ENGINEERING REPORT

FOR

ANNUAL CCR LANDFILL INSPECTION
40 CFR §257.84(b)
30 TAC §352.841

FAYETTE POWER PROJECT
COMBUSTION BY-PRODUCTS LANDFILL
TX Registration No. CCR101
EPA Identification No. TXD083566547

PREPARED FOR
LCRA
FAYETTE POWER PROJECT

PREPARED BY
LCRA WATER ENGINEERING
January 7, 2023

Digitally Signed on
January 7, 2023
Nathan M. Gullo, P.E.
Principal Engineer -Water Engineering

This document is certified under the authority of the engineer whose seal appears above. **IT IS NOT TO BE USED FOR PERMITTING, BIDDING, OR CONSTRUCTION PURPOSES**.

TABLE OF CONTENTS

1.0 BACKGROUND

This report is intended to ensure that the design, construction, operation and maintenance of the Fayette Power Project (FPP) Combustion By-products Landfill (CBL) is consistent with recognized and generally accepted good engineering standards in accordance with the Environmental Protection Agency's Coal Combustion Residual (CCR) rules under 40 CFR Part 257. More specifically this report meets the requirements of 40 CFR §257.84(b) *Annual inspections by a qualified professional engineer* and 30 Texas Administrative Code (TAC) §352.841, adopted by the Texas Commission on Environmental Quality (TCEQ) on May 22, 2020.

As required by 40 CFR §257.84(b) and 30 TAC §352.841, this inspection report documents the annual inspection of the CBL, located at 6549 Power Plant Road, La Grange, Texas 78945. The CBL is registered as a non-hazardous solid waste management unit (MU013) by the TCEQ as part of TCEQ Registration No. 31575.

The CBL facility and associated structural components as defined in 40 CFR §257.53 are located in the southwest portion of the FPP, south of the power plant and north of the Missouri-Kansas-Texas railroad line (Appendix A). LCRA deed recorded a 123-acre tract located within the FPP site for disposal of Class 2 nonhazardous industrial waste. To date, an approximately 30-acre area has been developed as the Cell 1 landfill unit and a 7.9-acre area has been developed as Sub-Cell 2D landfill unit. In 2013 LCRA notified TCEQ and received concurrence to raise the maximum elevation of the CBL from approximately 430 feet above mean sea level (ft-amsl) to 470 ft-amsl and added Sub-Cell 2D.

The CBL landfill and structural components currently include the CBL Cell 1 landfill embankments, berms, clay liner and partial cover; Sub-Cell 2D landfill excavation and liner; the associated runoff channel and letdown structures that routes run-off water from the CBL Cell 1 and pumped water from Cell 2D Pond to the CBL Runoff Pond; and perimeter stormwater drainage channels, that route clean non-contact stormwater run-off from the embankments and areas outside the CBL , around the CBL and off of the facility.

The run-off pond structures fall under the terms and conditions of Texas Pollutant Discharge Elimination System (TPDES) permit no. WQ0002105000. Therefore, beginning with the reporting period (2021) the run-off structures are reported under the TPDES permit and will no longer be detailed in this engineering report unless it is observed they have the potential to affect the stability or disrupt the operation and safety of the CBL as per 40 CFR §257.84(b)(2)(iii) and (iv).

In accordance with 40 CFR §257.84(b)(3) and 30 TAC §252.841, the 2022 annual inspection was performed, document review was conducted, and this report has been prepared to document this work.

2.0 DOCUMENT REVIEW

Pertinent record documents reviewed as part of the development of past inspections' reports were again reviewed for updates since the "ENGINEERING REPORT FOR ANNUAL CCR LANDFILL INSPECTION 40 CFR §257.84(b), FAYETTE POWER PROJECT COMBUSTION BY-PRODUCTS LANDFILL" (2021 Report) was issued on January 12, 2022. This review was intended to capture any revisions or updates to the previously reviewed record documents and addition of new record documents related to design, construction, operation, and maintenance of the CBL. In addition to the 2021 Report there were seven (7) new documents produced in 2022 that have been posted to the Publicly Accessible Internet Site as required by 40 Code of Federal Regulations § 257.107. The documents reviewed are as follows:

