



Periodic Run-On and Run-Off Control System Plan

Chesterfield FFCP Management Facility - SWP #609

Submitted to:



Chesterfield Power Station

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Submitted by:

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Project No. 21466315

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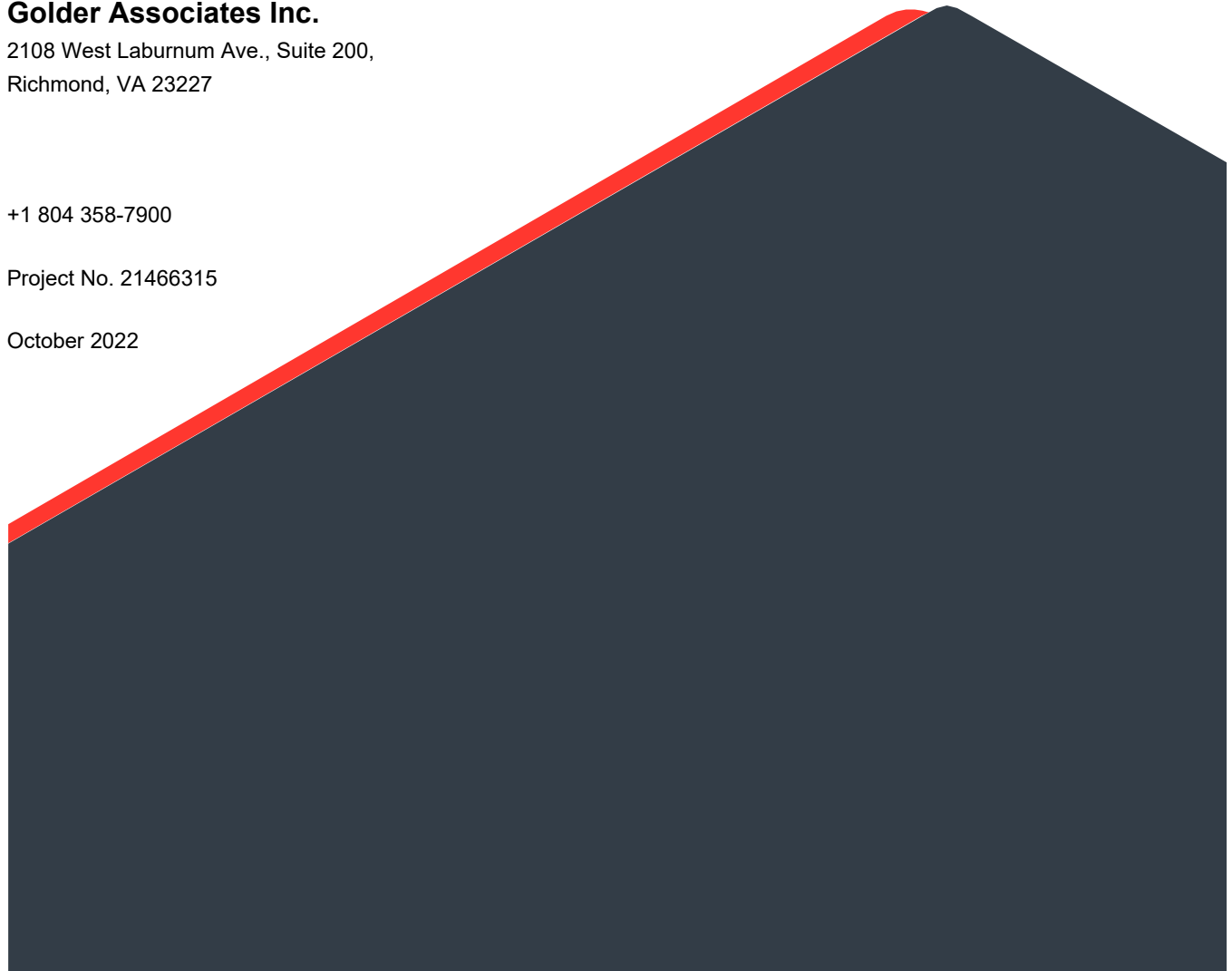


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1.0 CERTIFICATION

This periodic Run-On and Run-Off Control System Plan was prepared by WSP Golder (WSP) for the Chesterfield Power Station Fossil Fuel Combustion Products (FFCP) Management Facility located in Chesterfield County, Virginia. The document and Certification/Statement of Professional Opinion are based on and limited to information that WSP has relied on from Dominion Energy and others, but not independently verified, as well as work products produced by WSP.

