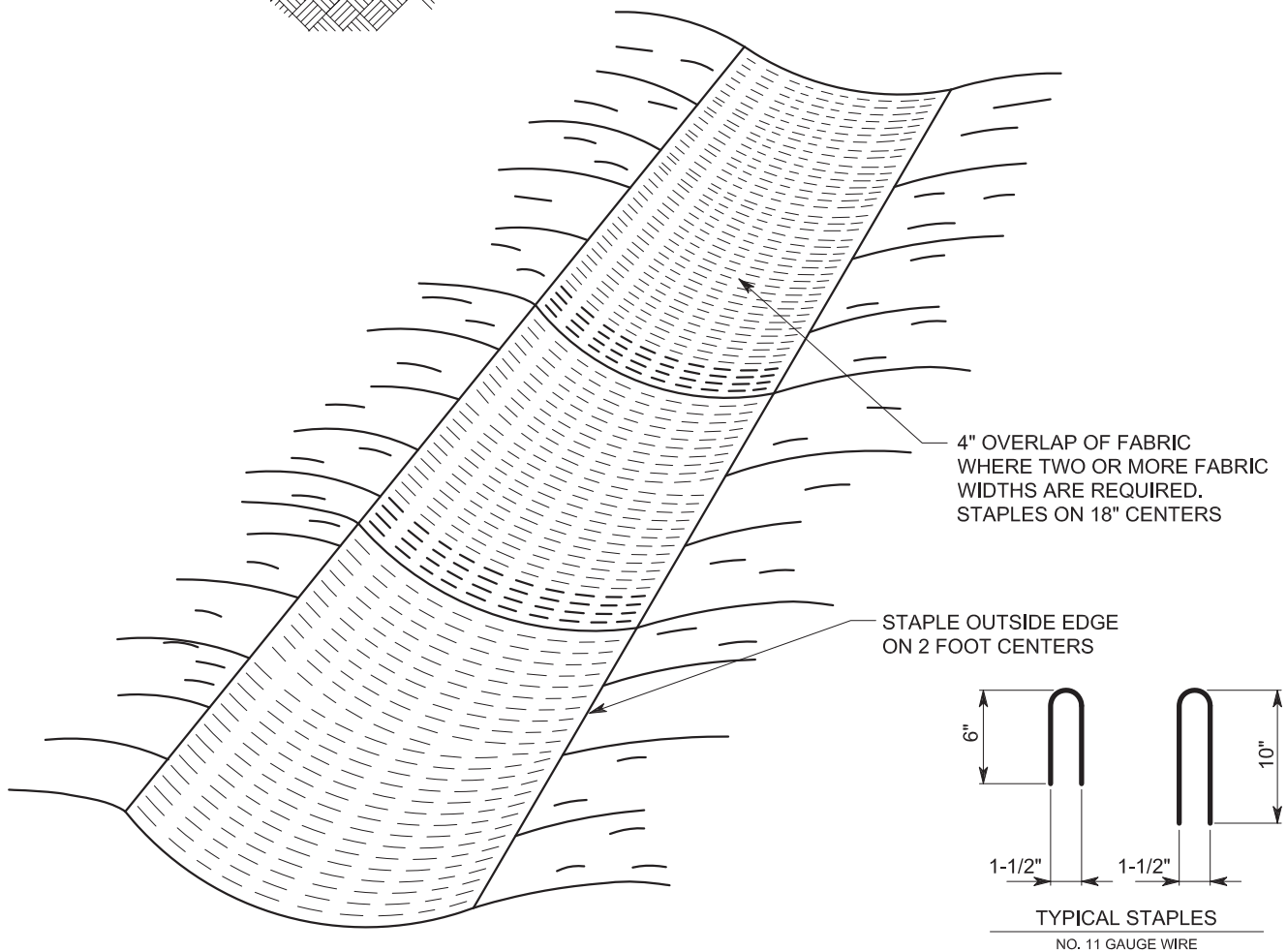
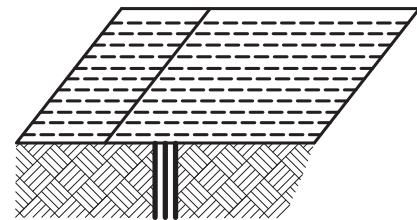
B. DOUBLE STAPLE EVERY 12" BEFORE
BACKFILLING AND COMPACTING.



C. BURY AND TAMP UPPER END OF LOWER
STRIP AS IN "A" AND "B". OVERLAP END
OF TOP STRIP 4" AND STAPLE.



D. WHERE FABRIC STOPS, FOLD, BURY,
AND TAMP ROLL IN SLIT TRENCH.
PROVIDE DOUBLE ROW OF STAPLES

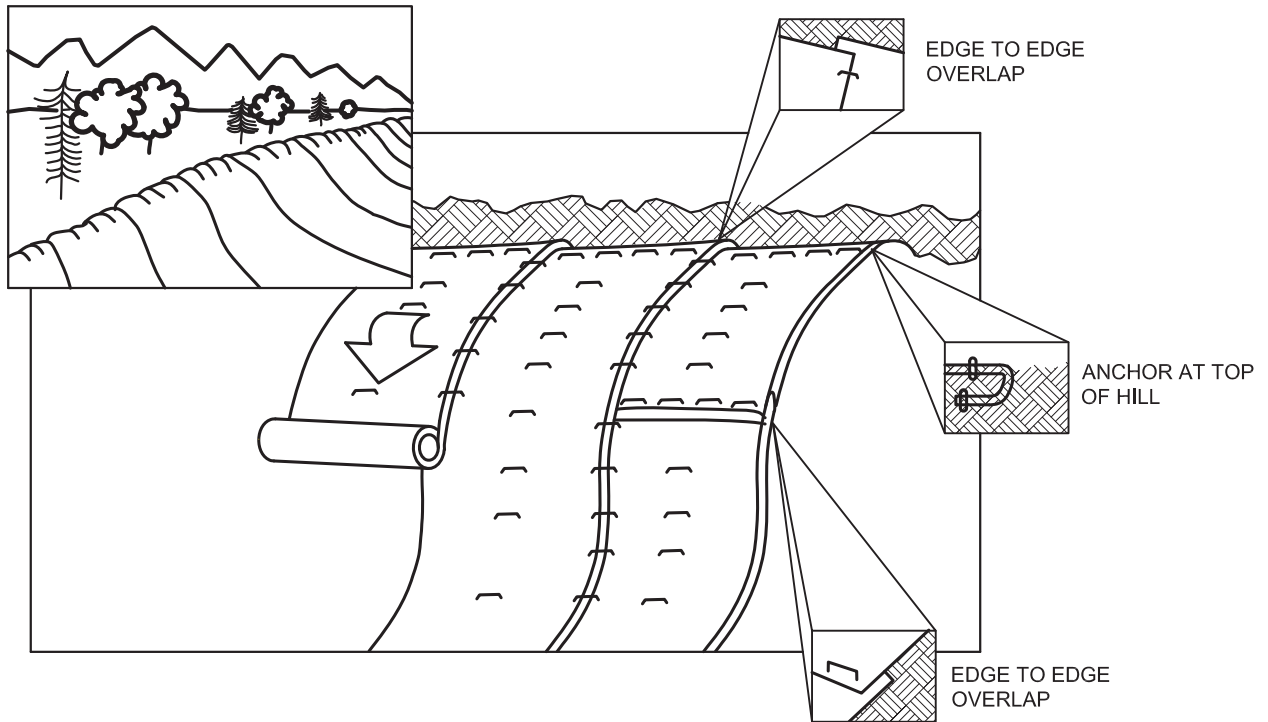


EROSION CONTROL FABRIC INSTALLATION

FIGURE EC-13

DWG. ES-0023

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**NOTES:**

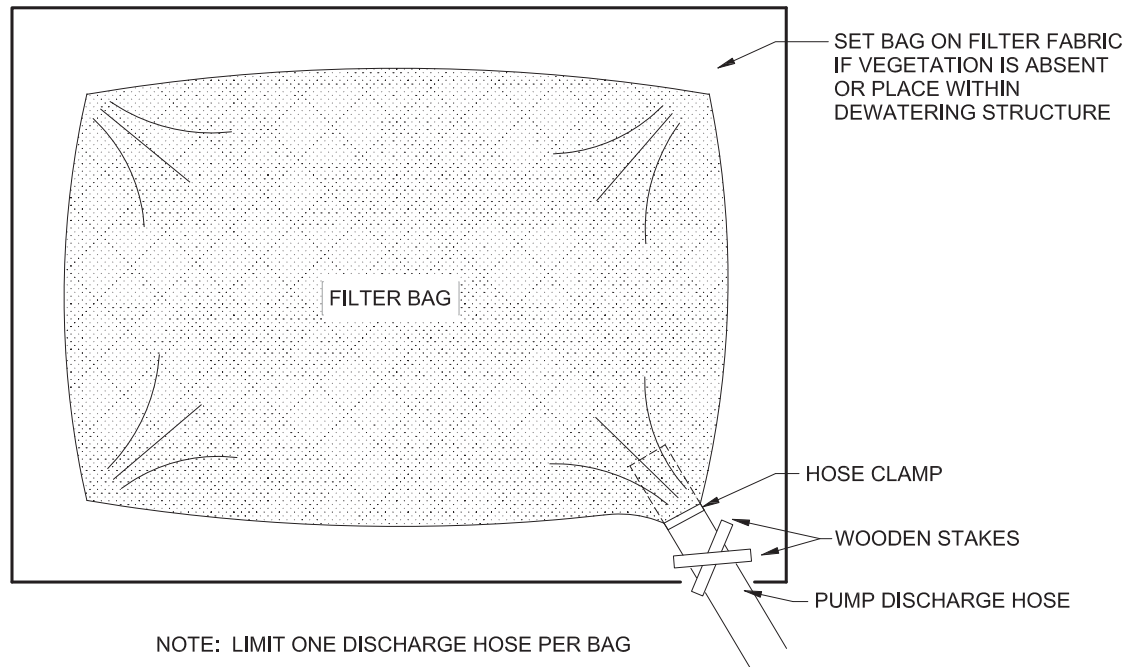
1. EROSION CONTROL BLANKETS (FABRIC) SHALL BE USED AT LOCATIONS IDENTIFIED IN THE PLAN AND/OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. EROSION CONTROL BLANKETS SHALL MEET THE REQUIREMENTS SPECIFIED IN THE PLAN AND/OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
3. STAPLES SHALL BE MADE OF 11 GAUGE WIRE, U-SHAPED WITH 6" LEGS AND A 1" CROWN. STAPLES SHALL BE DRIVEN INTO THE GROUND FOR THE FULL LENGTH OF THE STAPLE LEGS.
4. BLANKETS SHALL BE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS OR AS STATED BELOW:
 - EXTEND TOP OF BLANKET 3 FEET PAST THE UPPER EDGE OF THE SLOPE.
 - ANCHOR ("KEY") THE UPPER EDGE OF THE BLANKET INTO THE SLOPE USING A 6" DEEP TRENCH AND ROLL THE BLANKET DOWN THE HILL. DOUBLE STAPLE EVERY 12" BEFORE BACKFILLING AND COMPACTING TRENCH.
 - INSTALL LOOSELY ON SLOPE AND AVOID STRETCHING EROSION CONTROL BLANKETS DURING INSTALLATION.
 - BRING ROLL BACK OVER THE TOP OF THE TRENCH AND CONTINUE TO ROLL DOWN SLOPE. STAPLE EVERY 12" WHERE BLANKETS EXIT THE TRENCH AT THE TOP OF THE SLOPE.
 - WHEN BLANKETS ARE SPLICED DOWN-SLOPE TO ADJOINING BLANKETS (SLOPE OR STREAMBANK MATS), THE UPPER BLANKET SHALL BE PLACED OVER THE LOWER (SHINGLE STYLE) WITH APPROXIMATELY 6" OF OVERLAP. STAPLE THROUGH THE OVERLAPPED AREA EVERY 12".
 - OVERLAP ADJACENT BLANKETS 6". STAPLE EDGES OF BLANKETS AND CENTER EVERY 36".
5. IN LIVESTOCK AREAS WHERE EROSION CONTROL BLANKETS ARE APPLIED TO THE SLOPES, FENCING WILL BE USED IF NECESSARY TO EXCLUDE LIVESTOCK, WITH PERMISSION OF THE LANDOWNER.
6. MONITOR WASHOUTS, STAPLE INTEGRITY OR BLANKET MOVEMENT. REPLACE OR REPAIR AS NECESSARY.
7. DO NOT USE SYNTHETIC MONOFILAMENT MESH / NETTED MATERIALS IN AREAS DESIGNATED AS SENSITIVE WILDLIFE HABITAT, UNLESS THE PRODUCT IS SPECIFICALLY DESIGNED TO MINIMIZE HARM TO WILDLIFE.

