REPORT

Hazard Potential Classification Assessment
5 Year Update

San Miguel Electric Cooperative Power Plant
CCR Ponds
Atascosa County, Texas

Submitted to:

San Miguel Electric Cooperative, Inc.
6200 FM 3387
Christine, TX 78012

Submitted by:

Golder Associates Inc.
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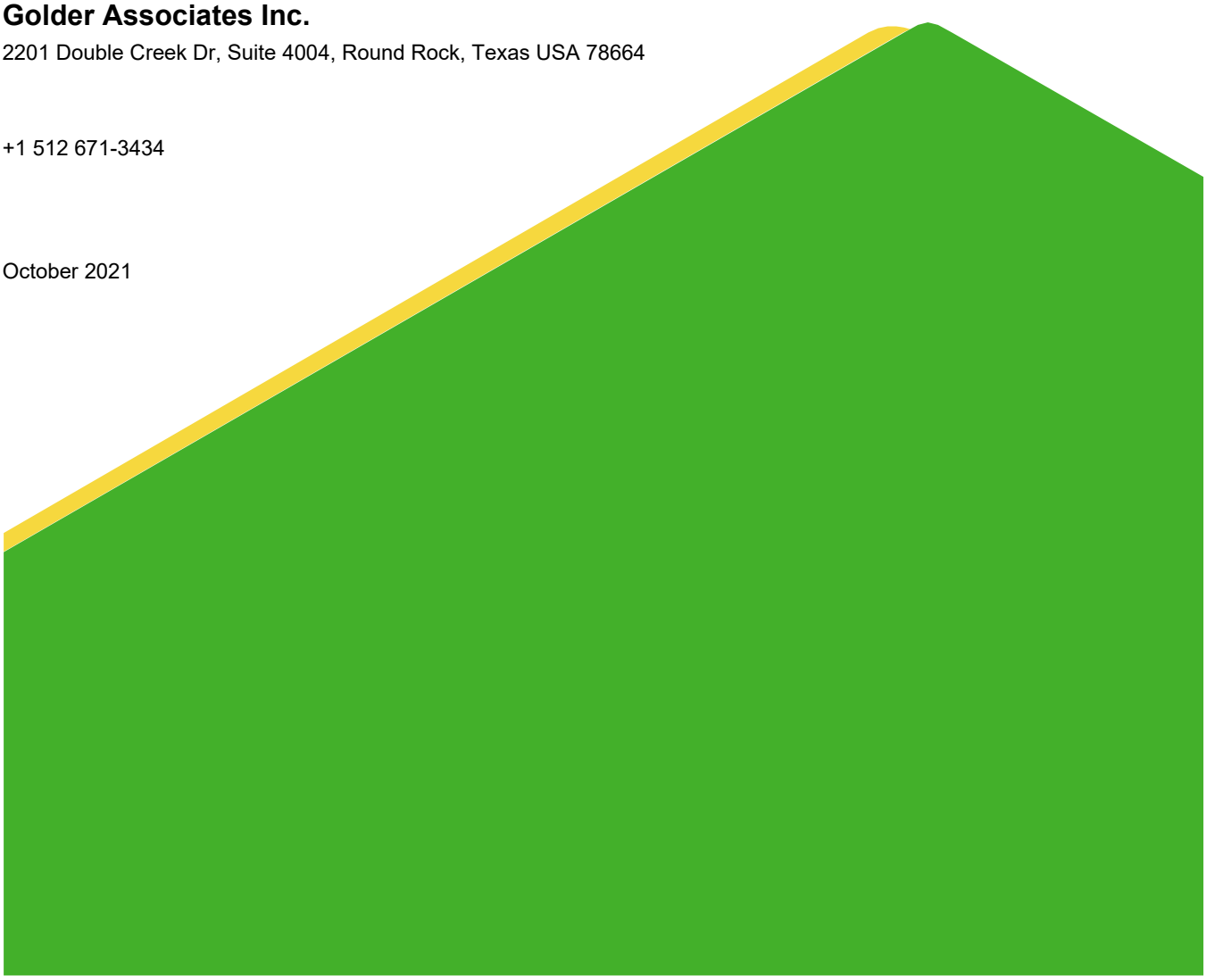
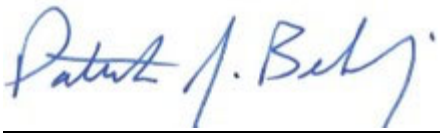
October 2021



PROFESSIONAL CERTIFICATION

This document and all attachments were prepared by Golder Associates Inc. under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I hereby certify that the Hazard Potential Classification Assessment was conducted in accordance with the requirements of Section 257.73(a)(2) of the CCR Rule.



Patrick J. Behling, P.E.
Principal Engineer
Golder Associates Inc.
Firm Registration No. F-2578

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1.0 INTRODUCTION

San Miguel Electric Cooperative, Inc. (SMECI) owns and operates the San Miguel Power Plant (SMPP) located approximately 6 miles south of Christine, Texas in Atascosa County, Texas (Figure 1). The SMPP is a 440-megawatt, lignite-fired electric power plant that was placed into service in 1982. Coal Combustion Residuals (CCR) including fly ash, bottom ash and flue gas desulfurization (FGD) wastewater/solids are generated as part of SMPP operation.

From 1982 through 2020, bottom ash and FGD wastewater/solids were managed in Ash Pond A and Ash Pond B (which were collocated and referred to collectively as the Ash Ponds) and an Equalization Pond (EQ Pond). The Ash Ponds and EQ Pond are located southeast of the SMPP generating unit (Figure 2). In 2020, SMECI retrofitted the Ash Ponds by subdividing Ash Pond B to create a smaller Retrofitted Ash Pond B and a Retrofitted EQ Pond (See Figure 2). The previous EQ Pond (referred to herein as the Former EQ Pond) was removed from service in 2021 and is undergoing closure.

The U.S. Environmental Protection Agency promulgated 40 C.F.R. Part 257, Subpart D (the CCR Rule) to establish technical requirements for new and existing CCR landfills and surface impoundments. Ash Pond A, Retrofitted Ash Pond B and the Retrofitted EQ Pond have been identified as Existing CCR Surface Impoundments regulated under the CCR Rule.

Section 257.73(a)(2) of the CCR Rule specifies that periodic Hazard Potential Classification Assessments (HPCAs) be performed by a qualified professional engineer for each existing CCR surface impoundment. In accordance with Section 257.73(f)(1) of the CCR Rule, the initial HPCA for the Ash Ponds and Former EQ Pond was completed and placed in the facility operating record in October 2016 (ERM, 2016a). As specified in Section 257.73 (f)(3), the HPCA must be updated every five years from the completion date of the initial plan. Golder Associates Inc., member of WSP, was retained by SMECI to prepare this updated IDFCSP for Ash Pond A, Retrofitted Ash Pond B and the Retrofitted EQ Pond.

1.1 CCR Surface Impoundment Hazard Potential Classification Assessment Requirements

Section 257.73(a)(2) of the CCR Rule specifies that periodic hazard potential classification assessments be performed for each existing CCR surface impoundment. The hazard potential classification assessments must document the hazard potential classification of each CCR impoundment as either:

- A high hazard potential CCR surface impoundment,
- A significant hazard potential CCR surface impoundment, or
- A low hazard potential CCR surface impoundment.

The assessments must document the basis for each hazard potential classification and must be certified by a qualified professional engineer confirming that the hazard potential classifications were conducted in accordance with the requirements of Section 257.73(a)(2) of the CCR Rule.

1.2 SMPP Surface Impoundments Subject to Hazard Potential Classification Assessments

The CCR Rule defines CCR's such as fly ash, bottom ash, boiler slag, flue gas desulfurization (FGD) materials (gypsum), and related solids generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers. The hazard potential classification assessment requirements of the CCR Rule apply to surface impoundments that dispose or otherwise engage in solid waste management of CCRs.

The following surface impoundments at the SMPPP have been identified as CCR Units subject to the HPCA requirements (Figure 2):

- Ash Pond A,
- Retrofitted Ash Pond B, and
- Retrofitted EQ Pond.

The Former EQ Pond is out of service and undergoing closure and is no longer considered to be subject to CCR HPCA requirements.

1.3 Description of Ash Pond A and Retrofitted Ash Pond B

From 1982 through 2020, bottom ash was managed in Ash Pond A and Ash Pond B, which were constructed as part of the original SMPP construction. Ash Ponds A and B were constructed above grade and are surrounded by engineered earthen dikes that extend approximately 20 feet above grade. Both ash ponds were constructed with a clay soil liner consisting of 3 feet of compacted soil with a hydraulic conductivity of no more than 1 x 10^{-7} cm/sec (ERM, 2016b; Zephyr, 2017).

In 2020, SMECI retrofitted Ash Pond A and Ash Pond B as follows:

- A 60-mil HDPE liner was installed in Ash Pond A over the existing clay soil liner. The HDPE liner extends across the floor of the pond and up the interior faces of the perimeter dikes and is secured in anchor trenches at the top of the dikes.
- Ash Pond B was subdivided to create a smaller Retrofitted Ash Pond B and a Retrofitted EQ Pond by constructing a divider dike across the width of Ash Pond B. A 60-mil HDPE liner was installed in Retrofitted Ash Pond B over the existing clay soil liner. The HDPE liner extends across the floor of the pond and up the interior faces of the perimeter dikes and is secured in anchor trenches at the top of the dikes.

Engineering Drawings for the Ash Pond Retrofit project are reproduced in Appendix A (Newfields, 2019). Based on the engineering drawings, key design characteristics for Ash Pond A and Retrofitted Ash Pond B can be summarized as follows:

- Ash Pond A:
  - Pond Length at Top of Dike (ft): 2,455
  - Pond Width at Top of Dike (ft): 245
  - Elevation of Top of Dike: 315
  - Elevation of Pond Bottom: 295
  - Pond Depth from Top of Dike (ft): 20
  - Dike Side Slopes: 2.5:1

- Pond Bottom Length (ft): 2,355
- Pond Bottom Width (ft): 145

- Retrofitted Ash Pond B:

  - Pond Length at Top of Dike (ft): 1,217.5
  - Pond Width at Top of Dike (ft): 245
  - Elevation of Top of Dike: 315
  - Elevation of Pond Bottom: 295
  - Pond Depth from Top of Dike (ft): 20
  - Dike Side Slopes: 2.5:1
  - Pond Bottom Length (ft): 1,117.5
  - Pond Bottom Width (ft): 145

Using these dimensions, the surface areas and storage volumes for Ash Pond A and Retrofitted Ash Pond B were calculated to be as follows (see Appendix B):

- Ash Pond A:

  - Surface Area at Top of Dike (sf): 601,475
  - Surface Area at Top of Dike (acres): 13.8
  - Storage Volume at Top of Dike (ac-ft): 213.7

- Retrofitted Ash Pond B:

  - Surface Area at Top of Dike (sf): 298,288
  - Surface Area at Top of Dike (acres): 6.8
  - Storage Volume at Top of Dike (ac-ft): 104.1

1.4 Description of Retrofitted EQ Pond

From 1982 through 2020, FGD wastewater/solids were managed in the Former EQ Pond, which was constructed as part of the original SMPP construction. In 2020, SMECI retrofitted the Ash Ponds by subdividing Ash Pond B to create a smaller Retrofitted Ash Pond B and a Retrofitted EQ Pond (See Figure 2). The Former EQ Pond was removed from service in 2021 and is undergoing closure.

A 60-mil HDPE liner was installed in the Retrofitted EQ Pond over the existing clay soil liner. The HDPE liner extends across the floor of the pond and up the interior faces of the perimeter dikes and is secured in anchor trenches at the top of the dikes.

Engineering Drawings for the Ash Pond Retrofit project are reproduced in Appendix A (Newfields, 2019). Based on the engineering drawings, key design characteristics for the Retrofitted EQ Pond can be summarized as follows:

- Retrofitted EQ Pond:

  - Pond Length at Top of Dike (ft): 1,217.5
  - Pond Width at Top of Dike (ft): 245
  - Elevation of Top of Dike: 315
  - Elevation of Pond Bottom: 295
  - Pond Depth from Top of Dike (ft): 20
  - Dike Side Slopes: 2.5:1
  - Pond Bottom Length (ft): 1,117.5
  - Pond Bottom Width (ft): 145

Using these dimensions, the surface area and storage volumes for the Retrofitted EQ Pond were calculated to be as follows (see Appendix B):

- Retrofitted EQ Pond:

  - Surface Area at Top of Dike (sf): 298,288
  - Surface Area at Top of Dike (acres): 6.8
  - Storage Volume at Top of Dike (ac-ft): 104.1

1.5 USACE Size Classification for Ash Pond A, Retrofitted Ash Pond B and Retrofitted EQ Pond

The US Army Corps of Engineers (USACE) classifies the relative size of dams based on the height of the dam and the storage capacity of the impounded area behind the dam as follows (USACE, 1979):

USACE Dam Size Classification		
Size Category	**Impoundment Capacity (acre-ft)**	**Impoundment Height (ft)**
Small	50 and < 1,000	25 and < 40
Intermediate	1,000 and < 50,000	40 and < 100
Large	> 50,000	> 100

Based on the dike heights and operating capacities of Ash Pond A, Retrofitted Ash Pond B and Retrofitted EQ Pond, these ponds are categorized as small impoundments based on the USACE dam size classification criteria.

