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Corrective Measures Implementation/Remedial Action Implementation Plan for the Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit (U)

SEMS Number: 71

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Revision 1

November 2018

DISCLAIMER

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and
Savannah River Nuclear Solutions, LLC
Aiken, South Carolina

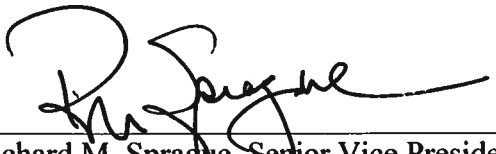
CERTIFICATION

CMI/RAIP for the Wetland Area at Dunbarton Bay
in Support of Steel Creek Integrator Operable Unit (U)

SRNS-RP-2018-00481, Revision 1, November 2018

[REF: 40CFR270.11 (d)(1)]

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."



12/10/18

Richard M. Sprague, Senior Vice President
Environmental, Safety, Health, and Quality (ESH&Q)
for Savannah River Nuclear Solutions, LLC
as the Co-Operator with the U.S. Department of Energy
Savannah River Operations Office

Date

12/19/18

for David J. Bender, Director
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U.S. Department of Energy
Savannah River Operations Office
Co-Operator and Owner

Date

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LIST OF ABBREVIATIONS AND ACRONYMS

~	approximate, approximately
ac	acres
ARAR	applicable, relevant and appropriate requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMI/RAIP	Corrective Measures Implementation/Remedial Action Implementation Plan
CMS/FS	Corrective Measures Study/Feasibility Study
COC	constituent of concern
CSM	conceptual site model
CWA	Clean Water Act
DOT	Department of Transportation
ERA	ecological risk assessment
FFA	Federal Facility Agreement
ft	feet
ha	hectares
HASP	Health and Safety Plan
HHRA	human health risk assessment
HMR	Hazardous Materials Regulations
HMTA	Hazardous Materials Transportation Act
IOU	Integrator Operable Unit
km	kilometer
km^2	square kilometer
LDR	Land Disposal Restrictions
LUCIP	Land Use Control Implementation Plan
LUC	land use control
m	meter
m^3	cubic meter
mi	mile
mi^2	square mile
NPDES	National Pollutant Discharge Elimination System
PAB	P-Area Ash Basin
PCR	Post-Construction Report
PTSM	principal threat source material
QAPP	Quality Assurance Project Plan
RA	remedial action
RACR	Remedial Action Completion Report
RAO	remedial action objective
RCOC	refined constituent of concern
RCRA	Resource Conservation and Recovery Act
RG	remedial goal
RGO	remedial goal objective
ROD	Record of Decision

LIST OF ABBREVIATIONS AND ACRONYMS *(Continued/End)*

SB/PP	Statement of Basis/Proposed Plan
SCDHEC	South Carolina Department of Health and Environmental Control
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
STR	subcontract technical representative
SWPPP	Stormwater Pollution Protection Plan
TCLP	Toxicity Characteristic Leaching Procedure
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
UTS	Universal Treatment Standards
WADB	Wetland Area at Dunbarton Bay
WWTU	Waste Water Treatment Unit
yd	yard
yd^3	cubic yard

1.0 GENERAL DESCRIPTION

1.1 Purpose and Scope

This post-Record of Decision (ROD) document provides the following items for the implementation of the selected remedial action (RA) established in the ROD (SRNS 2018a) for the Wetland Area at Dunbarton Bay (WADB) in Support of Steel Creek Integrator Operable Unit (IOU):

- A general description of the location and history of the site, description of the constituents of concern (COC) to be remedied and an overview of the selected RA;
- A summary of any associated study (if applicable) and the application of its results in the remedial design;
- An outline of the necessary design tasks;
- A design summary highlighting the results of each of the design tasks performed to accomplish the objectives of the selected RA;
- A summary of the construction strategy addressing critical components of construction activities required to implement the remedial design;
- Requirements for health and safety, waste management, contamination control, decontamination, quality assurance, quality control inspections, performance verifications (sampling, testing/analysis, when applicable), post-construction operations, maintenance and land use controls, project closeout, post-construction monitoring and a forecast schedule for implementation of the RA; and
- A forecast schedule and brief discussion of the contents of the upcoming post-ROD documents required by the Federal Facility Agreement (FFA) (FFA 1993) for the Savannah River Site (SRS).

1.2 General Description and History of the Unit

SRS occupies approximately (~) 803 km^2 (310 mi^2) of land adjacent to the Savannah River, principally in Aiken and Barnwell counties of South Carolina (Figure 1). SRS is located ~40-km (25-mi) southeast of Augusta, Georgia, and 32-km (20-mi) south of Aiken, South Carolina.

The WADB is located southeast of the P-Area Ash Basin (PAB) within the Steel Creek IOU boundary near the headwaters of Meyers Branch and extends into Dunbarton Bay, which is located south of Powerline Road (also referred to as Ash Flow Road or SRS Road 74-28). The dominant feature of the WADB is a Carolina Bay called Dunbarton Bay (Figure 2).

The PAB is an unlined, earthen containment basin that received ash discharge through a sluice from 1951 to 1991. During the years of 1973 to 1974, significant amounts of ash within the basin were removed and placed around the perimeter of the basin and to the north along the access road that led to the basin, including near Outfall P-007, which is located north of the PAB. Additionally, the Outfall P-007 received releases of contaminants (cesium-137) from process line discharges that originated from the P-Area Disassembly Basin. In the summer of 2010, an area of ash overflow was discovered during the removal activities at the PAB.

The ash overflow area begins at the southern edge of the PAB and extends ~762 m (2,500 ft) into Dunbarton Bay, which is located south of the Powerline Road (Figure 3). Dunbarton Bay has been designated as wetlands. As it was determined that the ash overflow area was outside the scope of the remedial action for the PAB, the ash overflow area in Dunbarton Bay was administratively assigned as a subunit of the Steel Creek IOU in the SRS FFA and identified as the WADB.

A Sampling and Analysis Plan (SRNS 2011) was developed and executed to investigate the nature and extent of ash contamination at the WADB. Sampling was conducted in 2010 and 2011 and included collection of groundwater, surface water within Dunbarton Bay,

ash/soil, and ecological data. Human health risk assessment (HHRA), principal threat source material (PTSM), ecological risk assessment (ERA), groundwater quality, and contaminant migration evaluations were performed with the collected definitive-level analytical data.

The Focused Corrective Measures Study/Feasibility Study (CMS/FS) Report (SRNS 2013a) was developed to evaluate remedial alternatives for hazardous substances existing at the WADB. The goals of the remedial actions are to protect human health and the environment and to mitigate the effects of contamination. The focused CMS/FS developed the remedial action objectives (RAOs) and remedial goal options (RGOs) for the RA.

Development of the ROD began in 2013. The selected remedy for the WADB in Support of the Steel Creek IOU is excavation of 16,820 m^3 (22,000 yd^3) of ash and contaminated soil media from the boundary of the PAB to the edge of a 30-m (100-ft) buffer at Dunbarton Bay and transporting the waste to an approved containment facility located off-SRS property. The 30-m (100-ft) buffer is used to protect Dunbarton Bay's sensitive ecosystem from damage caused by excavation and construction activity. Additionally, the selected remedy includes land use controls (LUCs) for 10 hectares (ha) (25 acres [ac]), since the entire volume of contaminated media will not be excavated and that material would remain in place at the WADB.

Revision 1 of the ROD (SRNS 2018a) was approved by United States Environmental Protection Agency (USEPA) and South Carolina Department of Health and Environmental Control (SCDHEC) in April 2014; however, it was not submitted for three party signatures due to shifting resources and priorities. Revision 1 of the ROD was issued for signature by USDOE, USEPA and SCDHEC in May 2018.

1.3 Nature and Extent of Contamination

The WADB was evaluated through an investigation process that integrates and combines the Resource Conservation and Recovery Act (RCRA) corrective action process with the

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial process to determine the actual or potential impact to human health and the environment of releases of hazardous substances to the environment.

The focused CMS/FS for the WADB in Support of Steel Creek IOU (SRNS 2013a) contains detailed information and analytical data for all the characterization investigations conducted and samples taken in the media assessment of the WADB. The environmental setting precludes any residential (unrestricted) or industrial land use in the future. Therefore, the most likely receptor scenario is an onsite worker (i.e., a worker who is conducting research, collecting samples, performing maintenance, etc.). However, in order to support risk management decision-making, a variety of hypothetical receptors were evaluated in the HHRA.

Per the HHRA, the potential risk to the human receptors evaluated exceeds 1.0E-06 for exposure to contaminants in the surface ash/soil interval (0 to 0.3 m [0 to 1 ft] and are summarized below.

Arsenic, cesium-137(+D), potassium-40, radium-226(+D), and uranium-238 (+D) were identified as human health refined COCs (RCOCs) in the ash/soil media for both the future resident scenario and the future industrial worker scenario. Arsenic, cesium-137(+D), potassium-40, and radium-226(+D) were identified as human health RCOCs for both the IOU onsite worker and the trespasser. No PTSM RCOCs were identified for the ash/soil media at WADB. Delineation and depth of contamination as determined through sampling and previous studies are shown in Figure 3. Although groundwater is not part of the WADB scope, groundwater was evaluated to support the contaminant migration (CM) analysis for the ash/soil media. No RCOCs have been identified for the groundwater.

From an ecological risk perspective, the habitat at Dunbarton Bay likely supports both terrestrial and aquatic/semi-aquatic receptors to some degree. The media of concern are primarily the surficial ash (0 to 0.3 m [0 to 1 ft]) and surface water. No constituents were identified as human health or ecological RCOCs for the surface water media.

Site-Specific Factors

A 30-m (100-ft) buffer was established around the Dunbarton Bay to be protective of the environment of the bay, thus preventing damage and destruction to its sensitive ecosystem during remedial activities at the WADB.

1.4 Document Format

The format of this Corrective Measures Implementation/Remedial Action Implementation Plan (CMI/RAIP) is consistent with the FFA protocol format approved by the USEPA and SCDHEC in March 2003.

1.5 Remedial Action

As stated in the ROD, the selected RA for the WADB is excavation of 16,820 m^3 (22,000 yd^3) of ash and contaminated soil media from the boundary of the PAB to the edge of the 30-m (100-ft) buffer at Dunbarton Bay. Excavated ash and contaminated soil will be transported to an approved containment facility located off-SRS property. The 30-m (100-ft) buffer is used to protect Dunbarton Bay's sensitive ecosystem from damage caused by construction activities. Additionally, the selected remedy includes LUCs for 10 ha (25 ac), since the entire volume of contaminated media will not be excavated and some materials would remain in place at the WADB.

LUCs for the WADB will be in effect until concentrations of hazardous substances are at levels that will allow for unrestricted use and exposure and include the following:

- Warning and limited access signs at the subunit boundaries to prevent unrestricted use and access to areas where ash/contaminated soil is present (Dunbarton Bay).
- Notifying USEPA and SCDHEC in advance of any major changes in land use that would necessitate re-evaluation of the remedy or excavation of waste.
- Institutional controls (i.e., administrative controls) and use restrictions for onsite workers via the Site Use/Site Clearance Program. Other administrative controls to

ensure worker safety include work controls, worker training, and worker briefing of health and safety requirements.

- SRS access controls against trespassers as described in the SRS RCRA Part B Permit Renewal Application, Volume I, Section F.1, which describes the security procedures and equipment, 24-hour surveillance system, artificial or natural barriers, control entry systems, and warning signs in place at the SRS boundary.

This remedy was selected because it meets the RAOs, provides overall protection of human health and the environment, complies with Applicable or Relevant and Appropriate Requirements (ARARs), and is cost-effective. The remedy provides a high level of long-term protection to the radioactive and hazardous constituents that remain in place.

A conceptual site model (CSM) (Figure 4) illustrates how implementation of the RA breaks the exposure pathways.

1.6 Remedial Action Objectives

As stated in the ROD (SRNS 2018a), the RAO for the WADB is protective of the IOU onsite worker and is as follows:

- Prevent the IOU onsite worker from exposure to RCOC contaminants in surface ash/soil exceeding 1.0E-06 risk or exceeding SRS background concentrations

1.7 Remedial Action Implementation Schedule

The unit-specific implementation schedule is provided in Figure 5.

1.8 Community Relations

The *Statement of Basis/Proposed Plan (SB/PP) for the Wetland Area at Dunbarton Bay* (SRNS 2013b) is part of the Administrative Record File and identifies the preferred RA for addressing hazardous substances existing at the WADB.

The SB/PP and associated fact sheet was made available for public comment. Public notification of the comment period was made through mailings of the SRS *Environmental*

Bulletin, a newsletter sent to citizens in South Carolina and Georgia, and through notices in the *Aiken Standard*, the *Allendale Citizen Leader*, the *Augusta Chronicle*, the *Barnwell People-Sentinel*, and *The State* newspaper. The public comment period was also announced on local radio stations.

The 45-day public comment period for the SB/PP began on December 19, 2013 and ended on February 1, 2014. No public comments were received.

2.0 REMEDIAL DESIGN

2.1 Design Strategy

The design for remediation of the WADB was produced by the Design Services section of SRNS. The design strategy is based on information gathered during formal site investigations and walk downs by engineering personnel. A procurement specification, along with the design drawings will allow for a definitive execution by the subcontractor. A Stormwater Pollution Prevention Plan (SWPPP) (SRNS 2018b) has been prepared in accordance with the requirements of South Carolina Standards for Stormwater Management and Sediment Reduction, Regulations 72-300 through 72-316 and National Pollutant Discharge Elimination System (NPDES) General Permit number SCR100000 to be implemented during construction activities, and establishment of permitting activities associated with the project.

Due to the requirement to re-route storm water away from the areas to be excavated and erosion control requirements that will be implemented to protect the wetlands, the design has been segmented into two general areas: north ash remediation (north of Ash Flow Road) and south ash remediation as identified in Figure 6. The execution of the construction activities will differ significantly between these two areas as described in Section 4.1 of this document.

As part of the north ash remediation, stormwater diversion and other temporary erosion and sediment control measures have been designed to divert stormwater flowing from the existing channel that drains the closed PAB water away from the areas to be excavated.

Because the south ash remediation area is in a low-lying area adjacent to the wetlands, sediment and erosion control measures have been designed along the entire length of the 30-m (100 ft) wetland buffer. The design for the south ash remediation area has been divided into 4 zones, each ~0.4 ha (1 ac) in size (see Attachment 1, Sketches, for zone delineation). Erosion and sediment control measures will be installed at the interface of each zone. Construction sequencing, as described in Section 4.1, has been specified to prevent sediment migration into the wetland area.

2.2 Design Activities

The following is a list of design tasks that were required to implement the selected RA.

1. Development of the design requirements for the project;
2. Definitive survey of the excavation area and other areas to support design activities;
3. Development and approval of the Site Use/Site Clearance Permit;
4. Development of the Field Sampling Plan;
5. Stormwater management and erosion and sediment control calculations;
6. Development of the SWPPP;
7. Development and approval of Grading Permit (land disturbance exceeding one acre); and
8. Development and approval of the Specification for construction activities for contract procurement.