**TYPICAL EROSION CONTROL
BLANKETS ON SLOPES**

FIGURE EC-14

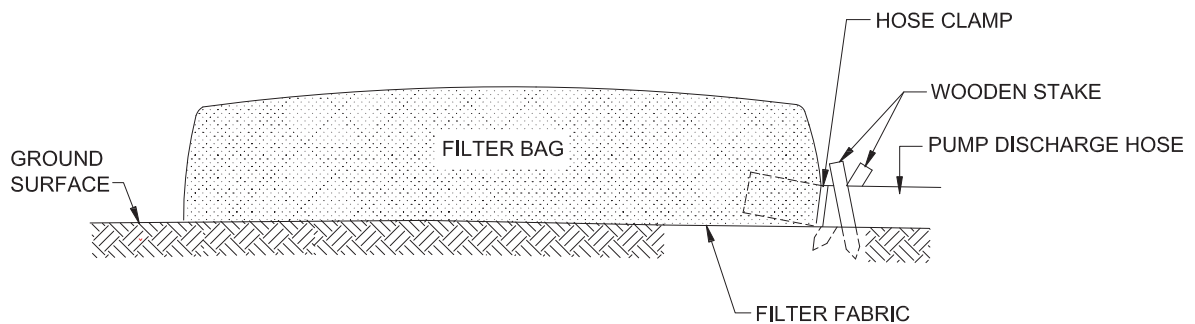
DWG. **ES-0024**

REV.



NOTE: LIMIT ONE DISCHARGE HOSE PER BAG

PLAN VIEW



CROSS-SECTION

NOTES:

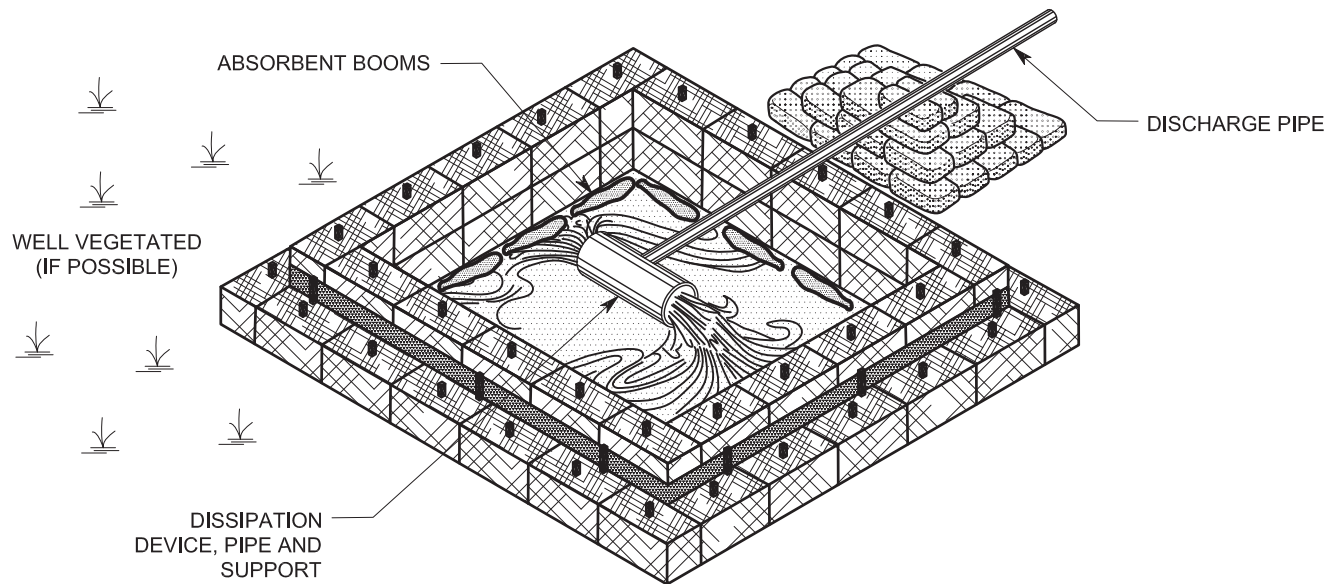
1. THE FILTER BAG OR STRUCTURE MUST BE MANNED WHEN THE PUMPING IS INITIATED TO ENSURE PROPER OPERATION AND FUNCTIONALITY.
2. REMOVE DEWATERING STRUCTURE AS SOON AS PRACTICABLE AFTER COMPLETION OF DEWATERING ACTIVITIES.
3. PLACEMENT OF FILTERBAGS SHOULD BE IN A MANNER THAT BAG USE DOES NOT CAUSE EROSION. IF SITE CONDITIONS ALLOW, PLACE FILTER BAG IN WELL-VEGETATED AREA, A MINIMUM OF 50 FEET FROM WETLANDS OR WATERBODIES.

FILTER BAG

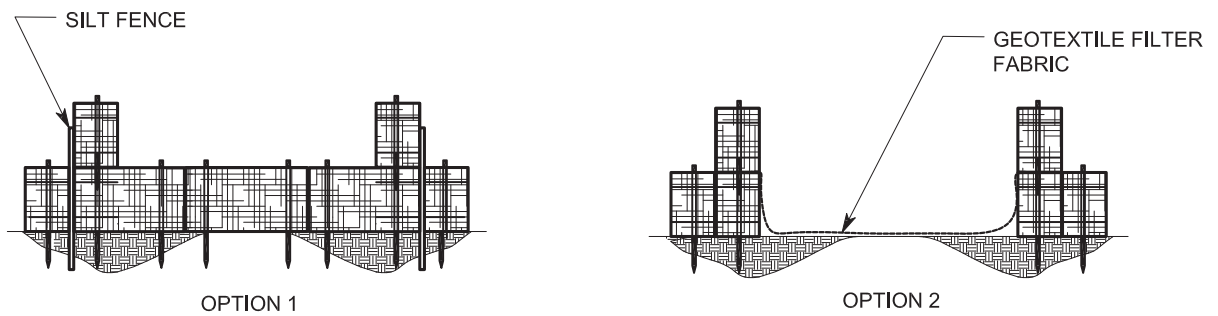
FIGURE WD-1

DWG. ES-0025

REV.



PLAN VIEW



CROSS SECTION VIEWS

NOTES:

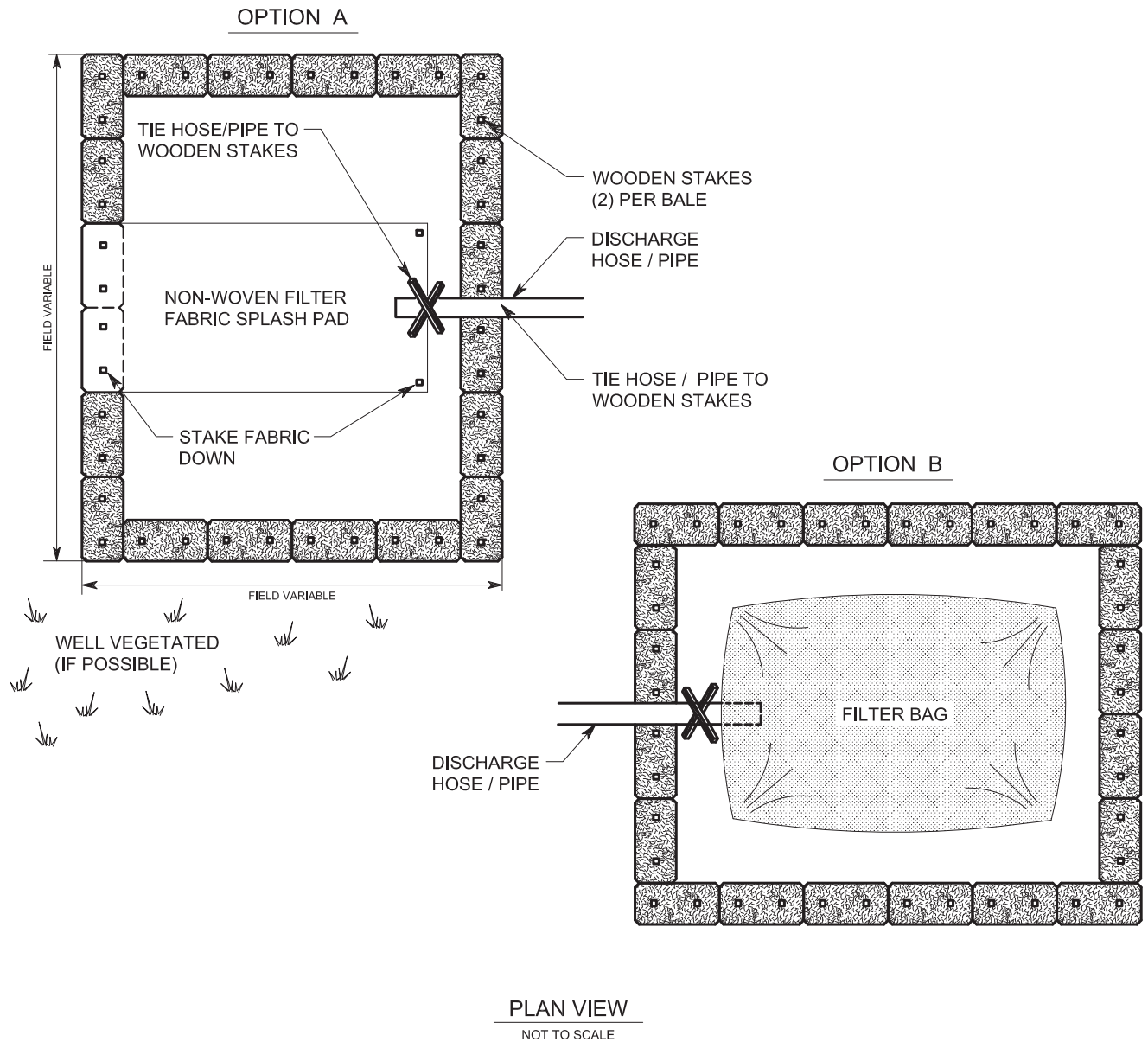
1. SIZE AND DIMENSION OF DEWATERING STRUCTURE WILL VARY DEPENDING ON THE VOLUME AND RATE OF DISCHARGE. STAGGER PLACEMENT OF STRAW BALES WHEN TWO ROWS ARE USED.
2. COVER THE BASE OF THE DISCHARGE STRUCTURE EITHER WITH STRAW BALES (OPTION 1) OR LINE WITH GEOTEXTILE FABRIC (OPTION 2).
3. PROVIDE SUPPORT TO ENSURE THAT DISCHARGE PIPE DOES NOT REST ON STRAW BALES.
4. PLASTIC SHEETING, WOODEN MATS OR STEEL PLATES MAY ALSO BE USED, AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR, TO PREVENT EROSION, STREAMBED SCOUR, SUSPENSION OF SEDIMENTS OR EXCESSIVE STREAMFLOW.
5. ABSORBENT BOOMS MUST BE USED DURING DISCHARGES FROM EXISTING / USED PIPE OR AS DIRECTED BY PERMIT REQUIREMENTS.
6. PREVENT EROSION, STREAMBED SCOUR, SUSPENSION OF SEDIMENTS AND EXCESSIVE STREAMFLOW BY PROPER DESIGN OF STRUCTURE, REGULATING THE WATER DISCHARGE RATE AS WELL AS USE OF ENERGY DISSIPATION DEVICE(S) AND SEDIMENT BARRIERS, AS NECESSARY.