1.6 Previous Hazard Potential Classification Assessments for Ash Pond A, Retrofitted Ash Pond B and Retrofitted EQ Pond

From 1982 through 2020, bottom ash and FGD wastewater/solids were managed in Ash Pond A, Former Ash Pond B, and the Former EQ Pond. The following HPCAs were previously performed for these ponds as the ponds were configured through 2020:

- A Hydrologic and Hydraulics Report was prepared for the ponds in 2015 (HDR, 2015). The HDR Report included an evaluation of the hazard potential classification for the ponds in accordance with 30 TAC 299, Subchapter B (Design and Evaluation of Dams). Section 299.14 requires that dams be classified for hazard based on either potential loss of human life or property damage, in the event of failure or malfunction of the dam or appurtenant structures and defines hazard potential classifications (low, significant, and high) using similar criteria as the hazard classifications defined in Section 257.73 of the CCR Rule. Ash Pond A, Former Ash Pond B, and the Former EQ Pond were classified in the LOW hazard category, since no habitable structures and only limited agricultural lands and county roads were located downstream of the ponds.

- As required under Section 257.73(a)(2) of the CCR Rule, the initial HPCA for these impoundments was completed and placed in the facility operating record in October 2016 (ERM, 2016a). Ash Pond A, Former Ash Pond B, and the Former EQ Pond were classified as LOW hazard potential CCR surface impoundments, since a failure or misoperation of the impoundments would result in no probable loss of human life, low economic and/or environmental losses, and no significant disruption of lifeline systems.

As described above, in 2020 SMECI retrofitted the Ash Ponds by subdividing Ash Pond B to create a smaller Retrofitted Ash Pond B and a Retrofitted EQ Pond. No previous HPCA has been performed for the Retrofitted Ash Pond B and Retrofitted EQ Pond.

2.0 CCR HAZARD CLASSIFICATION ASSESSMENT METHODOLOGY

As defined in Section 257.53 of the CCR Rule, hazard potential classification means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of a diked CCR surface impoundment or misoperation of the diked CCR surface impoundment or its appurtenances. Hazardous potential classifications for CCR surface impoundments include high hazard potential CCR surface impoundment, significant hazard potential CCR surface impoundment, and low hazard potential CCR surface impoundment, which are defined in the CCR Rule as follows:

- High Hazard Potential CCR Surface Impoundment. A diked surface impoundment where failure or misoperation will probably cause loss of human life.
- Significant Hazard Potential CCR Surface Impoundment. A diked surface impoundment where failure or misoperation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. FEMA considers lifeline facilities to include transportation facilities (highways, airports, ports, trains), electric power, water and sewer, communications (telephone, TV, radio, electronic) and gas and liquid fuel pipelines (FEMA, 1995).
- Low Hazard Potential CCR Surface Impoundment. A diked surface impoundment where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

The hazard classification assessment for Ash Pond A, Former Ash Pond B, and the Former EQ Pond was performed using the methodology presented in Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams developed by the Federal Emergency Management Agency (FEMA, 2004). The FEMA guidelines classify dams into similar hazard potential categories to those defined in the CCR Rule (low hazard potential, significant hazard potential and high hazard potential) and the FEMA guidelines are listed in the Preamble to the CCR Rule as one of the technical resources considered by EPA during development of the CCR Rule.

The FEMA hazard potential evaluation is based on assessing the probable loss of human life and the potential for economic losses, environmental damage, and/or disruption to lifelines caused by failure or misoperation of a dam or its appurtenances. The location/size of the dam and impoundment area is evaluated against development, occupancy and land use conditions in areas downstream of the dam/impoundment that would be affected by a failure of the dam and release of the impounded water. The FEMA evaluation recognizes that the failure of any dam or water-retaining structure, no matter how small, represents a potential danger to downstream life and property and there is always the possibility of someone being in the path of the resulting discharge. However, the FEMA evaluation recognizes that considering every conceivable circumstance that might remotely place a person in the area potentially inundated as a result of the dam failure should not be the basis for determining the hazard classification level of the dam/impoundment. The FEMA evaluation considers "probable loss of life" to exist where persons are permanently located in the area potentially inundated as a result of the dam failure.

The hazard classification of Ash Pond A, Former Ash Pond B, and the Former EQ Pond was assessed by identifying the development, occupancy and land use characteristics of potentially affected areas downstream of the impoundments. The assessment included a review of available aerial photographs, USGS topographic maps, interviews with SMECI personnel familiar with the area, and similar resources. Classification of the Ash Pond A, Former Ash Pond B, and the Former EQ Pond in accordance with the FEMA hazard potential criteria is based on the assessment of probable loss of human life and the potential for economic losses, environmental damage, and/or disruption to lifelines caused by failure of the embankments surrounding the ponds.

3.0 UPDATED HAZARD POTENTIAL CLASSIFICATION ASSESSMENT FOR ASH POND A, RETROFITTED ASH POND B AND RETROFITTED EQ POND

The hazard potential classification of the CCR ponds was assessed by identifying the development, occupancy and land use characteristics of areas downstream of the impoundments, assessing the probable loss of human life and/or the potential for economic losses, environmental damage, and/or disruption to lifelines caused by failure of the embankments surrounding the impoundments, and using the results of the assessment to classify the impoundments based on the FEMA hazard potential criteria described in Section 2.0 of this report.

3.1 Areas Downstream of CCR Ponds

The SMPP is located in an unincorporated area of Atascosa County, approximately 5 miles south of Christine, Texas. Ash Pond A, Retrofitted Ash Pond B and the Retrofitted EQ Pond are located along the south side of the SMPP property, near the SMECI property line (Figure 2).

Souse Creek, Caballos Creek and their tributaries are located south and west of the CCR Ponds. Souse Creek generally flows to the east toward Caballos Creek, thence to La Parita Creek (confluence located approximately two miles from the CCR Ponds) and thence to the Atascosa River (confluence located more than ten miles from the CCR Ponds). The CCR Ponds are located in the drainage areas of Souse Creek and Caballos Creek and a failure of the dikes surrounding the ponds would release CCR solids/fluids that would flow into Souse Creek and/or Caballos Creek.

Land use characteristics in the vicinity of Souse Creek and Caballos Creek downstream of the CCR Ponds can be described as follows:

- Souse Creek and Caballos Creek are intermittent streams that contain flowing water only part of the year;
- There are no permanent, habitable structures located in the vicinity of Souse Creek and Caballos Creek downstream of the CCR Ponds;
- Land adjacent to Souse Creek and Caballos Creek is unimproved or used for limited agricultural purposes (cattle grazing, etc.) and the land is not actively farmed or irrigated;
- Several oil/gas wells and natural gas gathering lines are located in the vicinity of Souse Creek and Caballos Creek downstream of the CCR Ponds (RRC,2021, see Appendix C);
- County Road 420 crosses Caballos Creek downstream of the CCR ponds; and
- No commercial railroads cross Souse Creek or Caballos Creek downstream of the CCR Ponds.

3.2 Hazard Potential Classification Assessment

A failure of the dikes surrounding Ash Pond A, Retrofitted Ash Pond B and the Retrofitted EQ Pond would release CCR solids/fluids that would likely flow off of the SMPP property and south/east into Souse Creek and/or Caballos Creek. Using the FEMA hazard potential criteria described in Section 2.0 of this report and the land use characteristics listed above, an assessment of the projected effects of catastrophic failure or misoperation of the CCR Ponds results in a hazard potential classification of **LOW** for the CCR Ponds. This classification is supported by the following:

- No Probable Loss of Human Life. FEMA considers “probable loss of life” to exist where persons are

permanently located in the area potentially inundated as a result of dam failure. There are no permanent, habitable structures located in the vicinity of Souse Creek and Caballos Creek downstream of the CCR Ponds and land adjacent to the creeks is unimproved or used for limited agricultural purposes. As a result, a release from the CCR Ponds would result in no probable loss of human life.

- Low Economic and/or Environmental Losses. FEMA considers low economic and or environmental losses to occur when losses resulting from a dam failure are principally limited to the dam owner's property. The CCR Ponds are located near the SMPP property boundary; consequently, a release from the ponds would likely flow onto adjacent properties, which could reasonably be expected to result in some economic damage to the adjacent properties. However, land adjacent to Souse Creek and Caballos Creek downstream of the CCR Ponds the creeks is unimproved or used for limited agricultural purposes, so any such damage to off-site property can reasonably be expected to be temporary and readily remediated by SMECI. The most significant economic damage associated with a release from the CCR Ponds would be on the SMPP Property itself, including costs for pond repair/reconstruction and SMPP operational costs associated with loss of pond operation.

  In addition, Souse Creek and Caballos Creek are intermittent streams that contain flowing water only part of the year and land adjacent to the creeks is unimproved or used for limited agricultural purposes. As a result, a release from the CCR Ponds would be expected to result in little environmental damage in areas downstream of the ponds.

- No Significant Disruption of Lifelines. No commercial railroads would be affected by a release from the CCR Ponds to Souse Creek or Caballos Creek downstream of the CCR Ponds. County Road 420 crosses Caballos Creek downstream of the CCR ponds; however, County Road 420 is not a major transportation artery and potential damage to the roadway due to a release from the ponds would have limited impacts. Temporary interruption of operation of oil and gas wells and gas gathering lines located in the area as a result of a pond release would also not constitute a significant disruption of lifelines in the area.

4.0 FINDINGS OF UPDATED HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

Golder was retained by SMECI to perform the 5-Year update to the Hazard Potential Classification Assessment for Ash Pond A, Retrofitted Ash Pond B and the Retrofitted EQ Pond in accordance with the requirements of Section 257.73(a)(2) of the CCR Rule. The HPCA was performed using the methodology presented in Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams developed by the Federal Emergency Management Agency.

Based on the FEMA hazard potential criteria, the CCR Ponds are classified as LOW hazard potential CCR surface impoundments, since a failure or misoperation of the ponds results in no probable loss of human life, low economic and/or environmental losses, and no significant disruption of lifeline systems.

In accordance with Section 257.73(f) of the CCR Rule, this updated hazard potential classification assessment must be placed in the operating record for the SMPP no later than October 17, 2021. Subsequent periodic hazard potential classification assessments must be completed every five years.

5.0 REFERENCES

Environmental Resources Management (ERM), 2016a. Initial Hazard Potential Classification Assessments, Ash Water Transport Ponds and Equalization Pond, San Miguel Electric Cooperative, Inc., Atascosa County, Texas, October 13.

ERM, 2016b. Existing CCR Surface Impoundment Liner Design Criteria – Ash Pond A, San Miguel Electric Cooperative, Inc., Atascosa County, Texas, October 17.

Federal Emergency Management Agency (FEMA), 2004. Federal Guidelines for Dam Safety: Hazard Potential Classification System for Dams.

FEMA, 1995. Plan for Developing and Adopting Seismic Design Guidelines and Standards for Lifelines, September.

HDR Engineering, Inc. (HDR), 2015. Hydrologic and Hydraulics Report for Coal Combustion waste Impoundments, San Miguel Electric Cooperative, Inc., Atascosa County, Texas, April 5.