On the basis of and subject to the foregoing, it is my professional opinion as a Professional Engineer licensed in the Commonwealth of Virginia that this document has been prepared in accordance with good and accepted engineering practices as exercised by other engineers practicing in the same discipline(s), under similar circumstances, at the same time, and in the same locale. It is my professional opinion that the document was prepared consistent with the requirements in §257.81 of the United States Environmental Protection Agency's "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments," published in the Federal Register on April 17, 2015, with an effective date of October 19, 2015 (40 CFR §257.81).

The use of the word "Certification" in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Andrew T. North, PE

Print Name

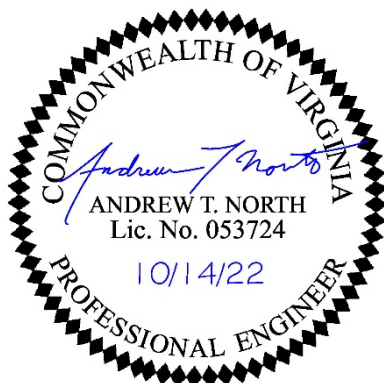
Senior Civil Engineer

Title


Signature

10/14/22

Date



2.0 INTRODUCTION

This periodic Run-On and Run-Off Control System (ROROCS) Plan was prepared for the Chesterfield Power Station Fossil Fuel Combustion Products (FFCP) Management Facility (Landfill) located in Chesterfield County, Virginia. The ROROCS Plan was prepared in accordance with 40 CFR Part §257 Subpart D and is consistent with the requirements of 40 CFR §257.81. This ROROCS Plan documents how the Landfill's run-on and run-off control systems are designed, constructed, operated, and maintained to meet regulatory requirements and is supported by appropriate calculations completed by others.

The Station, owned and operated by Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion), is in Chesterfield County, Virginia, at 500 Coxendale Road, east of I-95 (Richmond-Petersburg Turnpike) and west of the James River. The Station includes a new CCR Landfill, the FFCP, as defined by the Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule (40 CFR §257; the CCR rule). The FFCP is permitted to operate as a captive industrial landfill under Virginia Department of Environmental Quality (DEQ) Solid Waste Permit No. 609, and discharges are currently regulated by DEQ Virginia Pollutant Discharge Elimination System (VDPES) Permits No. VA0004146, VAR051023, and VAR10G662. The design of the Landfill conforms to the Virginia Solid Waste Management Regulations (VSWMR), which require run-on and run-off controls sized for the 25-year, 24-hour storm event (9VAC 20-81-130.H).

3.0 PURPOSE

This ROROCS Plan is prepared pursuant to § 257.81 of the CCR Rule [40 CFR § 257.81]. The initial ROROCS Plan for the Landfill was placed in the facility's operating record in October 2017 and is required to be updated every five (5) years pursuant to 40 CFR §257.81(c)(4).

4.0 RUN-ON AND RUNOFF CONTROL SYSTEM PLAN

As required by 40 CFR § 257.81, the owner or operator of a Coal Combustion Residuals (CCR) landfill must design, construct, operate, and maintain the CCR landfill to convey stormwater generated from, at a minimum, a 25-year, 24-hour storm event. This includes the following:

- Documentation of how the run-on control system has been designed, constructed, operated, and maintained to prevent flow onto the active portion of the CCR unit during the peak discharge from the 25-year, 24-hour storm event [§ 257.81(a)(1)];
- Documentation of how the run-off control system has been designed, constructed, operated, and maintained for the active portion of the CCR unit to collect and control the peak discharge from the 25-year, 24-hour storm event [§ 257.81(a) (2)]; and
- Documentation of how the run-on and run-off system has been designed, constructed, operated, and maintained to adequately address the requirements of § 257.3-3 [§ 257.81(b)].

