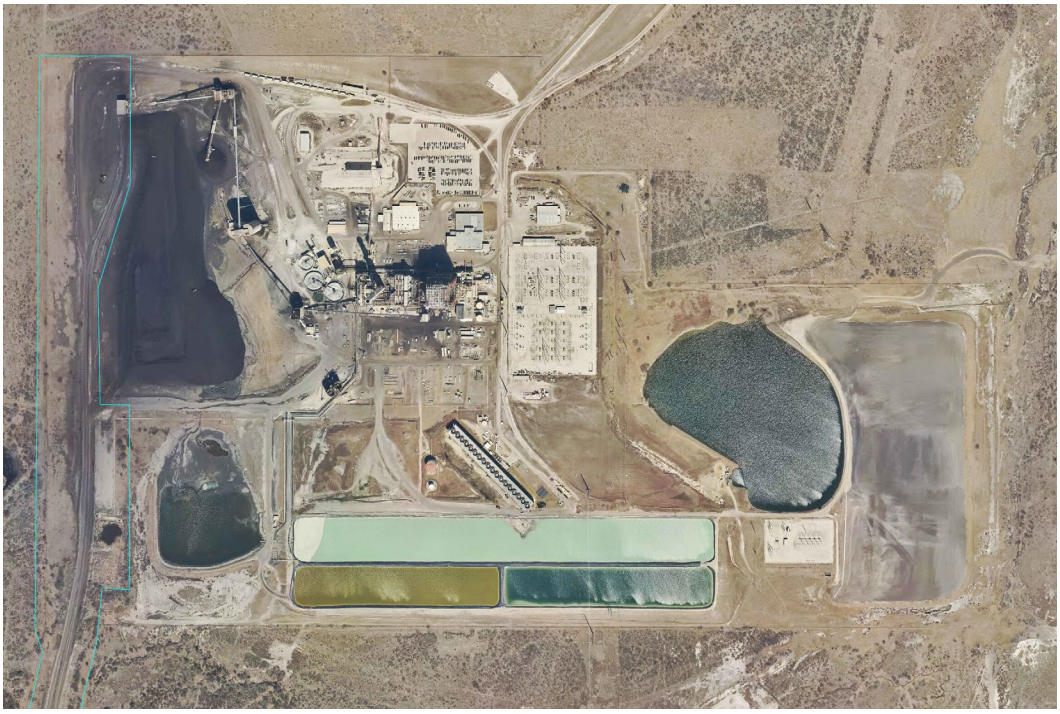

San Miguel Electric Cooperative Equalization (EQ) Pond Closure Final Construction Report

Christine, Atascosa County, Texas

Prepared for:
San Miguel Electric Cooperative

June 2022

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ACRONYMS

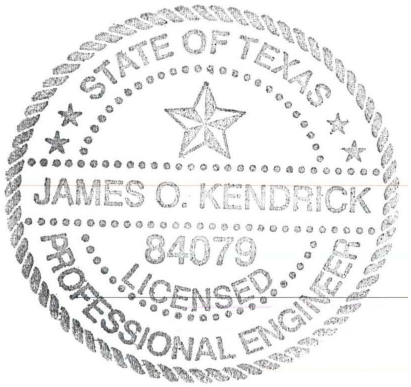
CCR	coal combustion residual
cm/sec	centimeters per second
EQ Pond	equalization pond
FGD	flue gas desulfurization
lb/ft^3	pound per cubic foot
QA/QC	quality assurance/quality control
SMEC	San Miguel Electric Cooperative
TCEQ	Texas Commission on Environmental Quality

EQ Pond Closure Certification

I, the undersigned Texas Professional Engineer, hereby certify that the Equalization (EQ) Pond Closure activities have been completed in accordance with the EQ Pond Closure Plan dated June 2020, and in accordance with current good and accepted engineering practice(s) and standard(s) appropriate to the nature of the project and the technical requirements set out in 40 C.F.R. § 257.102.

The certification is understood and intended to be an expression of my professional opinion as a Texas Licensed Professional Engineer, based upon knowledge, information, and belief.

James O. Kendrick	84079
Printed Name of Professional Engineer	Texas License Number
	June 27, 2022
Signature of Professional Engineer	Date
NewFields Environmental & Engineering, LLC	Firm F-5735



1.0 INTRODUCTION

Under a pond closure and post-closure plan amendment dated June 2020 (Closure Plan), San Miguel Electric Cooperative (SMEC) closed an equalization pond (EQ Pond) by leaving coal combustion residual (CCR) material in place and capping the pond at the SMEC facility in Atascosa County, Texas (Site).[1] The work was conducted in accordance with the current rules for the management of CCR materials (40 CFR, Part 257, Subpart D[2]). Closure activities began in May 2021 and were completed in February 2022.

1.1 EQ Pond Closure Criteria

Closure activities were conducted in accordance with the criteria outlined in 40 CFR § 257.102 and specified in the Closure Plan. The pond closure included removal of free liquids by pumping the liquids to Ash Pond A. The remaining EQ Pond CCR materials were then covered with a cap consisting of a minimum two feet of compacted clay with a permeability less than or equal to 1×10^{-7} centimeters per second (cm/sec) overlain with a minimum of six inches of topsoil.

SMEC's pre-existing certifications under the Federal CCR rules are available at the following website: http://www.smeci.net/ccr-rule.

[1] NewFields 2020. Equalization Pond Closure and Post-Closure Plan Amendment. San Miguel Electric Cooperative. June 2020.
[2] Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments

2.0 SITE OVERVIEW

The SMEC owns and operates a 440-megawatt lignite-fired electric power generating plant in Atascosa County, Texas. The SMEC property is located approximately six miles south of the town of Christine. The location of the Site is shown on **Figure 1**. SMEC operates two CCR impoundments at the Site: the Ash Ponds (Ash Pond A and B) and the EQ Pond.[3] The EQ Pond and other site features are identified on **Figure 2**.

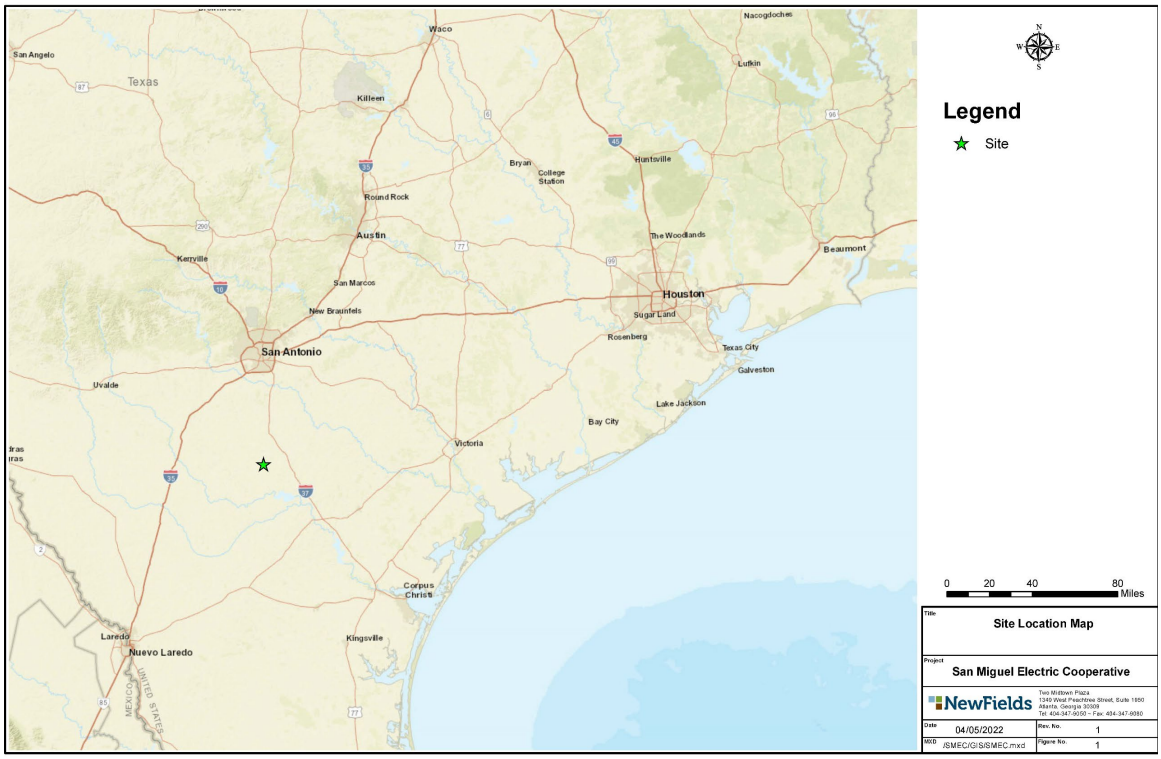


Figure 1 Site Location Map

The EQ Pond is approximately 25 acres in size and the maximum capacity of the pond is approximately 660,000 cubic yards. Estimating the maximum volume of CCR in the pond is difficult as non-CCR materials were also deposited in the pond. SMEC conservatively estimates the maximum volume of CCR and non-CCR material in the pond, based on an October 2019 bathymetric survey, was 520,000 cubic yards prior to closure.[4] This mixture of CCR and non-CCR material is referred to as "waste material" in this document.

The EQ Pond was constructed between July 1977 and May 1978 as part of the SMEC plant construction. The pond was permitted by the Texas Commission on Environmental Quality (TCEQ) to receive flue gas desulfurization (FGD) scrubber wastewater (spent limestone slurry), sanitary wastewater, and stormwater runoff from approximately 28.5 acres of the

[3] ERM 2016. CCR Surface Impoundment History of Construction Documentation. San Miguel Electric Cooperative. October 14, 2016.
[4] NewFields 2020.

SMEC property. Although TCEQ Permit No. WQ0002601000 allowed the collection of FGD wastewater, sanitary wastewater, and stormwater runoff, it did not allow discharge from the pond. The SMEC facility utilized evaporation and/or pumping of water to the ash ponds for removal of excess water. Operation of the EQ Pond began in 1981.[5]

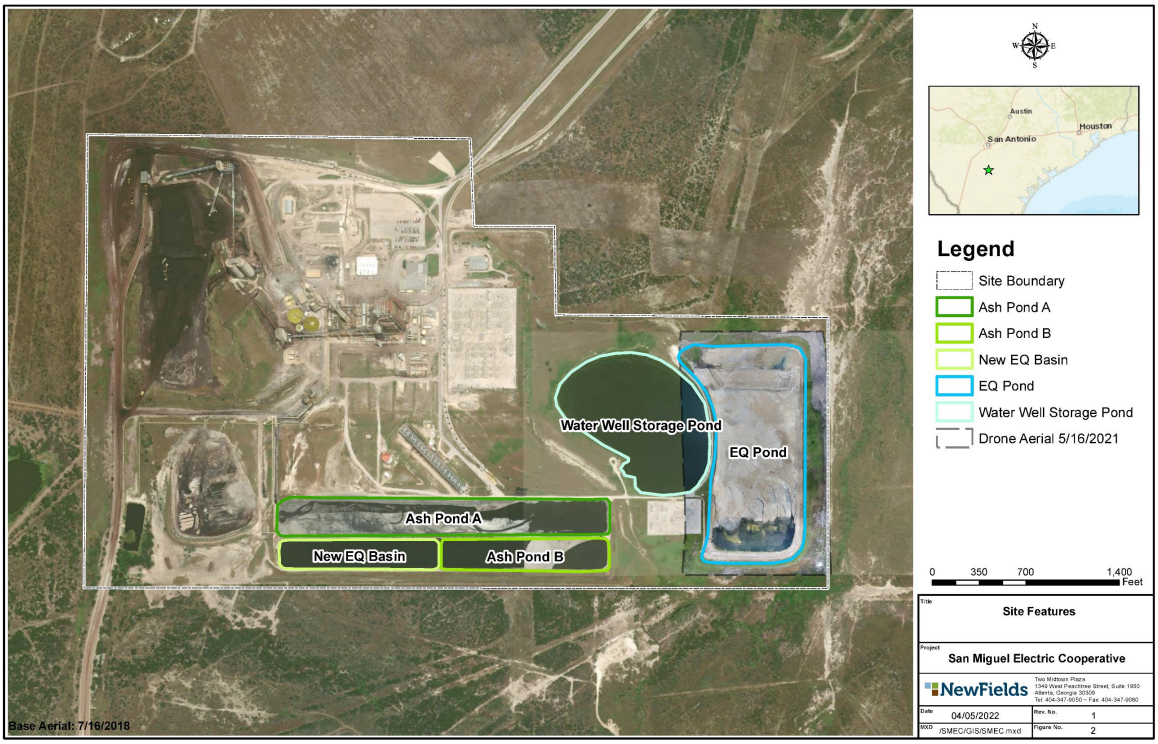


Figure 2 Site Features

According to the construction specifications and a March 1979 letter from the SMEC engineering consultant, the EQ Pond liner was constructed of a 3-foot-thick clay rich layer of soil with permeability less than 1×10^{-7} cm/sec.[6]

To allow closure of the EQ Pond, a new equalization basin had to be available for the FGD wastewater and stormwater runoff. A new, lined equalization basin was created during the retrofit of Ash Ponds A and B in 2020. A berm was constructed at the midpoint of Ash Pond B separating that pond into an eastern pond and western pond. The eastern portion of Ash Pond B is connected to Ash Pond A through a weir. The western portion of Ash Pond B is now the equalization basin for the facility. Information pertaining to the retrofit of Ash Ponds A and B and construction of the new equalization basin is provided in the *Ash Pond Retrofit Final Construction Report* prepared by NewFields in June 2021.

[5] ERM 2016.
[6] ERM 2016

3.0 EQ POND CLOSURE/CONSTRUCTION

This section provides a brief synopsis of the design and construction activities performed during the EQ Pond closure at the SMEC facility. Details of the closure are found in the following sections and attachments to this report. The elements of the pond closure were outlined in the original Bid Documents and the Closure Plan (**Appendix A** and **Appendix B**, respectively) and shown on the As-Built Drawings (**Appendix C**). A chronology of events is provided in **Section 5.0**. Photographs are provided in **Appendix D**.

3.1 Closure Overview

As outlined in the *Closure Plan*, the EQ Pond was closed in accordance with 40 CFR § 257.102 - *Criteria for conducting the closure or retrofit of CCR units*. The EQ Pond closure included the following:

- Diverting plant effluent to the new, lined equalization basin (western portion of Ash Pond B);
- Dewatering the EQ Pond through evaporation and pumping free liquids to Ash Pond A;
- Final cover system installation; and,
- Stormwater drainage swale construction.

The closure elements listed above resulted in a clay cap and topsoil cover as required by 40 CFR § 257.102(d)(3).

3.2 EQ Pond Closure Plan Design Elements

The main design elements of the EQ Pond closure per the Closure Plan were:

- Dewater EQ Pond;
- EQ Pond grading and compaction;
- Final cover system installation, which originally included at least 18 inches of clay cap overlain by at least six inches of topsoil cover; and,
- Stormwater drainage swale construction.

3.3 Closure Design

The SMEC EQ Pond closure was completed per the design elements listed in **Section 3.2** and as indicated in the specifications and project drawings (**Appendix A, Appendix B,** and **Appendix C**) with the following exceptions:

- EQ Pond Grading and Compaction: although free liquids in the EQ Pond were allowed to evaporate or were pumped to Ash Pond A, some of the waste material remaining in the pond had the consistency of a thick slurry which did not allow for heavy equipment to enter the pond and grade and compact the material prior to installation of the clay cap. Therefore, the clay cap was placed on top of the waste material and the final Grading Plan was revised.

- The original specifications called for at least 18 inches of clay to be placed atop the waste material for capping of the EQ Pond. However, much of the waste material in the pond was the consistency of a thick slurry and incapable of supporting heavy equipment. Therefore, the cap was redesigned so that the clay thickness would be increased to a minimum of 24 inches across the entire cap as a Safety Factor. Clay was delivered to the northwestern portion of the EQ Pond and slowly spread over the waste material until the clay could support a bulldozer.

- During the process of installing the clay cap, the weight of the clay dewatered some of the waste material and the resulting liquid accumulated at the southern end of the pond. The liquid was pumped on an as-needed basis from the EQ Pond to Ash Pond A.

3.3.1 Bid Documents and Contractor Procurement

Competitive bid documents for the EQ Pond closure were prepared for the project (**Appendix A**), and bids were solicited for the construction project in January 2021. Three companies submitted bids for the EQ Pond closure work with Bridges Earth Works, LLC (Bridges) of Robstown, Texas selected as the Contractor. NewFields was the construction manager for the project.

3.3.2 Geotechnical

Geotechnical data were collected on April 20, 2021, from the clay source area at the San Miguel Lignite Mine located approximately 5.5 miles south-southwest of the Site. The clay source material was tested to determine if the permeability would meet the plan specifications of no greater than 1×10^{-7} cm/sec. The results of the samples determined the clay to be acceptable for construction of the cap. See **Section 3.4.5.1** for a detailed description of the pre-construction evaluation of the clay material.

3.3.3 Topographic Surveys

SMEC has a surveyor on-staff who conducted regular surveys of the cap construction via a drone. A drone survey of the EQ Pond was conducted on May 16, 2021, prior to the cap construction, to establish the baseline conditions to be utilized during the construction process. Additional drone surveys were conducted June 6, July 11, July 25, August 30,

September 14, October 17, October 30, November 17, and December 12, 2021. The drone surveys were used to calculate the volume of clay used for the cap construction and guide the ongoing clay placement activities. Additional drone surveys were conducted January 11, January 23, and February 20, 2022. The 2022 drone surveys were used to calculate the volume of topsoil spread atop the clay cap and document the as built grading plan.

3.4 Closure Construction

3.4.1 Mobilization

The Contractor mobilized the construction equipment to the Site in May 2021. A construction trailer, health and safety equipment, and portable sanitary facilities were installed by the Contractor. The entire construction team went through SMEC's on-site safety training before commencing work at the Site.

3.4.2 Erosion, Sediment Control, and Drainage

Erosion and sediment control measures were installed at the beginning of construction operations around the equipment laydown area, the parking area for dump trucks, and around the Contractor's storage container and diesel tank. Required sediment control measures (silt fencing) were also installed along the northern and eastern berms of the EQ Pond. These measures were installed in accordance with the specifications included in the Bid Document (**Appendix A**).

3.4.3 Clay Transport

The selected clay source was lignite mine overburden material. Approximately 80,000 cubic yards of clay was initially transported from the mine (source area) to a stockpile area at the western boundary of the SMEC facility, as shown on **Figure 3**. The clay transport was conducted by mine personnel. The clay was then loaded into dump trucks at the clay stockpile area and transported to the EQ Pond for cap placement. The loading of clay and transport from the clay stockpile to the EQ Pond was performed by Bridges.

Once the 80,000 cubic yards of clay had been transported from the clay stockpile area to the EQ Pond, Bridges transported the remaining clay needed to complete the cap from the mine to the EQ Pond. The location of the clay stockpile area and clay transport routes are shown on **Figure 3** and **Photographs 1** and **2** show the clay stockpile area.

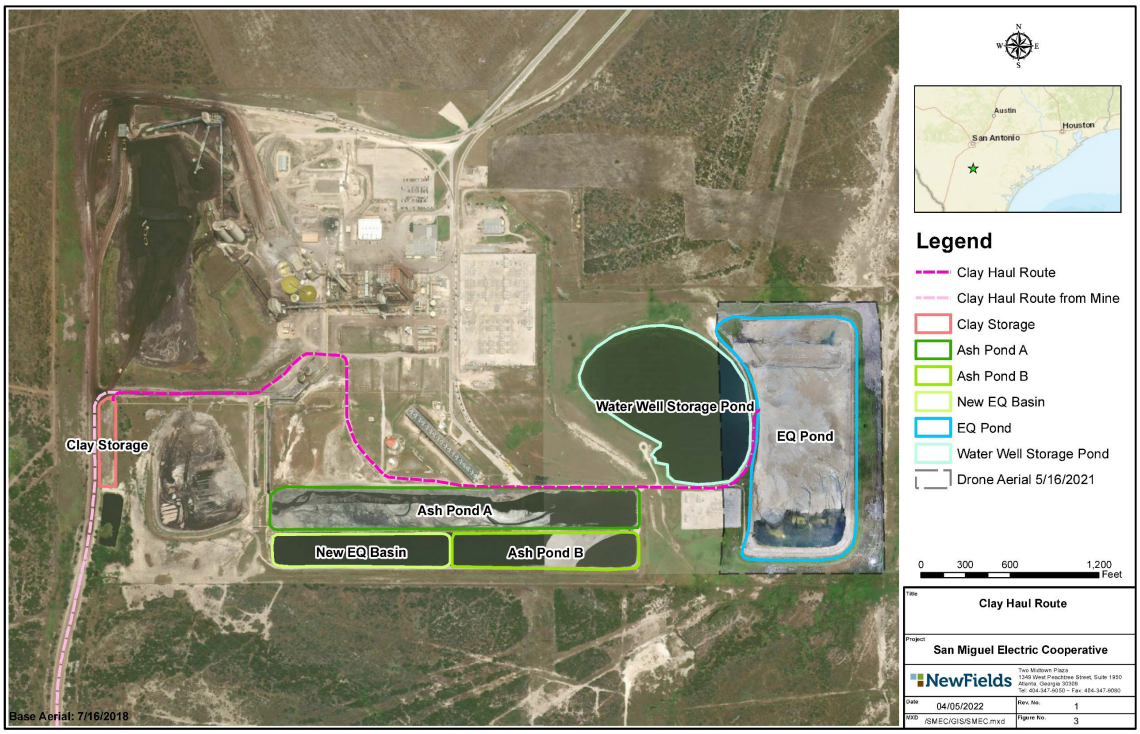


Figure 3 Location of Clay Stockpile and Clay Transportation Routes

3.4.4 Clay Cap Construction

The original design included regrading and compaction of the waste material remaining in the EQ Pond after the free liquids were removed. Clay transportation and placement in the EQ Pond began on May 25, 2021, using an excavator, four dump trucks, and two bulldozers. While some of the waste material was dry and hardened, the remaining material was the consistency of a thick slurry and incapable of supporting heavy equipment. The clay was dumped along the edge of the pond and spread out using a bulldozer. Several feet of clay were placed atop the soft waste material on an as-needed basis to support the heavy equipment. Therefore, the process of hauling and dumping clay and spreading with a bulldozer was used for construction of the clay cap. As the construction progressed, the clay cap was also stable enough to support the dump trucks delivering clay. This allowed the process to be more efficient as the clay could be delivered to the edge of the clay cap rather than being dropped at the edge of the pond and pushed the distance over which the clay cap had been placed. In addition, the tracking of the trucks on the cap helped compact the clay.

Construction of the cap began at the northwest corner of the EQ Pond and progressed to the east and south. This change in clay placement also resulted in a change in grading plan from the initial design. The original design called for drainage to flow from west to east. The revised design utilized the original grade of waste material from south to north at the northern edge of the pond, and from northwest to southeast over the majority of the pond. At the southern end of the pond, the original clay berm of the pond was removed, and the berm

material (clay) was mixed with the clay from the mine and used as capping material. The clay cap construction is shown in **Photographs 3** through **8** and **Photographs 9 and 10** show where the berm was cut down**.**

During the construction of the cap, the weight of the clay assisted in dewatering of the waste material in the pond and the liquid drained to the southern end of the pond where it was pumped to Ash Pond A. The pumping of free liquid from the EQ Pond is shown in **Photograph 11**.

As discussed in **Section 3.3.3**, a drone survey was conducted prior to cap construction to establish the baseline conditions to be utilized during the construction process. Nine additional drone surveys were performed during the cap construction, and those surveys were used to calculate the volume of clay fill used to construct the cap. Installation of the clay cap was completed on December 13, 2021, and a total of 167,976 cubic yards of clay was used to create the EQ Pond cap. Aerial photographs acquired during the drone surveys are shown in chronological order in **Figure 4** to illustrate the construction progress during installation of the clay cap.

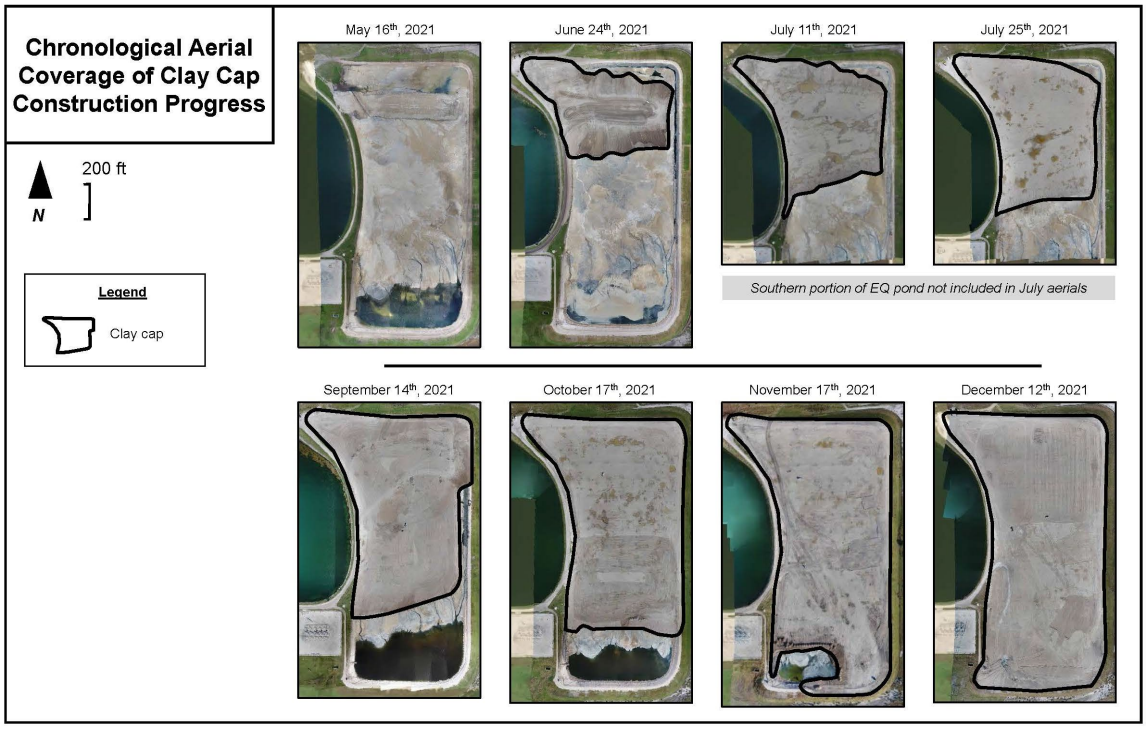


Figure 4 Chronological Aerial Coverage of Clay Cap Construction Progress

3.4.5 Clay and Clay Cap Quality Assurance/Quality Control (QA/QC)

Prior to and during the construction process, materials were reviewed and tested to meet the requirements of the design for the EQ Pond closure. Quality Control (QC) was performed by the Contractor for the work performed under the contract and Quality Assurance (QA) was performed by NewFields to evaluate the Contractor's work and QC

efforts. General categories of QA/QC and associated testing results are discussed in the following sections.

3.4.5.1 Clay Evaluation (pre-construction)

Prior to initiating closure activities, geotechnical data were collected in April 2021 from the clay source area at the San Miguel Lignite Mine located approximately 5.5 miles south-southwest of the Site. Several five-gallon buckets of clay were collected from various locations within the clay source area and delivered to Arias Geoprofessionals (Arias) in San Antonio, Texas. Arias tested the clay for plasticity index, liquid limit, percent passing No. 200 sieve, and permeability. The April 20, 2021, testing results are provided in **Table 1,** and a copy of the Arias laboratory report is included in **Appendix E**. The clay was determined to be acceptable for construction of the clay cap.

3.4.5.2 Clay Evaluation (during construction)

Samples of the clay stockpile were periodically collected during cap construction to confirm that the clay continued to meet acceptance criteria for construction of the clay cap. Samples were collected on June 17 and 24, July 1 and 22, August 18, September 8, and October 6, 2021. The samples were delivered to Arias for geotechnical testing as described in **Section 3.4.5.1** above. The results of the testing are listed in **Table 1**, and copies of the Arias laboratory reports are in included in **Appendix E**. The clay was determined to be acceptable for use in the construction of the clay cap, with permeability below the 1.0×10^{-7} cm/sec specification.

Table 1 Clay Stockpile Testing Results

Sample Date	Liquid Limit	Plasticity Index	% Passing No. 200 Sieve	Permeability (cm/sec)
4-20-21*	91	62	78	3.66×10^{-8}
6-17-21	77	44	65	NA
6-24-21	83	48	54	5.80×10^{-8}
7-01-21	80	47	62	NA
7-22-21	77	52	47	NA
8-18-21	83	60	62	6.05×10^{-9}
9-08-21	75	43	58	1.32×10^{-8}
10-06-21	70	38	48	1.06×10^{-8}
Arithmetic Mean	79.50	49.25	59.25	2.49×10^{-8}

Notes:

** sample collected from clay source prior to cap construction to confirm the clay met the specifications to be used in construction of the clay cap. NA indicates that permeability testing was not performed on the designated sample because permeability testing was done on a different schedule than the other physical parameters.*

3.4.5.3 Clay Evaluation (in-situ initial)

Once approximately 60% of the clay cap had been installed, field testing was conducted by Rock Engineering of San Antonio to confirm that in-place clay, after installation and

compaction, met the specifications for moisture, compaction, and permeability. Seven locations were tested, and the testing was conducted using a Troxler Model 3430P nuclear moisture density gauge in accordance with ASTM D 6938. During each reading, the wet density in pound per cubic foot (lb/ft^3), water content (%), dry density (lb/ft^3) and compaction (%) were measured and recorded. The results of the testing and the specifications are listed in **Table 2** and the testing locations are shown on **Figure 5.** The Rock Engineering Field Testing Report is included in **Appendix F**.

Table 2 Initial Permeability, Moisture, and Compaction Testing Results – October 12, 2021

Map ID*	Permeability (cm/sec)	Moisture (%)	Compaction (%)
1 (NC)	8.6×10^{-8}	22.2	108.6
2 (NE)	2.8×10^{-8}	20.4	98.9
3 (EC)	1.0×10^{-7}	18.0	105.9
4 (SE)	1.7×10^{-8}	14.2	105.5
5 (SW)	2.0×10^{-8}	16.9	107.5
6 (WC)	2.5×10^{-8}	15.9	106.7
7 (NW)	2.4×10^{-8}	14.8	111.8
Specifications	< or = 1.0×10^{-7}	>20%	>95%

Notes:
** Map ID identifies the sampling location as presented in* ***Figure 5***

Figure 5 Initial In-Situ Clay Testing Locations

The results indicated that the permeability and compaction testing passed but the moisture content was significantly below the optimum moisture content for compaction. As a result,

it was determined that the clay cap would need to be ripped and wetted to add moisture prior to final compaction, and then re-tested for moisture and compaction. Testing showed that this increased the moisture content and future in-place testing was done in the field as discussed below and results provided in **Table 3**.

3.4.5.4 Clay Ripping, Wetting, and Re-Evaluation

Based on the field-testing results listed in **Table 2**, Bridges ripped the upper six inches of clay in the northeastern, approximate one acre of clay cap and wetted the soil using a water truck prior to final compaction. The goal was to get moisture over 20% and preferably in the range of 25% to 26% if possible. **Photograph 12** shows a ripped area of the cap and wetting of the area with a water truck. Rock Engineering returned to the Site on December 7, 2021, and tested nine locations on the northeastern, approximate one acre of clay cap that had been ripped and wetted, and all compaction and moisture results passed. Ripping and wetting was therefore implemented across the remainder of the cap.

3.4.5.5 Clay Evaluation (in-situ during construction)

Rock Engineering returned on December 15, December 21, and December 29, 2021, and January 4 and January 13, 2022, to continue testing the cap for compaction and moisture. The testing was conducted using either a Troxler Model 3430P or Troxler Model 3411 nuclear moisture density gauge in accordance with ASTM D 6938. During each reading, the wet density (lb/ft^3), water content (%), dry density (lb/ft^3) and compaction (%) were measured and recorded. In all, 170 locations distributed throughout the EQ Pond were tested, and all the results met the moisture and compaction specifications. The testing results are listed in **Table 3**. Rock Engineering Field Testing Reports are included in **Appendix F**. Coordinates were collected for sample locations using a handheld device which accuracy varied due to satellite coverage.

Table 3 Clay Cap Compaction and Moisture Testing During Construction

Test Count	Date	Daily Test ID	Probe Depth (inches)	Latitude	Longitude	Compaction %	Moisture %	Result (P/F)
1	12/7/2021	1	6	NR	NR	98.0	23.0	P
2	12/7/2021	2	6	NR	NR	101.0	20.5	P
3	12/7/2021	3	6	NR	NR	101.0	21.1	P
4	12/7/2021	4	6	NR	NR	95.5	23.6	P
5	12/7/2021	5	6	NR	NR	101.0	21.7	P
6	12/7/2021	6	6	NR	NR	98.6	22.4	P
7	12/7/2021	7	6	NR	NR	101.0	21.0	P
8	12/7/2021	8	6	NR	NR	101.0	25.0	P
9	12/7/2021	9	6	NR	NR	100.0	24.1	P
10	12/15/2021	1	6	28.702282	-98.467500	98.4	25.4	P
11	12/15/2021	2	6	28.702222	-98.467500	98.9	20.6	P
12	12/15/2021	3	6	28.702449	-98.462410	99.8	20.2	P

Table 3 Clay Cap Compaction and Moisture Testing During Construction

Test Count	Date	Daily Test ID	Probe Depth (inches)	Latitude	Longitude	Compaction %	Moisture %	Result (P/F)
13	12/15/2021	4	6	28.702721	-98.467440	98.9	25.4	P
14	12/15/2021	5	6	28.703152	-98.467456	97.6	23.8	P
15	12/15/2021	6	6	28.703287	-98.467501	100.0	25.0	P
16	12/15/2021	7	6	28.703022	-98.467526	97.0	23.8	P
17	12/15/2021	8	6	28.702786	-98.467526	97.7	23.8	P
18	12/15/2021	9	6	28.702290	-98.467622	99.4	20.0	P
19	12/15/2021	10	6	28.702797	-98.467594	96.0	24.2	P
20	12/15/2021	11	6	28.703394	-98.467594	95.5	25.1	P
21	12/15/2021	12	6	28.703410	-98.467721	97.6	24.0	P
22	12/15/2021	13	6	28.702864	-98.467724	95.9	24.3	P
23	12/15/2021	14	6	28.702370	-98.467741	97.9	23.5	P
24	12/15/2021	15	6	28.702109	-98.467766	97.7	24.0	P
25	12/15/2021	16	6	28.702417	-98.467785	98.2	23.5	P
26	12/15/2021	17	6	28.702864	-98.467771	95.5	25.0	P
27	12/15/2021	18	6	28.703184	-98.467752	100.0	25.7	P
28	12/15/2021	19	6	28.703177	-98.467907	99.9	26.0	P
29	12/15/2021	20	6	28.702869	-98.467900	98.2	23.3	P
30	12/15/2021	21	6	28.702513	-98.467945	96.5	24.0	P
31	12/15/2021	22	6	28.702377	-98.468108	96.0	24.3	P
32	12/15/2021	23	6	28.702262	-98.468122	100.0	26.0	P
33	12/15/2021	24	6	28.702522	-98.468084	100.0	25.8	P
34	12/15/2021	25	6	28.702616	-98.468087	98.9	26.5	P
35	12/15/2021	26	6	28.702764	-98.468154	98.2	23.4	P
36	12/15/2021	27	6	28.702958	-98.468083	97.7	23.6	P
37	12/15/2021	28	6	28.703096	-98.468152	99.8	20.2	P
38	12/21/2021	1	6	28.703096	-98.468152	97.1	24.6	P
39	12/21/2021	2	6	28.702958	-98.468083	97.6	24.4	P
40	12/21/2021	3	6	28.702764	-98.468154	98.3	24.2	P
41	12/21/2021	4	6	28.702616	-98.468087	97.0	24.5	P
42	12/21/2021	5	6	28.702522	-98.468084	97.1	24.5	P
43	12/21/2021	6	6	28.702377	-98.468108	95.4	24.8	P
44	12/21/2021	7	6	28.702513	-98.467945	95.7	24.7	P
45	12/21/2021	8	6	28.702869	-98.467900	95.3	24.8	P
46	12/21/2021	9	6	28.703177	-98.467907	97.6	24.4	P
47	12/21/2021	10	6	28.703184	-98.467752	98.5	24.0	P
48	12/21/2021	11	6	28.702864	-98.467771	99.8	23.1	P
49	12/21/2021	12	6	28.702417	-98.467785	95.6	24.8	P
50	12/21/2021	13	6	28.702109	-98.467766	95.0	24.9	P
51	12/21/2021	14	6	28.702370	-98.467741	96.8	24.5	P
52	12/21/2021	15	6	28.702864	-98.467724	100.0	20.4	P
53	12/21/2021	16	6	28.703410	-98.467721	99.3	21.3	P
54	12/21/2021	17	6	28.703394	-98.467950	96.6	24.5	P
55	12/21/2021	18	6	28.702797	-98.467594	96.2	24.6	P
56	12/21/2021	19	6	28.702290	-98.467622	95.4	24.9	P