2.3 Design Deliverables

Design deliverables included construction drawings, the SWPPP, and the specifications for construction.

2.4 Results of Data Acquisition

2.4.1 Evaluation of Studies

No treatability study was required for the implementation of the RA. Soil sampling as summarized in the CMS/FS (SRNS 2013a) were used to determine the limits of disturbance and planned excavation depths.

2.4.2 Design Criteria

The design criteria include excavation of ash and contaminated soil. The remedial goals (RGs) for the project are summarized in Table 1. Verification sampling, to confirm that the RGs are met, will be performed in accordance the Field Sampling Plan (SRNS 2018c) for the project. Results of the verification sampling will be presented in the Post Construction Report (PCR)/Remedial Action Completion Report (RACR).

Surface water drainage shall be managed to protect the areas to be excavated and to comply with South Carolina Code of Regulation Chapter 72, Article 3, Standards for Stormwater Management and Sediment Reduction.

The ARARs for the WADB are shown in Table 2.

The contract award will contain completed design documents and contain requirements that the subcontractor must meet and work to.

2.5 Drawings

Attachment 1 provides sketches of the major components of the design.

2.6 Design Technical Information

Design technical information is provided in a standard procurement specification for construction. This specification will be issued to the subcontractor, along with detailed design drawings, to provide details of the existing conditions and construction requirements.

3.0 PERMITTING REQUIREMENTS

Permitting requirements include the following:

- NPDES General Permit for Stormwater Discharges from Construction Activities, SCR100000
- SRS Site Clearance Permit
- SRS Grading Permit

Prior to the start of any land disturbing activities, the subcontractor will sign the copy of the contractor certification form for the NPDES SCR100000 permit to acknowledge and accept the subcontractor's responsibilities for compliance with the stormwater management and sediment control requirements.

4.0 CONSTRUCTION

4.1 Construction Strategy

The construction sequencing requirements have been established for the north ash remediation area and south ash remediation area (Figure 6). Construction details are shown in the sketches provided in Attachment 1. Prior to any excavation work in the north ash remediation area, the stormwater flowing from the existing channel that drains P Area will be re-routed to divert stormwater flow away from the remediation area. In addition, a sediment trap will be constructed to serve as the primary sediment trapping feature for the north ash remediation area. Other temporary erosion and sediment control measures will also be installed prior to excavation. Once the stormwater and erosion and sediment control features have been constructed, excavation and grading activities may proceed without any additional sequencing requirements. Construction activities in the south ash remediation area will be conducted in a measured and sequential order that divides the area into four separate zones; each zone is ~0.4 ha (1 ac). This construction strategy is required because the construction of a temporary sediment trap is not feasible due to the topography at the

low end of the area. The creation of smaller remediation zones limits the disturbed area and facilitates final stabilization.

Prior to conducting any remediation work in the south remediation area, a double row of silt fence will be installed along the entire length of the interface with the 30-m (100-ft) wetlands buffer. Zone remediation will begin with Zone 1, which is closest to the wetlands, and will be worked in numerical order, ending with the zone immediately south of Ash Flow Road. Erosion and sediment control measures will be installed between zones prior to excavation in the adjacent zone.

Confirmation sampling will be performed in the north ash remediation area and in each zone of the south remediation area after excavation. Grading and stabilization activities will be completed when the results of the sampling indicate that the RGs have been met and no further excavation is required. Due to the hold times required for confirmation sampling and analyses, construction activities may be worked concurrently between the north ash remediation area and individual zones of the south ash remediation area.

4.2 Construction Activities

Construction activities will be executed by the subcontractor per the design drawings, procurement specification and the SWPPP. The general construction activities include, but are not limited to the following:

- Preparing construction laydown areas and vehicular ingress and egress areas;
- Developing an accepted traffic safety plan and placement of traffic control signs;
- Installing perimeter controls;
- Clearing, grubbing and disposal of vegetation;
- Constructing stormwater conveyance systems to include drainage ditches, swales and flow dissipaters;
- Removing ash and contaminated soil;

- Implementation of dust control methods in accordance with the SWPPP (SRNS, 2018b);
- Disposing of ash and contaminated soil in waste to an approved containment facility located off-SRS property;
- Grading and shaping of the excavated areas to allow for stormwater drainage;
- Stabilizing disturbed areas by seeding, sodding, and placing of crushed stone surfacing;
- Installing erosion and sediment control measures;
- Complying with the SWPPP; and
- Performing as-built surveys.

4.3 Remedial Design Change Control

A subcontract technical representative (STR) will be assigned by SRNS to interface with the subcontractor performing the remediation and the SRNS project engineers and other project team members. Per project specifications, the subcontractor is required to promptly notify the STR of observed irregularities or nonconformance of work or products. Any requested deviations from the design must be formally documented by the subcontractor and approved by SRNS. USDOE will notify USEPA and SCDHEC, within a reasonable time frame, if significant problems arise regarding any aspect of the Remedial Design/RA process. In particular, scheduling, budget and implementability/technical issues will be brought to the attention of the regulators as soon as they are identified. Notifications will follow established protocols for major and minor changes during construction. If the change is considered major, National Oil and Hazardous Substances Pollution Contingency Plan §300.435(c)(2)(i) or (ii) will be followed for public participation requirements. Section 300.435(c)(2)(i) applies to Explanation of Significant Difference for RODs and (ii) applies to ROD amendments.

4.4 Waste Disposal and Transport

Excavated ash will be loaded into haul vehicles and transported to an approved containment facility located off-SRS property via site and public roads in accordance with the accepted traffic safety plan. The Three Rivers Solid Waste Authority Class Three Landfill (Three Rivers Landfill [Permit #024202-1101]) is permitted to receive the material.

4.5 Quality Assurance

Execution of the remediation will be performed by a subcontractor in accordance with an approved project-specific Quality Assurance Project Plan (QAPP). The QAPP be submitted to SRNS for review and approval prior to the commencement of any field work. At a minimum, the QAPP will address the following elements:

- Management and Organization;
- Personnel Qualification and Training;
- Procurement Document Control;
- Document Control;
- Implementation of Work Processes;
- Testing and Inspections;
- Control of Measuring and Test Equipment;
- Handling, Storage and Shipping;
- Control of Subcontractor Requested Changes; and
- Quality Assurance Records.

4.6 Non-Conformances

All non-conformances will be evaluated, resolved, or rectified as described in the pertinent sections of this document and per the subcontract documents. Design changes from the resolution of non-conforming conditions will be processed per Section 4.3, Remedial Design Change Control.

4.7 Health and Safety Plan

A Site-Specific Health and Safety Plan (HASP) will be prepared in accordance with 29 CFR, Part 1910, Section 120, Occupational Safety and Health Administration (OSHA) and will be implemented by the construction team. The HASP will be approved in accordance with SRS procedures, and a copy will be available at the jobsite at all times.

The plan will describe the following:

- Dust suppression requirements related to 40 CFR 50.6 and South Carolina Regulation 61-62.6;
- Required actions by the facility personnel in case of fires, explosions, or any unplanned releases of hazardous waste;
- Arrangements with onsite security, fire department, medical facility, and emergency response teams to coordinate emergency services;
- Names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinators;
- Emergency equipment available at the facility; and
- Evacuation plan for facility personnel.

5.0 POST CONSTRUCTION

5.1 Post-Construction Monitoring

No post-construction monitoring is required for this remediation. Confirmation sampling will be performed during construction to ensure that the excavation of contaminated soil and ash meets the RGs. Ash remaining within the buffer and wetland area will be managed by a Land Use Control Implementation Plan (LUCIP).

5.2 Contingency Plan Implementation Strategy

Field construction activities for excavation of contaminated materials by the subcontractor will be overseen by the SRNS STR. The STR is responsible for ensuring excavation is

performed in accordance with the contract and the contract requirements and for interfacing with the subcontractor and other SRNS project team members. If visual examination or sample results indicate that additional excavation is required, the STR may direct the subcontractor to perform additional excavation. This additional excavation will be handled as a design change as described in Section 4.3 of this document.

5.3 Operations, Maintenance, and Institutional Control

A LUCIP will be issued. The LUCIP will identify maintenance and institutional controls in accordance with the requirements defined in the ROD and will remain in effect unless and until modified as needed to be protective of human health and the environment.

5.4 Requirements for Project Closeout

Completion of construction will be verified by the SRNS project team. The SRNS project team will perform periodic surveillance of construction activities and will compile the results of the confirmation sampling in the PCR/RACR. An as-built survey of the excavated and stabilized area will be prepared to document the final condition of the remediated areas. Ash remaining in the buffer area and the wetland area will be subject to five-year remedy reviews.

5.5 Schedule for Federal Facility Agreement Deliverables

A schedule of the FFA milestones is provided in Figure 5. The WADB PCR/RACR will be submitted in accordance with the requirements for submittal of regulatory documents as identified in the FFA. The PCR/RACR is scheduled to be prepared and submitted to USEPA and SCDHEC in June 2020 which is within 160 calendar days of completion of the RA. The PCR/RACR will include items such as a chronology of events, performance standards and construction quality control information, a description of the construction activities, final inspections, project as-built drawings, a summary of project costs, and the results of the confirmation sampling.

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6.0 REFERENCES

FFA, 1993. *Federal Facility Agreement for the Savannah River Site*, Administrative Docket No. 89-05-FF (Effective Date: August 16, 1993)

SRNS, 2011. *Sampling and Analysis Plan for the Wetland Area Dunbarton Bay in Support of Steel Creek Integrator Operable Unit (U)*, SGCP-SAP-2010-00007, Revision 1, June 2011, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2013a. *Focused Corrective Measures Study / Feasibility Study Report for the Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit (U)*, SRNS-RP-2012-00252, Revision 1.1, April 2013, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2013b. *Statement of Basis /Proposed Plan for the Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit (U),* SRNS-RP-2013-00115, Revision 1.1, September 2013, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2018a. *Record of Decision Remedial Alternative Selection for the Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit (U)*, SRNS-RP-2013-00730, Revision 1, April 2018, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2018b. *Dunbarton Bay Ash Remediation Comprehensive Stormwater Pollution Prevention Plan (SWPPP)*, C-ESR-P-00007, Revision 1, May 2018, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2018c. *Field Sampling Plan for the Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit (U)*, SRNS-RP-2018-00480, Revision 0, June 2018, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

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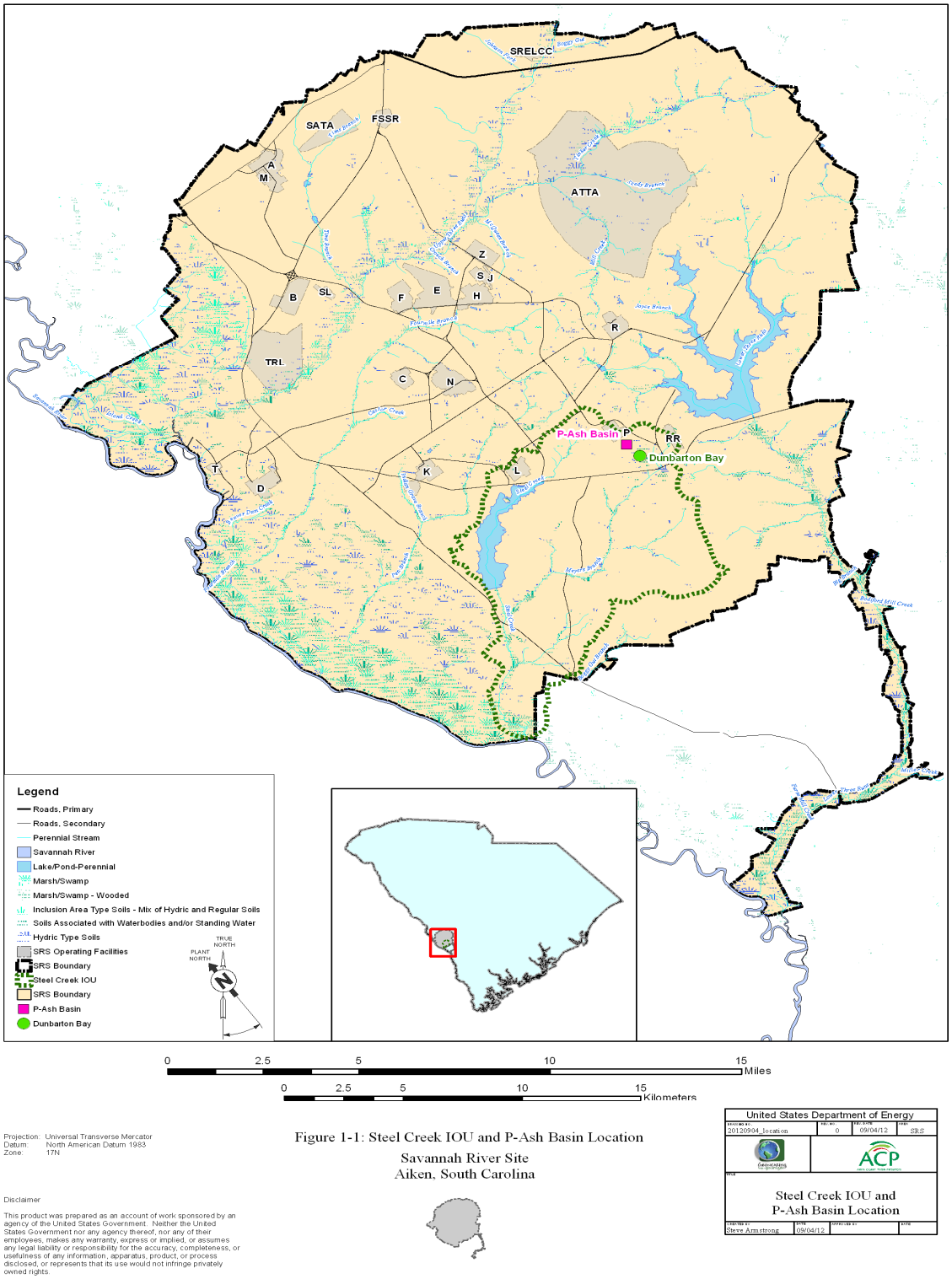


Figure 1. Location of the Wetland Area at Dunbarton Bay within the Savannah River Site