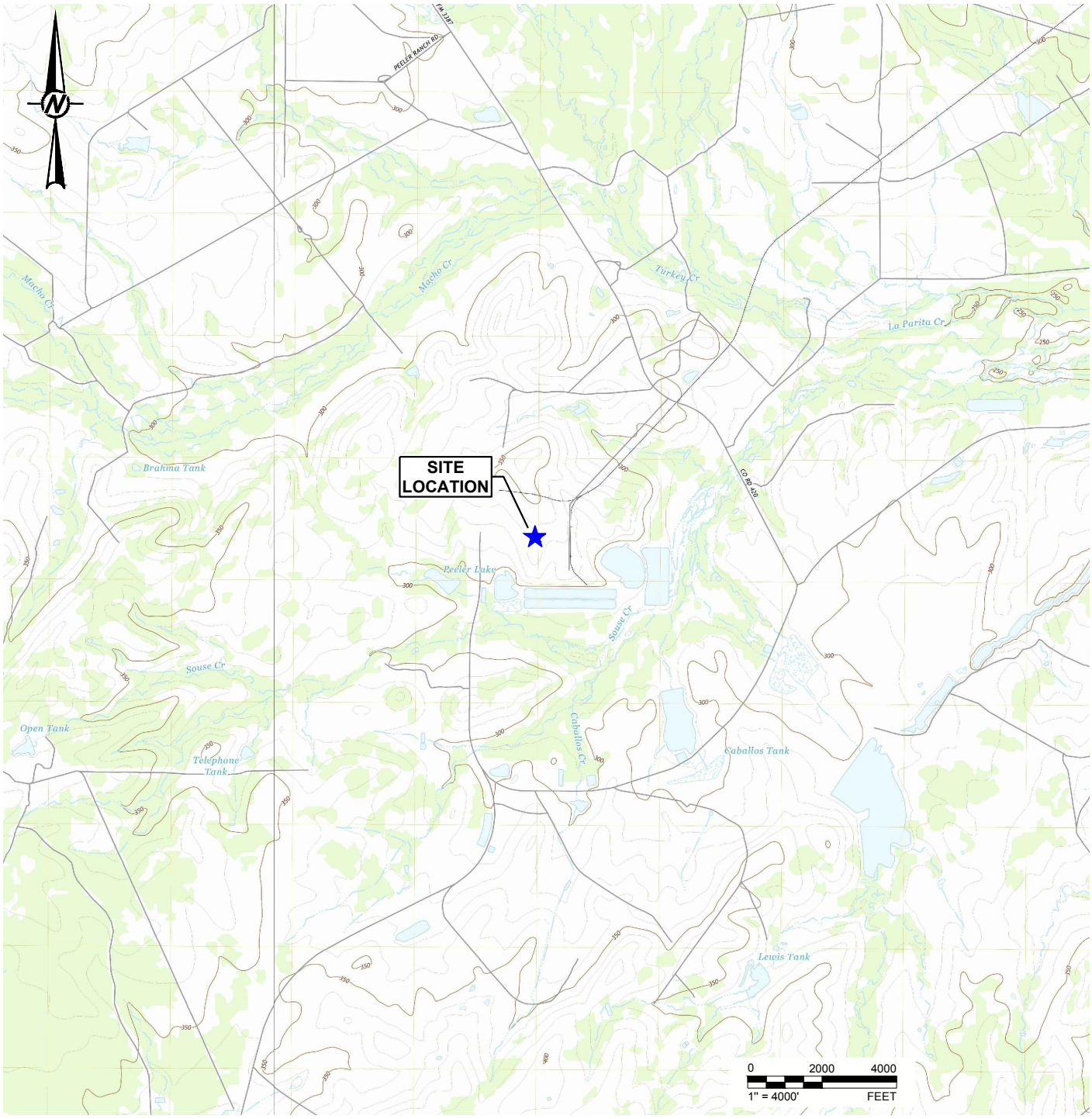
Newfields, 2019. Engineering Drawings for Ash Disposal Pond Retrofit, San Miguel Electric Plant, Atascosa County, Texas, August.

Texas Railroad Commission (RRC), 2021. Public GIS Viewer – Oil and Gas Well and Pipeline Data. On-line database.

United States Army Corps of Engineers (USACE), 1979. Recommended Guidelines for Safety Inspections of Dams, ER 1110-2-106, September 26.

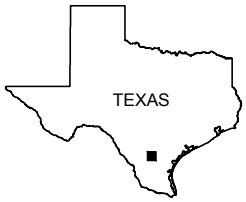
Zephyr Environmental Corporation (Zephyr), 2017. Liner System Certification Report – Ash Water Transport Pond 1-B, San Miguel Electric Cooperative, Inc., San Miguel Plant, Christine, Atascosa County, Texas, November 28.

FIGURES



REFERENCE(S)

BASE MAP TAKEN FROM USGS.GOV, CROSS NE AND CABALLOS CREEK, TX 7.5 MIN. USGS QUADRANGLE DATED 2019.



QUADRANGLE LOCATIONS

CLIENT
SAN MIGUEL ELECTRIC COOPERATIVE, INC.

PROJECT
CCR PONDS
HAZARD POTENTIAL CLASSIFICATION ASSESSMENT UPDATE

TITLE
SITE LOCATION MAP-B

CONSULTANT
GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-09-20
DESIGNED	AJD
PREPARED	AJD
REVIEWED	PJB
APPROVED	PJB

PROJECT NO.	CONTROL	REV.	FIGURE
21455682		0	1

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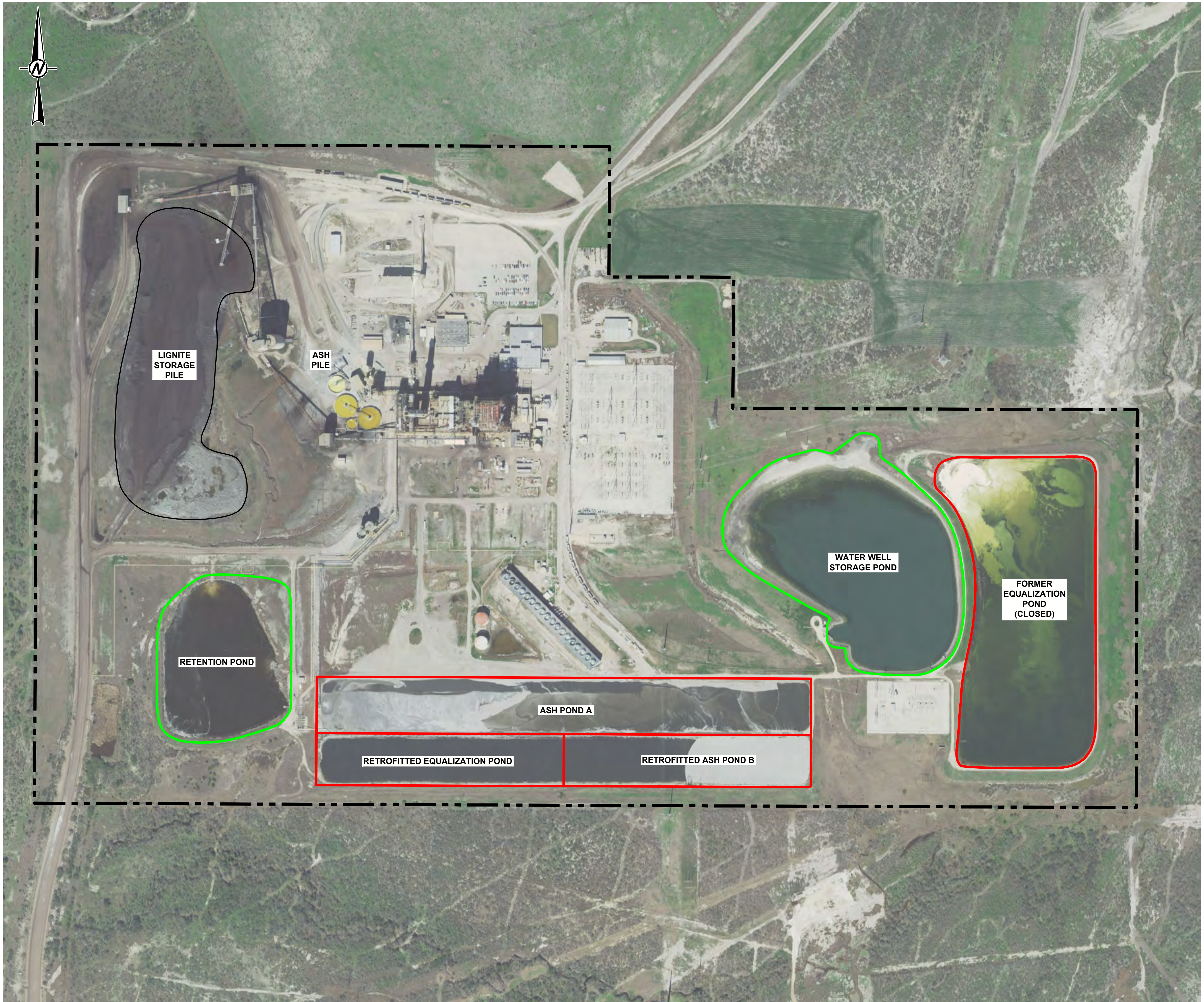


LEGEND

- APPROX. PLANT BOUNDARY
- CCR IMPOUNDMENT/UNIT
- NON-CCR IMPOUNDMENT

0 250 500
1" = 500' FEET

REFERENCE(S)
BASE MAP TAKEN FROM TNRIS.ORG, ATASCOSA CO., 2015 PHOTOGRAPHY.
MONITORING WELL LOCATIONS FROM FIGURE 1 - CCR UNIT GROUNDWATER MONITORING SYSTEM, ERM, 10/16/2017.

CLIENT
SAN MIGUEL ELECTRIC COOPERATIVE, INC.

PROJECT
CCR PONDS
HAZARD POTENTIAL CLASSIFICATION ASSESSMENT UPDATE

TITLE
SITE PLAN-B

CONSULTANT

GOLDER
MEMBER OF WSP

YYYY-MM-DD	2021-09-20
DESIGNED	AJD
PREPARED	AJD
REVIEWED	PJB
APPROVED	PJB

PROJECT NO.	CONTROL	REV.	FIGURE
21455682		0	2

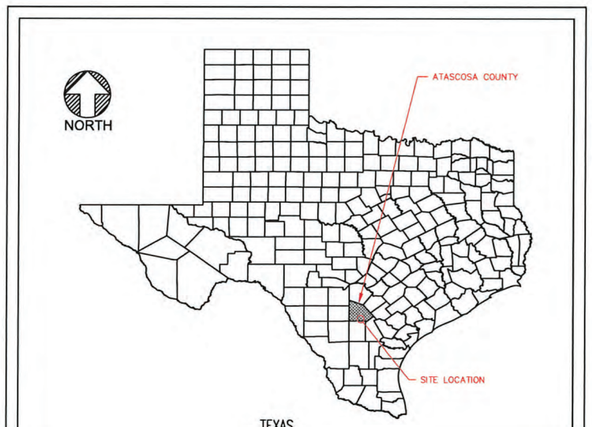
APPENDIX A

Engineering Drawings – 2020 Ash Pond Retrofit Project

SAN MIGUEL ELECTRIC PLANT

ATASCOSA COUNTY, TEXAS

ASH DISPOSAL POND RETROFIT



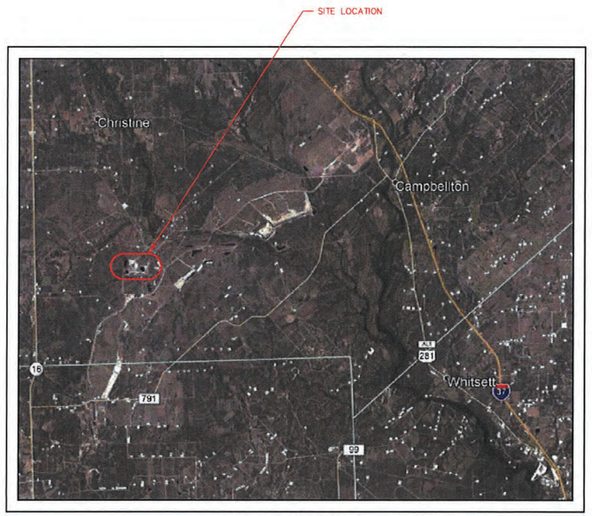
LOCATION MAP

DRAWING INDEX

SHEET	DRAWING	TITLE
1		COVER SHEET
2	C-101	SURVEY MAP
3	C-102	EXISTING CONDITIONS SITE PLAN
4	C-103	LAY DOWN YARD, EROSION AND SEDIMENT CONTROL PLAN
5	C-104	POND "A" TILLING, GRADING AND COMPACTION PLAN
6	C-105	POND "B" TILLING, GRADING AND COMPACTION PLAN
7	C-106	POND "B" DIVIDER BERM PLAN AND DETAILS
8	C-107	POND "A" LINER INSTALLATION PLAN
9	C-108	NEW POND "B" AND EQUALIZATION POND LINER INSTALLATION PLAN

