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Post-Construction Report/Corrective Measures Implementation Report /Remedial Action Completion Report for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U)

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March 2020

DISCLAIMER

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Prepared for
U.S. Department of Energy
and
Savannah River Nuclear Solutions, LLC
Aiken, South Carolina

CERTIFICATION

**Post Construction Report/Corrective Measures Implementation Report/
Remedial Action Completion Report for the G-Area Oil Seepage Basin Operable Unit
SRNS-RP-2020-00022, Revision 1, March 2020**

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

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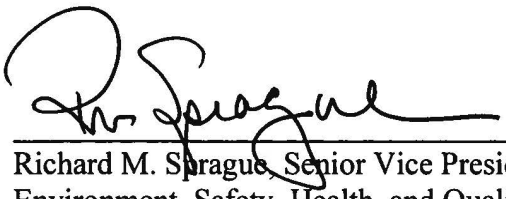
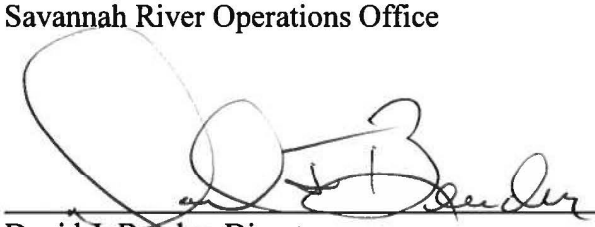


08/13/2020

Richard M. Sprague, Senior Vice President
Environment, 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 Signed



8/13/2020

David J. Bender, Director
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Co-Operator and Owner

Date Signed

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LIST OF ABBREVIATIONS AND ACRONYMS

~	approximately
amsl	above mean sea level
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
CMI/RAIP	Corrective Measures Implementation/Remedial Action Implementation Plan
C&D	construction and demolition
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DOE-SR	Department of Energy - Savannah River
FFA	Federal Facility Agreement
ft	feet
GOSB	G-Area Oil Seepage Basin
HQ	Hazard Quotient
in.	inch
LOD	limits of disturbance
LUC	Land Use Control
m	meter
m^3	cubic meter
N/A	not applicable
O&M	operation and maintenance
OU	Operable Unit
PCR/CMIR/RACR	Post-Construction Report/Corrective Measures Implementation Report/Remedial Action Completion Report
PMCS	Project Management Construction Services
QA	Quality Assurance
RA	remedial action
RAO	remedial action objective
RCOC	refined constituent of concern
RCRA	Resource Conservation and Recovery Act
RG	remedial goal
RGO	remedial goal option
ROD	Record of Decision
SCDHEC	South Carolina Department of Health and Environmental Control
SEMS	Superfund Enterprise Management System
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
sVOC	semi-volatile organic compound

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

USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WSRC	Washington Savannah River Company, LLC
yd^3	cubic yard

1.0 GENERAL DESCRIPTION

1.1 Purpose and Scope

This Post-Construction Report/Corrective Measures Implementation Report/Remedial Action Completion Report (PCR/CMIR/RACR) documents the completion of field implementation of the remedial action (RA) for the closure of the G-Area Oil Seepage Basin (GOSB) Operable Unit (OU). It summarizes construction activities performed to implement the RA requirements in the GOSB OU Record of Decision (ROD) (Savannah River Nuclear Solutions [SRNS] 2019b) in accordance with the approved Corrective Measures Implementation/Remedial Action Implementation Plan (CMI/RAIP) (SRNS 2019a).

This PCR/CMIR/RACR was completed after final inspection of construction and a determination that the RA was complete. The Savannah River Site (SRS) notified the United States Environmental Protection Agency (USEPA) Region 4 and South Carolina Department of Health and Environmental Control (SCDHEC) regarding completion of RA activities on January 16, 2020. This PCR/CMIR/RACR is submitted to USEPA and SCDHEC for approval in accordance with Federal Facility Agreement (FFA) (FFA 1993) requirements.

This report includes the following items:

- A brief description of the GOSB OU background, including a brief statement on RA requirements and objectives in the ROD (SRNS 2019b);
- A chronology of completed events related to remediation of the GOSB OU;
- A summary of construction activities performed;
- Deviations from the original design of the approved CMI/RAIP (SRNS 2019a);
- Performance standards and quality control inspections, including a summary of performance test results documenting verification of compliance with the acceptance criteria in the CMI/RAIP;

- Final inspection and verification of GOSB OU closure;
- As-Built drawings; and
- Project costs

1.1.1 Document Format

This report has been prepared in accordance with the requirements for submittal of regulatory documents as identified in the FFA and the latest format for the PCR/CMIR/RACR. The format of this document is consistent with the FFA protocol format approved by the USEPA and SCDHEC in March 2003 (SRNS 2012).

The GOSB OU RA is complete and does not require long-term RAs, i.e., the final RA does not require long-term operation of constructed equipment or systems for treatment of contaminants in the source unit or in the groundwater. Therefore, the PCR and CMIR/RACR are herein combined.

1.2 Operable Unit Background

The GOSB OU is listed as a Resource Conservation and Recovery Act (RCRA) 3004(u) Solid Waste Management Unit/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) unit in Appendix C of the FFA for SRS.

1.2.1 General Description and Location of the GOSB OU

The GOSB OU is located southeast of N-Area (Central Shops) in relatively flat terrain, approximately (~) 54-meters (m) (180-feet [ft]) south of the railroad tracks, which run adjacent to Central Shops (Figure 1). The area surrounding the GOSB OU is wooded with heavy underbrush and contains no stressed vegetation or other visual indications of contamination (Figure 2).

The remediated basin was ~45 m (150 ft) long and ~28.5-m (95-ft) wide. The basin was ~3-m (10-ft) deep around the edges of the basin with berms on the northern and southern sides (0.9-m [3-ft] and 0.6-m [2-ft] high, respectively). The remaining two sides of the basin were roughly even with the surrounding grade. The deepest part of the basin, near

the center, was ~4.9-m (16-ft) below ground surface (bgs). Depth to groundwater is ~9- to 12-m (30- to 40-ft) bgs and ~6- to 7.5-m (20- to 25-ft) below the basin bottom. A vitrified clay pipe (previously plugged and abandoned in place) ran to the inlet (northwest) side of the basin. On the outlet side of the basin, a vitrified clay pipe discharged southeast of the basin into an intermittent stream. Both inlet and outlet pipes were buried to a depth of ~1.8- to 2.4-m (6- to 8-ft) bgs. A schematic diagram of the GOSB OU prior to the RA is shown in Figure 3.

The GOSB OU received various unknown liquid wastes during SRS plant construction (1951-1956) until the early 1960s. However, there are no records indicating the disposal of radioactive or hazardous materials at the GOSB OU. After the 1960s, the basin received sanitary wastewater treatment facility effluent. The basin was isolated from the active system in the early 1990s. As part of the isolation, the basin was drained, and the influent sewer line was plugged. Since the isolation, rainwater continued to accumulate and be retained in the basin with volume varying up to a maximum of 1,567,160 liters (414,000 gallons). Sediment in the basin was covered with ~20 centimeters (cm) (8 inches [in.]) of leaf debris and decayed organic material. Sandy clay underlies the decayed organic material.

For evaluation purposes, the GOSB OU was comprised of four subunits that represent geographically distinct locations within the GOSB OU (Figure 4). The subunits (and environmental samples associated with each subunit) included the following:

- GOSB OU Interior Subunit (sediment and surface water)
- Pipeline Subunit (soil)
- GOSB OU Berm Subunit (soil)
- Effluent Discharge Subunit (soil)

1.2.2 Nature and Extent of Contamination in the GOSB OU Soils

Characterization results of the GOSB OU are documented in the *Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the G-Area Oil Seepage Basin (GOSB) (U)* (SRNS 2018). The RCRA Facility Investigation/Remedial

Investigation/Baseline Risk Assessment portion of the document summarizes the data associated with the unit, describes the nature and extent of the contaminants in affected media, and evaluates potential risk to human and ecological receptors.

Sampling events conducted in 2009, 2016, and 2017 were used to assess the contamination within the GOSB OU. For this RA, samples of interest include ten composite basin floor/wall sediment samples collected from the 0- to 0.3-m (0- to 1-ft) and 0.3- to 1.2-m (1- to 4-ft) depth intervals in 2009, five surface water samples (unfiltered) collected from within the basin in 2009, and six surface water samples (filtered and unfiltered) collected from within the basin in 2016 (Figure 4). The 15 samples collected in 2009 were analyzed for inorganics (metals), pesticides, polychlorinated biphenyls, volatile organic compounds (VOCs), semi-volatile organic compounds (sVOCs) and radiological indicators (gross alpha/nonvolatile beta). The six surface water samples collected in 2016 were analyzed for inorganics (metals), VOCs, sVOCs, and radiological indicators.

The characterization data was used to perform a human health risk assessment and ecological risk assessment, a principal threat source material evaluation, and contaminant migration to groundwater analysis (SRNS 2018). Sediment and surface water within the GOSB OU Interior Subunit contain contaminants that may potentially pose a threat to human health and the environment. There were no contaminant migration problems warranting action identified for the GOSB OU Interior Subunit. Table 1 identifies the refined constituents of concern (RCOC) for the GOSB OU Interior Subunit and the calculated remedial goals (RGs). Graphics of the extent of contamination within the GOSB OU Interior Subunit are shown in Figures 5 and 6. There were no human health, ecological, or contaminant migration problems warranting action identified for the GOSB OU Berm, Pipeline, or Effluent Discharge subunits.

1.3 Remedial Action Requirements and Objectives

1.3.1 Remedial Action Objectives

The goals of the RA were to protect human health and the environment and mitigate the effects of contamination. As detailed in the ROD, the remedial action objectives (RAOs) for the GOSB OU Interior Subunit sediment were as follows:

- Protect the hypothetical future resident receptor from exposure to alpha-chlordane, gamma-chlordane, dichlorodiphenyldichloroethylene (DDE), dieldrin, and heptachlor epoxide in sediment within the 0- to 0.3-m (0- to 1-ft) depth interval that exceeded 1E-06 risk-based threshold level. Also, protect the future industrial worker receptor from exposure to the pesticides gamma-chlordane, dieldrin, and heptachlor epoxide in sediment within the 0- to 0.3-m (0- to 1-ft) depth interval that exceeded 1E-06 risk-based threshold level. The primary route of exposure for both scenarios was the incidental ingestion pathway.

- Protect ecological receptors from exposure to alpha-chlordane, gamma-chlordane, dichlorodiphenyldichloroethane (DDD), DDE, dieldrin, heptachlor epoxide and silver in sediment that exceeded a hazard quotient (HQ) = 1. The primary route of exposure is the direct contact pathway.

Based on the problem warranting action, the following RAO applied for GOSB OU Interior Subunit surface water:

- Protect ecological receptors from exposure to alpha-chlordane, gamma-chlordane, and silver in surface water that exceeded an HQ = 1. The primary route of exposure is the direct contact pathway.

Per the ROD, RAOs for this RA would be achieved by implementing the RA described below (SRNS 2019b).

1.3.2 Selected Remedial Action

As stated in the ROD (SRNS 2019b), the selected RA for the GOSB OU Interior Subunit included dewatering of the basin, clearing ~0.27 hectare (0.67 acre), excavation of the berms, backfilling the basin with ~4,460 cubic meters (m^3) (5,834 cubic yards [yd^3]) of clean common fill and berm soil, compacting fill material (including compaction testing) to mitigate subsidence followed by grading and construction of a soil and vegetative cover over the basin footprint. The thickness of the required fill material, a minimum of 3 m (10 ft) in the shallow end of the basin and a minimum of 4.9 m (16 ft) in the deeper end of the basin, would prevent exposure to pesticides buried at depth. There was ample forested area adjacent to the basin to receive irrigation from the proposed dewatering effort.

Controlled compaction was expected to be adequate to mitigate settlement and erosion; however, an aggregate bridging material layer was proposed because the sediment was expected to be unstable. Clean common fill was verified in accordance with the approved SRS protocol for verification of fill and cover material. There was no debris from the interior of the basin anticipated based on observations of the basin when it was drained in a dewatering effort in the early 1990s. However, any debris encountered would be managed as CERCLA waste and disposed of at an approved waste disposal facility. Trees cleared to gain access to the basin were to be pushed aside and left near the site. Perimeter site fencing, signs, orange ball waste site markers, and posts would be disposed of as common construction debris during implementation of the RA. Disturbance of the fill material and vegetative cover at the GOSB OU will not occur as long as administrative site use procedures that prohibit unauthorized excavations at SRS are in place. Following implementation of the RA, the GOSB OU would not require Land Use Controls (LUCs) or a five-year remedy review and the area would be available for unrestricted land use.

This remedy was selected because it would meet the RAOs, provided overall protection of human health and the environment, complied with Applicable or Relevant and Appropriate Requirements, and was cost-effective.

There were no RCOCs for the GOSB OU Berm Subunit, Pipeline Subunit, and Effluent Discharge Subunit. Therefore, No Action was the appropriate response and the subunits are available for unrestricted land use.

A conceptual site model (Figure 7) illustrated how implementation of the RA would break the exposure pathways.

1.4 Chronology of Events

A chronology of events is presented in Table 2.

2.0 CONSTRUCTION ACTIVITIES

2.1 GOSB OU Construction Team

The GOSB OU RA was implemented by SRS's Project Management Construction Services (PMCS) organization. PMCS was the primary entity performing work at the GOSB OU and was responsible for all construction activities, including quality control. PMCS utilized System One's services for performing proctor tests of the common fill borrow site soils and compaction testing during the RA implementation. The GOSB OU project team provided oversight of the RA.

2.2 Site Preparation

Consistent with the CMI/RAIP (SRNS 2019a), the United States Department of Energy (USDOE) notified USEPA and SCDHEC of the start of construction activities at the GOSB OU (Appendix A) on September 30, 2019. PMCS mobilized to the GOSB OU site on September 30, 2019 and began clearing access roads to the site and vegetation within the limits of disturbance (LOD). Cleared trees were pushed to the edge of the LOD to act as erosion control in accordance with the grading permit (Permit #19-04-G-0.8). Fence post and debris removed from the site were treated as construction waste and were transported to the SRS 632-G Class Two Construction and Demolition (C&D) Landfill (Permit #065800-1901).

System One performed a pre-construction proctor test on the backfill material. The test results verified that the soil met the acceptance criteria of common fill in SRS Engineering Standard 01110 (Appendix B).

The design in the CMI/RAIP (SRNS 2019a) called for dewatering of the basin. At the time of the RA construction, it was determined that the water level was significantly reduced due to recent dry weather (Figure 8). The GOSB OU project team determined that the stone aggregate material would be sufficient to cover the remaining water. Therefore, no dewatering was required, and backfilling of the basin could begin.