DISCHARGE STRUCTURE FOR
HYDROSTATIC TEST WATER

FIGURE WD-2

DWG. ES-0026

REV.

NOTES:

1. SIZE AND DIMENSION OF DEWATERING STRUCTURE, INCLUDING NUMBER OF STRAW BALES USED, WILL VARY DEPENDING ON VOLUME OF WATER DISCHARGED, RATE OF DISCHARGE AND SITE CONDITIONS, SUCH AS THE TYPE AND AMOUNT OF SEDIMENT WITHIN THE DISCHARGE WATER.
2. PREVENT EROSION, STREAMBED SCOUR, SUSPENSION OF SEDIMENTS AND EXCESSIVE STREAMFLOW BY PROPER DESIGN OF STRUCTURE, REGULATING THE WATER DISCHARGE RATE AS WELL AS USE OF ENERGY DISSIPATION DEVICE(S) AND SEDIMENT BARRIERS, AS NECESSARY.
3. MONITOR AND CONDUCT DISCHARGES IN A MANNER THAT DOES NOT CAUSE EROSION AND DOES NOT RESULT IN SILT-LADEN WATER FLOWING INTO ANY WATERBODY OR WETLAND.
4. DO NOT DEPOSIT SAND, SILT, AND/OR SEDIMENT INTO SENSITIVE ENVIRONMENTAL RESOURCE AREAS, INCLUDING WETLANDS, WATERBODIES, CULTURAL RESOURCE SITES, AND SENSITIVE SPECIES HABITATS. STOP DEWATERING ACTIVITIES IF SUCH DEPOSITION IS OCCURRING AND ENSURE THE DESIGN OF THE DISCHARGE IS CHANGED TO PREVENT REOCCURRENCE.
5. ABSORBENT BOOMS MUST BE USED DURING DISCHARGES FROM EXISTING / USED PIPE OR AS DIRECTED BY PERMIT REQUIREMENTS.
6. FILTER BAGS SHOULD BE INSTALLED ACCORDING TO THE DETAILS SHOWN IN "FILTER BAG" FIGURE.
7. REMOVE STRUCTURE AS SOON AS PRACTICABLE AFTER COMPLETION OF WATER DISCHARGES.

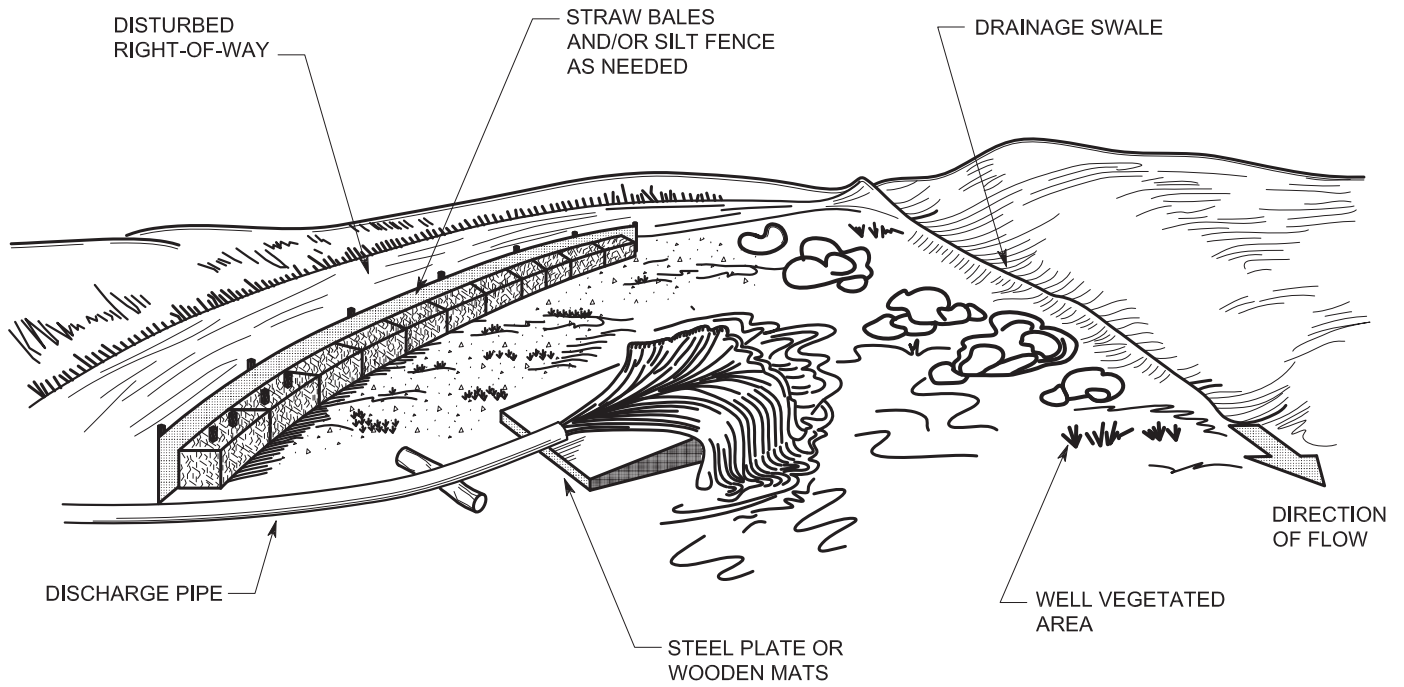
OPTIONS FOR SMALL WATER
DISCHARGES

FIGURE WD-3

DWG.

ES-0027

REV.



NOTES:

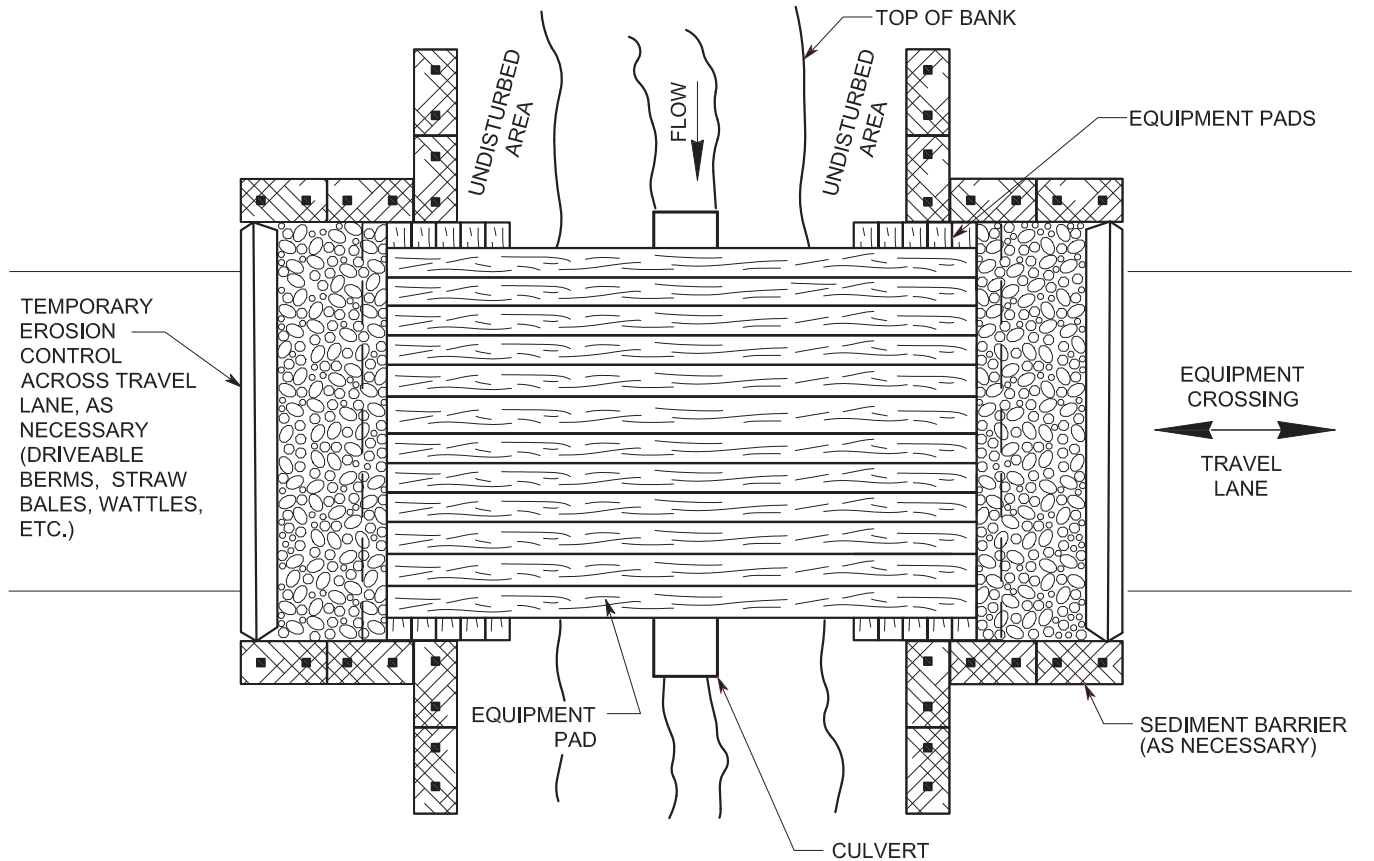
1. USE BACKHOE BUCKET OR DOZER BLADE TO ANCHOR DISCHARGE PIPE.
2. ON FLAT TERRAIN, USE STACKED STRAW BALES AND SILT FENCE AS NEEDED TO DIVERT WATER AWAY FROM DISTURBED RIGHT-OF-WAY.