Figure 2. Layout of the Wetland Area at Dunbarton Bay

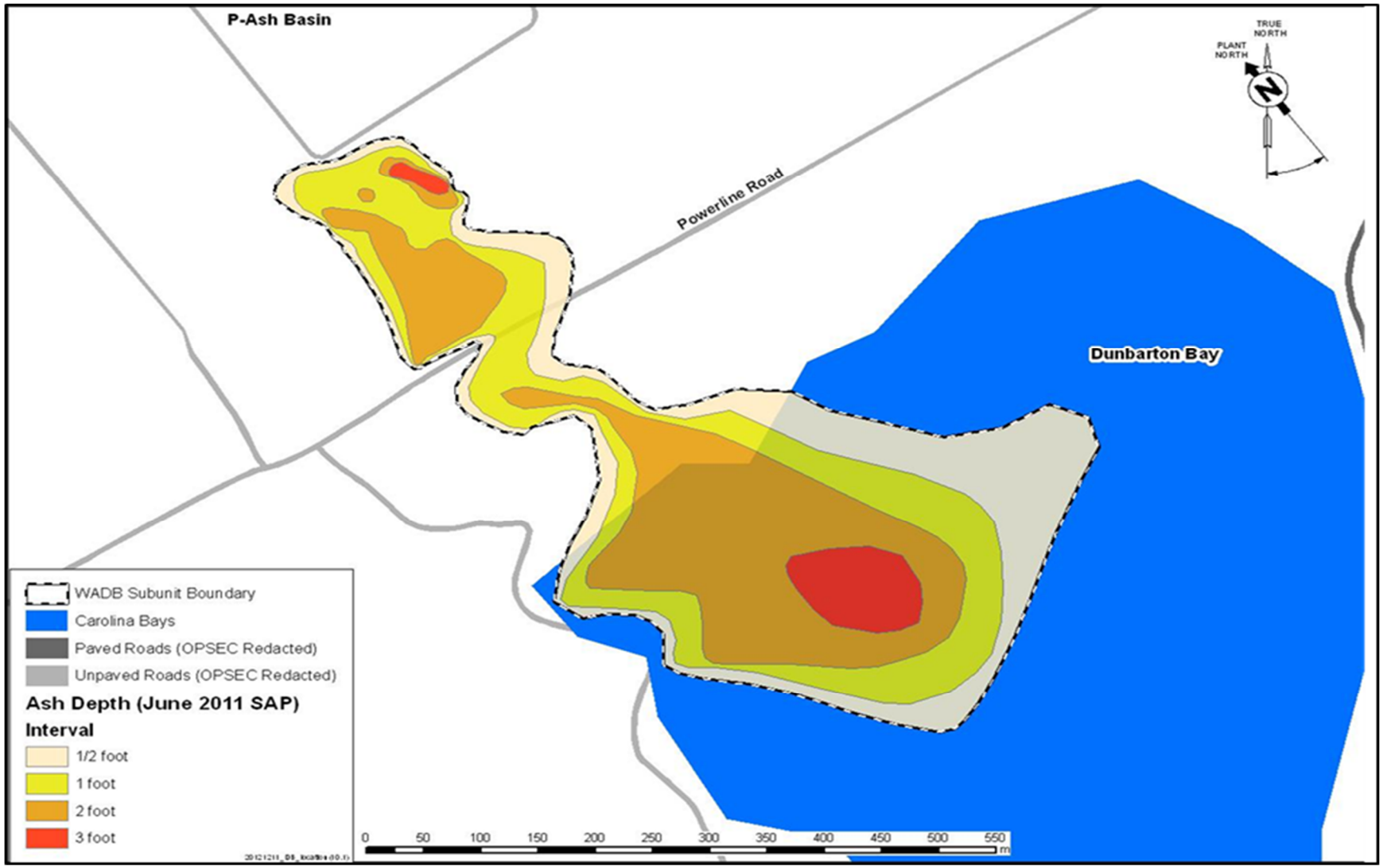
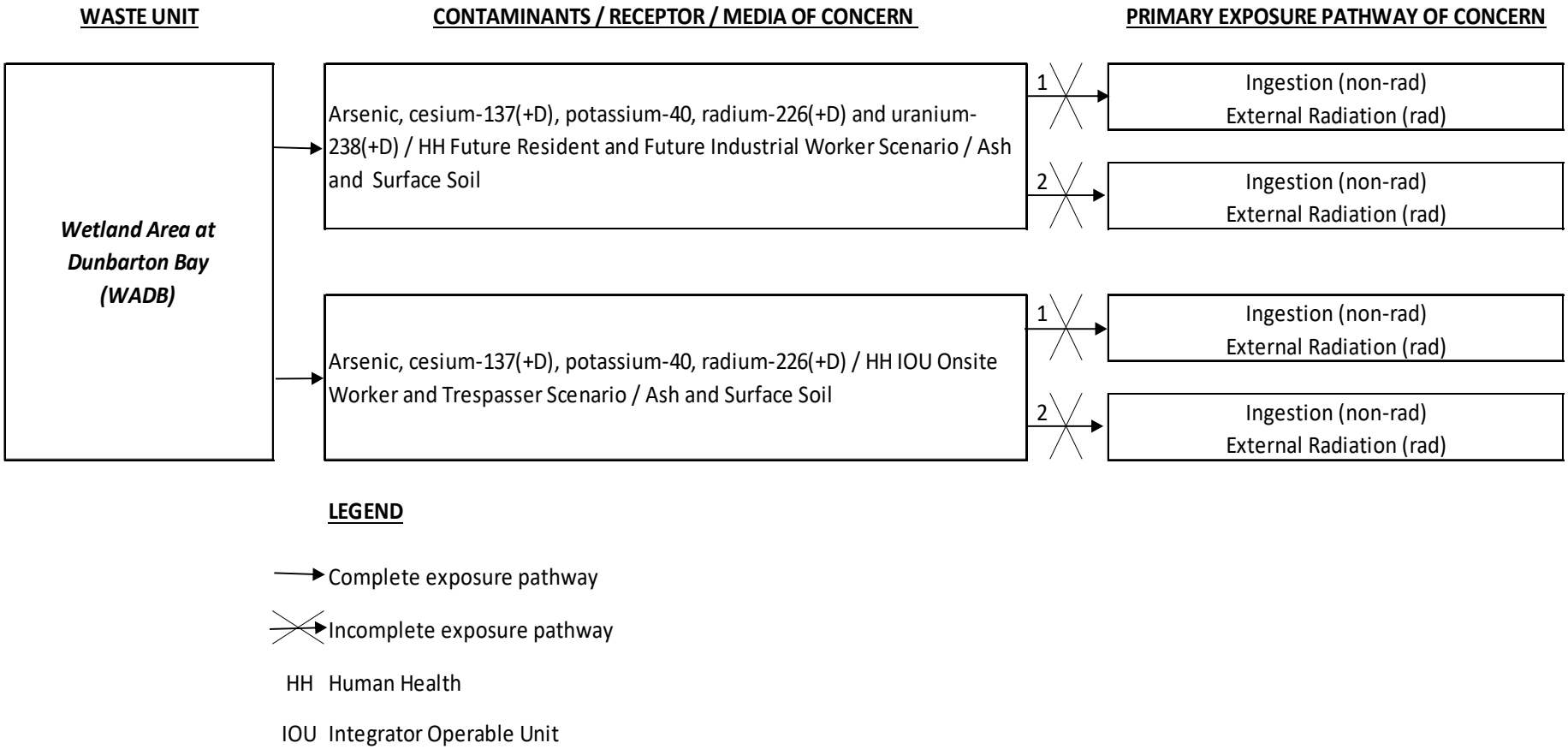


Figure 3. Delineation of the Wetland Area at Dunbarton Bay and Ash Plume



1 - Excavation and Disposal of contaminated soil/ash up to 30-m (100-ft) wetland buffer area per the ROD (SRNS 2018a). No LUCs required (unrestricted land use).

2 - LUCs within Dunbarton Bay Wetland and 30-m (100-ft) buffer area per the ROD (SRNS 2018a).