1. "Location Restrictions Certification Report" dated January 21, 2022 by Geosyntec Consultants, in compliance with 40 CFR §257.60 to §257.64 and 30 TAC §352.601 to §352.641
2. "Registration Application for Coal Combustion Residuals for LCRA Sam Seymour Fayette Power Project" dated January 24, 2022, by LCRA, and LCRA Response Letters to TCEQ comments dated June 3, 2022 and October 28, 2022 in compliance with 30 TAC §352 and 40 CFR §257
3. "Composite Liner Design and Operating Criteria Report" dated January 22, 2022 by Geosyntec Consultants, in compliance with 40 CFR §257.70, §257.81, §257.84, TAC §352 Subchapter F, and TAC §352 Subchapter G
4. "Coal Combustion Residual Landfill Annual Groundwater Monitoring Report - Calendar Year 2021" dated January 31, 2022, by LCRA, in compliance with 40 CFR §257.93, 30 TAC §352.901-991, and 40 CFR §257.94
5. "Annual Coal Combustion Residuals (CCR) Fugitive Dust Control Report – 2022" dated November 7, 2022, by Waste Management National Services, in compliance with 40 CFR §257.80(c).

These documents were found to ensure adherence to recognized and generally accepted good engineering standards as related to the existing structural components defined in 40 CFR §257.53.

The weekly inspections were performed for this facility in calendar year 2022 as required under 40 CFR §257.84(a) and 30 TAC §352.841. The weekly inspection reports for the period from January 1, 2021 through December 31, 2022 were reviewed. Review of these documents did not result in findings indicating the CBL design, construction, operations or maintenance activities would result in potential structural weakness or conditions which are disrupting or have the potential to disrupt the operation or safety of the CBL as currently configured.

3.0 LANDFILL GEOMETRY & VOLUME

This is the eighth annual inspection report as required under 40 CFR §257.84(b)(2) with the 2015 report serving as a baseline for changes in geometry of the structure and approximate CCR volume.

An aerial survey was conducted on September 7, 2022 and did not show a change in the landfill impounding structure geometry from the October 5, 2021 survey. This was also confirmed during the field inspection. An approximate layout of the impounding structures is included in Appendix B.

Per 40 CFR §257.84(b)(2)(ii), the CCR volume, as determined by results of the September 7, 2022 aerial survey, is approximately 1,220,711 cubic yards.

4.0 INSPECTION OF LANDFILL STRUCTURES

Inspection of the Fayette Power Project's Combustion By-products Landfill facility was conducted by Mr. Nathan M. Gullo. P.E. and Mr. Samuel C. Brown, P.E. on the morning of December 1, 2022 beginning at 08:45 and concluding at 10:00 hours. The weather was generally cloudy with temperatures in the mid 40's during the inspection. The CBL location had received precipitation amounts of 3.25 inches over the previous 30 days and 20.40 inches since the December 2, 2021 inspection. All precipitation data was provided from the LCRA Hydromet rain gauge number 563400 located at the FPP site.

4.1 CBL CELL 1 LANDFILL

CCR Landfill contained by Perimeter Embankment Structures and Berms
1-ft Thick Compacted Clay Liner Over 3-ft of In Situ Clay

General Condition: ☒ **Good** ❑ Fair ❑ Poor

Problems Noted: ☒ **None** ❑ Operational Issues ❑ Safety

❑ Other: _____

Comments:

(1) There were no conditions observed as disrupting or having the potential to disrupt the operation or safety of the landfill unit. The structures were observed to be containing the CCR materials as designed.

4.1.1 CBL CELL 1 LANDFILL WESTERN EMBANKMENT SLOPE

Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal slope
Approximate Length: 350 ft.
Approximate Max Impoundment Height: 20 ft. @ 410 ft-amsl

General Condition: ☒ **Good** ❑ Fair ❑ Poor

Problems Noted: ☒ **None** ❑ Poor Grass Cover ❑ Trees or Brush ❑ Animal Burrows or Damage ❑ Standing Water/Ponding ❑ Wet Areas ❑ Erosion ❑ Depressions ❑ Rutting ❑ Cracks ❑ Bulges ❑ Misalignment ❑ Sinkhole ❑ Other: _____

Comments:

(1) Overall, grass cover was in good condition with full coverage. The area had been recently mowed and was observed with an approximate height of 3 to 5-inches. There were no

visual signs of active animal activity or history of such. The slopes are visually in alignment with the 3:1 design and no visual evidence of structural issues were observed. The structure was observed to be containing the CCR materials as designed.