DISCHARGE OF HYDROSTATIC TEST
WATER TO A SURFACE WATER

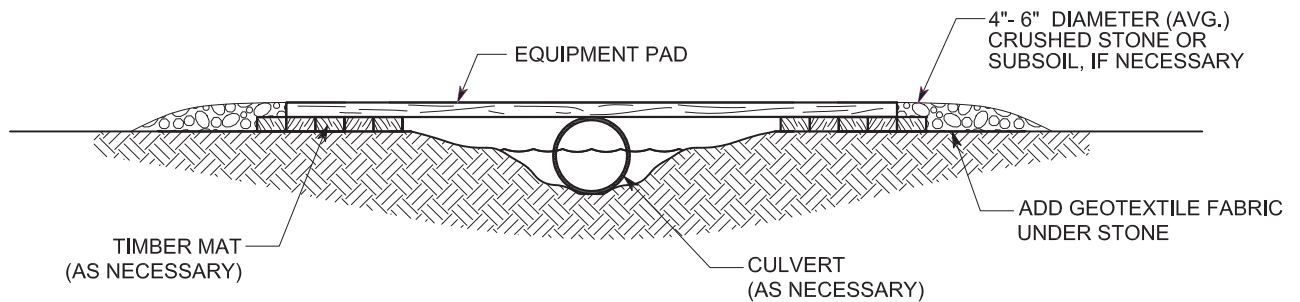
FIGURE WD-4

DWG. ES-0028

REV.



PLAN VIEW



CROSS SECTION VIEW

NOTES:

1. TEMPORARY SEDIMENT BARRIER CONSISTS OF SILT FENCE AND/ OR STRAW BALES, OR OTHER APPROPRIATE MATERIAL.
2. NUMBER AND DIAMETER OF CULVERTS, AS WELL AS USE OF CULVERTS, WILL DEPEND ON SITE-SPECIFIC CONDITIONS.
3. EQUIPMENT PAD, TYPICALLY CONSTRUCTED OF HARDWOOD, SHALL BE IN GOOD CONDITION AND MUST ACCOMMODATE THE LARGEST EQUIPMENT USED. ADDITIONAL EQUIPMENT PADS CAN BE PUT SIDE BY SIDE IF EXTRA WIDTH IS REQUIRED. BRIDGE MUST SPAN FROM TOP OF BANK TO TOP OF BANK.
4. CRUSHED STONE OR SUBSOIL MAY BE USED AS ILLUSTRATED, IF NECESSARY, WITHIN TRAVEL LANE AS RAMP.
5. CONSTRUCT AND MAINTAIN BRIDGE TO WITHSTAND THE HIGHEST EXPECTED FLOW WHILE BRIDGE IS IN USE AND PREVENT SOIL FROM ENTERING WATERBODY. DO NOT USE SOIL TO CONSTRUCT OR STABILIZE BRIDGE.

TEMPORARY EQUIPMENT BRIDGE
(EQUIPMENT PADS WITH
OR WITHOUT CULVERTS)

FIGURE BR-1

DWG.

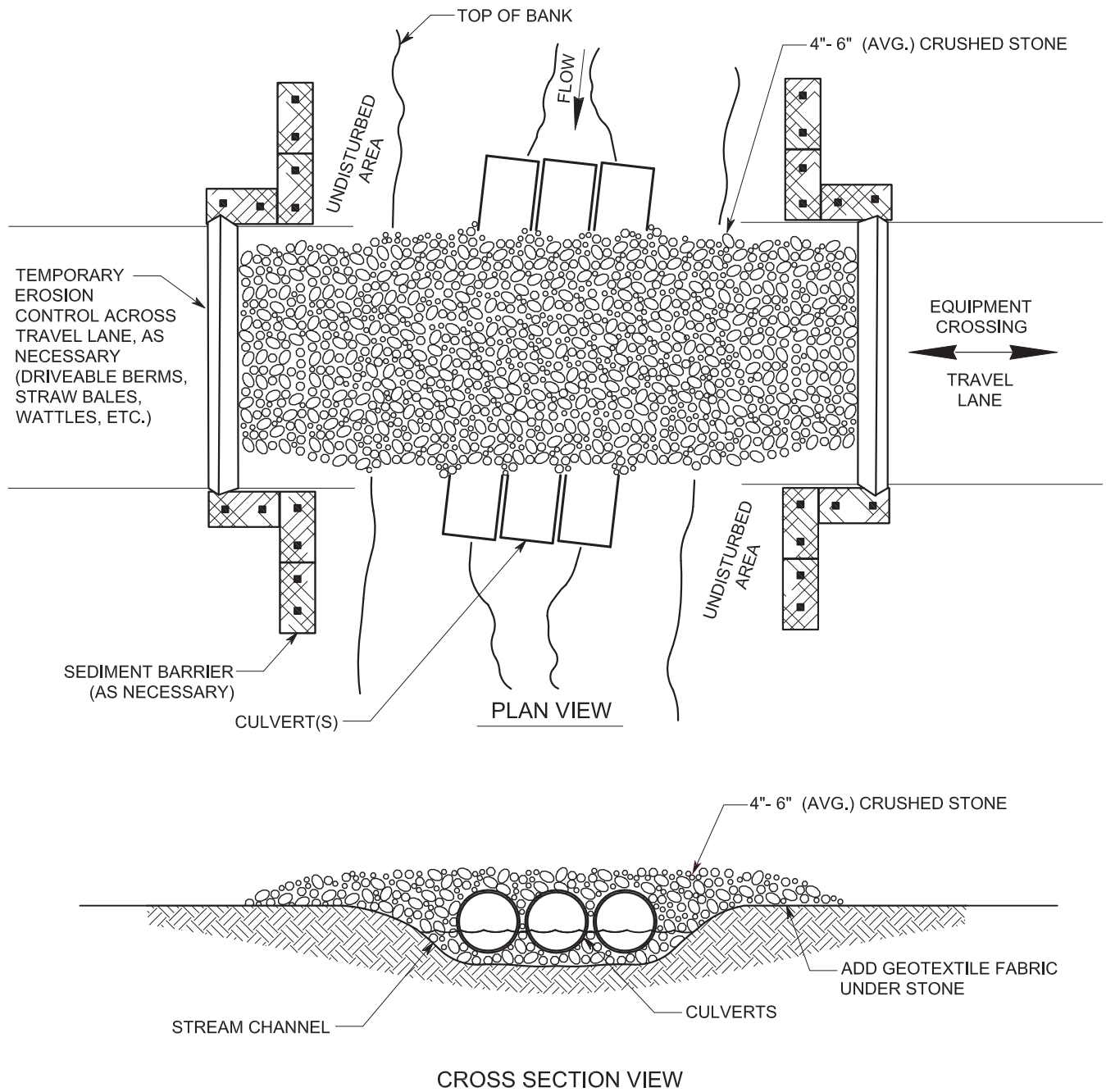
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6/3/2014 11:36 AM

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NOTES:

1. NUMBER AND DIAMETER OF CULVERTS WILL DEPEND ON SITE-SPECIFIC CONDITIONS. USE CULVERTS A MINIMUM OF 12-INCH DIAMETER.
2. ALIGN CULVERTS TO PREVENT EROSION AND STREAMBED SCOUR.
3. TEMPORARY SEDIMENT BARRIER CONSISTS OF SILT FENCES AND/OR STRAW BALES, OR OTHER APPROPRIATE MATERIALS.
4. ATTEMPT TO REMOVE ALL IMPORTED ROCK DURING REMOVAL OF THE BRIDGE.
5. DO NOT USE SOIL TO CONSTRUCT OR STABILIZE BRIDGES.

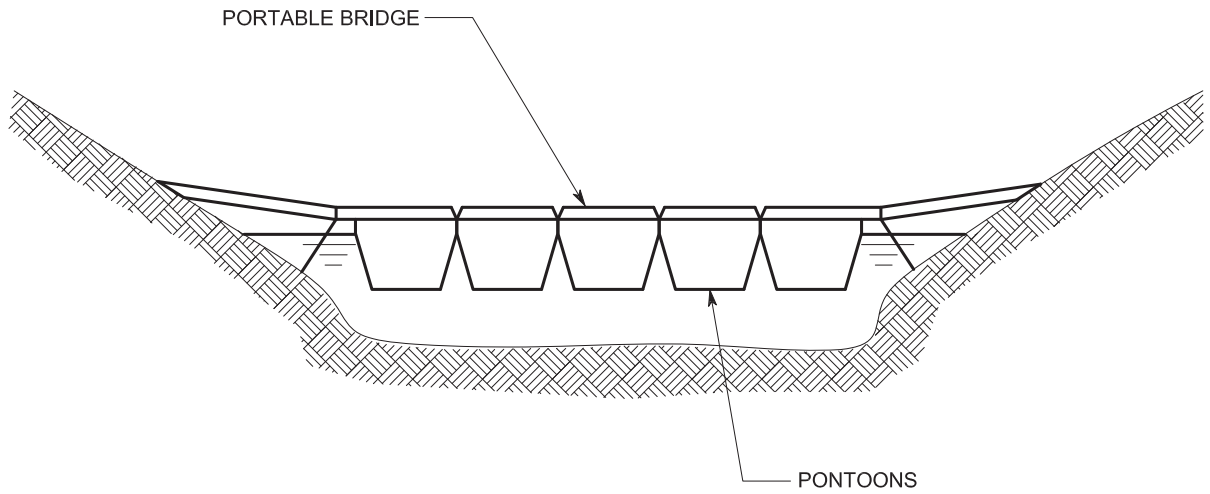
TEMPORARY EQUIPMENT BRIDGE
(CRUSHED STONE WITH CULVERTS)

FIGURE BR-2

DWG.

ES-0030

REV.



NOTES:

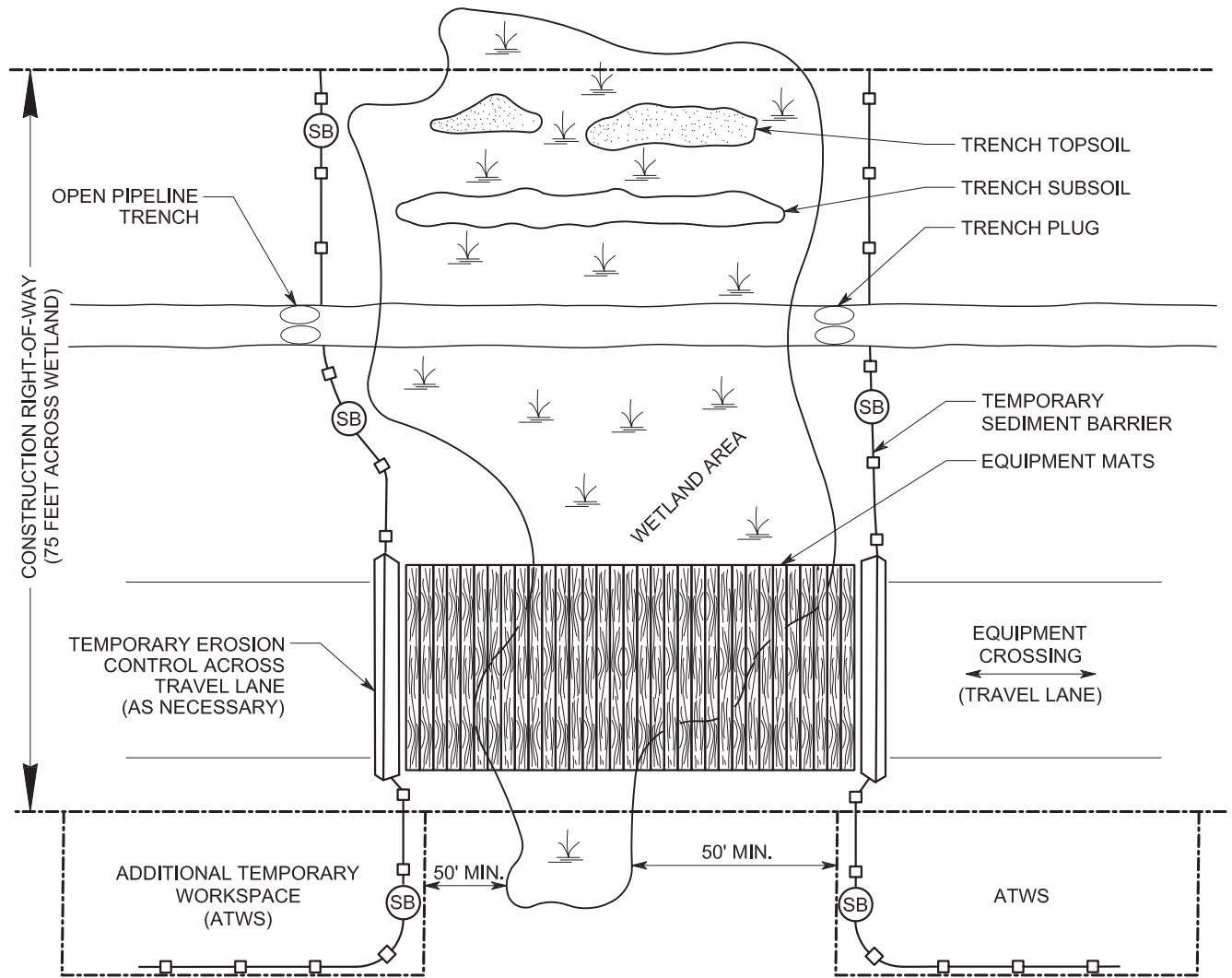
1. STABILIZE EDGES WITH SANDBAGS OR STONE.
2. REMOVE BRIDGE DURING CLEANUP.