2.3 Backfill and Vegetative Cover Placement

PMCS used a John Deere 200D LC excavator to place ~623 m^3 (815 yd^3) of surge stone aggregate (7.6 cm [3 in.] average diameter) in the basin bottom to bridge the soft subgrade before backfilling with common fill. While laying stone in the south eastern side of the basin, construction personnel observed that the stone aggregate was displacing the soft, sludge-like bottom sediments. To mitigate this issue, the GOSB OU project team decided to use larger diameter stone aggregate to stabilize the sediments. The excavator was used to add 105 m^3 (137 yd^3) of the larger stone ("rip-rap") and then work the sediments into the voids. Approximately 2.1 m (7 ft) of stone aggregate was laid into the basin bottom to an elevation of 85.0-m (279-ft) above mean sea level. Following placement of the bridging material, PMCS backfilled the basin with ~2,896 m^3 (3,788 yd^3) of clean common fill. The common fill was sampled and analyzed to verify that it met the requirements of clean common fill material per *SRS Fill and Soil Cover Material Verification Protocol* (WSRC 2003) (See Section 4.1). Fill material was spread in layers (maximum 30.5-cm [12-in.] thick) using a John Deere 550K bulldozer and compacted using a Hamm H 7i drum roller prior to compaction testing (Appendix C). The fill material was mounded and compacted as outlined in the CMI/RAIP design (SRNS 2019a). Figures 9-13 show construction activities.

Bermuda sod was used to cover the GOSB OU footprint. The sod was over-seeded with rye grass to promote establishment of the vegetative cover. The grass was fertilized and

watered until roots were established. An As-Built was completed for the completed RA on December 11, 2019 (Appendix D). The vegetative cover was accepted as established on December 12, 2019, and the grading permit was subsequently closed for the GOSB OU.

Mechanical completion was declared with establishment of the vegetative cover on December 12, 2019. A final acceptance inspection was conducted on December 19, 2019, with the GOSB OU project team, PMCS, site industrial hygiene and safety, and a Department of Energy-Savannah River (DOE-SR) representative to accept the RA as complete. Notification was made to SCDHEC and USEPA of the GOSB OU RA completion on January 16, 2020. A walkdown was conducted on February 27, 2020, between the GOSB OU project team, SCDHEC, and USEPA to acknowledge completion of the GOSB OU RA.

2.4 Secondary Waste Disposal

Excess clean soil that originated from the GOSB OU berms during the clearing of vegetation and that was not used as a fill material within the basin was utilized as a grading material around the perimeter of the basin as necessary to meet the final grade requirements. Debris located within the construction area (gates, fencing, signs, etc.) were managed as construction waste and transported to SRS 632-G Class Two C&D Landfill (Permit #065800-1901). The C&D Landfill is permitted to receive these materials.

3.0 DEVIATIONS FROM ORIGINAL DESIGN

Several design and construction changes were needed during construction to resolve construction problems. The project team reviewed all changes prior to implementation to ensure compliance with regulatory requirements in the ROD and the CMI/RAIP. Table 3 provides a summary of all such changes.

The basis and resolution of deviations from the original design are detailed below. Where applicable, a statement is provided on whether the deviation still meets a performance criterion. All deviations were not considered significant changes from the CMI/RAIP design and did not impact the performance of the RA implementation.

4.0 VERIFICATION SAMPLING, TESTING, ANALYSIS, PERFORMANCE STANDARDS, AND CONSTRUCTION QUALITY CONTROL

4.1 Performance Requirements/Standards

In support of the GOSB OU RA, the basin was cleared, backfilled with a stone bridging layer and clean compacted common fill, mounded to prevent subsidence, and stabilized with a vegetative cover. All field activities in support of the GOSB OU RA were performed in accordance with requirements in the CMI/RAIP (SRNS 2019a). Waste associated with the construction was handled in accordance with the CMI/RAIP.

Per the CMI/RAIP, water removed from the GOSB OU during the dewatering effort was to be spray irrigated in a nearby forested area. At the start of the RA, it was determined that the water level was significantly reduced due to recent dry weather. Therefore, dewatering was not required and all surface water remaining in the basin was covered by the stone aggregate bridging layer.

Common fill material was sourced from the D-Area Borrow Pit and was verified as clean in 2017 for the removal action performed at the D-Area Ash Basin (488-2D) and D-Area Ash Landfill (488-4D). Analytical results and an in-depth explanation from the common fill verification are found in Appendix M of the *Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)* (SRNS 2017). Per the CMI/RAIP design, the bridging material was to be 7.6 cm (3 in.) diameter aggregate. During construction of the RA, it was determined that this size stone did not provide enough void space to adequately bridge the soft subgrade and common fill. Therefore, the project team approved the use of larger stone, commonly referred to as rip-rap. The use of the larger stone was successful in providing a bridging layer before common fill.

Proctor tests were performed on soils from the D-Area Borrow Pit pre-construction and post-construction to verify they met the requirements of common fill, as detailed in SRS Standard 01110 (Appendix B). Compaction tests were performed in the field on each lift of backfill during construction of the GOSB OU RA to verify that the backfill met a

minimum of 85% compaction, as required by the CMI/RAIP. Results of the compaction tests are provided in Table 4 and Appendix C.

The backfill material (bridging material and common fill) was required to be 3-m (10-ft) thick in the shallowest section of the basin, and 4.9 m (16 ft) thick in the deepest section of the basin. A final survey of the GOSB OU footprint was performed to produce an As-Built for the RA (Figure 14). The backfill material was ~5.5-m (18-ft) thick in the deepest section of the basin and ~3.7-m (12-ft) thick in the shallowest section of the basin.

Per the CMI/RAIP, Bermuda sod was placed over the GOSB OU to provide a vegetative cover for stabilization. For project closeout, the vegetative cover had to be established by a root system. The project team approved over-seeding the sod with winter rye grass to promote root establishment, which was completed successfully.

4.2 Construction and Quality Control

The PMCS team performed routine quality control inspection activities to ensure requirements of the GOSB OU RA were met. To ensure compliance with design specifications, requirements, and standards, members of the GOSB OU project team reviewed and approved construction activities and test results. The GOSB OU project team was assisted by other SRS departments and organizations including Safety and Health, Engineering, Waste Management, Quality Assurance (QA), Project Management, and USDOE. SRNS QA provided a review and approved the test results in support of the GOSB OU RA (Appendix E).

5.0 VERIFICATION OF RA CLOSURE AND FINAL INSPECTION

The construction activities required for the RA have met the acceptance criteria established in Section 4.0 of the approved CMI/RAIP (SRNS 2019a). As detailed in Section 5.1, the RA is certified as complete, with allowance for deviations outlined in Section 3.0, and construction and testing performed in accordance with the RAOs defined in the ROD. The certification in Section 5.1 is based upon the result of performance tests and quality control inspections discussed in Section 4.0. As outlined in Section 5.2, the final walkdown

inspection with participation of USEPA and SCDHEC has been performed, and all issues have been closed out.

5.1 Verification of RA Closure

This section provides that RAOs established in the ROD have been met through field implementation of the RA in accordance with the approved CMI/RAIP (SRNS 2019a). The verification is based on the walkdown described in Section 5.2 and successful achievement of the RAOs as described below.

GOSB OU Interior Subunit Sediment RAOS

- Protect the hypothetical future resident receptor from exposure to alpha-chlordane, gamma-chlordane, DDE, dieldrin, and heptachlor epoxide in sediment within the 0 to 0.3-m (0- to 1-ft) depth interval that exceeded 1E-06 risk-based threshold level. Also, protect the future industrial worker receptor from exposure to the pesticides gamma-chlordane, dieldrin, and heptachlor epoxide in sediment within the 0- to 0.3-m (0- to 1-ft) depth interval that exceeded 1E-06 risk-based threshold level. The primary route of exposure for both scenarios was the incidental ingestion pathway. This RAO was satisfied by placement of clean fill material over the contaminated sediments with a minimum thickness of 3 m (10 ft).

- Protect ecological receptors from exposure to alpha-chlordane, gamma-chlordane, DDD, DDE, dieldrin, heptachlor epoxide and silver in sediment that exceeded a HQ = 1. The primary route of exposure is the direct contact pathway. This RAO was satisfied by placement of clean fill material over the contaminated sediments with a minimum thickness of 3 m (10 ft).

GOSB OU Interior Subunit Surface Water RAO

- Protect ecological receptors from exposure to alpha-chlordane, gamma-chlordane, and silver in surface water that exceeded an HQ = 1. The primary route of exposure is the direct contact pathway. This RAO was satisfied by covering the remaining surface

water in the basin with stone and backfilling the basin to remove the potential for surface water buildup in the GOSB OU.

Per the discussion above, it is concluded that the GOSB OU closure has been completed satisfactorily in accordance with the requirements of the GOSB OU ROD (Figures 15-17). The results of any analytical sampling and testing have been documented, and the records are on file at the SRS Document Control.

5.2 Final Inspection for Acceptance of GOSB OU Closure

A final joint walkdown was performed on February 27, 2020 by the GOSB OU Project Team, DOE-SR, SCDHEC and USEPA. No further outstanding issues resulted from the walkdown. A summary and participants of the final inspection were captured in an email to all members, provided in Appendix F.

6.0 AS-BUILT DOCUMENTATION

6.1 As-Built Drawings

The As-Built drawing is included as Appendix D of this PCR/CMIR/RACR.

SK-EC&ACP-GOSB-00002 – G-Area Oil Seepage Basin Grading Plan and Cross Sections As-Built

7.0 POST-PCR/CMIR/RACR ACTIVITIES AND LAND USE CONTROL IMPLEMENTATION PLAN

Per the ROD, the GOSB OU does not require LUCs or five-year remedy reviews (SRNS 2019b).

8.0 PROJECT COSTS

Table 5 provides a comparison of incurred remediation costs with estimated costs in the ROD (SRNS 2019b). The primary reason for lower actual costs for the GOSB OU RA

closure than the ROD estimate is due to no dewatering effort needed. Operation and maintenance (O&M) costs were estimated in the ROD for access control of the closed GOSB OU. There will be no access controls implemented as part of this RA; therefore, the O&M costs are not applicable.

9.0 REFERENCES

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

SRNS, 2012. *Environmental Compliance and Area Completion Projects Regulatory Document Handbook,* ERD-AG-003, Revision 17, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2017. *Removal Action Report for the 488-2D Ash Basin and 488-4D Ash Landfill (U)*, SRNS-RP-2017-00057, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2018. *Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the G-Area Oil Seepage Basin (GOSB) (U)*, SRNS-RP-2017-00218, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2019a. *Corrective Measures Implementation/Remedial Action Implementation Plan for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U)*, SRNS-RP-2019-00081, Revision 0, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2019b. *Record of Decision Remedial Alternative Selection for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U)*, SRNS-RP-2018-00460, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

WSRC, 2003. *Technical Memorandum: SRS Fill and Cover Material Verification Protocol (U)*, ERTEC-2003-00012, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2006. *Background Soils Statistical Summary Report for the Savannah River Site,* ERD-EN-2005-0223, Revision 1, Washington Savannah River Company, Savannah River Site, Aiken, SC

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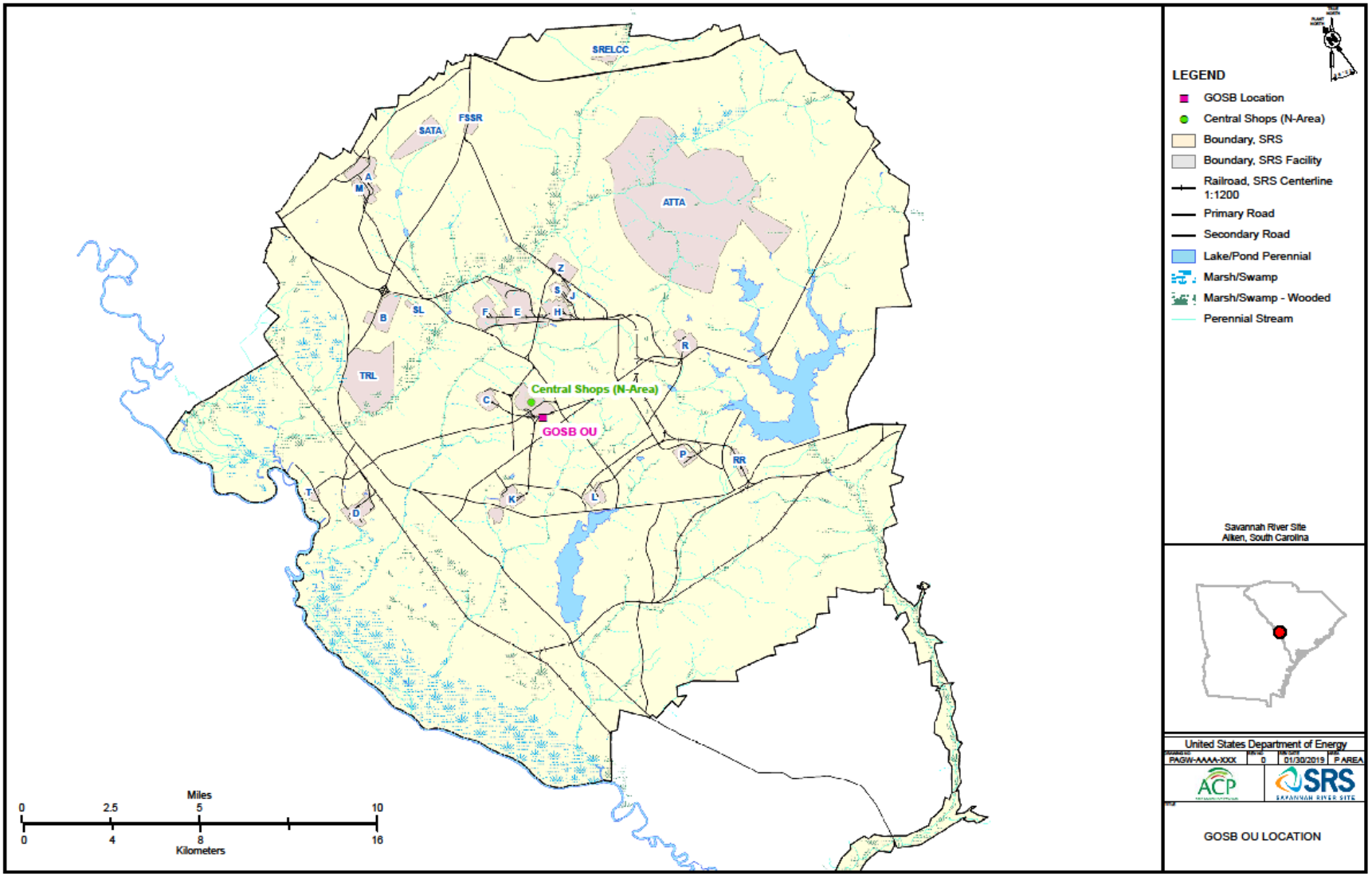

Figure 1. Location of GOSB OU on SRS Map

Figure 2. Photograph of the GOSB OU Pre-Construction (February 2017)

