ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

Stormwater Pollution Prevention Plan

APPENDIX H

Erosion and Sediment Control and Stormwater Management Plan

for

Greensville M&R Station

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LIST OF ACRONYMS AND ABBREVIATIONS

ACP	Atlantic Coast Pipeline
BMP	best management practice
BSRF	Belted Silt Retention Fence
DETI	Dominion Energy Transmission, Inc. (formerly Dominion Transmission, Inc.)
DTI	Dominion Transmission, Inc. (now Dominion Energy Transmission, Inc.)
EI	Environmental Inspector
ESC	erosion and sediment control
ESC Plan	Erosion and Sediment Control Plan
FERC	Federal Energy Regulatory Commission
M&R	metering and regulating
M&R Station	Greensville M&R Station
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service
Power Station	Greensville Electric Power Station
SWM	stormwater management
SWM Plan	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality
VEP	Virginia Electric and Power Company
VESCP	Virginia Erosion and Sedimentation Control Program
VESCH	Virginia Erosion and Sediment Control Handbook
VSMP	Virginia Stormwater Management

1.0 INTRODUCTION

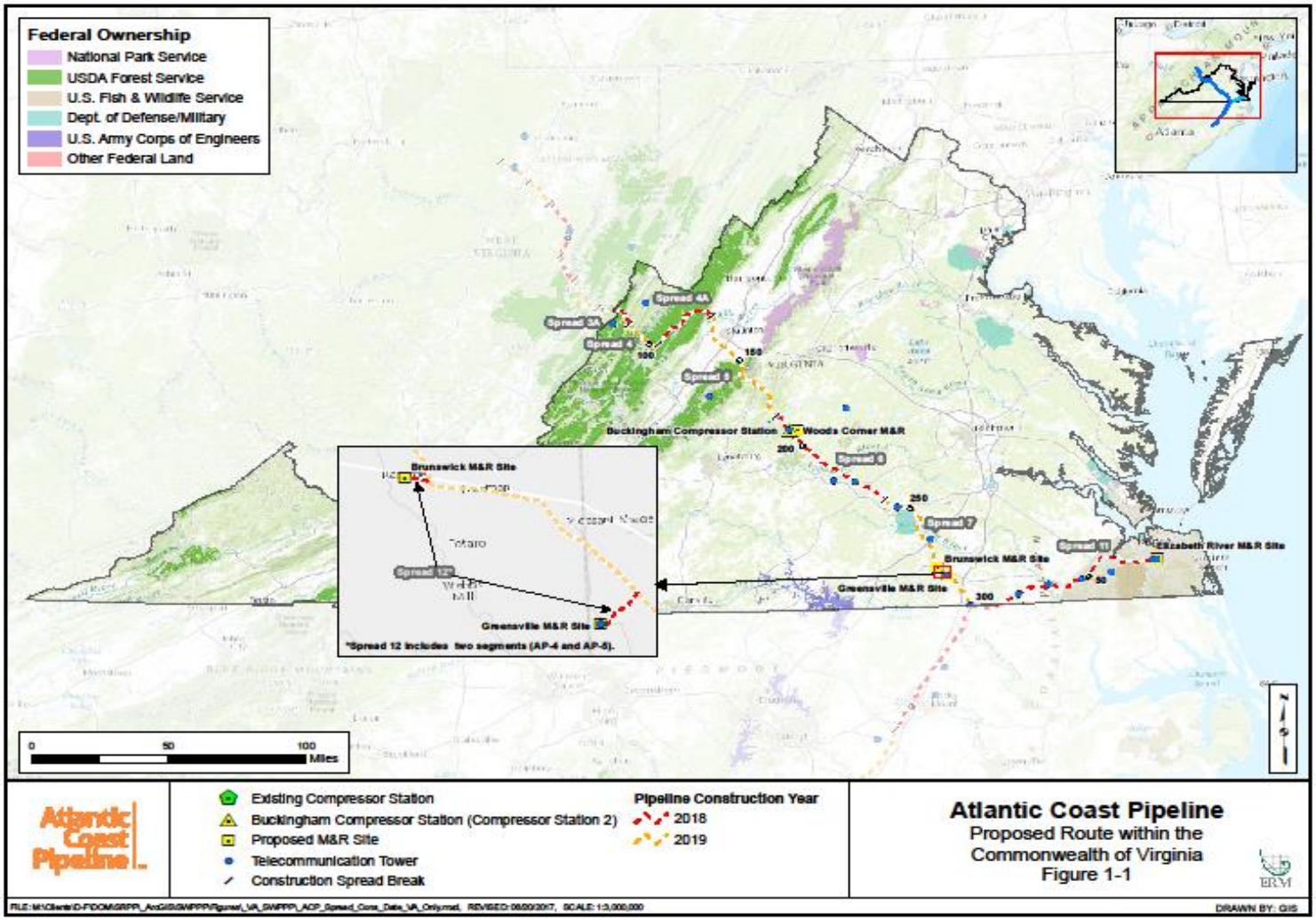
As part of the Atlantic Coast Pipeline (ACP), Dominion Energy Transmission Inc. (DETI), formerly Dominion Transmission, Inc. (DTI) is proposing to construct an approximately 1.43-acre aboveground metering and regulating (M&R) station at 2500 Rogers Road in Emporia, Virginia.[1] This Station, referred to as the Greensville M&R Station (M&R Station), will be co-located with the Virginia Electric and Power Company (VEP) Greensville Electric Power Station (Power Station).

The purpose of this Appendix is to specifically address existing site conditions; planned land-disturbing activities; construction sequence and procedures; erosion and sediment control (ESC) measures; and post-construction stormwater management (SWM) methods to be used at the M&R Station. This Appendix is intended to supplement the main body of the Stormwater Pollution Prevention Plan (SWPPP), which primarily addresses the linear portion of the Project. However, general provisions contained within the main body of the SWPPP, including pollution prevention practices and procedures; roles and responsibilities of personnel; inspection and maintenance; employee training; and notification, recordkeeping, and reporting will be followed during construction of the M&R Station, as applicable to the aboveground facility. Land-disturbing activities will conform, at a minimum, to the same regulations and guidelines listed in Section 1.0 of the SWPPP, as appropriate and applicable. In circumstances where multiple overlapping regulatory requirements and guidelines apply, DETI selected the more stringent or protective of the requirements and guidelines set forth by the Federal Energy Regulatory Commission (FERC) and the Virginia Department of Environmental Quality (VDEQ), unless otherwise agreed to in advance.

A description of the M&R Station is provided in the following sections. A Site Plan is provided in Attachment 1. Figure 1-1 below shows the location of the M&R Station in relation to the ACP.

[1] In May 2017, Dominion Transmission, Inc. (DTI) had a legal name change to Dominion Energy Transmission, Inc. (DETI)

Figure 1-1 Greensville M&R Station Location



2.0 LOCATION AND DESCRIPTION

The M&R Station will be located at milepost 1.0 of the AP-5 lateral section of the ACP pipeline, within Greensville County, VA. The approximately 1.43-acre rectangular tract of land is located along the northern property boundary of a larger parcel to be developed into the Power Station. The larger parcel is identified in the City of Greensville records as Parcel Number 18-35 with a property address of 2500 Rogers Road. The general vicinity around the M&R Station is undeveloped/cleared property.

2.1 EXISTING SITE CONDITIONS

The M&R Station is primarily undeveloped. The M&R Station will be co-located and constructed generally concurrent with the planned Power Station.

2.2 EXISTING AND PROPOSED TOPOGRAPHY

The topography at the M&R Station is characterized by flat to gently sloping terrain with an elevation of approximately 170 feet above mean sea level. The proposed development will retain the existing topography of flat to gently sloping terrain with grading to direct stormwater toward a retention pond planned to be located north of the proposed M&R Station.

Existing topography of the M&R Station can be found in the topographical map, Attachment 2. In addition, the proposed grading plan for the M&R Station is provided in Attachment 1.

2.3 PROMINENT VEGETATION

The current M&R Station site location is undeveloped. The M&R Station will be developed with one dekatherm building (used to house equipment such as gas chromatographs, communications equipment, etc.) as well as a regulation skid, a metering skid, a microwave tower, and a small supply building surrounded by a chain-link security fence. In addition, aboveground sections of piping, gas filter/separator, meters, tank, three gas heaters, and regulators will be present. A retention pond is planned to be located north of the proposed M&R Station. DETI will utilize an existing road to access the M&R Station from Rogers Road. Vehicles will then enter the M&R Station using a new gravel access road. The proposed Site Plan is provided in Attachment 1.

2.4 LAND-DISTURBING ACTIVITIES AND ASSOCIATED WORK AREAS

Construction of the M&R Station will affect approximately 1.43 acres of land. The 1.43 acres of land affected will be retained for operation of the new M&R Station. The Site Plan in Attachment 1 depicts the proposed land use to be adapted to various uses, including but not limited to planned locations of utilities, structures, roads, parking areas, stormwater management facilities, and easements.

2.5 CONSTRUCTION SCHEDULE

Subject to receipt of the required permits and regulatory approvals, initial construction activities are expected to commence in February 2018. DETI anticipates that the M&R Station construction will be completed in the third quarter of 2019.