In the context of the CCR Rule, "active portion" refers to all constructed areas of a CCR landfill that has received or is receiving waste and has not completed closure in accordance with § 257.102. Note that this differs from the definition of "open area" as defined in the Landfill's solid waste permit. As of August 2022, the existing Phase 1 area is the active portion of the landfill.

4.1 Stormwater Calculations

Per the VSWMR's Design and Construction Requirements §9VAC 20-81-130.H, facilities shall be designed to provide and maintain run-on and run-off control systems to control the peak discharge from the 24-hour, 25-year storm. The Landfill is designed to be constructed and filled in four separate phases. Phase 1 is the current active

area of the Landfill, with Phase 2 under construction, and Phase 3 and Phase 4 yet to be constructed. Stormwater calculations for Phase 1 and final conditions of the Landfill development were included as part of the VSWMR permit package completed by Golder Associates in 2015. Stormwater calculations for the future phases (2, 3, and 4) were completed by AECOM as part of Chesterfield County land disturbance permitting in 2021 and present additional measures beyond those permitted in 2015.

The site-specific precipitation estimate used in stormwater models was obtained from the National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 Point Precipitation Frequency Data Server (PFDS). The 25-year, 24-hour storm event for the site was estimated to generate 6.30 inches of precipitation per the 2015 PFDS, and 6.31 inches of precipitation per the 2021 PFDS.

4.2 Run-On Control

Run-on is defined as stormwater that may flow towards the active portion of a landfill from non-disposal areas. Based on the topography of the Landfill and surrounding areas, run-on potential is limited to undeveloped areas west of the active area. The Landfill's perimeter road is topographically higher than the surrounding areas, and run-on to the active portion can only come from higher areas within the Landfill perimeter that have not yet been developed into disposal areas. As additional phases are added, run-on patterns will change; however, the basic control methods described in this document will still apply.

The primary potential source of run-on water is from the east-facing slopes that face the current active portion. Diversion channels have been constructed along the toe of slope to intercept potential run-on and direct it to the perimeter non-contact stormwater conveyance systems.

For future phases, soil will be stockpiled west of the active areas or used in other locations of the Chesterfield Power Station. The soil stockpile areas are designed to intercept any potential run-on through series of temporary drains, channels, and culverts to convey stormwater to temporary sediment basins. Discharge from the temporary sediment basins will be routed to the perimeter non-contact stormwater conveyance systems to eliminate potential run-on to the active areas.

Existing and future run-on controls are shown in the Chesterfield Power Station, Phases 1-4, Issued For Construction (IFC) Plans, prepared by AECOM. For reference, copies of select drawings from the AECOM IFC Drawings have been included in this periodic assessment as Figures 1 through 4, showing the general layout and configuration during each phase of landfill construction. The AECOM FFCP Stormwater Calculations Report demonstrates that the existing and future stormwater controls are adequate to prevent stormwater run-on into the active portion of the Landfill during the 25-year, 24-hour storm event.

4.3 Run-Off Control

Two types of run-off are included in the Landfill's run-off management practices:

- **Contact Water:** Run-off that has contacted CCR. This includes run-off for the active ash placement area of the Landfill, excluding leachate.
- **Non-contact Water:** Run-off that has not contacted CCR. This includes stormwater run-off from intermediate or final cover areas.

The Landfill has two distinct stormwater conveyance systems, the contact stormwater system, and the non-contact stormwater system. The contact stormwater system conveys water to the contact stormwater basin, located at the eastern limits of the facility, through an underground pipe network. The non-contact stormwater system conveys

water in the perimeter channels and stormwater pipes to the non-contact stormwater basin, located at the south-eastern corner of the facility. Contact water management is addressed in Section 4.3.1 and non-contact stormwater management is addressed in Section 4.3.2.