ABBREVIATIONS

ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
BOTT	BOTTOM
DP.	DEEP
E	EAST
EL	ELEVATION
ESC	EROSION AND SEDIMENT CONTROL
F.G.D.	FLUE GAS DESULFURIZATION
FT.	FEET
GAL	GALLON
H	HORIZONTAL
HDPE	HIGH DENSITY POLYETHYLENE
KV	KILOVOLT
MCC	MOTOR CONTROL CENTER
MIN.	MINIMUM
N	NORTH
SEC	SECOND
V	VERTICAL
YD^3	CUBIC YARDS



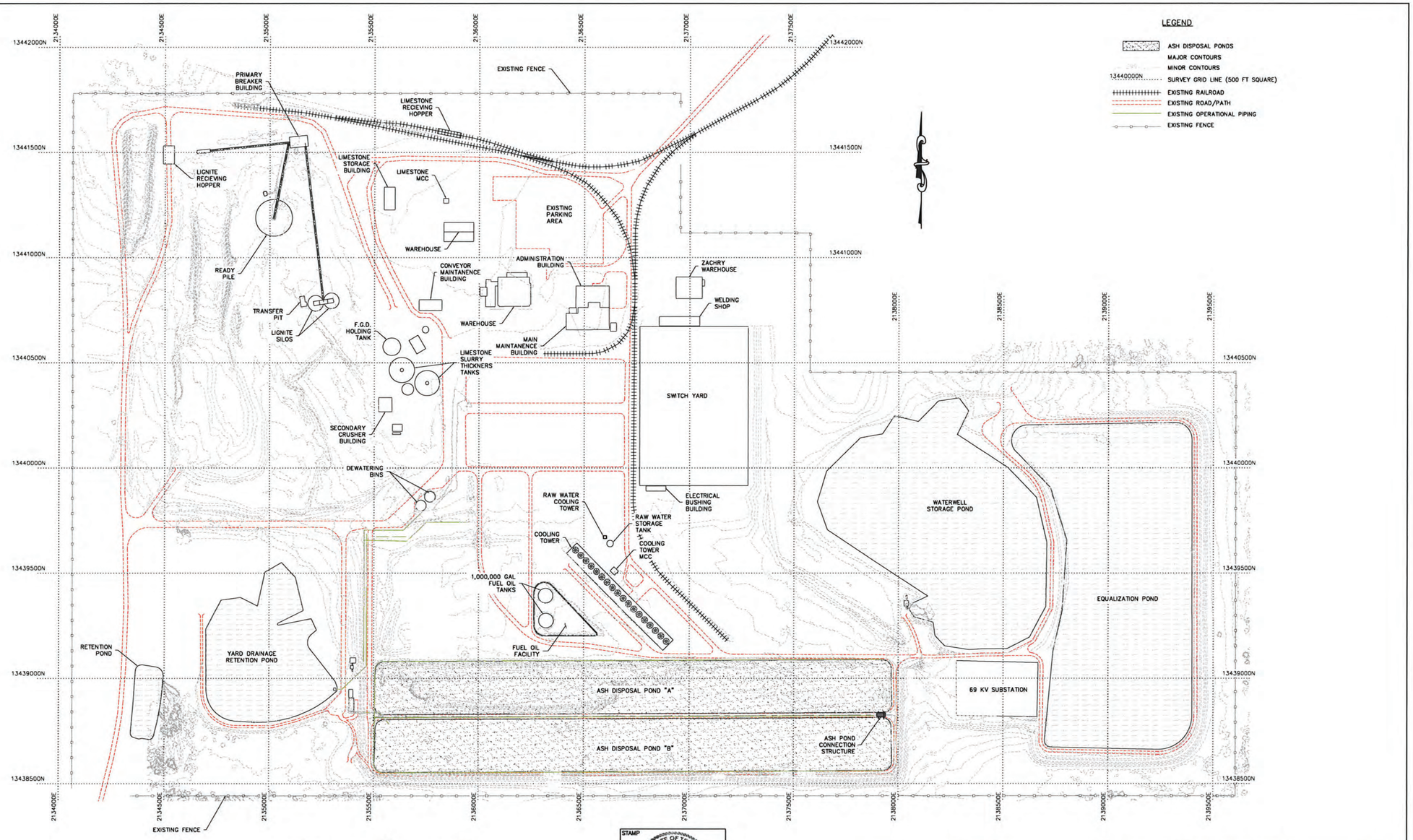
SITE VICINITY MAP

SAN MIGUEL ELECTRIC PLANT
ATASCOSA COUNTY, TEXAS
ASH DISPOSAL POND RETROFIT

PREPARED BY

NewFields

AUGUST, 2019



STAMP

STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/28/19

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

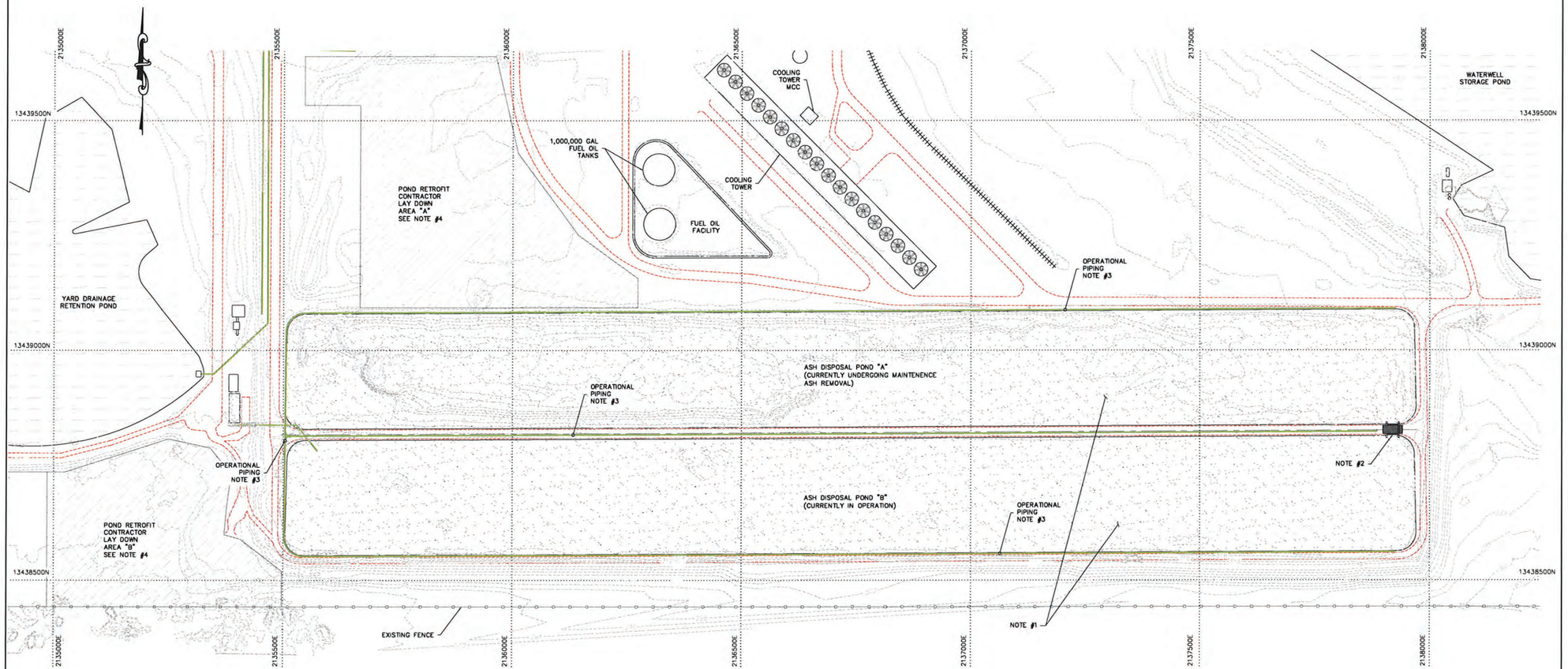
REVISION/ISSUE NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE 1"=200'
DESIGNED BY RWG
DRAWN BY FAH
CHECKED BY RWG
DRAWING DATE 8/28/19

PROJECT NAME: SAN MIGUEL ELECTRIC PLANT
ATASCOSA COUNTY, TEXAS
ASH DISPOSAL POND RETROFIT

DRAWING NAME: SURVEY MAP

PROJECT NO. 150.0400.000
PROJECT DATE AUGUST 2019
DRAWING NO. C-101
SHEET NO. 2 OF 9



LEGEND

- ASH DISPOSAL PONDS
- CONTRACTOR'S LAY DOWN AREA
- MAJOR CONTOURS
- MINOR CONTOURS
- 13440000N SURVEY GRID LINE (500 FT SQUARE)
- EXISTING RAILROAD
- EXISTING ROAD/PATH
- EXISTING FENCE
- EXISTING OPERATIONAL PIPING

NOTES:

1. APPROXIMATELY 3-4 FEET OF ASH WILL REMAIN IN POND A TO BE REMOVED AND STAGED BY THE CONTRACTOR UNDER THIS CONTRACT. POND B IS CURRENTLY IN OPERATION. ONCE POND A HAS BEEN RETROFITTED, THE WATER IN POND B WILL BE TRANSFERRED BY THE CONTRACTOR TO POND A AND POND A WILL BE PUT BACK INTO SERVICE. THE CONTRACTOR SHALL THEN REMOVE AND STAGE ALL ASH FROM POND B.
2. THE CONNECTION STRUCTURE BETWEEN POND A AND POND B IS A CONCRETE SPILLWAY CONTROLLED BY DIVIDER GATES THAT ARE INSTALLED AND REMOVED BY CRANE.
3. OPERATIONAL PIPING OF VARYING SIZES LIE ON THE SURFACE OF THE EXISTING BERMS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR MOVING THESE PIPES TO SUIT THE CONTRACTOR'S STRATEGY FOR ENTRY TO AND EXIT FROM THE PONDS DURING RETROFIT WORK.
4. THE CONTRACTOR SHALL DEVELOP THEIR LAYDOWN AND SUPPORT AREAS IN THE LOCATIONS SHOWN ON THIS DRAWING. THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF ACERAGE FOR THEIR USE TO THE FURTHEST EXTENT POSSIBLE AND SHALL UTILIZE THESE AREAS TO ALLOW FOR THE MOST EFFICIENT ACCESS TO AND FROM THE PONDS AND FACILITY AS POSSIBLE.

EXISTING CONDITIONS SITE PLAN

0 200 400 Feet

STAMP

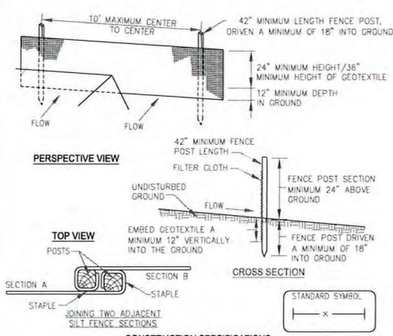
STATE OF TEXAS — JAMES O. KENDRICK — 84079 — LICENSED PROFESSIONAL ENGINEER

8/28/19

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

REVISION/ISSUE NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	1"=100'
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19
PROJECT NAME	SAN MIGUEL ELECTRIC PLANT ATASCOSA COUNTY, TEXAS ASH DISPOSAL POND RETROFIT
DRAWING NAME	EXISTING CONDITIONS SITE PLAN / ASH REMOVAL
PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-102
SHEET NO.	3 OF 9



CONSTRUCTION SPECIFICATIONS

1. FENCE POSTS SHALL BE A MINIMUM OF 42" LONG, DRIVEN 18" MINIMUM INTO THE GROUND.
   WOOD POSTS SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION OF 12" AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION, WEIGHING NOT LESS THAN 1.33 POUND PER LINEAR FOOT.
2. GEOTEXTILE SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES OR STAPLES (½" LONG MINIMUM) AT TOP, MID-SECTION, AND BOTTOM AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR CDOT SILT FENCE GEOTEXTILES::

GRAB STRENGTH	90 LBS (MIN.)	TEST: ASTM D4632
PERMITTIVITY	0.05/SEC	TEST: ASTM D4491
ULTRAVIOLET STABILITY	70% (MIN.) STRENGTH RETAINED	TEST: ASTM D4355