2.6 ADJACENT PROPERTIES

The proposed Greensville M&R Station will be constructed concurrent and co-located with the Power Station. The surrounding property of the proposed Power Station is woodlands, cultivated fields, and roads. Boundaries of the greater property are cultivated fields to the north, woodlands to the east and west, and Meherrin River to the south.

2.7 OFF-SITE AREAS

This ESC and SWM Plan addresses land-disturbing activities within the M&R Station. Project plans do not include any additional off-site land-disturbing activities (such as borrow sites or disposal areas). Similar to adjacent properties, DETI will minimize any potential impact to off-site areas during the Project.

2.8 SOILS

According to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), soils beneath the M&R Station consist of 1B Abell Loam, Goldston Series and Fluvanna Series.

Table 2.8-1 below depicts the soil units of the Greensville M&R Station.

Table 2.8-1

Soil Units

Map Unit Symbol- Name	Taxonomic Class	Typical Pedon	Drainage and Permeability
Abell	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults	Abell fine sandy loam – cultivated on a 2 to 7 percent slope	Moderately well drained; slow runoff; moderate permeability
Goldston Series	Loamy-skeletal, siliceous, semiactive, thermic, shallow Typic Dystrudepts	Goldston very channery silt loam – forested	Well drained to excessively drained; runoff is rapid and internal drainage is medium to rapid; moderately rapid permeability
Fluvanna Series	Fine, mixed, active, thermic Typic Hapludults	Fluvanna fine sandy loam, in an area of Fluvanna-Mattaponi complex, 2 to 7 percent slopes	Permeability: moderately slow and well drained

The NRCS assigns soils to one of four hydrologic soil groups based on estimates of runoff potential, as follows:

- **Group A**: Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

- **Group B**: Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

- **Group C**: Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

- **Group D**: Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The hydrologic soil groups assigned by the NRCS for the soils mapped at the M&R Station are as follows: Abell Loam (Group C) and Fluvanna-Goldston (Group C).

Appendix M of the main SWPPP document lists the various soil mapping units crossed by the proposed ACP Project and provides general information about the nature and properties of each soil and/or map unit.

2.9 RECEIVING WATERS

The proposed M&R Station will drain north to a detention pond to be constructed as part of the larger Power Station. Water collected within the proposed detention pond will flow to Greensville Creek, located approximately 450 feet north of the proposed M&R Station. Greensville Creek flows southeast into the Meherrin River. The M&R Station is located within the Meherrin River-Douglas Run watershed identified by the U.S. Geological Survey as hydrologic unit code 030102040603. DETI does not intend to connect to and/or discharge into a municipal separate storm sewer system (MS4).

2.10 EXEPTIONAL AND IMPAIRED WATERS

The proposed M&R Station does not impact Tier 3 exceptional waters identified in 9 Virginia Administrative Code (VAC) 25-260-30 A.

DETI reviewed the 2012 list of 305(b)/303(d) Impaired Waters for the Commonwealth of Virginia to identify waterbodies classified as impaired or for which a Total Maximum Daily Load wasteload allocation has been established and approved for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity) or (ii) nutrients (i.e., nitrogen or phosphorus) (VDEQ, 2015). There are no impaired waterbodies within the limit of disturbance for the proposed M&R Station, and the downgradient Greensville Creek is not a listed impaired waterbody.

2.11 CRITICAL/SENSITIVE AREAS

Preconstruction assessments and field surveys were completed by DETI to delineate the location of critical or sensitive environmental areas within the areas of land disturbance proposed by the M&R Station.

2.11.1 Wetlands and Waterbodies

M&R stations have been sited such that impacts to wetlands will be avoided and minimized to the maximum extent practicable. There are no wetlands impacted by construction of the Greensville M&R Station.

2.11.2 Threatened and Endangered Species

DETI consulted with the U.S. Fish and Wildlife Service Ecological Services Field Office in Virginia to identify federally and Commonwealth-listed endangered, threatened, and proposed species as potentially occurring in the ACP Project area. Field surveys and consultations with the U.S. Fish and Wildlife Service regarding these species are on-going. Virginia has separate laws protecting threatened and endangered species. DETI requested and received data on known occurrences of Commonwealth-listed species in Virginia from the Virginia Department of Conservation and Recreation Natural Heritage Program. DETI additionally has consulted and continues to consult with the Virginia Department of Game and Inland Fisheries and Virginia Department of Conservation and Recreation regarding impacts on Commonwealth-listed threatened and endangered species.

There are no endangered, threatened, or proposed species that are known to occur at the proposed M&R Station.

3.0 EROSION AND SEDIMENT CONTROL

All ESC measures to be undertaken as part of this Project will be done in accordance with the VDEQ-approved DETI Standards and Specifications. These standards and specifications will be met through the implementation of the FERC's Upland Erosion Control, Revegetation, and Maintenance Plan and Wetland and Waterbody Construction and Mitigation Procedures, Minimum Standards of the Virginia Erosion and Sedimentation Control Regulations (9 VAC 25-840-40), by the design, construction and maintenance of the ESCs in accordance with the Virginia Erosion and Sediment Control Handbook (VESCH) (1992, 3rd Edition), and the application of environmental site design principles.

3.1 GENERAL M&R STATION CONSTRUCTION

M&R Station construction stages and the erosion and sediment control measures to be installed for each of these stages are described below. The erosion and sediment control drawings for the M&R Station, including typical drawings of general erosion and sediment control measures, are provided in Attachment 1.

During construction, the effectiveness of temporary erosion control devices will be monitored by DETI's Environmental Inspectors (EIs). The effectiveness of permanent erosion control measures will be monitored for the life of the project by DETI operating personnel during the long-term operation and maintenance of the M&R Station.

Site Preparation

- Survey and flag the construction site and mark environmentally-sensitive areas.
- Install temporary construction entrance.
- Install safety fences prior to erosion and sediment control installation.
- Conduct initial clearing, limited to that necessary to install temporary sediment barriers.
- Install all perimeter erosion and sediment controls prior to any bulk earth-moving activity (road grading, log skidding, grubbing, etc.). Erosion and sediment control measures will be inspected and maintained throughout construction.
- Clear and grub site.
- Segregate topsoil where necessary.

M&R Station Construction

- Begin site bulk grading.
- Grade entrance road, laydown areas, and parking areas.

- Grade building pads and dig excavations for footings, foundations, and utilities.
- Install utilities.
- Construct buildings and pipeline M&R facilities.
- Spread topsoil on disturbed areas, as needed.
- Complete finish grading.
- Install gravel base around buildings and M&R facilities.

Restoration

- Conduct site restoration and cleanup. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, they must be stabilized within seven days.
- Apply soil amendments, permanent seed, mulch, and/or erosion control fabric, as necessary.
- Restore temporary access roads or any paved surfaces to original condition.
- Remove temporary sediment barriers from an area when replaced by permanent erosion control measures or when the area has been successfully restored to uniform perennial vegetation. Temporary erosion control best management practices (BMPs) will not be removed until inspection by the EI to confirm site stabilization.

3.1.1 Survey and Flagging

- The limits of the approved work areas and the location of the underground utilities must be marked in the field prior to the start of mechanized activities.
- Orange plastic fencing may be more useful than flagging to assure that equipment operators stay out of critical areas. Only unavoidable work will take place within critical areas and their buffers.
- Per VESCH **Std. & Spec. 3.01 (Safety Fence)**, safety fencing will be installed as needed during grading at public access points or around open unattended excavations to warn pedestrians of possible hazards. Stakes will be installed to the maximum extent of 18" as practical in the field to ensure the functionality of the safety fence. In areas where adequate embedment depth cannot be achieved, due to terrain/substrate constraints; additional measures including but not limited to sandbags, mounded earth, etc. will be utilized to secure the fence. In addition, lights, signs and other warnings are required at road entrances and road crossings (see Virginia Department of Transportation (VDOT) permits and regulations).

- Flagging or marking will be maintained throughout construction.
- Trees to be protected will be flagged by the EIs and if determined necessary, protected with fencing or armoring prior to clearing.
- Per VESCH **Std. & Spec. 3.38 (Tree Preservation and Protection)**, at a minimum the limits of clearing will be located outside the drip line of any tree to be retained within the LOD and, in no case, closer than 5 feet to the trunk of any tree to be retained within the LOD. In addition, heavy equipment, vehicular traffic, or stockpiles will not be permitted within the drip line of any tree to be retained within the LOD.

3.1.2 Construction Entrance

In accordance with VESCH **Std. & Spec. 3.02 (Stone Construction Entrance)**, a construction entrance will be constructed at any point where construction equipment leaves the right-of-way and enters a paved public road or other paved surface. Typically, a construction entrance is comprised of filter fabric overlain by six inches of coarse aggregate (Virginia Department of Transportation #1) extending a minimum of 70 feet from the edge of the pavement. The area of the entrance must be excavated three inches prior to laying the filter fabric underliner. The entrance must extend the full width of the vehicular ingress and egress area and have a minimum 12-foot width. Conveyance of surface water through culverts under the entrance will be provided, as necessary. If such as conveyance is impossible, the construction of a "mountable" berm with 5:1 slopes will be permitted.