Table 3 Clay Cap Compaction and Moisture Testing During Construction

Test Count	Date	Daily Test ID	Probe Depth (inches)	Latitude	Longitude	Compaction %	Moisture %	Result (P/F)
57	12/21/2021	20	6	28.702786	-98.467521	97.1	24.1	P
58	12/21/2021	21	6	28.703022	-98.467526	99.3	23.8	P
59	12/21/2021	22	6	28.703287	-98.467501	98.5	24.0	P
60	12/21/2021	23	6	28.702499	-98.467410	95.3	25.0	P
61	12/21/2021	24	6	28.702721	-98.467447	97.6	24.2	P
62	12/21/2021	25	6	28.703152	-98.467456	96.8	24.7	P
63	12/21/2021	26	6	28.702785	-98.467520	95.0	25.0	P
64	12/21/2021	27	6	28.702860	-98.468285	95.7	24.8	P
65	12/21/2021	28	6	28.703120	-98.468231	95.4	25.0	P
66	12/29/2021	1	6	28.702040	-98.466993	101.4	21.0	P
67	12/29/2021	2	6	28.701853	-98.466966	100.9	21.2	P
68	12/29/2021	3	6	28.701318	-98.467008	96.3	24.8	P
69	12/29/2021	4	6	28.701830	-98.467294	101.4	21.2	P
70	12/29/2021	5	6	28.701941	-98.467406	96.3	24.0	P
71	12/29/2021	6	6	28.701616	-98.467445	99.1	24.4	P
72	12/29/2021	7	6	28.701323	-98.467465	98.9	24.5	P
73	12/29/2021	8	6	28.701217	-98.467618	99.5	24.3	P
74	12/29/2021	9	6	28.701567	-98.467638	97.0	24.0	P
75	12/29/2021	10	6	28.701260	-98.467795	99.9	24.5	P
76	12/29/2021	11	6	28.701631	-98.467806	98.4	24.8	P
77	12/29/2021	12	6	28.701898	-98.467688	99.6	24.2	P
78	12/29/2021	13	6	28.701989	-98.676880	96.7	24.2	P
79	12/29/2021	14	6	28.701981	-98.467467	98.3	23.9	P
80	1/4/2022	1	6	28.701371	-98.467949	95.4	26.1	P
81	1/4/2022	2	6	28.701535	-98.467919	98.4	20.9	P
82	1/4/2022	3	6	28.701711	-98.467897	98.9	20.6	P
83	1/4/2022	4	6	28.701946	-98.467880	99.8	20.2	P
84	1/4/2022	5	6	28.701282	-98.468161	98.9	20.5	P
85	1/4/2022	6	6	28.701492	-98.468147	97.6	21.0	P
86	1/4/2022	7	6	28.701797	-98.468093	97.0	21.4	P
87	1/4/2022	8	6	28.701886	-98.468103	97.7	21.0	P
88	1/4/2022	9	6	28.701975	-98.468258	99.4	20.3	P
89	1/4/2022	10	6	28.701768	-98.468275	96.0	25.5	P
90	1/4/2022	11	6	28.701552	-98.468302	95.5	25.7	P
91	1/4/2022	12	6	28.701359	-98.468313	95.9	25.5	P
92	1/4/2022	13	6	28.701181	-98.468363	98.2	21.0	P
93	1/4/2022	14	6	28.701359	-98.468559	99.8	20.2	P
94	1/4/2022	15	6	28.701516	-98.468525	97.7	20.3	P
95	1/4/2022	16	6	28.701726	-98.468503	96.5	25.0	P
96	1/4/2022	17	6	28.701918	-98.467438	98.2	21.1	P
97	1/4/2022	18	6	28.701969	-98.468475	96.0	21.6	P
98	1/4/2022	19	6	28.702012	-98.468644	100.0	20.2	P
99	1/4/2022	20	6	28.701792	-98.468678	95.9	22.0	P
100	1/4/2022	21	6	28.701591	-98.468706	95.5	22.2	P

Table 3 Clay Cap Compaction and Moisture Testing During Construction

Test Count	Date	Daily Test ID	Probe Depth (inches)	Latitude	Longitude	Compaction %	Moisture %	Result (P/F)
101	1/4/2022	22	6	28.701293	-98.468728	96.0	21.7	P
102	1/4/2022	23	6	28.701126	-98.468742	99.4	20.8	P
103	1/4/2022	24	6	28.701105	-98.468505	99.8	20.3	P
104	1/4/2022	25	6	28.701085	-98.468244	97.0	21.5	P
105	1/4/2022	26	6	28.701075	-98.467864	97.6	21.3	P
106	1/4/2022	27	6	28.700999	-98.467596	99.0	21.0	P
107	1/4/2022	28	6	28.701045	-98.467269	98.4	21.5	P
108	1/4/2022	29	6	28.701026	-98.466949	95.4	22.0	P
109	1/4/2022	30	6	28.700895	-98.466982	99.6	20.4	P
110	1/4/2022	31	6	28.700905	-98.467162	98.5	21.4	P
111	1/4/2022	32	6	28.700929	-98.467462	97.4	21.3	P
112	1/4/2022	33	6	28.700896	-98.468109	98.9	21.1	P
113	1/4/2022	34	6	28.700960	-98.468404	98.3	21.6	P
114	1/4/2022	35	6	28.700961	-98.468712	97.0	22.5	P
115	1/4/2022	36	6	28.700825	-98.468840	96.5	22.8	P
116	1/4/2022	37	6	28.700777	-98.468655	99.4	20.7	P
117	1/4/2022	38	6	28.700731	-98.468307	96.0	23.0	P
118	1/4/2022	39	6	28.700705	-98.467686	96.7	22.7	P
119	1/4/2022	40	6	28.700706	-98.467143	99.6	20.6	P
120	1/4/2022	41	6	28.700480	-98.467008	97.0	22.4	P
121	1/4/2022	42	6	28.700485	-98.467317	95.9	23.1	P
122	1/4/2022	43	6	28.700524	-98.467710	95.7	23.1	P
123	1/4/2022	44	6	28.700512	-98.468284	97.7	22.0	P
124	1/4/2022	45	6	28.700539	-98.468755	97.6	22.2	P
125	1/4/2022	46	6	28.700396	-98.466815	97.8	22.0	P
126	1/4/2022	47	6	28.700361	-98.468425	96.2	23.0	P
127	1/4/2022	48	6	28.700350	-98.468321	98.2	21.7	P
128	1/4/2022	49	6	28.700310	-98.467303	95.0	24.0	P
129	1/4/2022	50	6	28.700300	-98.467032	99.5	20.6	P
130	1/4/2022	51	6	28.700429	-98.467126	98.9	20.8	P
131	1/4/2022	52	6	28.700723	-98.467543	97.6	21.3	P
132	1/13/2022	1	6	28.700012	-98.466913	98.2	24.1	P
133	1/13/2022	2	6	28.700142	-98.466727	95.1	26.2	P
134	1/13/2022	3	6	28.700107	-98.467535	97.8	24.3	P
135	1/13/2022	4	6	28.700144	-98.467878	96.2	25.5	P
136	1/13/2022	5	6	28.700176	-98.468061	95.0	26.3	P
137	1/13/2022	6	6	28.700178	-98.468275	98.4	24.0	P
138	1/13/2022	7	6	28.700209	-98.468533	99.9	23.6	P
139	1/13/2022	8	6	28.700184	-98.468752	95.4	26.0	P
140	1/13/2022	9	6	28.700099	-98.468904	99.1	23.7	P
141	1/13/2022	10	6	28.700017	-98.468711	97.7	24.3	P
142	1/13/2022	11	6	28.700022	-98.468524	97.6	24.5	P
143	1/13/2022	12	6	28.700003	-98.468292	97.0	25.0	P
144	1/13/2022	13	6	28.699959	-98.468463	99.4	23.8	P

Table 3 Clay Cap Compaction and Moisture Testing During Construction

Test Count	Date	Daily Test ID	Probe Depth (inches)	Latitude	Longitude	Compaction %	Moisture %	Result (P/F)
145	1/13/2022	14	6	28.699930	-98.467997	96.0	25.7	P
146	1/13/2022	15	6	28.699971	-98.467727	95.7	25.9	P
147	1/13/2022	16	6	28.699883	-98.467457	98.3	24.1	P
148	1/13/2022	17	6	28.699822	-98.466896	100.0	23.4	P
149	1/13/2022	18	6	28.699786	-98.466892	98.9	23.9	P
150	1/13/2022	19	6	28.699757	-98.467184	96.7	25.3	P
151	1/13/2022	20	6	28.699748	-98.467522	95.6	26.1	P
152	1/13/2022	21	6	28.699773	-98.467941	98.7	23.8	P
153	1/13/2022	22	6	28.699791	-98.468332	97.6	24.5	P
154	1/13/2022	23	6	28.698847	-98.468433	95.5	26.1	P
155	1/13/2022	24	6	28.699698	-98.469000	97.1	24.8	P
156	1/13/2022	25	6	28.699658	-98.468782	99.4	23.5	P
157	1/13/2022	26	6	28.699625	-98.468550	97.8	24.2	P
158	1/13/2022	27	6	28.699605	-98.468425	97.0	24.9	P
159	1/13/2022	28	6	28.699589	-98.468146	98.1	24.1	P
160	1/13/2022	29	6	28.699551	-98.467765	95.4	26.0	P
161	1/13/2022	30	6	28.699541	-98.467422	96.2	25.5	P
162	1/13/2022	31	6	28.699513	-98.467160	96.8	25.2	P
163	1/13/2022	32	6	28.699411	-98.467223	99.0	23.9	P
164	1/13/2022	33	6	28.699408	-98.467353	99.5	23.6	P
165	1/13/2022	34	6	28.699384	-98.467690	96.5	25.5	P
166	1/13/2022	35	6	28.699399	-98.467169	96.8	25.3	P
167	1/13/2022	36	6	28.699431	-98.468932	95.0	26.3	P
168	1/13/2022	37	6	28.699426	-98.469115	95.6	25.8	P
169	1/13/2022	38	6	28.699397	-98.469322	98.8	23.7	P
170	1/13/2022	39	6	28.699369	-98.469617	95.9	25.8	P

3.4.5.6 Clay Thickness (in-situ)

During construction of the cap, test pits were dug with an excavator to verify the clay thickness was at least 24 inches. The approximate locations of the test pits are shown in **Figure 6**, and **Photograph 13** shows a test pit being dug. Test pits 91 through 116 were dug on October 12, 2021. Test pits 49 through 90 were dug on October 13, 2021, test pits 21 through 48 were dug on December 21, 2021, and test pits 1 through 20 were dug on January 10, 2022. All of the test pits passed as the clay thickness was equal to or greater than 24 inches, except for locations 96 and 111. Additional clay was spread and compacted in those areas to meet the planned specifications. The test pits were filled with clay that was then graded and compacted to meet specifications.

Figure 6 Clay Test Pit Locations

3.4.6 Topsoil Source

The source of topsoil, as identified by SMEC personnel, was native material located on SMEC property approximately 1,250 feet east of the EQ Pond. The topsoil source area is shown on **Figure 7**.

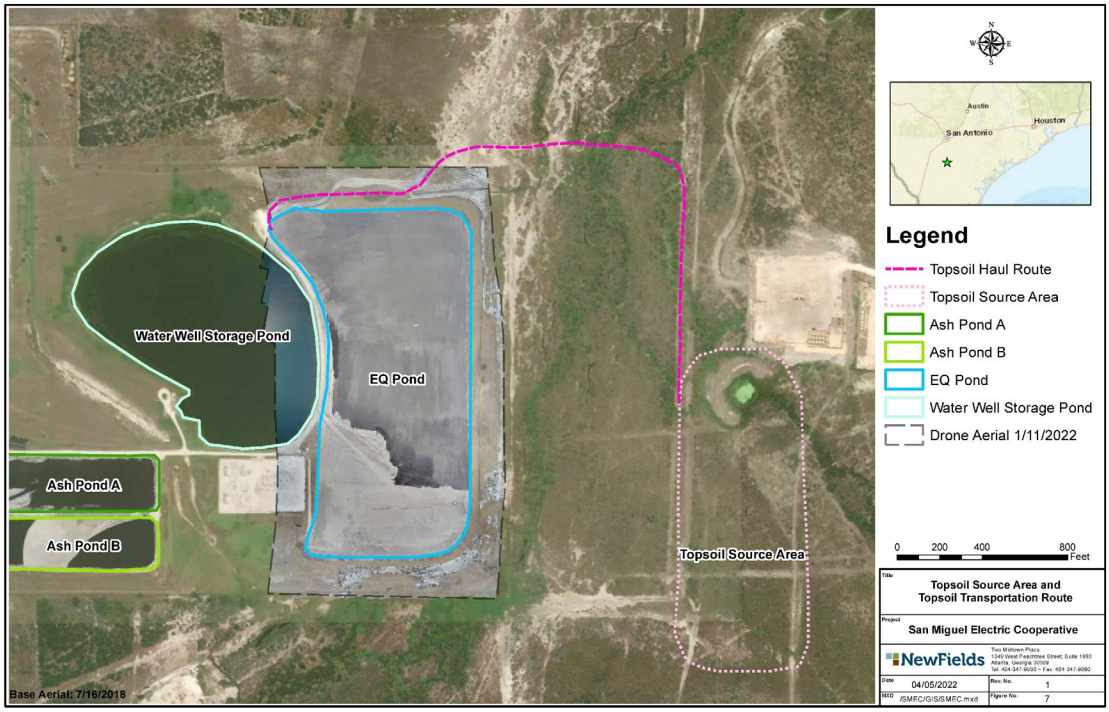


Figure 7 Topsoil Source Area and Topsoil Transportation Route

3.4.7 Topsoil Transport and Placement

Topsoil transportation and placement on the EQ Pond began on December 13, 2021, using an excavator, four dump trucks, and two bulldozers. The topsoil was placed on the clay cap and spread out using a bulldozer. Placement of the topsoil began on the northern portion of the clay cap and progressed southward. The placement of topsoil is shown in **Photograph 14** The topsoil transportation route is shown on **Figure 7.**

As discussed in **Section 3.3.3**, drone surveys were conducted during placement of topsoil and were used to calculate the volume of topsoil spread atop the clay cap. The drone surveys for topsoil volume were conducted on January 11, January 23, and February 20, 2022. The placement of topsoil was completed on January 27, 2022, and a total of 28,826 cubic yards of topsoil was placed with an average thickness of approximately 8 inches. Aerial photographs acquired during the drone surveys are shown in chronological order on **Figure 8** to illustrate the construction progress during placement of the topsoil.

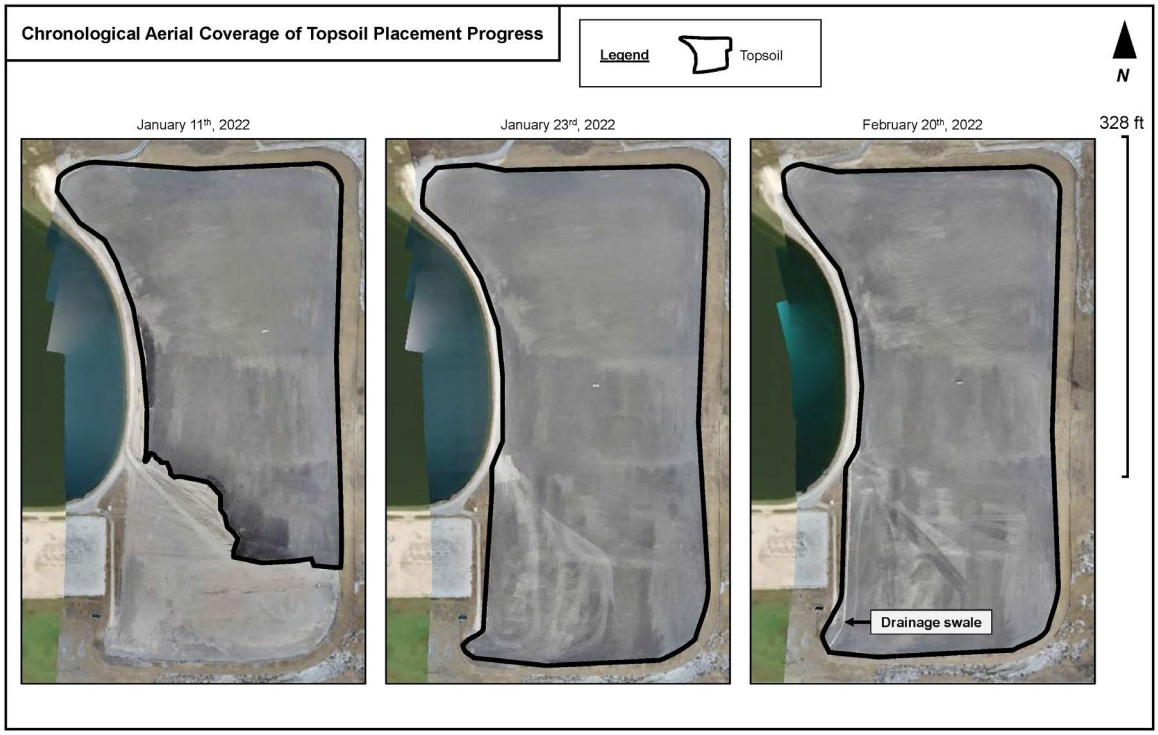


Figure 8 Chronological Aerial Coverage of Topsoil Placement Progress

3.4.8 Drainage Swale

During final placement of topsoil, a drainage swale was constructed along the southwestern margin of the cap for stormwater management. The drainage swale was approximately 3.5 feet wide and 1.5 feet deep, as shown in **Photograph 15.** The 631-foot swale was lined with 3 to 5- inch rip rap for erosion control. The completed drainage swale is shown in **Photograph 16** and on **Figure 8.**

3.4.9 Demobilization

Demobilization activities were conducted between February 7 and February 24, 2022. Those activities included: grading and cleaning haul roads; removing equipment from the Site; emptying and removing three diesel tanks; removing sanitary equipment (portable toilets); and, removing the construction trailer.

3.4.10 Seeding of Cap

The cap was seeded with Straight Common Bermudagrass seed and fertilized on March 10, 2021. The seed was broadcasted over the cap at a rate of approximately 10 pounds per acre. No disking of the topsoil was needed prior to seeding as the topsoil layer was still moist. A generalized cross section of the completed cap is provided in **Figure 9**.

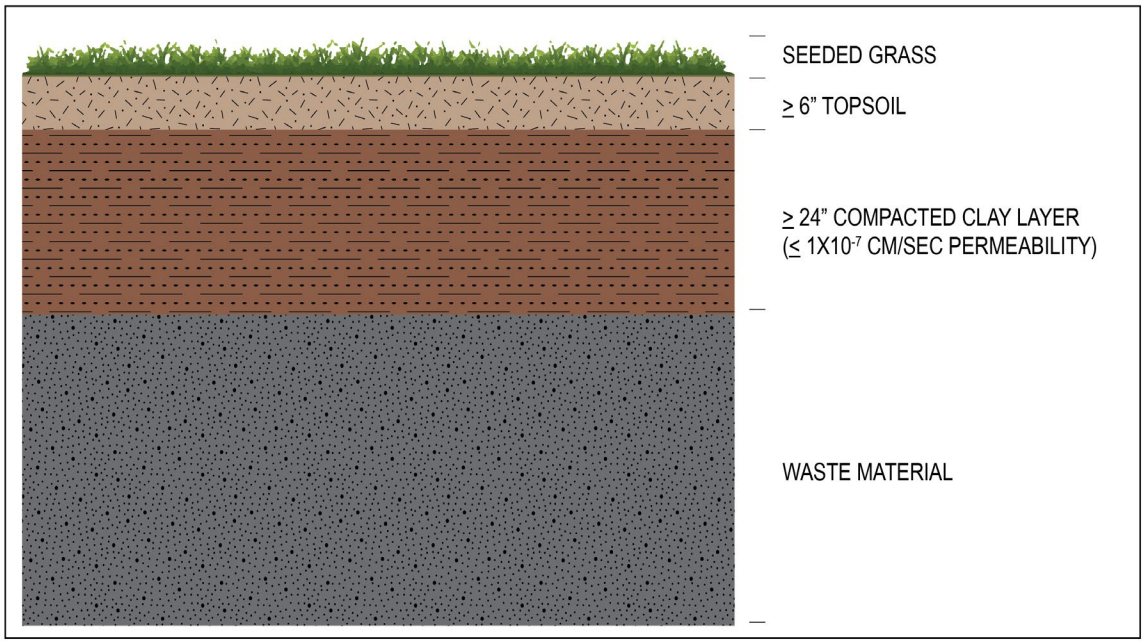


Figure 9 Cross Section of Completed Cap Construction

3.4.11 Engineer Certifications

The signed and sealed EQ Pond Closure Certification is provided on **Page 1** and an as-built drawing is provided in **Appendix C.**

4.0 POST CLOSURE MONITORING

As outlined in the June 2020 *Equalization Pond Closure and Post-Closure Plan Amendment* (Post-Closure Plan), SMEC will implement post-closure care of the EQ Pond in accordance with 40 CFR § 257.104. Post-closure care will consist of the following:

- Maintaining the integrity and effectiveness of the final cover system, including repairing the final cover as necessary to correct material effects of settlement, subsidence, erosion, or other events that could affect the integrity of the cover system, and preventing run-on and run-off from eroding or otherwise damaging the final cover; and,
- Maintaining the groundwater monitoring system and monitoring groundwater in accordance with the requirements of 40 CFR § 257.90 through 98.

As part of post-closure care for the EQ Pond, SMEC will implement, in accordance with the Post-Closure Plan, the following activities:

- Monthly inspection and maintenance of the EQ Pond final cover system;
- Semi-annual inspection and maintenance of the associated groundwater monitoring wells;
- Semi-annual groundwater monitoring and annual reporting;
- Facility Operating Record recordkeeping and reporting posted on the internet site available to the public; and,
- Deed recordation.

4.1 Post-Closure Period

In accordance with 40 CFR § 257.104(c), the post-closure period for the EQ Pond will be a period of 30 years following the inclusion of this document in the operating record, which will serve as certification of completion of closure of the EQ Pond. If at the end of the 30-year post closure period, the EQ Pond groundwater monitoring program is not in detection monitoring, then SMEC will continue post-closure care until the EQ Pond groundwater monitoring system returns to detection monitoring.

4.2 Post-Closure Inspection and Maintenance

SMEC will visually inspect and maintain the final cover system of the EQ Pond, the associated groundwater monitoring wells, and each associated permanent benchmark throughout the post-closure period. The EQ Pond post-closure care inspection and maintenance requirements are described below with typical types of problems each component may have.

- The final cover system will be visually inspected for damage. Maintenance activities may include repairing damage caused by settling or erosion, regrading areas collecting ponded water, filling burrows caused by local wildlife, and re-seeding areas with inadequate or inappropriate erosion-resistant cover vegetation as necessary to maintain the effectiveness of the final cover system.

- The final cover system will also be visually inspected for seeps that may be an indication that the EQ Pond waste material is seeping through the clay cap. Although it is not anticipated due to the extra thickness of clay used to cover, the nature of the material is such that there may be isolated locations of material seepage. This will not compromise the cap but will require the material to be removed sufficient to repair the clay cover. SMEC is responsible for the collection and proper disposal of waste material seeps and repairing the clay cap to maintain the effectiveness of the cover system.

- Stormwater control systems will be visually inspected for damage. Stormwater control berms and EQ Pond drainage swales will be maintained and, as necessary to maintain effectiveness, repaired.

- Groundwater monitoring wells that are part of the EQ Pond monitoring well network will be visually inspected for conditions necessary to provide adequate and representative groundwater samples. Maintenance may include the repair or replacement of damaged, degraded, or missing well caps, identification tags/signs, locking devices, perimeter grading, protective barriers, surface casing, surface pads, and if necessary, the entire well.

SMEC will implement groundwater monitoring during the EQ Pond post-closure care period in accordance with 40 CFR § 257.90 through 98. A CCR Unit Groundwater Monitoring System Certification dated October 17, 2017, was prepared for groundwater monitoring systems at the SMEC Ash Piles, Ash Ponds, and EQ Pond. Nine monitoring wells comprise the monitoring well network for the EQ Pond and these nine wells are sampled on a semi-annual basis. Groundwater monitoring for the EQ Pond was detection monitoring in 2017, assessment monitoring in 2018 and 2019, and has been in corrective action monitoring since 2020. The monitoring network is defined in Figure 1 of the 2021 Annual Groundwater Monitoring and Corrective Action Report prepared by GSI Environmental.[7] Groundwater samples are analyzed for 40 CFR § 257 Appendix III and Appendix IV constituents and field parameters (i.e., pH, temperature, specific conductance, ORP, DO, and turbidity). Annual groundwater monitoring reports are prepared and posted on SMEC's CCR Rule Compliance Data and Information webpage (http://www.smeci.net/ccr-rule).

[7] https://res.cloudinary.com/govimg/image/upload/v1644857049/5c702bd70d625c03864cdc9c/2021SanMiguel%20GWMR.pdf

4.3 Contact Information

The name, address, telephone number, and email address of the person to contact about the EQ Pond at the SMEC plant during the post-closure care period is as follows:

Eric Halfmann, Engineering Manager
San Miguel Electric Cooperative, Inc.
6200 FM 3387
Christine, TX 78012
830-784-3411 x. 244
ehalfmann@smeci.net

4.4 Planned EQ Pond Post-Closure Property Use

SMEC's plan for the closed EQ Pond will consist of limited access to the EQ Pond cap area to reduce potential for damage of the final cover system and the associated groundwater monitoring wells. The limited access shall be restricted to inspections, necessary repairs, and mowing grass. Per the requirements of 40 CFR § 257.102(i), following closure of the CCR unit, the owner or operator must record a notation on the deed to the property, or some other instrument that is normally examined during title search. The notation on the deed must in perpetuity notify any potential purchaser of the property that: (i) The land had been used as a CCR unit, and (ii) its use is restricted under the post-closure care requirements.

5.0 CHRONOLOGY OF EVENTS

Table 4 provides a chronology of the tasks associated with the EQ Pond closure.

Table 4 EQ Pond Closure Project Timeline

Task	Start	End
Haul and Spread Clay to Construct Clay Cap	5/25/2021	12/13/2021
Initial In-situ Clay Testing	10/12/2022	10/12/2022
Test Pit Excavations	10/12/2022	1/10/2022
In-Situ Clay Testing	12/7/2021	1/13/2022
Haul and Spread Topsoil atop Clay Cap	12/13/2021	1/27/2022
Construct Drainage Swale	2/1/2022	2/2/2022
Demobilization	2/7/2022	2/24/2022

6.0 REFERENCES

ERM, 2016a. CCR Surface Impoundment History of Construction Documentation. San Miguel Electric Cooperative. October 14, 2016.

NewFields, 2020. *Equalization Pond Closure and Post-Closure Plan Amendment*, San Miguel Electric Cooperative. June 2020.

NewFields, 2021. *Ash Pond Retrofit Final Construction Report,* San Miguel Electric Cooperative. June 2021.

GSI Environmental, 2022. *2021Annual Groundwater Monitoring and Corrective Action Report,* San Miguel Electric Cooperative. January 31, 2022

APPENDIX A

BID DOCUMENT

San Miguel Electric Cooperative, Inc.
Atascosa County, Texas

Equalization Pond Closure Bid Document

January 2021

Table of Contents

List of Tables

List of Figures

List of Drawings

Definitions and Acronyms

Construction Areas – The areas on the San Miguel Site defined on the Drawings which indicate the limits of work by the Contractor.
Owner – San Miguel Electric Cooperative.
Engineer – NewFields, responsible for Construction Oversight, QA, and Engineering.
Contractor – Legal entity contracted to the Owner for the project under the Closure Plan.
Drawings – The Drawings included as part of the Closure Bid Document.
Design Professional – NewFields, responsible for design of the Closure Plan.
AASHTO – American Association of State Highway & Transportation Officials
ACI – American Concrete Institute
AIEE – American Institute of Electrical Engineers
AIHA – American Industrial Hygiene Association
ANSI – American National Standards Institute
ASME – American Society of Mechanical Engineers
ASTM – American Society for Testing and Materials
CAA – Clean Air Act
CCR – Coal Combustion Residual

CFR – Code of Federal Regulations
CE – Civil Emergency
CQC – Contractor Quality Control
CWA – Clean Water Act
CY – Cubic Yard
DCP – Dust Control Plan
DOT –Department of Transportation
EPP – Environmental Protection Plan
EQ – Equalization
GA – Georgia
HSP – Health and Safety Plan
LAP – Laboratory Accreditation Program
MARV – Minimum Average Role Values
MSL – Mean Sea Level
NBS – National Bureau of Standards
NIOSH – National Institute for Occupational Safety and Health
NPDES – National Pollution Discharge Elimination System
NEC – National Electric Code
NIC – Not in Contract
OSHA – Occupational Safety and Health Administration
OSWER – Office of Solid Waste and Emergency Response
PSI – Professional Services Industries, Inc.
psi – Pounds per Square Inch
QA/QC – Quality Assurance/Quality Control
QA – Quality Assurance
QC – Quality Control
RCRA – Resource Conservation and Recovery Act
RFA – RCRA Facilities Assessment
SDCP – Spill and Discharge Control Plan
SIP – Separation in the Plane
SMP – Site Maintenance Plan
SMEC – San Miguel Electric Cooperative
SMP – Site Maintenance Plan
TDWR – Texas Department of Water Resources
TSD – Treatment, Storage, or Disposal Facility
USEPA – United States Environmental Protection Agency

1.0 INTRODUCTION

1.1 General

The San Miguel Electric Cooperative (SMEC) operates an electric power generating station in Atascosa County, Texas. SMEC plans to close their existing Equalization Pond (EQ Pond) pursuant to the current rules for the management of coal combustion residuals (CCR) at 40 CFR Part 257, Subpart D. The EQ Pond is approximately 25 acres in size and a final cover will encompass the entirety of this CCR unit. Maximum capacity of the EQ Pond is approximately 660,000 cubic yards. Estimating the maximum amount of CCR contained in the pond is difficult as non-CCR materials are also deposited in the pond. However, SMEC conservatively estimates 520,000 cubic yards as the maximum volume of CCR and non-CCR material in the pond, based on an October 2019 bathymetric survey. The Closure Plan dated June 2020 addresses the requirements of 40 CFR 257.102 – Written Closure Plan, as it pertains to the EQ Pond at the SMEC power plant. The Closure Plan provides for the closure of the CCR unit consistent with recognized and generally accepted good engineering practices.[1]

1.2 Project Objectives

The primary objective of this work is to close the EQ Pond pursuant to 40 CFR 257.102. The pond will be capped and closed in place with a vegetated clay cap. The final cover system will follow the requirements and performance standards outlined in 40 CFR 257.102(d).

1.3 Description of Closure Activities

Figure 1-1 and Drawings C-101 and C-102 show the existing site conditions of the EQ Pond. As is typical at power generation stations, closure of unit processes usually must be performed without interruption to the overall system operation. The existing EQ Pond will be closed once discharges are re-routed to the retrofitted ash ponds and new EQ Basin, which were lined with HDPE liner in 2020 in accordance with the Federal CCR rules.

[1] SMEC's pre-existing certifications under the Federal CCR rules are available at the following website: http://www.smeci.net/ccr-rule

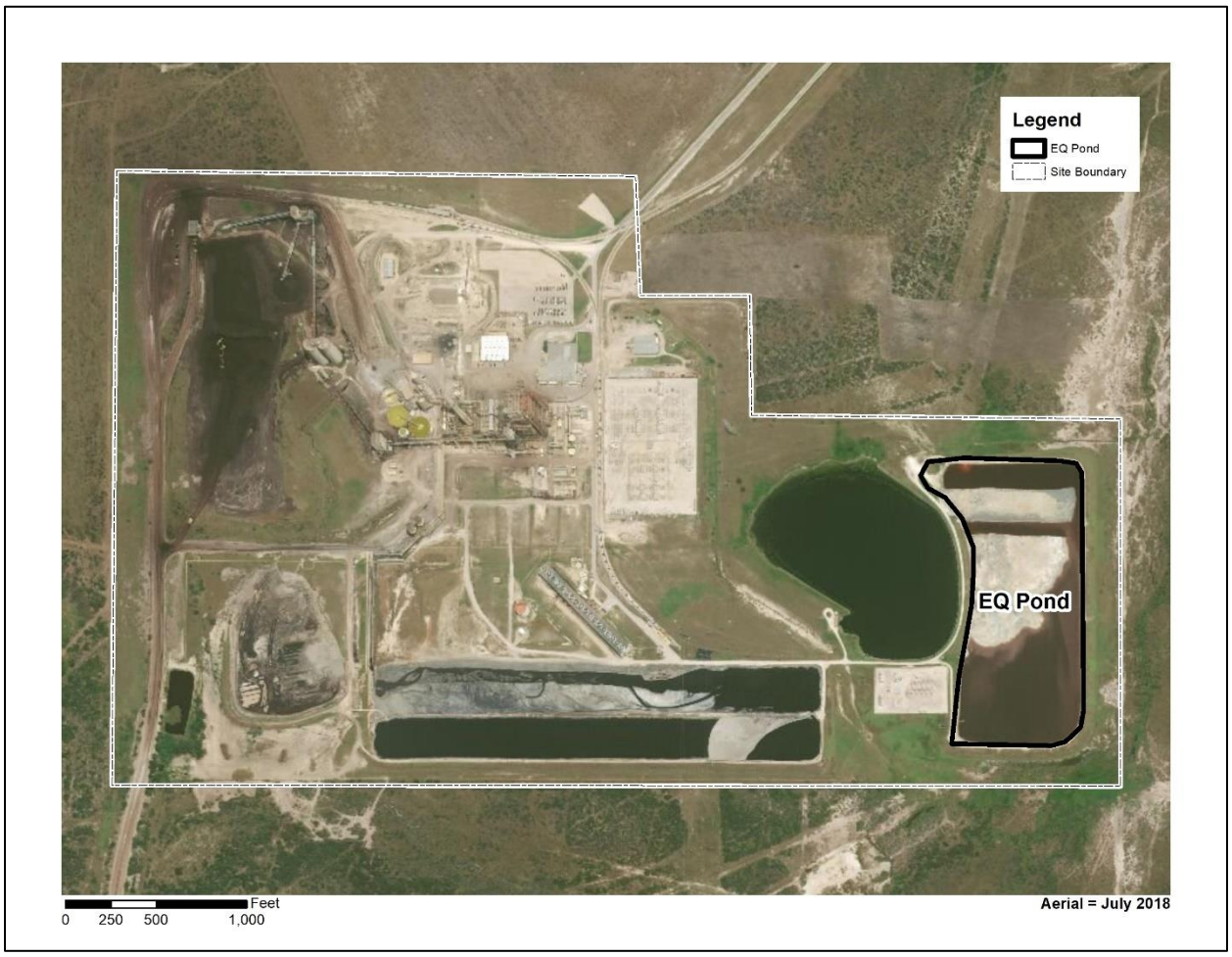


Figure 1-1 Existing Site Conditions

The activities under the Closure Plan are as follows:

- Dewater EQ Pond
- EQ Pond grading and compaction
- Final Cover System installation
- Stormwater ditch construction
- Access road construction

1.3.1 Dewater EQ Pond

Once sources of Plant effluent are diverted to the new, lined EQ Basin, the existing EQ Pond will be dewatered. Surface water in the existing EQ Pond will be allowed to evaporate. Surface water may also be pumped to the retrofitted Ash Ponds, as needed. Dust suppression measures will be implemented as needed to minimize dust as the water surface recedes.

1.3.2 EQ Pond Grading and Compaction

Once the EQ Pond is dewatered, the pond will be re-graded and compacted. The purpose of grading is to more evenly distribute material within the pond to facilitate surface water drainage once the pond is capped. Material from the northern portion of the Pond will be relocated to the southern portion of the pond to create a more uniform surface. The tops of the berms will be pushed into the pond so that they are level with the material and the entire pond will be graded to gradually slope from west to east radially away from the plant's raw water storage pond. Following grading, the entire surface will be compacted to ensure a non-obstructed surface for the installation of the cap material.

1.3.3 Description of Final Cover System

The final cap for the EQ Pond will be placed over the prepared subgrade to achieve the criteria in 40 CFR 257.102(d)(3). The cap for the EQ Pond will consist of at least 18 inches of compacted clay and at least six inches of topsoil. The permeability of the compacted clay material will be less than or equal to 1 x 10^{-7} cm/sec. The clay will be placed in nine-inch lifts and compacted to form an at least 18 inch-thick infiltration layer. At least six inches of topsoil will form the erosion layer and be placed on top of the compacted clay. A cross-section of the final cover system is shown in Figure 1-2.

Once installed, the topsoil layer will be prepared by disking, tilling and harrowing, or other methods to prepare the surface for seeding. The topsoil will be seeded with native grasses during climatologically favorable seasons and the seed will be covered with a mulch to protect from erosion and moisture loss. Supplemental watering will be used as needed.

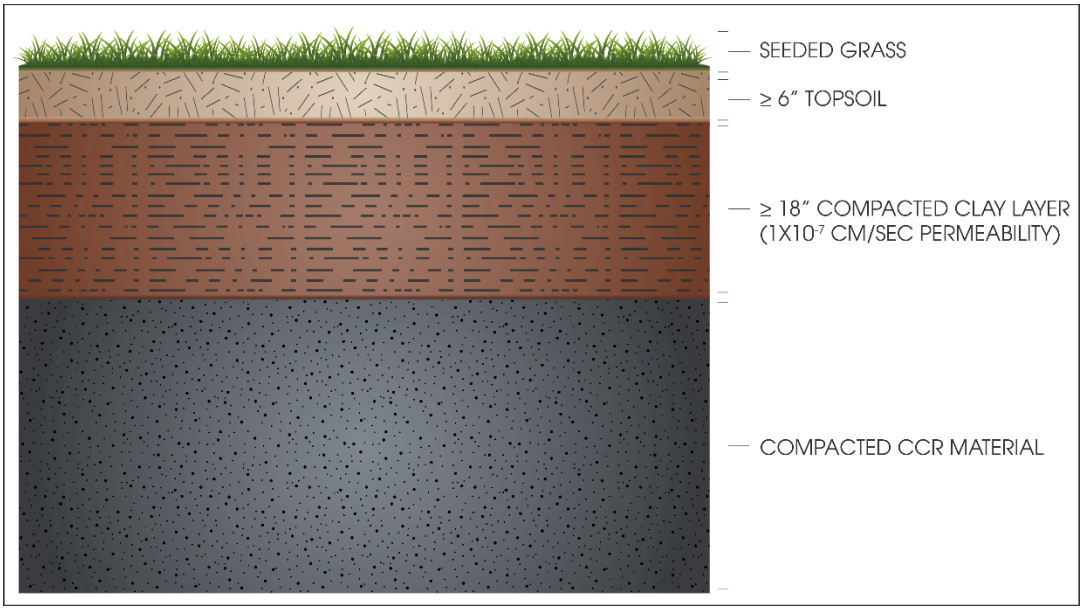


Figure 1-2. Cross-section of final cover layers

1.3.4 Stormwater Ditch Construction

Following completion of the soil cap, a stormwater diversion ditch will be constructed along the western edge of the cap to divert stormwater runoff around the cap.