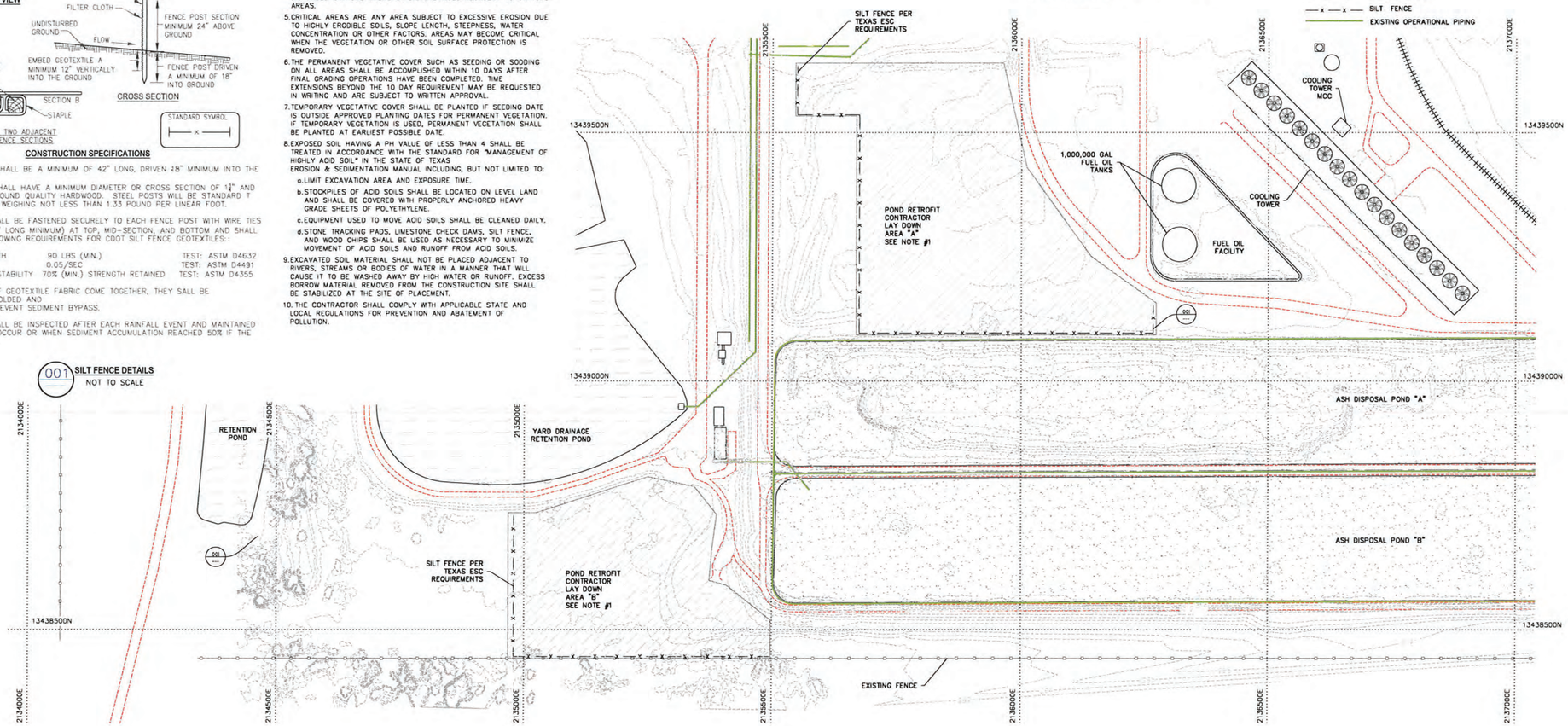
3. WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SALL BE OVERLAPPED, FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
4. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHED 50% IF THE FABRIC HEIGHT.

001 **SILT FENCE DETAILS**
NOT TO SCALE

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL CONFORM TO STATE OF TEXAS EROSION & SEDIMENTATION MANUAL LATEST EDITION AND ALL APPLICABLE LOCAL REGULATIONS CONCERNING SOIL EROSION AND SEDIMENT CONTROL.
2. THE CONTRACTOR SHALL PERFORM ALL WORK, FURNISH ALL MATERIALS AND INSTALL ALL MEASURES REQUIRED TO REASONABLY CONTROL SOIL EROSION RESULTING FROM CONSTRUCTION OPERATIONS AND MINIMIZE LOSS OF SEDIMENT FROM THE CONSTRUCTION SITE.
3. THE CONTRACTOR SHALL ADHERE TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN SHOWING THE METHODS TO BE USED FOR CONTROLLING EROSION DURING CONSTRUCTION WHICH INCLUDES SEQUENCE FROM THE CONSTRUCTION OPERATIONS.
4. THE CONTRACTOR SHALL INSTALL EROSION CONTROLS ON ALL DISTURBED CRITICAL AREAS OR DISTURBANCES ADJACENT TO CRITICAL AREAS.
5. CRITICAL AREAS ARE ANY AREA SUBJECT TO EXCESSIVE EROSION DUE TO HIGHLY ERODIBLE SOILS, SLOPE LENGTH, STEEPNESS, WATER CONCENTRATION OR OTHER FACTORS. AREAS MAY BECOME CRITICAL WHEN THE VEGETATION OR OTHER SOIL SURFACE PROTECTION IS REMOVED.
6. THE PERMANENT VEGETATIVE COVER SUCH AS SEEDING OR SODDING ON ALL AREAS SHALL BE ACCOMPLISHED WITHIN 10 DAYS AFTER FINAL GRADING OPERATIONS HAVE BEEN COMPLETED. TIME EXTENSIONS BEYOND THE 10 DAY REQUIREMENT MAY BE REQUESTED IN WRITING AND ARE SUBJECT TO WRITTEN APPROVAL.
7. TEMPORARY VEGETATIVE COVER SHALL BE PLANTED IF SEEDING DATE IS OUTSIDE APPROVED PLANTING DATES FOR PERMANENT VEGETATION. IF TEMPORARY VEGETATION IS USED, PERMANENT VEGETATION SHALL BE PLANTED AT EARLIEST POSSIBLE DATE.
8. EXPOSED SOIL HAVING A PH VALUE OF LESS THAN 4 SHALL BE TREATED IN ACCORDANCE WITH THE STANDARD FOR "MANAGEMENT OF HIGHLY ACID SOIL" IN THE STATE OF TEXAS EROSION & SEDIMENTATION MANUAL INCLUDING, BUT NOT LIMITED TO:
   a. LIMIT EXCAVATION AREA AND EXPOSURE TIME.
   b. STOCKPILES OF ACID SOILS SHALL BE LOCATED ON LEVEL LAND AND SHALL BE COVERED WITH PROPERLY ANCHORED HEAVY GRADE SHEETS OF POLYETHYLENE.
   c. EQUIPMENT USED TO MOVE ACID SOILS SHALL BE CLEANED DAILY.
   d. STONE TRACKING PADS, LIMESTONE CHECK DAMS, SILT FENCE, AND WOOD CHIPS SHALL BE USED AS NECESSARY TO MINIMIZE MOVEMENT OF ACID SOILS AND RUNOFF FROM ACID SOILS.
9. EXCAVATED SOIL MATERIAL SHALL NOT BE PLACED ADJACENT TO RIVERS, STREAMS OR BODIES OF WATER IN A MANNER THAT WILL CAUSE IT TO BE WASHED AWAY BY HIGH WATER OR RUNOFF. EXCESS BORROW MATERIAL REMOVED FROM THE CONSTRUCTION SITE SHALL BE STABILIZED AT THE SITE OF PLACEMENT.
10. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE STATE AND LOCAL REGULATIONS FOR PREVENTION AND ABATEMENT OF POLLUTION.

NOTES:
1. THE CONTRACTOR SHALL DEVELOP THEIR LAYDOWN AND SUPPORT AREAS IN THE LOCATIONS SHOWN ON THIS DRAWING. THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF ACERAGE FOR THEIR USE TO THE FURTHEST EXTENT POSSIBLE AND SHALL UTILIZE THESE AREAS TO ALLOW FOR THE MOST EFFICIENT ACCESS TO AND FROM THE PONDS AND FACILITY AS POSSIBLE.
2. ALL ESC MATERIALS SHALL BE REMOVED BY THE CONTRACTOR AFTER COMPLETION OF USE OF THE LAYDOWN AREAS. ALL AREAS USED FOR CONTRACTOR LAYDOWN SHALL BE RESTORED TO ITS ORIGINAL CONDITION.



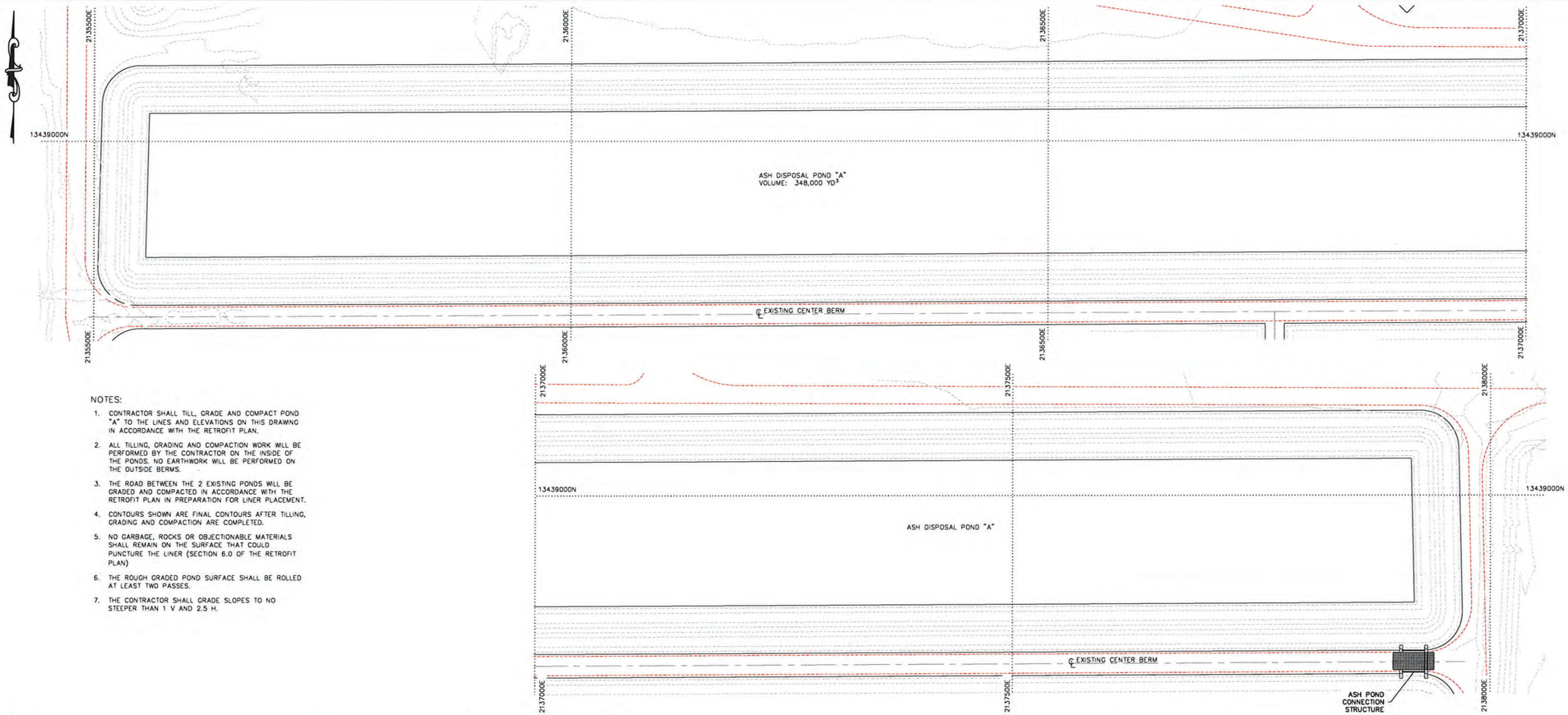
LAY DOWN YARD, EROSION AND SEDIMENT CONTROL PLAN

STAMP
STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/28/19

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

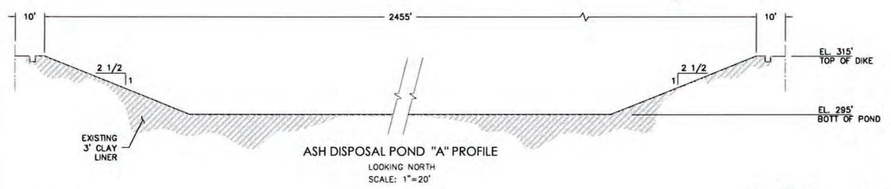
REVISION/ISSUE NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	1"=100'
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19
PROJECT NAME	SAN MIGUEL ELECTRIC PLANT ATASCOSA COUNTY, TEXAS ASH DISPOSAL POND RETROFIT
DRAWING NAME	LAY DOWN YARD, EROSION AND SEDIMENT CONTROL PLAN
PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-103
SHEET NO.	4 OF 9