4.1.2 CBL CELL 1 LANDFILL NORTHERN EMBANKMENT SLOPE

Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal slope
Approximate Length: 1,300 ft.
Approximate Max Impoundment Height: 35 ft. @ 420 ft-amsl

General Condition: ☒ **Good** ❑ Fair ❑ Poor

Problems Noted: ☒ **None** ❑ Poor Grass Cover ❑ Trees or Brush ❑ Animal Burrows or Damage ❑ Standing Water/Ponding ❑ Wet Areas ❑ Erosion ❑ Depressions ❑ Rutting ❑ Cracks ❑ Bulges ❑ Misalignment ❑ Sinkhole ❑ Other: _____

Comments:

(1) Overall, grass cover was in good condition with full coverage. Grass was observed with an approximate height of 12 to 36-inches on the slope and recently mowed with an approximate height of 3 to 5-inches at the crest. There were no visual signs of active animal activity or history of such. The slopes are visually in alignment with the 3:1 design and no visual evidence of structural issues were observed. The structure was observed to be containing the CCR materials as designed.

4.1.3 CBL CELL 1 LANDFILL EASTERN EMBANKMENT SLOPE

Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal slope
Approximate Length: 550 ft.
Approximate Max Impoundment Height: 30 ft. @ 420 ft-amsl

General Condition: ☒ **Good** ❑ Fair ❑ Poor

Problems Noted: ☒ **None** ❑ Poor Grass Cover ❑ Trees or Brush ❑ Animal Burrows or Damage ❑ Standing Water/Ponding ❑ Wet Areas ❑ Erosion ❑ Depressions ❑ Rutting ❑ Cracks ❑ Bulges ❑ Misalignment ❑ Sinkhole ❑ Other: _____

Comments:

(1) Overall, grass cover was in good condition with full coverage. Grass was observed with an approximate height of 12 to 36-inches on the upper three quarters of the slope and recently mowed with an approximate height of 3 to 6-inches on the lower quarter of the slope. There were no visual signs of active animal activity or history of such. The slopes are visually in alignment with the 3:1 design and no visual evidence of structural issues were observed. The structure was observed to be containing the CCR materials as designed.

4.1.4 CBL CELL 1 LANDFILL PARTIAL TOP CAP

Clay Cap with Topsoil & Grass Vegetation
Approximate Length: 1,000 ft.
Approximate Width: 120 ft.

General Condition: ☒ **Good** ❑ Fair ❑ Poor

Problems Noted: ☒ **None** ❑ Poor Grass Cover ❑ Trees or Brush ❑ Animal Burrows or Damage ❑ Standing Water/Ponding ❑ Wet Areas ❑ Erosion ❑ Depressions ❑ Rutting ❑ Cracks ❑ Bulges ❑ Misalignment ❑ Sinkhole ❑ Other: _____

Comments:
Overall, grass cover was in good condition with full coverage. Grass was observed to be recently mowed with an approximate height of 3 to 6-inches. There were no visual signs of active animal activity or history of such. No visible evidence of structural issues was observed. The structure was observed to be containing the CCR materials as designed.

4.1.5 CBL CELL 1 LANDFILL SOUTH BERMS

Interim Berm Structures for Containment of Run-off Water
Approximate Length: 1,000 ft.
General Condition: ☒ **Good** ❑ Fair ❑ Poor
Problems Noted: ☒ **None** ❑ Operational Issues ❑ Safety
❑ Other: _____
Comments:
No visible evidence of structural issues was observed. The structures were observed to be containing the CCR materials and run-off water as designed.

4.2 CBL SUB-CELL 2D LANDFILL

Excavated CCR Containment Area Below Natural Grade
3-ft Thick Compacted Clay Liner
CCR Storage and Beneficial Use Product Preparation Area
General Condition: ☒ **Good** ❑ Fair ❑ Poor
Problems Noted: ☒ **None** ❑ Operational Issues ❑ Safety
❑ Other: _____
Comments:
(1) There were no conditions observed as disrupting or having the potential to disrupt the operation or safety of the landfill unit. The structures were observed to be containing the CCR materials as designed.

4.3 CBL RUN-ON/RUN-OFF STRUCTURES

Open Channels and Culverts
General Condition: ☒ **Good** ❑ Fair ❑ Poor
Problems Noted: ☒ **None** ❑ Operational Issues ❑ Safety
❑ Other: _____
Comments:
(1) There were no conditions observed as disrupting or having the potential to disrupt the operation or safety of the CBL.

5.0 CONCLUSIONS

The FPP CBL structures were in good condition at the time of this inspection and does not appear to have an actual or potential structural weakness nor any existing conditions that are disrupting, or have the potential to disrupt, the operation and safety of the CBL. The operation and maintenance of the landfill is currently contracted to a landfill manager believed to have good competency with a plan in place to meet the 40 CFR Part 257 and 30 TAC Chapter 352 requirements for operation of the facility consistent with recognized and generally acceptable good engineering standards.