The construction entrance must function to remove mud from vehicles and equipment leaving the site. As mud accumulates on the entrance, clean stone must be added or the tire mats lifted and shaken to remove mud. Any mud that is carried onto the pavement must be thoroughly removed by the end of the day by shoveling or sweeping. The mud will be returned to the site. The use of water to remove sediment tracked onto roadways is permitted only after sediment is removed as stated above.

If the majority of the mud is not removed by the vehicles traveling over the stone, then tires of the vehicles must be washed before entering the public road. A wash rack may be used to make washing more convenient and effective. Wash water must be carried away from the entrance to a settling area to remove sediment before discharge.

Maintenance of the construction entrance may require periodic top dressing with additional stone and cleanout of any structures used to trap sediment. Additionally, the construction entrance may need to be shoveled then swept, followed by washing of the entrance to remove any sediment build up. If any inadvertently sediment tracking occurs on the public roadway, the road will be cleaned thoroughly by the end of each day.

3.1.3 Wind Erosion Control

Consistent with VESCH **Std. & Spec. 3.39 (Wind Erosion Contro**l), the following temporary sediment controls will be used, as applicable, to minimize the surface and air movement of dust during land disturbing and construction activities:

- In areas with little or no construction traffic, a vegetatively stabilized surface will reduce dust emissions.
- Mulch will be used in areas without heavy traffic pathways.
- Tillage will be used only in an emergency situation before wind erosion begins. Plowing on the windward side of the site with chisel-type plows spaced approximately 12 inches apart.
- The contractors will have one or more water trucks available per spread that will load water from approved permitted sources to spray areas for dust control.
- Use of spray-on adhesives may be used on mineral soils only.
- Use crushed stone or course gravel to stabilize roads and other areas during construction.
- A board fence, wind fence, or sediment fence may be used to control air currents and blowing soil. Place barriers perpendicular to prevailing air currents at intervals of about 15 times the barrier height.
- Calcium chloride may be applied by a mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage.

3.1.4 Silt Fencing

Silt Fencing constructed of synthetic filter fabric stretched across and attached to supporting posts, and in some cases a wire support fence, will be placed across or at the toe of a slope or in a minor drainage way to intercept and detain sediment and decrease flow velocities from drainage areas of limited size. Silt fencing is applicable where sheet and rill erosion or small concentrated flows may be a problem. In accordance with VESCH **Std. & Spec. 3.05 (Silt Fence),** DETI will adhere to the following general construction and maintenance specifications if congruent with the manufacturer's recommended installation and use. In the event of conflicting specifications, DETI will always follow the manufacturer's recommendations on proper installation and use of a product.

- Silt fencing will be used where the size of the drainage area is not more than one quarter acre per 100 feet of silt fence length; the maximum slope length behind the barrier is 100 feet; and the maximum gradient behind the barrier is 50 percent (2:1).

- Silt fencing can be used in minor swales or ditches where the maximum contributing drainage area is no greater than one acre and flow is no greater than one cubic feet per second. In ditches or swales where higher velocity flow is expected, rock check dams will be used in place of silt fence.

- Silt fencing will not be used in areas where rock or some other hard surface prevents the full and uniform depth anchoring of the barrier.

- If wooden stakes are utilized for silt fence construction, they must have a diameter of two inches when oak is used and four inches when pine is used. Wooden stakes must have a minimum length of five feet. Fabric will not be stapled to existing trees.

- If steel posts are utilized, they must have a minimum weight of 1.33 pounds per linear foot and have a minimum length of five feet. Posts will be placed a maximum of six feet apart.

- The height of the fence will be a minimum of 16 inches above grade and will not exceed 34 inches above ground elevation.

- Filter cloth will be spliced together only at support posts with a minimum 6-inch overlap.

- When wire support is not used, extra-strength filter fabric will be fastened to the upslope side of the posts using one inch long (minimum) heavy-duty wire staples or tie wires and eight inches of the fabric will be extended into the trench. The posts will be placed a maximum of six feet apart.

- When wire support is used, the wire mesh fence must be fastened securely to the upslope side of the posts using heavy duty wire staples at least one inch long, tire wires or hog rings. The posts will be placed a maximum of 10 feet apart.

- If silt fence is to be constructed across a ditch line or swale, the measure must be of sufficient length to eliminate end flow and the configuration will resemble an arc with the ends oriented upslope. Extra-strength filter fabric must be used for ditch lines or swales with a maximum 3-foot spacing of posts.

- Remove accumulated sediments when sediment reaches half the aboveground height of the fence.

Belted Silt Retention Fence (BSRF)

The primary silt fence product planned for use on the ACP, including the M&R Station, is a patented Belted Silt Retention Fence (BSRF) product which is available in two designs used to address different site conditions, as follows:

- BSRF Priority 1 (green band) is a heavy-duty silt fence constructed with a 36-inch, non-woven, spun-bond fabric with an internal scrim incorporated into the fabric for additional strength and durability. The system utilizes wood stakes spaced at 4-feet and a specific method of attachment. The system is functionally equivalent to wire back and metal steel post silt fence and is designed for the protection of high priority areas, including wetlands and waterbodies.

- BSRF Priority 2 (black band) is a medium-duty silt fence constructed with a 36-inch, non-woven, spun-bond fabric that is calendared on one side. The system utilizes wood stakes spaced at 6-feet and a specific method of attachment.

Drawings and specifications for the two BSRF products are provided in Attachment 1.

3.1.5 Site Dewatering

Dewatering may be periodically conducted to remove accumulated groundwater or precipitation from the construction area, including from within excavations. 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.

3.1.5.1 Geotextile Bag/Dewatering Filter Bag

DETI utilizes geotextile bags for dewatering and velocity reduction on a majority of pipeline construction projects as well as the straw bale dewatering practice illustrated in the VESCH **Std. & Spec. 3.26 (Dewatering Structure)**. The purpose, definition, conditions of application and planning considerations are identical. Design criteria and specifications vary by dewatering bag manufacturer; a variety of geotextile dewatering bag products are available on the market. The manufacturers' guidance on the use, design, sizing, maintenance, and application of the geotextile dewatering bag will be followed.

- Conduct dewatering (on or off the construction site) in such a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody, wetland, or off-site property.

- Elevate and screen the intake of each hose used to withdraw the water from the trench to minimize pumping of deposited sediments.

- A dewatering bag may not be needed if there is a well-stabilized, vegetated area on site to which water can be discharged. The area must be stabilized so that it can filter sediment and at the same time withstand the velocity of the discharged water without eroding. Per VESCH Std. & Spec. 3.26, a minimum filtering length of 75 feet must be available in order for such a method to be feasible.

- Remove dewatering structures as soon as practicable after the completion of dewatering activities or sooner if sediment build-up prevents the bag from functioning properly. If the bag becomes half full of sediment, discard and replace with a new bag.

3.1.5.2 VESCH Standard Dewatering Structure

As warranted by site conditions, a standard dewatering structure may be used per the construction and maintenance specifications in VESCH **Std. & Spec. 3.26 (Dewatering Structure)**, including the use of a portable sediment tank, filter box, or straw bale/silt fence pit. The dewatering structure must be sized (and operated) to allow pumped water to flow through the filtering device without overtopping the structure. The filtering devices must be inspected frequently and repaired or replaced once the sediment build-up prevents the structure from functioning as designed. The accumulated sediment which is removed from a dewatering device must be spread on site and stabilized or disposed of at an approved disposal site.

In some cases, DETI could use a modified dewatering structure in combination with a filter bag. The structure is similar to the straw bale/silt fence pit described in the VESCH, but the wet storage area is not excavated 3 ft. below the perimeter measures since the structures are placed off the right-of-way in well vegetated areas. The filter bag discharges into the dewatering structure for additional filtration through the straw bales. Additional energy dissipating devices may be installed downgradient of the dewatering structure, as necessary.

Installation and removal of the referenced dewatering practice does not involve ground disturbance.

3.2 SPECIAL CONSTRUCTION PROCEDURES

Sensitive areas (e.g., wetland) will be treated as separate construction entities. Sensitive areas require additional erosion and sediment control procedures. Additional controls will be shown on the detailed drawings in Attachment 1.

3.2.1 Winter Construction

DETI has developed and filed a project-specific winter construction plan with the FERC application.

The plan addresses:

- Winter construction procedures (e.g., snow handling and removal, 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
- Where areas have been temporarily stabilized or land-disturbing activities will be suspended due to continuous frozen ground conditions and stormwater discharges are unlikely, the inspection frequency may be reduced to once per month. If weather conditions (such as above freezing temperatures or rain or snow events) make discharges likely, the operator will immediately resume the regular inspection frequency.

4.0 EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS

The Virginia ESC regulations specify minimum standards that must be followed for all regulated land-disturbing activities, where applicable to a specific project. Modifying or waiving any of the ESC regulations, including the 19 minimum standards, on a project-specific basis, requires a written variance request to VDEQ for review and approval. DETI will construct the M&R Station in accordance with the following criteria, techniques and methods per minimum standards set forth in 9 VAC 25-840-40, as applicable.

Minimum Standard 1 – Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

Minimum Standard 2 – During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.

Minimum Standard 3 – A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.

Minimum Standard 4 – Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.

Minimum Standard 5 – Stabilization measures shall be applied to earthen structures such as dams, dikes, and diversions immediately after installation.

Minimum Standard 6 – Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.

6.a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.

6.b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.

Minimum Standard 7 – Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.