Figure 4. Post-Remedial Action Conceptual Site Model for WADB

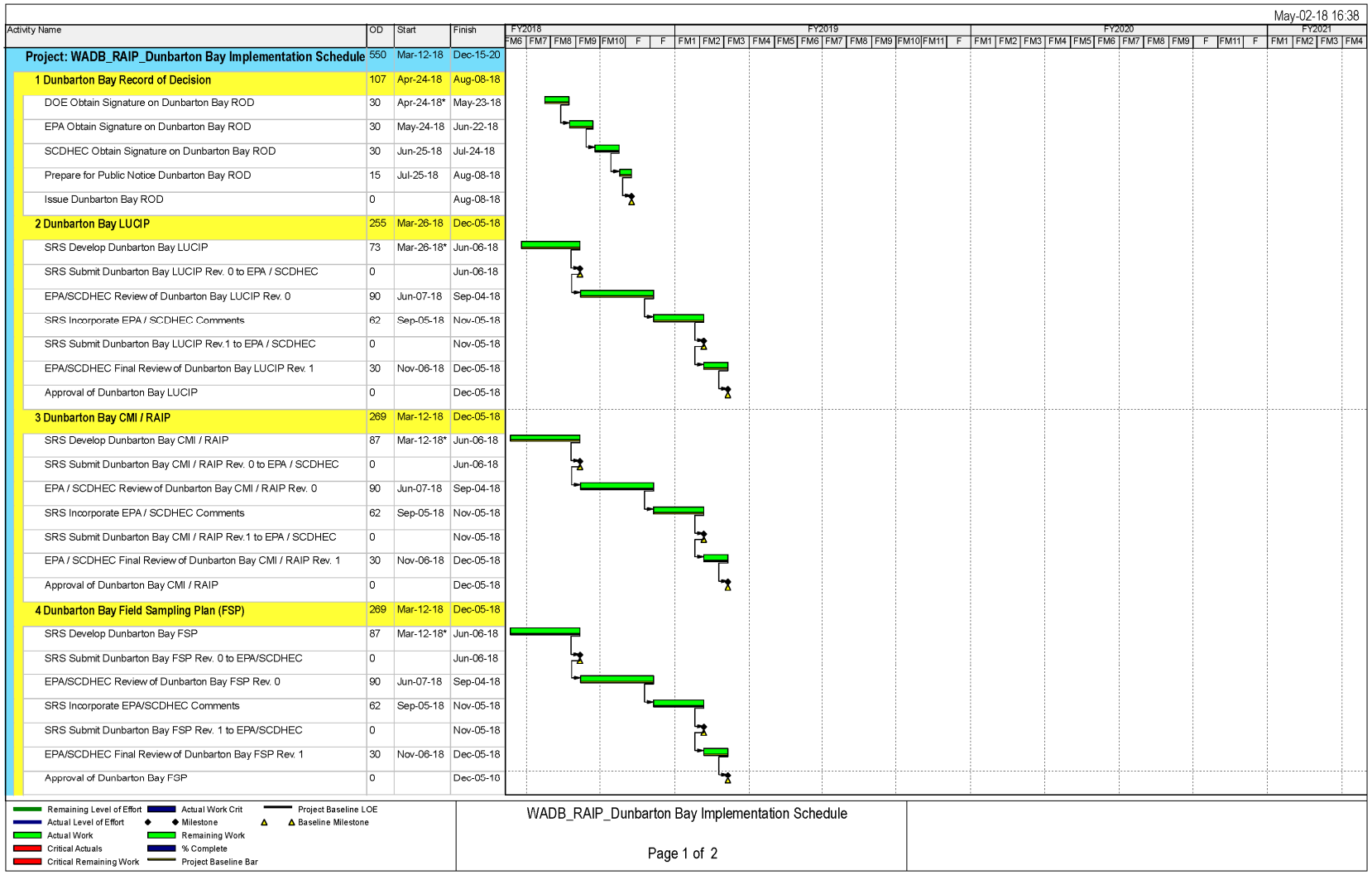


Figure 5. Post-ROD Schedule

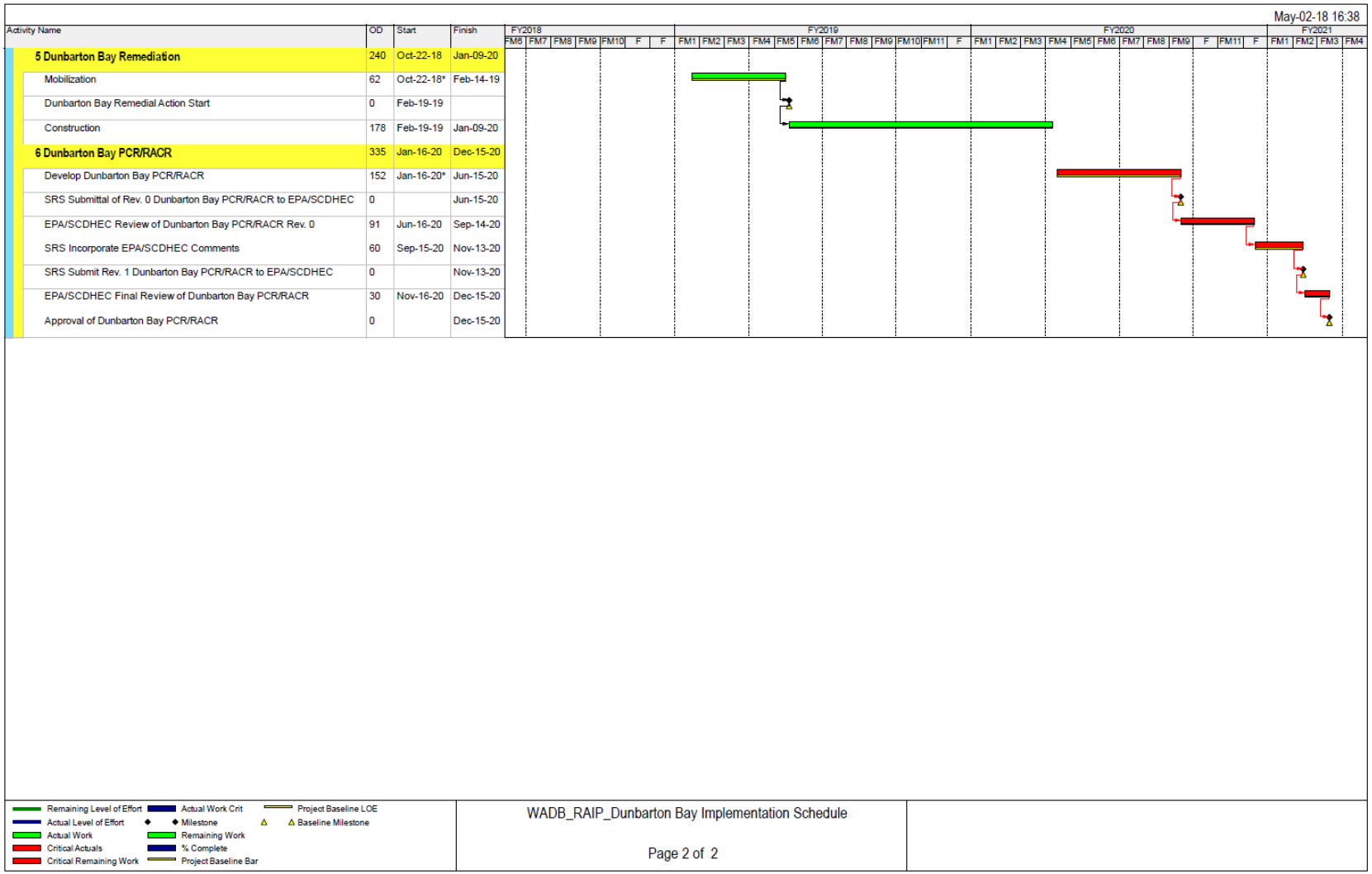


Figure 5. Post-ROD Schedule *(cont'd/end)*

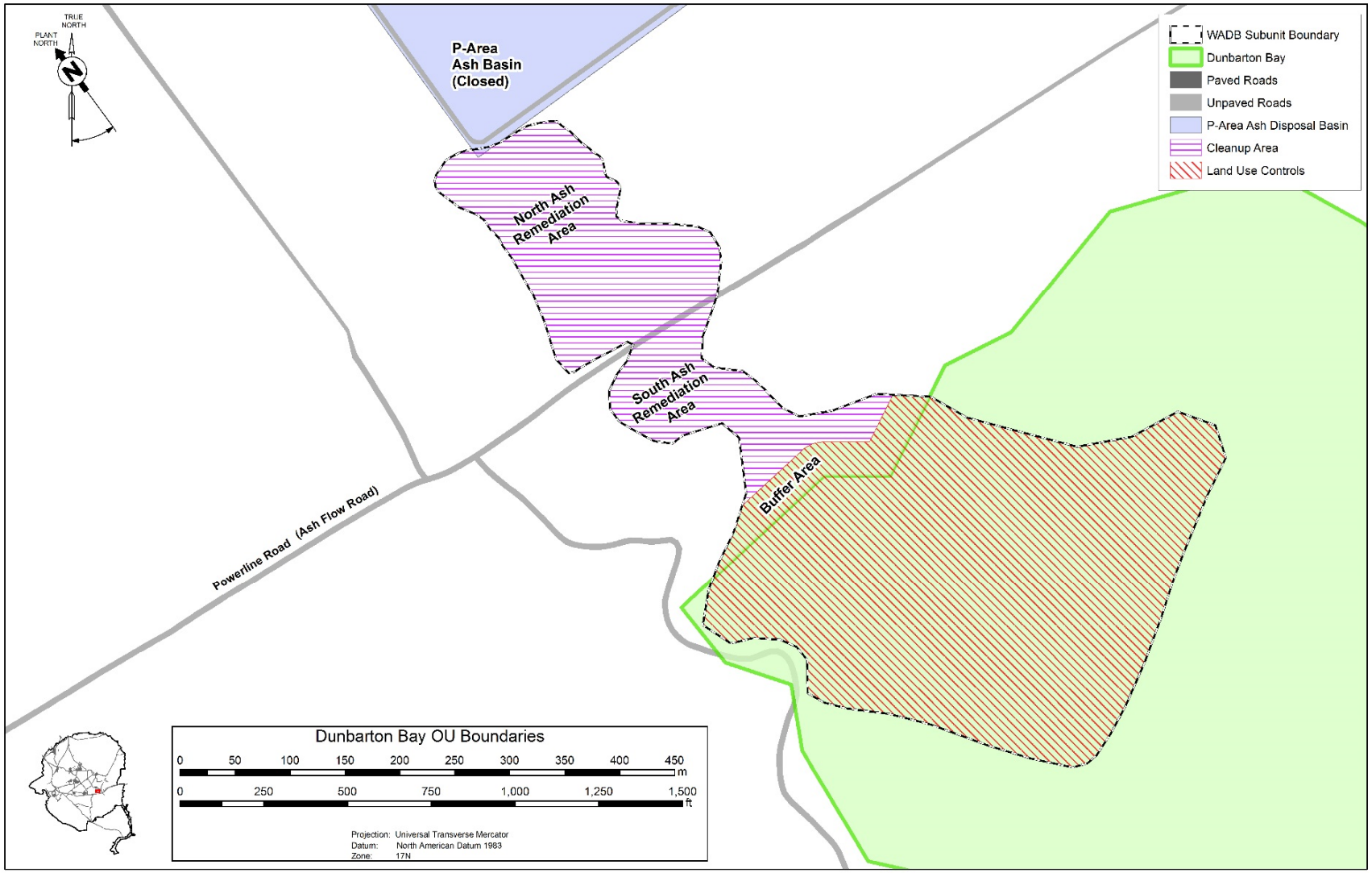


Figure 6. WADB Remediation Area Designations

Table 1. Summary of the RGOs for the Wetlands Area at Dunbarton Bay

Media	RCOC[1]	Unit	ARAR[2]	HHRA Future Resident[3]	HHRA Industrial Worker[4]	HHRA IOU Onsite Worker[5]	HHRA Adolescent Trespasser[6]	PTSM[7]	ERA[8]	CM[9]	Most Restrictive RGO[10]	SRS Background 95th %[11]	SRS Background Maximum[11]	RG[12]
Ash / Soil	Arsenic	mg/kg	---	0.39	1.6	3.3	7.1	---	---	---	0.39	*8.2*	22.9	8.2
	Cesium-137(+D)	pCi/g	---	0.0623	0.103	0.204	0.272	---	---	---	0.0623	0.34 *(0.68)*	3.3	0.68
	Potassium-40	pCi/g	---	0.150	0.265	0.552	0.819	---	---	---	0.150	*3.3*	8.5	3.3
	Radium-226(+D)	pCi/g	---	0.0127	0.0223	0.0464	0.0688	---	---	---	0.0127	*1.2*	1.7	1.2
	Uranium-238(+D)	pCi/g	---	0.725	1.49	NA[13]	NA[13]	---	---	---	0.725	*1.2*	1.9	1.2
Surface Water	None	---	---	---	---	---	---	---	---	---	---			---
Groundwater	None	---	---	---	---	---	---	---	---	---	---			---

1. RCOC = refined constituent of concern
2. ARAR = applicable or relevant and appropriate requirement.
3. HHRA Resident = human health risk assessment. RGOs calculated for the future resident at a target risk of 1E-06.
4. HHRA Industrial Worker = human health risk assessment. RGOs calculated for the future industrial worker at a target risk of 1E-06.
5. HHRA IOU Onsite Worker = human health risk assessment. RGOs calculated for the IOU onsite worker at a target risk of 1E-06.
6. HHRA Adolescent Trespasser = human health risk assessment. RGOs calculated for the adolescent trespasser at a target risk of 1E-06.
7. PTSM = principal threat source material evaluation. No RCOCs identified.
8. ERA = ecological risk assessment. No RCOCs identified.
9. CM = contaminant migration analysis. No RCOCs identified.
10. Most Restrictive RGO = the lesser of the ARAR, HHRA, PTSM, ERA and CM RGOs.
11. SRS background 95th % and maximum concentrations from the SRS Background Soils Statistical Summary Report, Appendix B-2 (all depths), October 2006. Exception is cesium-137, which is from Appendix B-1 (0-1 ft). Two times (2x) the 95th %tile established as Most Likely RGO for cesium-137 since this is the generally accepted concentration for "typical" anthropogenic fallout.
12. RG = the most restrictive risk-based RGO if it is greater than background concentrations. If the most restrictive risk-based RGO is less than the background concentration, then the RGO defaults to a SRS background value. Sources of the RGOs in this column are highlighted in italics in the table.
13. NA = not applicable. Uranium-238(+D) not identified as a HH RCOC for the IOU onsite worker or adolescent trespasser receptor scenarios.

Table 2. Applicable or Relevant and Appropriate Requirements

LOCATION-SPECIFIC ARARs/TBC			
Location Characteristics	**Requirements**	**Prerequisite**	**Citation**
	Floodplains and Wetlands		
Presence of wetlands as defined in 10 *CFR* 1022.4	Avoid, to the extent possible, the long- and short-term adverse effects associated with destruction, occupancy, and modification of wetlands and floodplains.	DOE actions that involve potential impacts to, or take place within, wetlands – **applicable.**	10 *CFR* 1022.3(a)
	Take action, to extent practicable, to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.		10 *CFR* 1022.3(a)(7) and (8)
	Undertake a careful evaluation of the potential effects of any new construction in wetlands. Identify, evaluate, and as appropriate, implement alternative actions that may avoid or mitigate adverse impacts on wetlands.		10 *CFR* 1022.3(b) and (d)
	If no practicable alternative to locating or conducting the action in the wetland is available, then before taking action, design or modify the action in order to minimize potential harm to or within the wetland, consistent with the policies set forth in E.O. 11990.		10 *CFR* 1022.14(a)
Location encompassing *aquatic ecosystem* as defined in 40 CFR 230.3(c)	No discharge of dredged or fill material into an aquatic ecosystem is permitted if there is a practicable alternative that would have less adverse impact. No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps in accordance with 40 CFR 230.70 *et seq.* have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem. Must comply with the substantive requirements of the NWP 38, General Conditions, as appropriate, any regional or case-specific conditions recommended by the Corps District Engineer, after consultation. *Note:* Despite that consultation may be considered an administrative requirement; it should be performed to ensure activities are in compliance with substantive provisions of the permit.	Action that involves the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands – **applicable** Onsite CERCLA action conducted by Federal agency that involves discharge of dredged or fill material into *waters of the United States*, including jurisdictional wetlands – **relevant and appropriate**.	40 CFR 230.10(a) 40 CFR 230.10(d) Nationwide Permit (38) – Cleanup of Hazardous and Toxic Waste 33 *CFR* 323.3(b)
Presence of wetlands	Requires Federal agencies to evaluate action to minimize the destruction, loss or degradation of wetlands and to preserve and enhance beneficial values of wetlands.	Actions that involve potential impacts to, or take place within, wetlands – **TBC**	Executive Order 11990 – *Protection of Wetlands* - Section 1.(a)

Table 2. Applicable or Relevant and Appropriate Requirements *(Continued)*

LOCATION-SPECIFIC ARARs/TBC			
Location Characteristics	**Requirements**	**Prerequisite**	**Citation**
Endangered, Threatened or Rare Species			
Presence of migratory birds and their habitats	No person may take, possess, import, export, transport, sell, purchaser, barter or offer for sale, purchase or barter, any migratory bird, or the parts, nests, or eggs of such bird except as may be permitted under the terms of a valid permit.	If action is likely to impact migratory birds – **applicable**.	16 *USC* 703-704 – Migratory Bird Treaty Act
Historical, Archeological or Cultural Resources			
Presence of archeological or cultural artifacts	No person may excavate, remove, damage, or otherwise alter or deface, or attempt to excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public lands unless such activity is pursuant to a permit issued under § 7.8 or exempted by § 7.5(b) of this part. *Note:* Prior to removal activities existing Site Use process requires approval by the Savannah River Archaeological Research Program. The SRARP is a division of the South Carolina Institute of Archaeology and Anthropology (SCIAA) at the University of South Carolina. The SRARP manages the archaeological and other historic resources for the U.S. Department of Energy.	Excavation and/or removal of archaeological resources from public lands – **applicable**.	43 *CFR* Part 7 – implementing the Archaeological Resources Protection Act of 1979.
All Land-Disturbing Activities (i.e., excavation, clearing, grading, etc.)			
Managing storm water runoff from land-disturbing activities	Must comply with the substantive requirements for stormwater management and sediment control of *NPDES General Permit No. SCR100000* .	Large and small construction activities (as defined in R. 61-9) of more than 1 acre of land – **applicable**	SCDHEC R. 61-9.122.41 NPDES General Permit No. SCR100000
	The stormwater management and sediment control plan shall contain at a minimum the information provided in the following subsections:	Activities involving more than two acres and less than five acres of actual land disturbance which are not part of a larger common plan of development or sale – **applicable**	SCDHEC R. 72-307 I. – *South Carolina Storm Water Management and Sediment Reduction Regulations*
	A plan for temporary and permanent vegetative and structural erosion and sediment control measures which specify the erosion and sediment control measures to be used during all phases of the land disturbing activity and a description of their proposed operation;		SCDHEC R. 72-307 I.(3)(d)
	Provisions for stormwater runoff control during the land disturbing activity and during the life of the facility meeting the following requirements of subsections (e)1 and 2.		SCDHEC R. 72-307 I.(3)(e)

Table 2. Applicable or Relevant and Appropriate Requirements *(Continued)*

ACTION-SPECIFIC ARARs/TBC			
Action	**Requirements**	**Prerequisite**	**Citation**
All Land-Disturbing Activities (i.e., excavation, clearing, grading, etc.) (cont'd)			
Managing fugitive dust emissions from land disturbing activities	Emissions of fugitive particulate matter shall be controlled in such a manner and to the degree that it does not create an undesirable level of air pollution. Volatile organic compounds shall not be used for dust control purposes. Oil treatment is also prohibited.	Activities that will generate fugitive particulate matter (Statewide) – applicable	SCDHEC R. 61-62.6 Section III(a) and Section III(d)- *Control of Fugitive Particulate Matter Statewide*
Waste Characterization and Storage – (e.g., excavated coal ash, contaminated soils/sediments, debris)			
Characterization of *solid* waste	Must determine if the solid waste is a hazardous waste using the following method: Should first determine if waste is excluded from regulation under 40 *CFR* 261.4.	Generation of solid waste as defined in 40 *CFR* 261.2 – applicable	40 *CFR* 262.11(a) SCDHEC R. 61-79 262.11*(a)*
	Must determine if waste is listed as hazardous waste in subpart D of 40 *CFR* Part 261.	Generation of solid waste which is not excluded under 40 *CFR* 261.4(a) – applicable	40 *CFR* 262.11(b) SCDHEC R. 61-79 262.11*(b)*
	Must determine whether the waste is identified in subpart C of 40 *CFR* Part 261 by either: 1) Testing the waste according to the methods set forth in subpart C of 40 CFR part 261, or according to an equivalent method approved by the Administrator under 40 CFR 260.21; or 2) Applying knowledge of the hazard characteristic of the waste in light of materials or processes used.	Generation of solid waste that is not excluded under 40 *CFR* 261.4 **– applicable**	40 *CFR* 262.11(c) SCDHEC R. 61-79 262.11*(c)*
	Must refer to Parts 261, 262, 264, 265, 266, 268, and 273 of Chapter 40 for possible exclusions or restrictions pertaining to management of the specific waste.	Generation of solid waste which is determined to be hazardous waste – **applicable**	40 CFR 262.11(d) SCDHEC R.61-79 262.11*(d)*