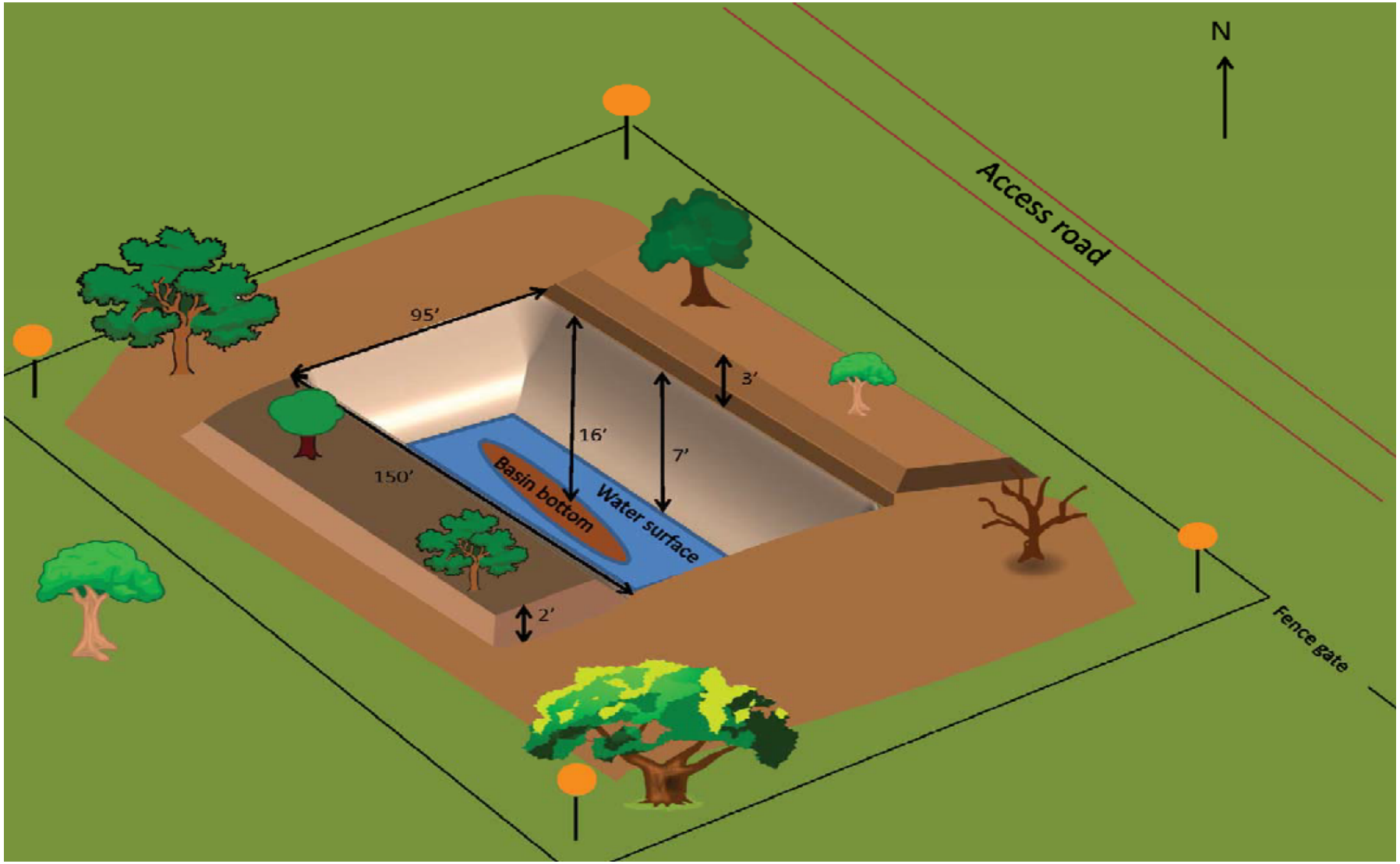

Figure 3. Schematic of the GOSB OU

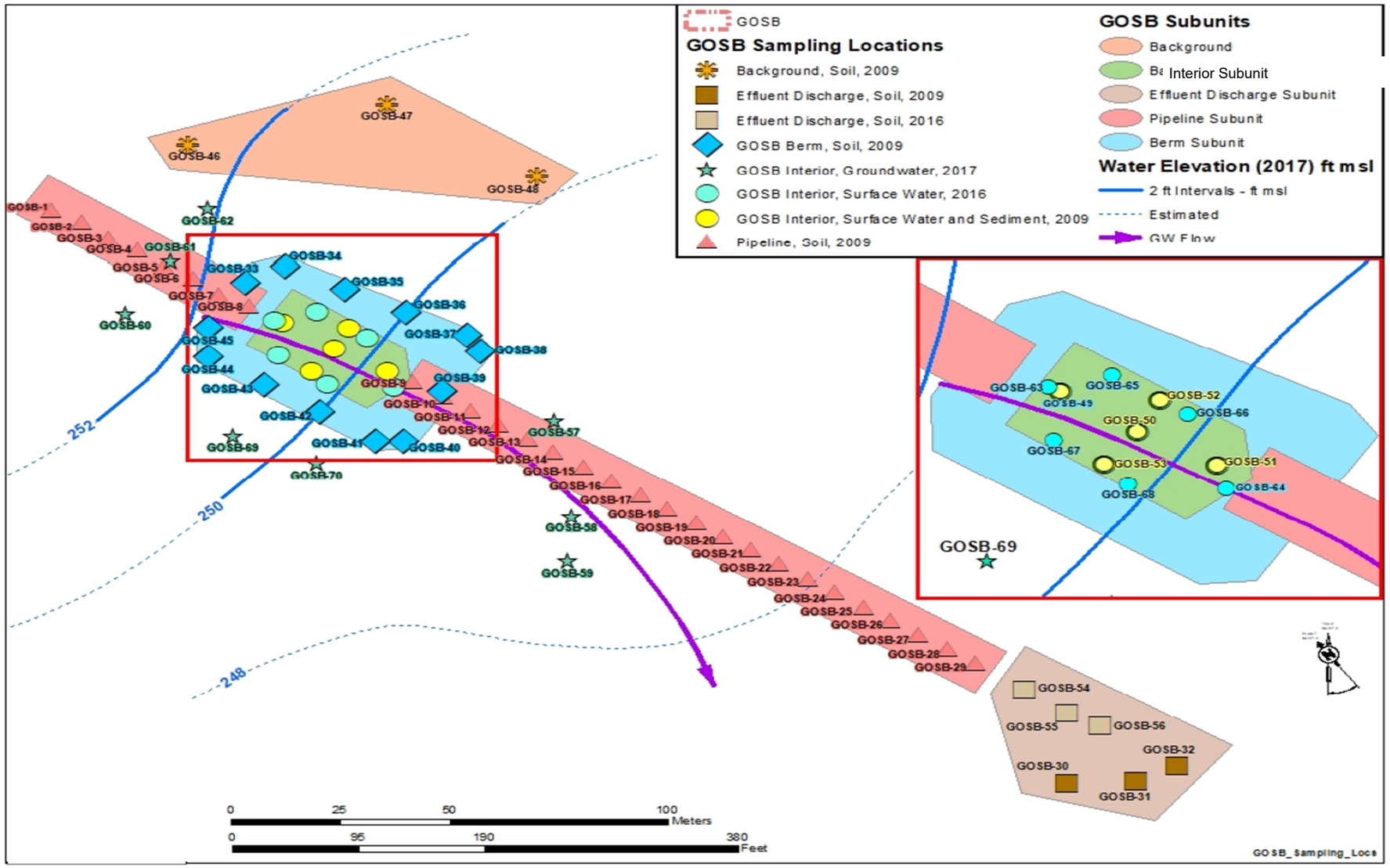

Figure 4. GOSB OU Subunit Identification and Sample Locations

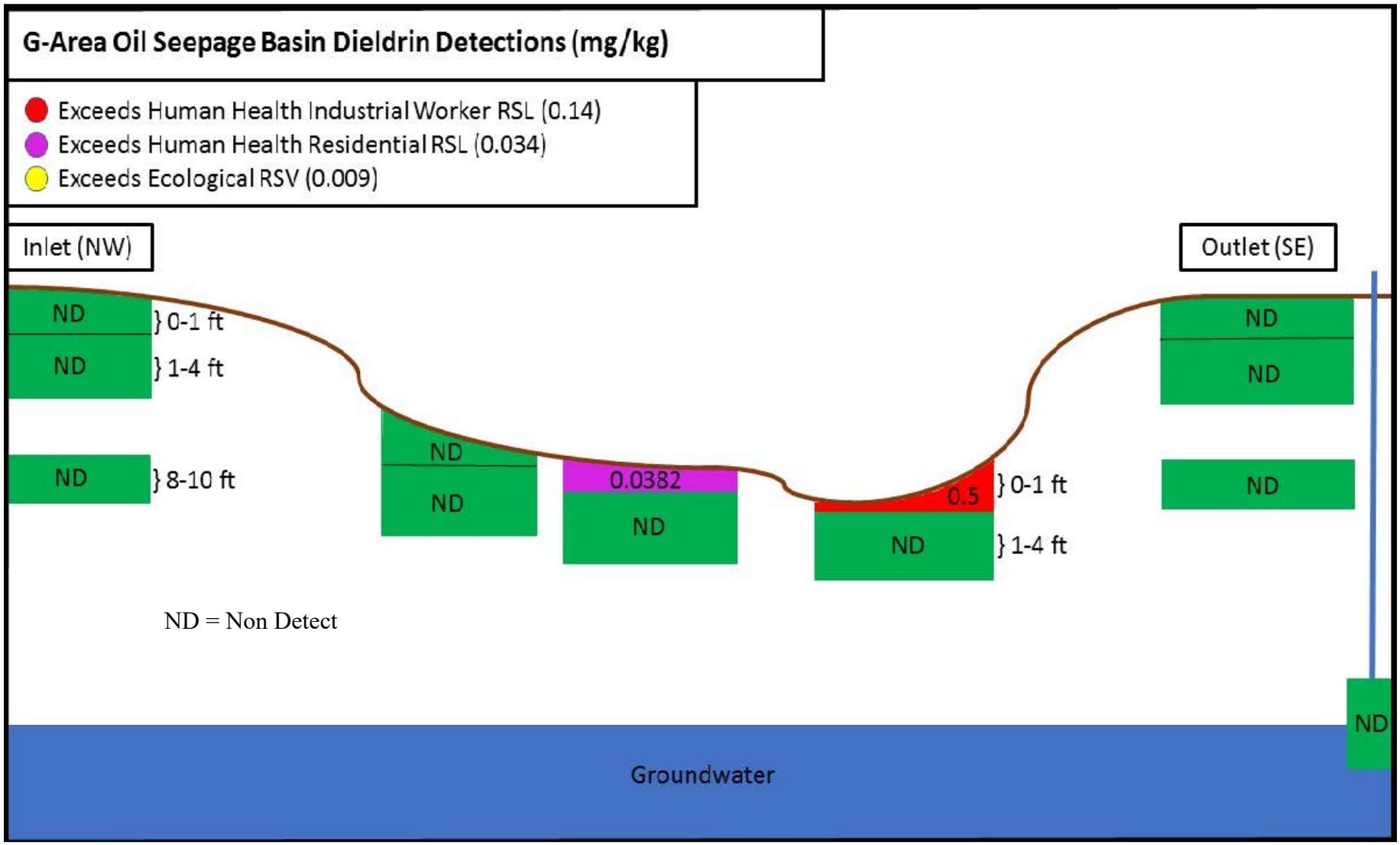

Figure 5. Cross-Section of GOSB OU Dieldrin Detections - Soil, Sediment, and Groundwater

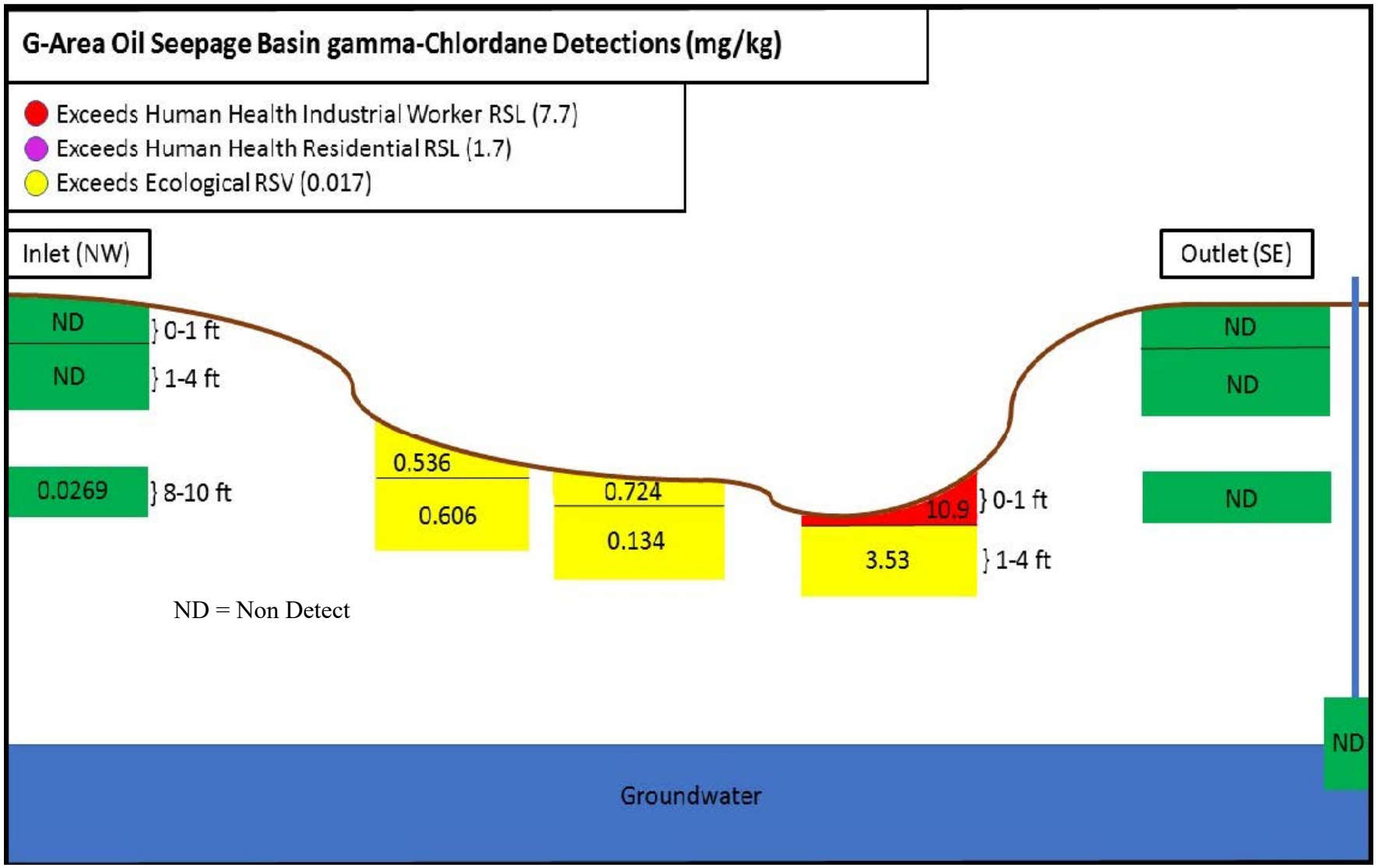

Figure 6. Cross-Section of GOSB OU gamma-Chlordane Detections - Soil, Sediment, and Groundwater