Minimum Standard 8 – Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume, or slope drain structure.

Minimum Standard 9 – Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.

Minimum Standard 10 – All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.

Minimum Standard 11 – Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.

Minimum Standard 12 – When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport, and stabilize the work area to the greatest extent possible during construction. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.

Minimum Standard 13 – When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided.

Minimum Standard 14 – All applicable federal, state, and local requirements pertaining to working in or crossing live watercourses shall be met.

Minimum Standard 15 – The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.

Minimum Standard 16 – Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

16.a. No more than 500 linear feet of trench may be opened at one time.

16.b. Excavated material shall be placed on the uphill side of trenches.

16.c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.

16.d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.

16.e. Restabilization shall be accomplished in accordance with this chapter.

16.f. Applicable safety requirements shall be complied with.

Minimum Standard 17 – Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.

Minimum Standard 18 – All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the Virginia Erosion and Sedimentation Control Program (VESCP) authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

Minimum Standard 19 – Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion, and damage due to increases in volume, velocity, and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:

19.a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe, or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.

19.b. Adequacy of all channels and pipes shall be verified in the following manner:

19.b.(1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or

19.b.(2)(a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.

19.b.(2)(b) All previously constructed man-made channels shall be analyzed by the use of a 10-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and

19.b.(2)(c) Pipes and storm sewer systems shall be analyzed by the use of a 10-year storm to verify that stormwater will be contained within the pipe or system.

19.c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:

19.c.(1) Improve the channels to a condition where a 10-year storm will not overtop the banks and a two-year storm will not cause erosion to the channel, the bed, or the banks; or

19.c.(2) Improve the pipe or pipe system to a condition where the 10-year storm is contained within the appurtenances;

19.c.(3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a 10-year storm to increase when runoff outfalls into a man-made channel; or

19.c.(4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.

19.d. The applicant shall provide evidence of permission to make the improvements.

19.e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.

19.f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.

19.g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.

19.h. All on-site channels must be verified to be adequate.

19.i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.

19.j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial, or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.

19.k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical, and biological integrity of rivers, streams and other waters of the state.

19.l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5-, 2-, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to §62.1-44.15:54 or 62.1-44.15:65 of the Act.

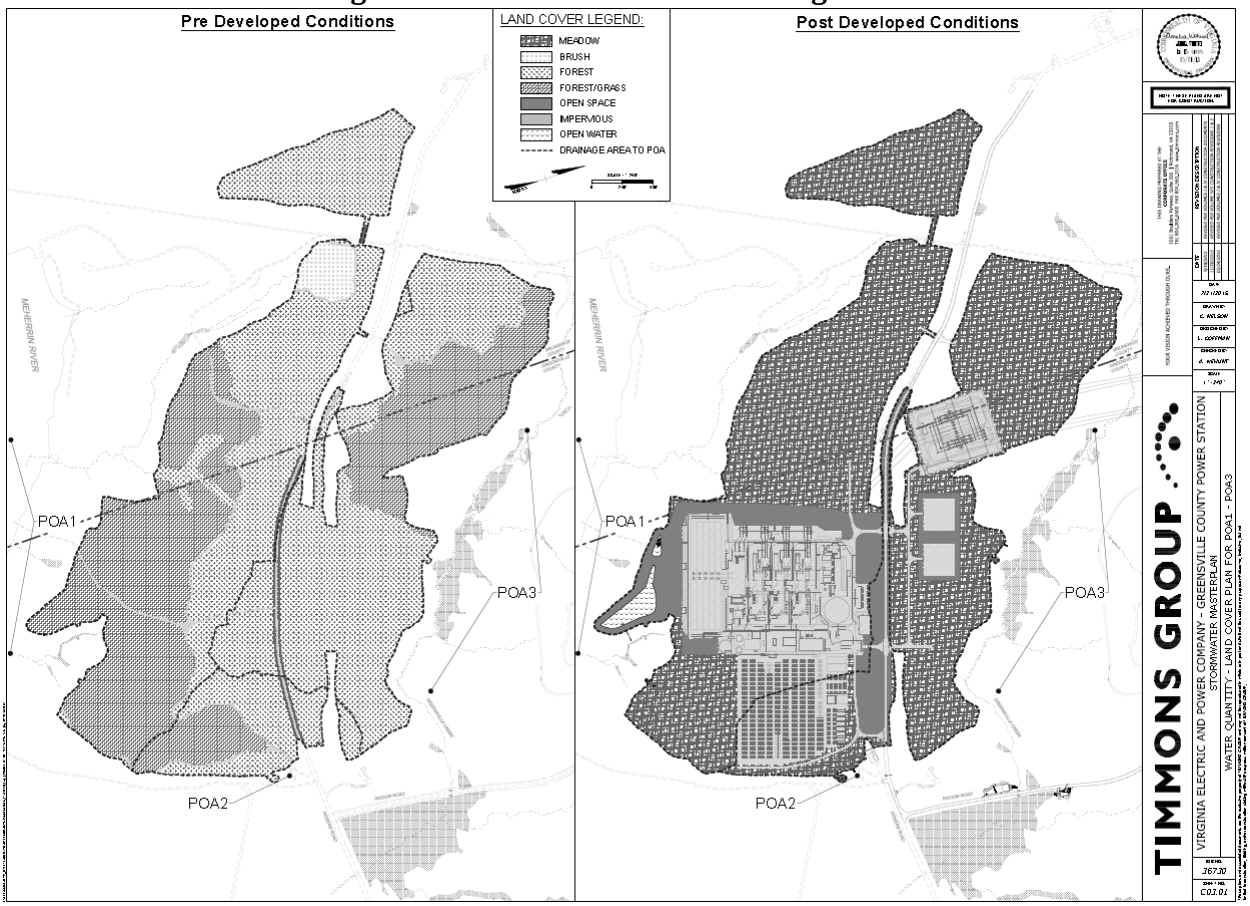
19.m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of §62.1-44.15:52 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (§62.1-44.15:24 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 9 VAC 25-870-48 of the Virginia Stormwater Management Program (VSMP) Regulation or are exempt pursuant to subdivision C 7 of §62.1-44.15:34 of the Act.

19.n. Compliance with the water quantity minimum standards set out in 9 VAC 25-870-66 of the VSMP Regulation shall be deemed to satisfy the requirements of this subdivision 19.

5.0 STORMWATER MANAGEMENT

As noted in Section 2.1, the M&R Station will be co-located and constructed generally concurrent with the planned Power Station. The stormwater management design for the Power Station considered the proposed land use for the M&R Station. Consequently, the post-construction stormwater requirements will be addressed by the stormwater infrastructure that will be constructed as part of the Power Station project. Specifically, stormwater quality and quantity for the M&R Station will be managed by a detention pond, referred to as Detention Pond 3 in the stormwater management design for the Power Station, located within drainage area POA 3. A map of the Power Station's drainage areas is shown on Figure 5-1.

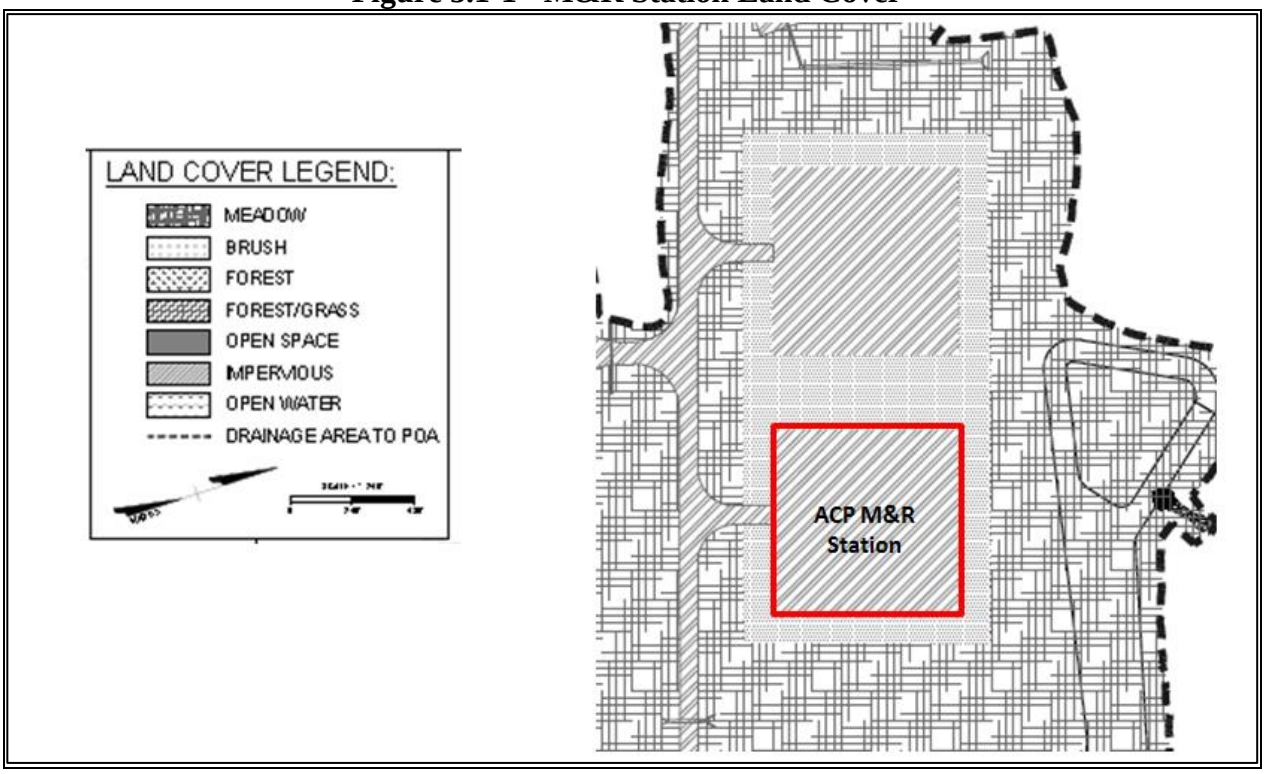
Figure 5-1 Power Station Drainage Areas



5.1 PRE-DEVELOPMENT AND POST-DEVELOPMENT DRAINAGE AREAS

The stormwater calculations performed for the Power Station accounted for the gravel cover land use of the M&R Station, therefore there are no changes to the imperviousness, runoff coefficients, or management practices that will need to be addressed during the construction of the M&R Station. Figure 5.1-1 below depicts land cover specifically at the M&R Station.