Table 2. Applicable or Relevant and Appropriate Requirements *(Continued)*

ACTION-SPECIFIC ARARs/TBC			
Action	**Requirements**	**Prerequisite**	**Citation**
Waste Characterization and Storage – (e.g., excavated coal ash, contaminated soils/sediments, debris) (cont'd)			
Determination for management of *hazardous* waste[1]	Must determine each EPA Hazardous Waste Number (waste code) applicable to the waste in order to determine the applicable treatment standards under 40 CFR 268 *et seq.* *Note:* This determination may be made concurrently with the hazardous waste determination required in Sec. 262.11 of this chapter.	Generation of hazardous waste for storage, treatment or disposal – **applicable**	40 CFR 268.9(a) SCDHEC R.61-79 268.9*(a)*
	Must determine the underlying hazardous constituents (as defined in 40 CFR 268.2[i]) in the characteristic waste.	Generation of RCRA characteristic hazardous waste (not D001 non-wastewaters treated by CMBST, RORGS, or POLYM of Section 268.42, Table 1) for storage, treatment or disposal – **applicable**	40 CFR 268.9(a) SCDHEC R.61-79 268.9*(a)*
	Must determine if the hazardous waste meets the treatment standards in 40 CFR 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or use or generator knowledge of waste. *Note:* This determination can be made concurrently with the hazardous waste determination required in 40 CFR 262.11.	Generation of hazardous waste for storage, treatment or disposal – **applicable**	40 CFR 268.7(a) SCDHEC R.61-79 268.7*(a)* (1)
Disposal of *solid waste* off-SRS	Disposal of solid waste at facilities and/or sites permitted or registered by the Department for processing or disposal of that waste stream. Waste must meet state classification system for the permitted facilities.	Generation of solid waste intended for off-SRS disposal **– applicable**	SCDHEC R. 61-107.15
Disposal of Hazardous Waste Offsite (e.g., excavated ash, contaminated soils/sediment, debris)			
Disposal of RCRA-*hazardous waste* in off-site, land-based unit[1]	May be land disposed if it meets the requirements in the table "Treatment Standards for Hazardous Waste" at 40 CFR 268.40 before land disposal.	Land disposal, as defined in 40 CFR 268.2, of restricted RCRA waste – **applicable**	40 CFR 268.40(a) SCDHEC R. 61-79 268.40*(a)*
	All underlying hazardous constituents [as defined in 40 CFR 268.2(i)] must meet the Universal Treatment Standards, found in 40 CFR 268.48 Table UTS prior to land disposal.	Land disposal of restricted RCRA characteristic wastes (D001-D043) that are not managed in a wastewater treatment system that is regulated under the CWA, that is CWA equivalent, or that is injected into a Class I nonhazardous injection well – **applicable**	40 CFR 268.40(e) SCDHEC R. 61-79 268.40*(e)*

Table 2. Applicable or Relevant and Appropriate Requirements *(Continued)*

ACTION-SPECIFIC ARARs/TBC			
Action	**Requirements**	**Prerequisite**	**Citation**
Disposal of Hazardous Waste Offsite (e.g., excavated ash, contaminated soils/sediment, debris) (cont'd)			
Disposal of RCRA-*hazardous waste* in off-site, land-based unit[1] *(continued)*	Must be treated according to the alternative treatment standards of 40 CFR 268.49(c) or Must be treated according to the UTSs [specified in 40 CFR 268.48 Table UTS] applicable to the listed and/or characteristic waste contaminating the soil prior to land disposal.	Land disposal, as defined in 40 CFR 268.2, of restricted hazardous soils – **applicable**	40 CFR 268.49(b) SCDHEC R. 61-79 268.49*(b)*
	To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards of 40 CFR 268.40, the initial generator must test a sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentration in the waste extract or waste, or the generator may use knowledge of the waste. If the waste contains constituents (including UHCs in the characteristic wastes) in excess of the applicable UTS levels in 40 CFR 268.48, the waste is prohibited from land disposal, and all requirements of part 268 are applicable, except as otherwise specified.	Land disposal of RCRA toxicity characteristic wastes (D004-D011) that are newly identified – **applicable**	40 CFR 268.34(f) SCDHEC R. 61-79 268.34*(f)*
Disposal of RCRA-*hazardous waste debris* in off-site, land-based unit[1]	Must be treated prior to land disposal as provided in 40 CFR 268.45(a)(1)-(5) unless EPA determines under 40 CFR 261.3(f)(2) that the debris no longer contaminated with hazardous waste or the debris is treated to the waste-specific treatment standard provided in 40 CFR 268.40 for the waste contaminating the debris.	Land disposal, as defined in 40 CFR 268.2, of restricted RCRA-hazardous debris – **applicable**	40 CFR 268.45(a) SCDHEC R. 61-79 268.45*(a)*
Transportation of Wastes			
Transportation of hazardous materials	Shall be subject to and must comply with all applicable provisions of the HMTA and DOT HMR at 49 CFR 171-180.	Any person who, under contract with a department or agency of the federal government, transports "in commerce," or causes to be transported or shipped, a hazardous material – **applicable**	49 CFR 171.1(c)

Table 2. Applicable or Relevant and Appropriate Requirements *(Continued)*

ACTION-SPECIFIC ARARs/TBC			
Action	**Requirements**	**Prerequisite**	**Citation**
Transportation of Wastes (cont'd)			
Transportation of samples (i.e. solid waste, soils and wastewaters)	Are not subject to any requirements of 40 CFR Parts 261 through 268 or 270 when: • the sample is being transported to a laboratory for the purpose of testing; or • the sample is being transported back to the sample collector after testing. • the sample is being stored by sample collector before transport to a lab for testing.	Samples of solid waste or a sample of water, soil for purpose of conducting testing to determine its characteristics or composition – applicable	40 CFR 261.4(d)(1)(i)-(iii) SCDHEC R. 61-79 261.4(d) (1)
	In order to qualify for the exemption in 40 CFR 261.4 (d)(1)(i) and (ii), a sample collector shipping samples to a laboratory must: • Comply with U.S. DOT, U.S. Postal Service, or any other applicable shipping requirements. • Assure that the information provided in (1) thru (5) of this section accompanies the sample. Package the sample so that it does not leak, spill, or vaporize from its packaging.		40 CFR 261.4(d)(2)(i) 40 CFR 261.4(d)(2)(i)(A)and (B) SCDHEC R. 61-79 261.4*(d)* (2)(i)(A) and (B)
Transportation of hazardous waste onsite[1]	The generator manifesting requirements of 40 CFR 262.20-262.32(b) do not apply. Generator or transporter must comply with the requirements set forth in 40 CFR 263.30 and 263.31 in the event of a discharge of hazardous waste on a private or public right-of-way.	Transportation of hazardous wastes on a public or private right-of-way within or along the border of contiguous property under the control of the same person, even if such contiguous property is divided by a public or private right-of-way – **applicable**	40 CFR 262.20(f) SCDHEC R. 61-79 262.20(f)

Table 2. Applicable or Relevant and Appropriate Requirements *(Continued/End)*

ACTION-SPECIFIC ARARs/TBC			
Action	**Requirements**	**Prerequisite**	**Citation**
Transportation of Waste (cont'd)			
Transportation of hazardous waste off-site	Must comply with the generator requirements of 40 CFR 262.20-23 for manifesting, Sect. 262.30 for packaging, Sect. 262.31 for labeling, Sect. 262.32 for marking, Sect. 262.33 for placarding, Sect. 262.40, 262.41(a) for record keeping requirements, and Sect. 262.12 to obtain EPA ID number.	Generator who initiates the off-site shipment of RCRA-hazardous waste – **applicable**	40 CFR 262.10(h) SCDHEC R. 61-79 262.10*(h)*

[1] The requirements from 40 CFR Part 262, 264, and 268 contained in this table regarding characterization, storage, and disposal of hazardous waste will be triggered if any generated wastes, including ash, soil or debris are characterized as RCRA hazardous wastes.

ARAR = applicable or relevant and appropriate requirement
CFR = Code of Federal Regulations
CWA = Clean Water Act
DEACT = deactivation
DOT = U.S. Department of Transportation
EPA = U.S. Environmental Protection Agency
HMR = Hazardous Materials Regulations
HMTA = Hazardous Materials Transportation Act
LDR = Land Disposal Restrictions
RCRA = Resource Conservation and Recovery Act of 1976
SCDHEC = South Carolina Department of Health and Environmental Control
TCLP = Toxicity Characteristic Leaching Procedure
UHC = underlying hazardous constituents
UTS = Universal Treatment Standard
WWTU = Waste Water Treatment Unit

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APPENDIX A

FACT SHEET

Remedial Action Wetland Area at Dunbarton Bay

Location

The Wetland Area at Dunbarton Bay (WADB) in Support of the Steel Creek Integrator Operable Unit is listed as a Resource Conservation and Recovery Act 3004(u) Solid Waste Management Unit/CERCLA subunit part of the Steel Creek IOU listed in Appendix C of the Federal Facility Agreement for the Savannah River Site. The WADB is located south of P-Area of the Savannah River Site in South Carolina and consists of an area of approximately 37 acres and includes a wetland area of approximately 25 acres.

History

SRS operated the P- Reactor from 1954 to 1988 and was shut down in 1991. P Area utilized a coal-fired powerhouse to generate steam and electricity, with coal ash (coal combustion products) produced as a waste of boiler operations. In P Area, this ash was mixed with water and transferred to the P-Area Ash Basin via a sluice line. In the summer of 2010, an area of ash overflow was discovered during the removal activities at the PAB.

The ash overflow area begins at the southern edge of the P-Area Ash Basin and extends approximately 762 m (2,500 ft) into Dunbarton Bay, which is located south of the Powerline Road. Dunbarton Bay has been designated as wetlands.

Remedial Action

Contaminated ash and soil will be excavated from the WADB and disposed of in an approved off-SRS waste disposal facility. The excavation area is approximately 4.9 ha (12 ac) of ash and contaminated soil (approximately 22,000 cu. yd.) from the boundary of the P-Area Ash Basin to a 30-m (100-ft) buffer boundary around the Dunbarton Bay. The buffer area is intended to protect the sensitive wetland area of Dunbarton Bay. The unexcavated portion will be subject to land use controls. Land use controls for the WADB will be in effect until concentrations of hazardous substances are at levels that will allow for unrestricted use.

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ATTACHMENT 1

SKETCHES

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SRP DRAWING NO.

N/A

DOCUMENT INDEX

DOCUMENT #	TITLE
SK-EC&ACP-WADB-00001	GENERAL NOTES, DOCUMENT INDEX & EXISTING SITE PLAN
SK-EC&ACP-WADB-00002	NORTH ASH REMEDIATION AREA EROSION CONTROL (INITIAL)
SK-EC&ACP-WADB-00003	NORTH ASH REMEDIATION AREA GRADING PLAN
SK-EC&ACP-WADB-00004	NORTH ASH REMEDIATION AREA STABILIZATION PLAN
SK-EC&ACP-WADB-00005	SOUTH ASH REMEDIATION AREA EROSION CONTROL (INITIAL)
SK-EC&ACP-WADB-00006	SOUTH ASH REMEDIATION AREA GRADING PLAN
SK-EC&ACP-WADB-00007	SOUTH ASH REMEDIATION AREA STABILIZATION PLAN
SK-EC&ACP-WADB-00008	CROSS SECTIONS

GENERAL NOTES

1. NORTHING AND EASTING COORDINATES SHOWN ON PROJECT DRAWINGS ARE IN ACCORDANCE WITH THE SRS SITE GRID COORDINATE SYSTEM.
2. ALL ELEVATIONS SHOWN ON THESE DRAWINGS ARE REFERENCE FROM MEAN SEA LEVEL.
3. EXISTING STRUCTURES, POWER LINES, MONITORING WELLS, AND OTHER UTILITIES WITHIN THE PROJECT AREA SHALL BE PROTECTED DURING CONSTRUCTION ACTIVITIES, UNLESS OTHERWISE NOTED ON THE PROJECT DRAWINGS.
4. EXISTING TOPOGRAPHY AND SITE FEATURES SHOWN ON PROJECT DRAWINGS WITHIN PROJECT AREA ARE BASED ON THE LATEST SRNS SURVEY DATA AVAILABLE.
5. THE APPROXIMATE LIMITS OF ASH SHOWN IS BASED ON SAMPLING AND ANALYSIS PLAN FOR THE WETLAND AREA AT DUNBARTON BAY IN SUPPORT OF THE STEEL CREEK INTEGRATOR OPERABLE UNIT, SOCP-SAP-2010-00007, REV. 1.
6. DUNBARTON BAY IS AN EXISTING WETLANDS. NO DISTURBANCE OR CONSTRUCTION ACTIVITY OF ANY KIND SHALL TAKE PLACE WITHIN THE 100'BUFFER OR DESIGNATED WETLANDS.

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
MW		MONITORING WELL (AIP)
		TREE LINE
270		CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
		UNDERGROUND UTILITY
OE		ABOVEGROUND UTILITY
Ø		POWER POLE
LOA		APPROXIMATE LIMITS OF ASH
		APPROXIMATE LIMITS OF DUNBARTON BAY
		HOG WIRE FENCE
		ROCK CHECK DAM
	LOD	OVERALL LIMITS OF LAND DISTURBANCE

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED POLYETHYLENE PIPE
LOA	LIMITS OF ASH
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00001 — LATEST REVISION: A

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

REFERENCE DRAWINGS

REFER TO DOCUMENT INDEX - THIS DRAWING

WETLAND AREA AT DUNBARTON BAY

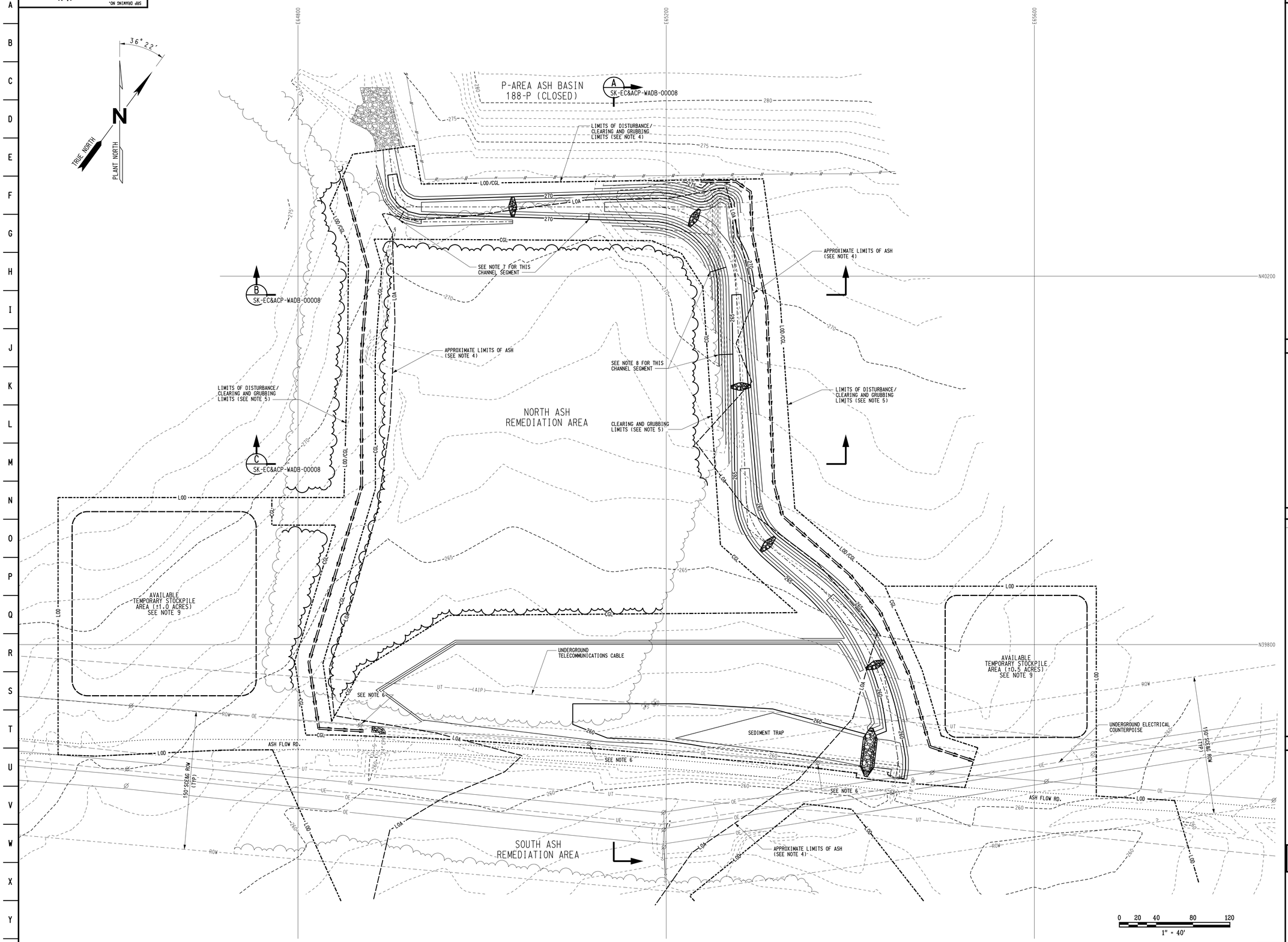
ASH REMEDIATION

GENERAL NOTES, DOCUMENT INDEX & EXISTING SITE PLAN

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 60'	SK-EC&ACP-WADB-00001	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