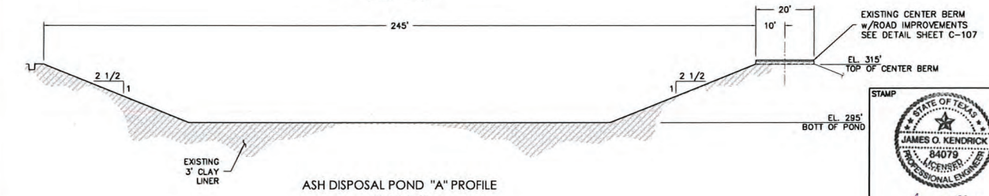


NOTES:

1. CONTRACTOR SHALL TILL, GRADE AND COMPACT POND "A" TO THE LINES AND ELEVATIONS ON THIS DRAWNG IN ACCORDANCE WITH THE RETROFIT PLAN.
2. ALL TILLING, GRADING AND COMPACTION WORK WILL BE PERFORMED BY THE CONTRACTOR ON THE INSIDE OF THE PONDS. NO EARTHWORK WILL BE PERFORMED ON THE OUTSIDE BERMS.
3. THE ROAD BETWEEN THE 2 EXISTING PONDS WILL BE GRADED AND COMPACTED IN ACCORDANCE WITH THE RETROFIT PLAN IN PREPARATION FOR LINER PLACEMENT.
4. CONTOURS SHOWN ARE FINAL CONTOURS AFTER TILLING, GRADING AND COMPACTION ARE COMPLETED.
5. NO GARBAGE, ROCKS OR OBJECTIONABLE MATERIALS SHALL REMAIN ON THE SURFACE THAT COULD PUNCTURE THE LINER (SECTION 6.0 OF THE RETROFIT PLAN)
6. THE ROUGH GRADED POND SURFACE SHALL BE ROLLED AT LEAST TWO PASSES.
7. THE CONTRACTOR SHALL GRADE SLOPES TO NO STEEPER THAN 1 V AND 2.5 H.



ASH DISPOSAL POND "A" PROFILE
LOOKING NORTH
SCALE: 1"=20'



ASH DISPOSAL POND "A" PROFILE
LOOKING EAST
SCALE: 1"=20'

STAMP

STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/28/19

ASH DISPOSAL POND "A" TILLING, GRADING AND COMPACTION PLAN

0 100 200 Feet

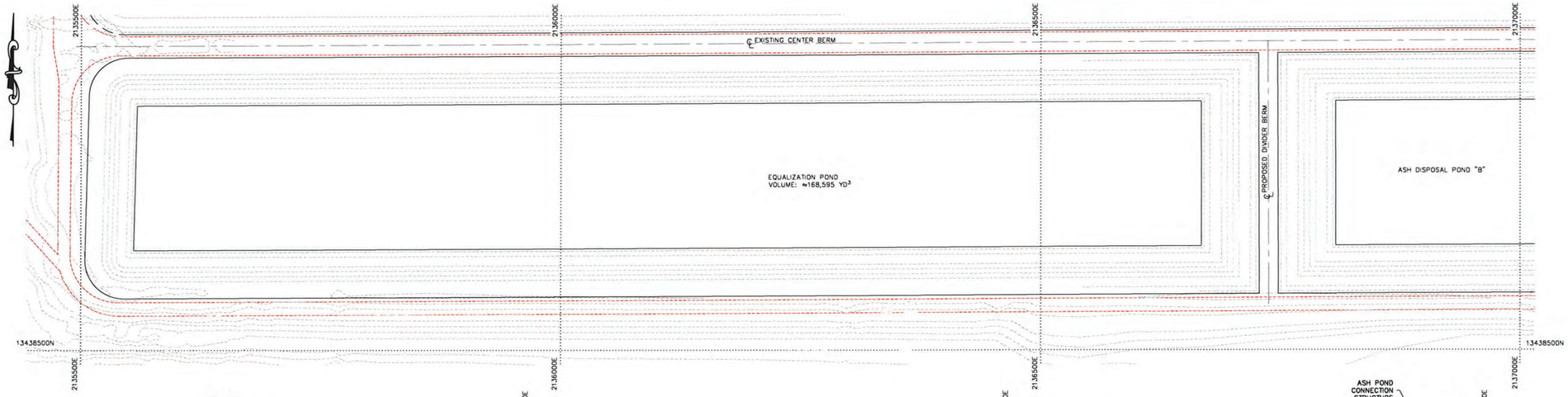
LEGEND

- MAJOR CONTOURS
- MINOR CONTOURS
- 13440000N ..... SURVEY GRID LINE (500 FT SQUARE)
- EXISTING ROAD/PATH

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

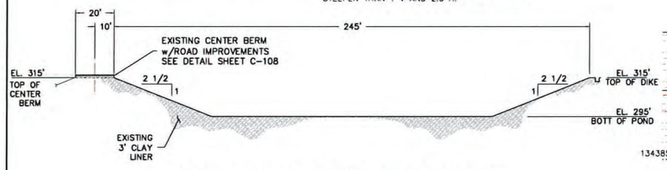
REVISION/ISSUE NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	AS NOTED
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19
PROJECT NAME	SAN MIGUEL ELECTRIC PLANT ATASCOSA COUNTY, TEXAS ASH DISPOSAL POND RETROFIT
DRAWING NAME	POND "A" TILLING, GRADING AND COMPACTION PLAN
PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-104
SHEET NO.	5 OF 9

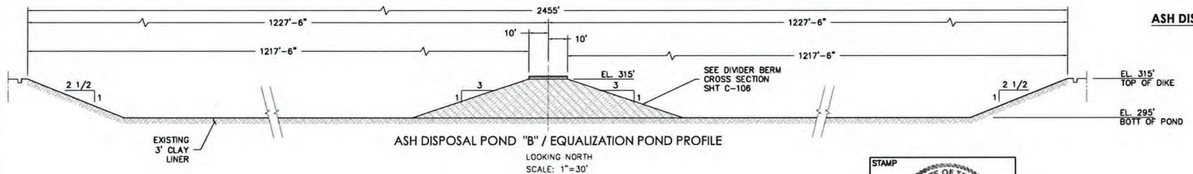


NOTES:

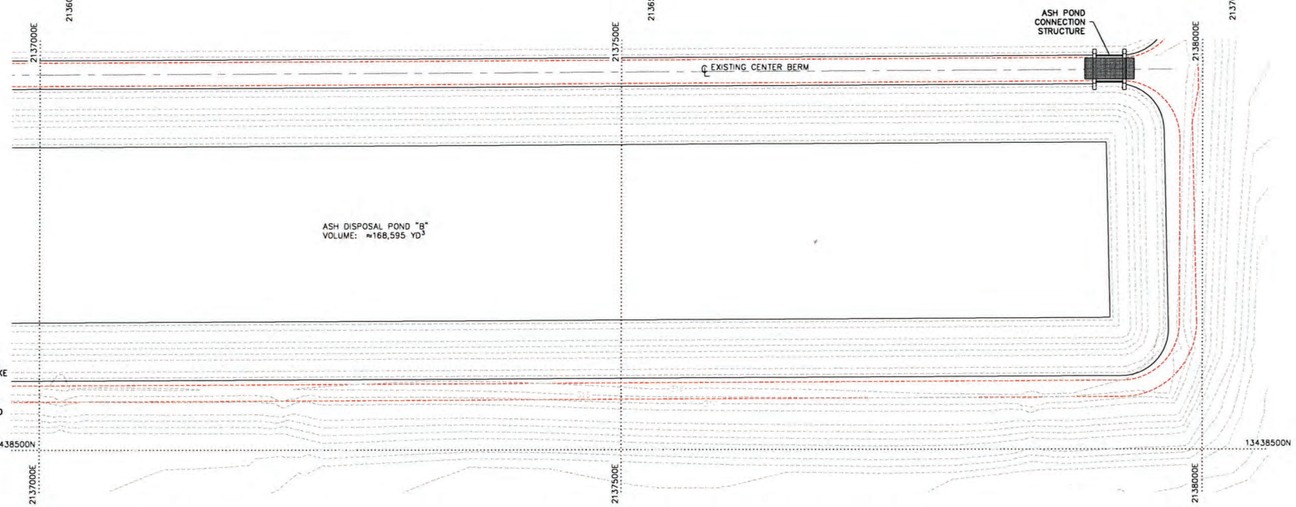
1. CONTRACTOR SHALL TILL, GRADE AND COMPACT POND "B" TO THE LINES AND ELEVATIONS ON THIS DRAWING IN ACCORDANCE WITH THE RETROFIT PLAN.
2. ALL TILLING, GRADING AND COMPACTION WORK WILL BE PERFORMED BY THE CONTRACTOR ON THE INSIDE OF THE PONDS. NO EARTHWORK WILL BE PERFORMED ON THE OUTSIDE BERMS.
3. THE ROAD BETWEEN THE 2 EXISTING PONDS WILL BE GRADED AND COMPACTED IN ACCORDANCE WITH THE RETROFIT PLAN IN PREPARATION FOR LINER PLACEMENT.
4. CONTOURS SHOWN ARE FINAL CONTOURS AFTER TILLING, GRADING AND COMPACTION ARE COMPLETED.
5. NO GARBAGE, ROCKS OR OBJECTIONABLE MATERIALS SHALL REMAIN ON THE SURFACE THAT COULD PUNCTURE THE LINER (SECTION 6.0 OF THE RETROFIT PLAN)
6. THE ROUGH GRADED POND SURFACE SHALL BE ROLLED AT LEAST TWO PASSES.
7. THE CONTRACTOR SHALL GRADE SLOPES TO NO STEEPER THAN 1 V AND 2.5 H.



ASH DISPOSAL POND "B"/ EQUALIZATION POND PROFILE
LOOKING EAST
SCALE: 1"=30'



ASH DISPOSAL POND "B" / EQUALIZATION POND PROFILE
LOOKING NORTH
SCALE: 1"=30'



ASH DISPOSAL POND "B" TILLING, GRADING AND COMPACTION PLAN

0 100 200 Feet

LEGEND

- MAJOR CONTOURS
- MINOR CONTOURS
- 13440000N ..... SURVEY GRID LINE (500 FT SQUARE)
- EXISTING ROAD/PATH

STAMP

STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/29/19

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

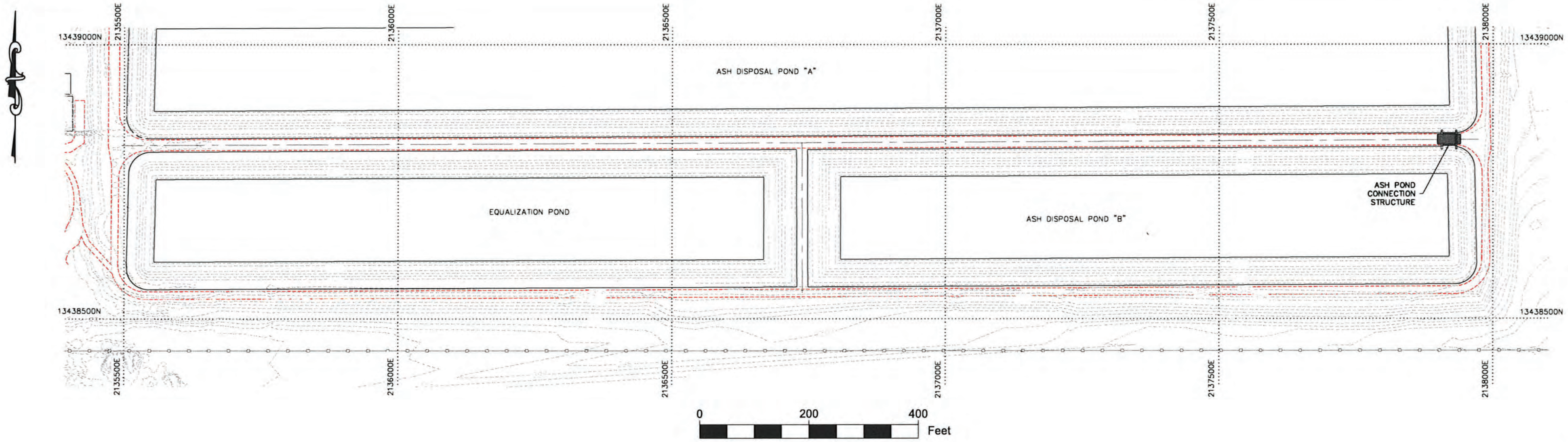
REVISION/ISSUE			
NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	AS NOTED
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19