Figure 5.1-1 M&R Station Land Cover



Delineation of the drainage watersheds and proposed management practices are shown on the Site Plan in Attachment 1. The Site Plan depicts the proposed land uses with the imperviousness of the entire site to be adapted to various uses, including but not limited to planned locations of utilities, roads, and parking lots. The Site Plan also shows the final drainage patterns and flow paths of the stormwater, in addition to the relationship of the site to upstream and downstream properties and drainage systems. The M&R Station is located within a 500-year FEMA floodplain.

Stormwater quality and quantity calculations are discussed in Section 5.2 below.

5.2 PRE-DEVELOPMENT AND POST-DEVELOPMENT STORMWATER CALCULATIONS

5.2.1 Water Quantity

A hydrologic analysis for the existing (pre-development) and for the proposed (post-development) conditions, including runoff rates, volumes, and velocities, showing the methodologies used and supporting calculations are presented in this section.

Channel protection and flood protection will be addressed in accordance with the minimum standards set forth in 9 VAC 25-870-66, which are established pursuant to the requirements of § 62.1-44.15:28 of the Code of Virginia. Compliance with the minimum standards set out in this section will be deemed to also satisfy the requirements of Minimum

Standard 19 of 9 VAC 25-840-40 (Minimum Standards; Virginia Erosion and Sediment Control Regulations, Section 4.0).

5.2.1.1 Channel Protection

Since stormwater flow from the M&R Station will be released into a natural stormwater conveyance system, compliance with channel protection requirements is assessed based on the maximum peak flow rate from the one-year 24-hour storm following the land-disturbing activity. The supporting calculations from the Power Station stormwater management design for the drainage area in which the M&R Station is located, POA 3, are provided in Attachment 1.

5.2.1.2 Flood Protection

Concentrated stormwater flow will be released into a stormwater conveyance system and will meet the following criteria from 9 VAC 25-870-66(C)-1 and 9 VAC 25-870-66(D) as demonstrated by use of acceptable hydrologic and hydraulic methodologies:

- Concentrated stormwater flow to stormwater conveyance systems which currently do not experience localized flooding during the 10-year, 24-hour storm event:
    - The point of discharge releases stormwater into a stormwater conveyance system which following the land-disturbing activity, confines the post-development peak flow rate from the 10-year, 24-hour storm event within the stormwater conveyance system. Detention of stormwater or downstream improvements may be incorporated into the approved land-disturbing activity to meet this criterion, at the discretion of the VSMP authority.

- Increased volumes of sheet flow resulting from pervious or disconnected impervious areas, or from physical spreading of concentrated flow through level spreaders, will be identified and evaluated for potential impacts on down-gradient properties or resources. Increased volumes of sheet flow that will cause or contribute to erosion, sedimentation, or flooding of down gradient properties or resources will be diverted to a stormwater management facility or a stormwater conveyance system that conveys the runoff without causing down-gradient erosion, sedimentation, or flooding. If all runoff from the site is sheet flow and the conditions of this subsection are met, no further water quantity controls are required.

The supporting calculations from the Power Station stormwater management design for the drainage area in which the M&R Station is located, POA 3, are provided in Attachment 1.

5.2.2 Water Quality

In order to protect the quality of Commonwealth waters and to control the discharge of stormwater pollutants from regulated activities, the following minimum design criteria and statewide standards for stormwater management will be applied to the site in accordance with

9 VAC 25-870-63. The total phosphorus load of new development projects will not exceed 0.41 pounds per acre per year, as calculated pursuant to 9 VAC 25-870-65.

As part of the Power Station stormwater management design, water quality analysis was performed for the entire 475-acre Power Station project, which includes the M&R Station. Water quality requirements for the M&R Station are addressed by Detention Pond 3 in drainage area POA 3. The supporting calculations, extracted from the Power Station stormwater management design, are provided in Attachment 1.

5.2.3 Nutrient Trading Program

Water quality compliance for the Power Station was achieved during design; therefore no nutrient credits will need to be purchased for the M&R Station.

5.3 POST-CONSTRUCTION/PERMANENT BEST MANAGEMENT PRACTICES

5.3.1 Retention Pond

In accordance with VDEQ Stormwater Design Specification No. 14 (**Wet Pond**), DETI will adhere to the following general construction and maintenance specifications at the M&R Station to promote a better environment for gravitational settling, biological uptake, and microbial activity. Runoff from each new storm enters the pond and partially displaces pool water from previous storms. The pool acts as a barrier to re-suspension of sediments and other pollutants deposited during prior storms. A retention pond is located southwest of the M&R Station, as shown on the Site Plan (Attachment 1).

In addition, the following constraints will be observed:

- The surface area of a wet pond will normally be at least 1 to 3 percent of its contributing drainage area, depending on the pond's depth.
- A contributing drainage area of 10 to 25 acres is typically recommended for wet ponds to maintain constant water elevations.
- The depth of a wet pond is usually determined by the hydraulic head available on the site. The bottom elevation is normally the invert of the existing downstream conveyance system to which the wet pond discharges. Typically, a minimum of 6 to 8 feet of head are needed for a wet pond to function.

5.3.1.1 Long-term Maintenance

In accordance with DETI's Standards and Specifications, long-term maintenance of structural SWM facilities must be conducted in accordance with 9 VAC 25-870-112. To be consistent with the provisions of 9 VAC 25-870-112, maintenance plans for the stormwater facilities must be submitted to DETI for formal review and approval prior to initiating the land disturbing activity, made available to VDEQ upon request, and must provide for inspections and

maintenance and the submission of inspection and maintenance reports to the VDEQ. DETI transmission easements over land under which permanent stormwater management facilities will be placed must further assure the following:

- Be stated to run with the land;
- Provide for all necessary access to the property for purposes of maintenance and regulatory inspections; and
- Be enforceable by all appropriate governmental parties.

According to VDEQ Stormwater Design Specification No. 14 (**Wet Pond**), all wet ponds must be covered by a drainage easement to allow inspection and maintenance.

5.3.1.2 Inspections and Ongoing Maintenance

Maintenance of a wet pond is driven by annual inspections that evaluate the condition and performance of the pond, including the following:

- Measure sediment accumulation levels in the forebay.
- Inspect the condition of stormwater inlets to the pond for material damage, erosion, or undercutting.
- Inspect the banks of upstream and downstream channels for evidence of sloughing, animal burrows, boggy areas, woody growth, or gully erosion that may undermine embankment integrity.
- Inspect the pond outfall channel for erosion, undercutting, rip-rap displacement, woody growth, etc.
- Inspect the condition of the principal spillway and riser for evidence of spalling, joint failure, leakage, corrosion, etc.
- Inspect the condition of all trash racks, reverse-sloped pipes, or flashboard risers for evidence of clogging, leakage, debris accumulation, etc.
- Inspect maintenance access to ensure it is free of woody vegetation, and check to see whether valves, manholes, and locks can be opened and operated.
- Inspect internal and external side slopes of the pond for evidence of sparse vegetative cover, erosion, or slumping, and make needed repairs immediately. Based on inspection results, specific maintenance tasks will be triggered.

Maintenance is needed so stormwater ponds continue to operate as designed on a long-term basis. Wet ponds normally have fewer routine maintenance requirements than other stormwater control measures. Stormwater pond maintenance activities vary regarding the level

of effort and expertise required to perform them. Routine stormwater pond maintenance, such as mowing and removing debris and trash, is needed several times each year (see Table 5.3.1-1). More significant maintenance (e.g., removing accumulated sediment) is needed less frequently but requires more skilled labor and special equipment. Inspection and repair of critical structural features (e.g., embankments and risers) needs to be performed by a qualified professional (e.g., a structural engineer) who has experience in the construction, inspection, and repair of these features. The maintenance plan should clearly outline how vegetation in the pond and its buffer will be managed or harvested in the future. Periodic mowing of the stormwater buffer is only required along maintenance rights-of-way and the embankment. The remaining buffer can be managed as a meadow (mowing every other year) or forest. The maintenance plan should schedule a shoreline cleanup at least once a year to remove trash and floatables.