4.3.1 Contact Water Run-Off

The active portion of the Landfill consists of the open disposal areas and constructed areas within the disposal boundary that have been deemed as under intermediate cover by nature of application of soil, a crusting agent, or other methods allowed in the Landfill's Operations Plan. For the purposes of this plan, and as in practice, all run-off water from the active portion that has potentially contacted CCR is treated as contact water. The goal of the contact water run-off plan is to direct the water into the contact stormwater basin while minimizing the amount of CCR sediment carried over. Contact water will be managed through a combination of filling practices and active controls, which are described below. Golder's FFCP Facility Design Report and the AECOM FFCP Stormwater Calculations Report demonstrate that the existing and future stormwater run-off controls are adequately sized to prevent run-off from the active areas throughout the life of the Landfill during the 25-year, 24-hour storm event.

The contact stormwater system starts with the proper grading and drainage of the active area. Each phase is divided into sub drainage areas, each served by their own contact water slope drain. Compacted soil berms constructed around the active area contain contact water and direct it toward the slope drains. The contact water slope drains are connected to the contact water piping network to the contact water basin. For reference, a copy of the Contact Water Details from the AECOM IFC Drawings (Drawing 53), has been included in this periodic assessment as Figures 5, showing typical details of the referenced containment berms and slope drains. Alternative contact run-off control details may be proposed during construction, provided adequate containment and conveyance during the 25-year, 24-hour storm event is demonstrated.

The contact stormwater basin has a bottom liner system similar to the Landfill disposal area. In lieu of a leachate collection layer; however, the basin has a concrete bottom and sides to facilitate cleaning.

4.3.1.1 Intermediate Cover

Cover consisting of either soil or tarps will be applied to the exterior slopes of the exposed working area daily to prevent contact water from entering the non-contact stormwater system. Once final grades are achieved for a section of the exterior CCR slope, the intermediate cover soil will be installed, and vegetation established. Once intermediate cover soil has been established on the exterior slopes, stormwater from these areas is considered non-contact and can be directed to the perimeter channels.

Areas not on the exterior slopes that have not received additional CCR within 30 days will be covered with at least one foot of compacted soil, a soil crusting agent, or other methods allowed in the Landfill's Operations Plan. Areas with exposed intermediate cover will be inspected as needed, but not less than weekly, and additional cover material will be placed on all cracked, eroded, and uneven areas as required to maintain the integrity of the intermediate cover system.

4.3.2 Non-Contact Water Run-Off

During filling operations, the exterior side slopes of the Landfill will be covered with intermediate cover soil as CCR placement progresses. Temporary side-slope berms will be used to interrupt the slope length of the Landfill side slopes. The side-slope berms are designed to convey stormwater to dedicated non-contact slope drains and into the perimeter channel system.

4.4 Surface Water Requirements

As required by § 257.81(b), a control system must be in place for the FFCP that is designed, constructed, operated, and maintained to meet the requirements of § 257.3-3.

Non-contact water from the FFCP is managed under VPDES Permits No. VAR051023 and VAR10G662 and is discharged from the existing stormwater management pond located at the south-eastern corner of the facility. Contract water from the FFCP is managed under VPDES Permit No. VA0004146 and is discharged to the contact basin. Water from the contact basin is withdrawn via a dedicated pump station and sent to the Chesterfield Power Station for treatment and discharge under the Station's VPDES permit. The site is routinely inspected and monitored by Dominion personnel to minimize surface water impacts.

5.0 CONCLUSION

Based on known site conditions, information in this ROROCS Plan, as well as document review performed by WSP, it is WSP's opinion that the Landfill complies with the requirements of 40 CFR 257.81 and VSWMR 9VAC 20-81-130.H for run-on and run-off control systems.

6.0 REFERENCES

Code of Federal Regulations, 40 CFR §257.81. Run-on and Run-off Controls for CCR Landfills. July 2018.