TEMPORARY EQUIPMENT BRIDGE
(FLEXI-FLOAT OR PORTABLE BRIDGE)

FIGURE BR-3

DWG. ES-0031

REV.



NOTES:

1. IN WETLANDS, EQUIPMENT MATS OR LOW GROUND WEIGHT EQUIPMENT SHALL BE UTILIZED IN SATURATED GROUND CONDITIONS.
2. LIMIT PULLING OF TREE STUMPS AND GRADING TO DIRECTLY OVER TRENCHLINE, EXCEPT IN SITUATIONS THAT THE CHIEF INSPECTOR AND ENVIRONMENTAL INSPECTOR DETERMINE SAFETY-RELATED CONSTRUCTION CONSTRAINTS REQUIRE GRADING OR THE REMOVAL OF STUMPS FROM UNDER THE WORKING SIDE.
3. SEGREGATE THE TOP 12 INCHES OF TOPSOIL WITHIN THE DITCHLINE IN WETLANDS, EXCEPT IN AREAS WHERE STANDING WATER IS PRESENT OR SOILS ARE SATURATED.
4. DO NOT TRENCH THE WETLAND UNTIL THE PIPELINE IS ASSEMBLED AND READY FOR LOWERING IN.
5. CONCRETE COATING OR PIPELINE WEIGHTS OF AN APPROPRIATE TYPE, WEIGHT AND SPACING WILL BE USED AS REQUIRED. NO CONCRETE COATING ACTIVITIES WITHIN 100 FEET OF A WETLAND OR WATERBODY BOUNDARY, UNLESS THE LOCATION IS AN EXISTING INDUSTRIAL SITE DESIGNATED FOR SUCH USE.
6. INSTALL SEDIMENT BARRIERS (SB) ALONG THE EDGE OF THE CONSTRUCTION RIGHT-OF-WAY AS NECESSARY TO CONTAIN SPOIL AND SEDIMENT WITHIN THE CONSTRUCTION RIGHT-OF-WAY THROUGH WETLANDS.
7. IN THE TRAVEL LANE, SEDIMENT BARRIERS MAY CONSIST OF REMOVABLE SEDIMENT BARRIERS OR DRIVABLE BERMS.
8. AT THE BASE OF SLOPES (GREATER THAN 5 PERCENT) THAT ARE LESS THAN 50 FEET FROM A WETLAND, INSTALL AND MAINTAIN TEMPORARY SEDIMENT BARRIERS ACROSS THE ENTIRE CONSTRUCTION RIGHT-OF-WAY UNTIL REVEGETATION IS SUCCESSFUL.
9. NO FERTILIZER OR LIME SHALL BE USED WITHIN WETLANDS.
10. DEWATER THE TRENCH IN A MANNER THAT DOES NOT CAUSE EROSION OR RESULT IN SILT-LADEN WATER FLOWING INTO ANY WETLAND.

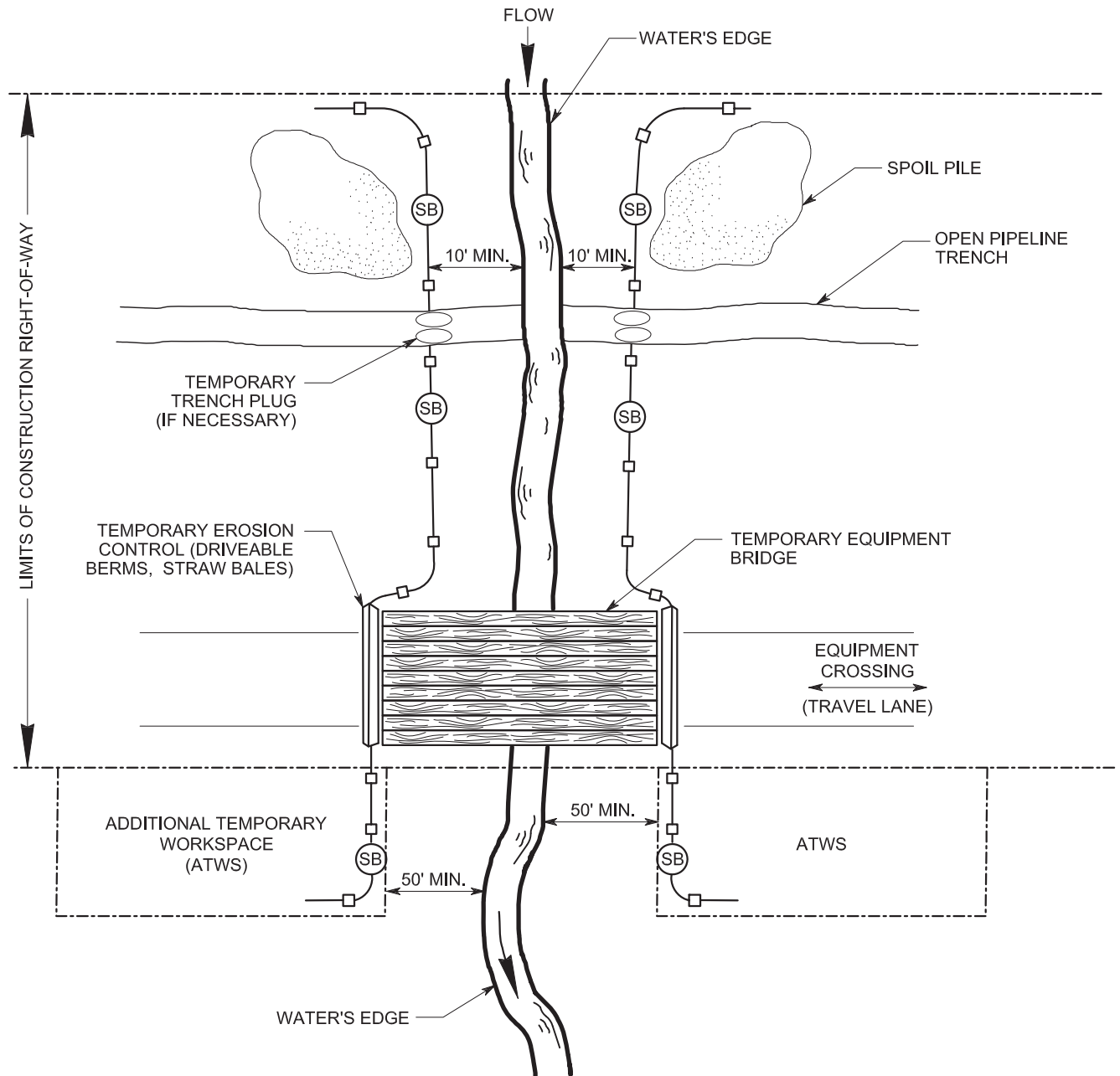
TYPICAL STANDARD
WETLAND CROSSING

FIGURE WC-1

DWG.

ES-0032

REV.



NOTES:

1. (SB) TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND/OR STRAW BALES, OR APPROPRIATE MATERIALS.
2. FOR MINOR WATERBODIES, COMPLETE TRENCHING AND BACKFILLING IN THE WATERBODY (NOT INCLUDING BLASTING OR OTHER ROCK BREAKING MEASURES) WITHIN 24 CONTINUOUS HOURS. IF A FLUME IS INSTALLED WITHIN THE WATERBODY DURING MAINLINE ACTIVITIES, IT CAN BE REMOVED JUST PRIOR TO LOWERING IN THE PIPELINE. THE 24-HOUR TIMEFRAME STARTS AS SOON AS THE FLUME IS REMOVED.
3. FOR INTERMEDIATE WATERBODIES (>10 FEET TO 100 FEET WIDE MEASURED WATER'S EDGE TO EDGE), COMPLETE TRENCHING AND BACKFILLING IN THE WATERBODY (NOT INCLUDING BLASTING OR OTHER ROCK BREAKING MEASURES) WITHIN 48 CONTINUOUS HOURS, UNLESS SITE-SPECIFIC CONDITIONS MAKE COMPLETION WITHIN 48 HOURS INFEASIBLE.