Table 5.3.1-1

Typical Wet Pond Maintenance Tasks and Frequency

Maintenance Items	Frequency
Mowing – twice a year Remove debris and blockages Repair undercut, eroded, and bare soil areas	Quarterly or after major storms (>1 inch of rainfall)
Mowing	Twice a year
Shoreline cleanup to remove trash, debris, and floatables A full maintenance inspection Open up the riser to access and test the valves Repair broken mechanical components, if needed	Annually
Pond buffer and aquatic bench reinforcement plantings	One time – during the second year following construction
Forebay sediment removal	Every 5 to 7 years
Repair pipes, the riser and spillway, as needed	From 5 to 25 years

5.3.2 Permanent Seeding and Mulching

A *Restoration and Rehabilitation Plan* was prepared for the ACP to address post-construction restoration and rehabilitation activities. Refer to the Restoration and Rehabilitation Plan (Appendix R of the Virginia ACP SWPPP) for VESCH **Std. & Spec. 3.32 (Permanent Seeding)** and VESCH **Std. & Spec. 3.35 (Mulching)**. Specifically for seedbed preparation, seed mix selection, seeding methods, lime and fertilizer application, mulching, and supplemental planting.

In accordance with Virginia Minimum Standards (MS-1), permanent or temporary soil stabilization will be applied to denuded areas within seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization will be applied within seven (7) days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization will be applied to areas that are to be left dormant for more than one (1) year. A permanent vegetative cover will be established on denuded areas not otherwise permanently stabilized. Permanent vegetation will not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.

6.0 POLLUTION PREVENTION PRACTICES AND PROCEDURES

The same pollution prevention practices and procedures provided in Section 6.0 of the main body of the SWPPP will be used at the M&R Station, as applicable.

7.0 ROLES AND RESPONSIBILITIES

DETI will use the same qualified personnel and Responsible Land Disturber at the M&R Station as identified in Section 7.0 in the main body of the SWPPP.

8.0 INSPECTION AND MAINTENANCE

The same inspection and maintenance requirements provided in Section 8.0 in the main body of the SWPPP are applicable to the M&R Station, with the exception of representative inspections which only apply to the pipeline right-of-way.

9.0 EMPLOYEE TRAINING

The employee training program described in Section 9.0 in the main body of the SWPPP applies to the M&R Station.

10.0 NOTIFICATION, RECORDKEEPING, AND REPORTING

Refer to Section 10.0 of the main body of the SWPPP for notification, recordkeeping, and reporting requirements.

In addition, according to DETI's Standards and Specifications for projects requiring post-construction SWM BMPs, DETI must report the following annually each year to VDEQ:

- number and types of SWM BMPs installed;
- geographic coordinates of each BMP;
- drainage area or watershed size served; and
- receiving stream or hydrologic unit.

11.0 REFERENCES

Dominion Energy Transmission, Inc. 2017. Standards and Specification for Erosion and Sediment Control and Stormwater Management for Construction and Maintenance of Gas Transmission Projects in Virginia. June 2017.

LandScope America. 2014. *Mid-Atlantic Coastal Plain.* Available online at http://www.landcope.org/explore/natural_geographies/ecoregions/Mid-Atlantic%20Coastal%20Plain/. Accessed October 2014.

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Virginia Department of Environmental Quality. 2011 *Virginia A DEQ Stormwater Design Specification No. 2* Version 1.9. Available online at Virginia Stormwater BMP Clearinghouse at http://www.vwrrc.vt.edu/swc/. Accessed December 2016.

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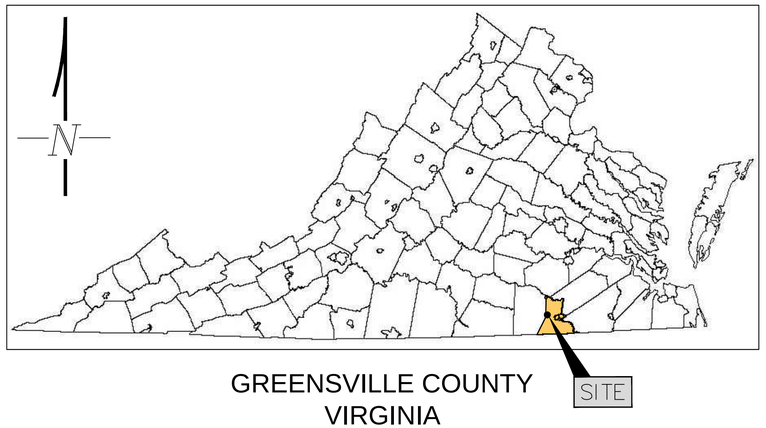
Virginia Department of Environmental Quality. 2015. Final 2014 305(b)/303(d) Water Quality Assessment Integrated Report; GIS Data. Available online at http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/WaterQualityAssessments/2014305(b)303(d)IntegratedReport.aspx. Accessed November 2016.

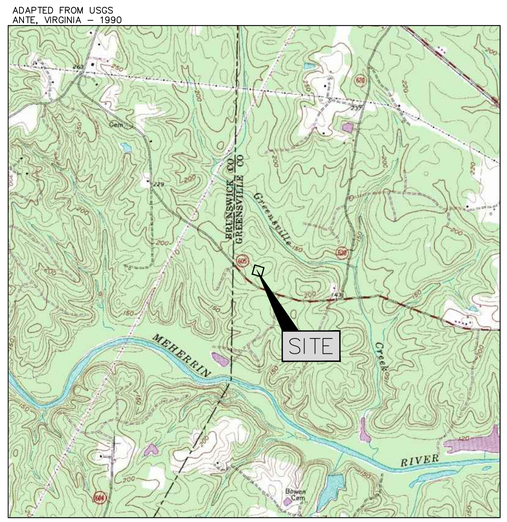
ATTACHMENT 1

Erosion and Sediment Control and Stormwater Management Drawings and Supporting Calculations

GREENSVILLE M&R STATION
EROSION AND SEDIMENT CONTROL PLAN AND
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN



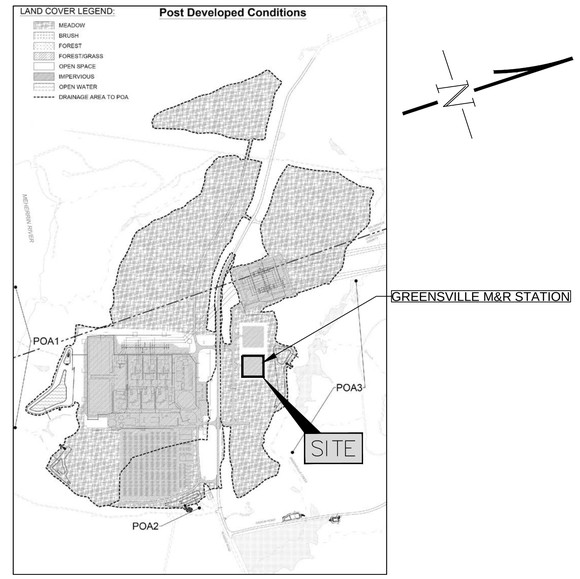
GREENSVILLE COUNTY
VIRGINIA



36° 43' 16.8"N
77° 39' 14.74"W (NAD83)
GREENSVILLE COUNTY, VIRGINIA

SITE LOCATION MAP

0 2000 4000
APPROXIMATE
SCALE (IN FEET)



SITE VICINITY MAP

0 900 1800
APPROXIMATE
SCALE (IN FEET)

GENERAL NOTES

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50–30 EROSION AND SEDIMENT CONTROL REGULATIONS.
2. THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE–CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF–SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF–PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

LIST OF DRAWINGS

DRAWING NO.	TITLE
PD Z9950B	EROSION AND SEDIMENT CONTROL COVER SHEET
PD Z9950C	EROSION AND SEDIMENT CONTROL SITE PLAN
PD Z9950D	EROSION AND SEDIMENT CONTROL DETAILS

PROJECT NARRATIVE

PROJECT AND SITE DESCRIPTION

AS PART OF THE ATLANTIC COAST PIPELINE (ACP) PROJECT, DOMINION TRANSMISSION INC. (DTI) IS PROPOSING TO CONSTRUCT AN APPROXIMATELY 1.5–ACRE ABOVEGROUND METERING AND REGULATING STATION AT 2500 ROGERS ROAD IN EMPORIA, VIRGINIA. THIS STATION, REFERRED TO AS THE GREENSVILLE M&R STATION (M&R STATION), WILL BE CO–LOCATED WITH THE VIRGINIA ELECTRIC AND POWER COMPANY (VEP) GREENSVILLE ELECTRIC POWER STATION. THE M&R STATION WILL BE LOCATED AT MILEPOST 1.0 OF THE AP–5 LATERAL SECTION OF THE ACP PIPELINE, WITHIN GREENSVILLE COUNTY, VA. THE APPROXIMATELY 1.5–ACRE RECTANGULAR TRACT OF LAND IS LOCATED ALONG THE NORTHERN PROPERTY BOUNDARY OF A LARGER PARCEL TO BE DEVELOPED INTO THE GREENSVILLE ELECTRIC POWER STATION (POWER STATION). THE LARGER PARCEL IS IDENTIFIED IN THE CITY OF GREENSVILLE RECORDS AS PARCEL NUMBER 18–35 WITH A PROPERTY ADDRESS OF 2500 ROGERS ROAD. THE GENERAL VICINITY AROUND THE M&R STATION IS UNDEVELOPED/CLEARED PROPERTY.