1.3.5 Access Road

Access will be required for maintenance vehicles on the remaining berms surrounding the capped EQ pond. After the berms are cut down to grade, a gravel road surface that is suitable for vehicular traffic during wet weather conditions will need to be constructed on top of the remaining berm surrounding the EQ Pond cap.

1.4 Closure Performance Standards

1.4.1 Minimization of Post-Closure Liquid Infiltration into CCR Waste Mass

The final cover system for the EQ Pond including the compacted subgrade, at least 18 inches of clay cap (with a permeability of $1x10^{-7}$ cm/sec or less) and at least 6 inches of topsoil with vegetative cover will help to minimize the potential infiltration of water into the underlying CCR material. The soil cap will convey stormwater runoff away from the underlying CCR material. The sloping of the clay cap and drainage channels will promote movement of water away from the CCR mass and help to keep the barrier soils drained to prevent pooling.

The final cover layers also assist in controlling, minimizing, and in some cases eliminating, the post-closure infiltration of liquids into the underlying CCR material. This prevents the release of CCR, leachate, or contaminated runoff to the ground or surface waters and the atmosphere, as required by the CCR performance standards.

1.4.2 Preclusion of Future Impoundment of Water, Sediment, or Slurry

Closing and capping the EQ Pond as designed will preclude the future impoundment of water, sediment, or slurry. During the closure process, the tops of the berms will be pulled down and the cap will be graded to prevent standing water on the cap.

1.4.3 Measures to Maintain Slope Stability

In order to maintain slope stability of the final cover, runoff is collected and controlled in highly erodible areas such as the side slopes and graded surface. This is done by grading the final cover to a maximum slope of 3 horizontal to 1 vertical, with a gentle final grade to control slope runoff velocities and volumes. The runoff control plans and shallow slopes prevent erosion, movement, and sloughing of the final cover system, and therefore fulfill the required performance standard.

1.4.4 Design to Minimize Ongoing Maintenance

The incorporation of slope stability and erosion control measures will help to prevent the need for maintenance on the closed EQ Pond. As a result of these measures, less regrading or soil additions to the final cover system will be necessary.

Additionally, monthly inspections of the EQ Pond will assist in minimizing maintenance. These inspections will help in determining features that will need maintenance in the future, if there are features that can be maintained currently, and may prevent a larger maintenance project in the

future. Both the maintenance prevention measures and monthly inspections will minimize the requirement for larger maintenance of the closed EQ Pond, and therefore fulfills the required performance standard.

1.4.5 Engineering Good Practices

Closure of the EQ Pond will be completed consistent with recognized and generally accepted good engineering practices in the most efficient time frame practical. Field quality assurance/quality control (QA/QC) testing will be utilized to ensure compliance with the project specifications.

1.5 EQ Pond Closure Schedule

The closure of the EQ Pond is anticipated to be completed according to the following schedule milestones:

- The EQ Pond closure plan was finalized in June 2020.

- Placement of CCR and non-CCR waste streams into the EQ Pond are expected to cease by the date specified in the CCR rules.

- Within 120 days after the deadline to cease placement of CCR and non-CCR waste streams into the EQ Pond, standing water will be pumped to the retrofitted ash ponds.

- Within 120 days after the deadline to cease placement of CCR and non-CCR waste streams into the EQ Pond necessary permits for the closure project, including a Stormwater Multi-Sector General Permit, will be secured.

- Grading activities are scheduled to begin within 60 days of securing all necessary permits.

- Clay cap construction and testing will be conducted in a systematic and timely manner. Construction and testing of the soil is not expected to exceed 60 days from the completion of the initial grading activities.

-It is anticipated that closure activities for the EQ Pond will be completed within 10 months after cessation of placement of CCR and non-CCR waste streams into the EQ Pond.

- Post-closure monitoring of the cap and run-on/runoff controls will be conducted on a routine schedule to identify any potential stability issues with the cap and appropriate maintenance to be undertaken.

2.0 BIDDING INSTRUCTIONS

This project is the closure of the existing EQ Pond. This closure includes dewatering of the Pond (currently ongoing), re-grading the existing material in the Pond, installation of a vegetated clay cap, construction of a stormwater ditch to divert runoff around the cap, and construction of an access road around the perimeter of the cap once completed.

2.1 Location and Bid Documents

The location, general characteristics and principal details of the work are indicated in the Equalization Pond Closure Plan. The Bid Documents include the Closure Plan plus additional specifications, technical information, and bidding instructions. Additional documents and information may be issued by the Engineer by addendum during the bidding period and shall become part of the Bid Documents.

The selected Bidder shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things necessary to do all work required for the completion of each item of the work as herein specified. The work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that work item.

2.2 Receipt and Opening of Bids

NewFields (herein referred to as the Engineer and/or Owner's Agent), on behalf of the San Miguel Electric Cooperative (herein referred to as the Owner), will receive bids for the EQ Pond Closure. Such bids will be received electronically by the Engineer no later than February 19, 2021 by 12:00 noon Central Standard Time (CST). Bids shall be submitted to:

Nick DiLuzio
NewFields
1349 West Peachtree Street NW, Suite 1950
Atlanta, GA 30309
404-347-9050
ndiluzio@newfields.com

Any bid may be withdrawn or revised prior to the above deadline for receipt of bids or authorized postponement thereof. Any bid received after the time and date specified may not be considered at the discretion of the Engineer. If not withdrawn prior to the deadline, the Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the deadline for submission of bids. Documents used for bidding, prior to Contractor selection and award are indicated by the term "Bid Documents." Documents that are part of the construction contract after bid award are termed "The Closure Plan." Further, the term "Bidder" is defined as any entity bidding on the project, not yet under contract for this work. The term "Contractor" is defined as the selected entity for performing the work under the Closure Plan, after execution of the contract with the Owner.

2.3 Pre-Bid Site Visit and Questions

A Pre-Bid Site Visit will be held on Wednesday, February 3 at 10:00 AM Central Standard Time (CST) at the project site. The site address is:

6200 Farm to Market Rd 3387
Christine, TX 78012

The meeting will be held at the Plant office building, progressing to the EQ Pond area later in the visit and then returning to the Plant office building. The first part of the visit will include a discussion of the site characteristics and bidding requirements. After this discussion, a tour will be given of the construction area. During this site visit, all conversations between Bidders and Engineer/Owner staff, regarding the project, will be conducted as a group. After completion of the site tour, a question and answer session will be conducted. Due to the COVID-19 pandemic, each contractor is requested to only send one person to the pre-bid site visit. Additional information will be provided via email prior to the meeting date.

Steel toed safety boots, hardhats, and protective glasses are required for all visitors during the Pre-Bid Site Visit. Each Contractor will provide their own safety equipment. Questions will be accepted in electronic format regarding the bid documents and the bid from Bidders until 5:00pm CST on February 5, 2021.

2.4 Preparation of Bid

Each Bidder's bid shall be submitted according to the prescribed format in Section 8.0 of the Closure Bid Document. All blank spaces for bid prices shall be filled in, typed in both words and figures. Each bid shall be submitted electronically to the Engineer in the format indicated in Section 8.0 of the Closure Bid Document.

2.5 Modifications

Modifications will only be accepted in writing from the Bidders. Modifications suggested verbally are not considered acceptable for bid modifications.

2.6 Obligation of Bidder

At the time of the opening of the bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Bid Documents (including all addenda). The failure or omission of any Bidder to examine any form, instrument, or document shall in no way relieve any Bidder from any obligation in respect to their bid.

2.7 Information Not Guaranteed

All information provided in the Closure Plan and Bid Document relating to subsurface and other conditions, natural phenomena, existing pipes, and other structures is from the best sources at present available to the Engineer. All such information is furnished only for the information and convenience of Bidders and is not guaranteed. It is agreed and understood that the Engineer does not warrant or guarantee that information. It is further agreed and understood that no Bidder shall use or be entitled to use any of the information made available to them or obtained in any examination made by them in any manner as a basis of or grounds for any claim or demand against

the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract.

2.8 Bid Security

None required for this Bid.

2.9 Time for Completion

The Bidder shall agree to commence work on or before a date to be specified in the written "Notice to Proceed" from the Engineer and to fully complete the project within the time stated in Section 6.0 of the Closure Bid Document.

2.10 Addenda and Interpretation

No interpretation of the meaning of the content of Drawings, Specifications or other Bid Documents will be made to any Bidder orally, with the exception of addressing questions as a group during the Pre-Bid Site Visit as described in Section 2.3. All information provided to Bidders other than by means of the Drawings, Specifications, other Bid Documents, or by addenda, as described below, is given informally and shall not be used as the basis of a claim against the Engineer or the Owner.

Every request for document interpretation will be in writing and submitted electronically to the Engineer and, to be given consideration, must be received at least 5 working days prior to the bid opening. All such interpretations and supplemental information will be provided in the form of written addenda to the Specifications. All addenda, so issued, shall become part of the Bid Documents, and be issued to all Bidders.

2.11 Bid Opening Procedure

The Engineer may review bids submitted after February 19, 2021 at 12:00 noon CST. No formal bid opening event will be conducted, and the Bidders will not be provided information or details regarding competing bids.

2.12 Comparison of Bids

Bids will be compared on the basis of the quantities and unit and lump sum prices stated in the bid forms. In the event that there is a discrepancy between the lump sum or unit prices written in words and figures, the prices written in words will govern. The Engineer will examine and consider each Form of General Bid submitted in consideration of the Bidder's agreements. The Engineer may recommend award of the contract to any or none of the Bidders as the Engineer determines is in the Owner's best interest based on cost or any other factor.

2.13 Right to Reject Bid

The Engineer may consider any bid not prepared and submitted in accordance with the provisions hereof and may waive any informality or reject any and all bids, should the Engineer deem it to be in the interest of the Owner to do so. The Engineer may also reject bids which in its sole judgment are incomplete, conditional, obscure, not responsive, which contain additions not called for,

erasures not properly initialed, alterations, or similar irregularities, or the Engineer may waive such omissions, conditions or irregularities.

2.14 Ability and Experience of Bidder

No award will be made to any Bidder who cannot satisfy to the Engineer that he/she has sufficient ability and experience in this class of work and sufficient capital to enable him/her to prosecute and complete work successfully within the time specified. The Engineer's decision or judgment on these matters will be final, conclusive and binding. The Engineer may make investigations as deemed necessary to determine the ability of the Bidder to complete the work and shall furnish to the Engineer, under oath if so required, all such information and data for this purpose as the Engineer may request.

2.15 Conditions of Work

Each Bidder shall inform himself/herself fully of the conditions relating to the project and the employment of labor thereon. Failure to do so will not relieve a Contractor of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her contract. Insofar as possible, the Contractor, in carrying out his/her work, shall employ such methods or means as will not cause any interruption of or interference with the work of others on the site.

2.16 Power of Attorney

Attorneys-in-fact who sign Contract bonds (as required) shall file with each bond a certified and effectively dated copy of their power of attorney.

2.17 Indeterminate Items

The work to be performed under the Closure Plan has been divided into parts or items to enable each Bidder to bid on different portions of the work in accordance with his/her estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though each Bidder may have judged that such quantity may be greater or less than the estimated quantity stated on the Bid Form.

2.18 Guarantee

The Contractor shall guarantee that the work and services to be performed under the contract, and all workmanship, materials, and equipment performed, furnished used or installed in the construction of the same shall be free from defects and flaws, shall be adequate and as specified and that the performance test requirements of the contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the work. If part of the work is accepted by written approval of the Engineer specifically stating that the guarantee period has begun, the guarantee for that part of the work shall be for a period of one year from the date fixed for such acceptance.

If at any time within the said period of guarantee any part of the work requires repairing, correction or replacement, the Engineer will notify the Contractor in writing to require the Contactor to make the required repairs, correction or replacements. If the Contractor neglects to commence making such repairs, corrections or replacements to the satisfaction of the Engineer within 7 days from the date of receipt of such notice, or having commenced fails to prosecute such work with diligence,

the Owner may employ others to make said repairs, corrections or replacements and charge the costs, including compensation for additional professional services, to the Contractor.

2.19 Safety and Health Regulations

This project is subject to the Safety and Health Regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926 and to all subsequent amendments and to Texas Health and Safety regulations. Bidders shall be familiar with the requirements of these regulations.

As part of their bid, Bidders shall submit their construction safety records over the past 5 years, including OSHA information, on injury and illness data and citations. The Bidder shall explain any willful and repeat violations. Information shall include injury rates, and other information on the Bidder's OSHA 300 log.

2.20 Commencement, Execution, and Completion of Work

The Contractor shall commence work upon receipt of Notice to Proceed, prosecute said work diligently, and complete the entire work not later than the number of calendar days after receipt of Notice to Proceed, as set out the approved project schedule, included as part of the project plans. The time stated for completion shall include final clean up and repair of the premises.

2.21 Start Work

Evidence that the Contractor has started development of plans, procurement of materials, preparation of subcontracts, and other preparatory work will satisfy the requirement that work commence upon receipt of Notice to Proceed. Therefore, work need not be commenced at the construction site to qualify as the Start of Work.

2.22 Liquidated Damages

Under the contract, liquidated damages will be assessed by the Owner to the Contractor at a rate of $1,000 per calendar day for delays in completion of the construction beyond the allotted scheduled timeframe agreed to under the contract, including all addendum and any prior approved change orders. Assessment of liquidated damages will be done by deduction from the Contractor's final invoice.

2.22.1 Failure to Comply

If the Contractor fails to complete the work within the time indicated on the Construction Schedule (part of the project plans) or any extension, the Contractor shall be subject to liquidated damages as set forth in the contract.

2.22.2 Contract Terminated

If the Owner terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work by others. Also, any increased costs incurred by the Engineer in completing the work will be considered as damages.

2.22.3 Contract Not Terminated

If the Owner does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

2.23 Discrepancies and Omissions after Contract Execution

2.23.1 Notification of Discrepancies

After contract execution, the Contractor shall check all plans furnished to him/her immediately upon receipt and shall promptly notify the Engineer of any discrepancies. Dimensions marked on Drawings shall be followed in lieu of scale measurements. Enlarged Drawings and details shall govern where the same work is shown at smaller scales. The Contractor shall compare all Drawings and verify all dimensions before laying out the work and shall be responsible for any errors which might have been avoided thereby.

2.23.2 Omissions

After contract execution, omissions from the Closure Plan or the incorrect description of details of work which are manifestly necessary to carry out the intent of the Closure Plan or which are customarily performed, shall not relieve the Contractor from performing such omitted or incorrectly described details of the work. The intent of the Closure Plan shall be carried out and work shall be performed as if fully and correctly set forth and described in the Closure Plan and Bid Document.

2.24 Measurement and Payment

2.24.1 Bid Item 1a – Site Management and Safety

Measurement – Lump Sum.

Payment – Payment shall be on a progress basis, as approved by the Engineer, based upon percentage of work completed, per approved Contractor estimates.

2.24.2 Bid Item 1b – Mobilization

Measurement – Lump Sum.

Payment – Payment shall be on a progress basis, as approved by the Engineer, based upon percentage of work completed, per approved Contractor estimates.

2.24.3 Bid Item 1c – Demobilization

Measurement – Lump Sum.

Payment – Payment shall be on a progress basis, as approved by the Engineer, based upon percentage of work completed, per approved Contractor estimates.

2.24.4 Bid Item 2 – Dewatering Support (if necessary)

Measurement – Lump sum. A time and materials (T&M) rate shall be provided in the event dewatering support is necessary.

Payment – Payment will be performed based on the days of dewatering support needed, if any.

2.24.5 Bid Item 3 – Regrading of Existing Material

Measurement – Measurement will be performed based on the Contractor field measured and the Engineer's verified in-place square feet of grading and compaction.

Payment – Payment will be performed based on the Contractor field measured and the Engineer's verified in-place square feet of grading and compaction.

2.24.6 Bid Item 4 – Clay Installation, Grading, and Compaction

Measurement – Measurement will be performed based on the Contractor field measured and the Engineer's verified in-place cubic yards of clay installed.

Payment – Payment will be performed based on the Contractor field measured and the Engineer's verified in-place cubic yards of clay installed.

2.24.7 Bid Item 5 – Regrading Existing Berms

Measurement – Lump Sum

Payment – Payment shall be on a progress basis, as approved by the Engineer, based upon percentage of work completed, per approved Contractor estimates.

2.24.8 Bid Item 6a – Topsoil Installation and Grading

Measurement – Measurement will be performed based on the Contractor field measured and the Engineer's verified in-place cubic yards of topsoil installed.

Payment – Payment will be performed based on the Contractor field measured and Engineer's verified in-place cubic yards of topsoil installed.

2.24.9 Bid Item 6b – Seeding

Measurement – Measurement will be performed based on the Contractor field measured and the Engineer's verified acres seeded.

Payment – Payment will be performed based on the Contractor field measured and the Engineer's verified acres seeded.

2.24.10 Bid Item 7 – Drainage Ditch Installation

Measurement – Measurement will be performed based on the Contractor field measured and the Engineer's verified in-place liner feet of ditch installation.

Payment – Payment will be performed based on the Contractor field measured and the Engineer's verified in-place linear feet of ditch installation.

2.24.11 Bid Item 8 – Road Improvements

Measurement – Measurement will be performed based on the Contractor field measured and the Engineer's verified in-place liner feet of road installation.

Payment – Payment will be performed based on the Contractor field measured and the Engineer's verified in-place linear feet of road installation.

2.24.12 Bid Item 9 – Performance and Payment Bonds

Measurement – Lump Sum

Payment – Payment shall be on a progress basis, as approved by the Engineer, based upon percentage of work completed, per approved Contractor estimates.

2.24.13 Bid Item 10 – All other work not included in Items 1 through 9

Measurement – Lump Sum

Payment – Payment shall be on a progress basis, as approved by the Engineer, based upon percentage of work completed, per approved Contractor estimates.

3.0 POND CLOSURE PLAN EXECUTION

3.1 Summary of Work

The work to be performed under the Closure Plan will be performed at the SMEC plant in Christine, Atascosa County, Texas. Construction to be conducted under the Closure Plan and sequence of construction include the following:

- Dewatering of EQ Pond (if needed)
- Re-grading of existing material
- Clay liner installation, grading, and compaction
- Regrading of existing berms
- Topsoil installation, grading, and seeding
- Drainage ditch installation
- Improvements to perimeter road

Existing conditions of the EQ Pond are shown in Drawing C-102.

3.2 Dewatering of EQ Pond (if needed)

SMEC is currently in the process of dewatering the EQ Pond, and those efforts will continue until construction on the Closure project begins. Currently, water is being pumped from the southern portion of the EQ Pond into the lined ash ponds. It is anticipated that the EQ Pond will be dewatered by the time construction begins. However, additional dewatering support may be necessary prior to the commencement of re-grading activities.

During construction activities, the Contractor will be responsible for management of any storm water that collects within the EQ Pond. Trenches and/or sumps may need to be installed within the EQ Pond to facilitate dewatering activities. SMEC will provide any rental pumps and piping needed, however the Contractor will be responsible for all other aspects of stormwater management during construction activities.

Due to the unknown nature of how much dewatering support will be needed from the selected contractor, dewatering has been included in the Bid Form with an expected quantity of zero to establish a unit cost if support activities are required. If dewatering support is needed, these activities would be billed at the unit cost included in the bid form.

3.3 Re-grading of Existing Material

As stated in Section 1.1, the EQ Pond is currently at approximately 80% capacity. The aerial in Figure 1-1 and contours shown on Drawing C-102 show that the northern approximately two-thirds of the pond is near capacity, while the southern third has approximately 10 feet of space remaining. The existing material in the pond will be re-graded to create a uniform surface across the entire pond while also facilitating drainage away from the EQ Pond Area. The material shall be regraded to create a gradual west to east slope to facilitate drainage, as shown in Drawing C-104.

During the re-grading work, the selected contractor will need to remove and dispose of any existing infrastructure and/or structures in the EQ Pond, including piping, depth gauges, etc.

Detailed requirements and Technical Specifications for this work are provided on Drawing C-104 and in Sections 4.0 and 5.0 of the Closure Bid Document.

3.4 Clay Layer Installation, Grading, and Compaction

Following re-grading of the existing material, a 24-inch thick layer of compacted clay shall be installed across the existing EQ Pond. The clay material will be provided by SMEC and staged at the clay pile shown on Drawing C-105. The clay material will be installed in lifts and each lift will be graded and compacted after placement. Detailed requirements and Technical Specifications for this work is provided on Drawing C-106 and in Sections 4.0 and 5.0 of the Closure Bid Document.

3.5 Re-grading of Existing Berms

Once the clay cap is in place, the portion of the existing berms extending above the top of the clay cap will be cut down to the same elevation as the top of the clay cap. Material from the berms will be re-graded across the top of the clay cap.

3.6 Topsoil Installation, Grading, and Seeding

After the completion of the clay cap installation, a 6-inch layer of topsoil will be installed on top of the clay layer. The topsoil will be graded to match the existing grade of the clay cap and will be compacted to minimize erosion. Following installation, the topsoil will be seeded with a blend of rye and hulled Bermuda grasses. Detailed requirements and Technical Specifications for this work are provided in Sections 4.0 and 5.0 of the Closure Bid document.

3.7 Drainage Ditch Installation

Following completion of the cap, a drainage ditch will be installed along the western side of the EQ Pond to divert any potential surface water runoff away from the cap. Detailed requirements and Technical Specifications for this work is provided on Drawing C-108 and in Sections 4.0 and 5.0 of the Closure Bid Document.

3.8 Improvements to Perimeter Road

The access road on top of the existing perimeter berm around the EQ Pond will be replaced following the completion of the cap installation. Replacement of the road will allow for vehicular access around the cap area for future maintenance activities and will consist of installation of a crushed stone road base. Detailed requirements and Technical Specifications for this work is provided on Drawing C-109 and in Sections 4.0 and 5.0 of the Closure Bid Document.

3.9 Additional Work needed for Pond Closure

Prior to and during construction on the pond closure project, several other work items will be performed:

- Preparation of Contractor Project Plans for various work items
- Site Management
- Site Health and Safety

- Obtaining permits and coordinating regulatory notifications as needed
- Establishment of Contractor Support Facilities and Laydown Areas
- Demobilization and Site Restoration
- Contractor Quality Control of Work
- Engineer Quality Assurance of Work
- Other work as required

4.0 CONTRACTOR GENERAL REQUIREMENTS

4.1 Control of Work

The Contractor shall furnish equipment which will be efficient, appropriate, and large enough to secure a satisfactory quality of work and a rate of progress which will ensure the completion of the work within the time stipulated in the bidding instructions. If, at any time, such equipment appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of work required, or for producing the rate of progress required, the Engineer may order the Contractor to increase the efficiency, change the character of equipment, or increase the plant and/or equipment, and the Contractor shall conform to such order. Failure of the Engineer to give such order shall in no way relieve the Contractor of his/her obligation to secure the quality of the work and rate of progress required to complete the project within the term(s) specified.

4.2 Site Preparation

4.2.1 Mobilization

Prior to the commencement of work at the site, the Contractor will have received approval from the Engineer of all Contractor prepared plans as indicated in Section 4.4 of the Closure Bid Document. The Contractor shall mobilize all equipment, materials, support facilities, personnel, and other items needed for the completion of the Work in the Closure Plan to the site as indicated on the schedule provided to the Engineer prior to Notice to Proceed. The Contractor shall coordinate all aspects of mobilization with the Owner to assure efficient development of site laydown and support facilities without disturbance to any aspect of the Owner's operations at the Plant. The Contractor shall initially mobilize materials and equipment as needed to initiate construction, namely site preparation work.

4.2.2 Site Access

The Contractor shall have full access to the site (as defined on the Drawings) for the execution of the work as indicated in the Closure Plan. Appropriate levels of health and safety protective equipment shall be worn by the Contractor's personnel at all times when working in construction zones as indicated in the Drawings. The Contractor shall have full responsibility for protecting and securing all personnel equipment and materials on-site.

4.2.2.1 Contractor Equipment and Facilities

The Contractor shall provide a Construction Trailer and furnishings equipped for use by the Contractor and the Engineer for the day-to-day management of the construction at the site. The Contractor shall also provide sanitation facilities, waste disposal, and potable water for all parties working on the construction site.

4.3 Construction Management

4.3.1 Contractor Management

The Contractor shall provide for management of the construction project, both in the field (Field Management) and from their home office (Home Office Support). Field Management shall include, at a minimum, a field supervisor and a safety officer/assistant field supervisor. The

Contractor management team will maintain control and authority over all of the Contractor's work, including their subcontractors. During the work, the Contractor will be managed by the Engineer, whom will have authority over all Contractor work and activities.

4.3.2 Quality Control

The Contractor shall provide and maintain an effective quality control program that complies with the Closure Plan and Bid Document. The Contractor Quality Control (CQC) Program through inspection, testing, equipment/system operation, and reporting shall demonstrate and document the extent of compliance of all work with the standards and quality level established by the Closure Bid Document. Inspection and test reports shall make reference to specific Drawing and/or Bid Document requirements and shall state the comparative inspection/test procedures with both expected and actual results.

CQC is the means by which the Contractor verifies that his/her construction complies with the requirements of the Closure Plan and Bid Document. CQC shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and will be keyed to the proposed construction sequence. Contractor Quality Control will not be accepted without review by the Engineer.

4.3.2.1 Submittals

The Contractor shall provide submittals for approval and in accordance with this Section and Section 4.4. The Contractor shall furnish for approval by the Engineer, in accordance a CQC Plan which he/she proposes to use to implement the requirements of the Closure Plan and Bid Document. The plan shall identify personnel, procedures, instructions, records, and forms to be used. If the Contractor fails to submit an acceptable CQC plan within the time herein prescribed, the Engineer may refuse to allow construction to start if an acceptable interim plan is not furnished, or may withhold funds from progress payments, until such time as the Contractor submits an acceptable final CQC plan.

The CQC Plan shall include as a minimum, the following:

- A description of the quality control organization, including charts showing lines of authority and acknowledgements that the Contractor shall conduct the various phases of inspection for all aspects of the work specified
- The name, qualifications, duties, responsibilities, and authorities of each person assigned a CQC function
- A copy of the letter to the Engineer, signed by an authorized official of the Contractor, describing the responsibilities delegation of the authorities under the CQC System
- Procedures for scheduling and managing submittals, including those of subcontractors, suppliers, and purchasing agents
- Identification and qualifications of QC testing or inspection firms, including control testing procedures for each specific test. Laboratory facilities and testing personnel shall be approved by the Engineer
- Reporting procedures including proposed reporting formats
- A description of the testing and inspection procedures and methods of quality control for each phase of inspection

Acceptance of the Final CQC Plan is required prior to construction commencement. Acceptance is conditional and will be predicated on satisfactory performance during construction. The Engineer reserves the right to require the Contractor to make changes in his/her CQC plan, staff, and operations as necessary to obtain the construction quality specified.

After acceptance of the CQC plan, the Contractor shall notify the Engineer in writing of any proposed change. Proposed changes are subject to acceptance and approval by the Engineer. The Contractor shall also submit daily QC reports to the Engineer summarizing the day's field activities.

The Contractor shall discuss the CQC System with the Engineer during the Pre-Work Meeting. A mutual understanding of the system, its details, and the extent of control activities shall be developed. The following are the minimum CQC requirements and activities that are the responsibility of the Contractor:

- Quality Control Plan
- Quality Control Organization
- Staffing and Qualifications
- Submittals
- Quality Control Inspections,
- Quality Control Testing
- Providing Information and Samples to the Engineer for Quality Assurance Testing (approximately 10% of CQC volume)
- Documentation, including forms and procedures for recording CQC operations.

4.3.2.2 Quality Control Organization

The Contractor shall identify an individual, within his/her organization at the site of work (preferably the Contractor Site Superintendent), who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System manager shall be approved by the Engineer.

Staff shall be maintained under the direction of the CQC System Manager to perform all CQC activities. The actual staffing level during any specific work period may vary to cover work phase needs, shifts, and rates of placement. The staff shall be fully qualified by experience and technical training to perform their assigned responsibilities. The CQC System Manager shall be employed full time at the project site whenever contract work is in progress. In emergency situations, an Engineer approved equivalent alternate may substitute for the CQC Manager.

4.3.2.3 Quality Control Inspections

The CQC System shall include at least three phases of control management for all Work as follows: (a) Preparatory Inspection, (b) Initial Inspection, and (c) Follow-up Inspections. These inspections shall be attended and performed by the applicable quality control representative and the Contractor's individual or agent responsible for the implementation and supervision portion of the work. The Engineer's personnel may participate in each of the various inspection phases.

4.3.2.3.1 Preparatory Inspection

This control shall be performed at least 24 hours prior to beginning any work. It shall include the following:

- Review of the contract requirements including a review of manufacturer's installation instructions
- Verify that all materials and/or equipment have been tested, submitted, and approved
- Verify that provisions have been made to provide the required control testing or inspection
- Examine the work area to ascertain that all preliminary work has been inspected, tested, and completed
- Physical examination of materials, equipment, and sample work to verify that they conform to approved shop drawings or submittal data
- A check that materials and/or equipment are on hand in sufficient quantities to complete a representative portion of the work
- The Engineer shall be notified at least 72 hours in advance of any preparatory inspection. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC representative and attached to the daily QC report as required below
- Subsequent to the preparatory inspection and prior to commencement of work, the Contractor shall instruct each worker as to the acceptable level of workmanship required in order to meet requirements of the Contract Documents

4.3.2.3.2 Initial Inspection

This control shall be accomplished at the beginning of work as described below:

- This inspection shall include a check of preliminary work, verification of full compliance, establishment of level of workmanship, resolution of all differences, and a check of safety. The work shall be inspected for use of defective or damaged materials, omissions, dimensional requirements, and compliance with the Closure Plan
- The initial phase of inspection shall be repeated for each new crew to working on the individual work item, or if acceptable standards of workmanship are not being met and maintained
- The Engineer shall be notified at least 72 hours in advance of the initial inspection. Separate minutes of this phase shall be prepared by the CQC representative and attached to the daily QC report

4.3.2.3.3 Follow-up Inspections

These inspections shall be performed daily to verify continuing compliance with the contract requirements, including control testing, until completion of any individual work item. Final follow-up inspections shall be conducted, and all deficiencies corrected prior to the start of additional Work. Such inspections and results shall be made a matter of record in the CQC documentation.

The Contractor shall provide to the Engineer a written summary of each inspection within 2 business days of each inspection detailing the inspection results and a list of action items resulting from the inspection.

4.3.2.4 Quality Control Testing

4.3.2.4.1 Testing Procedure

The Contractor shall perform tests specified or required in the Closure Bid Package to verify that control measures are adequate to provide a product which conforms to the Contract Documents. The Contractor shall increase testing frequency or provide additional tests as necessary to ensure compliance with the Closure Plan.

A list of the tests, which are to be performed during the Work, shall be furnished as part of the CQC plan. The list shall include the test name, Specification paragraph containing the test requirements, test frequency, testing instrumentation, and the personnel and/or laboratory responsible for each type of test. The Contractor shall perform the following activities, and record and provide the following data:

- Verify that testing procedures comply with the contract requirements
- Verify that facilities and testing equipment are available and comply with testing standards
- Check test instrument calibration data against certified standards
- Verify that recording forms, including all of the test documentation requirements, have been prepared
- Document and provide expected test results and actual test results for each test or phase thereof

4.3.2.5 Documentation

The Contractor shall maintain current records of quality control operations, activities and tests performed including the work of suppliers and subcontractors, both on and off the site. These daily records shall be on an acceptable form and document the following:

- A description of trades working on the project and the network analysis activity when a network analysis is specified
- The number of personnel and equipment working on the project
- The weather conditions encountered
- Any delays encountered
- Material and/or equipment delivered to site and the submittal identification number
- Verbal instructions received
- Documentation of any defects of deficiencies including those disclosed or noted by the Engineer
- Acknowledgement of deficiencies noted along with the corrective actions taken on current and previous deficiencies
- Records shall include factual evidence that required inspections, control activities and tests have been performed, including but not limited to the following:
  - Type and number of inspections, control activities and test involved
  - Results of inspections, control activities, or tests
  - Nature of defects or deficiencies, cause for rejection, etc
  - Proposed remedial action on current and previous deficiencies
  - Corrective actions taken on current and previous deficiencies

- Documentation that each phase of inspection has been performed and the results of such inspections together with minutes and listing of attendees as specified
- Minutes of meetings regarding any contact requirements
- Daily records shall include conforming and defective or deficient features and shall include a statement that supplies and materials incorporated in the work comply with the Closure Plan. These records shall be furnished to the Engineer daily (electronically) by the close of business the first day after the ending of the daily reporting period
- Daily reports shall be signed by both the member of the CQC staff and the CQC System Manager
- In addition to the daily CQC records, the Contractor shall maintain a master deficiency list. The master deficiency list shall be updated on a continual basis to reflect CQC and the Engineer's QA efforts. The list shall be furnished to the Engineer (electronically) concurrent with periodic payment requests. This list shall describe and date each disclosed defect or deficiency with the date of correction and summary of corrective action. The CQC System Manager will affix his/her signature to all corrective action documentation.

4.3.2.6 Completion Inspection

At the completion of all work or any increment thereof, the CQC System Manager shall conduct a completion inspection of the work and develop a list of items which do not conform to the Contract Documents. Such a list shall be included in the CQC documentation as required, and shall include the estimated date by which the deficiencies will be corrected. After correction of the deficiencies, the CQC System Manager and his/her staff shall make a second completion inspection to ascertain that all deficiencies and any deficiencies noted by the Engineer, including those deficiencies previously noted, have been corrected and will so notify the Engineer. The completion inspection and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work. Failure to comply within the specified time frame may result in the assessment of liquidated damages.

4.3.2.7 Work Deficiencies

The Contractor shall not build upon or conceal any work containing uncorrected defects. If defects or deficiencies indicate that the Contractor's quality control system is not adequate or does not produce the desired results, corrective actions in both the quality control system and the work shall be performed by the Contractor. If the Contractor does not promptly make the necessary corrections, the Engineer may issue an order stopping all or any part of the work until satisfactory corrective action has been taken.

Payment for deficient work or unsatisfactory CQC will be withheld until work has been satisfactorily corrected or other action is taken. If the previous remedy does not improve the Contractor's quality control system and/or recurring deficiencies in an item(s) indicate that the quality control system is not adequate, the Engineer may direct changes be made in the quality control system and/or organization, including but not limited to:

- The removal and replacement of an unsatisfactory quality control representative at any level
- The addition of quality control personnel or services
- Revisions and additions to the CQC Program

Any additional cost to the Engineer for quality control services that are not satisfactorily performed by the Contractor will be deducted from payment due the Contractor.

4.3.2.8 Notification of Noncompliance

The Engineer will notify the Contractor of any noncompliance with the CQC requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his/her representative at the site of work, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken.

4.3.3 Meetings

4.3.3.1 Pre-Construction Meeting

A Pre-construction Meeting will be held at the Plant within 5 working days after Notice to Proceed but before initiation of the construction. Topics of this conference include but are not limited to:

- Defining the roles, relationships, and responsibilities of all parties
- Review methods for documenting and reporting inspection data
- Review methods for distributing and storing documents and reports
- Review work area security and safety protocols
- Review the Construction Schedule
- Conduct a site reconnaissance to verify that the design criteria and the plans are understood and to review material and equipment storage locations

The Contractor shall document the Pre-construction Meeting, including names of people in attendance, issues discussed, clarifications made, and special instructions issued and distribute this documentation to the Owner and Engineer within 5 working days after the meeting.

4.3.3.2 Pre-Work Meeting

Within 20 working days after the issuance of the Notice to Proceed and prior to mobilization to the site, a Pre-Work Meeting will be held at the work site between the Engineer and the Contractor. Attendance by the Contractor's Superintendent, quality control personnel, safety personnel, and any other major subcontractors' superintendents is required.

The purpose of this meeting is to further define the quality control and review system, to thoroughly review the Contractor Quality Control Plan, and to develop a mutual understanding of the specific requirements established by the contract including the project schedule. The specifics of the Contractor's other submittals will also be discussed so that emergency procedures and health and safety requirements are understood by all those directly related to the site work. Other Contractor procedures will also be discussed, and any required modifications will be explained.

4.3.3.3 Prefinal Construction Inspection

Upon construction completion, the Engineer will conduct a Prefinal Construction Inspection. Participants will include the Owner, Engineer, and the Construction Contractor. The Prefinal Inspection will consist of a walk-through inspection of the entire construction Site. The objective

of the inspection is to verify that the construction is complete and consistent with the Closure Plan and Bid Document. Any outstanding construction items discovered during the inspection will be identified and noted on a punch list. If deficiencies are revealed, the Engineer will direct the Contractor to resolve these deficiencies and will later document their completion. The Engineer will submit a Prefinal Construction Inspection Report to the Owner and the Contractor, which will outline the outstanding construction items, actions required to resolve the items, completion date for the items, and an anticipated date for the Final Construction Inspection.

4.3.3.4 Final Construction Inspection

Upon completion of all outstanding construction items from the Prefinal Construction Inspection, a Final Construction Inspection will be conducted consisting of a walk-through inspection of the entire Site. The Prefinal Construction Inspection Report will be used as a checklist with the Final Construction Inspection focusing on the outstanding construction items identified in the Prefinal Construction Inspection. A Final Construction Inspection report will be prepared by the Engineer when all outstanding items have been resolved. Any remaining construction items discovered during the inspection still requiring correction will be identified and noted on a punch list and subsequently resolved.

4.3.4 Pricing and Invoicing

Bidding Contractors shall provide pricing for the project as indicated on the Bid Form (Section 8.0). Pricing will include a combination of lump sum items and items that are bid on a unit cost basis with quantity add and deduct, based in actual quantities installed in the field. For Items bid on a unit quantity with add/deduct, final pricing will be based on the actual quantity for that bid item. If the actual quantity is greater than the quantity estimated on the bid form, then the Contractor shall be paid an additional amount based on the magnitude of the increased quantity at the unit price bid by the Contractor. Conversely, if the actual quantity is less than the quantity estimated on the bid form, then the Contractor shall be paid a reduced amount based on the magnitude of the decreased quantity at the unit price bid by the Contractor.