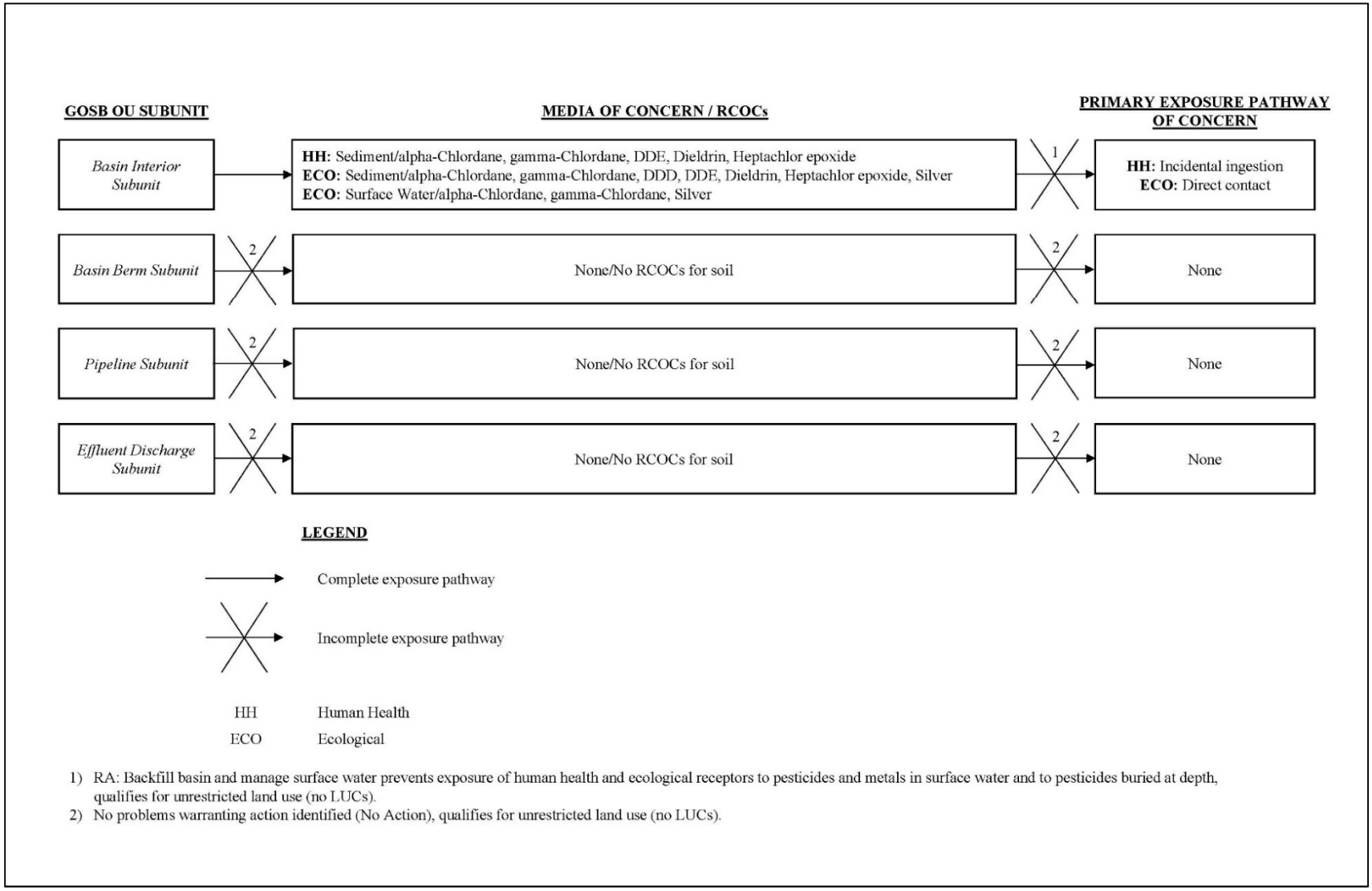

Figure 7. GOSB OU Generic Conceptual Site Model

Figure 8. GOSB OU Water Level Before Construction

Figure 9. Structural Stone Prior to Common Fill

Figure 10. Placement of Common Fill in Support of GOSB OU Closure

Figure 11. Placement of Common Fill in Support of GOSB OU Closure

Figure 12. Spreading and Compacting Common Fill in Support of GOSB OU Closure

Figure 13. Compacted Common Fill at GOSB OU Prior to Mounding

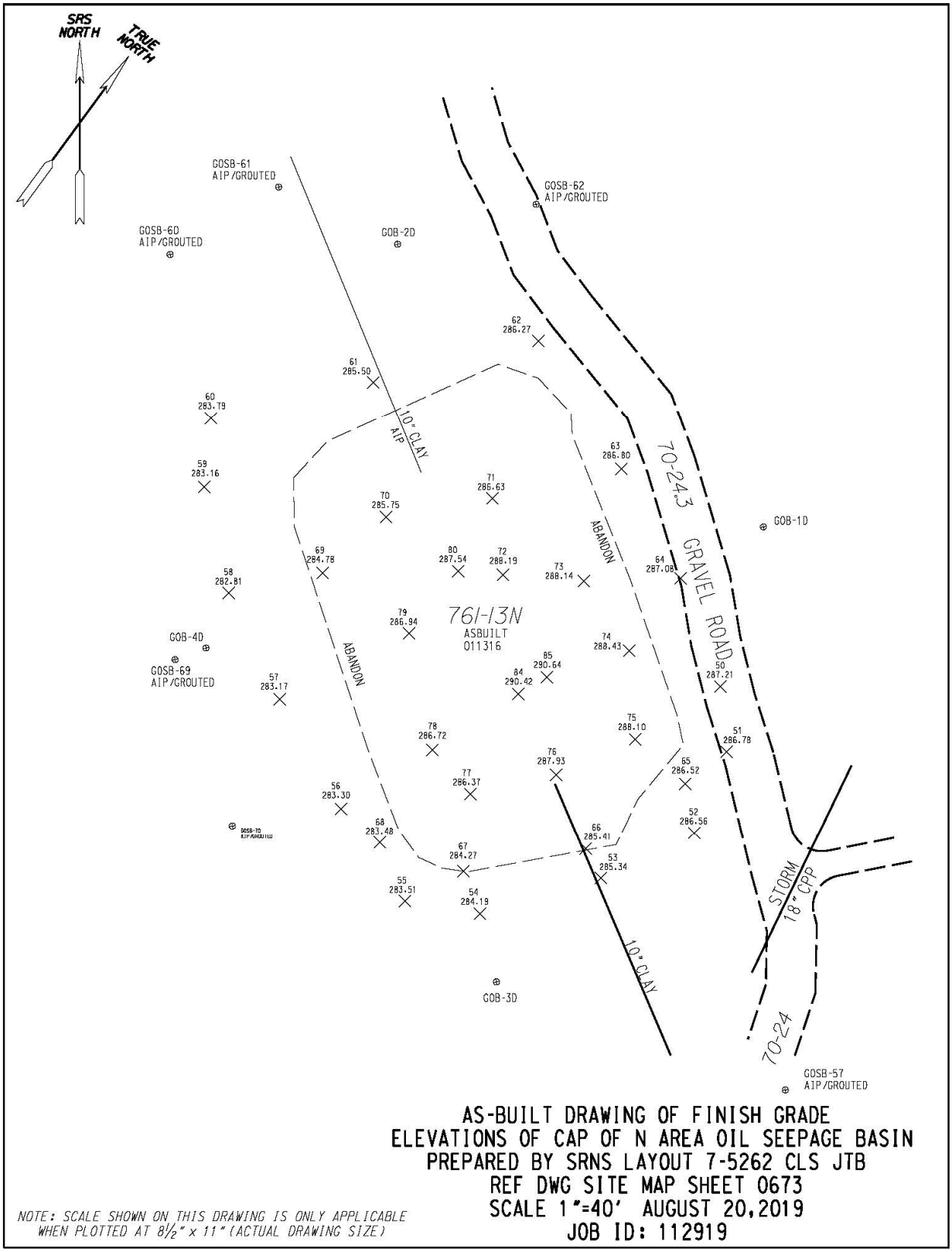

Figure 14. As-Built Survey of the GOSB OU RA Post-Construction

Figure 15. Post-Construction Photograph of the GOSB OU

Figure 16. Post-Construction Photograph of the GOSB OU

Figure 17. Post-Construction Photograph of the GOSB OU

Table 1. RGs for the RCOCs Identified for the GOSB OU RA

Medium	RCOC	Receptor	Human Health RGO[1]	Ecological RGO[2]	Background[3]	RG[4]
			(mg/kg)	*(mg/kg or ug/L)*		
Sediment	alpha-Chlordane	Resident	1.7	-	N/A	0.017
		Benthic Organism	-	0.017		
	DDD	Benthic Organism	-	0.00781	N/A	0.00781
	DDE	Resident	2	-	N/A	0.00374
		Benthic Organism	-	0.00374		
	Dieldrin	Resident	0.034	-	N/A	0.009
		Industrial Worker	0.14	-		
		Benthic Organism	-	0.009		
	gamma-Chlordane	Resident	1.7	-	N/A	0.017
		Industrial Worker	7.7	-		
		Benthic Organism	-	0.017		
	Heptachlor epoxide	Resident	0.07	-	N/A	0.016
		Industrial Worker	0.33	-		
		Benthic Organism	-	0.016		
	Silver	Benthic Organism	-	2.2	0.24 – 1.96	2.2
Surface Water	alpha-Chlordane	Aquatic Organism	-	0.0043	N/A	0.0043
	gamma-Chlordane	Aquatic Organism	-	0.0043	N/A	0.0043
	Silver	Aquatic Organism	-	0.06	N/A	0.06

[1] human health RGO = concentration set at risk = 1E-06
[2] ecological RGO = concentration set at HQ = 1
[3] Background = range from minimum detect to maximum detect from Background Soils Statistical Summary Report for the Savannah River Site, Appendix B-2 (all depth interval) (WSRC 2006)
[4] RG = RG is the lesser of the human health or ecological RGOs
RGO = remedial goal option
N/A = not available
DDD = dichlorodiphenyldichloroethylene
DDE = dichlorodiphenyldichloroethane

Table 2. Chronology of Events

Description of Activity	Start Date
Grading Permit Issued	May 13, 2019
Rev. 1, ROD Issued	June 6, 2019
Rev. 1, CMI/RAIP Approved	August 13, 2019
RA Start	September 30, 2019
Cleared Access Roads and Limits of Disturbance	September 30, 2019
Proctor Test of Common Fill	October 1, 2019
Constructed Erosion Control Brush Piles	October 14, 2019
Fence Posts and Debris to C&D Landfill	October 14, 2019
Placed Stone Aggregate	October 15, 2019
Mixed Larger Stone and Fill Material for Stabilization of Sediments	October 18, 2019
Backfilled Basin with Common Fill	October 24, 2019
Placed Sod and Over-Seeded with Rye Grass	November 18, 2019
Final As-Built Survey	December 11, 2019
Grading Permit Closed	December 12, 2019
GOSB OU RA Mechanical Completion	December 12, 2019
Project Team Final Acceptance Walkdown	December 19, 2019
Regulator Notification of RA Completion	January 16, 2020
USEPA/SCDHEC Walkdown	February 27, 2020

Table 3. Summary of Design Changes

Item	Change	Reason/Performance
1	Dewatering was not required for the GOSB OU.	The CMI/RAIP design indicated there would be a dewatering effort required prior to backfilling the GOSB OU. When the RA started on September 30, 2019, the GOSB OU project team determined that there was not a need to dewater and the remaining water in the basin would be covered sufficiently by the stone aggregate. SCDHEC and USEPA were notified of this deviation via a Core Team conference call on July 16, 2019. At the time of stone placement, the majority of surface water left in the basin had evaporated or seeped into the subsurface.
2	Used larger stone for bridging material.	When placing the 7.6 cm (3 in.) diameter stone aggregate, PMCS observed displacement of sediments by the smaller stone. Larger stone aggregate (rip-rap) was approved by the responsible engineer to provide additional stabilization. This change worked to mitigate the issue. The use of larger stone met the performance criteria for stone bridging material and did not warrant notification.
3	Used rye grass to over-seed sod.	Bermuda sod was placed in late November 2019. Temperatures at the time left the sod dormant and slowed root growth. The sod was over-seeded with winter rye grass to establish a root system and therefore declare the vegetative cover established. The rye grass rooted through the sod and created a stable root system, the cover was accepted as established. Over-seeding with rye grass was performed as a best management practice and did not warrant notification.

Table 4. Compaction Test Results

Test Elevation *(ft amsl)*	Compaction Required *(%)*	Compaction Result *(%)*
280	85	97.9
281	85	97.9
282	85	95.8
283	85	96.2
284	85	95.2
285	85	94.8
286	85	94.9
287	85	96.8

amsl - above mean sea level

Table 5. Project Cost Comparison

Project Cost Comparison			
	Cost		
	ROD *($K)*	Incurred *($K)*	Delta *(%)*
GOSB OU RA Capital	1,812	941	(48%)
GOSB OU RA O&M	15	N/A	N/A

APPENDIX A

GOSB OU RA Start Notification Letter

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ARF-022366

Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

OCT -7 2019

Ms. Susan B. Fulmer, P.G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Mr. Jon Richards
Acting Savannah River Site Remedial Project Manager
Superfund Division
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Notification of the Remedial Action Start Date for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U), SEMS Number: 93

In accordance with the terms of the Federal Facility Agreement (FFA), the U. S. Department of Energy is notifying the South Carolina Department of Health and Environmental Control (SCDHEC) and the U. S. Environmental Protection Agency (EPA) that the Remedial Action start date for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U) was met on September 30, 2019, ahead of the FFA milestone date of September 30, 2020. On September 30, 2019, land clearing activities that define the limits of disturbance were initiated in accordance with the remedial design described in the *Corrective Measures Implementation/Remedial Action Implementation Plan for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U)* (SRNS-RP-2019-00081, Revision 0, April 2019). In addition, vegetation was removed along the access road to improve construction equipment access to the basin area. The effort and time that the EPA and the SCDHEC have given on the subject operable unit are greatly appreciated.

Questions from you or your staff may be directed to me at (803) 952-8365.