SRP DRAWING NO.
N/A



NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. THE EROSION & SEDIMENT CONTROL (E&SC) MEASURES SPECIFIED BY THE PROJECT DRAWINGS HAVE BEEN DESIGNED TO SATISFY THE REQUIREMENTS OF SOUTH CAROLINA REGULATION CHAPTER 72 - ARTICLE 3 AND NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES (SCR100000). THE SUBCONTRACTOR SHALL IMPLEMENT AND MAINTAIN E&SC MEASURE PER BEST MANAGEMENT PRACTICES (BMP'S) AS REQUIRED TO COMPLY WITH THESE DOCUMENTS. THE PROJECT DRAWINGS AND THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) / GRADING PERMIT.
3. INITIAL EROSION & SEDIMENT CONTROL MEASURES, AS SHOWN ON THIS DRAWING, SHALL BE INSTALLED PRIOR TO OTHER LAND DISTURBANCE BEING PERFORMED FOR THIS PROJECT.
4. THE APPROXIMATE LIMITS OF ASH SHOWN IS BASED ON SAMPLING AND ANALYSIS PLAN FOR THE WETLAND AREA AT DUNBARTON BAY IN SUPPORT OF THE STEEL CREEK INTEGRATOR OPERABLE UNIT, SGCP-SAP-2010-00007, REV. 1.
5. INITIAL CLEARING AND GRUBBING SHALL BE PERFORMED FOR THE INSTALLATION OF PERIMETER SEDIMENT CONTROL STRUCTURES (SEDIMENT TRAPS, DIVERSION DITCHES AND SILT FENCES) AS SHOWN ON THIS DRAWING. THE INITIAL CLEARING AND GRUBBING LIMITS AND LIMITS OF DISTURBANCE AS SHOWN ARE APPROXIMATE AND MAY BE EXPANDED AS NECESSARY IF APPROVED BY THE ENGINEER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER. NEW TREE LINE IS DESIGNATED BY THE PROPOSED CLEARING AND GRUBBING LIMITS, BUT IS SHOWN OFFSET FOR CLARITY.
6. NO MECHANICAL CLEARING OR EXCAVATION SHALL BE PERFORMED WITHIN 3 FEET FROM THE BASE OF THE POWER POLES. NECESSARY CLEARING OR EXCAVATION WITHIN 3 FEET OF THE POWER POLE BASE SHALL BE PERFORMED BY HAND.
7. ASH ADJACENT TO THE CHANNEL SIDE SLOPE AND BELOW FINAL GRADE SHALL BE REMOVED TO CLEAN SOIL AND REPLACED WITH COMPACTED FILL FOR CONSTRUCTION OF CHANNEL. THIS SEGMENT IS ±100 FT LONG. ASH DEPTH FROM SIDE SLOPE VARIES TO ±1.9 FT AND ASH WIDTH FROM SIDE SLOPE VARIES TO ±11.2 FT.
8. ASH ADJACENT TO THE CHANNEL SIDE SLOPE AND BELOW FINAL GRADE SHALL BE REMOVED TO CLEAN SOIL AND REPLACED WITH COMPACTED FILL FOR CONSTRUCTION OF CHANNEL. THIS SEGMENT IS ±125 FT LONG. ASH DEPTH FROM SIDE SLOPE VARIES TO ±2.9 FT. ASH WIDTH FROM SIDE SLOPE VARIES TO ±9.7 FT.
9. UTILIZE THE MINIMUM AREA REQUIRED FOR STOCKPILING DEBRIS OR SOIL MATERIALS IF NECESSARY. RESTORE THE AREA DISTURBED PER SPECIFIED REQUIREMENTS.

NORTH ASH REMEDIATION PLAN

1. CLEAR AND GRUB ONLY AREA REQUIRED TO INSTALL INITIAL EROSION & SEDIMENT CONTROL MEASURES AND STORMWATER CHANNEL AS SHOWN ON THIS DRAWING.
2. CONSTRUCT PERIMETER DIVERSION BERMS/DITCHES, SEDIMENT TRAP AND TRAP OUTLET STRUCTURE.
3. CONSTRUCT AND LINE STORMWATER CHANNEL ACCORDING TO PLANS. CHANNEL MUST BE FULLY COMPLETED AND STABILIZED BEFORE PROCEEDING WITH REMAINING ASH REMEDIATION WORK.
4. CLEAR AND GRUB REMAINING AREA WITHIN LIMITS OF DISTURBANCE TO FACILITATE EXCAVATION OF SOIL/ASH MATERIAL AND GRADING (SEE SK-EC&ACP-WADB-00003).
5. EXCAVATE ASH/SOIL MATERIAL TO LINE AND GRADES (SEE SK-EC&ACP-WADB-00003).
6. SRNS WILL PERFORM VISUAL INSPECTIONS AND CONFIRMATION SAMPLING PRIOR TO FINAL STABILIZATION
7. REMOVE TEMPORARY DIVERSIONS, SEDIMENT TRAP AND OUTLET STRUCTURE AND STABILIZE ALL DISTURBED AREAS (SEE SK-EC&ACP-WADB-00004).

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
(MW)	(MW)	MONITORING WELL (AIP)
		TREE LINE
270	270	CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
		UNDERGROUND UTILITY
OE	OE	ABOVEGROUND UTILITY
∅	∅	POWER POLE
LOA	LOA	APPROXIMATE LIMITS OF ASH
//	//	HOG WIRE FENCE
		ROCK CHECK DAM
	LOD	OVERALL LIMITS OF LAND DISTURBANCE
	CGL	CLEARING AND GRUBBING LIMITS
		DIVERSION

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CGL	CLEARING AND GRUBBING LIMITS
CPP	CORRUGATED POLYETHYLENE PIPE
LOA	LIMITS OF ASH
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00002 — LATEST REVISION: A

REFERENCE DRAWINGS	
SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN
SK-EC&ACP-WADB-00003	N ASH REM AREA - GRADING PLAN
SK-EC&ACP-WADB-00004	N ASH REM AREA - STABILIZATION PLAN
SK-EC&ACP-WADB-00008	CROSS SECTIONS

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

WETLAND AREA AT DUNBARTON BAY

ASH REMEDIATION

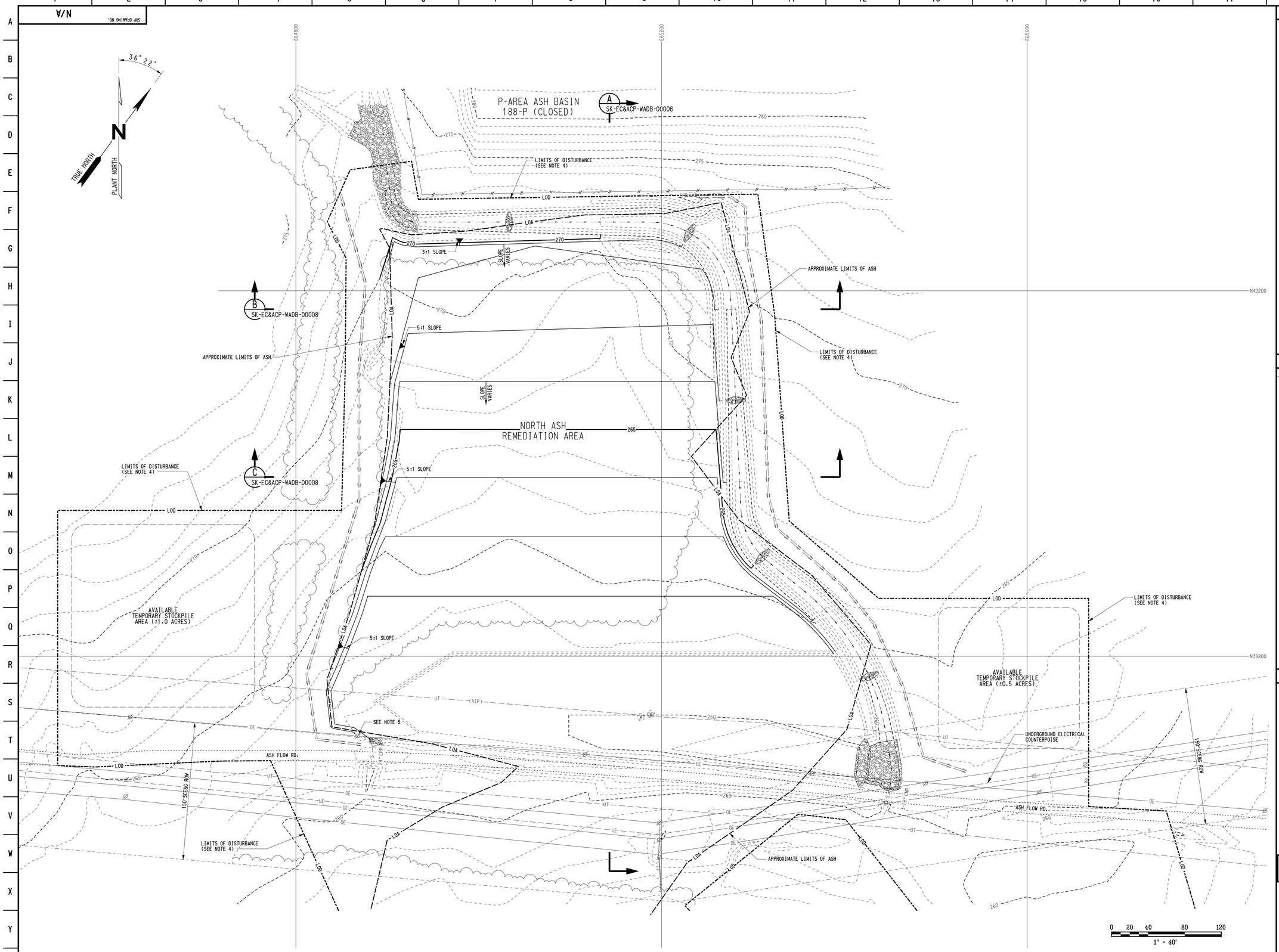
NORTH ASH REMEDIATION AREA
EROSION CONTROL (INITIAL)

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 40'	SK-EC&ACP-WADB-00002	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

N/A

SRP DRAWING NO.



0 20 40 80 120

1" = 40'

NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. WORK SHOWN ON THIS DRAWING SHALL BE PERFORMED ONLY AFTER CONSTRUCTION OF INITIAL EROSION AND SEDIMENT CONTROL MEASURES ARE COMPLETE (SEE SK-EC&ACP-WADB-00002).
3. SEE SK-EC&ACP-WADB-00004 FOR THE STABILIZATION PLAN.
4. LIMITS OF DISTURBANCE AS SHOWN ARE APPROXIMATE AND MAY BE EXPANDED AS NECESSARY IF APPROVED BY THE ENGINEER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER.
5. NO MECHANICAL CLEARING OR EXCAVATION SHALL BE PERFORMED WITHIN 3 FEET FROM THE BASE OF THE POWER POLES. CLEARING OR EXCAVATION WITHIN 3 FEET OF THE POWER POLE BASE SHALL BE PERFORMED BY HAND.

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
(MW)		MONITORING WELL (AIP)
		TREE LINE
270	270	CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
UE		UNDERGROUND UTILITY
OE		ABOVEGROUND UTILITY
Ø		POWER POLE
		HOG WIRE FENCE
		ROCK CHECK DAM
LOD		APPROXIMATE LIMITS OF DISTURBANCE
		DIVERSION
LOA		APPROXIMATE LIMITS OF ASH
		℄ CHANNEL / FLOW DIRECTION

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED POLYETHYLENE PIPE
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00003 — LATEST REVISION: A

REFERENCE DRAWINGS

SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN
SK-EC&ACP-WADB-00002	N ASH REM AREA - EC (INITIAL)
SK-EC&ACP-WADB-00004	N ASH REM AREA - STABILIZATION PLAN
SK-EC&ACP-WADB-00008	CROSS SECTIONS

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

WETLAND AREA AT DUNBARTON BAY

ASH REMEDIATION

NORTH ASH REMEDIATION AREA GRADING PLAN

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 40'	SK-EC&ACP-WADB-00003	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

SRP DRAWING NO.
N/A

NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AND AREA STABILIZED FOLLOWING PERMANENT STABILIZATION OF PROJECT SITE.
3. REMOVE SEDIMENT TRAP OUTLET STRUCTURE AFTER FINAL STABILIZATION HAS BEEN REACHED. PLACE SOD IN AREA PREVIOUSLY OCCUPIED BY OUTLET STRUCTURE AND AREA DISTURBED WHILE REMOVING OUTLET STRUCTURE. TIE SOD INTO RIP RAP CHANNEL LINING ON BACK SIDE OF REMOVED OUTLET STRUCTURE.
4. ALL AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES WHERE THE FINAL STABILIZATION METHOD IS NOT IDENTIFIED ON THIS DRAWING (INCLUDING AREAS DENUDED BY CONSTRUCTION TRAFFIC), SHALL BE RESTORED/REPAIRED TO THEIR ORIGINAL OR IMPROVED CONDITION AS DETERMINED BY THE STR (I.E., RE-SEED GRASSED AREAS, REPLACE STONE SURFACING, REPAIR DAMAGED CONCRETE OR ASPHALT PAVING).
5. PERMANENTLY STABILIZE AREA AFTER REMOVAL OF TEMPORARY DIVERSION BERM IN THIS AREA.