4.3.5 Payment Requests

Payment requests will be submitted monthly by the Contractor in accordance with an applicable schedule as indicated in the Bid Document. All information and substantiation required by the Contract shall be submitted with the payment request, and the required certifications will be included on the last page of the payment request, signed by an authorized Contractor official and dated when signed. The designated billing office is NewFields in Atlanta, GA. Invoices for the Construction shall be prepared and submitted to the Engineer for review and approval based on the actual progress made from the 15th of any month to the 15th of the following month.

The Engineer will review the invoice and the actual progress of the construction and complete this review within 5 working days of receipt of the invoice. If the Engineer approves the invoice, the invoice will be forwarded to the Owner with a recommendation for payment and payment will be made per the terms of the Contract. If the Engineer identifies deficiencies or inaccuracies in the invoice, the Engineer will return the invoice to the Contractor within 5 working days with a request to correct these deficiencies. Once the deficiencies have been corrected, the Contractor shall resubmit the invoice to the Engineer for review under the aforementioned process.

For modifications, the Contractor pricing proposed shall be submitted prior to a change order being issued, or at a specific time as directed by the Engineer and in the detail and format prescribed by the Engineer. Work under a contract modification will not commence until the proposed Contractor pricing is approved, unless it is determined by the Engineer that it is in the Owner's interest to proceed with the work before such approval.

4.3.6 Construction Oversight (for information only – NIC)

The Engineer will provide construction oversight for the construction and (as an authorized representative of the Owner) will have the authority in the field to direct the Contractor's work on the site. Duties of the Engineer during construction management include but are not limited to:

- Direction of the Contractor in the field in performing the work in accordance with the Closure Plan, Bid Document, and the Contract
- Review and approval of submittals, plans, and methods of the Contractor
- Review and approval of invoices from the Contractor

4.3.7 Construction Quality Assurance (CQA) (For Information Only – NIC)

4.3.7.1 General

The Engineer shall be the interpreter of the Technical Specifications and shall make observations and tests as considered necessary to assess and accept the quality of the work. Continuous observations and tests of construction operations shall be made by Inspectors under the direction of the Engineer.

The Engineer shall be responsible for verification of lines and grades prior to acceptance of the completed work. The Contractor shall also be responsible for the preparation of record (as-built) drawings for all lined areas.

A CQA Sampling & Testing Guide is presented on Table 4-1.

Table 4-1 CQA Sampling & Testing Guide

Material	Tests	Frequency
Clay	Field Density and Compaction	1 per 1,000 CY placed or 1 per day, whichever is greater
	Soil Classification Atterberg Limits Grain Size Analysis	1 per 10,000 CY of clay

The CQA shall also produce a daily report (weekly reports may also be required) and a summary for testing completed to document activities associated with installation of the clay cap. A copy of all test results will be maintained at the construction site, and shall include the following:

- Date issued
- Project title and number
- Date of testing and/or sampling
- Designation of material tested

- Type of test and specification
- Location of test
- Observations regarding compliance or noncompliance with Drawings and Specifications

4.3.7.2 Other Construction Quality Assurance

The Engineer will perform QA testing and inspections for aspects of the work other than clay cap installation. Work items include but are not limited to road upgrades, drainage installation, and other facility upgrades. Testing will be performed at a minimum rate of 10% of associated Quality Control tests. The Engineer will inspect the site and the work daily for QA purposes.

4.4 Submittals

The Contractor shall provide Submittals (plans, documents, certifications, warrantees, etc.) to the Engineer in accordance with the requirements of this Section. The Contractor shall allow a minimum of 10 working days for review and approval of any construction submittal. No delay, damages, or time extensions will be allowed for time lost due to late submittals or resubmittals for such items by the Contractor.

The following submittals shall be provided by the Contractor:

4.4.1 Shop Drawings and Project Plans

Approval is required from the Engineer on these submittals prior to the Contractor proceeding with work under these submittals. Product data shall be submitted along with Shop Drawings where appropriate. Additional copies requested by the Engineer shall be furnished at no additional cost.

4.4.2 For Information Only Documents

The Contractor shall provide these documents to the Engineer prior to proceeding with the work, however, approval is not required to proceed with the work.

- Product Data – Electronic copies of product data are required for each submittal or re-submittal. Product data shall be submitted along with Shop Drawings where appropriate. Additional copies, when requested by the Engineer, shall be furnished at no additional cost
- Data – Data applicable to the item submitted for approval shall be designated on the catalog cuts

4.4.3 Format

All submittals shall contain a title block on which the following data is permanently attached or noted:

- Project name and location
- Plant identification (i.e., San Miguel EQ Pond Closure)
- Subcontractor's and Supplier's names and addresses and the name of the individual to who questions should be addressed
- Product identification
- Submittal title, drawing number, revision number and date of drawing and revision
- Applicable Contract Drawings and Plan Section numbers

- Product data submitted containing multiple items for approval need the identification only on the exterior
- In such instances the identification shall include page and catalog item numbers
- Space: Vacant space approximately 2 1/2" high by 4" wide shall be provided adjacent to the identification data to receive Engineer's status stamp

General Items Include:

- **Signature**: Each item submitted shall be thoroughly reviewed by the Contractor and have a stamp or note describing the Contractor's action, signed by the person authorized by the Contractor to do the checking with that person's name clearly printed.
- **Contractor Responsibility**: The Contractor shall review each submittal for completeness, conformance to the Closure Plan and coordination with other parts of the Work and the Progress Schedule. By providing and submitting to the Contractor Shop Drawings, product data, warranties and samples, the Contractor will be deemed to represent that he/she has determined and verified: (a) the availability of all materials, and (b) field measurements and field construction criteria related thereto, and that he/she has checked and coordinated the information contained within such submittals with the requirement of the Work, the Closure Plan and the Progress Schedule and that such Shop Drawings, samples, warranties and data conform to the Closure Plan.
- **Characteristics** Not Checked by the Engineer: Acceptance is for general design only. Quantities, size, field dimensions and locations are some of the required characteristics which are not part of the Engineer's acceptance and will not be checked. Accordingly, the Engineer's limited acceptance shall in no way relieve the Contractor from his/her obligation to conform his/her work to required characteristics and to the Closure Plan.
- **Delays**: The Engineer may return incomplete submittals with no action taken. The Contractor shall have no claim for any damages or for an extension of time due to delay in the Work resulting from the rejection of materials or from the rejection, correction, and resubmittal of Shop Drawings, samples and other data, or from the untimely submission thereof.

4.4.4 Submittal Process

The Contractor shall submit all items listed in the Bid Document (Bid Document and Drawings). The Engineer may request construction submittals in addition to those listed when deemed necessary to adequately describe the work covered in the respective Sections. Units of weights and measures used on all construction submittals shall be the same used in the Closure Bid Document. Construction submittals shall be made in the respective number of copies and to the respective addresses set forth below. Each submittal shall be complete and in sufficient detail for ready determination of compliance with the Closure Plan. Prior to submittal, all items shall be checked and approved by the Contractor Quality Control (CQC) Engineer and each respective transmittal form shall be stamped, initialed, and dated by the CQC Engineer certifying that the accompanying submittal complies with the Closure Plan. All construction submittals shall be submitted by the Contractor to the Engineer electronically. If needed, the Engineer may request hardcopy of selected construction submittals, such as large drawings.

Construction submittals shall include such items as needed, including Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams,

operation charts or curves; test reports; test cylinders; samples; O&M manuals including parts lists; certifications; warranties; and other such required submittals. Construction submittals pertinent to materials and equipment which are subject to advance approval shall be scheduled and made prior to the acquisition or the delivery thereof. The Contractor shall carefully control his/her procurement operations to assure that each individual submittal is made on or before the corresponding date scheduled.

4.4.4.1 Meaning of Approval

The approval of the construction submittals provided to the Contractor will indicate that the general method of construction and detailing is satisfactory and is in accordance with the Closure Plan. Approval of "or equal" or "alternatives" shall be deemed as approval of alternative materials. Approval will not relieve the Contractor of the responsibility for any error or omissions which may exist for work not conforming to the requirements under the Closure Plan, including under the CQC requirements of the Closure Bid Document. The Contractor is responsible for the dimensions and design of adequate connections, details, and satisfactory completion of all work. After construction submittals have been approved by the Engineer, no re-submittal for the purpose of substituting materials or equipment will be considered unless accompanied by an acceptable explanation as to why a substitution is necessary.

4.4.4.2 When Not Approved

When a submittal is not approved, the Contractor shall make all corrections required by the Engineer and promptly furnish a corrected construction submittal in the form as specified for initial construction submittals. If the Engineer considers any correction indicated on the construction submittals to constitute a change to the Contract, notice shall promptly be given to the Contractor.

4.4.4.3 Withholding of Payment

Payment for materials incorporated into the work will not be made if required approvals have not been obtained.

4.4.5 Certificates of Compliance

Any certificates required for demonstrating proof of compliance of materials with Specification requirements shall be submitted to the Engineer. The certificate shall be signed by an official authorized to certify on behalf of the manufacturing company and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Copies of laboratory test reports submitted with certificates shall contain the name and address of the testing laboratory and the date or dates of the tests to which the report applies. Certification shall not be construed as relieving the Contractor from furnishing satisfactory materials.

4.4.6 Physical Data

Information and data furnished or referred to in the construction submittals are furnished for general information only and the Engineer will not be held liable for any interpretation or conclusions drawn there from by the Contractor.

4.4.7 Source of Data

The physical conditions indicated in the Closure Plan, Bid Document, and Drawings are the result of site investigations by topographical surveys, borings, and visual surveys. The data shown graphically and by symbol represents the actual features observed at the location given on the Drawings. While borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local minor variations characteristic of the subsurface materials could occur. Physical condition data collected during design and uncertainties herein does not relieve the Contractor from compliance with the Closure Plan.

4.4.8 Submittal List

Below is a list of submittals for the construction under this Closure Bid Package. The Contractor shall provide these and any other submittals in the Closure Bid Package to the Engineer in accordance with the Closure Bid Package.

4.4.8.1 Project Plans

- Contractor Health and Safety Plan
- Contractor Quality Control Plan
- Contractor Sediment and Erosion Control Plan
- Contractor Site Maintenance Plan
- Contractor Environmental Protection Plan
- Contractor Dust Control Plan
- Contractor Spill and Discharge Control Plan
- Contractor Utilities Plan
- Construction Process Schedules

4.4.8.2 Inspection and Meeting Reports

- Inspection and Meeting Reports

4.4.8.3 Record Documents

- Project Record Documents

4.4.8.4 Bonds

- Project Bonds

4.4.8.5 Clay Cap Materials

- Materials Specifications and Data Sheets
- In-Place Materials Testing

4.4.8.6 Stone Materials

- Materials Specifications
- In-Place Materials Testing

4.5 Weather

The Contractor shall investigate weather conditions to satisfy himself/herself as to the hazards likely to arise there from. Complete weather records and reports may be obtained from the National Weather Service.

4.5.1 Time Extensions for Unusually Severe Weather

This paragraph specifies the procedure for the determination of time extensions for unusually severe weather as set forth in the Closure Bid Package. In order for the Contractor to be awarded a time extension under the Closure Bid Package, the following conditions must be satisfied:

- The weather experienced at the project site during the contract period must be found to be unusually severe, in that it is more severe than the adverse weather anticipated for the project location during any given month
- The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor
- The schedule of monthly anticipated adverse weather delays in this Section is based on National Oceanic and Atmospheric Administration or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays for all weather dependent activities

Anticipated number of workdays with adverse weather based on a 6-day work week:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2	1	1	1	1	1	1	1	1	1	2	2

Upon Notice to Proceed and continuing throughout the Contract, the Contractor shall record on the daily CQC report, the occurrence of adverse weather, and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50% or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in the previous month), be calculated chronologically from the first to the last day of each month and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated above, the Engineer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair-weather workdays, and issue a schedule modification.

4.6 Access Routes

Transportation facilities shall be investigated by the Contractor prior to the development of the initial pre-construction submittals to satisfy him/her as to the existence of, or the need for additional, access roads for the construction project. All required access roads for the construction project shall be depicted on the pre-construction submittals.

4.7 Availability of Utility Services

The Contractor shall utilize utilities as provided by the Owner. The Contractor shall not utilize services that will cause an interruption in services to the Plant.

4.8 Layout of Work

The Contractor shall lay out his/her work from established base lines and benchmarks indicated in the Bid Document and shall make all required measurements. The Contractor shall furnish all stakes, templates, platforms, equipment, tools, materials, and labor as may be required in laying out any part of the work from the established base lines and marks. The Contractor shall execute the work to the lines and grades established or indicated in the Closure Plan. The Contractor shall maintain and preserve all stakes and other control points established until authorized to remove them by the Engineer. If such marks are destroyed by or through negligence of the Contractor prior to their authorized removal, they shall be replaced by the Contractor at no additional cost.

4.9 Quantity and Construction Surveys

The Contractor shall make such surveys and computations as are necessary to determine the quantities of work performed or placed during each period for which a progress payment is to be made, as well as the dimensions and locations of completed construction in accordance with the Closure Plan. The Contractor shall also make original and final surveys. The Contractor shall make such computations as are necessary to verify the quantities of work performed or finally in place. All original field notes, computations, and other records of the Contractor for the purposes of layout, original, progress, and final surveys shall be recorded in duplicated field books, the original pages of which shall be furnished on a daily basis in hardcopy and electronically to the Engineer and shall be used by the Engineer to the extent necessary in determining the proper amounts of progress and final payments. The Engineer may employ on an intermittent basis an independent surveyor to verify Contractor quantity calculations and determinations.

4.10 Variations in Estimated Quantities

Significant variations from the Contract unit priced quantities shall be identified and communicated by the Contractor to the Engineer at the earliest possible time so that the source of the variation can be determined and corrective action can be taken as needed, as set forth in the Contract. The Contractor shall report to the Engineer, no later than the time of 75% physical completion, of any individual work item that is materially different than the initial bid quantity. For unit price items, variations approved by the Engineer shall be added or deducted from the unit quantity shown on the bid form and payment will be based on the extended cost using the approved measured quantity. The Engineer's approval is required before placement of additional unit quantities during construction.

4.11 Insurance Required

Contractor insurance requirements shall be as set forth in the Contract.

4.12 Identification of Employees

The Contractor shall furnish to each employee and require each employee engaged in the work to display such identification as may be approved and directed by the Owner. All prescribed identification shall immediately be delivered to the Owner for cancellation upon release of any employees.

4.13 Construction Features Locations

Construction features shall be located substantially as indicated in the Bid Document and Drawings. The Engineer may require the Contractor to make such modifications in locations as may be found desirable to avoid interference with existing structures or for other reasons. Where features are noted in the Closure Plan, such notation is for the Contractor's convenience and does not relieve him/her from installing different or additional items where necessary.

4.14 Protection and Relocation of Existing Structures and Utilities

The Contractor shall coordinate with the Owner for the relocation of process and other lines that may obstruct access to the project site or performance with the work. This coordination will be performed prior to mobilization so that plans can be made by the Owner for working with the Contractor once the Contractor is on site.

The Closure Plan provides information regarding the location of existing site features. It is not anticipated that underground utilities will be encountered in the work areas of the site. This information is secured from existing records and field measurements. Such information is given to the Contractor as the best available data from reliable sources but is not guaranteed to be entirely accurate or complete. The Contractor shall inform himself/herself as to actual conditions. No extra payment will be allowed to the Contractor for any variations in locations of structures and utilities, or conditions not shown. The Contractor shall repair, or cause to be repaired, without cost to the Owner, all appurtenances damaged whether or not such utilities or structures were shown in the Drawings.

The Contractor shall assume full responsibility for the protection of all buildings and structures, public or private, including poles, signs, services to buildings, water pipes, hydrants, drains, and electric, telephone and television cables, whether or not they are shown in the Drawings. The Contractor shall carefully support and protect all such structures and utilities from damage of any kind. Any damage resulting from the Contractor's operations shall be repaired by him/her at his/her expense.

The Contractor shall bear full responsibility for obtaining all locations or underground structures and utilities (including existing irrigation pipes, irrigation control wiring, water services, drain lines, gas pipes, force mains and sewers). If any utility is hit or broken, the Contractor shall immediately notify the utility company, the Engineer, and the Owner and only proceed with the work when all precautions have been taken to protect the utility line.

4.15 Protection of New Construction and Equipment

All newly constructed work shall be carefully protected from any damage. No placing of heavy loads on this work will be allowed. Should any of the work become damaged, all such damaged portions of the work shall be completely and satisfactorily repaired by the Contractor at his/her expense and to the satisfaction of the Engineer.

If, during the final inspection of the work, any defects, faults, or omissions are found, the Contractor shall repair or remove and replace the work using proper materials and labor as required. Further, the Contractor shall be fully responsible for the satisfactory maintenance and

repair of the construction and other work undertaken herein, for at least the guarantee period described in the Closure Bid Document.

4.16 Sediment-Erosion Control – Stormwater Management

Sediment and erosion control during construction will be performed by use of controls along the perimeter of the designated laydown areas as shown on the Drawings. Also included in this Section is the management of stormwater during the construction project.

4.16.1 Submittals

The Contractor shall develop a Sediment and Erosion Control Plan and submit this plan to the Engineer for approval. Approval of this document is required prior to mobilization to the construction site. The plan will include but not be limited to:

- Inspection schedule
- Maintenance protocol
- Removal of sediment
- Hauling of sediment
- Sediment disposal
- Plan to minimize clearing and grubbing to limit disturbed areas prior to excavation

The Contractor shall utilize Best Management Practices as indicated in the Texas DOT Erosion and Sediment Control Manual for the management of erosion, stormwater, and sediment control for the Contractor laydown areas as shown on the Drawings.

The Contractor shall have equipment on-site for pumping stormwater from the EQ Pond so as to prevent construction delays due to stormwater accumulation. Stormwater removed from the EQ Pond shall be pumped to the lined ash ponds. The Contractor shall maintain preparedness to remove accumulated stormwater that might affect the construction schedule in the ponds and in the support areas throughout the life of the project under this Closure Plan.

4.17 Site Maintenance

4.17.1 Submittals

The Contractor shall prepare a Site Maintenance Plan (SMP) for approval by the Engineer in accordance with the requirements of this Section. The Contractor shall execute and perform construction in accordance with the SMP.

4.17.2 Roadways

The Contractor shall present in the SMP procedures for repairing, inspecting, and maintaining roadways within the site so as not to interrupt truck traffic from the site, and a list of materials that will be stored for this purpose. The Contractor shall provide an example of the documentation that will be used to record roadway inspection and repairs. This documentation will be of sufficient detail to support payment and will be retained by the Contractor in the Contractor's maintenance files. The Contractor is solely responsible for development and/or maintenance of haul roads on site and for their maintenance so that site construction activities are not interrupted.

4.17.3 Fire Systems and Equipment

The Contractor shall provide fire protection for the site during site operations. The Contractor shall describe in the SMP all fire systems and fire control equipment to be located at the site and will detail a program for testing and maintaining the equipment. The Contractor shall describe and present test procedures, inspection checklists, and inspection frequencies that will be followed to assure the equipment's proper operation. Additionally, the Contractor shall provide a site map showing the type and location of all fire control equipment and shall provide a list of "back-up" equipment that will be stored at the site at all times. If the Contractor subcontracts maintenance of the fire control equipment, the Contractor's subcontractor name, address, and qualifications shall be provided. All inspection and test records shall be retained by the Contractor in the maintenance file.

4.17.4 Communication Systems

The Contractor shall provide communication systems for the site during site operations. The Contractor shall describe in the SMP all communication systems and devices to be located at the site and shall describe the inspection, testing, and maintenance procedures to ensure proper operation of the equipment. The Contractor shall describe in the SMP emergency signals that will be employed should an emergency incident occur, and shall provide a preventative maintenance schedule for communication equipment. Inspection and test results and equipment repair and replacement documentation will be retained in the Contractor's maintenance file. Note that cell phone coverage is spotty across the Site.

4.17.5 Lighting Systems

The Contractor shall provide and maintain lighting systems (if needed) that will allow for site operation and security. The Contractor shall describe in the SMP all lighting systems, including emergency lighting systems, which will be used at the site. The Contractor shall also provide an inspection and test schedule for maintaining lighting systems. Inspections and repair documentation will be retained in the Contractor's maintenance file.

4.17.6 Sanitary Waste Disposal

The Contractor shall be responsible for the maintenance of the site sanitary systems including the removal and disposal of sanitary wastes. The Contractor shall provide in the SMP a procedure and schedule for maintaining and cleaning sanitary systems and will identify the name, address, and qualifications of any subcontractors to be used for this purpose. Inspection, maintenance, and disposal-related documents will be retained in the Contractor's maintenance files.

4.17.7 Solid Waste Management

The Contractor shall be responsible for the proper management and disposal of solid waste materials generated by site activities. The SMP shall describe the equipment and procedures that will be used to manage each type of solid waste generated. The Contractor shall describe methods for collecting and storing solid waste and shall include a "housekeeping" program to control litter. All solid waste transporters and facilities to be used by the Contractor shall be specified in the SMP, and shall be licensed and permitted by local and state authorities to accept the stated materials. Off-site disposal of solid waste is subject to conditions set forth in this Closure Bid Document. The Contractor shall maintain records that identify, by shipment, the types and

quantities of solid waste shipped, laboratory test results (if any), shipping dates, the name and address of the transporter and disposal facility, and a copy of the shipping manifests.

4.17.8 Chemical, Fuel, and Oil Storage

- The Contractor shall identify all chemical, fuel, and oil products to be stored at the site and will provide for each item the maximum inventory that can be held in storage.
- For each chemical, fuel, and oil product stored, the Contractor shall specify the type of storage and the size of all containers and tanks to be used.
- To address the potential for of a spill or discharge from a tank or container storage system, the Contractor shall indicate that the requirements of Section 4.23 of the Closure Bid Document, be followed.
- The Contractor shall retain all records related to the quantity of each chemical, fuel, and oil purchased; the results of all tests conducted; and corrective actions implemented.
- Safety and Emergency Response Equipment: The Contractor shall be responsible for the maintenance, repair, and replacement of emergency response equipment required under this Closure Plan. The Contractor shall specify and describe in the SMP schedules and procedures for the inspection, maintenance, repair, and replacement of emergency response equipment. The Contractor shall include in the SMP, a list of all emergency response equipment to be maintained at the site, and a site map showing its location. To conduct inspections of the equipment, the Contractor shall develop and use inspection checklists which will be retained in the Contractor's maintenance file. The Contractor shall repair or replace emergency response equipment that is identified during an inspection as being missing, damaged, or requiring routine service. The Contractor shall provide and retain documentation for safety and emergency response equipment activities.
- Erosion Control Measures: The Contractor shall include the maintenance of site erosion control measures including silt fences, soil grades, and other control devices in the SMP in accordance with the requirements in Section 4.16. The Contractor shall provide an inspection schedule and checklist for maintaining the site's erosion control measures. The checklist will identify the key parameters to be reviewed by the Engineer and will be retained in the Contractor's maintenance file. The Contractor shall repair or replace erosion control measures and will prepare and retain documentation verifying the date and type of corrective action completed.

4.18 Site Security

Temporary fencing and barriers will not be required to prevent access. The property is currently subject to 24-hr/day security by the Owner. The Owner maintains all logs, visitor lists, and other information for entry to the facility. Access to the facility shall be through the main gate of the facility.

As a minimum, the Contractor shall make daily visual inspection of the site (in the area of the Construction including laydown areas), making immediate reports of problems to the Engineer. Additional inspections shall be made as needed and/or as requested by the Engineer. The Contractor shall conduct coordination visits as directed by the Engineer with the Owner to map out contingency plans for emergency situations.

Under no circumstances shall the Contractor allow members of the media to enter the construction site and the Contractor or his employees are forbidden from discussing the construction project with members of the media. All inquiries from the media shall be immediately referred to the Engineer.

4.19 Project Photographs

4.19.1 Electronic Photographs

Electronic Photographs will be color photographs, labeled, and provided in file transfer format commonly used for electronic photograph organization and conveyance. All electronic photographs shall include the following:

- Name of Project
- Task of Activity
- Orientation of view
- Date and time of exposure
- Name of photographer

4.19.2 Views Required

The Contractor shall photograph the following work tasks and areas as the construction progresses:

- Pre-construction views of the existing construction site and other areas as directed by the Engineer
- Grading Activities
- Cap Installation Activities
- Drainage Activities
- Road Construction Activities
- Site Restoration Activities
- Site Support Facilities

The Contractor shall take photographs from various locations to illustrate the condition of work and the state of progress. At a minimum, photographs shall be taken two to three times a week for the duration of the project. At successive periods of photography, the Contractor shall take at least one photograph from the same overall view as previously used. The Contractor shall consult with the Engineer at each period of photography for instructions concerning views required.

4.19.3 Delivery of Photographs

The Contractor shall deliver electronic photographs to the Engineer daily over the agreed file transfer protocol.

4.20 Civil Emergency

Civil emergencies include, but are not limited to, extreme weather events, terrorism, criminal activities, construction accidents, and acts of war or civil disorder. The following are descriptions of key terms related to managing a civil emergency at the site.

- **Police** – Local law enforcement
- **Fire** – Fire and/or explosion
- **Rescue and Ambulance** – Local rescue resources for managing injury or accident
- **Evacuation** – Action to protect site personnel from imminent danger to health
- **Spills or Releases of Hazardous Substances –** Primarily spills of fuel and other petroleum products.
- **Safe Shutdown** – Shutdown of site operations in the event of construction mishaps, natural disasters

The Contractor shall review the Owner's existing Civil Emergency Plan and perform the construction consistent with this plan, adhering to the Plant-wide protocols.

4.21 Environmental Protection

4.21.1 Submittals

The Contractor shall submit a written Environmental Protection Plan (EPP) for approval by the Engineer and shall meet with the Engineer to develop mutual understandings relative to compliance with this provision and administration of the environmental protection program. Approval of the Contractor's plan for environment protection will not relieve the Contractor of his/her responsibility for adequate and continuing site controls in accordance with applicable Federal, State, and local laws and regulations.

In the event of an incident on the site during construction involving any detected noncompliance with Federal, State, or local environmental laws or regulations, the Engineer will notify the Contractor in writing of such. The Contractor shall, after receipt of such notice, immediately inform the Engineer of proposed corrective action and take such action upon approval by the Engineer. If the Contractor fails or refuses to comply promptly, the Engineer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. Compliance with the provisions of this Section by all subcontractors will be the responsibility of the Contractor.

The Contractor shall preserve land resources within the project boundaries and outside the limits of permanent work in their present condition to the furthest extent practicable. The Contractor shall also restore land resources disturbed during construction to a condition after completion of construction that will appear to be natural and not detract from the appearance of the area. The Contractor shall confine his/her construction activities to areas defined by the plan. The following are additional requirements:

4.21.2 Prevention of Landscape Defacement

The Contractor shall be responsible for and remedy any damage resulting from site use. Stone, earth, or other material that is displaced into uncleared areas shall be removed and disposed of appropriately. Monuments and markers shall be protected before construction operations commence.

4.21.3 Restoration of Landscape Damage

Any landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored to a condition satisfactory to the Engineer.

4.21.4 Location of Storage and Construction Facilities

The preservation of the landscape shall be an important consideration in the selection of all sites for storage and construction facilities and in the placement of buildings for the Contractor's storage and other construction facilities, as needed. Plans showing storage and construction facilities shall be included as part of the EPP.

4.21.5 Temporary Excavation and Embankments

If the Contractor constructs temporary roads or embankments and excavations for management of work areas, he/she shall submit the following for approval as part of the EPP:

- A layout of all temporary roads, excavations, and embankments to be constructed within the work area
- A landscaping plan showing the proposed restoration of the area. The plan shall provide for the obliteration of construction scars as such and shall provide for a reasonably natural-appearing final condition of the area

4.21.6 Post-Construction Cleanup or Obliteration

Upon completion of the Work, the Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction as directed by the Engineer. It is anticipated that excavation, filling, and plowing of roadways will be required to restore the area to near natural conditions which will permit the growth of vegetation. The disturbed areas shall be graded and filled as required, and the entire area seeded as needed. Restoration to original contours is desired, and all restored areas shall be smoothly and evenly dressed and sloped to drain.

4.21.7 Protection of Water Resources

The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumen, calcium chloride, acids, insecticides, herbicides, or other harmful materials. The Contractor shall comply with all applicable Federal, State, County, and Municipal laws concerning pollution of rivers and streams. The Contractor shall take special measures to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides, insecticides, and concrete drainage from entering public waters or the plant site. The Contractor shall not discharge water used for dust control and other waste waters from the site if a significant increase in the turbidity of any receiving stream will result from said discharge. These waters will be disposed of on- or off-site as appropriate by the Contractor. The Contractor shall not clean equipment around the EQ Pond area to prevent any off-site discharges.

4.21.8 Waste Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., in areas adjacent to streams shall not be permitted. If any waste material is dumped in unauthorized areas,

the Contractor shall remove the material and restore the area to its original, before disturbed condition. If necessary, contaminated ground shall be excavated and disposed of as directed by the Engineer, and replaced with suitable fill material, compacted, and Planted as required.

4.21.9 Disposal of Debris

The Contractor shall size-reduce and dispose of all construction debris resulting from construction operations off-site in accordance with applicable regulations and the requirements of the Bid Document.

4.21.10 Burning

No burning will be permitted on the construction site or any other area for materials generated from the construction project.

4.22 Dust Control

The Contractor shall conduct operations and maintain the project site so as to minimize the creation and dispersion of dust. Dust control shall be used for the duration of site operations, especially during re-grading, material handling and transport, grading, and site restoration.

The Contractor shall be required to maintain all embankments, stockpiles, haul roads, waste areas, borrow areas, and all other work areas inside or outside the project boundaries free from dust which would cause a nuisance to others on-site or in the surrounding area. Approved methods of stabilization consisting of water sprinkling, or similar methods, will be permitted to control dust. Water sprinkling, to be approved, must be repeated at intervals which keep all parts of the disturbed area damp at all times. The Contractor shall have sufficient equipment on the jobsite to meet this requirement. Dust control shall be performed as the work proceeds and whenever a dust nuisance occurs to prevent exposure to nuisance dust in accordance with the Bid Document.

4.22.1 Submittals

The Contractor shall prepare a Dust Control Plan (DCP) for approval by the Engineer which will describe site procedures to minimize the creation and dispersion of dust and limit volatile emissions during construction activities.

4.22.2 Water Application for Dust Control

The Contractor shall utilize fresh potable water or water from the facility on-site raw water pond for dust control. No additives will be allowed. The Contractor shall supply water spraying equipment capable of accessing all work areas consisting of, but not limited to, a tank, spray bar, and pump with a discharge pressure gauge.

The Contractor shall apply water to the site when dust control is necessary by arranging the spray bar height, nozzle, spacing, and spray pattern to provide complete coverage of ground area. Water shall be applied without undue interference to equipment or site operations and without creating nuisance conditions such as ponding.

4.23 Spill and Discharge Control

The Contractor shall develop for approval by the Engineer, implement, maintain, supervise and be responsible for a comprehensive Spill and Discharge Control Plan (SDCP). This plan will provide contingency measures for potential spills and discharges resulting from the Contractor's mechanical operations. Potential spills or discharges of particular concern during site operations are spills of diesel fuel or other fluids from construction vehicles.

4.23.1 Submittals

The Contractor shall submit a SDCP which shall contain the following:

- **Procedures for Containing and/or Collecting Potential Spills** - If a spill or discharge occurs, the Contractor shall take immediate measures to control and contain the resulting contamination. Measures shall include isolating the spill area, spraying the area with retardants if necessary, retrieving any discharged liquids if possible, absorbing the spilled or discharged material if a liquid, and removing, isolating and covering contaminated materials if necessary.
- **Decontamination Procedures** - Decontamination procedures may be required by the Contractor to remove spillage from previously uncontaminated structures, equipment or other material and to reduce levels of the substance spilled to acceptable levels as determined by the Engineer. Any contaminated materials such as wood or metal that cannot be properly decontaminated shall be properly segregated for off-site disposal.
- **Disposal of Clean-Up Debris and Contaminated Material** - All contaminated soils, absorbent materials, solvents and other materials resulting from the cleanup of spilled or discharge substances shall be properly stored, labeled and disposed of in appropriate off-site facilities in accordance with Texas DOT standards.
- **Notification** - If a reportable spill or discharge occurs, the Contractor shall notify the Engineer and the appropriate government agencies within 12 hours of the incident.

For Information Only, the Contractor shall submit written Spill Incident Reports, detailing any spill or discharge including, at a minimum, the cause and resolution of the incident, the date the incident occurred, and any outside agencies involved. The report shall be submitted to the Engineer within 48 hours of the incident. The Contractor shall document all spills on the Drawings and submit them to the Engineer upon project completion.

4.23.2 Materials and Equipment

The Contractor shall provide methods, means, and facilities required to prevent contamination resulting from spills and discharges. The Contractor shall also provide materials, equipment, and personnel to perform emergency measures which may be required if a spill or discharge does occur. Materials and equipment required on site shall include a sufficient quantity of non-combustible absorbent material, shovels, 55-gallon drums, and solvent in case decontamination of structures or equipment is necessary.

4.23.3 Execution

The Contractor shall comply with and execute as necessary all aspects of the approved Spill and Discharge Control Plan. Work will be executed in a manner that ensures a safe and clean work site and minimizes the potential for environmental damage resulting from construction.

4.23.4 Off-Site Disposal

The Contractor shall submit for information only, manifests for disposal of contaminated materials from the site. The Contractor shall organize and maintain the material shipment records/manifests required by the Federal RCRA (Public Law 94-580), U.S. DOT Regulations, regulations of the State of Texas, and the State where the disposal facility is located. The Contractor shall obtain letters of commitment from the waste haulers and the disposal facility to haul and accept shipments. The letters shall indicate agreement to handle and accept the specified material as described in this Section.

4.23.4.1 Quality Criteria

The Contractor shall ensure that all operations in the loading and hauling of contaminated materials are in compliance with Federal and State DOT regulations, 40 CFR Parts 262 and 264, "Revised Procedures for Implementing Off-Site Response Actions," (EPA Office of Solid Waste and Emergency Response [OSWER] Directive Number 9834.11, November 13, 1987), and all local requirements.

4.23.4.2 Applicable Regulations

Hazardous waste material transportation regulations shall include, but not be limited to the following:

- U.S. Department of Transportation regulations (19 CFR 171 through 179)
- USEPA. 1986, "Drum Handling Practices at Hazardous Waste Sites." EPN60012-861013
- Federal Resource Conservation and Recovery Act. JS amended
- DOT regulations applicable to method of transport
- USEPA 40 CFR 263 (48 FR 14153)
- OSHA Standards (29 CFR 1904, 1910, and 1926)
- Posted weight limitations on roads and bridges
- "Revised Procedures for Implementing Off-Site Response Actions." EPA OSWER Directive Number 9834.1 1. November 13, 1987
- "Off-Site Policy: RFA or Equivalent Investigations Requirement at RCRA Treatment and Storage Facilities," EPA Memorandum from J.W. Porter to Waste Management Division Directors, January 4, 1985

4.23.4.3 Execution

- The Contractor shall be responsible for acceptance of the specific materials at an approved disposal facility, for ensuring that the facility is properly permitted to accept the stated material, and that the facility provides the stated treatment and/or disposal services.
- The Contractor shall submit to the Engineer a letter of commitment from the proposed Treatment, Storage, or Disposal (TSD) facility. This letter of commitment will be used by the Engineer to evaluate the acceptability of the Contractor's proposed facility in

accordance with "Revised Procedures for Implementing Off-Site Response Actions" (EPA OSWER Directive Number 9834.1 I , November 13, 1987) and "Off-Site Policy: RFA or Equivalent Investigation Requirements at Treatment and Storage Facilities" (EPA Memorandum from J.W. Porter. January 4, 1988).

- The Engineer reserves the right to contact and visit the disposal facilities and regulatory agencies to verify the agreement to accept the stated material and to verify any other information provided. This does not in any way relieve the Contractor of his/her responsibilities under this Contract.
- In the event that the identified and approved facility ceases to accept the stated materials or the facility ceases operations, it is the Contractor's responsibility to locate an alternate approved and permitted facility for accepting materials. The Contractor is responsible for making the necessary arrangements to utilize the facility, and the alternate facility must be approved in writing by the Engineer in the same manner and with the same requirements as for the original facility.

4.23.4.4 Record Keeping

The Contractor shall obtain manifest forms, obtain material code numbers, and complete the shipment manifest records as required by the appropriate agencies for verifying the material type (Code No.) and quantity of each load in units of volume and weight. Copies of each manifest shall be submitted to the Engineer within 2 business days following shipment and within 2 business days after notification of receipt of the disposal facility. Any manifest discrepancies shall be reported immediately to the Engineer and be resolved by the Contractor.

4.23.4.5 Hauling

- The Contractor shall coordinate the schedule for truck arrival and material deliveries at the disposal site to meet the approved project schedule. The schedule shall be compatible with the availability of equipment and personnel for material handling operations.
- The Contractor shall not deliver waste to any facility other than the disposal facility listed on the shipping manifest.
- The Contractor shall coordinate vehicle inspection and recording of quantities leaving the site with the Engineer. These quantities shall be verified with recorded quantities at the disposal facility. If any deviation between the two weight records occurs, the matter shall be reported immediately to the Engineer.
- The Contractor shall be held responsible for any and all actions necessary to remedy situations involving material spilled in transit or mud and dust tracked off-site. Clean-up of materials released during transit shall be accomplished at the Contractor's expense.
- The Contractor shall be responsible for inspecting the access routes for road conditions, overhead clearance and weight restrictions, and shall provide traffic control when needed.
- The Contractor shall only use the transporter(s) identified in their plan for the performance of work. Any use of substitute or additional transporters shall have previous written approval from the Engineer.
- The Contractor shall develop, document and implement a policy for accident prevention.
- The Contractor shall not combine contaminated materials from other projects with material from work under this Contract.
- Liquid-containing trucks shall be sealed by the Contractor in a manner such that tampering with the contents cannot occur.