Sincerely,

Brian T. Hennessey
SRS Remedial Project Manager
Infrastructure and Area Completion Division

IACD-20-101

OCT - 7 2019

Ms. Susan Fulmer
Mr. Jon Richards 2

cc:
D. Scaturo, SCDHEC-Columbia
S. French, SCDHEC-Columbia
M. Reece, SCDHEC-Columbia
G. K. Taylor, SCDHEC-Columbia
T. Fuss, SCDHEC–Aiken Environmental Affairs Office
G. O'Quinn, SCDHEC–Aiken Environmental Affairs Office
B. Cameron, SCDHEC–Aiken Environmental Affairs Office
R. H. Pope, EPA-Atlanta
J. Tufts, EPA-Atlanta
M. McRae, TechLaw, Inc.

APPENDIX B

D-Area Borrow Pit Proctor Test Results

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ASR 18-172 (07/19) ASTM D422-63(07)

system one

Client: SRNS Page: 1 of 1

Particle-Size Analysis

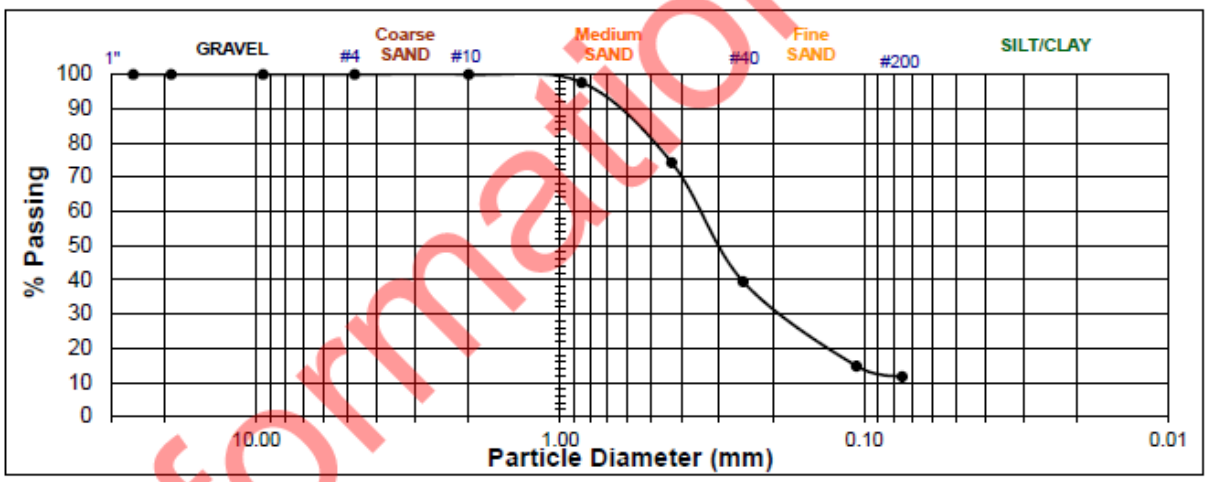
Project No.: N/A Work Package No.: 1728342-01 Report No.: 2019-DBorrow2-0001

Lab No.: 2019-SO-0030 Date Tested: 10/1/2019 Design Category: GS QCIR No.: N/A

Description of Material: Tan Poorly Graded Sand with Silt (SP-SM) Origin of Material: D Area - Borrow Pit #2, Subgrade

Sieve Size	Sieve Diameter [mm]	Cumulative Wt. Retained [g]	Cumulative % Retained	% Passing	Acceptance Criteria
1"	25.400	0	0.0	100.0	N/A
3/4"	19.050	0	0.0	100.0	100
3/8"	9.500	0	0.0	100.0	95-100
#4	4.750	0	0.0	100.0	85-100
#10	2.000	0.2	0.0	100.0	70-100
#20	0.850	15.5	2.4	97.6	50-100
#40	0.430	169.4	25.8	74.2	25-95
#60	0.250	398.4	60.6	39.4	15-80
#140	0.106	560.3	85.2	14.8	2-40
#200	0.075	580.6	88.3	11.7	0-35
Pan		584.1			

Tare ID & Weight	ID# 101	91.9 g
Original Oven Dry Weight w/Tare[g]		749.3
Oven Dry Weight After Wash w/Tare[g]		677.2
Difference [g]		72.1
Wash Finer Than 200 [%]		11.0



Test Results: Conforming NCR No.: N/A

Remarks: * *Soil sample obtained on 09/27/2019 meets the acceptance criteria for Common Fill only. The material does not meet the criteria for Structural Fill.*

Procedure:	C-QCP-003	Rev.:	0	PCN:	2
Spec.:	Engineering Standard 01110	Rev.:	6		
DCF(s)/Rev(s):	N/A				
Dwg. No(s)./Rev(s):	C-CG-D-00053 / Rev. 2				
DCF(s)/Rev(s):	N/A				

M&TE	Cal. Due Date	M&TE	Cal. Due Date
BOVEN	06/17/20		
S-65	03/14/20		
WG-S-4	10/10/19	N	
SS-3	03/07/20		A
SL-3	08/06/20		
N/A	N/A		

Technician (Print/Sign): Andrew Wilson / Level: II Date: 10/1/2019

Reviewer (Print/Sign): Bradley Carlson / Level: III Date:

ASR 18-203 (07/19)

System|One

Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)	Work Package No.: 1728342-01
Senior Civil Technician (Level III): Bradley Carlson - 7-4720	QCIR No.: N/A
	Project No.: N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr. - 7-4797	Design Category: GS
	Report No.: 2019-DBORROW2-0008 Date: 11-12-19

Lab. No.: 2019-SO-0033	Test Method: ASTM D2216 / ASTM D422
Discipline: Civil	Description: Soil / Refer to attached page
Location: D-Area - Borrow Pit #2	Reported to: Kelsey Andrews - 7-4246

Summary: In accordance with the specification, a sample was taken from the D-Area Borrow Pit #2 to verify that the material being used at the oil seepage basin was of similar material that was previously tested. The testing required is a sieve analysis and in-situ moisture. The sieve analysis shows that the material is similar to the material that was previously tested, and no other characteristic testing is required at this time.

N/A

M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure: C-QCP-003
NCR No.: N/A		Rev.: 0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s): 2
Remarks: Dwg. No.: C-CG-D-00053 Rev. 2		Spec.: Engineering Standard 01110
N/A		Rev.: 6
		DCF(s): N/A

Technician (Print/Sign): Nicholas Menson/ Level: III Date: 11-13-19

Reviewer (Print/Sign): Bradley Carlson/ Level: III Date: 11-13-19

MC 11/26/19

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THESE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED.

ASR 18-172 (07/19)

system one

ASTM D422-63 (Reapproved 2007)e2

Client: SRNS

Page: 2 of 2

Particle-Size Analysis

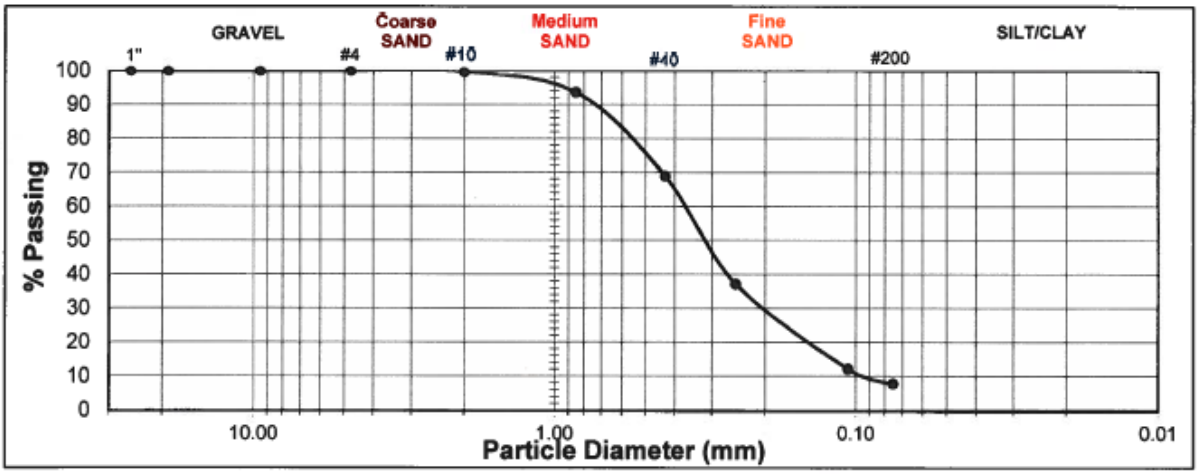
Project No.: N/A Work Package No.: 1728342-01 Report No.: 2019-DBORROW2-0008

Lab No.: 2019-SO-0033 Date Tested: 11/12/19 Design Category: GS QCIR No.: N/A

Description of Material: Tan Poorly Graded Sand with Silt (SP-SM) Origin of Material: D-Area: Borrow Pit #2

Sieve Size	Sieve Diameter [mm]	Cumulative Wt. Retained [g]	Cumulative % Retained [%]	% Passing [%]	Acceptance Criteria
1	25.400	0	0	100	N/A
3/4"	19.050	0	0	100	N/A
3/8"	9.500	0	0	100	100
#4	4.750	0.1	0	100	95-100
#10	2.000	1.5	0	100	85-100
#20	0.850	34.4	6	94	65-95
#40	0.430	167.1	31	69	35-85
#60	0.250	336.7	63	37	15-70
#140	0.106	471.3	88	12	2-35
#200	0.075	494.5	92	8	0-25
Pan		498.2			

Original Oven Dry Weight [g]	536.2
Oven Dry Weight After Wash [g]	498.4
Difference [g]	37.8
Wash Finer Than 200 [%]	7.0



Test Results:	Conforming	NCR No.:	N/A				M&TE	Cal. Due Date	M&TE	Cal. Due Date
Remarks:	The in-situ moisture was determined to be 4.3% in accordance with ASTM D2219-19.						S-65	03/14/20		
Procedure:	C-QCP-003	Rev.:	0	PCN:	2		WG-S-4	10/10/20		
Spec.:	Engineering Standard 01110	Rev.:	6				SS-3	03/07/20	N	
DCF(s)/Rev(s):	N/A						SL-2	05/01/20		A
Dwg. No(s)./Rev(s):	C-CG-D-00053 / Rev. 2						BOVEN	06/17/20		
DCF(s)/Rev(s):	N/A						N/A	N/A		

Technician (Print/Sign): Nicholas Menson / Level: III Date: 11/13/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11/13/19

11/13/19 MW

Savannah River Site
717-5N, 148
Aiken, SC
803-557-4720

system one

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APPENDIX C

GOSB OU RA Compaction Test Results

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ASR 18-203 (07/19)

System|One

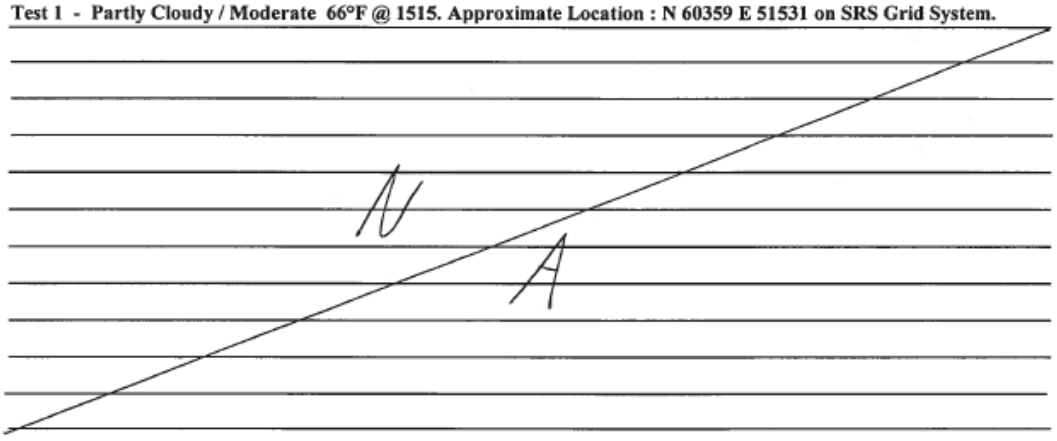
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)		Work Package No.:	1728342-01
Senior Civil Technician (Level III): Bradley Carlson		QCIR No.:	N/A
		Project No.:	N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.		Design Category:	GS
		Report No.: 2019-DBORROW2-0002	Date: 11-4-19
Lab. No.:	N/A	Test Method:	See Attached Page
Discipline:	Civil Testing	Description:	Soil / Refer to attached page
Location:	Oil Seepage Basin - 761-13N	Reported to:	K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 1 - Partly Cloudy / Moderate 66°F @ 1515. Approximate Location : N 60359 E 51531 on SRS Grid System.



M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure:	C-QCP-003
NCR No.: N/A		Rev.:	0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s):	2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		Spec.:	Eng. Standard 01110
N/A		Rev.:	6
N/A		DCF(s):	N/A
N/A			

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/4/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11/7/19

mjk 11-13-19

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ASR 18-180 (07/19)

System|One

Savannah River Site

Moisture & Density Tests Using Surface Probes

Page 2 of 2

ASTM D 6938-(17a)

Report No.:	2019-DBORROW2-0002	Work Package No.:	1728342-01
Project No.:	N/A	QCIR No.:	N/A
Contractor:	SRNS	Design Category:	GS
Material Description:	Tan Poorly Graded Sand with Silt (SP-SM)		
Acceptance Criteria:	85% Compaction		
Drawing (s) & Rev. (s):	C-CG-G-02746 / Rev. 0		
Location:	Oil Seepage Basin - 761-13N		

Test No.		1					
Distance	Approx.:	* See Page 1.					
Elevation	Approx:	280'					
Wet Density, lbs/cu.ft.		130.2					
Water, lbs./cu.ft.		12.7					
Dry Density, lbs/cu.ft.		117.5					
Percent Moisture		10.8					
Maximum Density (Proctor)		120.1					
Optimum Moisture		5.8%					
% Compaction Required		85.0					
% Compaction Obtained		97.9					

Troxler ID No.:	853	Model:	3450	Serial No.:	853
Density Proctor Report No.:	2019-DBORROW2-0001				
Density:	Average of Last Four (4) Standard Counts (No):	N/A			
	Daily Standard Counts (Ns):	5411			
Moisture:	Average of Last Four (4) Standard Counts (No):	N/A			
	Daily Standard Counts (Ns):	1130			
Moisture Determination:	☐ ASTM D 2216-( )	☒ ASTM D 6938-(17a)	☐ ASTM D 4643-( )		

M&TE: 853	Cal. Due Date: 4-24-20	Procedure:	C-QCP-003
		Rev.:	0
NCR No.: N/A		PCN(s):	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		Spec.:	Engineering Standard 01110
Remarks: * See Page 1.		Rev.:	6
Test Mode : Method A		DCF(s):	N/A

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/4/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11/7/19

11-13-19 TW

ASR 18-203 (07/19)

System|One

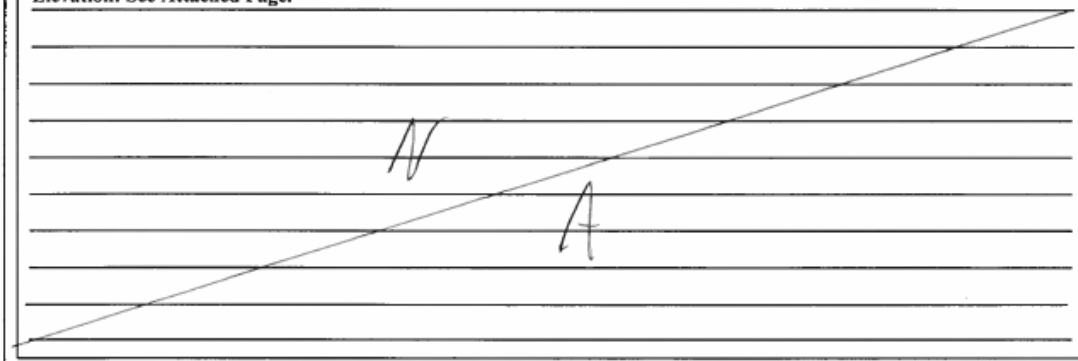
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)	Work Package No.: 1728342-01
Senior Civil Technician (Level III): Bradley Carlson	QCIR No.: N/A
	Project No.: N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.	Design Category: GS
	Report No.: 2019-DBORROW2-0003 Date: 11-5-19
Lab. No.: N/A	Test Method: See Attached Page
Discipline: Civil Testing	Description: Soil / Refer to attached page
Location: Oil Seepage Basin - 761-13N	Reported to: K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 2 - Partly Cloudy / Moderate 62°F @ 0925. Approximate Location : N 60359 E 51531 on SRS Grid System.
Test 3 - Clear / Warm 78°F @ 1415. Approximate Location : N 60359 E 51531 on SRS Grid System.
Elevation: See Attached Page.