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
MW		MONITORING WELL (AIP)
		TREE LINE
270		CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
		UNDERGROUND UTILITY
OE		ABOVEGROUND UTILITY
Ø		POWER POLE
// //		HOG WIRE FENCE
LOD		LIMITS OF LAND DISTURBANCE
		PERMANENT GRASSING (SOD)
		PERMANENT GRASSING (SOD W/ TURF REINFORCEMENT MATTING)
		SLOPE INDICATOR

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED POLYETHYLENE PIPE
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00004 — LATEST REVISION: A

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

REFERENCE DRAWINGS	
SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN

WETLAND AREA AT DUNBARTON BAY

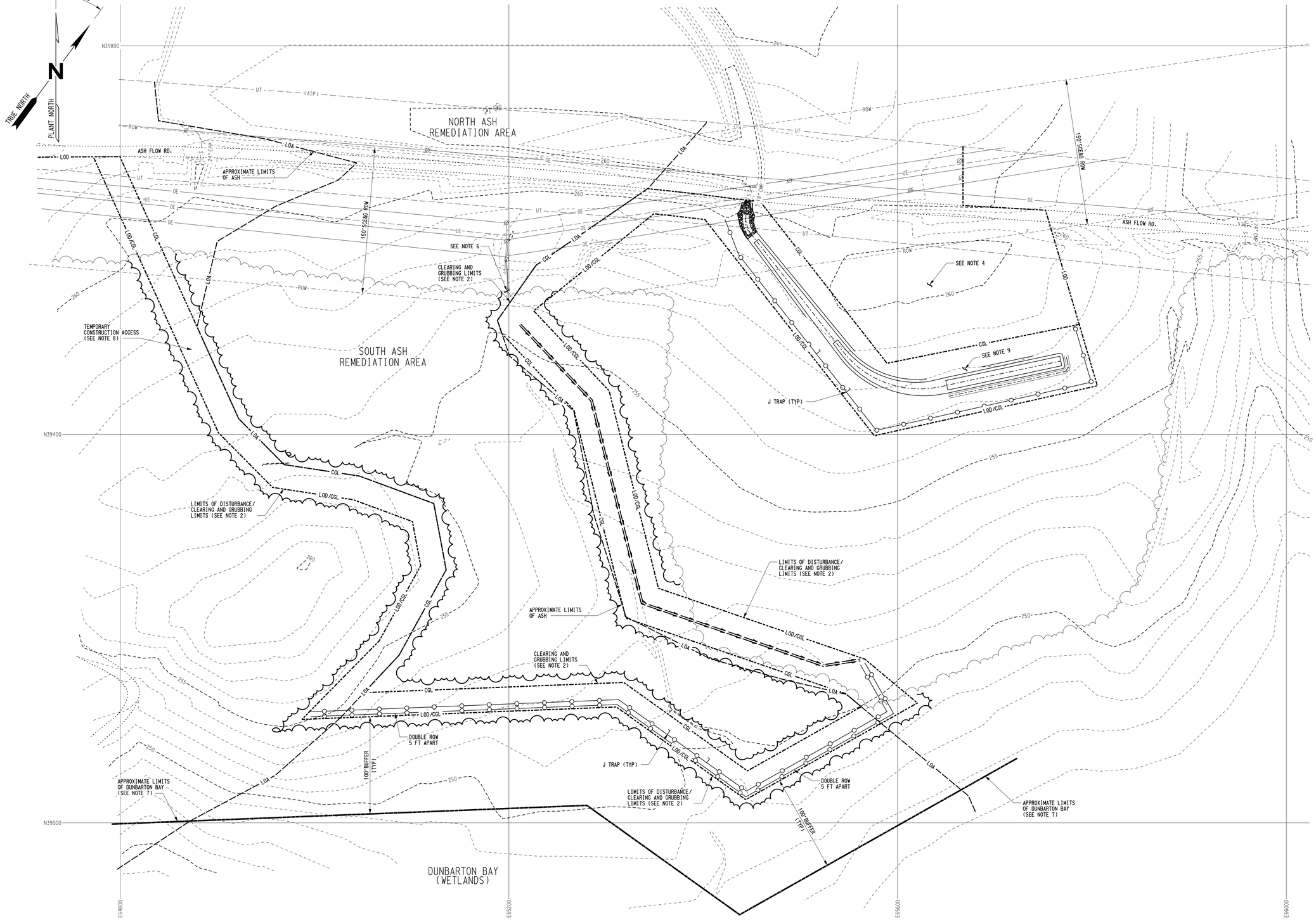
ASH REMEDIATION

NORTH ASH REMEDIATION AREA STABILIZATION PLAN

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 40'	SK-EC&ACP-WADB-00004	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

SKP DRAWING NO.
N/A



0 20 40 80 120
1" = 40'

NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. INITIAL CLEARING AND GRUBBING SHALL BE PERFORMED FOR THE INSTALLATION OF PERIMETER SEDIMENT CONTROL STRUCTURES (DIVERSION DITCHES AND SILT FENCES) AS SHOWN ON THIS DRAWING. THE INITIAL CLEARING AND GRUBBING LIMITS AND LIMITS OF DISTURBANCE AS SHOWN ARE APPROXIMATE AND MAY BE EXPANDED AS NECESSARY IF APPROVED BY THE ENGINEER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER. NEW TREE LINE IS DESIGNATED BY THE PROPOSED CLEARING AND GRUBBING LIMITS, BUT IS SHOWN OFFSET FOR CLARITY.
3. INITIAL EROSION AND SEDIMENT CONTROL MEASURES MAY BE INSTALLED IN PHASES IN ACCORDANCE WITH CONSTRUCTION SEQUENCING, BUT MUST BE INSTALLED PRIOR TO ANY LAND DISTURBANCE IN AREAS UPSTREAM FROM CONTROL MEASURES.
4. THIS AREA WITHIN THE LIMITS OF DISTURBANCE SOUTH OF ASH FLOW ROAD IS FOR CONSTRUCTION TRAFFIC ONLY. NO CLEARING AND GRUBBING SHALL TAKE PLACE. MINIMIZE DISTURBANCE.
5. CLEARING AND GRUBBING DEBRIS THAT IS NOT CONTAMINATED WITH SEDIMENT MAY BE TEMPORARILY STAGED IN THE DESIGNATED TEMPORARY STOCKPILE AREA SHOWN ON SK-EC&ACP-WADB-00002.
6. NO MECHANICAL CLEARING OR EXCAVATION SHALL BE PERFORMED WITHIN 3 FEET FROM THE BASE OF THE POWER POLES AND GUY WIRE ANCHORS. NECESSARY CLEARING OR EXCAVATION WITHIN 3 FEET OF THE POWER POLE BASE OR GUY WIRE ANCHORS SHALL BE PERFORMED BY HAND.
7. DUNBARTON BAY IS AN EXISTING WETLANDS. NO DISTURBANCE SHALL TAKE PLACE BEYOND THE LIMITS OF LAND DISTURBANCE OR WITHIN THE 100' BUFFER. THE WETLANDS SHALL NOT BE IMPACTED BY THIS PROJECT. SILT FENCE ALONG THE BUFFER SHALL BE MAINTAINED TO PREVENT SEDIMENT FROM BEING DISCHARGED FROM THE PROJECT SITE INTO THE EXISTING WETLANDS.
8. THE AREA BETWEEN THE LIMITS OF DISTURBANCE AND CLEARING AND GRUBBING LIMITS ALONG THE WEST PERIMETER OF SOUTH ASH REMEDIATION AREA IS TO BE USED FOR CONSTRUCTION ACCESS.
9. AFTER COMPLETION OF CHANNEL AND FLOW DISSIPATER GRADING, PERMANENTLY STABILIZE THIS AREA PER SK-EC&ACP-WADB-00007 AS PART OF THE WORK SHOWN FOR THIS PHASE. REMOVE SILT FENCE TO COMPLETE SOD INSTALLATION.

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
(MW)		MONITORING WELL (AIP)
		TREE LINE
270	270	CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
		UNDERGROUND UTILITY
OE		ABOVEGROUND UTILITY
∅		POWER POLE
LOA		APPROXIMATE LIMITS OF ASH
		APPROXIMATE LIMITS OF DUNBARTON BAY
LOD		OVERALL LIMITS OF LAND DISTURBANCE
CGL		CLEARING AND GRUBBING LIMITS
		DIVERSION
		SILT FENCE WITH J-TRAP

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CGL	CLEARING AND GRUBBING LIMITS
CPP	CORRUGATED POLYETHYLENE PIPE
LOA	LIMITS OF ASH
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00005 — LATEST REVISION: A

REFERENCE DRAWINGS	
SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN
SK-EC&ACP-WADB-00002	N ASH REM AREA - EC (INITIAL)
SK-EC&ACP-WADB-00007	S ASH REM AREA - STABILIZATION PLAN

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

WETLAND AREA AT DUNBARTON BAY

ASH REMEDIATION

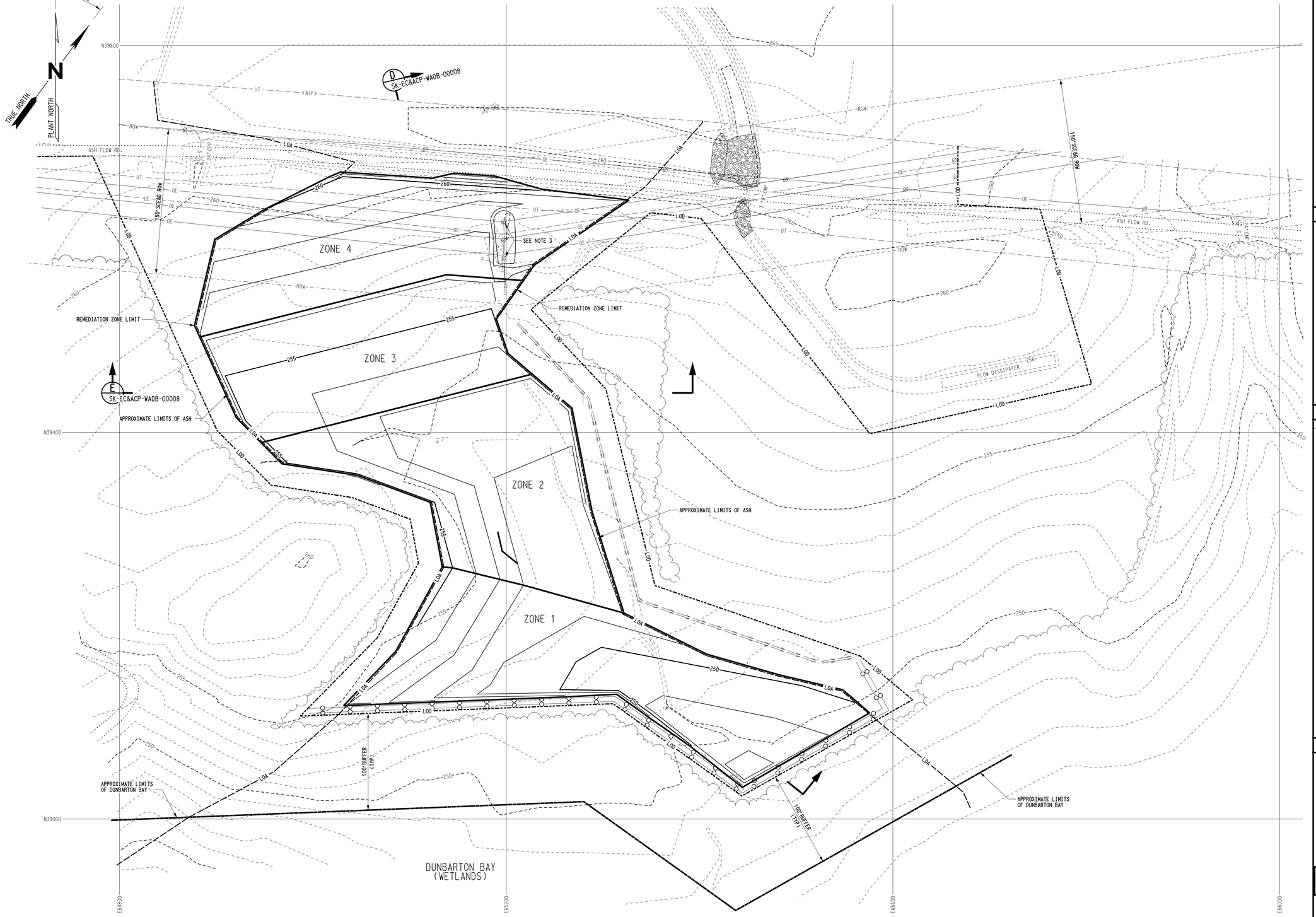
SOUTH ASH REMEDIATION AREA EROSION CONTROL (INITIAL)

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 40'	SK-EC&ACP-WADB-00005	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

SRP DRAWING NO.

N/A



NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. WORK SHOWN ON THIS DRAWING SHALL BE PERFORMED ONLY AFTER INITIAL EROSION AND SEDIMENT CONTROL MEASURES ARE COMPLETE (SEE SK-EC&ACP-WADB-00005).
3. NO MECHANICAL CLEARING OR EXCAVATION SHALL BE PERFORMED WITHIN 3 FEET FROM THE BASE OF THE POWER POLES OR GUY WIRE ANCHORS. NECESSARY CLEARING OR EXCAVATION WITHIN 3 FEET OF THE POWER POLE BASE OR GUY WIRE ANCHORS SHALL BE PERFORMED BY HAND. DEPTH OF EXCAVATION AROUND 115KV POLES IS LIMITED TO 1 FOOT. IF ASH IS OBSERVED TO BE AT A DEPTH GREATER THAN 1 FOOT, STR WILL INTERFACE WITH SCE&G TO DETERMINE COURSE OF ACTION. BACKFILL AREA WITHIN 10'OF POLES/ANCHORS TO EXISTING GRADE.

SOUTH ASH REMEDIATION PLAN

1. INITIAL EROSION AND SEDIMENT CONTROL MEASURES FOR SOUTH ASH REMEDIATION AREA MUST BE INSTALLED PRIOR TO ANY WORK PERFORMED IN ASH REMEDIATION ZONES 1 THRU 4 (SEE SK-EC&ACP-WADB-00005).
2. ASH REMEDIATION IS TO BE PERFORMED ONE ZONE AT A TIME BEGINNING WITH ZONE 1 AND ENDING WITH ZONE 4. THE SEQUENCE OF ACTIVITIES INCLUDES: CLEARING AND GRUBBING, INSTALLING TEMPORARY DIVERSIONS BETWEEN ADJACENT ZONES, EXCAVATTING AND GRADING, VISUAL INSPECTION AND CONFIRMATION SAMPLING (BY SRNS) AND FINAL STABILIZATION. TEMPORARY DIVERSIONS BETWEEN ADJACENT ZONES WILL BE REMOVED AND THEN INSTALLED AT THE NEXT ZONE INTERFACE.
3. BEFORE PROCEEDING TO THE NEXT ZONE, ALL WORK MUST BE COMPLETED IN THE ZONE CURRENTLY BEING REMEDIATED.
4. AFTER ALL ZONES HAVE BEEN REMEDIATED, REMOVE DIVERSIONS AND DOUBLE ROW OF SILT FENCE ALONG WETLANDS BUFFER AND COMPLETE FINAL STABILIZATION OF SOUTH ASH REMEDIATION AREA (SEE SK-EC&ACP-WADB-00007).