4.24 Contractor Required Utilities

The Contractor shall make such tie-ins and construct temporary utility services as required to perform the construction at the site. At the end of their useful life, as determined by the Engineer, the Contractor shall demolish the temporary facilities, leaving the utility systems in a safe and permanent condition in accordance with the Owner's requirements. The Contractor shall pay for all utility services for the conduct of the construction under this contract. The Contractor shall obtain, coordinate, and pay for all permits and utility company work orders required by the work in this Section.

4.24.1 Submittals

The Contractor shall submit a Utilities Plan. Plans indicating how the Contractor will obtain service from the local utilities during construction for approval by the Engineer. The Contractor shall show all proposed utility locations and technical plans on this submittal. Telephone, Water, and Portable Sanitary facilities will be provided by the Contractor, using Plant public utilities if possible. For information only, the Contractor shall submit all correspondence, permit applications or other communication between the Contractor and the power utility company to the Engineer.

4.24.2 Quality Criteria

The Contractor shall make contact with the authority having jurisdiction over utilities at the site, establish the authority's requirements for the work specified herein, as shown in the Closure Plan, and shall perform work in accordance with those requirements. Where the requirements of the Closure Plan are more stringent than those required by the authority having jurisdiction, the Closure Plan shall rule. Discrepancies between the Closure Plan and the requirements of the authorities having jurisdiction shall be brought to the attention of the Engineer and resolved before proceeding with the work.

4.24.3 Execution

The Contractor shall contact Texas 811 at 800-344-8377 a minimum of 15 days before the initiation of site work and obtain the information necessary to determine the locations of utilities in the construction site area. Natural Gas will not be used on this project. The Contractor shall supply electrical systems as needed for support facilities for the Work under the Closure Plan. The primary power contact is the SMEC.

The Contractor shall provide potable water service to the site using temporary tanks and equipment, and shall not connect to any site water line features for the work under this Contract. The Contractor shall use mobile/wireless telephone and internet services for the work under the Closure Plan. The Contractor shall provide temporary sanitary facilities on the construction site for all people working on the construction site under the Closure Plan.

4.25 Regulatory Requirements

4.25.1 General Requirements

The Contractor shall conduct all work on this project in accordance with the appropriate Federal, State of Texas, and local laws and regulations. The requirements and guidelines in this Section are not exhaustive and are not intended to include all potentially applicable requirements. It is the

responsibility of the Contractor to assure that all regulatory requirements are adhered to during the execution of the construction at the site.

The latest versions and revisions of the regulations presented in this Section shall be considered by the Contractor as the minimum requirements for conducting the work. The Contractor shall be responsible for evaluating and implementing all procedures as identified within these regulations and other appropriate regulations and laws to conduct and complete the intended work.

4.25.2 Definitions

The latest versions and revisions of Federal, State, and local regulations shall be considered by the Contractor as the minimum requirements for conducting work involved. The Contractor shall be responsible for evaluating and implementing all procedures as identified within these regulations and other appropriate regulations and laws to conduct and complete the intended work.

4.25.2.1 Compliance with Permit Requirements.

The Contractor shall perform all tests and compile reports and compliance documentation to satisfy regulatory agencies that work being undertaken within the confines of the site area is being performed in conformance with applicable and substantive permit requirements. The Contractor shall be responsible for obtaining all permits that are necessary to execute work in accordance with Federal, State, and local requirements for any activities performed inside or outside the confines of the site area.

4.25.2.2 Federal Requirements

4.25.2.2.1 RCRA (portions as applicable to pond rehabilitation construction – as needed)

The RCRA is a statute designed to ensure the identification, tracking, safe management and safe disposal of solid waste. The law and its implementing regulations impose strict standards on active hazardous waste generators, transporters, and operators of hazardous waste treatment, storage, and disposal facilities.

4.25.2.2.2 Federal Water Pollution Control Act as Amended by the CWA (portions as applicable to pond rehabilitation construction – as needed)

The CWA contains several programs geared toward the achievement and maintenance of ambient water quality. The mechanism for achieving these include technology-based effluent limits to be met by industrial dischargers and a nationwide permit program, the National Pollutant Discharge Elimination System (NPDES), 40 CFR 121-125. An NPDES permit must be obtained by anyone responsible for the "discharge of pollutant or pollutants into any waters of the United States from any point source." The permit requirement imposes effluent limitations on the discharger, states the means with which the polluter intends to meet these standards, and establishes procedures for monitoring and reporting noncompliance.

The 1987 amendments to the CWA required that municipal and industrial stormwater dischargers be regulated as NPDES dischargers. EPA regulations concerning NPDES permits for stormwater discharges were published on November 16th, 1990 (55 FR 47990). The permit requirements are applicable to stormwater discharges associated with industrial activities and storm sewers serving municipal populations exceeding 100,000 (40 CFR 122-124). Discharges from industrial activities

include storm water discharges from "areas where industrial activity has taken place in the past and significant materials remain that are exposed to stormwater" (55 FR 48065).

Section 404 of the CWA prohibits discharge of dredged or fill materials into navigable water without a permit obtained from the USACE. The disposition of dredged or fill material in a wetland area is also regulated by this section. A permit can be issued based on guidelines developed by EPA and the USACE. The EPA retains veto authority over any Section 404 permit issued by the USACE. Guidelines for disposal of dredged or fill material are contained at 40 CFR Part 230. Compliance with the substantive portions of these guidelines and CWA Section 404 is required. The actual permit is not required.

4.25.2.2.3 Federal Clean Air Act (portions as applicable to pond rehabilitation construction – as needed)

The Clean Air Act (CAA) specifies National Ambient Air Quality Standards (40 CFR 50), New Source Performance Standards (40 CFR 60), and National Emissions Standards for Hazardous Air Pollutants (40 CFR 61).

4.25.2.2.4 Occupational Safety and Health Act (portions as applicable to pond rehabilitation construction – as needed)

Occupational Safety and Health Act regulations codified in 20 CFR Parts 1910 and 1926 set allowable worker exposure levels, outline safety procedures, and specify procedures for monitoring the health and safety of workers. 29 CFR Part 1910 sets labor standards while Part 1926 sets construction standards. 29 CFR Part 1910.1200 prescribes the hazard communication standard. 29 CFR Part 1910.120 specifies Occupational Safety and Health Administration (OSHA) hazardous waste site operations and emergency response requirements. Other existing guidelines for work safety include:

- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH/OSHA/USCG/EPA, October 9, 1985. (NIOSH 85-115)
- Interim Standard Operating Safety Guide, EPA Office of Emergency and Remedial Response, January 19, 1983
- EPA Order 1440.1 - Respiratory Protection
- EPA Order 1440.2 – Health and Safety Requirements for Employees Engaged in Field Activities
- Other occupational safety and health manuals, local ordinances and state regulations applicable to general construction, hazardous wastes, source emissions, and spill/release emergency response

4.25.2.3 Texas Commission on Environmental Quality

4.25.2.3.1 Regulations Implementing RCRA

The Texas Commission on Environmental Quality is authorized by EPA to implement the requirements of RCRA through its own waste management laws and regulations. The Texas regulations pertaining to RCRA compliance may apply to work at this site.

4.25.2.3.2 Regulations Implementing NPDES Requirements

The Texas Commission on Environmental Quality manages water resources in Texas through permits to local governments and industry to discharge treated wastewater and to local governments, industry, farmers and subdivisions for surface water and groundwater withdrawals. The Storm Water Management Regulations and Erosion and Sedimentation Regulations may apply to work at this site.

4.25.2.3.2.1 Requirements Implementing Clean Air Act or other Air Pollution Control Regulations.

The Texas Commission on Environmental Quality is responsible for protecting Texas' air quality through the regulation of emissions from industrial and mobile sources. The Texas Regulations for the Control and Abatement of Air Pollution may apply to work at this site.

4.25.3 Standards

All workmanship and materials shall conform to state laws, and local ordinances, utility company regulations, and applicable codes and other standards. In case of conflict with the Closure Plan, such laws and regulations shall apply wherever they may require workmanship or materials other than required by the Closure Plan. In the event of conflict between standards, the more stringent standard, as determined by the Engineer, shall apply. Applicable codes and standards shall include the pertinent requirements of the following organizations:

- American Association of State Highway & Transportation Officials (AASHTO)
- American Concrete Institute (ACI)
- American Institute of Electrical Engineers (AIEE)
- American Industrial Hygiene Association (AIHA)
- American National Standards Institute (ANSI)
- American Society of Mechanical Engineers (ASME)
- American Society of Testing Materials (ASTM)
- National Bureau of Standards (NBS)
- National Electric Code (NEC)
- National Institute for Occupational Safety and Health (NIOSH)

4.25.4 Execution

The Contractor requirements for regulatory compliance during the execution of the work under the Closure Plan shall be in accordance with, but are not limited to, all regulations and requirements specified in this section as well as any other applicable regulations. The Contractor shall obtain appropriate permits in conducting the work when needed. The Contractor shall be responsible for alerting the proper Federal, State and local agencies and the Engineer of the nature and timing of site activities and shall inform and update the Engineer regularly regarding permit status and regulatory compliance.

4.26 Project Record Documents

4.26.1 Submittals

The Contractor shall submit Project Record Documents as required by this Section for information only. No action is required based on the content of these submittals.

4.26.2 Delivery

Within 20 working days after completion of field operations, the Contractor shall deliver Construction Record Documents to the Engineer including:

- Transmittals - Accompanying all record documents shall be a transmittal letter containing:
  - Date
  - Project title and number
  - Contractor's name and address
  - Title and number of each record document
  - Signature of Contractor's authorized representative
- As-Built Drawings
- Addenda
- Modifications to the Contract
- Field orders or written instructions
- Daily Construction Quality Control Reports
- Daily Work Activity Reports
- Weekly Work Activity Summary Reports, including:
  - Field test records
  - Photographs
  - Reports on any emergency response action
  - Manifest documents and variance reports
  - Chain-of-custody documents
  - Truck-load tickets and shipping papers (Manifests)
  - Meteorological records
  - Safety and Accident Incident Reports
  - Reports on all spill incidents
  - Other items as required by the Engineer
- Approved Special Procedure Plans.

4.26.3 Maintenance of Documents

The documents used to keep track of the daily work shall be stored in the Contractor's construction field office. The Contractor shall:

- Scan daily field documents on a daily basis and provide documentation to the Engineer electronically daily
- Provide files and racks for storage of hardcopy documents
- Provide locking cabinets or secure storage space for hardcopy documents

4.26.4 Filing and Actual Work

The Contractor shall file documents and samples to facilitate efficient and rapid retrieval. Documents shall be maintained in a clean, dry, legible condition and in good order. Record documents shall not be used for work purposes. The Contractor shall legibly mark Drawings to record actual work, including:

- Field changes of dimension and detail
- Changes made by Field Order or by Change Order
- Details not on original Closure Plan or Bid Document

4.26.5 Changes

The Contractor shall legibly mark each Section of the Specifications, Addenda, and Drawings to record changes made by Field Order or by Change Order.

4.26.6 Availability

The Contractor shall make documents available at all times for inspection and use by the Engineer or any authorized regulatory entity.

4.27 Construction Process Schedules

4.27.1 References

The Contractor shall refer to the Associated General Contractors of America publication "The use of CPM in Construction – A Manual for General Contractors and the Construction Industry."

4.27.2 Submittals

The Contractor shall submit for approval the following in accordance with this Section, and Section 4.4.

The Contractor shall submit a preliminary schedule, for approval by the Engineer, as part of the overall project plans, within 10 working days after the issuance of the Notice to Proceed. After the Engineer's review, the Contractor shall submit a detailed schedule within 5 working days after the Engineer review, modified to accommodate revisions recommended by the Engineer for approval as the Approved Project Schedule.

4.27.3 Format

The Contractor shall prepare schedules as a horizontal bar chart with a separate bar for each major portion of work or operation, identifying first workday of each week. The sheet size shall be a minimum of 11 x 17 inches.

4.27.4 Content and Duration

Clay placement and installation activities shall be completed by July 30, 2021 and the duration of the construction project under the Closure Plan shall not exceed 180 calendar days after the issuance of the Notice to Proceed (Section 6.0). The construction schedule provided to the Engineer by the Contractor shall not exceed this maximum duration. For the purposes of the work

under the Closure Plan and Bid Document, the Contractor is allowed a maximum 6 day/week work week (Monday through Saturday). The Contractor shall:

- Show complete sequence of construction by activities, with dates for beginning and completion of each element of cconstruction
- Identify each item by Bid Document Section number
- Identify work as shown in the Drawings
- Provide sub-schedules for each stage of work
- Provide sub-schedules to define critical portions of the entire schedule
- Include meetings in the schedule
- Show accumulated percentage of completion of each item, and total percentage of work completed, as of the first day of each month

4.27.5 Revision of Schedules

The Contractor shall as part of monthly schedule updates:

- Indicate progress of each activity to date of submittal, and projected completion date of each activity
- Identify activities modified since the previous submittal, major changes in scope, and other identifiable changes
- Provide a report to define problem areas, anticipated delays, and impact on the schedule.
- Report corrective action taken, or proposed, and its effect, including the effect of changes on schedules of separate contractors

4.27.6 Distribution

The Contractor shall distribute copies of reviewed schedule to the Engineer, Project site file, Subcontractors, suppliers, and other concerned parties. The Engineer will be provided with electronic copies electronic (MS Project or similar) format of schedules in addition to hardcopy. The Contractor shall instruct recipients to promptly report, in writing, problems anticipated by projections indicated in the distributed schedules.

4.28 Post Construction Documents (For Information Only – NIC)

After completion of the work, the Engineer will prepare a Final Construction Report and As-Constructed Drawings to the Owner.

4.28.1 Final Construction Report

Within 90 days after the conclusion of the Final Construction Inspection, the Engineer will submit a Final Construction Report to the Owner. The Final Construction Report will include the following:

- Brief description of how outstanding items noted in the Prefinal Inspection were resolved;
- Explanation of modifications made during the construction from the original design and Closure Plan

- Final Site Plans consisting of Site grading, liner placement, berm construction, and other features
- Synopsis of the work and certification that the construction work has been completed satisfactorily

4.28.2 As-Constructed Drawings

Within 90 days of the conclusion of the Final Construction Inspection, the Engineer will submit As-Constructed Drawings to the Owner, reflecting any changes made during the construction project.

4.29 Demobilization

4.29.1 Demobilization

The Contractor shall demobilize from the construction site at the completion of construction activities in accordance with the Bid Document and the Contractor's Site Plans.

4.29.2 Construction Surveys

The Contractor shall conduct a topographical survey of the site after completion of Pond Closure construction. The survey shall be performed after the Engineer's acceptance of the construction as specified in the Bid Document. The survey shall include all of the pond area and support areas, extending a minimum of 20-ft beyond the boundary of these features. The topographic survey shall be on a 50-ft. x 50-ft. grid and shall be developed using Texas State Plane and NAVD 88 datum. Fences, site buildings, and equipment will be surveyed and identified. An AutoCAD (.dwg or .dxf) file and hardcopy shall be provided to the Engineer no later than 10 working days after Contractor demobilization.

4.30 Bonds

The Contractor and all subcontractors shall provide both performance and payment bonds for the work. Bonds will be sufficient to assure that the work under the Closure Plan is both performed at no additional cost to the Owner and that all Contractors and subcontractors are paid per individual contract requirements.

4.30.1 Payment Bonds

The Contractor and his/her assigns shall perform/provide the following:

- Maintain sufficient performance bonds for all work performed, as set forth in the Contract.
- Cover: Identify each binder with typed or printed title "BONDS" with title of Project: name, address and telephone number of Contractor and equipment supplier, and name of responsible company principal.
- Table of Contents: Bonds shall be neatly typed, in the sequence of the Table of Contents, with each item identified with the title of the specification section in which specified, and the name of Product or work item.
- Separate each work item with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Contractor,

supplier, and manufacturer, with name, address, and telephone number of responsible principal.

4.30.2 Performance Bonds

The Contractor and his/her assigns shall perform/provide the following:

- Maintain sufficient performance bonds for all work performed, as set forth in the Contract.
- Cover: Identify each binder with typed or printed title BONDS with title of Project: name, address and telephone number of Contractor and equipment supplier, and name of responsible company principal.
- Table of Contents: Bonds shall be neatly typed, in sequence, with each item identified with the title of the plan Section in which specified, and the name of Product or work item.

Separate each work item with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Contractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

5.0 TECHNICAL SPECIFICATIONS

5.1 Dewatering of the EQ Pond

While it is anticipated that the EQ Pond will be de-watered prior to the commencement of construction activities, the Contractor may need to provide additional support in dewatering the pond before re-grading activities can commence. Any water in the EQ Pond shall be pumped to the lined ash ponds.

Due to the unknown nature of how much dewatering support will be needed from the selected contractor, dewatering has been included in the Bid Form with an expected quantity of zero to establish a unit cost if support activities are required. If dewatering support is needed, these activities would be billed at the unit cost included in the bid form. SMEC has a pump and existing piping set up at the southwestern corner of the EQ Pond and will provide additional rental pumps and piping as needed. Additional equipment needed for dewatering shall be determined by the Contractor.

The Contractor will be responsible for management of any stormwater that accumulates in the EQ Pond during construction activities.

5.2 Re-grading of Existing Material

This Section describes the activities involved with re-grading and compaction activities that shall be performed by the Contractor. The Work shall include all labor, supervision, equipment, tools, materials, quality control, and incidentals necessary to complete earthworks as shown in the Drawings.

5.2.1 Submittals

The Contractor shall prepare a Sediment and Erosion Control Plan in accordance with the requirements of the Bid Document. The plan shall address excavating, hauling, and stockpiling of on-site borrow soil and off-site suitable materials.

5.2.2 Quality Criteria

The publications listed below form a part of the Specifications to the extent referenced, as needed. The publications and referred in the text by the basic designation only, and the most recent version of the published standard must be used:

- ASTM C117 Materials Finer than 75-um (No. 200) Sieve in Material Aggregates by Washing
- ASTM C127 Relative Density (Specific Gravity) and Absorption of Coarse Aggregates
- ASTM C128 Specific Gravity and Absorption of Fine Aggregates
- ASTM C136 Sieve Analysis of Fine and Coarse Aggregates
- ASTM D698 Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft^3 (600 kN-m/m^3))
- ASTM D1140 Amount of Material Finer than 75-um (No. 200) Sieve by Washing
- ASTM D1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method
- ASTM D2167 Density and Unit Weight of Soil in Place by the Rubber Balloon Method

- ASTM D2216 Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D2487 Classification of Soils for Engineering Purposes
- ASTM D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- ASTM D2937 Density of Soil in Place by the Drive-Cylinder Method
- ASTM D6938 In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
- ASTM D3740 Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- ASTM D4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM E11 Woven Wire Test Sieve Cloth and Test Sieves

5.2.3 Products

The Contractor shall accomplish all Re-grading activities under the Closure Plan using commercial/industrial grade earth moving, hauling, and grading equipment with operators qualified and licensed, as required, for the work being performed.

5.2.4 Protection of Existing Service Lines and Utility Structures

Existing utility and process lines that are located outside the footprint of the cap, shown in the Drawings, and/or the locations of which are made known to the Contractor prior to commencing Work that are to be retained, as well as utility and process lines constructed during the Work, shall be protected from damage during grading and compaction. If damage occurs to the existing features, repairs shall be done by the Contractor at his/her expense. In the event that the Contractor damages any existing utility or process lines that are not shown, or the locations of which are not made known to the Contractor, report thereof shall be made immediately to the Engineer.

Existing infrastructure within the footprint of the cap, including piping, depth gauges, lighting, etc. will need to be removed and disposed of by the Contractor prior to commencing re-grading activities.

5.2.5 Preparation of Pond Surface for Re-grading

Any surface vegetation, such as brush, heavy growth of grass, and all decayed vegetable matter, rubbish, and other unsuitable material within pond footprint shall be removed, after which the pond surface will be graded to the lines and dimensions indicated on the Drawings until the desired grades have been obtained. In no case will such objectionable material be allowed to remain in or under the cover area. Stumps, logs, and roots more than 1 inch in diameter shall be removed to a depth not less than 18 inches below the original ground surface. Prepared surfaces on which compacted fill is to be placed shall be wetted, aerated or dried as may be required to obtain the compaction specified.

5.2.6 Slope

The top slope of the re-graded material shall be a minimum of 1 percent (100H:1V).

5.2.7 Compaction

Compaction shall be accomplished by a tamping (sheepsfoot) roller with a protrusion coverage area of 8% to 12% and a foot length of 4-in. to 6-in. until the surface of the ponds are graded, compacted, and suitable for clay placement. The equipment shall be a minimum 6-ton roller. Sufficient moisture per ASTM standards shall be maintained during rolling operations to achieve adequate compaction. Density verification will not be required for this work item.

5.3 Clay Installation, Grading, and Compaction

This Section describes the activities involved with clay placement, grading, and compaction activities that shall be performed by the Contractor for the construction of the EQ Pond cap. The Work shall include all labor, supervision, equipment, tools, materials, quality control, and incidentals necessary to complete earthworks as shown in the Closure Plan.

5.3.1 Definitions

- **Suitable Materials**: all soil materials not included in the unsuitable materials definition below and meeting the respective material requirements for use as fill material, and have the following purpose and qualities:
  - used for cap construction
  - free of debris, roots and organic materials, and stones
  - meeting the material properties and maximum particle dimension indicated in Section 5.3.2.
- **Unsuitable/Deleterious Materials**: material other than satisfactory soil, sand, gravel, as described herein, should be considered unsatisfactory unless the Engineer states otherwise after visual inspection of the material. These materials should not be used as fill and backfills, regardless of whether it is from an on-site source or delivered to the site. Unsatisfactory soils include those classified by the Unified Soil Classification System as elastic silt, clay of high plasticity, or organic soil. Deleterious material also includes any organic matter, wood, metal, piping, and could include concrete or asphalt waste or soil containing excessive cobbles (>6” nominal) and boulders (>12” nominal).

5.3.2 Clay Material

SMEC will provide the clay material for use in constructing the cap. SMEC and the Engineer will conduct the necessary testing to ensure the clay material satisfies the quality and durability requirements for this application. The Contractor will be required to conduct field testing of the clay following placement and compaction to ensure proper moisture is obtained. Specific requirements are as follows:

- Materials shall contain no unsuitable/deleterious materials, debris, organic matter etc. and shall be obtained from an on-site source
- Materials shall be classified as “CL” or “CH” according to ASTM D2487
- Gradation Requirements:
  - 90% to 100% of the remaining soils shall pass a 4-inch (102 mm) sieve
  - 45% to 100% of the remaining soils passing the No. 4 (4.75 mm) sieve
  - A minimum of 25% of soil particles shall pass the No. 200 (0.075 mm) sieve and a maximum of 75% of the soil particles shall pass the No. 200 sieve

- Plasticity Properties (ASTM D4318) – fill soils shall have a liquid limit between 0 and 45 and plasticity index between 0 and 25
- Dispersive Clays (ASTM D4647) and (ASTM D6572) – fill clays shall be non-dispersive
- Permeability – material shall have a compacted permeability of no more than 1.0×10^{-7} cm/s
- Acceptable in-situ moisture content range shall be within the limits of 2% below to 3% above optimum moisture content as determined in accordance with ASTM D698 unless otherwise approved by the Engineer under the requirements of this Section. Slight variations from the specified moisture range may be acceptable subject to acceptance by the Engineer and provided the required relative compaction is achieved.

5.3.3 Submittals

5.3.3.1 Testing Certificates

The Contractor shall submit qualifications of the commercial testing laboratory or Contractor's testing facilities for approval by the Engineer.

5.3.3.2 Density Control Tests

The Contractor shall provide Density Control Test Results with the construction quality control daily report to the Engineer.

5.3.4 Quality Criteria

5.3.4.1 Applicable Publications

The publications listed below form a part of the Specifications to the extent referenced, as needed. All test shall be performed in accordance with the current edition of the ASTM or other listed Testing Standard. The publications and referred in the text by the basic designation only and the most recent version of the published standard must be used.

- ASTM C117 Materials Finer than 75-um (No. 200) Sieve in Material Aggregates by Washing
- ASTM C127 Relative Density (Specific Gravity) and Absorption of Coarse Aggregate
- ASTM C128 Relative Density (Specific Gravity) and Absorption of Fine Aggregate
- ASTM C136 Sieve Analysis of Fine and Coarse Aggregates
- ASTM D698 Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft^3 (600 kN-m/m^3))
- ASTM D1140 Amount of Material Finer than 75-um (No. 200) Sieve
- ASTM D1556 Density and Unit Weight of Soil in Place by the Sand-Cone Method
- ASTM D2167 Density and Unit Weight of Soil in Place by the Rubber Balloon Method
- ASTM D2216 Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D2487 Classification of Soils for Engineering Purposes
- ASTM D2922 Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
- ASTM D2937 Density of Soil in Place by the Drive-Cylinder Method
- ASTM D6938 In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

- ASTM D3740 Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
- ASTM D4318 Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM E11 Woven Wire Test Sieve Cloth and Test Sieves

5.3.5 Products

The Contractor shall accomplish all Work under this section using commercial/industrial grade earth moving, hauling, and grading equipment with operators qualified and licensed, as required, for the work being performed.

5.3.6 Utilization of Excavated Materials

Borrow soils stockpiled on the construction site shall be covered with synthetic cover material, as necessary, to prevent excessive moisture caused by precipitation. It is the Contractor's responsibility to manage stockpiles in a manner that prevent excessive moisture loss or gain and minimizes the amount of material requiring cover.

5.3.7 Protection of Existing Service Lines and Utility Structures

Existing utility and process lines that are shown in the Drawings, locations of lines to be retained made known to the Contractor prior to commencing Work, as well as utility and process lines constructed during the Work shall be protected from damage during tilling, grading, and compaction. If damage occurs to the existing features, repairs shall be done by the Contractor at his/her expense. In the event that the Contractor damages any existing utility or process lines that are not shown, or the locations of which are not made known to the Contractor, report thereof shall be made immediately to the Engineer.

5.3.8 Preparation of Pond Surface for Compaction

Surface vegetation, decayed vegetable matter, rubbish, and other unsuitable material within the area of the cap shall be removed by the Contractor during rough grading as indicated in Section 5.2 of the Closure Bid Document.

5.3.9 Clay Placement

Clay cap placement shall be performed at the locations and to lines and grades indicated on the Drawings. Clay material shall be aerated or dried to provide the moisture content specified for compaction and shall comply with the requirements of this Section. Unless otherwise specified herein, clay material shall be placed in successive horizontal layers of 6 to 8 inches in loose thickness and compacted. Contractor shall remove all rock from the top surface of the soil barrier soils to ensure that 100% of the material passes the 4-inch (102 mm) sieve.

5.3.10 Compaction

Compaction shall be accomplished using a tamping (sheepsfoot) roller with a protrusion coverage area of 8% to 12% and a foot length of 4-in. to 6-in. Each lift shall be rolled as needed to meet moisture/density requirements in this Section. When the final grades as defined on the Drawings have been reached, the Contractor shall compact the final surface as specified in Section 5.1 of the Closure Bid Document. Fill shall be compacted to 95% of the maximum laboratory dry density for

cohesive materials. Density and moisture testing shall be performed at a rate of one test for every 1,000 CY placed or one per day, whichever is greater. Maximum rock size for all fills shall be 2/3 of the compacted lift thickness, unless otherwise approved by the Engineer. Oversize materials shall be removed from the fill.

Fill shall not be placed if it contains ice or frozen material. Each layer of fill material shall be compacted as to secure a dense, stable and thoroughly compacted mass. Deficiencies in construction shall be corrected by the Contractor at no additional cost.

The thickness of the clay cover shall be verified with surveying procedures at a minimum of 1 survey point per 5,000 square feet of constructed area by a registered Texas surveyor with a minimum two reference points.

5.3.11 Tests for Material Quality Control and Control of Density

In the event off-site material is required, this section pertains to tests for acceptance of materials prior to materials being delivered to the construction site. Testing results shall be provided to the Engineer for approval prior to shipment of fill materials to the site. All quality control sampling and testing shall be performed by the Contractor in accordance with Section 4.3.2. At least one of each of the following laboratory tests shall be completed for each proposed soil material prior to its delivery to the site and for every 1,000 CY of soil material delivered to the site during construction activities. The latest version of the following standards apply:

- Natural Moisture Content (ASTM D2216)
- Atterberg Limits (ASTM D4318)
- Grain-size Distribution (ASTM D1140 and E11, soils only)
- Mechanical Sieve (ASTM C117 and C136, aggregates only)
- Standard Proctor Compaction (ASTM D698, soils only)
- Hydraulic Conductivity (ASTM D5084) – tested at optimum moisture content and 95% of the maximum dry density per ASTM D698
- Dispersion (ASTM D4221)

Tests for determination of maximum density and optimum moisture shall be performed by the Contractor in accordance with the requirements of ASTM D698. Samples shall be representative of the materials to be placed. An optimum moisture-dry curve shall be obtained for each principal type of materials or combination of material encountered or utilized. Results in these tests shall be on the basis of control for compaction. Regardless, the acceptable in-situ moisture content range shall be within the limits of 2% below to 3% above optimum moisture content as determined in accordance with ASTM D698 unless otherwise approved by the Engineer. The above testing shall include Atterberg limits and grain-size determinations. A copy of these tests results shall be furnished to the Engineer by the Contractor with the construction quality control daily report.

5.4 Re-grade Existing Berms

This Section defines the requirements for re-grading the existing berms following the installation of the clay layer. Any alternatives or exceptions to this Specification shall be submitted in writing to the Construction Manager and shall be approved by the Engineer.

Following completion of grading and compaction of the clay layer, the existing perimeter berm shall be cut down so as the top of the remaining berm is at the same elevation as the top of the clay layer to ensure that the berms do not retain rainwater following the installation of the cap. Material removed from the berm shall be spread and graded across the top of the clay layer, prior to the placement of topsoil.

5.5 Topsoil Installation and Seeding

This Section describes the activities involved with topsoil placement, grading, and compaction activities that shall be performed by the Contractor for the construction of the EQ Pond cap. The Work shall include all labor, supervision, equipment, tools, materials, quality control, and incidentals necessary to complete earthworks as shown in the Drawings.

5.5.1 Soil Borrow

SMEC will provide the topsoil material to be used on the cap. The material will be staged at the stockpile area shown on Drawing C-105. The Contractor shall load the material at the stockpile area and haul the material to the EQ Pond for placement.

5.5.2 Placing Topsoil

Topsoil shall be uniformly distributed on the cap area and evenly spread to a minimum thickness of 6 inches. The spreading shall be performed in such manner that planting can proceed with little additional soil preparation or tillage. Topsoil shall not be placed when the subgrade is excessively wet, extremely dry, or in a condition otherwise detrimental to property grading or the proposed planting. No compaction is required.

The thickness of the topsoil cover shall be verified with surveying procedures at a minimum of 1 survey point per 5,000 square feet of constructed area by a registered Texas surveyor with a minimum two reference points.

5.5.3 Finished Fills and Embankments

All areas covered by topsoil shall be uniformly smooth graded. The finished surface shall be reasonably smooth and free from irregular surfaces. The degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, except as otherwise specified. The finished surface shall not be more that 0.15 foot above or below the established grade or approved cross section and shall be free of depressed areas where water would pond. All areas shall be finished so as to drain readily.

5.5.4 Seeding

Seeding and mulching shall be completed within 10 working days after completion of cap installation unless directed by NewFields. The cap shall be seeded with a blend of rye and Bermuda grass seeds at a rate of 10-20 pounds per acre of rye seed and 10-15 pounds per acre of Bermuda seed.

Soil amendments shall be provided as required to provide conditions suitable for the establishment of turf. Soil amendments may include lime, aluminum sulfate, peat humus, bone meal,

superphosphate, sand, perlite, vermiculite, manure, mulch, and/or commercial fertilizer. Actual selection and proportion of soil amendments will be the responsibility of the contractor.

5.5.4.1 Submittal

The Contractor shall submit the following to the Engineer for review:

- Types of seed to be used along with any proposed soil amendments.
- Certification Data, including manufacturers' or vendors certified analysis for soil amendments and fertilizer materials.
- Seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentage of purity, germination, and week seed for each grass seed species.
- Planting schedule. Submit planting schedule, indicating dates for each type of landscape work during normal seasons for such work in the area of the Site.

5.5.4.2 Execution

The Contractor shall not use wet seed or seed which is moldy or otherwise damaged in transit or storage and shall sow seed using a spreader or seeding machine. The Contractor shall not seed when wind velocity exceeds 5 miles per hour. The Contractor shall distribute seed evenly over the entire cap area by sowing an equal quantity in two directions at right angles to each other and shall sow not less than the quality of seed specified by the county agricultural service recommendations. The Contractor shall rake seed lightly into the top of soil, roll lightly, and water with a fine spray and shall protect seeded areas against erosion by spreading mulch after completion of seeding operations. The Contractor shall spread mulch uniformly to form a continuous blanket not less than 1-inch loose measurement over seeded areas.

5.6 Drainage Ditch Installation

This section describes the construction of a stormwater conveyance ditch to be constructed along the west end of the cap. The Contractor shall construct the drainage ditch according to the specifications and details indicated on the Drawings and in this Section.

5.6.1 Execution

The drainage ditches shall be installed in accordance with the specifications and details provided on Drawing C-108. The ditch shall be at least 36" wide and at least 18" deep at the midpoint and lined with N.S.A. R-2 size stone.

5.7 Road Improvement

Following completion of the cap, the roadbed will be restored on top of the remaining berm to facilitate access for maintenance activities. The Contractor shall install features as indicated on the Drawings and in this Section to protect the liner laid over the berm.

5.7.1 Clay Material

The berm surrounding the EQ Pond consists of compacted clay and fill materials. After installation of the cap, the top of the berm shall be graded and/or compacted as necessary to create a flat and uniform surface for the roadbed.

5.7.2 Road Wearing Course

Road wearing course shall be placed at a minimum of six inches in compacted thickness on the berm road specified in this Section as shown on the Drawings. The roadbed shall be at least eight feet wide. The road wearing course materials shall consist of approved materials and shall meet the specified grading requirements indicated on Table 5-1 or as approved by the Engineer.

Table 5-1 Road Wearing Course Material

Sieve Size (square openings)	Percent Passing (by dry weight)
1-inch	90-100
3/4-inch	80-90
No. 4	35-65
No. 16	15-40
No. 200	2-10

The plasticity index for road surfacing materials shall be less than 9, in accordance with ASTM D4318.

Placement Methods - Road wearing course materials shall be placed in lifts not to exceed 6 inches in compacted thickness. Compaction of road wearing course material shall be to a minimum of 95% of ASTM D1557 maximum dry density. The moisture content shall be sufficient to obtain adequate density.

6.0 PROJECT SCHEDULE

The initial project schedule for bidding is presented in Table 6-1. After Contractor selection and Notice to Proceed, the Contractor shall develop the project schedule as indicated in Section 4.27 and will update and reissue the schedule monthly for the duration of the project. The Contractor's project schedule shall have complete detail on all of the aspects of the project, including review periods.

Table 6-1 Project Schedule

WORK ITEM	SUBMITTAL/COMPLETION DATE	DURATION (DAYS)
Bid Documents to Contractors	January 14, 2021	NA
Pre-Bid Meeting	February 3, 2021	20
Receive Bids	February 19, 2021	16
Contract Finalized/Notice to Proceed	March 12, 2021	21
Pre-Construction Meeting	March 23, 2021	11
Contractor Submittals Due	April 2, 2021	10
Contractor Submittal Approval	April 9, 2021	7
Complete Mobilization	April 16, 2021	7
Regrade Existing Material	May 14, 2021	28
Clay Installation, Grading, and Compaction	July 16, 2021	63
Regrade Existing Berms	July 30, 2021	14
Topsoil Installation and Seeding	August 27, 2021	28
Drainage Ditch Installation	September 10, 2021	14
Improvements to Perimeter Road	October 1, 2021	21
Demobilization	October 15, 2021	14

7.0 PROJECT MANAGEMENT PLAN

This Section addresses construction management for the project. The project team consists of the Owner, Engineer, and the Contractor. The Owner is the San Miguel Electric Cooperative and the Engineer is NewFields. NewFields will manage the technical aspects of the projects in the field and from their Atlanta, Georgia and Dallas, Texas offices and will provide field and Contractor oversight.

7.1 Project Team

The Project Team is defined on Table 7-1.

Table 7-1 Project Organization

TITLE	NAME	ORGANIZATION	TELEPHONE
Owner	Eric Halfmann	SMEC	830-784-3411
Project Manager	Nick DiLuzio	NewFields	404-347-9050
Geotechnical Engineer	Nick Rocco, P.E.	NewFields	720-508-3317
Supervising Engineer	James Kendrick, P.E.	NewFields	972-956-9100
Field Oversight Staff	Various	NewFields	404-347-9050
Contractor Program Mgr.			
Contractor Project Mgr.			
Contractor Field Supervisor			
Contractor H&S Field Manager			

The **Owner** has overall project control authority and will provide direction to the remainder of the project team. The Owner will delegate project elements to their respective support elements (Counsel and Engineer) and make final decisions on contractual and major technical matters for the project. All correspondence from the project team will be reviewed and/or copied to the Owner.

The **Project Manager** is responsible for oversight of all of the elements of the construction. These responsibilities include planning and organizing major tasks, coordinating detailed work activities, and administering the project. The Project Manager will provide cost and schedule control, communications, and support for task management activities and incidental activities.

The **Geotechnical Engineer** will review and direct all geotechnical aspects of the project.

The **Supervising Engineer** will supervise engineering aspects of the project and provide overall technical project review. The Supervising Engineer will have significant expertise in all aspects of the project. All project technical documentation will be routed to the Supervising Engineer for comment and approval.

Field Oversight Staff will be assigned to the construction project to support the Senior and Supervising Engineers as needed.

7.2 Project Administrative Procedures

7.2.1 Documentation

A project master file will be maintained in the NewFields' office in Atlanta, Georgia. A separate working file will be established at the site project office at the San Miguel facility. The Engineer will establish and maintain a task file for the work conducted in the format of the project master file index. The index will be expanded as the project progresses.

Relevant documents to be archived will include, at a minimum, design calculation, records of key correspondence, meeting minutes/notes, field notes, laboratory data, document transmittals, and correspondence.