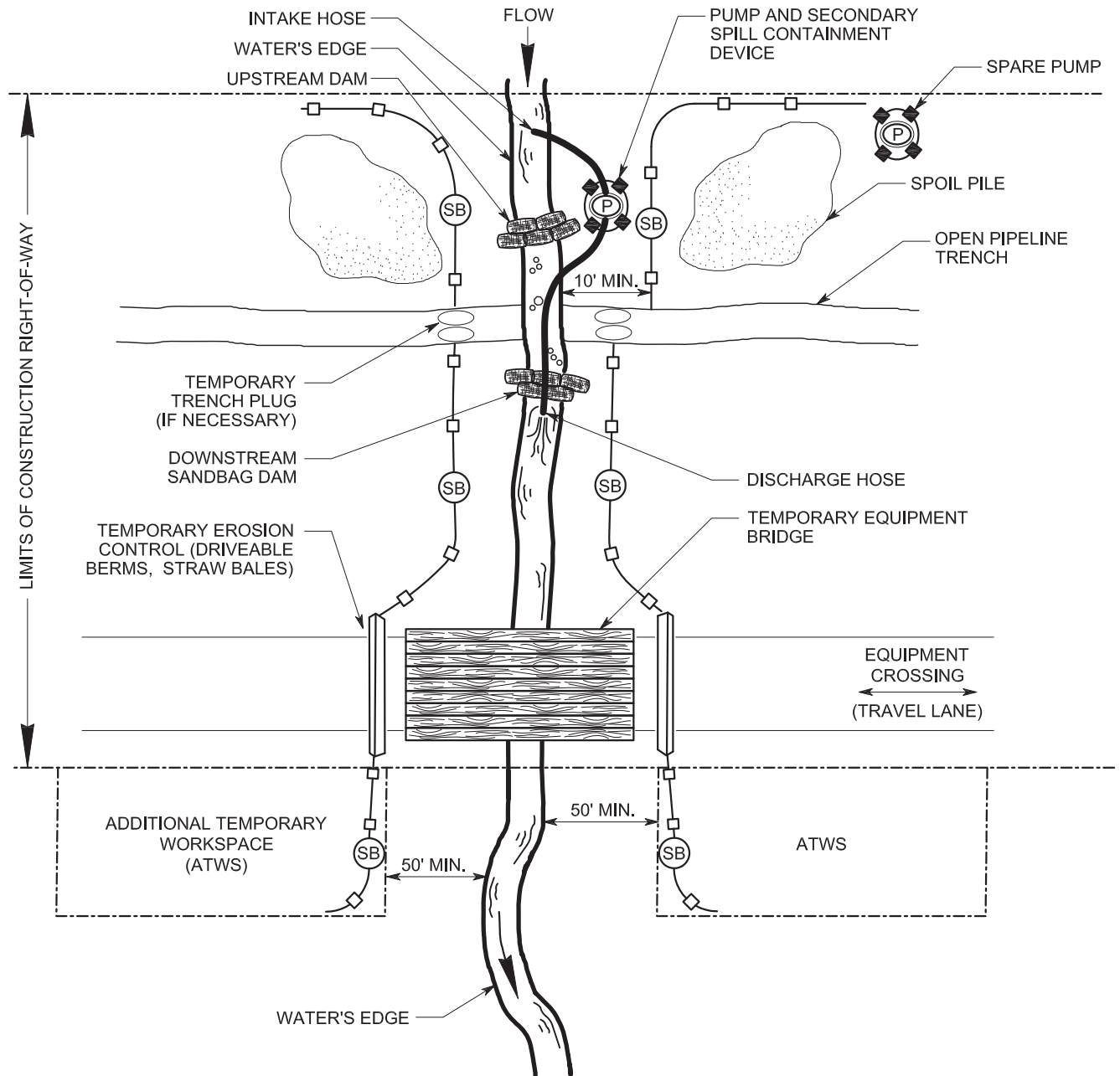
TYPICAL WET
WATERBODY CROSSING

FIGURE WC-2

DWG. ES-0033

REV.

REV.



NOTES:

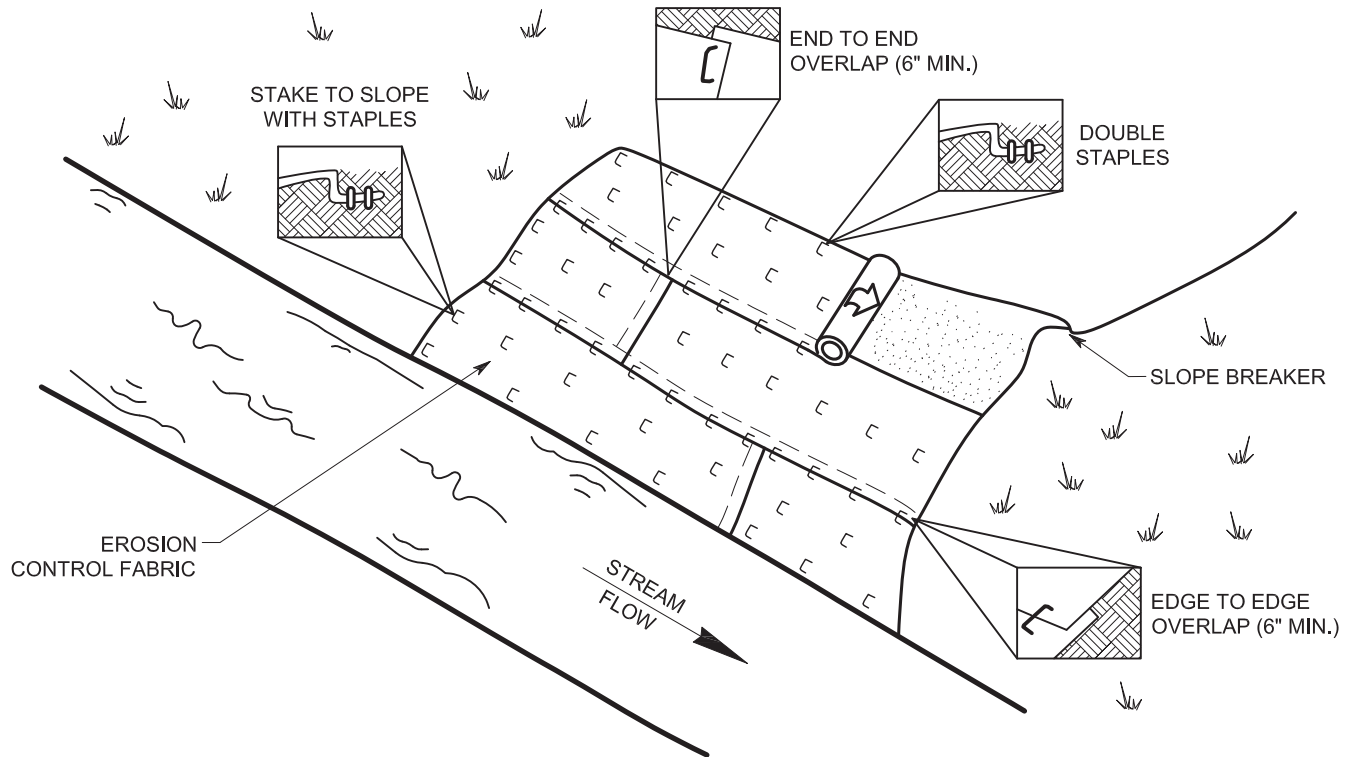
1. (SB) TEMPORARY SEDIMENT BARRIER OF SILT FENCE AND/ OR STRAW BALES, OR OTHER APPROPRIATE MATERIALS
2. INSTALL AND SEAL SANDBAGS UPSTREAM AND DOWNSTREAM OF THE CROSSING.
3. CREATE AN UPSTREAM SUMP USING SANDBAGS IF NATURAL SUMP IS UNAVAILABLE FOR THE INTAKE HOSE.
4. EXCAVATE ACROSS STREAM CHANNEL FOLLOWING WATER REROUTING.
5. DO NOT REFUEL OR STORE FUEL WITHIN 100 FEET OF THE WATERBODY. IF NOT FEASIBLE, ALTERNATIVE METHODS MUST BE APPROVED BY ENVIRONMENTAL INSPECTOR.
6. MONITOR PUMPS AT ALL TIMES DURING STREAM CROSSING PROCEDURE.
7. (P) USE SUFFICIENT PUMPS, INCLUDING ONSITE BACKUP PUMPS, TO MAINTAIN DOWNSTREAM FLOW.
8. SCREEN PUMP INTAKES. PREVENT SCOURING WITHIN WATERBODY BY HOSE DISCHARGE.

TYPICAL DAM-AND-PUMP
WATERBODY CROSSING

FIGURE WC-4

DWG. ES-0035

REV.

**NOTES:**

1. EROSION CONTROL BLANKETS (FABRIC) SHALL BE PLACED ON THE BANKS OF FLOWING STREAMS WHERE VEGETATION HAS BEEN REMOVED OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
2. EROSION CONTROL BLANKETS SHALL MEET THE REQUIREMENTS SPECIFIED IN THE E&S PLAN AND/OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
3. STAPLES SHALL BE MADE OF 11 GAUGE WIRE, U-SHAPED WITH 6" LEGS AND A 1" CROWN. STAPLES SHALL BE DRIVEN INTO THE GROUND FOR THE FULL LENGTH OF THE STAPLE LEGS. ALTERNATELY 1" WOODEN PEGS 6" LONG AND BEVELED TO SECURE MATTING.
4. BLANKETS SHALL BE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS OR AS STATED BELOW:
 - EXTEND TOP OF BLANKET 2 FEET PAST THE UPPER EDGE OF THE HIGH WATER MARK. IF A SLOPE BREAKER IS PRESENT ON THE APPROACH SLOPE, BEGIN THE BLANKET ON THE UPHILL SIDE OF THE SLOPE BREAKER.
 - INSTALL BLANKET(S) ACROSS THE SLOPE IN THE DIRECTION OF THE WATER FLOW.
 - ANCHOR ("KEY") THE UPSTREAM EDGE OF THE BLANKET(S) INTO THE SLOPE USING A 6" DEEP TRENCH. DOUBLE STAPLE EVERY 12" BEFORE BACKFILLING AND COMPACTING TRENCH
 - OVERLAP THE EDGES OF PARALLEL BLANKETS A MINIMUM OF 6". PLACE THE UPPER BLANKET OVER THE LOWER BLANKET (SHINGLE STYLE) AND STAPLE EVERY 12" ALONG THE LENGTH OF THE EDGE.
 - WHEN BLANKET ENDS ARE ADJOINED, PLACE THE UPSTREAM BLANKET OVER THE DOWNSTREAM BLANKET (SHINGLE STYLE) WITH APPROXIMATELY 6" OF OVERLAP AND STAPLE THROUGH THE OVERLAPPED AREA EVERY 12".
 - STAPLE DOWN THE CENTER OF THE BLANKET(S), THREE STAPLES IN EVERY SQUARE YARD.
5. IN LIVESTOCK AREAS WHERE EROSION CONTROL BLANKETS ARE APPLIED TO THE STREAMBANKS, FENCING MAY BE USED IF NECESSARY TO EXCLUDE LIVESTOCK, WITH PERMISSION OF THE LANDOWNER.
6. MONITOR WASHOUTS, STAPLE INTEGRITY OR BLANKET MOVEMENT. REPLACE OR REPAIR AS NECESSARY.
7. DO NOT USE SYNTHETIC MONOFILAMENT MESH / NETTED MATERIALS IN AREAS DESIGNATED AS SENSITIVE WILDLIFE HABITAT, UNLESS THE PRODUCT IS SPECIFICALLY DESIGNED TO MINIMIZE HARM TO WILDLIFE.

NOT TO SCALE

TYPICAL EROSION CONTROL BLANKETS ON STREAMBANKS

FIGURE WC-5

DWG.