M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure: C-QCP-003
NCR No.: N/A		Rev.: 0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s): 2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		Spec.: Eng. Standard 01110
N/A		Rev.: 6
N/A		DCF(s): N/A
N/A		

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/5/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11/7/19

ML 11-13-19

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ASR 18-180 (07/19)

System|One

Savannah River Site

Moisture & Density Tests Using Surface Probes

Page 2 of 2

ASTM D 6938-(17a)

Report No.: 2019-DBORROW2-0003	Work Package No.: 1728342-01
Project No.: N/A	QCIR No.: N/A
Contractor: SRNS	Design Category: GS
Material Description: Tan Poorly Graded Sand with Silt (SP-SM)	
Acceptance Criteria: 85% Compaction	
Drawing (s) & Rev. (s): C-CG-G-02746 / Rev. 0	
Location: Oil Seepage Basin - 761-13N	

Test No.	2	3				
Distance Approx.:	* See Page 1.	* See Page 1.				
Elevation Approx:	281'	282'				
Wet Density, lbs/cu.ft.	124.2	123.3				
Water, lbs./cu.ft.	6.6	8.2				
Dry Density, lbs/cu.ft.	117.5	115.1				
Percent Moisture	5.6	7.1				
Maximum Density (Proctor)	120.1	120.1				
Optimum Moisture	5.8%	5.8%				
% Compaction Required	85.0	85.0				
% Compaction Obtained	97.9	95.8				

Troxler ID No.: 853 Model: 3450 Serial No.: 853

Density Proctor Report No.: 2019-DBORROW2-0001

Density: Average of Last Four (4) Standard Counts (No): N/A

Daily Standard Counts (Ns): 5416

Moisture: Average of Last Four (4) Standard Counts (No): N/A

Daily Standard Counts (Ns): 1127

Moisture Determination: ☐ ASTM D 2216-( ) ☒ ASTM D 6938-(17a) ☐ ASTM D 4643-( )

M&TE: 853	Cal. Due Date: 4-24-20	Procedure:	C-QCP-003
		Rev.:	0
NCR No.: N/A		PCN(s):	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		Spec.:	Engineering Standard 01110
Remarks: * See Page 1.		Rev.:	6
Test Mode : Method A		DCF(s):	N/A

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/5/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11/7/19

ML 11-13-19

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THESE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED.

ASR 18-203 (07/19)

System|One

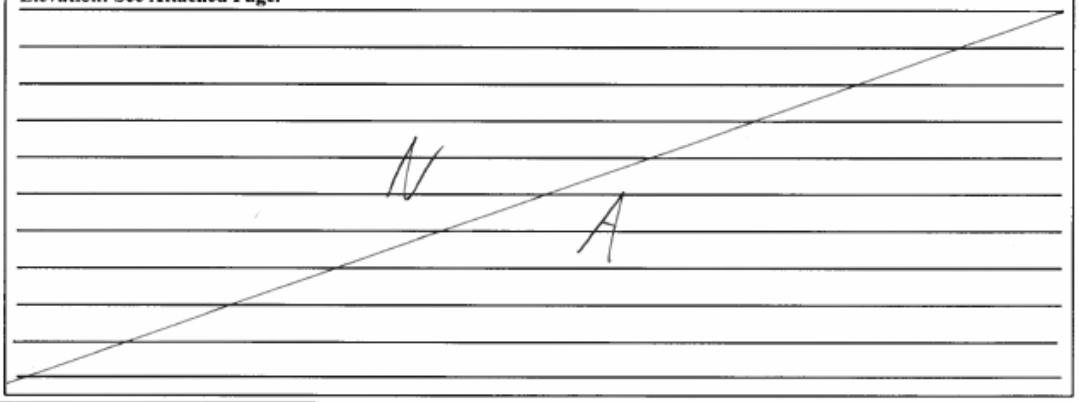
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)	Work Package No.: 1728342-01
Senior Civil Technician (Level III): Bradley Carlson	QCIR No.: N/A
	Project No.: N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.	Design Category: GS
	Report No.: 2019-DBORROW2-0004 Date: 11-6-19
Lab. No.: N/A	Test Method: See Attached Page
Discipline: Civil Testing	Description: Soil / Refer to attached page
Location: Oil Seepage Basin - 761-13N	Reported to: K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 4 - Clear / Warm 78°F @ 1440. Approximate Location : N 60359 E 51531 on SRS Grid System.
Elevation: See Attached Page.



M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure: C-QCP-003
NCR No.: N/A		Rev.: 0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s): 2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		Spec.: Eng. Standard 01110
N/A		Rev.: 6
N/A		DCF(s): N/A
N/A		
Technician (Print/Sign): Andrew Wilson		Level: II Date: 11/6/19
Reviewer (Print/Sign): Bradley Carlson /		Level: III Date: 11/7/19

ML 11-13-19

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ASR 18-180 (07/19)

System|One

Savannah River Site

Moisture & Density Tests Using Surface Probes Page 2 of 2

ASTM D 6938-(17a)

Report No.:	2019-DBORROW2-0004	**Work Package No.:**	1728342-01
Project No.:	N/A	**QCIR No.:**	N/A
Contractor:	SRNS	**Design Category:**	GS
Material Description:	Tan Poorly Graded Sand with Silt (SP-SM)		
Acceptance Criteria:	85% Compaction		
Drawing (s) & Rev. (s):	C-CG-G-02746 / Rev. 0		
Location:	Oil Seepage Basin - 761-13N		

Test No.		4					
Distance	**Approx.:**	* See Page 1.					
Elevation	**Approx:**	283'					
Wet Density, lbs/cu.ft.		118.7					
Water, lbs./cu.ft.		3.3					
Dry Density, lbs/cu.ft.		115.5					
Percent Moisture		2.8					
Maximum Density (Proctor)		120.1					
Optimum Moisture		5.8%					
% Compaction Required		85.0					
% Compaction Obtained		96.2					

Troxler ID No.:	853	**Model:**	3450	**Serial No.:**	853
Density Proctor Report No.:	2019-DBORROW2-0001				
Density:	**Average of Last Four (4) Standard Counts (No):**	N/A			
	Daily Standard Counts (Ns):	5416			
Moisture:	**Average of Last Four (4) Standard Counts (No):**	N/A			
	Daily Standard Counts (Ns):	1127			
Moisture Determination:	☐ **ASTM D 2216-( )**	☒ **ASTM D 6938-(17a)**	☐ **ASTM D 4643-( )**		

M&TE: 853	**Cal. Due Date:** 4-24-20	**Procedure:**	C-QCP-003
		Rev.:	0
NCR No.: N/A		**PCN(s):**	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		**Spec.:**	Engineering Standard 01110
Remarks: * See Page 1.		**Rev.:**	6
Test Mode : Method A		**DCF(s):**	N/A

Technician (Print/Sign): Andrew Wilson / **Level:** II **Date:** 11/6/19

Reviewer (Print/Sign): Bradley Carlson / **Level:** III **Date:** 11/7/19

ML 11-13-19

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ASR 18-203 (07/19)

System|One

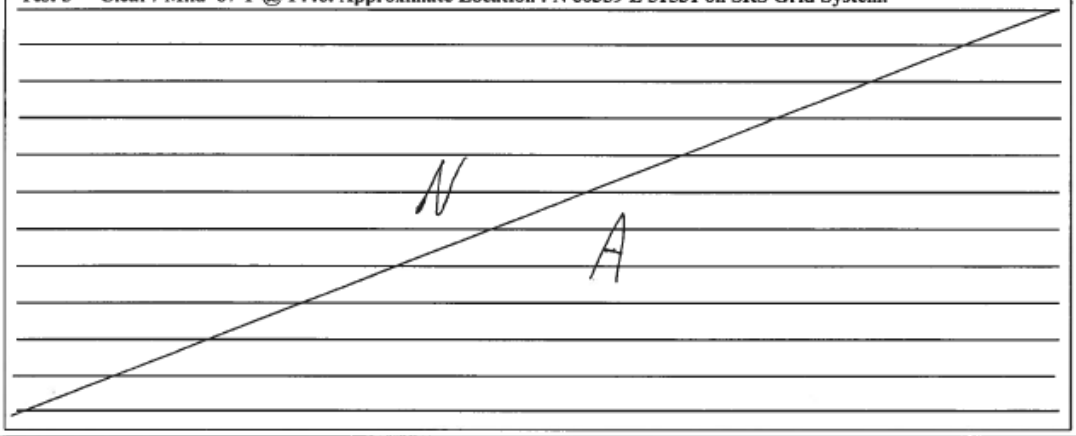
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)		Work Package No.:	1728342-01
Senior Civil Technician (Level III): Bradley Carlson		QCIR No.:	N/A
		Project No.:	N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.		Design Category:	GS
		Report No.: 2019-DBORROW2-0005	Date: 11-7-19
Lab. No.: N/A		Test Method:	See Attached Page
Discipline: Civil Testing		Description:	Soil / Refer to attached page
Location: Oil Seepage Basin - 761-13N		Reported to:	K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 5 - Clear / Mild 67°F @ 1440. Approximate Location : N 60359 E 51531 on SRS Grid System.



M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure:	C-QCP-003
NCR No.: N/A		Rev.:	0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s):	2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		Spec.:	Eng. Standard 01110
N/A		Rev.:	6
N/A		DCF(s):	N/A
N/A			

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/7/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11-12-19

ML 11-13-19

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ASR 18-180 (07/19)

System|One

Savannah River Site

Moisture & Density Tests Using Surface Probes

Page 2 of 2

ASTM D 6938-(17a)

Report No.:	2019-DBORROW2-0005		Work Package No.:	1728342-01		
Project No.:	N/A		QCIR No.:	N/A		
Contractor:	SRNS		Design Category:	GS		
Material Description:	Tan Poorly Graded Sand with Silt (SP-SM)					
Acceptance Criteria:	85% Compaction					
Drawing (s) & Rev. (s):	C-CG-G-02746 / Rev. 0					
Location:	Oil Seepage Basin - 761-13N					

Test No.	5					
Distance Approx.:	* See Page 1.					
Elevation Approx:	284'					
Wet Density, lbs/cu.ft.	118.4					
Water, lbs./cu.ft.	4.1					
Dry Density, lbs/cu.ft.	114.3		N			
Percent Moisture	3.6					
Maximum Density (Proctor)	120.1			A		
Optimum Moisture	5.8%					
% Compaction Required	85.0					
% Compaction Obtained	95.2					

Troxler ID No.: 853 Model: 3450 Serial No.: 853

Density Proctor Report No.: 2019-DBORROW2-0001

Density: Average of Last Four (4) Standard Counts (No): N/A

Daily Standard Counts (Ns): 5437

Moisture: Average of Last Four (4) Standard Counts (No): N/A

Daily Standard Counts (Ns): 1120

Moisture Determination: ☐ ASTM D 2216-( ) ☒ ASTM D 6938-(17a) ☐ ASTM D 4643-( )

M&TE: 853	Cal. Due Date: 4-24-20	Procedure:	C-QCP-003
		Rev.:	0
NCR No.: N/A		PCN(s):	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		Spec.:	Engineering Standard 01110
Remarks: * See Page 1.		Rev.:	6
Test Mode : Method A		DCF(s):	N/A

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/7/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11-11-19

ML 11-13-19

ASR 18-203 (07/19)

System|One

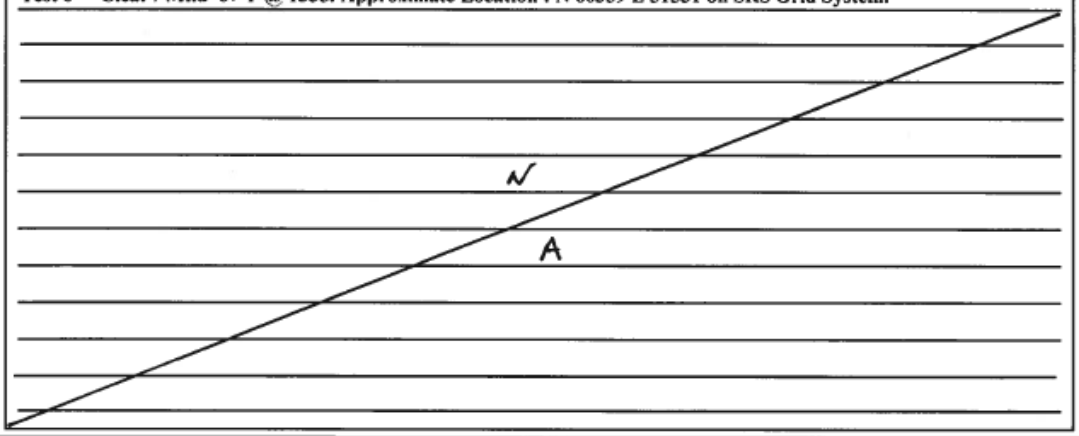
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)	Work Package No.: 1728342-01
Senior Civil Technician (Level III): Bradley Carlson	QCIR No.: N/A
	Project No.: N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.	Design Category: GS
	Report No.: 2019-DBORROW2-0006 Date: 11-11-19
Lab. No.: N/A	Test Method: See Attached Page
Discipline: Civil Testing	Description: Soil / Refer to attached page
Location: Oil Seepage Basin - 761-13N	Reported to: K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 6 - Clear / Mild 67°F @ 1335. Approximate Location : N 60359 E 51531 on SRS Grid System.