Code of Virginia, 9VAC20-81-130. Design and construction requirements; effective March 16, 2011.

AECOM. Fossil Fuel Combustion Products (FFCP) Stormwater Calculations Report. January 2021

AECOM. Dominion Energy Chesterfield Power Station: Phases 1-4 Plans Issued for Construction FFCP Management Facility. August 2022.

Golder Associates. Design Report Chesterfield FFCP Facility – Permit #609. October 2016.

Golder Associates. Run-on and Run-off Control System Plan: Chesterfield FFCP Management Facility – SWP #609. September 2017

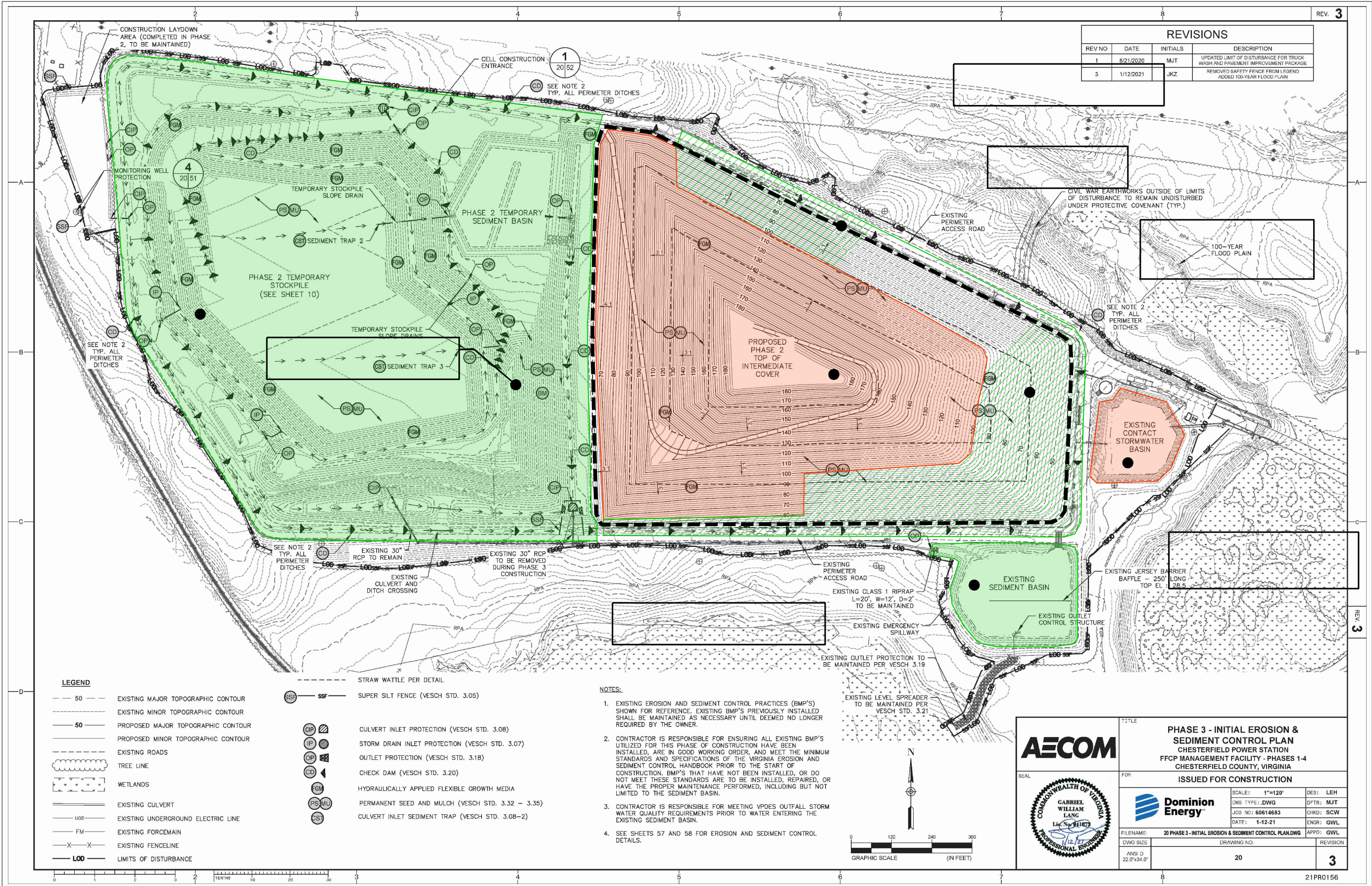
Virginia Department of Environmental Quality (VDEQ), Piedmont Regional Office. Virginia Pollutant Discharge Elimination System (VPDES) Permit No. VA0004146