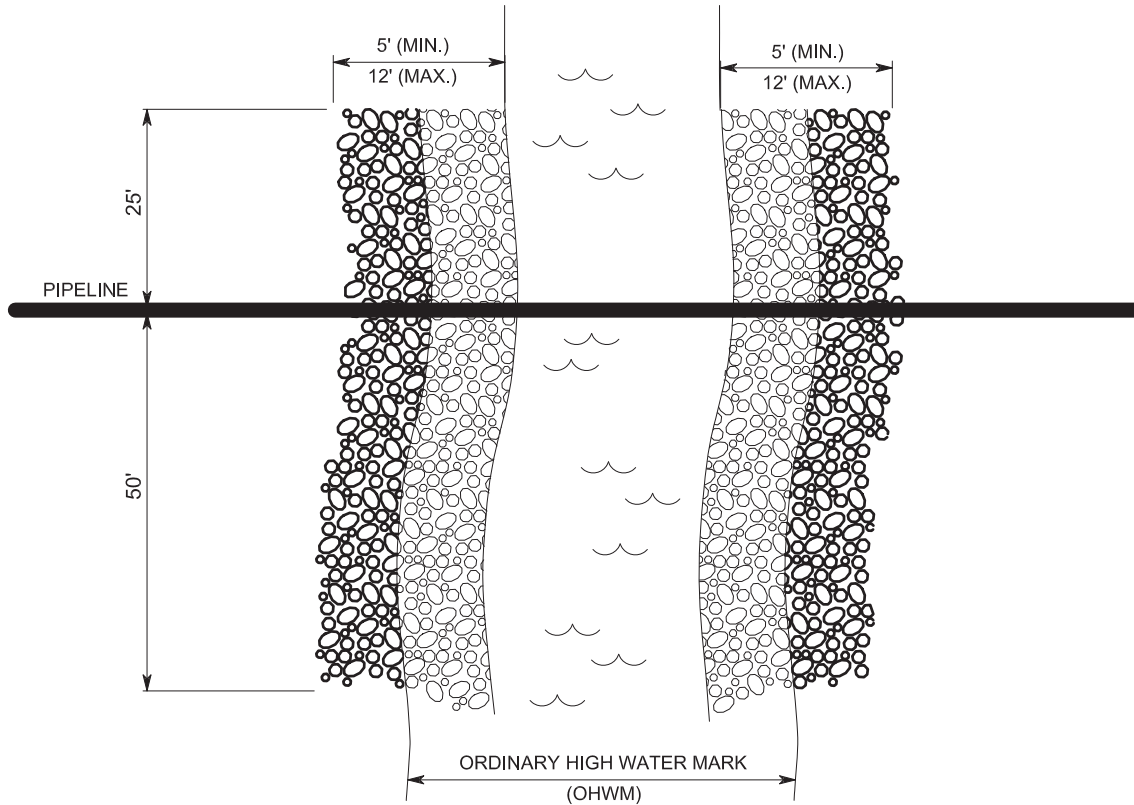
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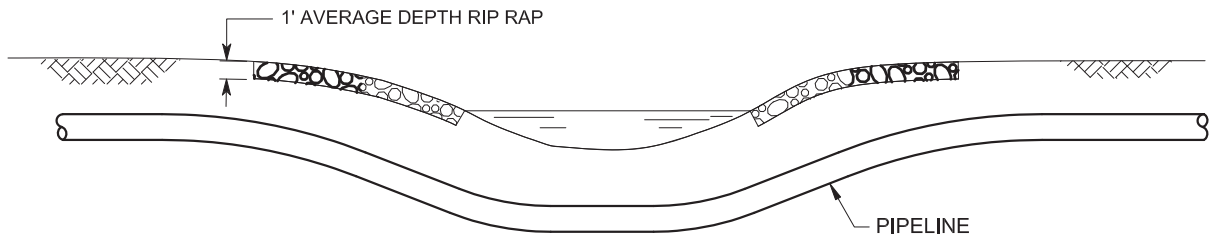
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PLAN VIEW



CROSS-SECTION VIEW

NOTES:

1. RIP-RAP SHALL NOT EXCEED 500 FEET IN LENGTH ALONG THE BANK.
2. RIP-RAP WILL NOT EXCEED AN AVERAGE OF ONE CUBIC YARD PER RUNNING FOOT BELOW THE OHWM.
3. RIP-RAP INSTALLATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE PERMITS.
4. RIP-RAP MUST BE CLEAN AND FREE OF SOIL AND DEBRIS.
5. RIP-RAP SHALL NOT BE PLACED IN A MANNER THAT IMPAIRS SURFACE WATER FLOW.
6. GEOTEXTILE FABRIC MAY BE INSTALLED BELOW RIP-RAP.

NOT TO SCALE

TYPICAL RIP-RAP
PLACEMENT

FIGURE WC-6

DWG.

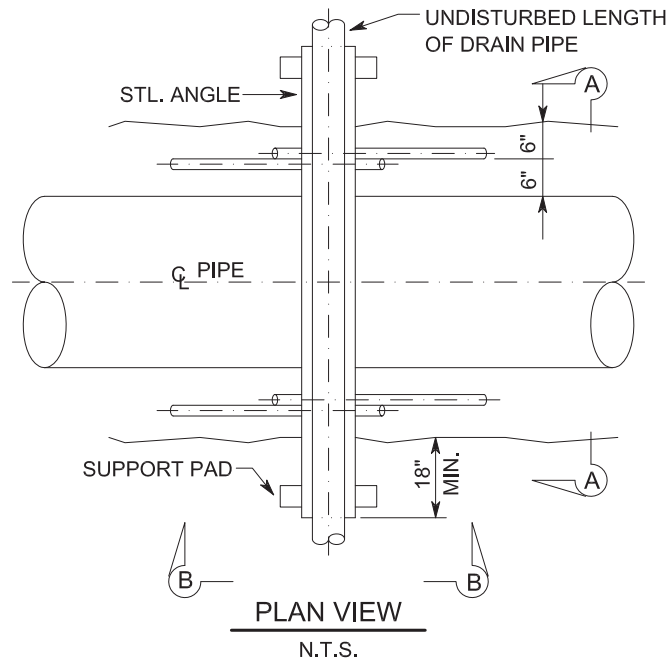
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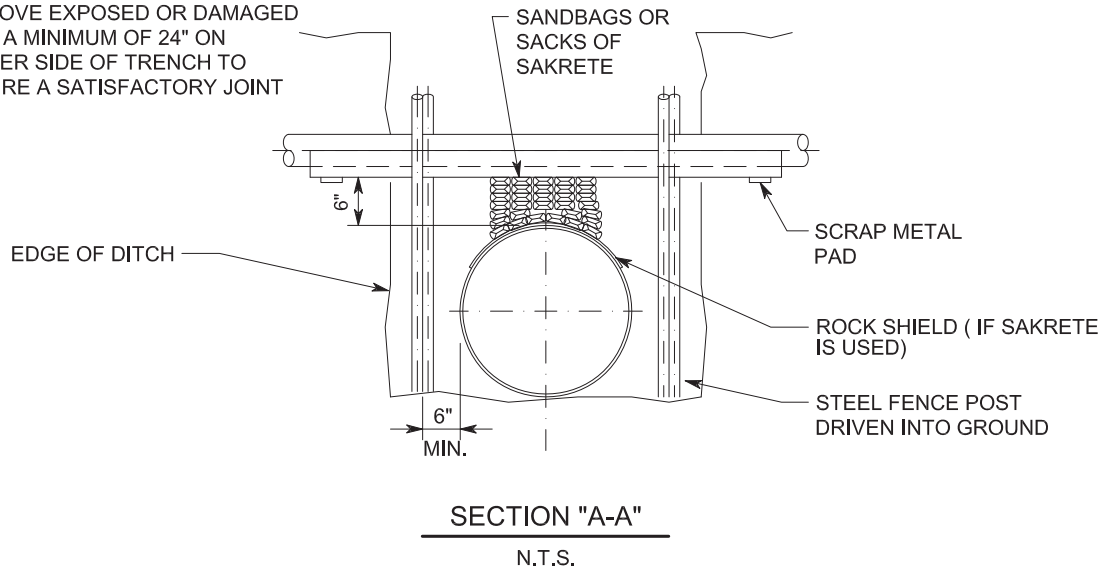
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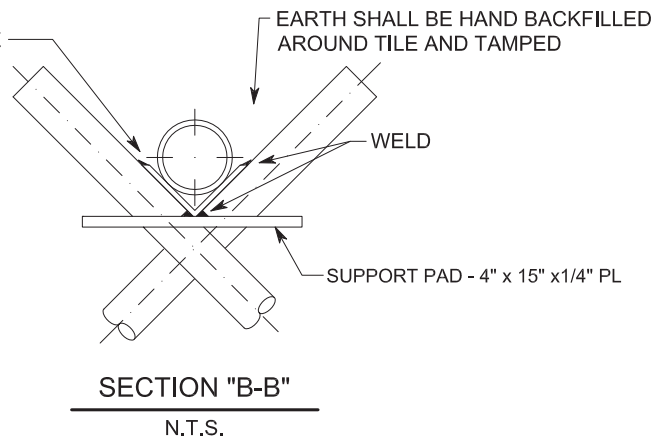


REMOVE EXPOSED OR DAMAGED
TILE A MINIMUM OF 24" ON
EITHER SIDE OF TRENCH TO
INSURE A SATISFACTORY JOINT



TO SUPPORT 4" & 6" TILE USE 4" x 1 / 4" ANGLE

"	8"	"	6" x 7 / 16"	"
"	10"	"	6" x 7 / 16"	"
"	12"	"	8" x 1 / 2"	"
"	16"	"	8" x 1 / 2"	"



NOTE:
USE OF SAKRETE SHALL REQUIRE PRIOR
COMPANY APPROVAL.

DRAIN TILE REPAIR PROCEDURE

FIGURE SU-1

DWG. ES-0038

REV.

APPENDIX B

WATERBODY REFERENCE CITING FERC REQUIREMENTS

APPENDIX B: Waterbody Reference Citing FERC Requirements

Waterbodies may be specifically identified or recognized by the States or authorized Indian Tribe for water use, value or quality, such as fisheries. FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures) contain specific requirements with regards to state-designated fisheries which are summarized in the table below. This table is a general reference of waterbody construction techniques and restrictions required by the FERC Procedures, 2013 version. Project-specific permits obtained for a given project may be more restrictive and must be followed (Refer to project-specific Clearance Package/Permit Book).

FERC Waterbody Type^a	Crossing Width^b	Construction Crossing Method^c	Seasonal Timing Restriction^d	Waterbody Construction Duration^e
Not Designated Fisheries				
<i>MINOR</i>	<i>≤ 10 feet</i>	Dry or Wet	No	24 hours
<i>INTERMEDIATE</i>	<i>> 10 feet but ≤ 100 feet</i>	Dry or Wet	No	48 hours
<i>MAJOR</i>	<i>> 100 feet</i>	Refer to site-specific plan	No	N/A
Designated Fisheries				
<i>MINOR</i>	<i>≤ 10 feet</i>	Dry only	Yes	N/A
<i>INTERMEDIATE</i>	<i>> 10 feet but ≤ 100 feet</i>	Dry or Wet	Yes	N/A
<i>MAJOR</i>	<i>> 100 feet</i>	Refer to site-specific plan	Yes	N/A
^{a)} Waterbody types or classifications as defined in the FERC Procedures. Refer to Section 5.3 of E&SCP. ^{b)} Measured from the water's edge at the time of crossing. ^{c)} "Dry" = Dry crossing includes dam-and-pump or flume crossing methods where the stream flow is isolated from the construction area. A dry crossing is generally required for crossings up to 30 feet wide for state designated fisheries or federally designated critical habitat. "Wet" = Wet crossing generally refers to the open-cut method that allows continuous flow of the stream across the construction area. "Refer to site-specific plan" = A plan is required for each major crossing as well as each waterbody or wetland that would be crossed using the HDD method requires a project-specific HDD Plan (refer to Section 4.4). ^{d)} For designated fisheries, instream work must occur during the following seasonal time windows, unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis: • coldwater fisheries construction must occur from June 1 through September 30. • coolwater and warmwater fisheries construction must occur from June 1 through November 30. NOTE: project-specific waterbody crossings may have other federal and state agency timing restrictions. Seasonal timing windows will be indicated within the project-specific waterbody crossing table and/or within the Environmental Clearance/Permit Book for the project. The FERC seasonal timing window restrictions do not apply to the installation or removal of equipment bridges. ^{e)} The construction duration of the crossing officially begins with in-stream activities, including in-stream trenching, pipe installation, backfill, and restoration of the streambed contours. Duration does not apply to in-stream work for dry crossings, and does not apply to blasting activities.				

APPENDIX C

SEED MIX RECOMMENDATIONS

SEED MIX RECOMMENDATIONS: “NORTHERN ZONE”

The Northern Zone is generally defined as areas north of the northern borders of Arkansas and Tennessee.