7.2.2 Progress Reporting

NewFields will prepare monthly progress reports, to be submitted by the 15th of each month and provide these reports to the Owner. A current project schedule will be included in these reports. Quarterly and upon completion of major phases of the Work, a presentation on the completion of the overall Work will be made to the Owner. The scheduled dates and times will be determined as agreed upon by the project team.

7.2.3 Engineering Change Notice

A Change Notice Form is used for work items that require immediate attention. The Supervising Engineer and/or the Field Oversight Staff are responsible for identifying out-of-scope work in the field and to notify the Project Manager. The Supervising Engineer and/or Field Oversight Staff will complete the top portion of the Change Notice Form and approve and forward the form to the Project Manager. The Project Manager, in turn, will review, approve, and forward the form to the Owner. Upon Owner approval, the Project Manager will forward the document for communication to the Contractor.

7.2.4 Health and Safety Considerations

Health and Safety Plans (HSP) for the Construction will be prepared in accordance with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.126). The Contractor and the Engineer will prepare their own separate plans for the work on this project. The Contractor shall only be responsible for the health and safety of their individual personnel on the project site and will not be responsible for managing the health and safety of others. Similarly, the Engineer will only be responsible for the health and safety of their individual personnel on the project site and will not be responsible for managing the health and safety of others. The purpose of the HSP is as follows:

- Provide health and safety protection and procedures for NewFields personnel
- Stipulate adequate training and equipment to conduct expected tasks
- Stipulate ongoing site monitoring to verify preliminary safety requirements and revise specific protection levels as required

The HSP document will be structured to serve the needs of the construction. As specific work efforts, designs, and construction activities are implemented, it is anticipated that revisions will be required.

The level of protection required for personnel working on the project will be delineated in the HSP. The level of protection may be modified at any time in accordance with new data acquired during the course of the project.

In accordance with Section 4.3.2, the Contractor shall submit their HSP to the Engineer prior to mobilization to the project site.

7.2.5 Construction Management Procedures

This procedure established the requirements and organization for providing construction management services. Construction management services may include the following, as needed:

- Bid document review/biddability/constructability
- Pre-bid meetings and bid assistance
- Bid analysis
- Pre-construction meetings
- Shop drawing review
- Field observations
- Review of progress, including signing off on Contractor's daily construction reports and work completed quantities
- Change order processing
- Contract amendment processing
- Design support
- Pre-final and final inspections and reporting.

7.2.5.1 Pre-Construction Activities

Procedures concerning bid document review, pre-bid meetings, bid analysis, shop drawing review and other pre-construction activities will be in accordance with standard operating procedures.

7.2.5.2 Field Activities and Design Support

Design liaison to the field will be documented. All communications will be documented through the use of Records of Information, Communication Logs, Memoranda to Record, Change Order Requests, and other forms designed for this purpose.

7.2.6 Project Files

The data management project files will be maintained in NewFields' Atlanta office. As work proceeds, working files will be established in other appropriate NewFields offices that are responsible for individual tasks. To facilitate merging of these working files with Master Project files at project completion, the Project Master File Index will organize all filing.

8.0 FORM OF GENERAL BID

Bid of _____ (hereinafter called "Bidder")

(__) a corporation, organized and existing under the laws of the State of _____

(__) a joint venture

(__) a partnership

(__) an individual doing business as _____

NewFields (hereinafter called the Engineer)
San Miguel Electric Cooperative (hereinafter called the Owner).

The Bidder, in compliance with your invitation for bids for the San Miguel Power Station EQ Pond Closure, San Miguel Texas, having examined the Bid Documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby, proposes to furnish all labor, materials, and supplies and to construct the project in accordance with the Closure Plan and Bid Document, as prepared by the Engineer within the time set forth therein and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Closure Plan, of which the bid is a part.

The Bidder hereby agrees to commence work under this contract on or before a date to be fixed in the written "Notice to Proceed" given by the Engineer to the Contractor and to have cap installation activities completed by July 30, 2021 and fully complete the project within 180 calendar days of the start date fixed in the "Notice to Proceed."

Bidder acknowledges receipt of the following addenda:

No. _____Dated: _____

No. _____Dated: _____

No. _____Dated: _____

The Bidder agrees to perform the work described in the Closure Plan and Bid Document for the lump sum or unit prices indicated in this Section.

BID FORM

Item No.	Bid Quantity	Item Description	Unit Cost	Extended Cost	Add/Deduct Unit Rate
1a	Lump Sum	Site Management and Safety (Work from Sections 4.1, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16, 4.17, 4.18, 4.19, 4.20, 4.21, 4.22, 4.23, 4.24, 4.25, 4.26, 4.27, 4.28, and Associated Drawings)	**Lump Sum _____		
1b	Lump Sum	Mobilization (Work from Section 4.2 and Associated Drawings)	**Lump Sum _____		
1c	Lump Sum	Demobilization (Work from Section 4.29 and Associated Drawings)	**Lump Sum _____		
2	T&M	Dewatering Support (Work from Section 5.1 and Associated Drawings)	*Unit Price (T&M) _____		
3	1,100,000 SF	Regrading of Existing Material (Work from Section 5.2 and Associated Drawings)	*Unit Price (Per SF) _____		
4	80,000 CY	Clay Installation (Work from Section 5.3 and Associated Drawings)	*Unit Price (Per CY) _____		
5	Lump Sum	Regrade Existing Berms (Work from Section 5.4 and Associated Drawings)	**Lump Sum _____		
6a	20,000 CY	Topsoil Installation and Grading (Work from Section 5.5 and Associated Drawings)	*Unit Price (Per CY) _____		
6b	25 AC	Seeding (Work from Section 5.5 and Associated Drawings)	*Unit Price (Per AC) _____		
7	1,800 LF	Drainage Ditch Installation (Work from Section 5.6 and Associated Drawings)	*Unit Price (Per LF) _____		
8	3,000 LF	Perimeter Road Improvements (Work from Section 5.7 and Associated Drawings)	*Unit Price (Per LF) _____		

9	Lump Sum	Performance and Payment Bonds (Work from Section 4.30 and Associated Drawings)	**Lump Sum _____		
10	Lump Sum	All other work not included in Items 1 through 9	**Lump Sum _____		

*All Unit Price bid values above used to establish bid item costs shall be used for evaluation of add/deduct to the contract cost based on actual in place quantities after installation under the Closure Bid Document.

**Lump Sum costs shall be based on the established construction timeframe durations at the time of Notice to Proceed.

(SF – Square Feet, LF – Linear Feet, CY – Cubic Yard, AC – Acre)

The computed contract price for all Items 1 through 8 inclusive is:

_____Dollars and _____ Cents

($_____) In figures.

(All entries shall be made clearly in MS Word format. Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.)

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

The Bidder understands that the Engineer reserves the right to reject any or all bids and to waive any informality in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 working days after the bid deadline.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal agreement in accordance with Owner's conditions.

The undersigned offers the following information as evidence of his/her qualifications to perform work as bid upon according to all the requirements of the Closure Bid Document.

1.Have been in business under present name for ____ years.

2.The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as Principals, are as follows:

(Attach supplementary list if necessary)

3.The Bidder is requested to state on the next sheet what work of a similar character to that included in the proposed contract that the Bidder has done in the past 5 years and give references that will enable the Engineer to judge the Bidder's experience, skill and business standing.

4.The undersigned hereby certifies that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.

5.The undersigned certifies under penalties of perjury that this bid, in all respects, is bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

APPENDIX B

EQ POND CLOSURE AND POST-CLOSURE PLAN

NewFields

San Miguel Electric Cooperative, Inc.
Atascosa County, Texas

Equalization Pond Closure and Post-Closure Plan Amendment

June 2020

List of Figures

Definitions and Acronyms

CCR – Coal Combustion Residuals
CFR – Code of Federal Regulations
EQ – Equalization
SMEC – San Miguel Electric Cooperative
USEPA – United States Environmental Protection Agency

I, the undersigned Texas Professional Engineer, hereby certify that I am familiar with the technical requirements of 40 CFR 257.102. I also certify that it is my professional opinion that, to the best of my knowledge, information, and belief, that the activities outlined in this closure plan are in accordance with current good and accepted engineering practice(s) and standard(s) appropriate to the nature of the project and the technical requirements of 40 CFR 257.102.

For the purpose of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion". The certification is understood and intended to be an expression of my professional opinion as a Texas Licensed Professional Engineer, based upon knowledge, information, and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee or a warranty of the retrofit activities.

James O. Kendrick	84079
Printed Name of Professional Engineer	Texas License Number
	06/11/2020
Signature of Professional Engineer	Date
NewFields Environmental & Engineering, LLC	Firm F-5735

1.0 INTRODUCTION

1.1 General

The San Miguel Electric Cooperative (SMEC) operates an electric power generating station in Atascosa County, Texas. SMEC plans to close their existing Equalization Pond (EQ Pond) pursuant to the current rules for the management of coal combustion residuals (CCR) at 40 CFR Part 257, Subpart D. The EQ Pond is approximately 25 acres in size and a final cover will encompass the entirety of the CCR unit. Maximum capacity of the EQ Pond is approximately 660,000 cubic yards. Estimating the maximum amount of CCR ever in the pond is difficult as non-CCR materials are also deposited in the pond. However, SMEC conservatively estimates 520,000 cubic yards as the maximum volume of CCR and non-CCR material in the pond, based on an October 2019 bathymetric survey. This report addresses the requirements of 40 CFR 257.102 – Written Closure Plan, as it pertains to the EQ Pond at the plant. This closure plan provides for the closure of the CCR unit consistent with recognized and generally accepted good engineering practices. This report amends the initial closure and post-closure plan for the EQ Pond dated October 18, 2016. [1]

1.2 Project Objectives

The primary objective of this work is to close the EQ Pond pursuant to 40 CFR 257.102. The pond will be capped and closed in place with a vegetated clay cap. The final cover system will follow the requirements and performance standards outlined in 40 CFR 257.102(d).

1.3 Description of Closure Activities

Figure 1-1 shows the existing site conditions of the EQ Pond. As is typical at power generation stations, closure of unit processes usually must be performed without interruption to the overall system operation. The existing EQ Pond will be closed once discharges are re-routed to the new EQ Basin, currently under construction.[2]

[1] SMEC's pre-existing certifications under the Federal CCR rules are available at the following website: http://www.smeci.net/ccr-rule

[2] The new EQ Basin will be lined in accordance with the requirements of the Federal CCR rules.

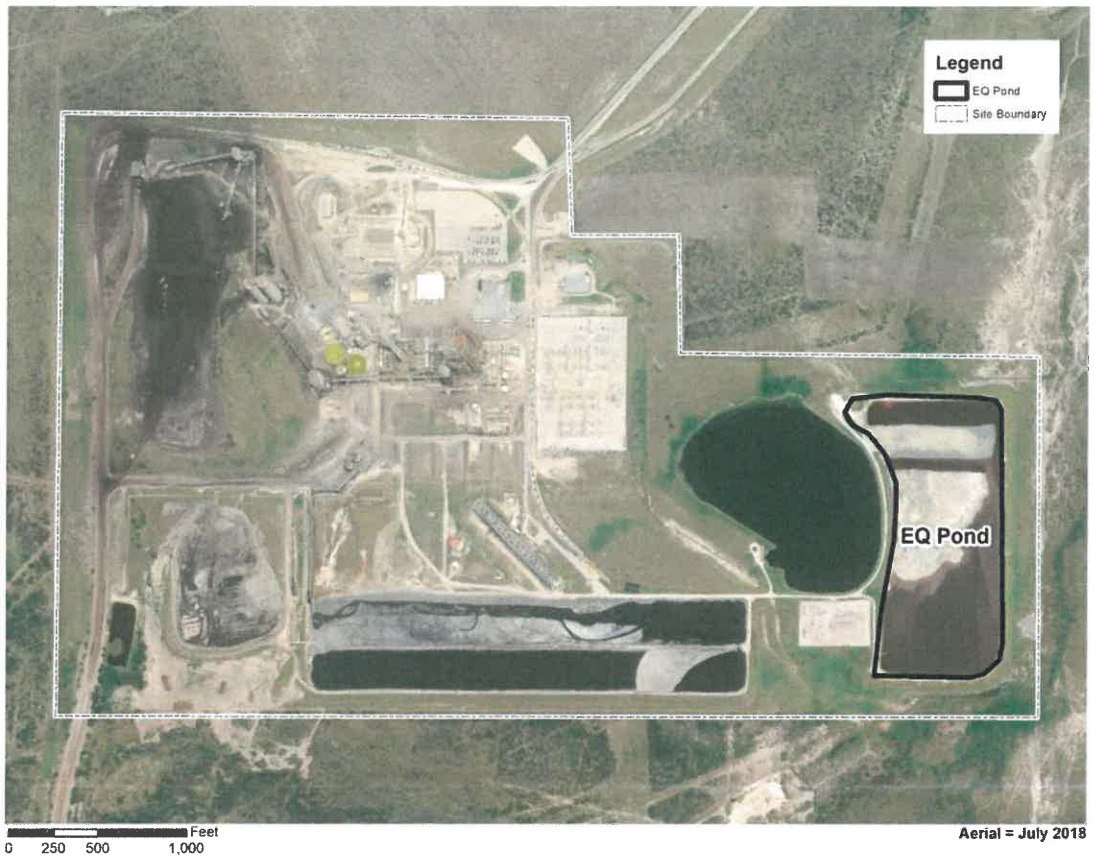


Figure 1-1. Existing Site Conditions

The activities under the Closure Plan are as follows:

1. Dewater EQ Pond
2. EQ Pond grading and compaction
3. Final Cover System installation
4. Stormwater ditch construction

1.3.1 Dewater EQ Pond

Once sources of Plant effluent are diverted to the new, lined EQ Basin, the existing EQ Pond will be dewatered. Surface water in the existing EQ Pond will be allowed to evaporate. Surface water may also be pumped to the retrofitted Ash Ponds, as needed. Dust suppression measures will be implemented as needed to minimize dust as the water surface recedes.

1.3.2 EQ Pond Grading and Compaction

Once the EQ Pond is dewatered, the pond will be re-graded and compacted. The purpose of grading is to more evenly distribute material within the pond to facilitate surface water drainage once the pond is capped. Material from the northern portion of the Pond will be relocated to the

southern portion of the pond to create a more uniform surface. The tops of the berms will be pushed into the pond so that they are level with the material and the entire pond will be graded to gradually slope from west to east radially away from the raw water storage pond. Following grading, the entire surface will be compacted to ensure a non-obstructed surface for the installation of the cap material.

1.3.3 Description of Final Cover System

The final cap for the EQ Pond will be placed over the prepared subgrade to achieve the criteria in 40 CFR 257.102(d)(3). The cap for the EQ Pond will consist of at least 18 inches of compacted clay and at least six inches of topsoil. The permeability of the compacted clay material will be less than or equal to 1 x 10^{-7} cm/sec. The clay will be placed in nine-inch lifts and compacted to form an at least 18 inch-thick infiltration layer. At least six inches of topsoil will form the erosion layer and be placed on top of the compacted clay. A cross-section of the final cover system is shown in Figure 1-2.

Once installed, the topsoil layer will be prepared by disking, tilling and harrowing, or other methods to prepare the surface for seeding. The topsoil will be seeded with native grasses during climatologically favorable seasons and the seed will be covered with a mulch to protect from erosion and moisture loss. Supplemental watering will be used as needed.

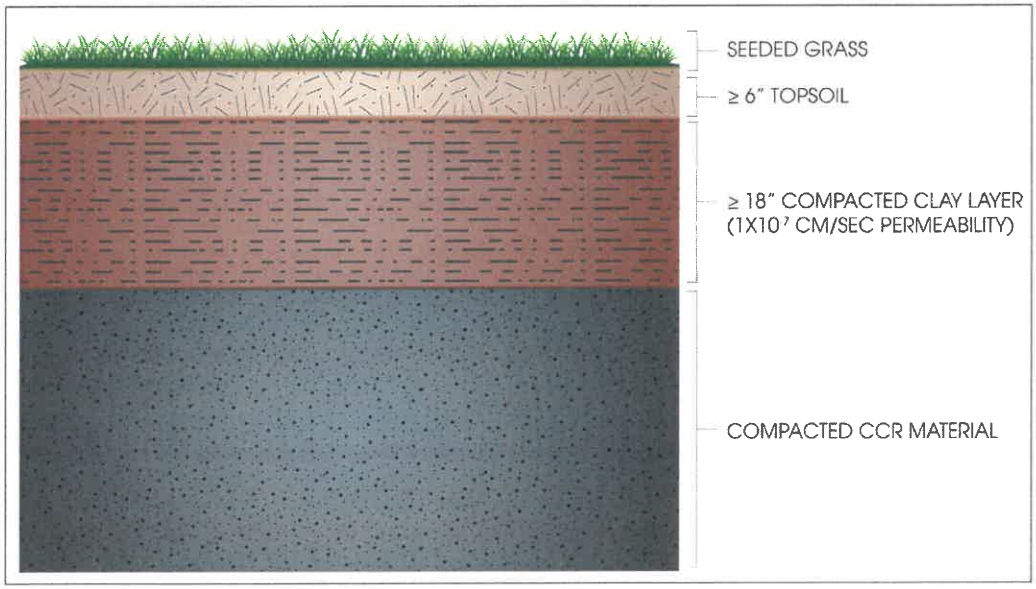


Figure 1-2. Cross-section of final cover layers

1.3.4 Stormwater Ditch Construction

Following completion of the soil cap, a stormwater diversion ditch will be constructed along the western edge of the cap to divert stormwater runoff around the cap.

2.0 Closure Performance Standards

2.1 Minimization of Post-Closure Liquid Infiltration into CCR Waste Mass

The final cover system for the EQ Pond including the compacted subgrade, at least 18 inches of clay cap (with a permeability of $1x10^{-7}$ cm/sec or less) and at least 6 inches of topsoil with vegetative cover will help to minimize the potential infiltration of water into the underlying CCR material. The soil cap will convey stormwater runoff away from the underlying CCR material. The sloping of the clay cap and drainage channels will promote movement of water away from the CCR mass and help to keep the barrier soils drained to prevent pooling.

The final cover layers also assist in controlling, minimizing, and in some cases eliminating, the post-closure infiltration of liquids into the underlying CCR material. This prevents the release of CCR, leachate, or contaminated runoff to the ground or surface waters and the atmosphere, as required by the CCR performance standards.

2.2 Preclusion of Future Impoundment of Water, Sediment, or Slurry

Closing and capping the EQ Pond as designed will preclude the future impoundment of water, sediment, or slurry. During the closure process, the tops of the berms will be pulled down and the cap will be graded to prevent standing water on the cap.

2.3 Measures to Maintain Slope Stability

In order to maintain slope stability of the final cover, runoff is collected and controlled in highly erodible areas such as the side slopes and graded surface. This is done by grading the final cover to a maximum slope of 3 horizontal to 1 vertical, with a gentle final grade to control slope runoff velocities and volumes. The runoff control plans and shallow slopes prevent erosion, movement, and sloughing of the final cover system, and therefore fulfill the required performance standard.

2.4 Design to Minimize Ongoing Maintenance

The incorporation of slope stability and erosion control measures will help to prevent the need for maintenance on the closed EQ Pond. As a result of these measures, less regrading or soil additions to the final cover system will be necessary.

Additionally, monthly inspections of the EQ Pond will assist in minimizing maintenance. These inspections will help in determining features that will need maintenance in the future, if there are features that can be maintained currently, and may prevent a larger maintenance project in the future. Both the maintenance prevention measures and monthly inspections will minimize the requirement for larger maintenance of the closed EQ Pond, and therefore fulfills the required performance standard.

2.5 Engineering Good Practices

Closure of the EQ Pond will be completed consistent with recognized and generally accepted good engineering practices in the most efficient time frame practical. Field quality assurance/quality control (QA/QC) testing will be utilized to ensure compliance with the project specifications.

3.0 EQ Pond Closure Schedule

The closure of the EQ Pond is anticipated to be completed according to the following schedule milestones:

- The EQ Pond closure plan was finalized in June 2020.

- Placement of CCR and non-CCR waste streams into the EQ Pond are expected to cease by the date specified in the CCR rules.

- Within 120 days after the deadline to cease placement of CCR and non-CCR waste streams into the EQ Pond, standing water will be pumped to the retrofitted ash ponds.

- Within 120 days after the deadline to cease placement of CCR and non-CCR waste streams into the EQ Pond necessary permits for the closure project, including a Stormwater Multi-Sector General Permit, will be secured.

- Grading activities are scheduled to begin within 60 days of securing all necessary permits.

- Clay cap construction and testing will be conducted in a systematic and timely manner. Construction and testing of the soil is not expected to exceed 60 days from the completion of the initial grading activities.

-It is anticipated that closure activities for the EQ Pond will be completed within 10 months after cessation of placement of CCR and non-CCR waste streams into the EQ Pond.

- Post-closure monitoring of the cap and run-on/runoff controls will be conducted on a routine schedule to identify any potential stability issues with the cap and appropriate maintenance to be undertaken.

4.0 EQ Pond Post-Closure Plan

As outlined in the October 18, 2016 Closure and Post-Closure Plan, SMEC will implement post-closure care of the EQ Pond in accordance with 40 CFR 257.104. As outlined in 40 CFR 257.104, post-closure care will consist of:

- Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover; and

- Maintaining the groundwater monitoring system and monitoring groundwater in accordance with the requirements of 40 CFR 257.90 through 98.

As part of post-closure care for the EQ Pond, SMEC will implement the following activities:

- Monthly inspection and maintenance of the CCR unit final cover system,

- At least semi-annual inspection and maintenance of the associated groundwater monitoring wells,

- Groundwater monitoring sampling, analysis, and reporting,

- Facility Operating Record recordkeeping and reporting posted on the internet site available to the public, and

- Deed recordation.

4.1 Post-Closure Period

In accordance with 40 CFR 257.104(c), the post-closure period for the EQ Pond will be a period of 30 years following certification of completion of closure of the EQ Pond. If at the end of the post-closure care period the EQ Pond is operating under assessment monitoring in accordance with 40 CFR 257.95, SMEC will continue post-closure care until the CCR unit returns to detection monitoring.

4.2 Post-Closure Inspection and Maintenance

SMEC will inspect and maintain the final cover system of the EQ Pond, the associated groundwater monitoring wells, and each associated permanent benchmark throughout the post-closure period. The EQ Pond post-closure care inspection and maintenance requirements are described below with typical types of problems each component may have.

- The final cover system will be inspected for damage resulting from natural or unnatural causes. Maintenance activities may include repairing damage caused by settling or erosion, draining and filling areas collecting ponded water, and re-seeding areas with

inadequate or inappropriate erosion-resistant cover vegetation as necessary to maintain the effectiveness of the final cover system.

-Storm water run-on and runoff control systems will be inspected for damage resulting from natural causes and non-routine facility operations. Storm water run-on and runoff control berms and drainage channels that drain the EQ Pond will be maintained and, as necessary to maintain effectiveness, repaired.

-The groundwater monitoring wells that are part of the EQ Pond monitoring well network will be inspected for condition necessary to provide adequate and representative groundwater samples. Maintenance may include the repair or replacement of damaged, degraded, or missing well caps, identification signs, locking devices, perimeter grading, protective barriers, surface casing, surface pads, and if necessary, the entire well.

SMEC will implement groundwater monitoring during the EQ Pond post-closure care period in accordance with 40 CFR 257.90 through 98.

4.3 Contact Information

The name, address, telephone number, and email address of the person to contact about the EQ Pond at the SMEC plant during the post-closure care period is:

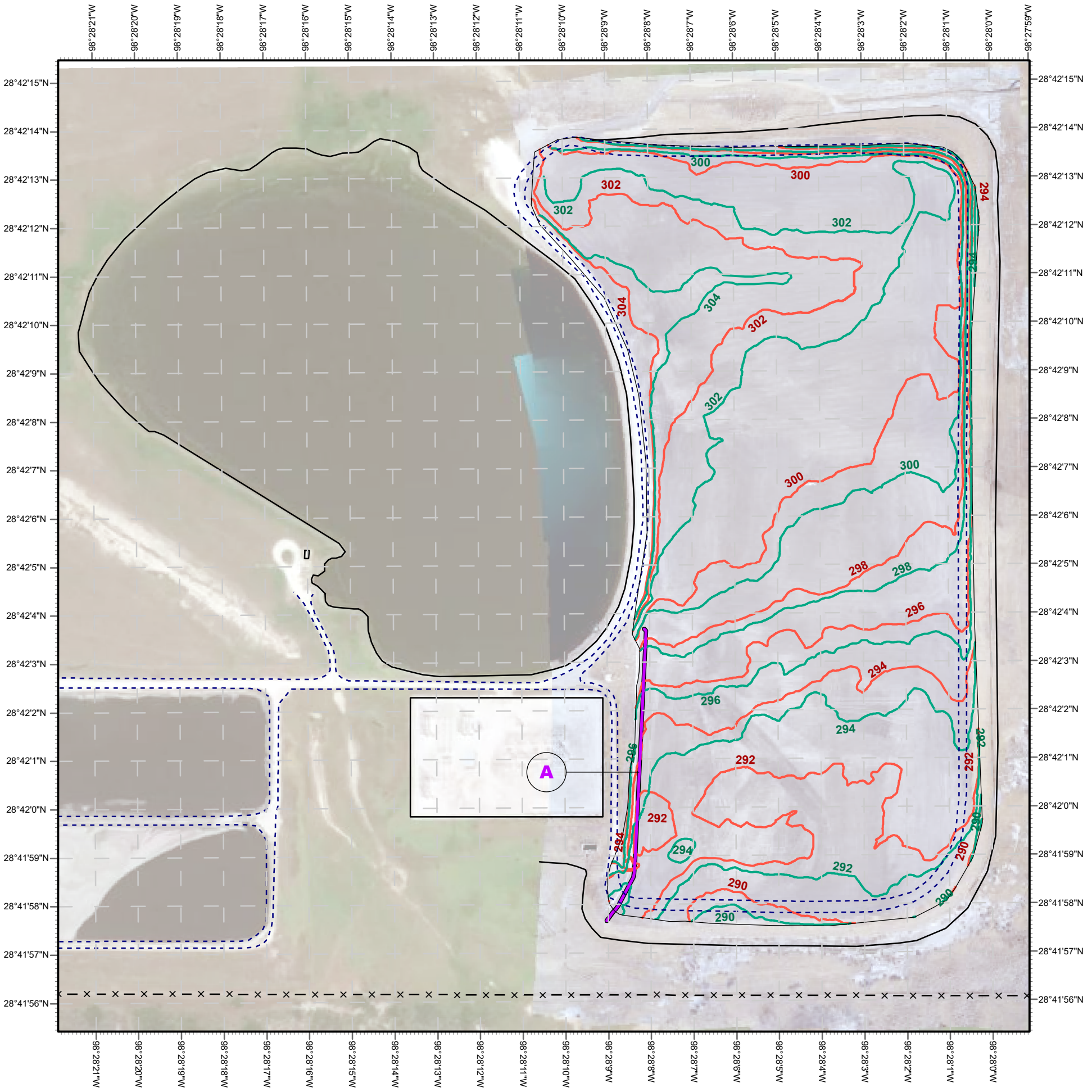
Eric Halfmann, Engineering Manager
San Miguel Electric Cooperative, Inc.
6200 FM 3387
Christine, TX 78012
830-784-3411 x. 244
ehalfmann@smeci.net

4.4 Planned EQ Pond Post-Closure Property Use

SMEC's plan for the closed EQ Pond will consist of limited access to the EQ Pond cap area to reduce potential for damage of the final cover system and the associated groundwater monitoring wells. If the post-closure period of the EQ Pond extends past the date the Plant is decommissioned, the EQ Pond will remain closed to the public or limited to compatible commercial or industrial use.

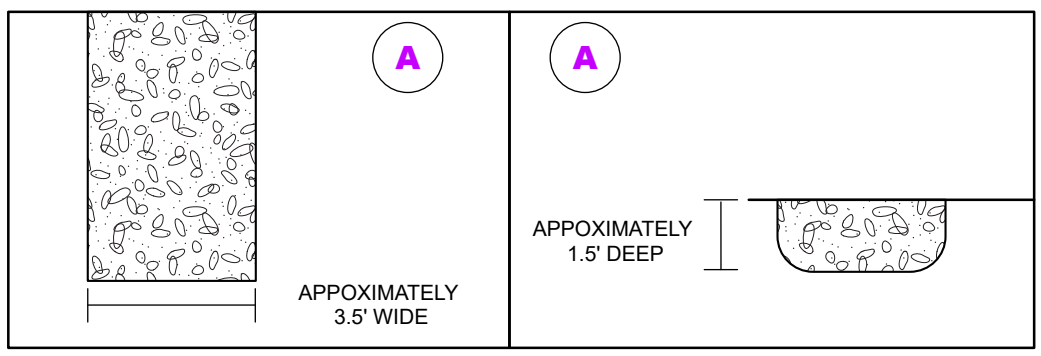
APPENDIX C

AS-BUILT DRAWING



LEGEND

- EMBANKMENT TOE, BUILDINGS, WATERS
- EXISTING FENCE
- EXISTING ROAD
- DRAINAGE SWALE
- TOP OF TOPSOIL (2' CONTOURS)
- TOP OF CLAY (2' CONTOURS)
- RIPRAP (3-5")



0 150 300 600 Feet

1 inch = 225 feet

NewFields

1350 WEST PEACHTREE ST. SUITE 2000
ATLANTA, GEORGIA 30309

PHONE: 404-347-9050
FIRM # F-5735

PROJECT NAME

SAN MIGUEL ELECTRIC COOPERATIVE INC.
ATASCOSA COUN TY, TEXAS
EQUALIZATION POND CLOSURE

DRAWING NAME

EQUALIZATION POND UPDATED
TOP OF CLAY GRADING AS-BUILT

STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER

REVISON/ISSUE

NO.	DATE	BY	DESCRIPTION
01	4/25/22	WO	ISSUED FOR FINAL REPORT

PROJECT NO. 150.0400.000	**DESIGNED BY** J. KENDRICK / W. ODLE
PROJECT DATE 4/25/22	**DRAWN BY** ROSCO PETERS
DRAWING NO. XXX	**DRAWING DATE** 4/25/22
SHEET NO. 1 OF 1	**CHECKED BY** JIM KENDRICK

James O. Kendrick
June 27, 2022

APPENDIX D

PHOTOGRAPHS

Site Photographs

Photograph 1: View of clay stockpile area looking south.

Photograph 2: View of clay stockpile looking east-southeast.

Site Photographs

Photograph 3: View of EQ Pond looking west.

Photograph 4: View of EQ Pond looking north.

Site Photographs

Photograph 5: View of EQ Pond looking east-northeast.

Photograph 6: View of EQ Pond looking north.

Site Photographs

Photograph 7: View of southwestern corner of EQ Pond looking northwest.

Photograph 8: View of EQ Pond looking west-southwest.

Site Photographs

Photograph 9: View of southern berm of EQ Pond half cut, looking southeast.

Photograph 10: View of southern berm of EQ Pond being cut, looking southeast.

Site Photographs

Photograph 11: View of water being pumped out of EQ Pond, looking east-northeast.

Photograph 12: View of ripped section of EQ Pond being wetted, looking southeast.

Site Photographs

Photograph 13: View of test pit dug in EQ Pond cap, looking northeast.

Photograph 14: View of top soil laid out over EQ Pond cap, looking east.

Site Photographs

Photograph 15: View of drainage swale construction, looking south.

Photograph 16: View of completed drainage swale, looking north.

APPENDIX E

ARIAS LABORATORY REPORTS

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Moisture Density Relationship Test Report

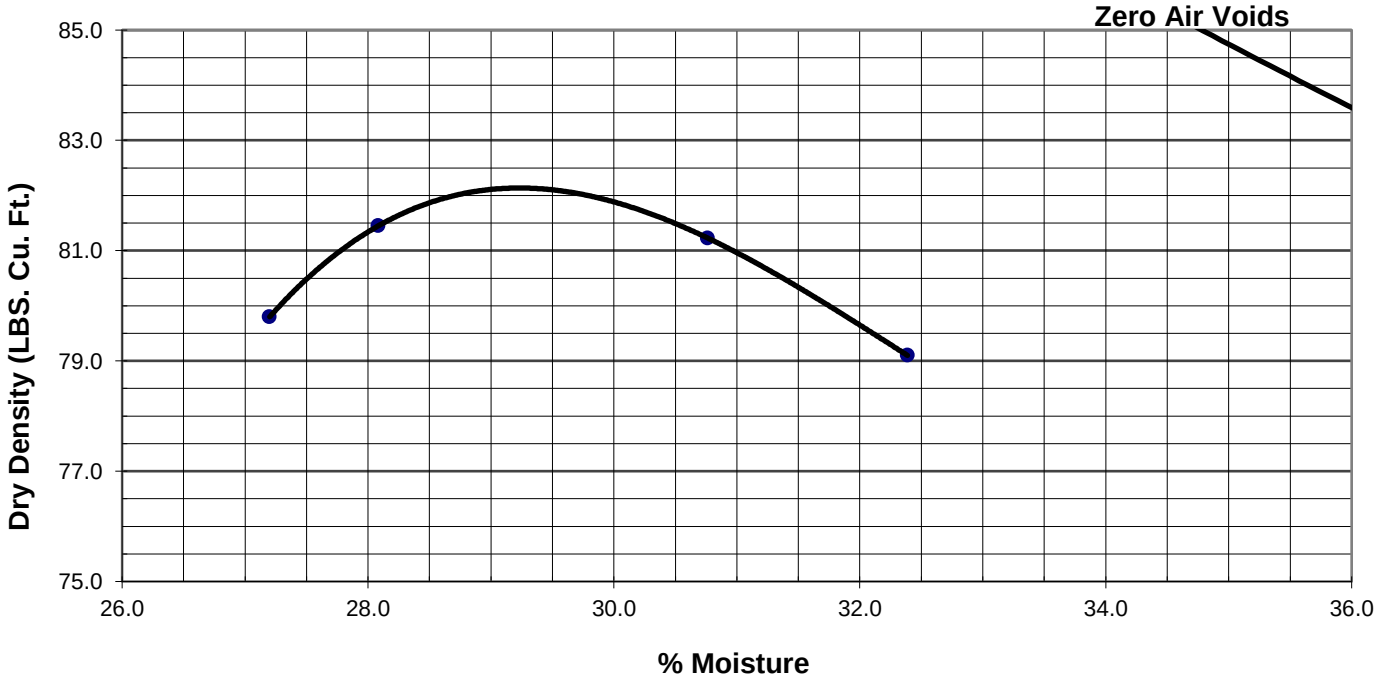
Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: May 6, 2021 **Arias Report No.:** 2020-222-004

Soil Description:	Clay with Sand(CH), Dark Brown
Material Origin:	Onsite
Date Sampled:	April 20, 2021
Sampled By:	Client
Test Method:	ASTM D698 Method B: Moist, Mechanical, ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool, ASTM D1140 Method B
Application:	
Comments:	

Test results for sample I.D.:	21-526
Maximum Dry Density(lb/ft3):	82.2
Optimum Moisture Content (%):	29.2
Liquid Limit:	91
Plasticity Index:	62
(%) Passing No. 200 Sieve:	78
(Estimated) Specific Gravity:	2.6



Respectfully Submitted,
Arias & Associates, Inc
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Hydraulic Conductivity Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

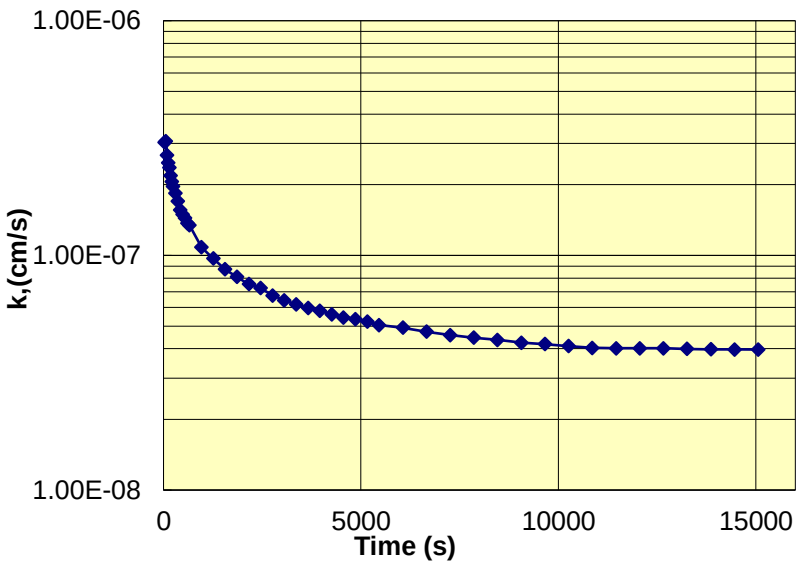
Report Date: June 9, 2021 **Arias Report No.:** 2020-222-004

Soil Description:	Clay with Sand(CH), Dark Brown	Lab ID:	21-526
Material Origin:	Onsite	Liquid Limit:	91
Date Delivered:	April 20, 2021	Plasticity Index:	62
Test Method:	ASTM D5084 Method A	% Retained No. 4 Sieve:	1
		% Passing No. 200 Sieve:	78

Sample Data

Sample Preperation:	Molded	
Avg. Dia.(cm):	7.18	
Length (cm):	8.30	
Wet Weight (g.):	545.6	
Area (cm ^2):	40.50	
Volume (cm^3):	336.11	
Wet Density (pcf):	82.2	
Dry Density (pcf):	63.6	
Moisture Content (%):	29.2	
Estimated Gs:	2.75	
Deg. of Saturation %:	98	100 ± 5%
B Value:	0.96	Min. 0.95
Permeant Liquid:	Tap Water	

Hydraulic Conductivity vs. Time



Last Four Test Readings

Date	Elapsed Time (sec.)	K (cm/sec.)
6/7/2021	13260	3.99732E-08
6/7/2021	13860	3.98040E-08
6/7/2021	14460	3.97177E-08
6/7/2021	15060	3.97107E-08
	Average Conductivity:	3.98014E-08
	Conductivity at 20 deg. C:	3.66332E-08