ATTACHMENT A

AECOM IFC Drawings

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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- DENOTES RUN-ON
(NON-CONTACT STORMWATER AREAS)

- DENOTES RUN-OFF
(CONTACT STORMWATER AREAS)

NOTE:
AREAS IDENTIFIED AS CONTACT AND NON-CONTACT ON THIS DRAWING REPRESENT A GENERAL CONFIGURATION AND MAY NOT REFLECT CURRENT SITE CONDITIONS. SEE TEXT INCLUDED IN THE PERIODIC RUN-ON AND RUN-OFF CONTROL SYSTEM PLAN FOR ADDITIONAL INFORMATION RELATING TO THE DESIGNATION OF CONTACT AND NON-CONTACT AREAS WITHIN THE ACTIVE PORTION OF THE FACILITY.

**DRAWING FOR
REFERENCE ONLY
(NOT TO SCALE)**

CLIENT
DOMINION ENERGY
CHESTERFIELD POWER STATION
CHESTERFIELD, VIRGINIA

CONSULTANT
YYYY-MM-DD 2022-09-07

DESIGNED ATN

PREPARED ATN

REVIEWED ATN

APPROVED JRD

WSP **GOLDER**

PROJECT
PERIODIC RUN-ON AND RUN-OFF
CONTROL SYSTEM PLAN

TITLE
PHASE 2
RUN-ON AND RUN-OFF PLAN

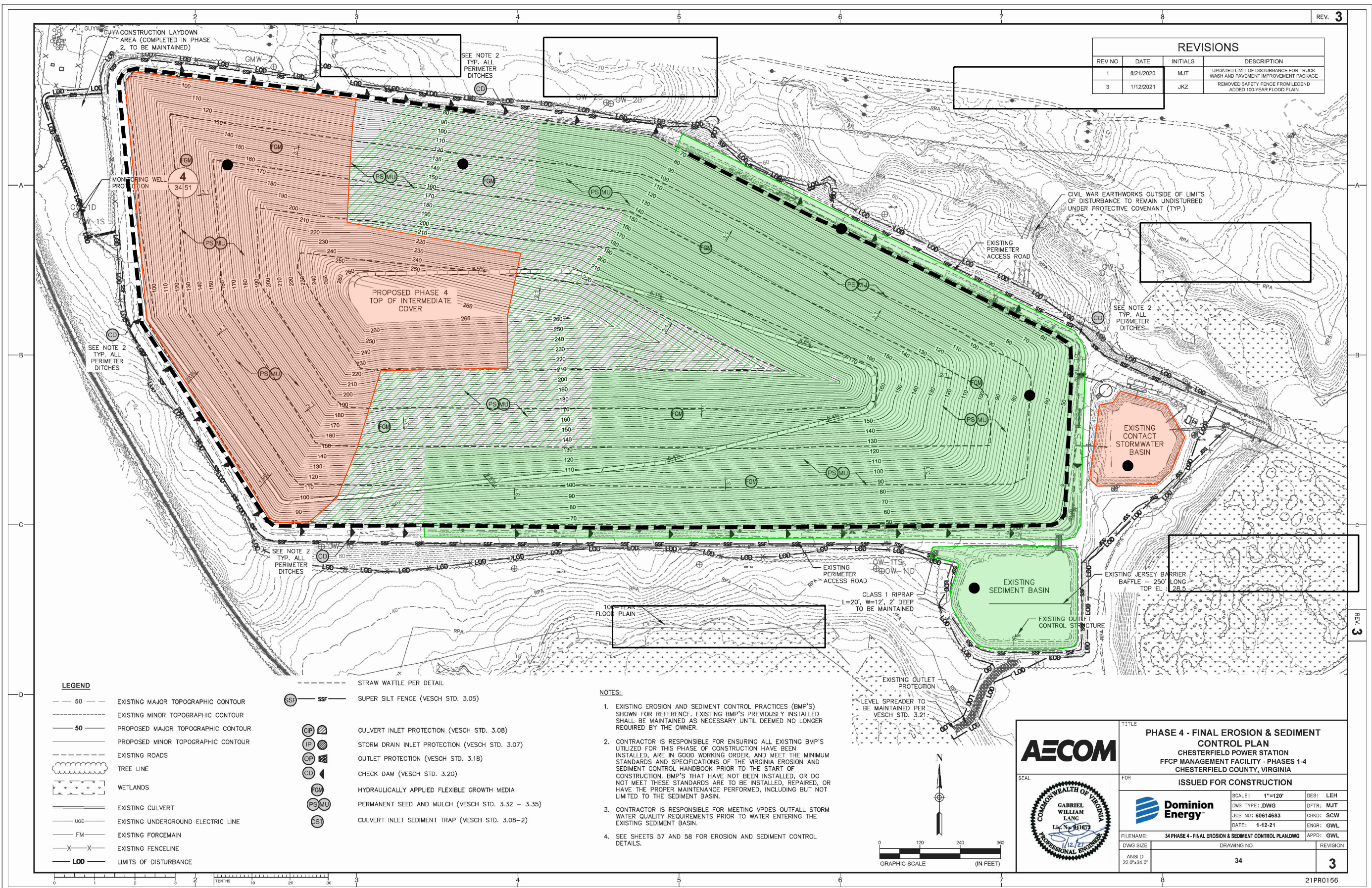
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- DENOTES RUN-ON
(NON-CONTACT STORMWATER AREAS)

- DENOTES RUN-OFF
(CONTACT STORMWATER AREAS)

NOTE:
AREAS IDENTIFIED AS CONTACT AND NON-CONTACT ON THIS DRAWING REPRESENT A GENERAL CONFIGURATION AND MAY NOT REFLECT CURRENT SITE CONDITIONS. SEE TEXT INCLUDED IN THE PERIODIC RUN-ON AND RUN-OFF CONTROL SYSTEM PLAN FOR ADDITIONAL INFORMATION RELATING TO THE DESIGNATION OF CONTACT AND NON-CONTACT AREAS WITHIN THE ACTIVE PORTION OF THE FACILITY.