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
(M)		MONITORING WELL (AIP)
		TREE LINE
270	270	CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
		UNDERGROUND UTILITY
OE		ABOVEGROUND UTILITY
∅		POWER POLE
LOA		APPROXIMATE LIMITS OF ASH
		APPROXIMATE LIMITS OF DUNBARTON BAY
LOD		OVERALL LIMITS OF LAND DISTURBANCE
		DIVERSION
		SILT FENCE
		REMEDIATION ZONE LIMIT

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CGL	CLEARING AND GRUBBING LIMITS
CPP	CORRUGATED POLYETHYLENE PIPE
LOA	LIMITS OF ASH
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00006 — LATEST REVISION: A

0 20 40 80 120

1" = 40'

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

REFERENCE DRAWINGS	
SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN
SK-EC&ACP-WADB-00005	S ASH REM AREA - EC (INITIAL)
SK-EC&ACP-WADB-00007	S ASH REM AREA - STABILIZATION PLAN
SK-EC&ACP-WADB-00008	CROSS SECTIONS

WETLAND AREA AT DUNBARTON BAY

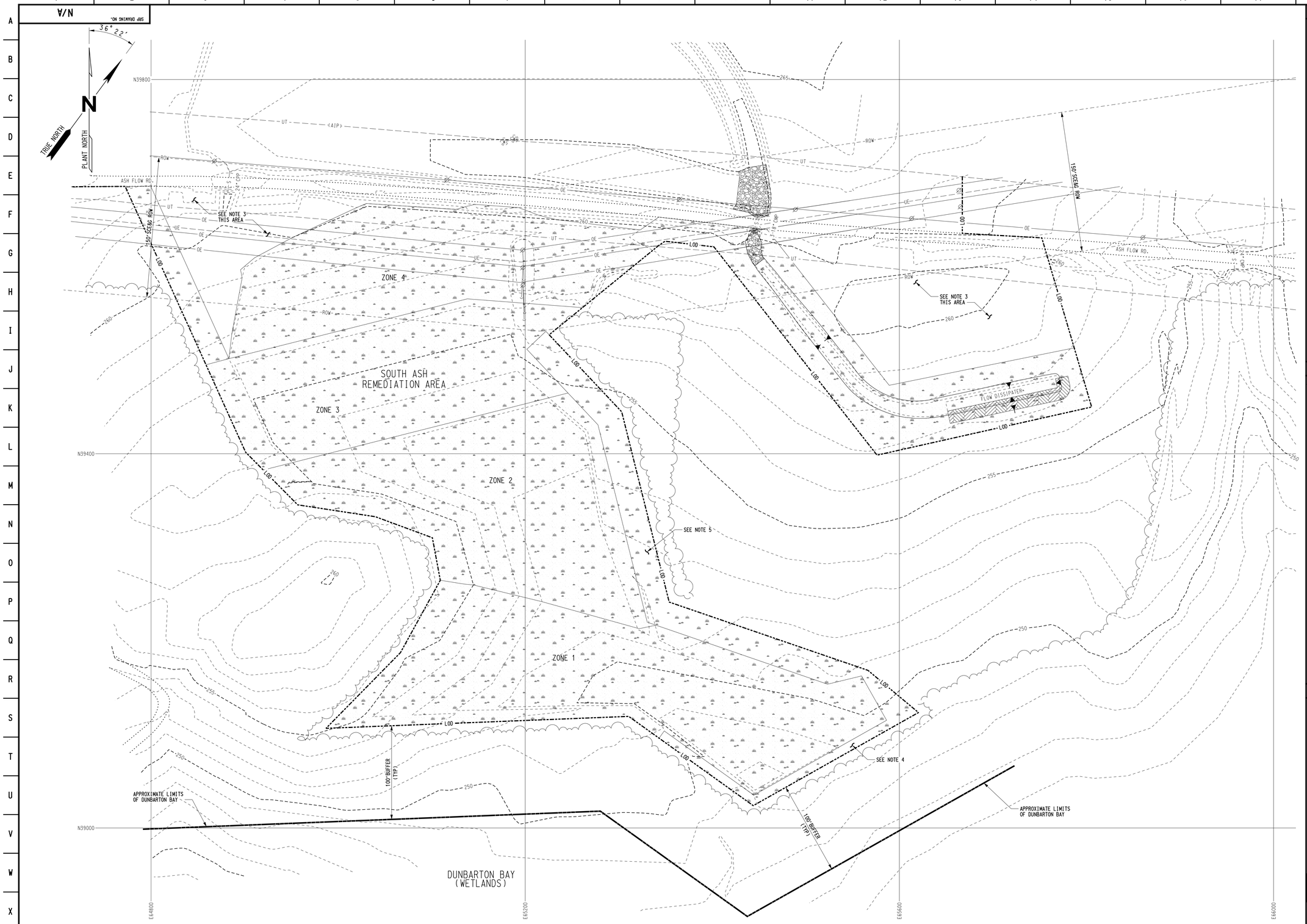
ASH REMEDIATION

SOUTH ASH REMEDIATION AREA GRADING PLAN

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 40'	SK-EC&ACP-WADB-00006	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

SKP DRAWING NO.
N/A



NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES (INCLUDING SILT FENCE, CHECK DAMS, SEDIMENT TUBES, TEMPORARY DIVERSIONS, ETC.) SHALL BE REMOVED AND AREA STABILIZED FOLLOWING PERMANENT STABILIZATION OF AREAS UPSLOPE OF THE CONTROL MEASURE. DISPOSE OF WASTE AS DIRECTED BY THE STR.
3. ALL AREAS DISTURBED DURING CONSTRUCTION ACTIVITIES WHERE THE FINAL STABILIZATION METHOD IS NOT IDENTIFIED ON THIS DRAWING (INCLUDING AREAS DENUDED BY CONSTRUCTION TRAFFIC), SHALL BE RESTORED/REPAIRED TO THEIR ORIGINAL OR IMPROVED CONDITION AS DETERMINED BY THE STR (I.E., RE-SEED GRASSED AREAS, REPLACE STONE SURFACING, REPAIR DAMAGED CONCRETE OR ASPHALT PAVING).
4. PERMANENTLY STABILIZE AREA AFTER REMOVAL OF SILT FENCE AS SHOWN.
5. PERMANENTLY STABILIZE AREAS AFTER REMOVAL OF TEMPORARY DIVERSION AS SHOWN.

LEGEND

EXISTING	NEW	DESCRIPTION
		DIRT/GRAVEL ROAD
(MW)		MONITORING WELL (AIP)
		TREE LINE
270		CONTOUR (MAJOR)
		CONTOUR (MINOR)
		RIP RAP
		UNDERGROUND UTILITY
		ABOVEGROUND UTILITY
∅		POWER POLE
		APPROXIMATE LIMITS OF DUNBARTON BAY
LOD		OVERALL LIMITS OF LAND DISTURBANCE
		PERMANENT GRASSING (SOD)
		PERMANENT GRASSING (SEED W/ MULCH)
		PERMANENT GRASSING (SOD W/ TURF REINFORCEMENT MATTING)

ABBREVIATIONS

AIP	ABANDONED IN PLACE
CMP	CORRUGATED METAL PIPE
CGL	CLEARING AND GRUBBING LIMITS
CPP	CORRUGATED POLYETHYLENE PIPE
LOD	LIMITS OF DISTURBANCE
OE	OVERHEAD ELECTRICAL
ROW	RIGHT OF WAY
S	STORM (SEWER/CULVERT)
SCE&G	SOUTH CAROLINA ELECTRIC & GAS
UE	UNDERGROUND ELECTRICAL COUNTERPOISE
UT	UNDERGROUND TELECOMMUNICATIONS

SK EC&ACP WADB 00007 — LATEST REVISION: A

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

REFERENCE DRAWINGS	
SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN

WETLAND AREA AT DUNBARTON BAY

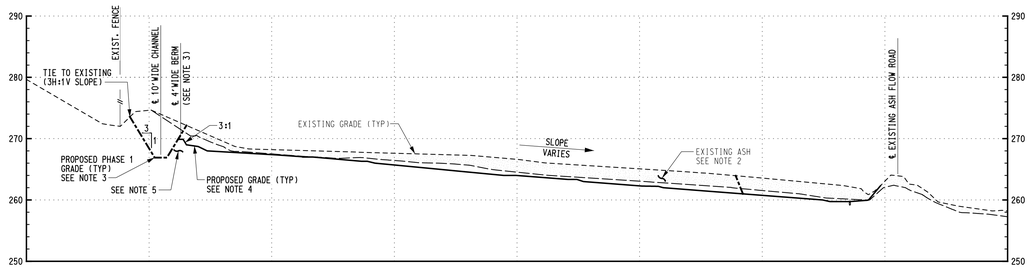
ASH REMEDIATION

SOUTH ASH REMEDIATION AREA STABILIZATION PLAN

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
1" = 40'	SK-EC&ACP-WADB-00007	1 OF 1	A

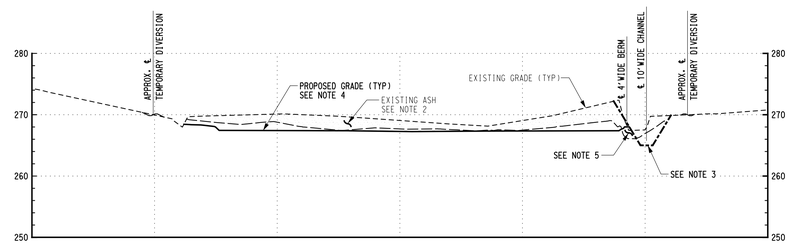
The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)

SHT DRAWING NO.
N/A



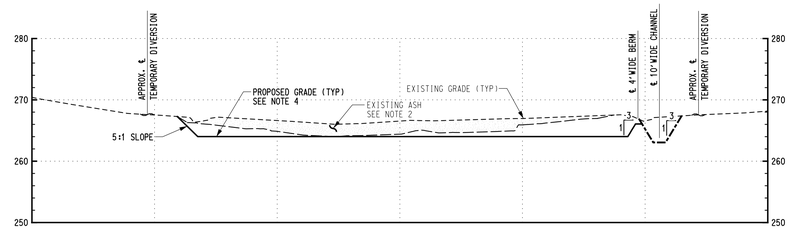
NORTH ASH REMEDIATION AREA

SECTION A
SCALE: 1" = 50'(H) 1" = 10'(V)
SK-EC&ACP-WADB-00002
SK-EC&ACP-WADB-00003



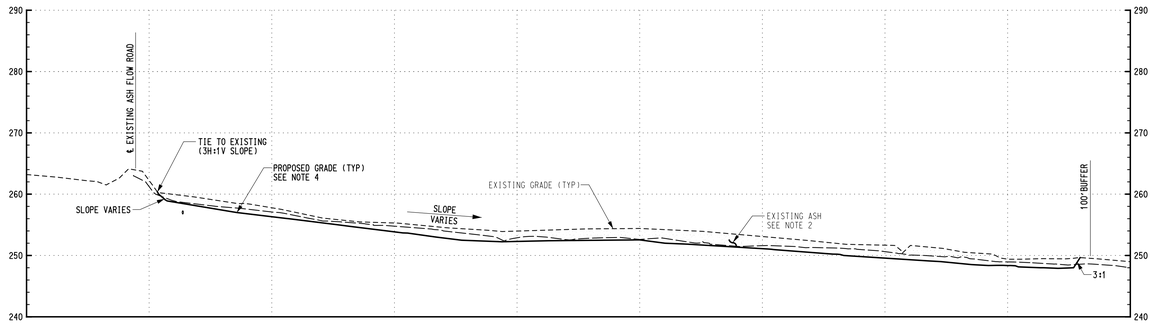
NORTH ASH REMEDIATION AREA

SECTION B
SCALE: 1" = 50'(H) 1" = 10'(V)
SK-EC&ACP-WADB-00002
SK-EC&ACP-WADB-00003



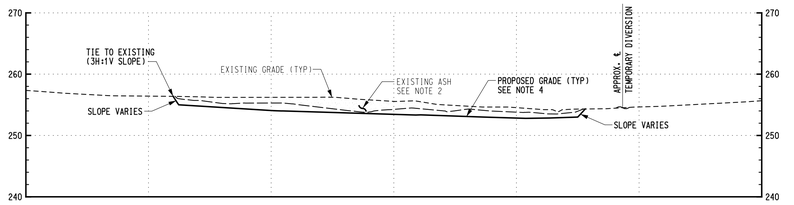
NORTH ASH REMEDIATION AREA

SECTION C
SCALE: 1" = 50'(H) 1" = 10'(V)
SK-EC&ACP-WADB-00002
SK-EC&ACP-WADB-00003



SOUTH ASH REMEDIATION AREA

SECTION D
SCALE: 1" = 50'(H) 1" = 10'(V)
SK-EC&ACP-WADB-00006



SOUTH ASH REMEDIATION AREA

SECTION E
SCALE: 1" = 50'(H) 1" = 10'(V)
SK-EC&ACP-WADB-00006

NOTES

1. SEE SK-EC&ACP-WADB-00001 FOR GENERAL NOTES.
2. DEPTH OF ASH IS APPROXIMATE AND MAY VARY.
3. INITIAL GRADING OF THE 10'WIDE CHANNEL WILL TIE INTO EXISTING GRADE WITH 3:1 SIDE SLOPES. THE PROPOSED 4'WIDE BERM SHALL BE CONSTRUCTED DURING PHASE 2.
4. REMOVE ALL ASH/SOIL TO PROPOSED GRADE. SUBCONTRACTOR SHALL NOTIFY STR IF ADDITIONAL ASH IS FOUND BELOW PROPOSED GRADE. ADDITIONAL ASH/SOIL REMOVAL BELOW PROPOSED GRADE SHALL NOT BE PERFORMED WITHOUT PRIOR AUTHORIZATION FROM STR. UNLESS OTHERWISE SHOWN ON PLANS.
5. ASH ADJACENT TO THE CHANNEL SIDE SLOPE AND BELOW FINAL GRADE SHALL BE REMOVED TO CLEAN SOIL AND REPLACED WITH COMMON FILL FOR CHANNEL CONSTRUCTION AND PROPOSED FINAL GRADING. SEE SK-EC&ACP-WADB-00002 FOR APPROXIMATE LOCATION OF ASH DESCRIBED IN THIS NOTE.

0 10 20 30
1" = 10' VERTICAL

0 50 100 150
1" = 50' HORIZONTAL

PROJ.	Rev. No.	DATE	REVISION
N/A	A		ISSUED FOR REVIEW

REFERENCE DRAWINGS	
SK-EC&ACP-WADB-00001	GEN. NOTES, DOC. INDEX & SITE PLAN
SK-EC&ACP-WADB-00002	N ASH REM AREA - EC (INITIAL)
SK-EC&ACP-WADB-00003	N ASH REM AREA - GRADING PLAN
SK-EC&ACP-WADB-00006	S ASH REM AREA - GRADING PLAN

SK EC&ACP WADB 00008 | LATEST REVISION: A

WETLAND AREA AT DUNBARTON BAY

ASH REMEDIATION

CROSS SECTIONS

SCALE	SKETCH NO.	SHEET NO.	LATEST REVISION
AS SHOWN	SK-EC&ACP-WADB-00008	1 OF 1	A

The scale shown on this drawing is only applicable when plotted at 30" x 42" (actual drawing size)