PROJECT NAME: SAN MIGUEL ELECTRIC PLANT
ATASCOSA COUNTY, TEXAS
ASH DISPOSAL POND RETROFIT

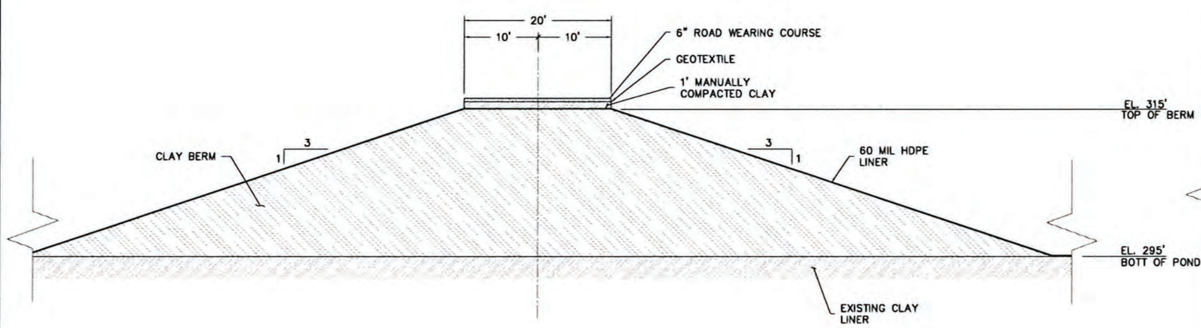
DRAWING NAME: POND "B" TILLING, GRADING AND COMPACTION PLAN

PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-105
SHEET NO.	6 OF 9

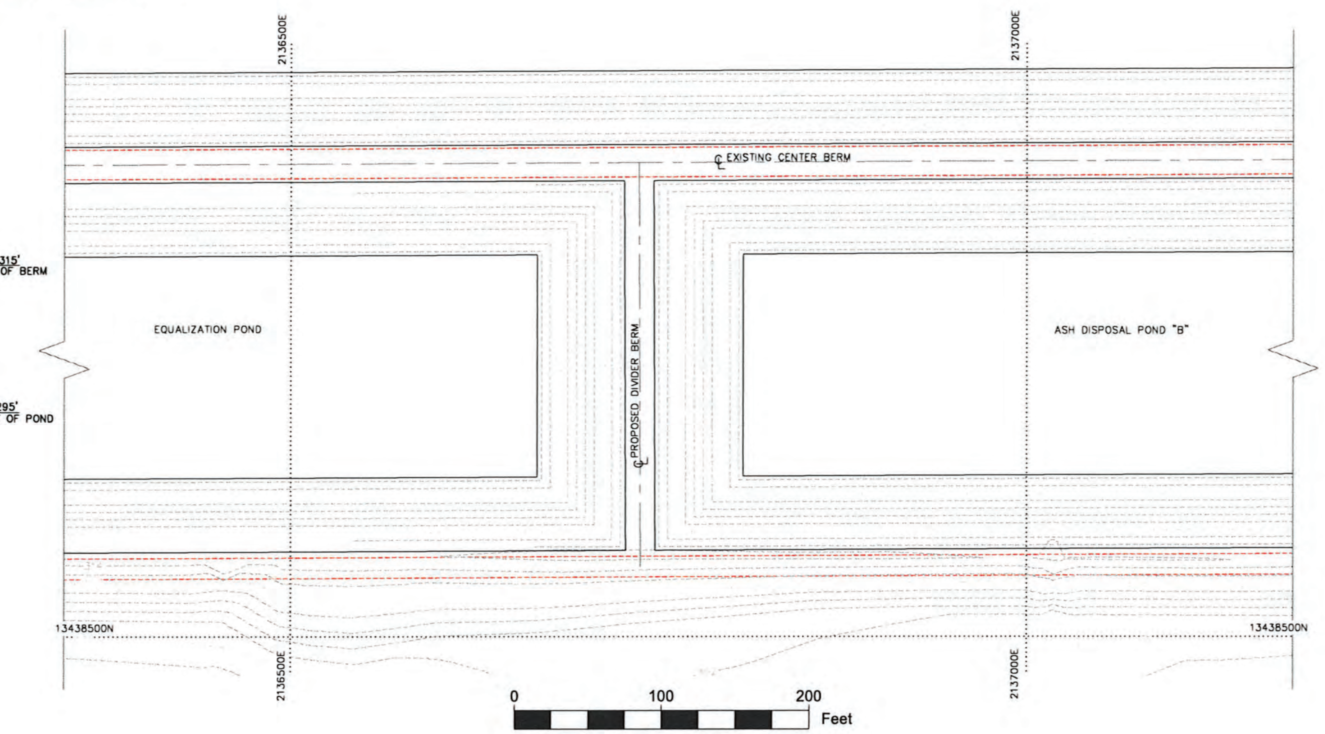


LEGEND

- MAJOR CONTOURS
- MINOR CONTOURS
- 13440000N SURVEY GRID LINE (500 FT SQUARE)
- EXISTING ROAD/PATH
- EXISTING FENCE



PROPOSED DIVIDER BERM CROSS SECTION
SCALE: 1"=10'



NOTES:

1. CONTRACTOR SHALL PERFORM NUCLEAR DENSITY TESTING ON THE NEW BERM CONSTRUCTION IN ACCORDANCE WITH THE RETROFIT PLAN

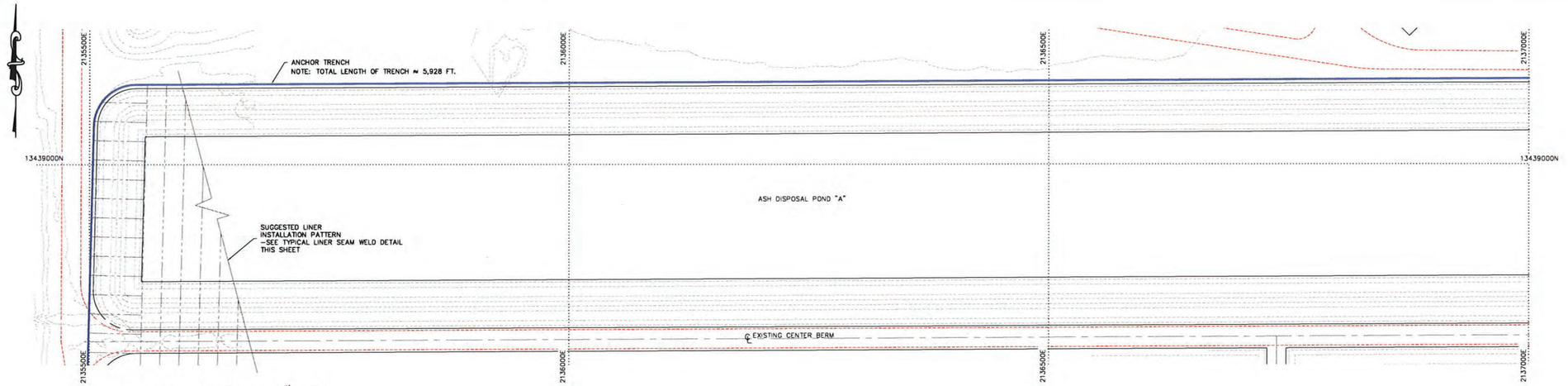
STAMP

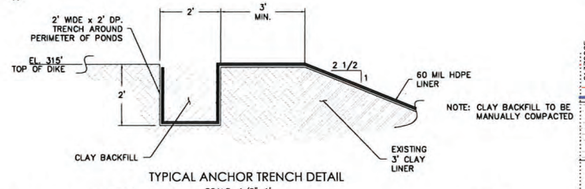
STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/28/19

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

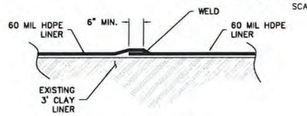
REVISION/ISSUE			
NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	AS NOTED
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19
PROJECT NAME	SAN MIGUEL ELECTRIC PLANT ATASCOSA COUNTY, TEXAS ASH DISPOSAL POND RETROFIT
DRAWING NAME	POND "B" DIVIDER BERM PLAN AND DETAILS
PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-106
SHEET NO.	7 OF 9

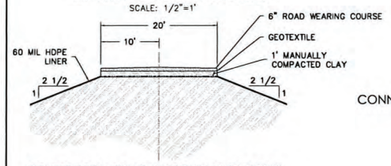




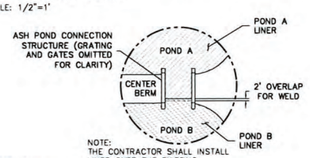
TYPICAL ANCHOR TRENCH DETAIL
SCALE: 1/2"=1'



TYPICAL LINER SEAM WELD DETAIL
SCALE: 1/2"=1'

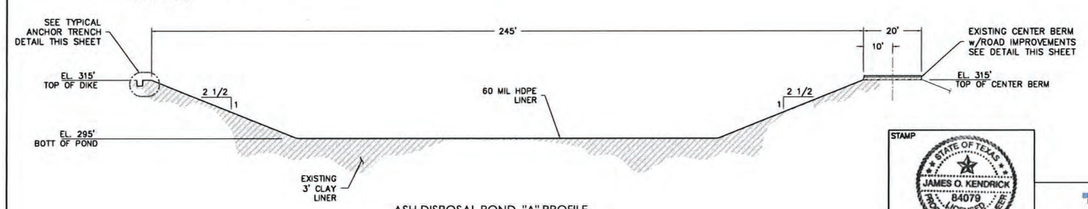


CENTER BERM ROAD IMPROVEMENTS DETAIL
SCALE: 1"=10'

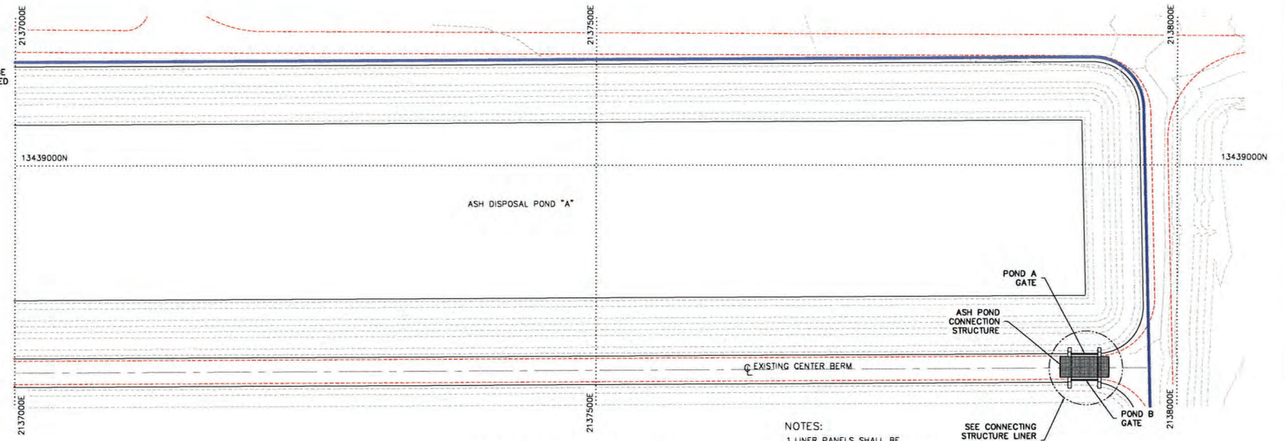


NOTE:
THE CONTRACTOR SHALL INSTALL LINER OVER THE EXISTING STRUCTURE CONNECTING POND A AND POND B. DURING INSTALLATION OF POND A LINER, LINER WILL COVER THE STRUCTURE AND EXTEND TO THE POND B GATE. DURING INSTALLATION OF POND B LINER, THE LINER WILL BE SEAMED WITH THE POND A LINER.

CONNECTING STRUCTURE LINER INSTALLATION DETAIL
SCALE: 1"=50'



ASH DISPOSAL POND "A" PROFILE
LOOKING EAST
SCALE: 1"=20'



POND "A" LINER INSTALLATION PLAN

0 100 200 Feet

NOTES:
1. LINER PANELS SHALL BE INSTALLED BY THE CONTRACTOR IN A NORTH-SOUTH ORIENTATION EXCEPT IN AREAS ON THE EXTREME EAST AND WEST SLOPES OF THE POND.
2. LINER PANELS SHALL BE ANCHORED IN ANCHOR TRENCHES ALONG THE PERIMETER OF THE 2-POND SYSTEM. LINER PANELS WILL BE OVERLAPPED AND WELDED ON THE DIVIDER BERM BETWEEN THE 2 PONDS.
3. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR RELOCATION OF ABOVE GROUND PIPING FOR INSTALLATION OF ANCHOR TRENCHES.