UPLAND AREAS

Lime	4.0 tons/acre
Fertilizer	1000 lbs./acre (10-20-20)
Mulch (Wheat Straw)	3.0 tons/acre

<u>Upland Seed Mix</u>	75 lbs./acre Pure Live Seed (PLS)
Kentucky Bluegrass	20%
Red Fescue ¹	20%
Kentucky 31 Tall Fescue ¹	15%
Redtop	10%
Perennial ryegrass	20%
White clover	5%
Birdsfoot Trefoil (Minimum 20% hard seed)	10%

¹Fescue must be endophyte-free.

<u>Pasture Mix</u>	20 lbs./acre PLS
<i>(For use only in disturbed pasture areas with landowner's permission.)</i>	
Kentucky Bluegrass	31%
Medium Red clover	26%
Norcen Trefoil	17%
Poly Perennial Rye	26%

Recommended Seeding Dates

(For the establishment of temporary or permanent vegetation.)

Spring:	March 15 - May 30
Fall:	August 1 - October 15

WINTER STABILIZATION

If restoration does not occur prior to October 15, seed the construction ROW with 1.5 bushels per acre of winter rye or similar variety of rye as requested by the landowner. Mulch the construction ROW at 3.0 tons per acre with wheat straw, including areas adjacent to streams and wetland crossings. Seed segregated topsoil piles with winter rye and mulch at a rate of 3.0 tons per acre.

WETLAND AREAS

DO NOT USE LIME OR FERTILIZER !!!

Do not use fertilizer, lime, or mulch within wetlands unless required in writing by the appropriate federal or state agency (as identified in the Clearance Package/Permit Book). Mulch consists of weed-free straw, wood fiber hydromulch or some functional equivalent as approved by the EI and Chief Inspector. When used, apply mulch (wheat straw) at a rate of 3.0 tons/acre.

Wetland Seed Mix

Annual Ryegrass	40 lbs./acre PLS
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SEED MIX RECOMMENDATIONS: “SOUTHERN ZONE”

The Southern Zone is generally defined as areas south of the northern borders of Arkansas and Tennessee.

UPLAND AREAS

Lime (agricultural limestone)	2.5 tons/acre
Fertilizer (6-12-12)	950 lbs./acre
Mulch (Oats, Wheat or Bermudagrass Straw)	3.0 tons/acre

Seed Mixture¹

Sorghum, Sudangrass, or Sudangrass Hybrids ²	40 lbs/acre Pure Live Seed (PLS)
Kentucky 31 Tall Fescue ³	10 lbs/acre PLS
Big Bluestem	10 lbs/acre PLS
Indiangrass	10 lbs/acre PLS
Bermudagrass	10 lbs/acre PLS
Sericea Lespedeza ⁴	10 lbs/acre PLS
White Clover ⁴	5 lbs/acre PLS
Birdsfoot Trefoil ⁴	10 lbs/acre PLS

¹ An alternative seed mixture may be requested by the landowner(s).

² These species may be sold under the following trade names: DeKalb SX17, Greentreat II, Greentreat III, Tastemaker DR, Tastemaker III, FFR202, or Sordan 79.

³ Fescue must be endophyte-free.

⁴ Legumes should be treated with a species specific inoculate prior to seeding. Legume seed and soil should be scarified.

Recommended seeding dates

(For establishment of temporary or permanent vegetation.)

Spring: March 15 - May 30

Fall: August 1 - October 15

WINTER STABILIZATION

If restoration does not occur prior to October 15, seed the construction ROW with 1.5 bushels per acre of winter rye or similar variety of rye as requested by the landowner. Mulch construction ROW at 3.0 tons per acre with wheat straw, including areas adjacent to stream and wetland crossings. Seed segregated topsoil piles with winter rye and mulch at a rate of 3.0 tons per acre.

WETLAND AREAS

DO NOT USE LIME OR FERTILIZER !!!

Do not use fertilizer, lime, or mulch within wetlands unless required in writing by the appropriate federal or state agency (as identified in the Clearance Package/Permit Book). Mulch consists of weed-free straw, wood fiber hydromulch or some functional equivalent as approved by the EI and Chief Inspector. When used, apply mulch (Oats, Wheat, or Bermudagrass straw) at a rate of 3.0 tons/acre.

Wetland Seed Mix:

Annual Ryegrass	40 lbs/acre PLS
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APPENDIX F

Abutters Information

TOWN OF WEYMOUTH

NOTIFICATION TO ABUTTERS UNDER THE MASSACHUSETTS WETLANDS PROTECTION ACT AND
LOCAL WETLANDS PROTECTION ORDINANCE, CHAPTER 7, SECTION 301

Revision for Remote Meetings during COVID-19 State of Emergency

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

- A. The name of the applicant is Algonquin Gas Transmission, LLC
- B. The applicant has filed: ☒ Notice of Intent, *or* ☐ OOC Amendment Request, *or* ☐ Request for Determination with the Conservation Commission for the municipality of Weymouth seeking permission to remove, fill, dredge or alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, Section 40).
- C. The address of the lot where the activity is proposed and a brief description including square footage and/or dimensions of proposed project:
Bridge Street (Map 6, Lot 63-1, 63-3, and 63-4). The project proposes Phase II Work to classify potential
oil and hazardous material (OHM) in the area of the Kings Cove Property to better under the extent of
potential contamination. In total, the project will temporarily disturb +/-342-sf .
- D. During the office closure for COVID-19, copies of the Notice of Intent or OOC Amendment Request or Request for Determination may be examined on the Town of Weymouth website, on the Conservation Commission webpage, in the Current and Past Cases tab at:
<https://www.weymouth.ma.us/conservation-commission/pages/project-documents>
- E. Copies of the Notice of Intent or OOC Amendment Request or Request for Determination may be obtained from (check one):
☐ the Applicant **or** ☒ the Applicant's Representative
by calling this telephone number 207.292.1590 contact person Richard Paquette
between the hours of: 8-5 on the following days of the week: Mon-Fri
- F. Information regarding the date, time, and instructions for joining the REMOTE public hearing, to be held via the WebEx platform, may be obtained from:

Weymouth Conservation Commission

By calling this telephone number: 781-340-5007
Between the hours of: 8:30 – 4:30 Mon. though Friday

Instructions for joining the remote public hearing, via the WebEx website or via telephone, will be included on the meeting agenda, which will be posted on the Conservation Commission webpage at least 48 hours prior to the meeting, at:
<https://www.weymouth.ma.us/conservation-commission>

NOTE: Notice of the public hearing/meeting, including its date, time and remote venue, will be published at least five days in advance in the Patriot Ledger, and will also be posted on the Town website at www.weymouth.ma.us not less than forty-eight hours in advance. You may also contact the Weymouth Conservation Commission or the Department of Environment Protection Regional office for more information about this application or the Wetland Protection Act. To contact DEP, call 508-946-2700.

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act and
Code of Ordinances, Town of Weymouth, Chapter 7, Section 301

(To be submitted to the Massachusetts Department of Environmental Protection and the **Weymouth Conservation Commission** when filing a Notice of Intent or Request for Determination)

I Richard Paquette hereby certify under the
pains and penalties of perjury that on 9/3/2020 (date)
I gave notification to abutters in compliance with the second paragraph of
Massachusetts General Laws Chapter 131, Section 40, and the DEP Guide to
Abutter Notification dated April 8, 1994, and **Town of Weymouth**, in connection
with the following matter:

A Notice of Intent or Request for Determination filed under the Massachusetts
Wetlands Protection Act by

Algonquin Gas Transmission, LLC

With the **Town of Weymouth Conservation Commission** on 9/3/2020
(Date)

For property located at Bridge Street

Shown on Assessors Map# 6 Block # 63 Lot# 1, 3, and 4

The forms of the notification, and a list of the abutters and town departments to
whom it was given and their addresses, are attached to this Affidavit of Service.

Richard Paquette
Name

8/29/2020
Date

7/31/2020

PARCEL #	LOCATION	OWNER NAME/ADDRESS	CERTIFIED	
			YES	NO
MAP: 6 BLOCK: 63 LOT: 4 EXT: 0	0 BRIDGE ST	ALGONQUIN GAS TRANSMISSION LLC C/O DUFF & PHELPS, LLC PO BOX 2629 ADDISON, TX, 75001	☒	☐
MAP: 6 BLOCK: 63 LOT: 3 EXT: 0	0 BRIDGE ST	CALPINE FORE RIVER ENERGY C/O CALPINE CORPORATION 717 TEXAS AVE SUITE 1000 HOUSTON, TX, 77002	☒	☐
MAP: 6 BLOCK: 63 LOT: 1 EXT: 0	6 BRIDGE ST	ALGONQUIN GAS TRANSMISSION LLC C/O DUFF & PHELPS, LLC PO BOX 2629 ADDISON, TX, 75001	☒	☐
MAP: 6 BLOCK: 64 LOT: 1 EXT: 0	9 BRIDGE ST	CALPINE FORE RIVER ENERGY CENTER, LLC C/O CALPINE CORPORATION 717 TEXAS AVE SUITE 1000 HOUSTON, TX, 77002	☒	☐
MAP: 6 BLOCK: 63 LOT: 2 EXT: 0	50 BRIDGE ST	MASSACHUSETTS WATER RESOURCES AUTHORITY 100 FIRST AVE BOSTON, MA, 02129	☒	☐
MAP: 6 BLOCK: 62 LOT: 1 EXT: 0	94 BRIDGE ST	GLYNN COLIN P 44 POND ST CARVER, MA, 02330	☒	☐
MAP: 6 BLOCK: 65 LOT: 1 EXT: 0	95--99 BRIDGE ST	KANER PAUL TRUSTEE 1077 WASHINGTON ST TR 95 BRIDGE ST WEYMOUTH, MA, 02191	☒	☐
MAP: 6 BLOCK: 62 LOT: 2 EXT: 0	96 BRIDGE ST	SANTOS CARLOS A 100 FRANKLIN ST #C2 WHITMAN, MA, 02382	☒	☐

This list of abutters is a certified copy of the Town of Weymouth's tax records for fiscal year 2020.
The record of ownership is accurate through April 2020.

Prepared by:

Reviewed by:

9/1/2020

PARCEL #	LOCATION	OWNER NAME/ADDRESS	CERTIFIED	
			YES	NO
MAP: 6 BLOCK: 63 LOT: 3 EXT: 0	0 BRIDGE ST	CALPINE FORE RIVER ENERGY C/O CALPINE CORPORATION 717 TEXAS AVE SUITE 1000 HOUSTON, TX, 77002	☒	☐
MAP: 6 BLOCK: 63 LOT: 1 EXT: 0	6 BRIDGE ST	ALGONQUIN GAS TRANSMISSION LLC C/O DUFF & PHELPS, LLC PO BOX 2629 ADDISON, TX, 75001	☒	☐
MAP: 6 BLOCK: 64 LOT: 1 EXT: 0	9 BRIDGE ST	CALPINE FORE RIVER ENERGY CENTER, LLC C/O CALPINE CORPORATION 717 TEXAS AVE SUITE 1000 HOUSTON, TX, 77002	☒	☐
MAP: 6 BLOCK: 63 LOT: 2 EXT: 0	50 BRIDGE ST	MASSACHUSETTS WATER RESOURCES AUTHORITY 100 FIRST AVE BOSTON, MA, 02129	☒	☐

This list of abutters is a certified copy of the Town of Weymouth's tax records for fiscal year 2020.
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Prepared by:  9/1/2020

Reviewed by:

|