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CHESTERFIELD POWER STATION
CHESTERFIELD, VIRGINIA

CONSULTANT

WSP **GOLDER**

2022-09-07
DESIGNED ATN
PREPARED ATN
REVIEWED ATN
APPROVED JRD

PROJECT
PERIODIC RUN-ON AND RUN-OFF
CONTROL SYSTEM PLAN

TITLE
PHASE 4
RUN-ON AND RUN-OFF PLAN

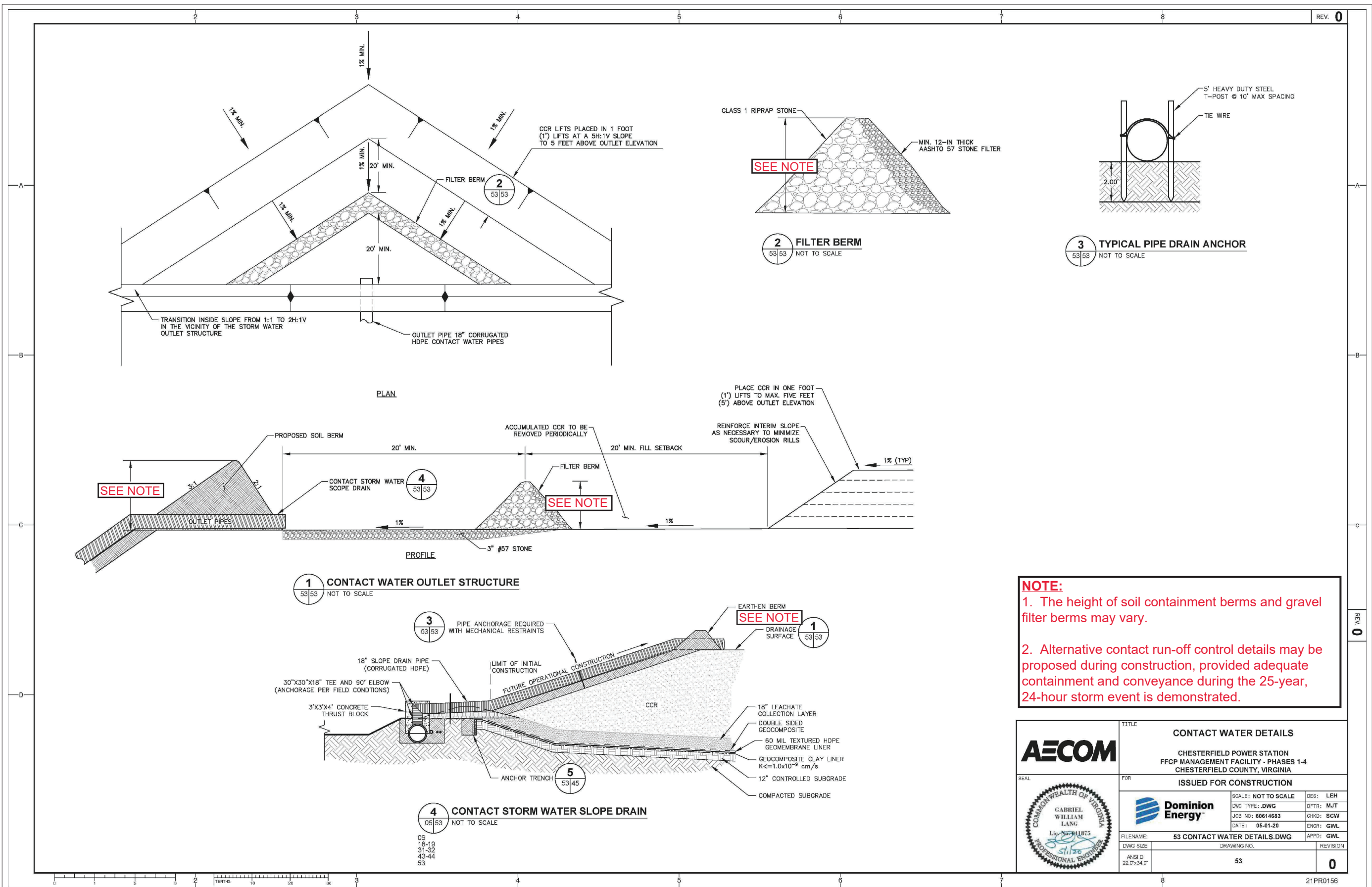
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FIGURE
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PROJECT
PERIODIC RUN-ON AND RUN-OFF
CONTROL SYSTEM PLAN

TITLE
RUN-OFF PLAN
(CONTACT STORMWATER MANAGEMENT DETAILS)

PROJECT NO.
GL21466315-20

CLIENT
DOMINION ENERGY
CHESTERFIELD POWER STATION
CHESTERFIELD, VIRGINIA

CONSULTANT

WSP **GOLDER**

2022.09-07

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PREPARED ATN

REVIEWED ATN

APPROVED JRD

**DRAWING FOR
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FIGURE
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