Respectfully Submitted,
Arias & Associates, Inc.
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc: 1 above

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Moisture Density Relationship Test Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: July 14, 2021 **Arias Report No.:** 2020-222-005

Soil Description:	Clay with Sand(CH), Dark Brown
Material Origin:	Onsite
Date Sampled:	June 17, 2021
Sampled By:	Client
Test Method:	ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool, ASTM D1140 Method B
Application:	
Comments:	

Test results for sample I.D.:	21-816
Liquid Limit:	77
Plasticity Index:	44
(%) Passing No. 200 Sieve:	65

Respectfully Submitted,
Arias & Associates, Inc
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Hydraulic Conductivity Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: July 26, 2021 **Arias Report No.:** 2020-222-007

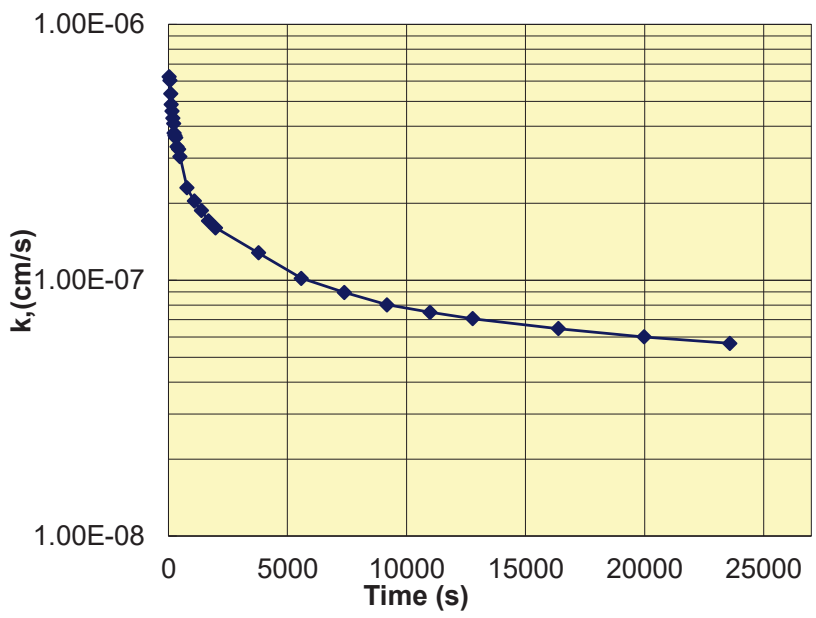
Soil Description: CLAY (CH) trace of Gravel, dark brown
Material Origin: On site material
Date Delivered: June 24, 2021
Test Method: ASTM D698 Method B: Moist, Mechanical, ASTM D4318: Wet, Hand-rolled Manual Liquid Limit, Metal Grooving Tool ASTM D1140, ASTM D5084 Method A

Lab ID: 21-848
Maximum Dry Density(lb/ft3): 82.2
Optimum Moisture Content (%): 29.7
Liquid Limit: 83
Plasticity Index: 48
% Passing No. 200 Sieve: 54

Sample Data

Sample Preperation:	Molded	
Avg. Dia.(cm):	7.22	
Length (cm):	8.55	
Wet Weight (g.):	570.55	
Area (cm ^2):	40.96	
Volume (cm^3):	350.22	
Wet Density (pcf):	101.70	
Dry Density (pcf):	77.3	
Molded Moisture Content:	31.5 %	
Estimated Gs:	2.75	
Deg. of Saturation %:	98	100 ± 5%
B Value:	0.98	Min. 0.95
Permeant Liquid:	Tap Water	

Hydraulic Conductivity vs. Time



Last Four Test Readings

Date	Elapsed Time (sec.)	K (cm/sec.)
2/1/2018	12780	7.07345E-08
2/1/2018	16380	6.46831E-08
2/1/2018	19980	5.99961E-08
2/1/2018	23580	5.66723E-08
	Average Conductivity:	6.30215E-08

Conductivity at 20 deg. C: 5.8005E-08

Respectfully Submitted,
Arias & Associates, Inc.
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc: 1 above

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Moisture Density Relationship Test Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

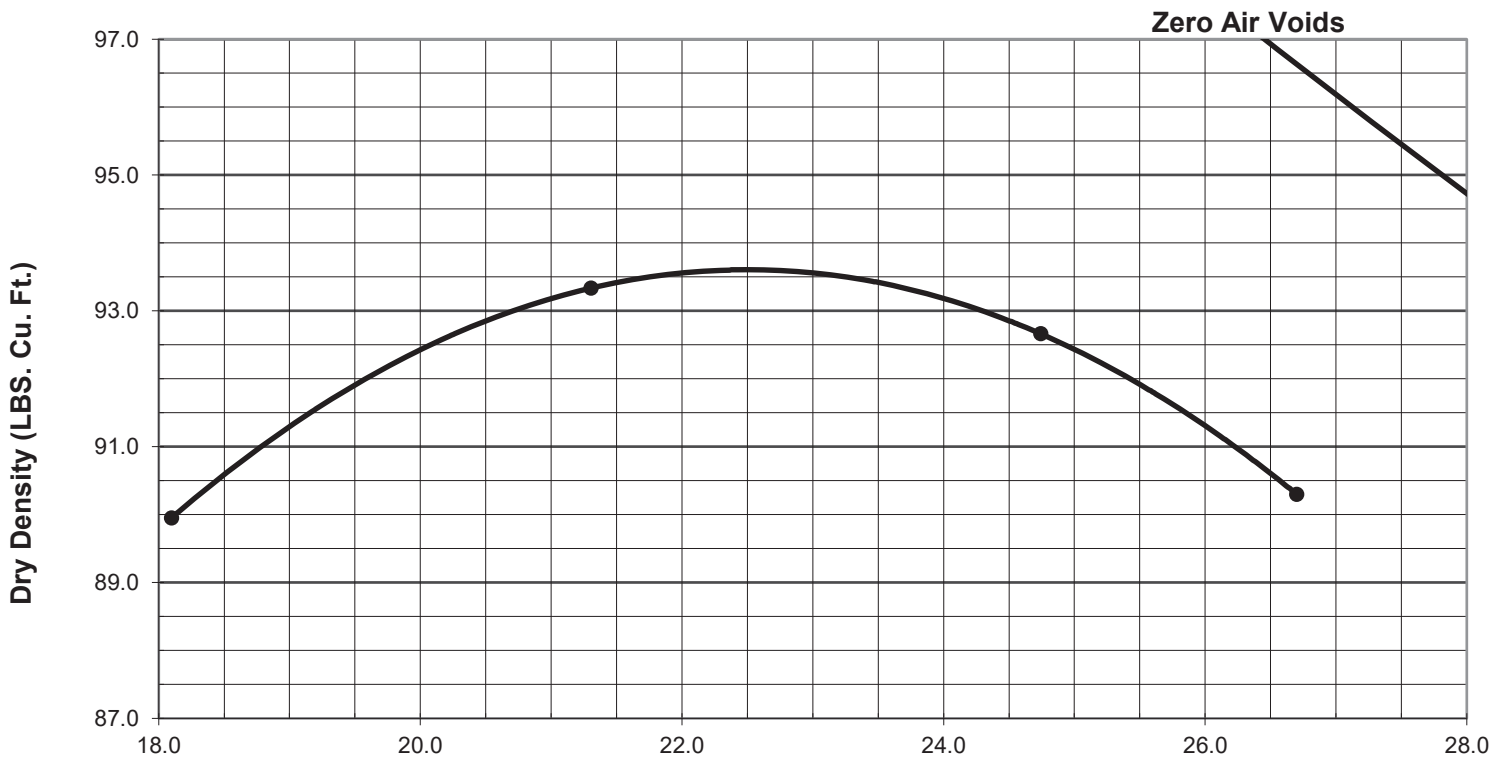
Report Date: July 19, 2021 **Arias Report No.:** 2020-222-006

Soil Description: Clay with Gravel(CH), Brown
Material Origin: Onsite
Date Sampled: July 1, 2021
Sampled By: Client
Test Method: ASTM D698 Method C: Moist, Mechanical, ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool
Application:
Comments:

Test results for sample I.D.:	21-851
Maximum Dry Density (lb./ft3):	93.7
Optimum Moisture Content (%):	22.5
Liquid Limit:	80
Plasticity Index:	47
(%) Passing No. 200 Sieve:	62

Oversize Rock Correction

Sieve Size:	3/4"
% Retained:	23.6
Estimated Specific Gravity:	2.65



Respectfully Submitted,
Arias & Associates, Inc.
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

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Moisture Density Relationship Test Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: August 2, 2021 **Arias Report No.:** 2020-222-008

Soil Description:	Clay with Sand and Gravel(CH), Brown
Material Origin:	Onsite
Date Sampled:	July 22, 2021
Sampled By:	Client
Test Method:	ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool, ASTM D1140 Method B
Application:	Select Fill (Index Properties)
Comments:	

Test results for sample I.D.:	21-961
Liquid Limit:	77
Plasticity Index:	52
(%) Passing No. 200 Sieve:	47

Respectfully Submitted,
Arias & Associates, Inc
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Moisture Density Relationship Test Report

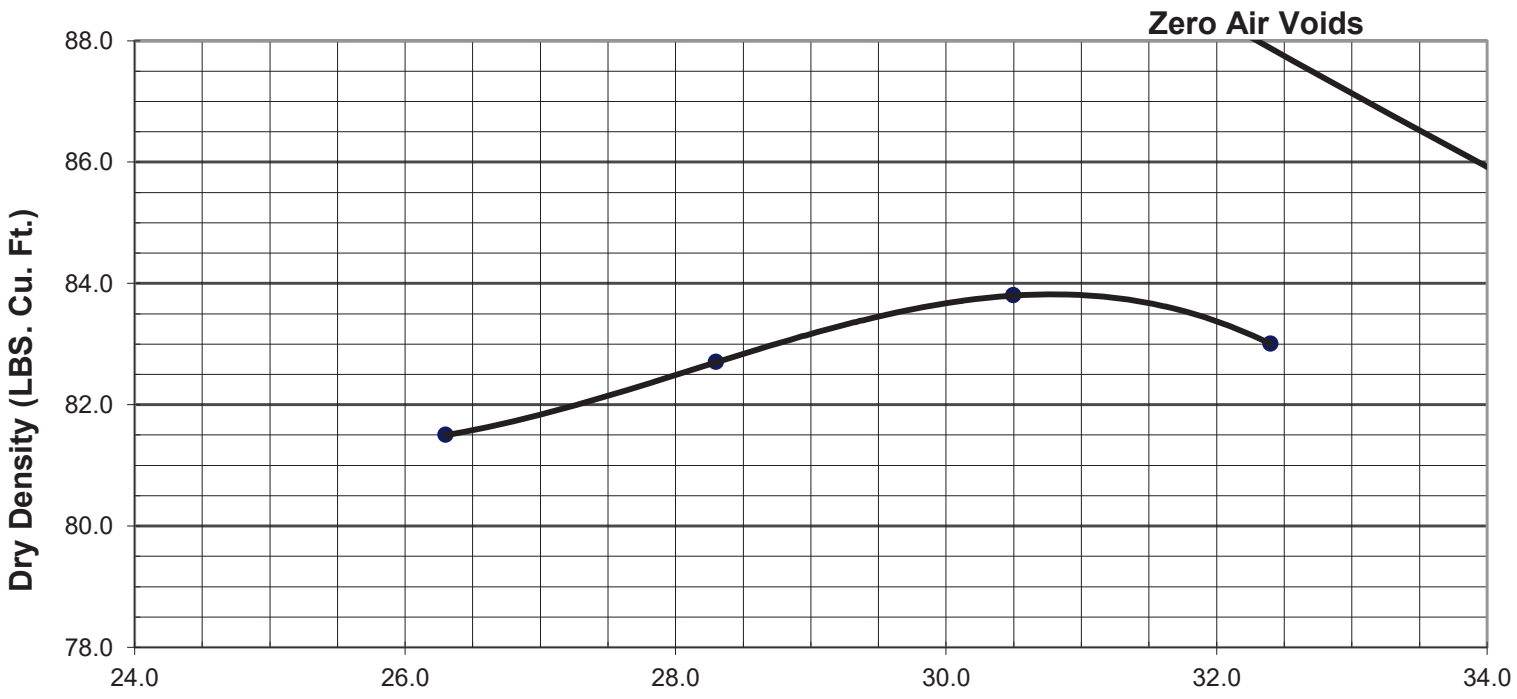
Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: September 23, 2021 **Arias Report No.:** 2020-222-009

Soil Description:	Clay with Sand(CH), Dark Brown
Material Origin:	Onsite
Date Sampled:	August 18, 2021
Sampled By:	Client
Test Method:	ASTM D698 Method B: Moist, Mechanical, ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool, ASTM D1140 Method B
Application:	Select Fill
Comments:	

Test results for sample I.D.:	21-1056
Maximum Dry Density(lb/ft3):	83.8
Optimum Moisture Content (%):	30.8
Liquid Limit:	83
Plasticity Index:	60
(%) Passing No. 200 Sieve:	62
(Estimated) Specific Gravity:	2.6



Respectfully Submitted,
Arias & Associates, Inc
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Hydraulic Conductivity Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

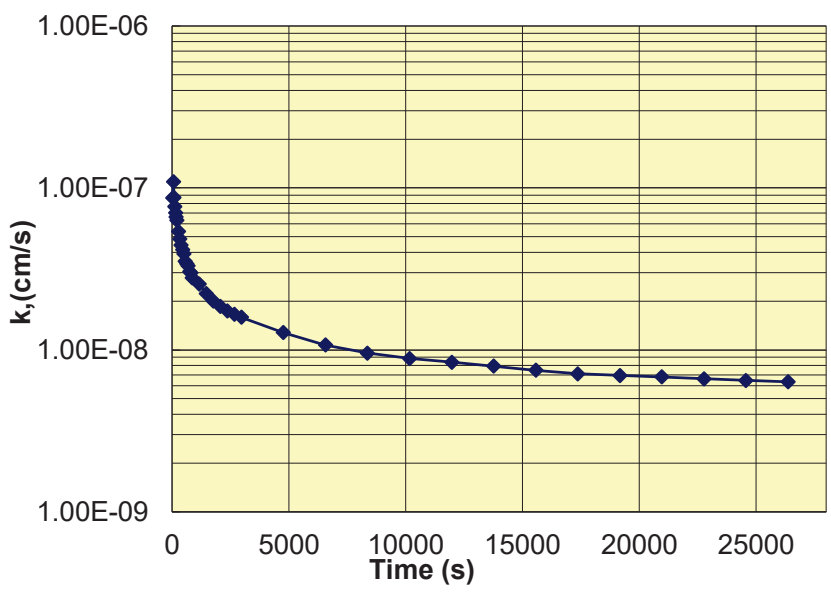
Report Date: September 23, 2021 **Arias Report No.:** 2020-222-009

Soil Description:	Clay with Sand(CH), Dark Brown	Lab ID:	21-1056
Material Origin:	Onsite	Liquid Limit:	83
Date Delivered:	August 18, 2021	Plasticity Index:	60
Test Method:	ASTM D5084 Method A	% Retained No. 4 Sieve:	8
		% Passing No. 200 Sieve:	62

Sample Data

Sample Preperation:	Molded	
Avg. Dia.(cm):	10.23	
Length (cm):	11.69	
Wet Weight (g.):	1710.3	
Area (cm ^2):	82.23	
Volume (cm^3):	961.07	
Wet Density (pcf):	83.6	
Dry Density (pcf):	111.0	
Moisture Content (%):	32.8	
Estimated Gs:	2.75	
Deg. of Saturation %:	100	100 ± 5%
B Value:	0.96	Min. 0.95
Permeant Liquid:	Tap Water	

Hydraulic Conductivity vs. Time



Last Four Test Readings

Date	Elapsed Time (sec.)	K (cm/sec.)
9/21/2021	20970	6.82038E-09
9/21/2021	22770	6.63202E-09
9/21/2021	24570	6.47904E-09
9/21/2021	26370	6.35456E-09
	Average Conductivity:	6.5715E-09

Conductivity at 20 deg. C: 6.04841E-09

Comment: +2% on Moisture Content Opt.

Respectfully Submitted,
Arias & Associates, Inc.
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc: 1 above

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Moisture Density Relationship Test Report

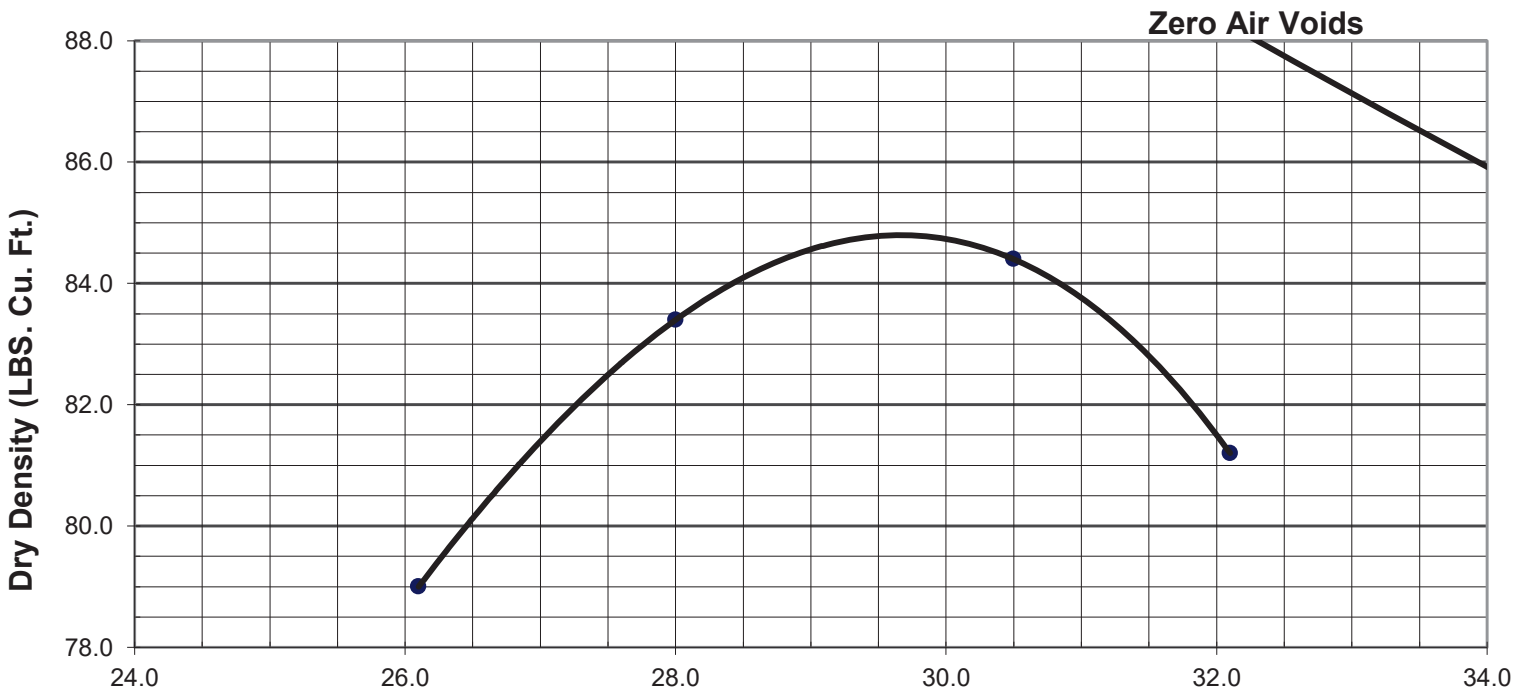
Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: October 11, 2021 **Arias Report No.:** 2020-222-010

Soil Description:	Clay with Sand(CH), Dark Brown
Material Origin:	Onsite
Date Sampled:	September 8, 2021
Sampled By:	Client
Test Method:	ASTM D698 Method B: Moist, Mechanical, ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool, ASTM D1140 Method B
Application:	Select Fill
Comments:	

Test results for sample I.D.:	21-1235
Maximum Dry Density(lb/ft3):	84.8
Optimum Moisture Content (%):	29.8
Liquid Limit:	75
Plasticity Index:	43
(%) Passing No. 200 Sieve:	58
(Estimated) Specific Gravity:	2.6



Respectfully Submitted,
Arias & Associates, Inc
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Hydraulic Conductivity Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

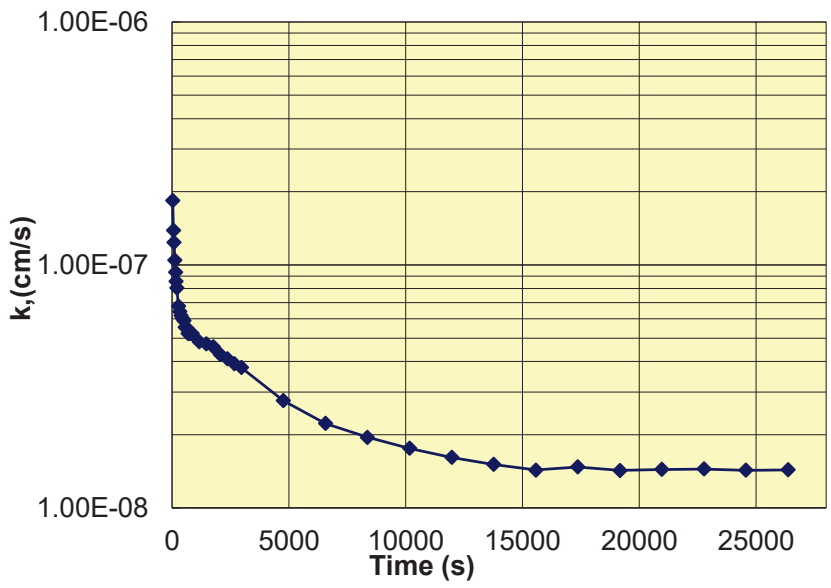
Report Date: October 11, 2021 **Arias Report No.:** 2020-222-010

Soil Description:	Clay with Sand(CH), Dark Brown	Lab ID:	21-1235
Material Origin:	Onsite	Liquid Limit:	75
Date Delivered:	September 8, 2021	Plasticity Index:	43
Test Method:	ASTM D5084 Method A	% Retained No. 4 Sieve:	7
		% Passing No. 200 Sieve:	58

Sample Data

Sample Preperation:	Molded	
Avg. Dia.(cm):	10.14	
Length (cm):	11.66	
Wet Weight (g.):	1620.2	
Area (cm ^2):	80.71	
Volume (cm^3):	940.74	
Wet Density (pcf):	84.8	
Dry Density (pcf):	110.1	
Moisture Content (%):	29.8	
Estimated Gs:	2.75	
Deg. of Saturation %:	100	100 ± 5%
B Value:	0.96	Min. 0.95
Permeant Liquid:	Tap Water	

Hydraulic Conductivity vs. Time



Last Four Test Readings

Date	Elapsed Time (sec.)	K (cm/sec.)
9/21/2021	20970	1.43943E-08
9/21/2021	22770	1.44522E-08
9/21/2021	24570	1.42856E-08
9/21/2021	26370	1.43518E-08
	Average Conductivity:	1.4371E-08

Conductivity at 20 deg. C: 1.3227E-08

Comment: +2% on Moisture Content Opt.

Respectfully Submitted,
Arias & Associates, Inc.
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc: 1 above

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Moisture Density Relationship Test Report

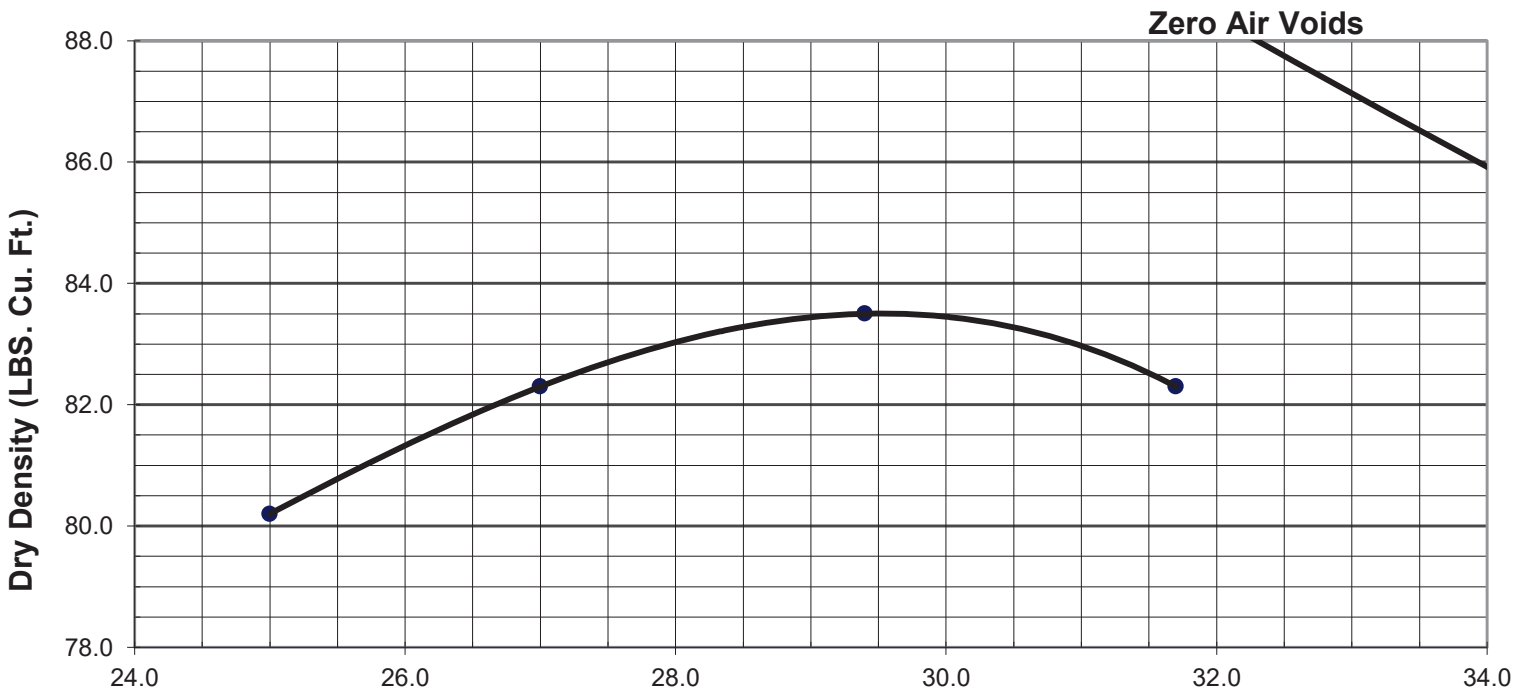
Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

Report Date: October 11, 2021 **Arias Report No.:** 2020-222-011

Soil Description:	Clay with Sand(CH), Dark Brown
Material Origin:	Onsite
Date Sampled:	October 6, 2021
Sampled By:	Client
Test Method:	ASTM D698 Method B: Moist, Mechanical, ASTM D4318: Wet, Hand-rolled, Manual Liquid Limit, Metal Grooving Tool, ASTM D1140 Method B
Application:	Select Fill
Comments:	

Test results for sample I.D.:	21-1422
Maximum Dry Density(lb/ft3):	83.5
Optimum Moisture Content (%):	29.5
Liquid Limit:	70
Plasticity Index:	38
(%) Passing No. 200 Sieve:	48
(Estimated) Specific Gravity:	2.6



Respectfully Submitted,
Arias & Associates, Inc
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc:

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

Hydraulic Conductivity Report

Customer: Mr. Dave Burris
San Miguel Electric Cooperative, Inc.
6200 FM 3387 Christine, Tx 78012

Project: Clay Material Testing
Christine, Texas
PO # 187507

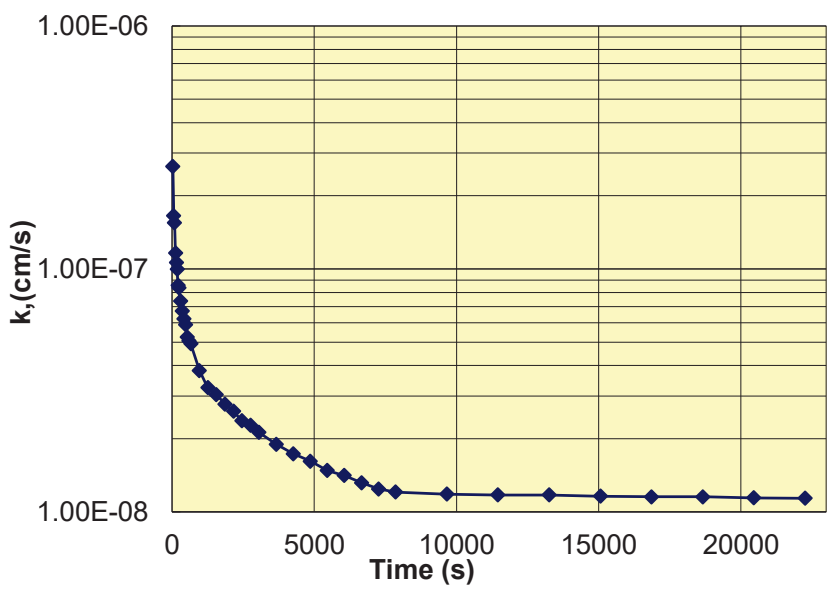
Report Date: November 15, 2021 **Arias Report No.:** 2020-222-011

Soil Description:	Clay with Sand(CH), Dark Brown	Lab ID:	21-1422
Material Origin:	Onsite	Liquid Limit:	70
Date Delivered:	October 6, 2021	Plasticity Index:	38
Test Method:	ASTM D5084 Method A	% Retained No. 4 Sieve:	2
		% Passing No. 200 Sieve:	48

Sample Data

Sample Preperation:	Molded	
Avg. Dia.(cm):	7.16	
Length (cm):	8.33	
Wet Weight (g.):	1608.4	
Area (cm ^2):	40.27	
Volume (cm^3):	335.54	
Wet Density (pcf):	83.5	
Dry Density (pcf):	108.1	
Moisture Content (%):	29.5	
Estimated Gs:	2.75	
Deg. of Saturation %:	100	100 ± 5%
B Value:	0.96	Min. 0.95
Permeant Liquid:	Tap Water	

Hydraulic Conductivity vs. Time



Last Four Test Readings

Date	Elapsed Time (sec.)	K (cm/sec.)
11/1/2021	16860	1.15467E-08
11/1/2021	18660	1.15461E-08
11/1/2021	20460	1.14356E-08
11/1/2021	22260	1.13752E-08
	Average Conductivity:	1.15328E-08

Conductivity at 20 deg. C: 1.06148E-08

Comment: +2% on Moisture Content Opt.

Respectfully Submitted,
Arias & Associates, Inc.
TBPE Registration No: F-32

Gordon Koenig
CoMET Project Manager
GK/dm

cc: 1 above

APPENDIX F

ROCK ENGINEERING FIELD TESTING REPORTS

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/20/2021

Testing Details

Tested By:	Steven Holloway		
Date Tested:	10/12/2021		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3430	**Test Mode:**	Direct Transmission
Model Number:	3430	**Standard Count: Density:**	2139
Serial Number:	63978	**Standard Count: Moisture:**	592

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S04	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Fat Clay w/ Sand	ASTM D 698 (B)	81.6	28.6

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	OWC Var Spec (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S04	6	104.7	14.8	-13.8*	–2 to +3	91.2	**111.8**	≥95	M*
2	SA21-W04818-S04	6	108.3	22.2	-6.4*	–2 to +3	88.6	**108.6**	≥95	M*
3	SA21-W04818-S04	6	97.2	20.4	-8.2*	–2 to +3	80.7	**98.9**	≥95	M*
4	SA21-W04818-S04	6	100.2	16.0	-12.6*	–2 to +3	86.4	**105.9**	≥95	M*
5	SA21-W04818-S04	6	102.5	16.9	-11.7*	–2 to +3	87.7	**107.5**	≥95	M*
6	SA21-W04818-S04	6	100.9	15.9	-12.7*	–2 to +3	87.1	**106.7**	≥95	M*
7	SA21-W04818-S04	6	98.3	14.2	-14.4*	–2 to +3	86.1	**105.5**	≥95	M*

Location

General Location: Mass Fill Area

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	NE Corner	Final	Clay Cap	
2	N End Center	Final	Clay Cap	
3	NE Corner	Final	Clay Cap	
4	E Center	Final	Clay Cap	
5	SE Corner	Final	Clay Cap	
6	W Center	Final	Clay Cap	
7	SE Corner	Final	Clay Cap	

Comments

* = Result does not meet the specification
*Client was notified of test results at time of testing. Additional testing will be performed at a later date.

Legend

M = Moisture variation does not meet project specifications

Summary Daily Field Report

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624
Robstown, TX 78380

Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

Date: 10/12/2021
Location: Mass Fill Area Clay Cap

See the attached reports with results of the Hydraulic Conductivity laboratory tests performed on the push tube samples obtained on this date.