M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure: C-QCP-003
NCR No.: N/A		Rev.: 0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s): 2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		Spec.: Eng. Standard 01110
N/A		Rev.: 6
N/A		DCF(s): N/A
N/A		

Technician (Print/Sign): Michael Koval / Michael Koval Level: II Date: 11/11/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11-12-19

ML 11-13-19

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ASR 18-180 (07/19)

System|One

Savannah River Site

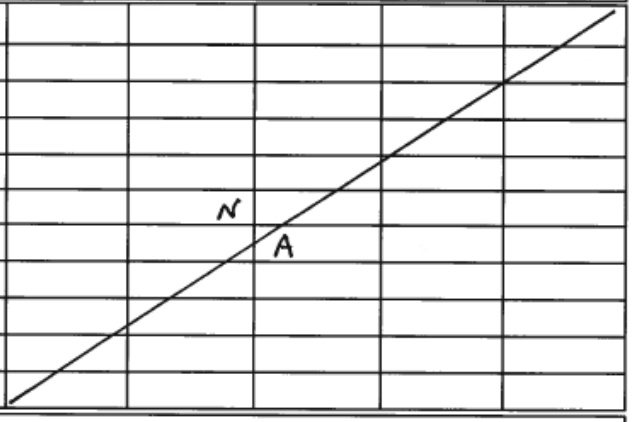
Moisture & Density Tests Using Surface Probes

Page 2 of 2

ASTM D 6938-(17a)

Report No.: 2019-DBORROW2-0006	Work Package No.: 1728342-01
Project No.: N/A	QCIR No.: N/A
Contractor: SRNS	Design Category: GS
Material Description: Tan Poorly Graded Sand with Silt (SP-SM)	
Acceptance Criteria: 85% Compaction	
Drawing (s) & Rev. (s): C-CG-G-02746 / Rev. 0	
Location: Oil Seepage Basin - 761-13N	

	Test No. 6
Distance Approx.:	* See Page 1.
Elevation Approx:	285'
Wet Density, lbs/cu.ft.	119.3
Water, lbs./cu.ft.	5.4
Dry Density, lbs/cu.ft.	113.9
Percent Moisture	4.7
Maximum Density (Proctor)	120.1
Optimum Moisture	5.8%
% Compaction Required	85.0
% Compaction Obtained	94.8



Troxler ID No.:	852	Model:	3450	Serial No.:	852
Density Proctor Report No.:	2019-DBORROW2-0001				

Density: Average of Last Four (4) Standard Counts (No): N/A
Daily Standard Counts (Ns): 5497

Moisture: Average of Last Four (4) Standard Counts (No): N/A
Daily Standard Counts (Ns): 1115

Moisture Determination: ☐ ASTM D 2216-( ) ☒ ASTM D 6938-(17a) ☐ ASTM D 4643-( )

M&TE: 852	Cal. Due Date: 1-30-20	Procedure:	C-QCP-003
		Rev.:	0
NCR No.: N/A		PCN(s):	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		Spec.:	Engineering Standard 01110
Remarks: * See Page 1.		Rev.:	6
Test Mode : Method A		DCF(s):	N/A

Technician (Print/Sign): Michael Koval / Michael Koval Level: II Date: 11/11/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11-12-19

MW 11-18-19

ASR 18-203 (07/19)

System|One

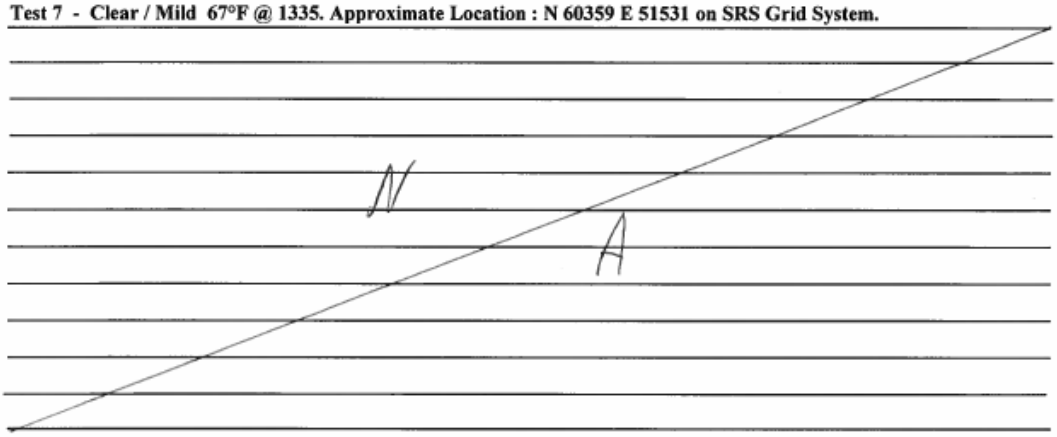
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)	Work Package No.: 1728342-01
Senior Civil Technician (Level III): Bradley Carlson	QCIR No.: N/A
	Project No.: N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.	Design Category: GS
	Report No.: 2019-DBORROW2-0007 Date: 11-12-19
Lab. No.: N/A	Test Method: See Attached Page
Discipline: Civil Testing	Description: Soil / Refer to attached page
Location: Oil Seepage Basin - 761-13N	Reported to: K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 7 - Clear / Mild 67°F @ 1335. Approximate Location : N 60359 E 51531 on SRS Grid System.



M&TE: See Attached Page	Cal. Due Date: See Attached Page	Procedure: C-QCP-003
NCR No.: N/A		Rev.: 0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		PCN(s): 2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		Spec.: Eng. Standard 01110
N/A		Rev.: 6
N/A		DCF(s): N/A
N/A		
Technician (Print/Sign): Andrew Wilson /		Level: II Date: 11/12/19
Reviewer (Print/Sign): Bradley Carlson /		Level: III Date: 11-12-19

MC W12SIA

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ASR 18-180 (07/19)

System|One

Savannah River Site

Moisture & Density Tests Using Surface Probes

Page 2 of 2

ASTM D 6938-(17a)

Report No.: 2019-DBORROW2-0007	Work Package No.: 1728342-01
Project No.: N/A	QCIR No.: N/A
Contractor: SRNS	Design Category: GS
Material Description: Tan Poorly Graded Sand with Silt (SP-SM)	
Acceptance Criteria: 85% Compaction	
Drawing (s) & Rev. (s): C-CG-G-02746 / Rev. 0	
Location: Oil Seepage Basin - 761-13N	

	Test No.	7					
Distance	Approx.:	* See Page 1.					
Elevation	Approx:	286'					
Wet Density, lbs/cu.ft.		121.0					
Water, lbs./cu.ft.		7.1		N			
Dry Density, lbs/cu.ft.		113.9					
Percent Moisture		6.2			A		
Maximum Density (Proctor)		120.1					
Optimum Moisture		5.8%					
% Compaction Required		85.0					
% Compaction Obtained		94.9					

Troxler ID No.: 852 Model: 3450 Serial No.: 852

Density Proctor Report No.: 2019-DBORROW2-0001

Density: Average of Last Four (4) Standard Counts (No): N/A

Daily Standard Counts (Ns): 5489

Moisture: Average of Last Four (4) Standard Counts (No): N/A

Daily Standard Counts (Ns): 1118

Moisture Determination: ☐ ASTM D 2216-( ) ☒ ASTM D 6938-(17a) ☐ ASTM D 4643-( )

M&TE: 852	Cal. Due Date: 1-30-20	Procedure:	C-QCP-003
		Rev.:	0
NCR No.: N/A		PCN(s):	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		Spec.:	Engineering Standard 01110
Remarks: * See Page 1.		Rev.:	6
Test Mode : Method A		DCF(s):	N/A

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/12/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11-12-19

MK 11/25/19

ASR 18-203 (07/19)

System|One

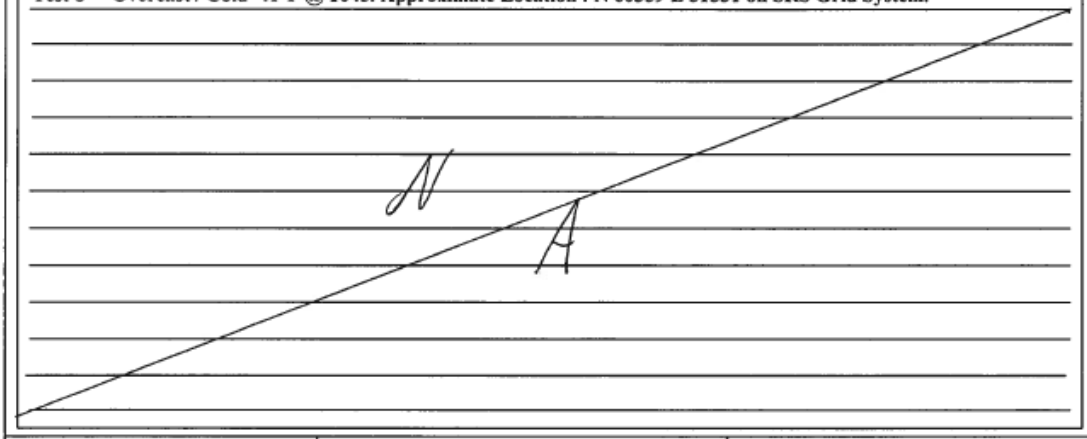
Savannah River Site - Building 717-5N

Summary Report of Testing Activities

☐ Report ☒ Cover Sheet Page 1 of 2

Approvals (If required)		**Work Package No.:**	1728342-01
Senior Civil Technician (Level III): Bradley Carlson		**QCIR No.:**	N/A
		Project No.:	N/A
Civil Testing & Inspection Superintendent: W. Pope, Jr.		**Design Category:**	GS
		Report No.: 2019-DBORROW2-0009	**Date:** 11-14-19
Lab. No.:	N/A	**Test Method:**	See Attached Page
Discipline:	Civil Testing	**Description:**	Soil / Refer to attached page
Location:	Oil Seepage Basin - 761-13N	**Reported to:**	K. Andrews 7-4246

Summary: As requested, System One performed In-Place Density at the Oil Seepage Basin - 761-13N.
Test 8 - Overcast / Cold 41°F @ 1045. Approximate Location : N 60359 E 51531 on SRS Grid System.



M&TE: See Attached Page	**Cal. Due Date:** See Attached Page	**Procedure:**	C-QCP-003
NCR No.: N/A		**Rev.:**	0
Test Results: ☒ Conforming ☐ Nonconforming ☐ N/A		**PCN(s):**	2
Remarks: Coordinates taken from Drawing C-CG-G-02746 / Rev. 0		**Spec.:**	Eng. Standard 01110
N/A		**Rev.:**	6
N/A		**DCF(s):**	N/A
N/A			

Technician (Print/Sign): Andrew Wilson / **Level:** II **Date:** 11/14/19

Reviewer (Print/Sign): Bradley Carlson / **Level:** III **Date:** 11-21-19

ML 11/25/19

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ASR 18-180 (07/19)

System|One

Savannah River Site

Moisture & Density Tests Using Surface Probes

Page 2 of 2

ASTM D 6938-(17a)

Report No.:	2019-DBORROW2-0009	Work Package No.:	1728342-01
Project No.:	N/A	QCIR No.:	N/A
Contractor:	SRNS	Design Category:	GS
Material Description:	Tan Poorly Graded Sand with Silt (SP-SM)		
Acceptance Criteria:	85% Compaction		
Drawing (s) & Rev. (s):	C-CG-G-02746 / Rev. 0		
Location:	Oil Seepage Basin - 761-13N		

Test No.	8					
Distance Approx.:	* See Page 1.					
Elevation Approx:	287'					
Wet Density, lbs/cu.ft.	120.9					
Water, lbs./cu.ft.	4.7					
Dry Density, lbs/cu.ft.	116.2					
Percent Moisture	4.7					
Maximum Density (Proctor)	120.1					
Optimum Moisture	5.8%					
% Compaction Required	85.0					
% Compaction Obtained	96.8					

Troxler ID No.:	852	Model:	3450	Serial No.:	852
Density Proctor Report No.:	2019-DBORROW2-0001				
Density:	Average of Last Four (4) Standard Counts (No):	N/A			
	Daily Standard Counts (Ns):	5489			
Moisture:	Average of Last Four (4) Standard Counts (No):	N/A			
	Daily Standard Counts (Ns):	1090			
Moisture Determination:	☐ ASTM D 2216-( )	☒ ASTM D 6938-(17a)	☐ ASTM D 4643-( )		

M&TE: 852	Cal. Due Date: 1-30-20	Procedure:	C-QCP-003
		Rev.:	0
NCR No.: N/A		PCN(s):	2
Test Result: ☒ Conforming ☐ Nonconforming ☐ N/A		Spec.:	Engineering Standard 01110
Remarks: * See Page 1.		Rev.:	6
Test Mode : Method A		DCF(s):	N/A