LEGEND

- MAJOR CONTOURS
- MINOR CONTOURS
- 13440000N ····· SURVEY GRID LINE (500 FT SQUARE)
- EXISTING ROAD/PATH
- ANCHOR TRENCH

STAMP

STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/23/19

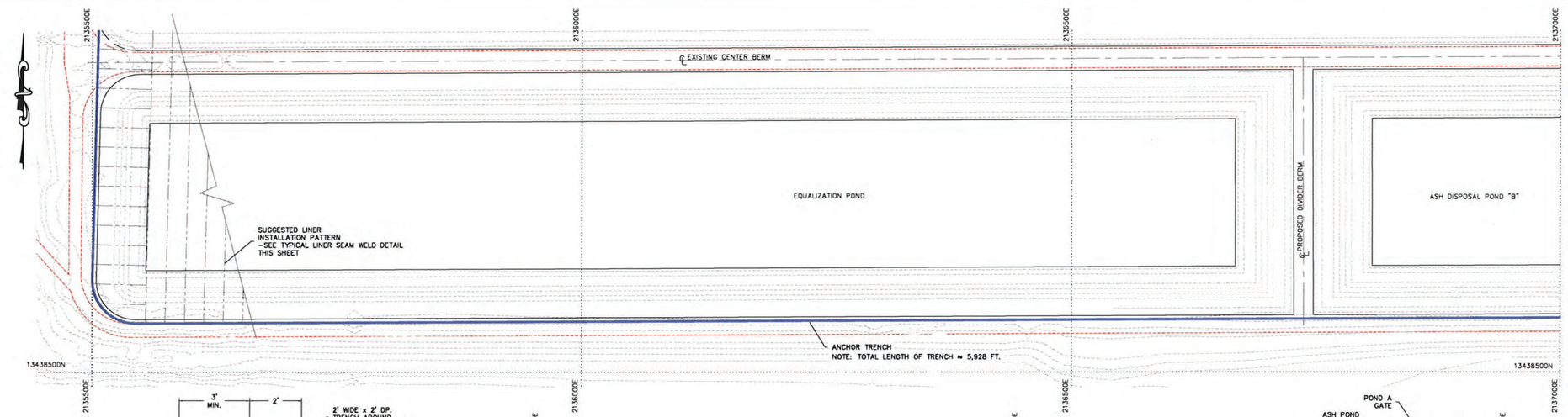
NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

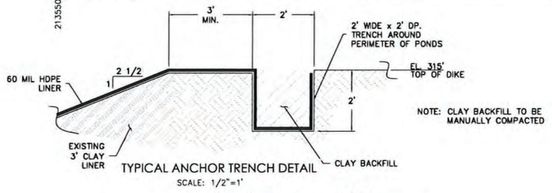
REVISION/ISSUE			
NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	AS NOTED
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19

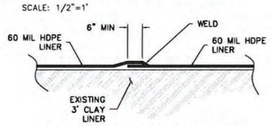
PROJECT NAME	SAN MIGUEL ELECTRIC PLANT ATASCOSA COUNTY, TEXAS ASH DISPOSAL POND RETROFIT
DRAWING NAME	POND "A" LINER INSTALLATION PLAN

PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-107
SHEET NO.	8 OF 9





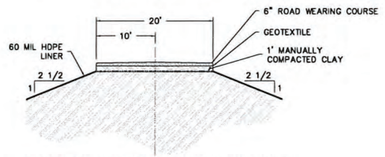
TYPICAL ANCHOR TRENCH DETAIL
SCALE: 1/2"=1'



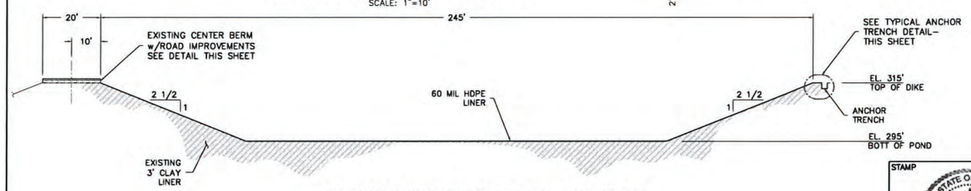
TYPICAL LINER SEAM WELD DETAIL
SCALE: 1/2"=1'

NOTES:

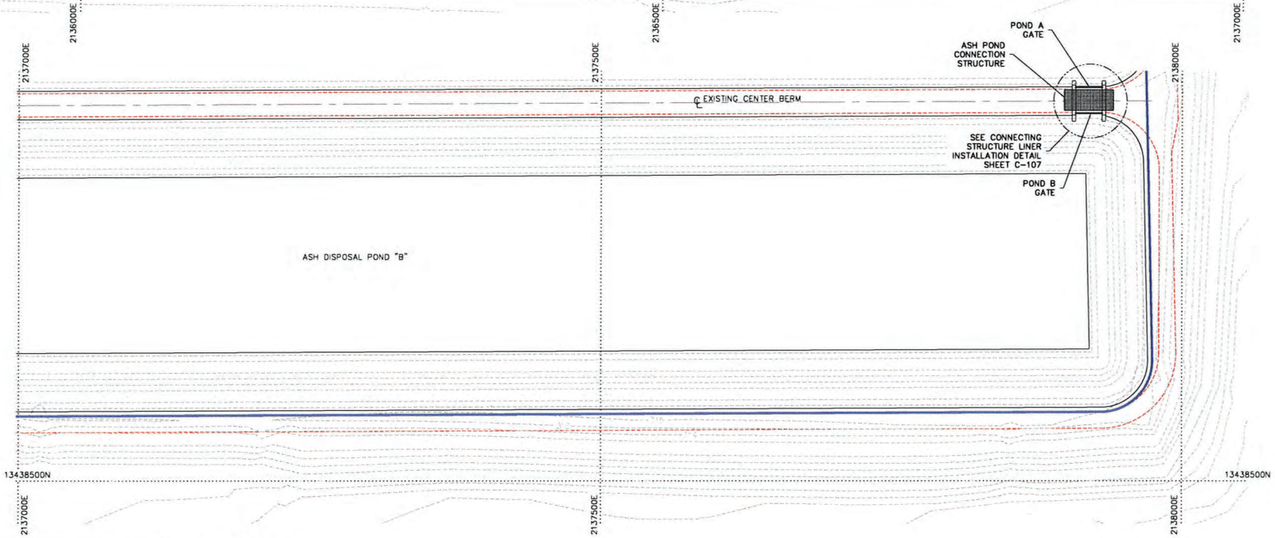
1. LINER PANELS SHALL BE INSTALLED BY THE CONTRACTOR IN A NORTH–SOUTH ORIENTATION EXCEPT IN AREAS ON THE EXTREME EAST AND WEST SLOPES OF THE POND.
2. LINER PANELS SHALL BE ANCHORED IN ANCHOR TRENCHES ALONG THE PERIMETER OF THE 2–POND SYSTEM. LINER PANELS WILL BE OVERLAPPED AND WELDED ON THE DIVIDER BERM BETWEEN THE 2 PONDS.
3. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR RELOCATION OF ABOVE GROUND PIPING FOR INSTALLATION OF ANCHOR TRENCHES.



CENTER BERM ROAD IMPROVEMENTS DETAILS
SCALE: 1"=10'



ASH DISPOSAL POND "B" / EQUALIZATION POND PROFILE
LOOKING EAST
SCALE: 1"=20'



NEW POND "B" AND EQUALIZATION POND LINER INSTALLATION PLAN

0 100 200 Feet

LEGEND

- MAJOR CONTOURS
- MINOR CONTOURS
- 13440000N ····· SURVEY GRID LINE (500 FT SQUARE)
- EXISTING ROAD/PATH
- ANCHOR TRENCH

STAMP

STATE OF TEXAS
JAMES O. KENDRICK
84079
LICENSED
PROFESSIONAL ENGINEER
8/28/19

NewFields
1349 WEST PEACHTREE STREET
SUITE 2000
ATLANTA, GEORGIA 30309
PHONE: 404-347-9050
FIRM # F-5735

REVISION/ISSUE NO.	DATE	BY	DESCRIPTION
01	8/19	FAH	ISSUED FOR CLIENT REVIEW

SCALE	1"=50'
DESIGNED BY	RWG
DRAWN BY	FAH
CHECKED BY	RWG
DRAWING DATE	8/28/19

PROJECT NAME	SAN MIGUEL ELECTRIC PLANT ATASCOSA COUNTY, TEXAS ASH DISPOSAL POND RETROFIT
DRAWING NAME	NEW POND "B" AND EQUALIZATION POND LINER INSTALLATION PLAN
PROJECT NO.	150.0400.000
PROJECT DATE	AUGUST 2019
DRAWING NO.	C-108
SHEET NO.	9 OF 9

APPENDIX B

Pond Surface Area and Storage Volume Calculations

Appendix B-1

San Miguel Power Plant
Hazard Potential Classification Asssessment Update
Pond Volume Calculations
Ash Pond A

Pond Dimensions	
Length at Top of Dike (ft):	2,455
Width at Top of Dike (ft):	245
Depth at Top of Dike (ft)	20
Dike Side Slopes (H:1):	2.5
Length at 2 Ft Freeboard (ft):	2,445
Width at 2 ft Freeboard (ft):	235
Depth at 2 ft Freeboard (ft):	18
Length at Base of Dike (ft):	2,355
Width at Base of Dike (ft):	145

Pond Surface Area at Top of Dikes	
Area (sf):	601,475
Area (acres):	13.8

Pond Volumes	
Volume at Top of Dike (cf):	9,307,655
Volume at Top of Dike (CY):	344,728
Volume at 2 Ft Freeboard (cf):	8,153,988
Volume at 2 Ft Freeboard (CY):	302,000
Storage Available in Freeboard (cf):	**1,153,667**

Note: Pond Dimensions from "Ash Disposal Pond Retrofit", NewFields, August 2019.

Appendix B-2

San Miguel Power Plant
Hazard Potential Classification Asssessment Update
Pond Volume Calculations
Retrofitted Ash Pond B

Pond Dimensions	
Length at Top of Dike (ft):	1,217.5
Width at Top of Dike (ft):	245
Depth at Top of Dike (ft)	20
Dike Side Slopes (H:1):	2.5
Length at 2 Ft Freeboard (ft):	1,207.5
Width at 2 ft Freeboard (ft):	235
Depth at 2 ft Freeboard (ft):	18
Length at Base of Dike (ft):	1,117.5
Width at Base of Dike (ft):	145

Pond Surface Area at Top of Dikes	
Area (sf):	298,288
Area (acres):	6.8

Pond Volumes	
Volume at Top of Dike (cf):	4,534,496
Volume at Top of Dike (CY):	167,944
Volume at 2 Ft Freeboard (cf):	3,961,379
Volume at 2 Ft Freeboard (CY):	146,718
Storage Available in Freeboard (cf):	**573,117**

Note: Pond Dimensions from "Ash Disposal Pond Retrofit", NewFields, August 2019.

Appendix B-3

San Miguel Power Plant
Hazard Potential Classification Asssessment Update
Pond Volume Calculations
Retrofitted EQ Pond

Pond Dimensions	
Length at Top of Dike (ft):	1,217.5
Width at Top of Dike (ft):	245
Depth at Top of Dike (ft)	20
Dike Side Slopes (H:1):	2.5
Length at 2 Ft Freeboard (ft):	1,207.5
Width at 2 ft Freeboard (ft):	235
Depth at 2 ft Freeboard (ft):	18
Length at Base of Dike (ft):	1,117.5
Width at Base of Dike (ft):	145

Pond Surface Area at Top of Dikes	
Area (sf):	298,288
Area (acres):	6.8

Pond Volumes	
Volume at Top of Dike (cf):	4,534,496
Volume at Top of Dike (CY):	167,944
Volume at 2 Ft Freeboard (cf):	3,961,379
Volume at 2 Ft Freeboard (CY):	146,718
Storage Available in Freeboard (cf):	**573,117**

Note: Pond Dimensions from "Ash Disposal Pond Retrofit", NewFields, August 2019.

APPENDIX C

RRC Oil and Gas Well and Pipeline Data

September 20, 2021

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE,

golder.com