EXISTING SITE CONDITIONS

THE TOPOGRAPHY AT THE M&R STATION IS CHARACTERIZED BY FLAT TO GENTLY SLOPING TERRAIN WITH AN ELEVATION OF APPROXIMATELY 170 FEET ABOVE MEAN SEA LEVEL. THE PROPOSED DEVELOPMENT WILL RETAIN THE EXISTING TOPOGRAPHY OF FLAT TO GENTLY SLOPING TERRAIN WITH GRADING TO DIRECT STORMWATER TOWARD A RETENTION POND PLANNED TO BE LOCATED NORTH OF THE PROPOSED M&R STATION.

THE FULL PROJECT NARRATIVE HAS BEEN PROVIDED IN THE STORMWATER POLLUTION PREVENTION PLAN, APPENDIX H, EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN FOR THE GREENSVILLE M&R STATION.

NOTE:
SITE VICINITY MAP PROVIDED BY FLUOR AND TIMMONS GROUP. MAP ENTITLED WATER QUANTITY - LAND COVER FOR POA1 - POA3 WAS PROVIDED FOR THE VIRGINIA ELECTRIC AND POWER COMPANY GREENSVILLE COUNTY POWER STATION OVERALL STORMWATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL PLANS.

SYM.	DATE	BY	REVISION INFORMATION	PROJECT/TASK	APP.
0	01/13/17	TS	ISSUED FOR REVIEW	0345197.011	SL

COMMONWEALTH OF VIRGINIA
DANIEL R. GOLDSTEIN
Lic. No. 047436
PROFESSIONAL ENGINEER

ERM Environmental Resources Management

DRAWN:	YMT	01/11/17
CHECKED:	KC	01/13/17
APP. FOR BID:		
APP. FOR CONST.:		
SCALE:	AS NOTED	

Atlantic Coast Pipeline, LLC
925 White Oaks Blvd. Bridgeport, West Virginia 26330 / 681-842-8000

TITLE: GREENSVILLE M&R STATION
EROSION AND SEDIMENT CONTROL COVER SHEET

DISTRICT:	COUNTY:	STATE:	GROUP	DWG. NO.	REV.
EMPORIA	GREENSVILLE	VA	PD	Z9950B	0

DIR/FILE: ACP\Virginia\M&R Stations\Greensville\ESC

LEGEND

- PROPERTY LINE
- LOD — LIMIT OF DISTURBANCE
- BSRF2 — BELTED SILT RETENTION FENCE - PRIORITY 2 (BSRF2)
- EXISTING CONTOURS
- PROPOSED PIPELINE
- STANDARD FENCE
- HIGH SECURITY FENCE
- STORMWATER FLOW DIRECTION

20' 10' 0 20'

SCALE : 1" = 20'
CONTOUR INTERVAL: 2 FOOT
DATUM: UTM 17 NAD 83

N

SITE LOCATION
LAT : 36°43'16.8"
LONG: 77°39'14.74"
MILE POST: 1.0 (APPROX)

PROPOSED 16" AP-5 PIPELINE

MEASUREMENT SKID

HC DRAIN TANK

FILTER SEPERATOR

RECEIVER 20"x16"

MAN GATE

REGULATION AND FLOW CONTROL SKID

GAS HEATERS

STORMWATER FLOW DIRECTION

STANDARD FENCE

DOUBLE 8' SWING GATE

MICROWAVE TOWER ~25' FACE x 165' Ht.

DEKA/BLDG.

DUAL 15' SWING GATE

BELTED SILT RETENTION FENCE

DETAIL 2

TEMPORARY STONE CONSTRUCTION ENTRANCE

DETAIL 1

HIGH SECURITY FENCE

522 LF OF 2' RIPRAP BASE DITCH W/ 3:1 SIDES

Proposed Access Road

GENERAL NOTES AND COMMENTS:

1. BASE MAP PROVIDED BY I3 ENGINEERING AND CONSULTING, LLC.
2. LIMITS OF CLEARING AND GRADING IS APPROXIMATELY 1.5 ACRES WITHIN THE LIMIT OF DISTURBANCE SHOWN.
3. THE M&R STATION IS CO-LOCATED IN THE GREENSVILLE ELECTRIC POWER STATION WHICH IS DIVIDED INTO 3 DRAINAGE AREAS. AS A PART OF DRAINAGE AREA POA 3, STORMWATER WILL DRAIN NORTH TO A PROPOSED DETENTION POND, REFERRED TO AS DETENTION POND 3 THAT WILL BE CONSTRUCTED AS PART OF THE LARGER POWER STATION.
4. THE M&R STATION IS LOCATED WITHIN THE MEHERRIN RIVER-DOUGLAS WATERSHED. DETENTION POND 3 DRAINS TO GREENSVILLE CREEK AND ON TO THE MEHERRIN RIVER. NO CRITICAL OR SENSITIVE AREAS WILL BE IMPACTED BY THE CONSTRUCTION OF THIS SITE.
5. SOIL TYPES THAT ARE PRESENT AT THE M&R STATION INCLUDE ABELL, GOLDSTON SERIES, AND FLUVANNA SERIES.
6. FINAL CONTOURS WILL BE GRADED AS SHOWN IN THE OVERALL POWER PLANT DESIGN GRADING PLAN.
7. THE STORMWATER MANAGEMENT DESIGN FOR THE POWER STATION CONSIDERED THE PROPOSED LAND USE FOR THE M&R STATION. CONSEQUENTLY, THE POST-CONSTRUCTION STORMWATER REQUIREMENTS WILL BE ADDRESSED BY THE STORMWATER INFRASTRUCTURE THAT WILL BE CONSTRUCTED AS PART OF THE POWER PLANT PROJECT.

SYM.	DATE	BY	REVISION INFORMATION	PROJECT/TASK	APP.
0	01/13/17	TS	ISSUED FOR REVIEW	0345197.011	SL

COMMONWEALTH OF VIRGINIA
DANIEL R. GOLDSTEIN
Lic. No. 047436
PROFESSIONAL ENGINEER

Environmental Resources Management

DRAWN:	YMT	01/13/17
CHECKED:	KC	01/13/17
APP. FOR BID:		
APP. FOR CONST.:		
SCALE:	AS NOTED	

Atlantic Coast Pipeline, LLC
925 White Oaks Blvd. Bridgeport, West Virginia 26330 / 681-842-8000

TITLE: GREENSVILLE M&R STATION
EROSION AND SEDIMENT CONTROL SITE PLAN

DISTRICT:	COUNTY:	STATE:	GROUP	DWG. NO.	REV.
EMPORIA	GREENSVILLE	VA	PD	Z9950C	0

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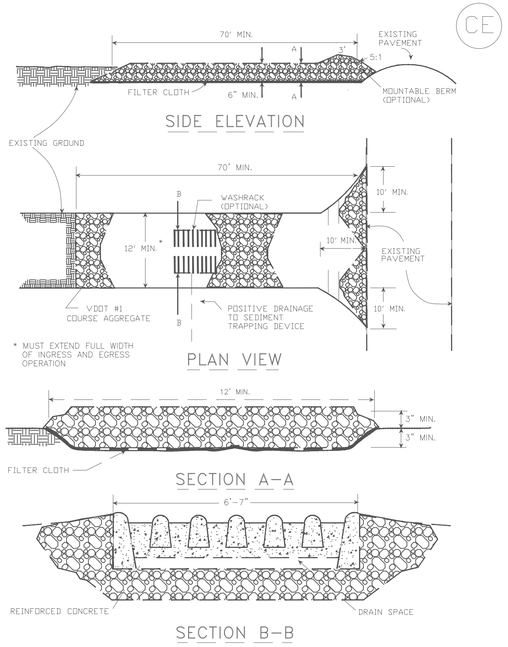
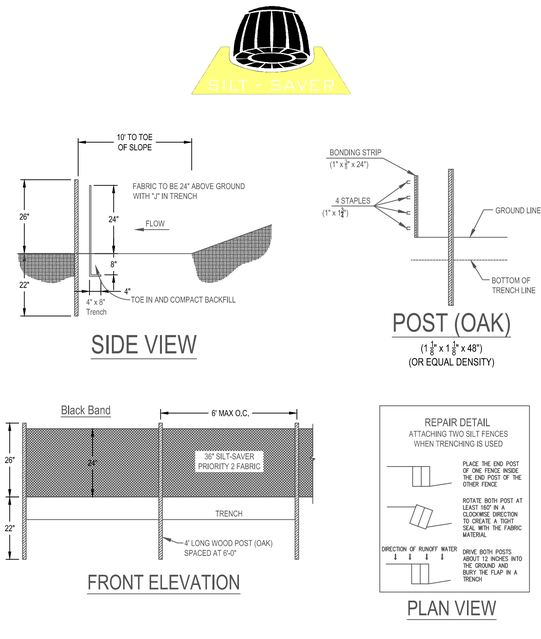