Technician (Print/Sign): Andrew Wilson / Level: II Date: 11/14/19

Reviewer (Print/Sign): Bradley Carlson / Level: III Date: 11-21-19

ML 11/25/19

Appendix D

GOSB OU RA As-Built

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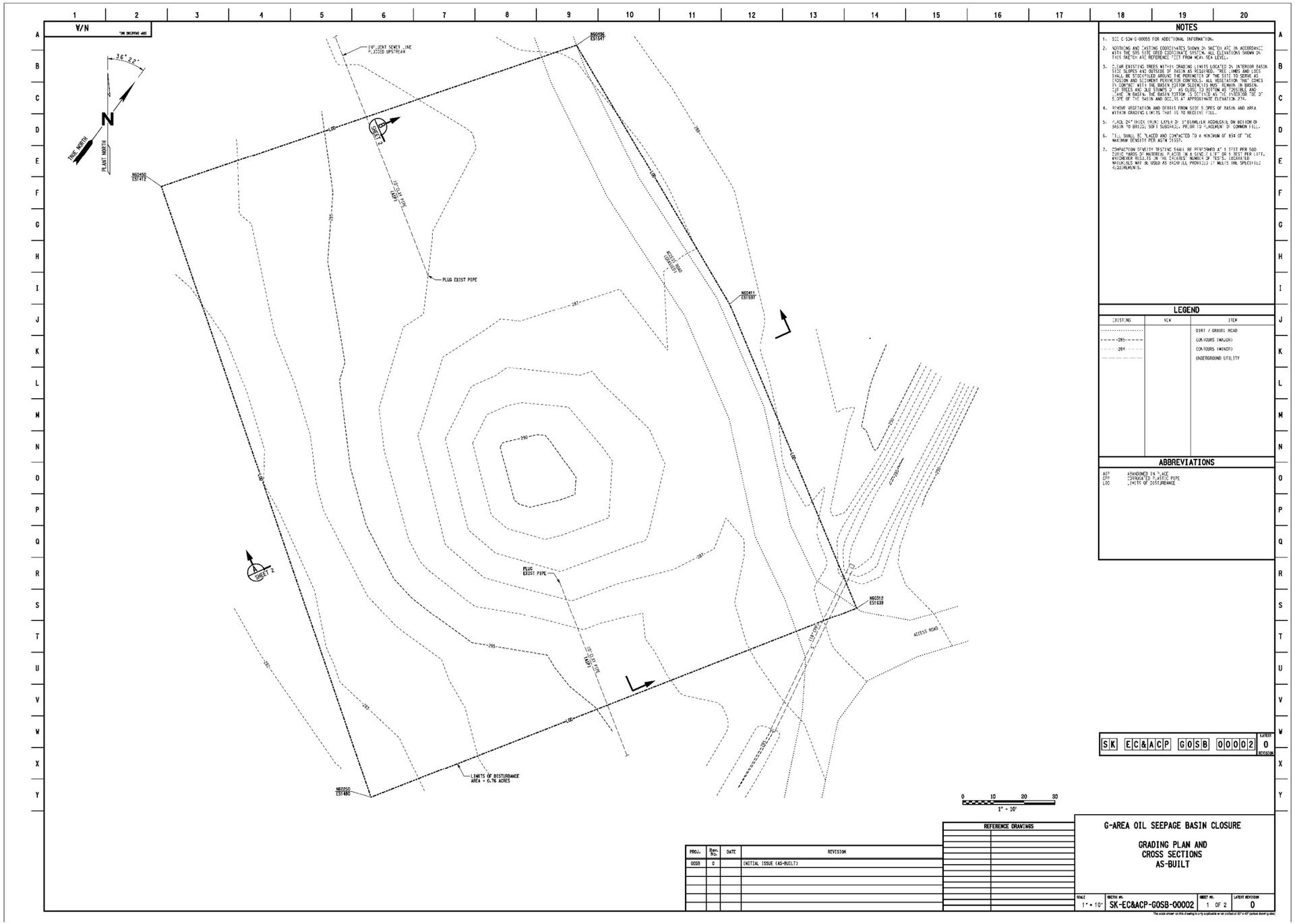
V/N
36° 22'
N
TRUE NORTH
PLANT NORTH
INFLUENT SEWER LINE PLUGGED UPSTREAM
N602456 E571417
N602400 E571473
SHEET 2
15" CLAY PIPE 140FT
PLUG EXIST PIPE
N602411 E571597
ACCESS ROAD
PLUG EXIST PIPE
N602312 E571639
LIMITS OF DISTURBANCE AREA = 0.76 ACRES
N602250 E571480
NOTES
1. SEE C-SSW-E-00005 FOR ADDITIONAL INFORMATION.
2. NORTHING AND EASTING COORDINATES SHOWN ON SKETCH ARE IN ACCORDANCE WITH THE SRS SITE GRID COORDINATE SYSTEM. ALL ELEVATIONS SHOWN ON THIS SKETCH ARE REFERENCE FEET FROM MEAN SEA LEVEL.
3. CLEAR EXISTING TREES WITHIN GRADING LIMITS LOCATED ON INTERIOR BASIN SIDE SLOPES AND OUTSIDE OF BASIN AS REQUIRED. TREE LIMBS AND LOGS SHALL BE STOCKPILED AROUND THE PERIMETER OF THE SITE TO SERVE AS EROSION AND SEDIMENT PERIMETER CONTROLS. ALL VEGETATION THAT COMES IN CONTACT WITH THE BASIN BOTTOM SEDIMENTS MUST REMAIN IN BASIN. CUT TREES AND OLD STUMPS CUT AS CLOSE TO BOTTOM AS POSSIBLE AND LEAVE IN BASIN. THE BASIN BOTTOM IS DEFINED AS THE INTERIOR TOE OF SLOPE OF THE BASIN AND OCCURS AT APPROXIMATE ELEVATION 274.
4. REMOVE VEGETATION AND DEBRIS FROM SIDE SLOPES OF BASIN AND AREA WITHIN GRADING LIMITS THAT IS TO RECEIVE FILL.
5. PLACE 24" THICK (MIN) LAYER OF STONE/RUBBLE AGGREGATE ON BOTTOM OF BASIN TO BRIDGE SOFT SUBGRADE, PRIOR TO PLACEMENT OF COMMON FILL.
6. FILL SHALL BE PLACED AND COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY PER ASTM D1557.
7. COMPACTION DENSITY TESTING SHALL BE PERFORMED AT 1 TEST PER 500 CUBIC YARDS OF MATERIAL PLACED IN A SINGLE LIFT OR 1 TEST PER LIFT, WHICHEVER RESULTS IN THE GREATER NUMBER OF TESTS. UNCURATED MATERIALS MAY BE USED AS BACKFILL PROVIDED IT MEETS THE SPECIFIED REQUIREMENTS.
LEGEND
EXISTING | NEW | ITEM
DIRT / GRAVEL ROAD
285 CONTOURS (MAJOR)
284 CONTOURS (MINOR)
UNDERGROUND UTILITY
ABBREVIATIONS
ABP ABANDONED IN PLACE
CPP CORRUGATED PLASTIC PIPE
LOD LIMITS OF DISTURBANCE
SK EC&ACP GOSB 00002
LATEST REVISION 0
0 10 20 30
1" = 10'
REFERENCE DRAWINGS
PROJ. | REV. NO. | DATE | REVISION
GOSB | 0 | | INITIAL ISSUE (AS-BUILT)
G-AREA OIL SEEPAGE BASIN CLOSURE
GRADING PLAN AND CROSS SECTIONS AS-BUILT
SCALE 1" = 10'
DRAWING NO. SK-EC&ACP-GOSB-00002
SHEET NO. 1 OF 2
LATEST REVISION 0

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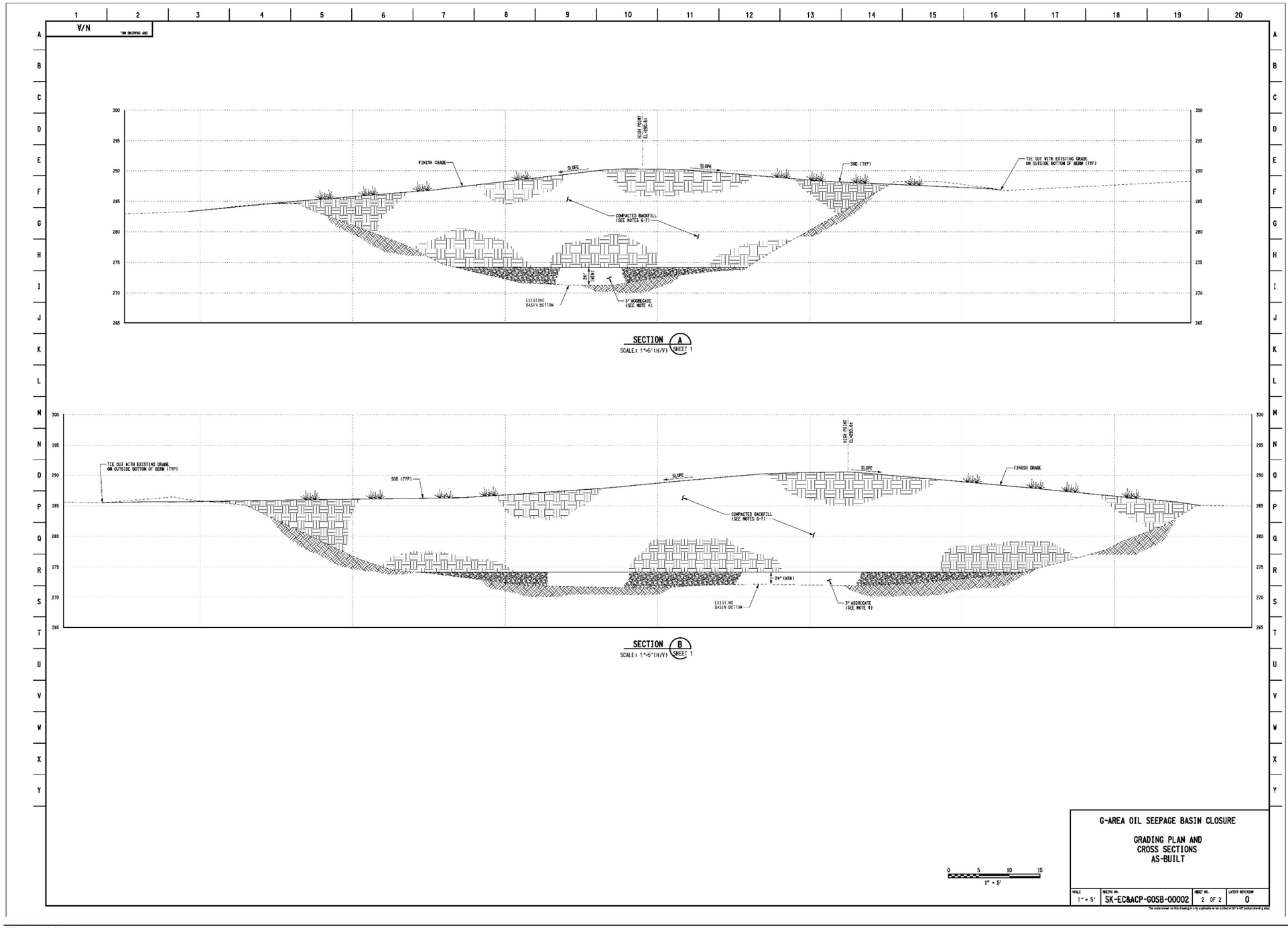
V/N
HIGH POINT EL=290.66'
FINISH GRADE
SLOPE
SLOPE
SOD (TYP)
TIE OUT WITH EXISTING GRADE ON OUTSIDE BOTTOM OF BERM (TYP)
COMPACTED BACKFILL (SEE NOTES 6-7)
24" MIN
EXISTING BASIN BOTTOM
3" AGGREGATE (SEE NOTE 4)
SECTION A
SCALE: 1"=5' (H/V) SHEET 1
HIGH POINT EL=290.66'
TIE OUT WITH EXISTING GRADE ON OUTSIDE BOTTOM OF BERM (TYP)
SOD (TYP)
SLOPE
SLOPE
FINISH GRADE
COMPACTED BACKFILL (SEE NOTES 6-7)
24" (MIN)
EXISTING BASIN BOTTOM
3" AGGREGATE (SEE NOTE 4)
SECTION B
SCALE: 1"=5' (H/V) SHEET 1
0 5 10 15
1" = 5'
G-AREA OIL SEEPAGE BASIN CLOSURE
GRADING PLAN AND CROSS SECTIONS AS-BUILT
SCALE 1" = 5'
DRAWING NO. SK-EC&ACP-GOSB-00002
SHEET NO. 2 OF 2
LATEST REVISION 0

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APPENDIX E

SRNS QA Review Correspondence

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ERD-EN-2019-0056

Adam Willey

From: Stanley Pruitt
Sent: Monday, December 16, 2019 7:53 AM
To: Steven Conner
Cc: Adam Willey; Austin Welch
Subject: RE: G Area OSB QA review

Morning Steve,

I have reviewed the documents provided by Adam; and found the documents QA acceptable for recording the compaction density tests as well as the D-Area Borrow Pit Sieve Analysis results for 761-13N Oil Seepage Basin.

Thank you,

Stan Pruitt
EC&ACP QA CQF.

From: Steven Conner <Steven.Conner@srs.gov>
Sent: Thursday, December 12, 2019 3:04 PM
To: Adam Willey <Adam.Willey@srs.gov>; Austin Welch <Austin.Welch@srs.gov>; Stanley Pruitt <Stanley.Pruitt@srs.gov>
Subject: G Area OSB QA review

For the purposes of QA, please provide Stan a copy of the consolidation test results so he can validate that they met the standard established in the project design (85%).

Stan, please provide the results of your review to me.

Steven Conner
Savannah River Nuclear Solutions, LLC
Environmental Compliance and Area Completion Projects
Phone 803.952.8842
Cell 803.646.0572

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APPENDIX F

Correspondence Regarding the GOSB OU RA Final Walkdown

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Adam Willey

From: Joseph Burch
Sent: Monday, March 02, 2020 11:17 AM
To: Jon Richards (richards.jon@epa.gov); Cathcahe (dhec.sc.gov); Tufts, Jennifer; Taylorwf (dhec.sc.gov)
Cc: pope.robert (epa.gov); Fulmer, Susan; HENNESSEY, BRIAN; PRATER, M PHILIP; Chris Bergren; Mike Griffith; Thomas Kmetz; Thomas Gaughan; J Ross; Amy Meyer; Thelesia Oliver; James Kupar; Eric Schiefer; Dena Brett; Sadika O'Quinn; Steven Conner; Adam Willey; Fuss, Travis R.; Greggory N. O'Quinn (oquinngn@dhec.sc.gov); Shelia Mcfalls; Barbara Harris; Bethany Cameron; McRae, Mac; Peter Avioli; Jumper, Benjamin A.; snydersl@dhec.sc.gov
Subject: G-Area Oil Seepage Basin Operable Unit Post Construction Field Walkdown - February 27, 2020

SRNS-J2000-2020-00152

As part of the Sixth Five-Year Remedy Review Report Regulatory field walkdown, a Core Team walk down of the G Area Oil Seepage Basin (GOSB) Operable Unit (OU) was completed during the afternoon on Thursday, February 27, 2020. The GOSB OU Core Team members for this remedy present on this walkdown were: Brian Hennessey – Department of Energy, Jennifer Tufts – U.S. Environmental Protection Agency, and Duke Taylor – South Carolina Department of Health and Environmental Control. The purpose of this visit was to observe the completed remedial field activities as prescribed in the Corrective Measures Implementation/Remedial Action Implementation Plan (CMI/RAIP) for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U) (SRNS-RP-2019-00081, Revision 0, April 2019), and the Record of Decision Remedial Alternative Selection for the G-Area Oil Seepage Basin (761-13G) Operable Unit (U) (SRNS-RP-2018-01050, Revision 1, April 2019) SEMS Number: 93.

To highlight the meeting, Steve Conner (SRNS GOSB Project Manager) presented a description of the GOSB OU Remedial Action that included the completed construction activities and the final state of the GOSB OU. In addition, the GOSB Site Clearance was described which will remain active, requiring any party that proposes future penetrations, excavations, or ground disturbing activities to contact Area Completion Projects for approval. Following the description, participants conducted a walkthrough of the Remedial Action site and any additional questions were answered. The walk down included observations of the final unit footprint, the erosion control brush piles, and the constructed vegetative cover. No issues or deficiencies were identified during the walk down. This walk down will be referenced in the Post-Construction Report/Corrective Measures Implementation Report/Remedial Action Completion Report for the G Area Oil Seepage Basin Operable Unit.

Please contact me if you have any questions.

Joseph Burch
Environmental Compliance Authority – Area Completion Projects
Building 730-4B, RM 3118, Phone: (803) 952-6660

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