Comments

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

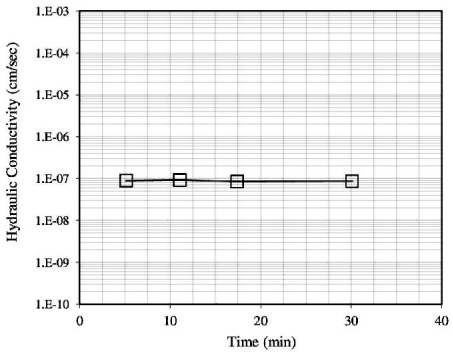
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: N Center (4.5)

TRI Log #: 67867.1
Test Method: ASTM D5084

Sample Condition	Initial	Final
	Select	Post-Test
Diameter (in)	2.77	2.80
Height (in)	2.57	2.43
Mass (g)	411.2	437.0
Sample Area (in^2)	6.02	6.15
Water Content (%)	24.8	40.1
Total Unit Weight (pcf)	101.2	111.3
Dry Unit Weight (pcf)	81.1	79.5
Specific Gravity (Assumed)	2.75	
Degree of Saturation	61.0	95.2
Void Ratio	1.12	1.16
Porosity	0.53	0.54
1 Pore Volume (cc)	133.8	131.5



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.95
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head
by mercury, rising tailwater elevation

Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
5.1	15.1	29.0	9.0E-08
11.1	14.1	27.0	9.2E-08
17.4	12.9	24.8	8.5E-08
30.1	11.9	22.8	8.7E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			8.6E-08

Jeffrey A. Kuhn, Ph.D, P.E. 10/22/2021
Analysis & Quality Review/Date

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TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

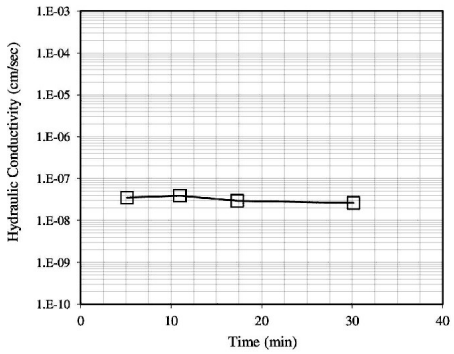
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: NE Center (1.5)

TRI Log #: 67867.2
Test Method: ASTM D5084

Sample Condition	Initial Select	Final Post-Test
Diameter (in)	2.74	2.75
Height (in)	3.49	3.38
Mass (g)	585.8	594.1
Sample Area (in^2)	5.92	5.93
Water Content (%)	34.1	38.9
Total Unit Weight (pcf)	108.1	112.8
Dry Unit Weight (pcf)	80.6	81.2
Specific Gravity (Assumed)	2.75	
Degree of Saturation	83.0	96.1
Void Ratio	1.13	1.11
Porosity	0.53	0.53
1 Pore Volume (cc)	179.4	173.1



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.95
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head
by mercury, rising tailwater elevation

Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
5.1	20.9	29.6	3.5E-08
11.0	20.5	29.0	3.9E-08
17.3	20.0	28.3	3.0E-08
30.1	19.6	27.7	2.6E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			2.8E-08

Jeffrey A. Kuhn, Ph.D, P.E. 10/22/2021
Analysis & Quality Review/Date

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TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

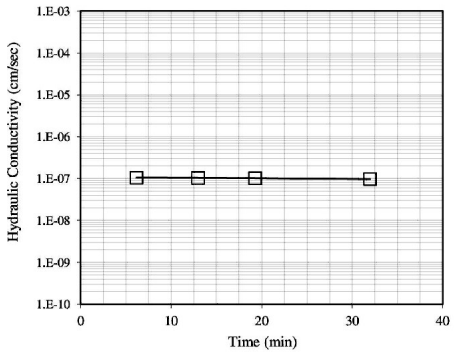
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: E End Center (3.0)

TRI Log #: 67867.3
Test Method: ASTM D5084

Sample Condition	Initial Select	Final Post-Test
Diameter (in)	2.77	2.78
Height (in)	3.04	2.75
Mass (g)	491.5	526.3
Sample Area (in^2)	6.03	6.09
Water Content (%)	27.5	28.6
Total Unit Weight (pcf)	102.1	119.6
Dry Unit Weight (pcf)	80.1	93.0
Specific Gravity (Assumed)	2.75	
Degree of Saturation	66.2	93.1
Void Ratio	1.14	0.85
Porosity	0.53	0.46
1 Pore Volume (cc)	160.2	125.8



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.96
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head by mercury, rising tailwater elevation			
Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
6.2	15.3	24.9	1.0E-07
13.0	14.1	22.9	1.0E-07
19.3	12.8	20.8	1.0E-07
32.0	11.8	19.1	9.7E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			1.0E-07

Jeffrey A. Kuhn, Ph.D, P.E. 10/22/2021
Analysis & Quality Review/Date

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TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

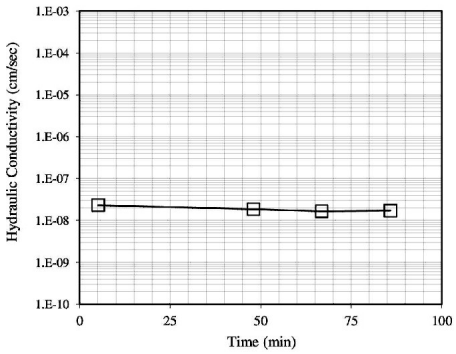
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: SE Corner (3.5)

TRI Log #: 67867.4
Test Method: ASTM D5084

Sample Condition	Initial Select	Final Post-Test
Diameter (in)	2.74	2.76
Height (in)	3.37	3.32
Mass (g)	587.1	593.6
Sample Area (in^2)	5.91	5.97
Water Content (%)	34.6	38.6
Total Unit Weight (pcf)	112.3	114.1
Dry Unit Weight (pcf)	83.5	82.3
Specific Gravity (Assumed)	2.75	
Degree of Saturation	90.0	97.8
Void Ratio	1.06	1.08
Porosity	0.51	0.52
1 Pore Volume (cc)	167.5	169.0



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.96
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head by mercury, rising tailwater elevation			
Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
5.1	22.3	32.7	2.3E-08
48.0	22.0	32.2	1.9E-08
66.8	20.0	29.3	1.7E-08
85.8	19.3	28.2	1.7E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			1.7E-08

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TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

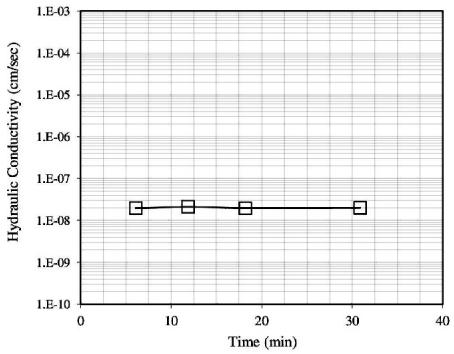
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: SW Corner (4.5)

TRI Log #: 67867.5
Test Method: ASTM D5084

Sample Condition	Initial Select	Final Post-Test
Diameter (in)	2.72	2.70
Height (in)	3.07	3.00
Mass (g)	483.6	499.7
Sample Area (in^2)	5.83	5.71
Water Content (%)	32.9	41.2
Total Unit Weight (pcf)	103.0	111.0
Dry Unit Weight (pcf)	77.5	78.6
Specific Gravity (Assumed)	2.75	
Degree of Saturation	74.5	95.8
Void Ratio	1.21	1.18
Porosity	0.55	0.54
1 Pore Volume (cc)	160.6	152.1



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.98
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head
by mercury, rising tailwater elevation

Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
6.1	20.7	33.4	2.0E-08
11.9	20.4	32.9	2.1E-08
18.2	20.1	32.4	2.0E-08
30.9	19.8	31.9	2.0E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			2.0E-08

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TRI ENVIRONMENTAL, INC.
9063 BEE CAVES RD. – AUSTIN, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

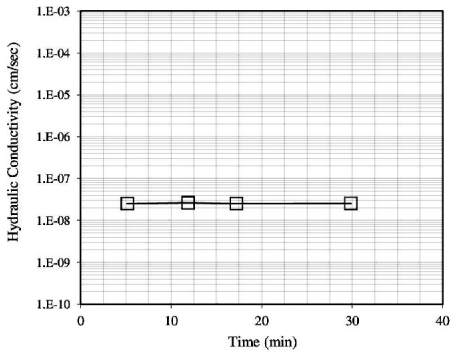
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: W End Corner (4.0)

TRI Log #: 67867.6
Test Method: ASTM D5084

Sample Condition	Initial Select	Final Post-Test
Diameter (in)	2.76	2.80
Height (in)	3.48	3.37
Mass (g)	591.8	613.9
Sample Area (in^2)	5.99	6.15
Water Content (%)	33.8	40.9
Total Unit Weight (pcf)	108.3	112.8
Dry Unit Weight (pcf)	80.9	80.0
Specific Gravity (Assumed)	2.75	
Degree of Saturation	83.0	98.4
Void Ratio	1.12	1.14
Porosity	0.53	0.53
1 Pore Volume (cc)	180.2	181.2



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.97
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head
by mercury, rising tailwater elevation

Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
5.1	21.1	30.0	2.5E-08
11.9	20.8	29.6	2.6E-08
17.2	20.4	29.0	2.5E-08
29.8	20.1	28.6	2.6E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			2.5E-08

Jeffrey A. Kuhn, Ph.D, P.E. 10/22/2021
Analysis & Quality Review/Date

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TRI ENVIRONMENTAL, INC.
9063 Bee Caves Rd. – Austin, TX 78733 – USA | Ph: 800.880.TEST or 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Summary Daily Field Report

Report No: SDFR:SA21-W05020
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 10/25/2021

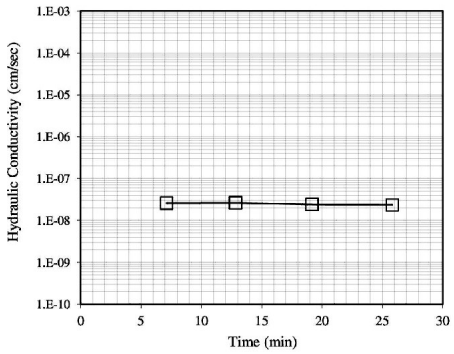
TRI ENVIRONMENTAL — TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

Hydraulic Conductivity

Client: Rock Engineering
Project: San Miguel Electric Plant - 221672
Sample ID: NW Corner (10.0-12.0)

TRI Log #: 67867.7
Test Method: ASTM D5084

Sample Condition	Initial Select	Final Post-Test
Diameter (in)	2.75	2.78
Height (in)	3.32	3.27
Mass (g)	575.0	595.4
Sample Area (in^2)	5.94	6.08
Water Content (%)	30.9	36.7
Total Unit Weight (pcf)	111.0	114.1
Dry Unit Weight (pcf)	84.8	83.4
Specific Gravity (Assumed)	2.75	
Degree of Saturation	82.9	95.5
Void Ratio	1.02	1.06
Porosity	0.51	0.51
1 Pore Volume (cc)	163.5	167.4



Eff. Confining Stress (psi)	5.0
Back-Pressure	80.0
B-Value Prior to Permeation	0.96
Permeant	De-Aired Tap Water

Specimen Image

Method F—Constant Volume–Falling Head
by mercury, rising tailwater elevation

Manometer Constants		Aa (cm^2)	0.767
M1	0.0302	Ap (cm^2)	0.0314
M2	1.041	Z_p (cm)	1.7
Time, t	Trial Constant, Z_1	Gradient	K_{20}
Min	-	-	cm/s
7.1	24.0	35.8	2.6E-08
12.8	23.5	35.0	2.6E-08
19.2	23.1	34.4	2.4E-08
25.8	22.7	33.8	2.3E-08
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
Average, Last 2 Readings			**2.4E-08**

Jeffrey A. Kuhn, Ph.D, P.E. 10/22/2021
Analysis & Quality Review/Date

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9063 Bee Caves Rd. – Austin, TX 78733 – USA | Ph: 800.880.TEST or 512.263.2101

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06019
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Brandon Bridges

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 12/10/2021

Testing Details

Tested By:	Mathew Conner		
Date Tested:	12/7/2021		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3430P	**Test Mode:**	Direct Transmission
Model Number:	3430P	**Standard Count: Density:**	2377
Serial Number:	75644	**Standard Count: Moisture:**	694

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S06	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Sandy Fat Clay	ASTM D 698 (B)	80.8	32.6

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S06	6	97.4	23.0	-9.6	79.2	**98.0**	≥95	P
2	SA21-W04818-S06	6	98.3	20.5	-12.1	81.6	**101.0**	≥95	P
3	SA21-W04818-S06	6	98.8	21.1	-11.5	81.6	**101.0**	≥95	P
4	SA21-W04818-S06	6	95.4	23.6	-9.0	77.2	**95.5**	≥95	P
5	SA21-W04818-S06	6	99.3	21.7	-10.9	81.6	**101.0**	≥95	P
6	SA21-W04818-S06	6	97.6	22.4	-10.2	79.7	**98.6**	≥95	P
7	SA21-W04818-S06	6	98.7	21.0	-11.6	81.6	**101.0**	≥95	P
8	SA21-W04818-S06	6	102.0	25.0	-7.6	81.6	**101.0**	≥95	P
9	SA21-W04818-S06	6	100.3	24.1	-8.5	80.8	**100.0**	≥95	P

Location

General Location: Section N1

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	SW Corner		Clay Cap	
2	S of Center		Clay Cap	
3	SE Corner		Clay Cap	
4	E of Center		Clay Cap	
5	Center		Clay Cap	
6	W of Center		Clay Cap	
7	NW Corner		Clay Cap	
8	N of Center		Clay Cap	
9	NE Corner		Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06216
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 12/28/2021

Testing Details

Tested By:	Rudy Barron		
Date Tested:	12/15/2021		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3411	**Test Mode:**	Direct Transmission
Model Number:	3411	**Standard Count: Density:**	1313
Serial Number:	6718	**Standard Count: Moisture:**	501

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S05	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Fat Clay w/ Sand	ASTM D 698 (B)	82.3	31.3

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S05	6	101.6	25.4	-5.9	81.0	**98.4**	≥95	P
2	SA21-W04818-S05	6	98.2	20.6	-10.7	81.4	**98.9**	≥95	P
3	SA21-W04818-S05	6	98.7	20.2	-11.1	82.1	**99.8**	≥95	P
4	SA21-W04818-S05	6	102.1	25.4	-5.9	81.4	**98.9**	≥95	P
5	SA21-W04818-S05	6	99.4	23.8	-7.5	80.3	**97.6**	≥95	P
6	SA21-W04818-S05	6	102.9	25.0	-6.3	82.3	**100.0**	≥95	P
7	SA21-W04818-S05	6	98.8	23.8	-7.5	79.8	**97.0**	≥95	P
8	SA21-W04818-S05	6	99.5	23.8	-7.5	80.4	**97.7**	≥95	P

Location

General Location: Northwest of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	28.702282,-98.4675		Clay Cap	2
2	28.702222,-98.4675		Clay Cap	2
3	28.702449,-98.46241		Clay Cap	2
4	28.702721,-98.46744		Clay Cap	2
5	28.703152,-98.467456		Clay Cap	2
6	28.703287,-98.467501		Clay Cap	2
7	28.703022,-98.467526		Clay Cap	2
8	28.702786,-98.467526		Clay Cap	2

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06216
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 12/28/2021

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
9	SA21-W04818-S05	6	98.2	20.0	-11.3	81.8	**99.4**	≥95	P
10	SA21-W04818-S05	6	98.1	24.2	-7.1	79.0	**96.0**	≥95	P
11	SA21-W04818-S05	6	98.3	25.1	-6.2	78.6	**95.5**	≥95	P
12	SA21-W04818-S05	6	99.6	24.0	-7.3	80.3	**97.6**	≥95	P
13	SA21-W04818-S05	6	98.1	24.3	-7.0	78.9	**95.9**	≥95	P
14	SA21-W04818-S05	6	99.5	23.5	-7.8	80.6	**97.9**	≥95	P
15	SA21-W04818-S05	6	99.7	24.0	-7.3	80.4	**97.7**	≥95	P
16	SA21-W04818-S05	6	99.8	23.5	-7.8	80.8	**98.2**	≥95	P
17	SA21-W04818-S05	6	98.3	25.0	-6.3	78.6	**95.5**	≥95	P
18	SA21-W04818-S05	6	103.5	25.7	-5.6	82.3	**100.0**	≥95	P
19	SA21-W04818-S05	6	103.6	26.0	-5.3	82.2	**99.9**	≥95	P
20	SA21-W04818-S05	6	99.6	23.3	-8.0	80.8	**98.2**	≥95	P

Location

General Location: Northwest of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
9	28.702290,-98.467622		Clay Cap	2
10	28.702797,-98.467594		Clay Cap	2
11	28.703394,-98.467594		Clay Cap	2
12	28.703410,-98.467721		Clay Cap	2
13	28.702864,-98.467724		Clay Cap	2
14	28.702370,-98.467741		Clay Cap	2
15	28.702109,-98.467766		Clay Cap	2
16	28.702417,-98.467785		Clay Cap	2
17	28.702864,-98.467771		Clay Cap	2
18	28.703184,-98.467752		Clay Cap	2
19	28.703177,-98.467907		Clay Cap	2
20	28.702869,-98.467900		Clay Cap	2

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06216
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 12/28/2021

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
21	SA21-W04818-S05	6	98.5	24.0	-7.3	79.4	**96.5**	≥95	P
22	SA21-W04818-S05	6	98.2	24.3	-7.0	79.0	**96.0**	≥95	P
23	SA21-W04818-S05	6	103.7	26.0	-5.3	82.3	**100.0**	≥95	P
24	SA21-W04818-S05	6	103.5	25.8	-5.5	82.3	**100.0**	≥95	P
25	SA21-W04818-S05	6	103.0	26.5	-4.8	81.4	**98.9**	≥95	P
26	SA21-W04818-S05	6	99.7	23.4	-7.9	80.8	**98.2**	≥95	P
27	SA21-W04818-S05	6	99.4	23.6	-7.7	80.4	**97.7**	≥95	P
28	SA21-W04818-S05	6	98.7	20.2	-11.1	82.1	**99.8**	≥95	P

Location

General Location: Northwest of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
21	28.702513,-98.467945		Clay Cap	2
22	28.702377,-98.468108		Clay Cap	2
23	28.702262,-98.468122		Clay Cap	2
24	28.702522,-98.468084		Clay Cap	2
25	28.702616,-98.468087		Clay Cap	2
26	28.702764,-98.468154		Clay Cap	2
27	28.702958,-98.468083		Clay Cap	2
28	28.703096,-98.468152		Clay Cap	2

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06324
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/7/2022

Testing Details

Tested By:	Rudy Barron		
Date Tested:	12/21/2021		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3411	**Test Mode:**	Direct Transmission
Model Number:	3411	**Standard Count: Density:**	1320
Serial Number:	6718	**Standard Count: Moisture:**	501

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S05	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Fat Clay w/ Sand	ASTM D 698 (B)	82.3	31.3

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S05	6	99.6	24.6	-6.7	79.9	**97.1**	≥95	P
2	SA21-W04818-S05	6	99.9	24.4	-6.9	80.3	**97.6**	≥95	P
3	SA21-W04818-S05	6	100.5	24.2	-7.1	80.9	**98.3**	≥95	P
4	SA21-W04818-S05	6	99.4	24.5	-6.8	79.8	**97.0**	≥95	P
5	SA21-W04818-S05	6	99.5	24.5	-6.8	79.9	**97.1**	≥95	P
6	SA21-W04818-S05	6	98.0	24.8	-6.5	78.5	**95.4**	≥95	P
7	SA21-W04818-S05	6	98.3	24.7	-6.6	78.8	**95.7**	≥95	P
8	SA21-W04818-S05	6	97.8	24.8	-6.5	78.4	**95.3**	≥95	P

Location

General Location: Northwest of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	28.703096, -98.468152	Final	Clay Cap	
2	28.702958, -98.468083	Final	Clay Cap	
3	28.702764, -98.468154	Final	Clay Cap	
4	28.702616, -98.468087	Final	Clay Cap	
5	28.702522, -98.468084	Final	Clay Cap	
6	28.702377, -98.468108	Final	Clay Cap	
7	28.702513, -98.467945	Final	Clay Cap	
8	28.702869, -98.467900	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06324
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/7/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
9	SA21-W04818-S05	6	99.9	24.4	-6.9	80.3	**97.6**	≥95	P
10	SA21-W04818-S05	6	100.6	24.0	-7.3	81.1	**98.5**	≥95	P
11	SA21-W04818-S05	6	101.1	23.1	-8.2	82.1	**99.8**	≥95	P
12	SA21-W04818-S05	6	98.2	24.8	-6.5	78.7	**95.6**	≥95	P
13	SA21-W04818-S05	6	97.7	24.9	-6.4	78.2	**95.0**	≥95	P
14	SA21-W04818-S05	6	99.2	24.5	-6.8	79.7	**96.8**	≥95	P
15	SA21-W04818-S05	6	99.1	20.4	-10.9	82.3	**100.0**	≥95	P
16	SA21-W04818-S05	6	99.1	21.3	-10.0	81.7	**99.3**	≥95	P
17	SA21-W04818-S05	6	99.0	24.5	-6.8	79.5	**96.6**	≥95	P
18	SA21-W04818-S05	6	98.7	24.6	-6.7	79.2	**96.2**	≥95	P
19	SA21-W04818-S05	6	98.0	24.9	-6.4	78.5	**95.4**	≥95	P
20	SA21-W04818-S05	6	99.2	24.1	-7.2	79.9	**97.1**	≥95	P

Location

General Location: Northwest of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
9	28.703177, -98.467907	Final	Clay Cap	
10	28.703184, -98.467752	Final	Clay Cap	
11	28.702864, -98.467771	Final	Clay Cap	
12	28.702417, -98.467785	Final	Clay Cap	
13	28.702109, -98.467766	Final	Clay Cap	
14	28.702370, -98.467741	Final	Clay Cap	
15	28.702864, -98.467724	Final	Clay Cap	
16	28.703410, -98.467721	Final	Clay Cap	
17	28.703394, -98.467590	Final	Clay Cap	
18	28.702797, -98.467594	Final	Clay Cap	
19	28.702290, -98.467622	Final	Clay Cap	
20	28.702786, -98.467521	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06324
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/7/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
21	SA21-W04818-S05	6	101.1	23.8	-7.5	81.7	**99.3**	≥95	P
22	SA21-W04818-S05	6	100.6	24.0	-7.3	81.1	**98.5**	≥95	P
23	SA21-W04818-S05	6	98.0	25.0	-6.3	78.4	**95.3**	≥95	P
24	SA21-W04818-S05	6	99.7	24.2	-7.1	80.3	**97.6**	≥95	P
25	SA21-W04818-S05	6	99.4	24.7	-6.6	79.7	**96.8**	≥95	P
26	SA21-W04818-S05	6	97.8	25.0	-6.3	78.2	**95.0**	≥95	P
27	SA21-W04818-S05	6	98.3	24.8	-6.5	78.8	**95.7**	≥95	P
28	SA21-W04818-S05	6	98.1	25.0	-6.3	78.5	**95.4**	≥95	P

Location

General Location: Northwest of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
21	28.703022, -98.467526	Final	Clay Cap	
22	28.703287, -98.467501	Final	Clay Cap	
23	28.702499, -98.467410	Final	Clay Cap	
24	28.702721, -98.467447	Final	Clay Cap	
25	28.703152, -98.467456	Final	Clay Cap	
26	28.702785, -98.467520	Final	Clay Cap	
27	28.702860, -98.468285	Final	Clay Cap	
28	28.703120, -98.468231	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06433
Issue No: 2

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/25/2022

Testing Details

Tested By:	Rudy Barron		
Date Tested:	12/29/2021		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3411	**Test Mode:**	Direct Transmission
Model Number:	3411	**Standard Count: Density:**	1315
Serial Number:	6718	**Standard Count: Moisture:**	489

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S03	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Sandy Fat Clay	ASTM D 698 (B)	81.2	31.3

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S03	6	99.6	21.0	-10.3	82.3	**101.4**	≥95	P
2	SA21-W04818-S03	6	99.3	21.2	-10.1	81.9	**100.9**	≥95	P
3	SA21-W04818-S03	6	97.6	24.8	-6.5	78.2	**96.3**	≥95	P
4	SA21-W04818-S03	6	99.7	21.2	-10.1	82.3	**101.4**	≥95	P
5	SA21-W04818-S03	6	97.0	24.0	-7.3	78.2	**96.3**	≥95	P
6	SA21-W04818-S03	6	100.1	24.4	-6.9	80.5	**99.1**	≥95	P
7	SA21-W04818-S03	6	100.0	24.5	-6.8	80.3	**98.9**	≥95	P
8	SA21-W04818-S03	6	100.4	24.3	-7.0	80.8	**99.5**	≥95	P

Location

General Location: East Center of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	28.70204, -98.466993	Final	Clay Cap	
2	28.701853, -98.466966	Final	Clay Cap	
3	28.701318, -98.467008	Final	Clay Cap	
4	28.70183, -98.467294	Final	Clay Cap	
5	28.701941, -98.467406	Final	Clay Cap	
6	28.701616, -98.467445	Final	Clay Cap	
7	28.701323, -98.467465	Final	Clay Cap	
8	28.701217, -98.467618	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA21-W06433
Issue No: 2

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/25/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
9	SA21-W04818-S03	6	97.7	24.0	-7.3	78.8	**97.0**	≥95	P
10	SA21-W04818-S03	6	101.0	24.5	-6.8	81.1	**99.9**	≥95	P
11	SA21-W04818-S03	6	99.7	24.8	-6.5	79.9	**98.4**	≥95	P
12	SA21-W04818-S03	6	100.5	24.2	-7.1	80.9	**99.6**	≥95	P
13	SA21-W04818-S03	6	97.5	24.2	-7.1	78.5	**96.7**	≥95	P
14	SA21-W04818-S03	6	98.9	23.9	-7.4	79.8	**98.3**	≥95	P

Location

General Location: East Center of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
9	28.701567, -98.467638	Final	Clay Cap	
10	28.70126, -98.467795	Final	Clay Cap	
11	28.701631, -98.467806	Final	Clay Cap	
12	28.701898, -98.467688	Final	Clay Cap	
13	28.701989, -98.67688	Final	Clay Cap	
14	28.701981, -98.467467	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00021
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/17/2022

Testing Details

Tested By:	Rudy Barron		
Date Tested:	1/4/2022		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3430P	**Test Mode:**	Direct Transmission
Model Number:	3430P	**Standard Count: Density:**	2358
Serial Number:	75644	**Standard Count: Moisture:**	619

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S05	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Fat Clay w/ Sand	ASTM D 698 (B)	82.3	31.3

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S05	6	99.0	26.1	-5.2	78.5	**95.4**	≥95	P
2	SA21-W04818-S05	6	97.9	20.9	-10.4	81.0	**98.4**	≥95	P
3	SA21-W04818-S05	6	98.2	20.6	-10.7	81.4	**98.9**	≥95	P
4	SA21-W04818-S05	6	98.7	20.2	-11.1	82.1	**99.8**	≥95	P
5	SA21-W04818-S05	6	98.1	20.5	-10.8	81.4	**98.9**	≥95	P
6	SA21-W04818-S05	6	97.2	21.0	-10.3	80.3	**97.6**	≥95	P
7	SA21-W04818-S05	6	96.9	21.4	-9.9	79.8	**97.0**	≥95	P
8	SA21-W04818-S05	6	97.3	21.0	-10.3	80.4	**97.7**	≥95	P

Location

General Location: East End of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	28.701371, -98.467949	Final	Clay Cap	
2	28.701535, -98.467919	Final	Clay Cap	
3	28.701711, -98.467897	Final	Clay Cap	
4	28.701946, -98.467880	Final	Clay Cap	
5	28.701282, -98.468161	Final	Clay Cap	
6	28.701492, -98.468147	Final	Clay Cap	
7	28.701797, -98.468093	Final	Clay Cap	
8	28.701886, -98.468103	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00021
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/17/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
9	SA21-W04818-S05	6	98.4	20.3	-11.0	81.8	**99.4**	≥95	P
10	SA21-W04818-S05	6	99.1	25.5	-5.8	79.0	**96.0**	≥95	P
11	SA21-W04818-S05	6	98.8	25.7	-5.6	78.6	**95.5**	≥95	P
12	SA21-W04818-S05	6	99.0	25.5	-5.8	78.9	**95.9**	≥95	P
13	SA21-W04818-S05	6	97.8	21.0	-10.3	80.8	**98.2**	≥95	P
14	SA21-W04818-S05	6	98.7	20.2	-11.1	82.1	**99.8**	≥95	P
15	SA21-W04818-S05	6	96.7	20.3	-11.0	80.4	**97.7**	≥95	P
16	SA21-W04818-S05	6	99.3	25.0	-6.3	79.4	**96.5**	≥95	P
17	SA21-W04818-S05	6	97.8	21.1	-10.2	80.8	**98.2**	≥95	P
18	SA21-W04818-S05	6	96.1	21.6	-9.7	79.0	**96.0**	≥95	P
19	SA21-W04818-S05	6	98.9	20.2	-11.1	82.3	**100.0**	≥95	P
20	SA21-W04818-S05	6	96.3	22.0	-9.3	78.9	**95.9**	≥95	P
21	SA21-W04818-S05	6	96.0	22.2	-9.1	78.6	**95.5**	≥95	P
22	SA21-W04818-S05	6	96.1	21.7	-9.6	79.0	**96.0**	≥95	P
23	SA21-W04818-S05	6	98.8	20.8	-10.5	81.8	**99.4**	≥95	P

Location

General Location: East End of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
9	28.701975, -98.468258	Final	Clay Cap	
10	28.701768, -98.468275	Final	Clay Cap	
11	28.701552, -98.468302	Final	Clay Cap	
12	28.701359, -98.468313	Final	Clay Cap	
13	28.701181, -98.468363	Final	Clay Cap	
14	28.701359, -98.468559	Final	Clay Cap	
15	28.701516, -98.468525	Final	Clay Cap	
16	28.701726, -98.468503	Final	Clay Cap	
17	28.701918, -98.467438	Final	Clay Cap	
18	28.701969, -98.468475	Final	Clay Cap	
19	28.702012, -98.468644	Final	Clay Cap	
20	28.701792, -98.468678	Final	Clay Cap	
21	28.701591, -98.468706	Final	Clay Cap	
22	28.701293, -98.468728	Final	Clay Cap	
23	28.701126, -98.468742	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00021
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/17/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
24	SA21-W04818-S05	6	98.8	20.3	-11.0	82.1	**99.8**	≥95	P
25	SA21-W04818-S05	6	97.0	21.5	-9.8	79.8	**97.0**	≥95	P
26	SA21-W04818-S05	6	97.4	21.3	-10.0	80.3	**97.6**	≥95	P
27	SA21-W04818-S05	6	98.6	21.0	-10.3	81.5	**99.0**	≥95	P
28	SA21-W04818-S05	6	98.4	21.5	-9.8	81.0	**98.4**	≥95	P
29	SA21-W04818-S05	6	95.8	22.0	-9.3	78.5	**95.4**	≥95	P
30	SA21-W04818-S05	6	98.7	20.4	-10.9	82.0	**99.6**	≥95	P
31	SA21-W04818-S05	6	98.5	21.4	-9.9	81.1	**98.5**	≥95	P
32	SA21-W04818-S05	6	97.3	21.3	-10.0	80.2	**97.4**	≥95	P
33	SA21-W04818-S05	6	98.6	21.1	-10.2	81.4	**98.9**	≥95	P
34	SA21-W04818-S05	6	98.4	21.6	-9.7	80.9	**98.3**	≥95	P
35	SA21-W04818-S05	6	97.8	22.5	-8.8	79.8	**97.0**	≥95	P
36	SA21-W04818-S05	6	97.5	22.8	-8.5	79.4	**96.5**	≥95	P
37	SA21-W04818-S05	6	98.7	20.7	-10.6	81.8	**99.4**	≥95	P
38	SA21-W04818-S05	6	97.2	23.0	-8.3	79.0	**96.0**	≥95	P

Location

General Location: East End of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
24	28.701105, -98.468505	Final	Clay Cap	
25	28.701085, -98.468244	Final	Clay Cap	
26	28.701075, -98.467864	Final	Clay Cap	
27	28.700999, -98.467596	Final	Clay Cap	
28	28.701045, -98.467269	Final	Clay Cap	
29	28.701026, -98.466949	Final	Clay Cap	
30	28.700895, -98.466982	Final	Clay Cap	
31	28.700905, -98.467162	Final	Clay Cap	
32	28.700929, -98.467462	Final	Clay Cap	
33	28.700896, -98.468109	Final	Clay Cap	
34	28.700960, -98.468404	Final	Clay Cap	
35	28.700961, -98.468712	Final	Clay Cap	
36	28.700825, -98.468840	Final	Clay Cap	
37	28.700777, -98.468655	Final	Clay Cap	
38	28.700731, -98.468307	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00021
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/17/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
39	SA21-W04818-S05	6	97.7	22.7	-8.6	79.6	**96.7**	≥95	P
40	SA21-W04818-S05	6	98.9	20.6	-10.7	82.0	**99.6**	≥95	P
41	SA21-W04818-S05	6	97.7	22.4	-8.9	79.8	**97.0**	≥95	P
42	SA21-W04818-S05	6	97.1	23.1	-8.2	78.9	**95.9**	≥95	P
43	SA21-W04818-S05	6	97.0	23.1	-8.2	78.8	**95.7**	≥95	P
44	SA21-W04818-S05	6	98.1	22.0	-9.3	80.4	**97.7**	≥95	P
45	SA21-W04818-S05	6	98.1	22.2	-9.1	80.3	**97.6**	≥95	P
46	SA21-W04818-S05	6	98.2	22.0	-9.3	80.5	**97.8**	≥95	P
47	SA21-W04818-S05	6	97.4	23.0	-8.3	79.2	**96.2**	≥95	P
48	SA21-W04818-S05	6	98.3	21.7	-9.6	80.8	**98.2**	≥95	P
49	SA21-W04818-S05	6	97.0	24.0	-7.3	78.2	**95.0**	≥95	P
50	SA21-W04818-S05	6	98.8	20.6	-10.7	81.9	**99.5**	≥95	P
51	SA21-W04818-S05	6	98.3	20.8	-10.5	81.4	**98.9**	≥95	P
52	SA21-W04818-S05	6	97.4	21.3	-10.0	80.3	**97.6**	≥95	P

Location

General Location: East End of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
39	28.700705, -98.467686	Final	Clay Cap	
40	28.700706, -98.467143	Final	Clay Cap	
41	28.700480, -98.467008	Final	Clay Cap	
42	28.700485, -98.467317	Final	Clay Cap	
43	28.700524, -98.467710	Final	Clay Cap	
44	28.700512, -98.468284	Final	Clay Cap	
45	28.700539, -98.468755	Final	Clay Cap	
46	28.700396, -98.466815	Final	Clay Cap	
47	28.700361, -98.468425	Final	Clay Cap	
48	28.700350, -98.468321	Final	Clay Cap	
49	28.700310, -98.467303	Final	Clay Cap	
50	28.700300, -98.467032	Final	Clay Cap	
51	28.700429, -98.467126	Final	Clay Cap	
52	28.700723, -98.467543	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00209
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/19/2022

Testing Details

Tested By:	Rudy Barron		
Date Tested:	1/13/2022		
Field Methods:	ASTM D 6938		
Gauge Type:	Troxler/3411	**Test Mode:**	Direct Transmission
Model Number:	3411	**Standard Count: Density:**	1296
Serial Number:	6718	**Standard Count: Moisture:**	465

Proctor Information

Sample ID	Supplier	Source	Material	Method	MDD (lb/ft³)	OWC (%)
SA21-W04818-S05	Subgrade - On-Site	On-Site Subgrade Material	Light Brown Fat Clay w/ Sand	ASTM D 698 (B)	82.3	31.3

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
1	SA21-W04818-S05	6	100.3	24.1	-7.2	80.8	**98.2**	≥95	P
2	SA21-W04818-S05	6	98.8	26.2	-5.1	78.3	**95.1**	≥95	P
3	SA21-W04818-S05	6	100.1	24.3	-7.0	80.5	**97.8**	≥95	P
4	SA21-W04818-S05	6	99.4	25.5	-5.8	79.2	**96.2**	≥95	P
5	SA21-W04818-S05	6	98.8	26.3	-5.0	78.2	**95.0**	≥95	P
6	SA21-W04818-S05	6	100.4	24.0	-7.3	81.0	**98.4**	≥95	P
7	SA21-W04818-S05	6	101.6	23.6	-7.7	82.2	**99.9**	≥95	P
8	SA21-W04818-S05	6	98.9	26.0	-5.3	78.5	**95.4**	≥95	P

Location

General Location: Southeast of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
1	28.700012, -98.466913	Final	Clay Cap	
2	28.700142, -98.466727	Final	Clay Cap	
3	28.700107, -98.467535	Final	Clay Cap	
4	28.700144, -98.467878	Final	Clay Cap	
5	28.700176, -98.468061	Final	Clay Cap	
6	28.700178, -98.468275	Final	Clay Cap	
7	28.700209, -98.468533	Final	Clay Cap	
8	28.700184, -98.468752	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00209
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/19/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
9	SA21-W04818-S05	6	100.9	23.7	-7.6	81.6	**99.1**	≥95	P
10	SA21-W04818-S05	6	99.9	24.3	-7.0	80.4	**97.7**	≥95	P
11	SA21-W04818-S05	6	100.0	24.5	-6.8	80.3	**97.6**	≥95	P
12	SA21-W04818-S05	6	99.8	25.0	-6.3	79.8	**97.0**	≥95	P
13	SA21-W04818-S05	6	101.3	23.8	-7.5	81.8	**99.4**	≥95	P
14	SA21-W04818-S05	6	99.3	25.7	-5.6	79.0	**96.0**	≥95	P
15	SA21-W04818-S05	6	99.2	25.9	-5.4	78.8	**95.7**	≥95	P
16	SA21-W04818-S05	6	100.4	24.1	-7.2	80.9	**98.3**	≥95	P
17	SA21-W04818-S05	6	101.6	23.4	-7.9	82.3	**100.0**	≥95	P
18	SA21-W04818-S05	6	100.9	23.9	-7.4	81.4	**98.9**	≥95	P
19	SA21-W04818-S05	6	99.7	25.3	-6.0	79.6	**96.7**	≥95	P
20	SA21-W04818-S05	6	99.2	26.1	-5.2	78.7	**95.6**	≥95	P

Location

General Location: Southeast of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
9	28.700099, -98.468904	Final	Clay Cap	
10	28.700017, -98.468711	Final	Clay Cap	
11	28.700022, -98.468524	Final	Clay Cap	
12	28.700003, -98.468292	Final	Clay Cap	
13	28.699959, -98.468463	Final	Clay Cap	
14	28.699930, -98.467997	Final	Clay Cap	
15	28.699971, -98.467727	Final	Clay Cap	
16	28.699883, -98.467457	Final	Clay Cap	
17	28.699822, -98.466896	Final	Clay Cap	
18	28.699786, -98.466892	Final	Clay Cap	
19	28.699757, -98.467184	Final	Clay Cap	
20	28.699748, -98.467522	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00209
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/19/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
21	SA21-W04818-S05	6	100.5	23.8	-7.5	81.2	**98.7**	≥95	P
22	SA21-W04818-S05	6	100.0	24.5	-6.8	80.3	**97.6**	≥95	P
23	SA21-W04818-S05	6	99.1	26.1	-5.2	78.6	**95.5**	≥95	P
24	SA21-W04818-S05	6	99.7	24.8	-6.5	79.9	**97.1**	≥95	P
25	SA21-W04818-S05	6	101.0	23.5	-7.8	81.8	**99.4**	≥95	P
26	SA21-W04818-S05	6	100.0	24.2	-7.1	80.5	**97.8**	≥95	P
27	SA21-W04818-S05	6	99.7	24.9	-6.4	79.8	**97.0**	≥95	P
28	SA21-W04818-S05	6	100.1	24.1	-7.2	80.7	**98.1**	≥95	P
29	SA21-W04818-S05	6	98.9	26.0	-5.3	78.5	**95.4**	≥95	P
30	SA21-W04818-S05	6	99.4	25.5	-5.8	79.2	**96.2**	≥95	P
31	SA21-W04818-S05	6	99.8	25.2	-6.1	79.7	**96.8**	≥95	P
32	SA21-W04818-S05	6	101.0	23.9	-7.4	81.5	**99.0**	≥95	P

Location

General Location: Southeast of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
21	28.699773, -98.467941	Final	Clay Cap	
22	28.699791, -98.468332	Final	Clay Cap	
23	28.698847, -98.468433	Final	Clay Cap	
24	28.699698, -98.469000	Final	Clay Cap	
25	28.699658, -98.468782	Final	Clay Cap	
26	28.699625, -98.468550	Final	Clay Cap	
27	28.699605, -98.468425	Final	Clay Cap	
28	28.699589, -98.468146	Final	Clay Cap	
29	28.699551, -98.467765	Final	Clay Cap	
30	28.699541, -98.467422	Final	Clay Cap	
31	28.699513, -98.467160	Final	Clay Cap	
32	28.699411, -98.467223	Final	Clay Cap	

Comments

Legend

P = Results within specifications

Rock Engineering - San Antonio
10856 Vandale St
San Antonio, TX 78216
Ph: 210-495-8000
TXPE Firm Registration No. 2101

Field Density Test Report

Report No: ND:SA22-W00209
Issue No: 1

Client: Bridges Earthworks
4233 FM 624 Robstown TX 78380
Project: San Miguel Electric Plant
F.M. 3387
Christine, TX
221672
Caller : Jake

CC: Brandon Bridges, Jake Rich

Reviewed By: Nathan Ruckstuhl, P.E. (CME PM)
Date of Issue: 1/19/2022

Test Results

Test No.	Proctor Sample ID	Probe Depth (in.)	Wet Density (lb/ft³)	Water Content (%)	OWC Var (%)	Dry Density (lb/ft³)	Comp (%)	Comp Spec (%)	Results
33	SA21-W04818-S05	6	101.2	23.6	-7.7	81.9	**99.5**	≥95	P
34	SA21-W04818-S05	6	99.6	25.5	-5.8	79.4	**96.5**	≥95	P
35	SA21-W04818-S05	6	99.9	25.3	-6.0	79.7	**96.8**	≥95	P
36	SA21-W04818-S05	6	98.8	26.3	-5.0	78.2	**95.0**	≥95	P
37	SA21-W04818-S05	6	99.0	25.8	-5.5	78.7	**95.6**	≥95	P
38	SA21-W04818-S05	6	100.6	23.7	-7.6	81.3	**98.8**	≥95	P
39	SA21-W04818-S05	6	99.3	25.8	-5.5	78.9	**95.9**	≥95	P

Location

General Location: Southeast of Section 3

Test No.	Location	Test Elev/Depth	Material/Layer	Lift
33	28.699408, -98.467353	Final	Clay Cap	
34	28.699384, -98.467690	Final	Clay Cap	
35	28.699399, -98.467169	Final	Clay Cap	
36	28.699431, -98.468932	Final	Clay Cap	
37	28.699426, -98.469115	Final	Clay Cap	
38	28.699397, -98.469322	Final	Clay Cap	
39	28.699369, -98.469617	Final	Clay Cap	

Comments

Legend

P = Results within specifications