1 / Z9950C TEMPORARY STONE CONSTRUCTION ENTRANCE
NOT TO SCALE



1 / Z9950C BELTED SILT RETENTION FENCE PRIORITY 2 (BSRF2)
NOT TO SCALE

SEQUENCE OF CONSTRUCTION:

1. A PRE-CONSTRUCTION MEETING SHALL TAKE PLACE PRIOR TO START OF CONSTRUCTION ACTIVITIES.
2. INSTALL BELTED SILT RETENTION FENCE AS SHOWN ON PLANS. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
3. BEGIN CLEARING AND GRUBBING SITE AS NEEDED.
4. GRADE SITE ACCORDING TO THE CONTRACT DOCUMENTS. MAINTAIN EROSION CONTROL DEVICES AS NEEDED.
5. GRASS OR OTHERWISE STABILIZE ALL AREAS AS THEY ARE BROUGHT TO FINAL GRADES.
6. THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES TO MINIMIZE EROSION. INSPECT AND REPAIR MEASURES AFTER EACH RAINFALL AND AS NEEDED THROUGHOUT THE PROJECT.
7. CONTRACTOR TO LEAVE ALL EROSION CONTROL DEVICES IN PLACE AT THE CONCLUSION OF THIS CONTRACT. CONTRACTOR IS TO CLEAN-OUT, REPAIR AND GRASS STABILIZE ALL DENUDED AREAS. ALL AREAS WILL BE RETURNED TO THE STATE OF EXISTING CONDITIONS PRIOR TO CONTRACT AS A MINIMUM.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTAIN SEDIMENT ONSITE. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED BY THE ENGINEER.
9. ALL EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENTATION CONTROL HANDBOOK (VESCH) (1992, 3RD EDITION) STANDARDS AND SPECIFICATIONS.

TEMPORARY STONE CONSTRUCTION ENTRANCE NOTES

1. VDOT #1 COARSE AGGREGATE (2- TO 3-INCH STONE) SHOULD BE USED.
2. AGGREGATE LAYER SHALL BE AT LEAST 6 INCHES THICK; A MINIMUM THREE INCHES OF AGGREGATE SHALL BE PLACED IN A CUT SECTION TO GIVE THE ENTRANCE ADDED STABILITY AND TO HELP SECURE FILTER CLOTH SEPARATOR. AGGREGATE LAYER MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS AREA AND HAVE A MINIMUM 12-FOOT WIDTH.
3. LENGTH OF THE ENTRANCE SHALL BE AT LEAST 70 FEET.
4. ENTRANCE SHALL BE EXCAVATED A MINIMUM OF 3 INCHES AND MUST BE CLEARED OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL BEFORE FILTER FABRIC UNDERLINER IS PLACED.
5. FILTER FABRIC UTILIZED SHALL BE A WOVEN OR NONWOVEN FABRIC CONSISTING ONLY OF CONTINUOUS CHAIN POLYMERIC FILAMENTS OR YARNS OF POLYESTER. FABRIC SHALL BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS, BE MILDEW AND ROT RESISTANT, AND CONFORM TO THE PHYSICAL PROPERTIES NOTED IN TABLE 3.02-A OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) (1992, 3RD EDITION) STANDARDS AND SPECIFICATIONS.

TEMPORARY STONE CONSTRUCTION ENTRANCE MAINTENANCE NOTES

1. ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY.
2. IF ANY INADVERTENT SEDIMENT TRACKING OCCURS ON THE PUBLIC ROADWAY, THE ROAD SHALL BE CLEANED THOROUGHLY BY THE END OF EACH DAY.
3. ENTRANCE MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT.
4. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
5. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES.

BELTED SILT RETENTION FENCE - PRIORITY 2 NOTES

1. CONTRACTOR WILL UTILIZE THE BSRF2 MEDIUM-DUTY SILT FENCE CONSTRUCTED WITH A 36-INCH, NON-WOVEN, SPUN-BOND FABRIC THAT IS CALENDARED ON ONE SIDE.
2. BSRF2 SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND INSTALLATION INSTRUCTIONS PROVIDED IN THE STORMWATER POLLUTION PREVENTION PLAN, APPENDIX F, EROSION AND SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN FOR GREENSVILLE M&R STATION, APPENDIX A.

BELTED SILT RETENTION FENCE - PRIORITY 2 MAINTENANCE NOTES

1. BSRF2 SHALL BE INSPECTED AT THE END OF EACH WORK DAY AND IMMEDIATELY AFTER EACH RAINFALL EVENT. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY IN ACCORDANCE WITH THE DESIGN DETAILS AND SPECIFICATIONS.
2. ACCUMULATED SEDIMENT SHOULD BE REMOVED AFTER EACH STORM EVENT AND WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE FENCE TO PREVENT FAILURES.
3. ANY DEPOSITS REMAINING IN PLACE AFTER THE FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

GENERAL NOTES AND COMMENTS:

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Atlantic Coast Pipeline, LLC
925 White Oaks Blvd. Bridgeport, West Virginia 26330 / 681-842-8000

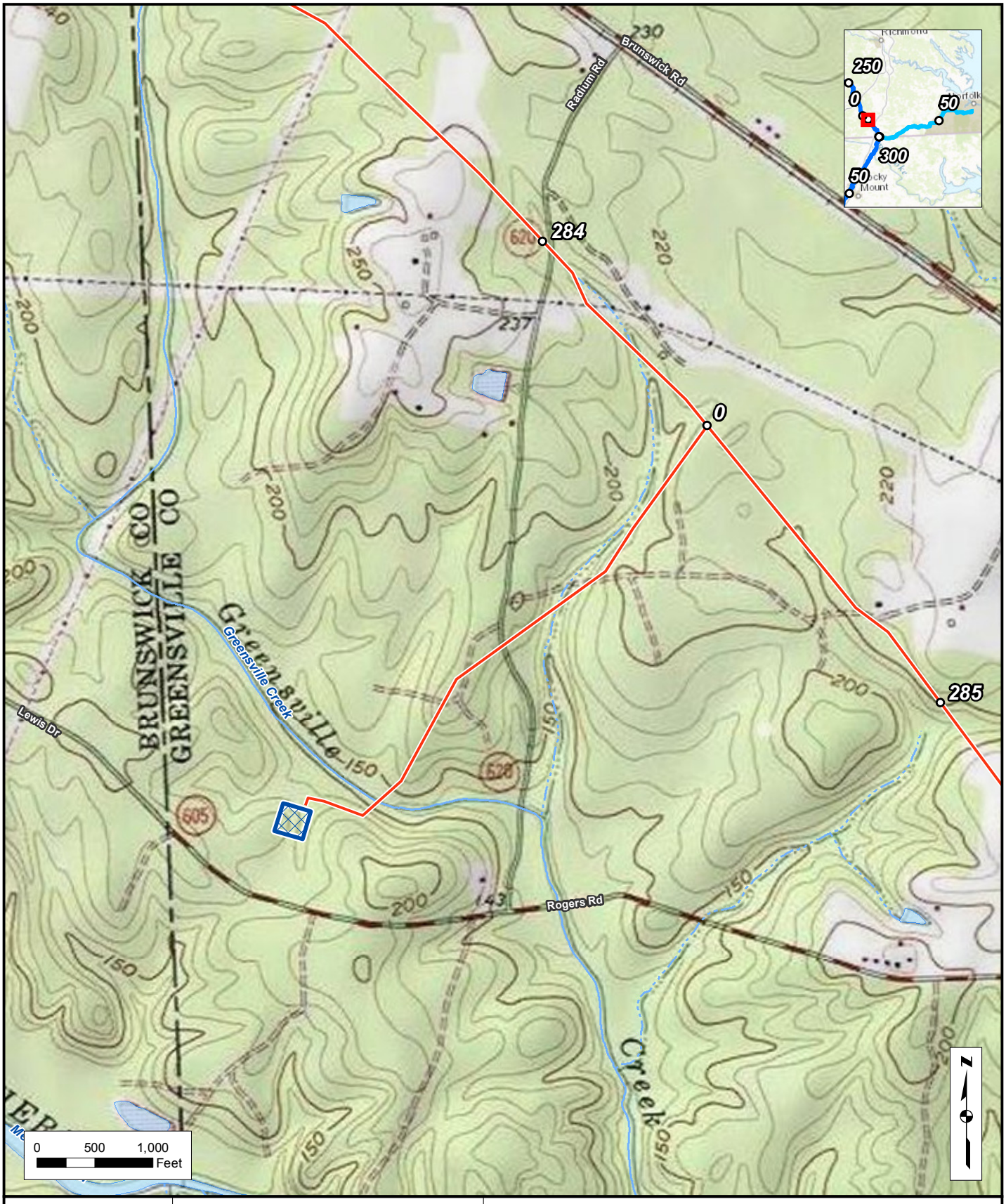
TITLE: GREENSVILLE M&R STATION
EROSION AND SEDIMENT CONTROL DETAILS

DISTRICT:	COUNTY:	STATE:	GROUP	DWG. NO.	REV.
EMPORIA	GREENSVILLE	VA	PD	Z9950D	0

DIR/FILE: ACP\Virginia\M&R Stations\Greensville\ESC

ATTACHMENT 2

Topo Map



Milepost
Proposed Route
M and R Site
NHD Waterbodies

Atlantic Coast Pipeline

Greenville M and R Site
USGS Topo Overview

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