The CBL is designed, constructed, operated, and maintained consistent with recognized and generally accepted good engineering standards.

6.0 RECOMMENDATIONS

Based on the document review and the inspection conducted on December 1, 2022, no new recommendations are identified.

6.1 OUTSTANDING RECOMMENDATIONS

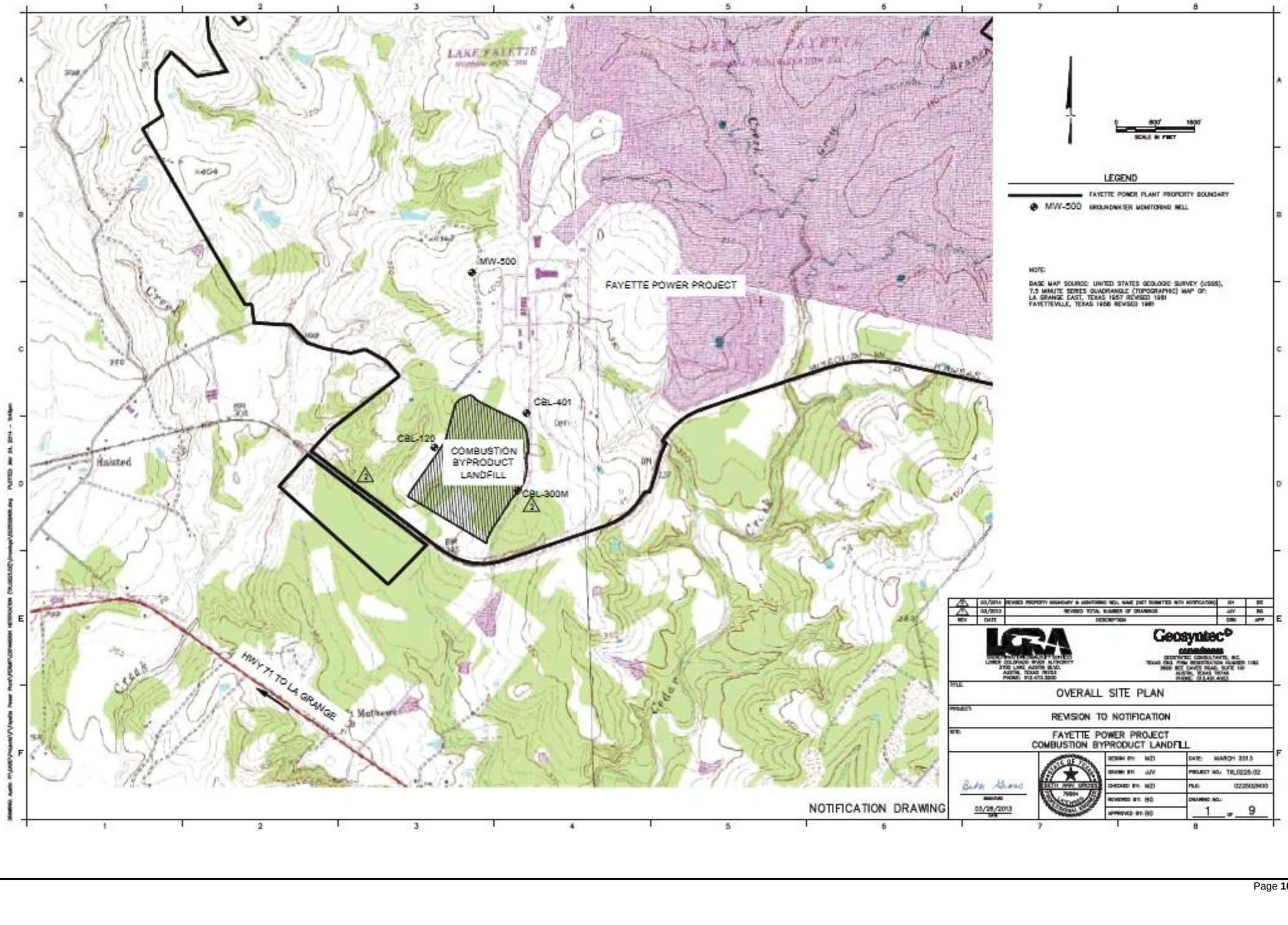
No outstanding recommendations

6.2 NEW RECOMMENDATIONS

No new recommendations

APPENDIX A

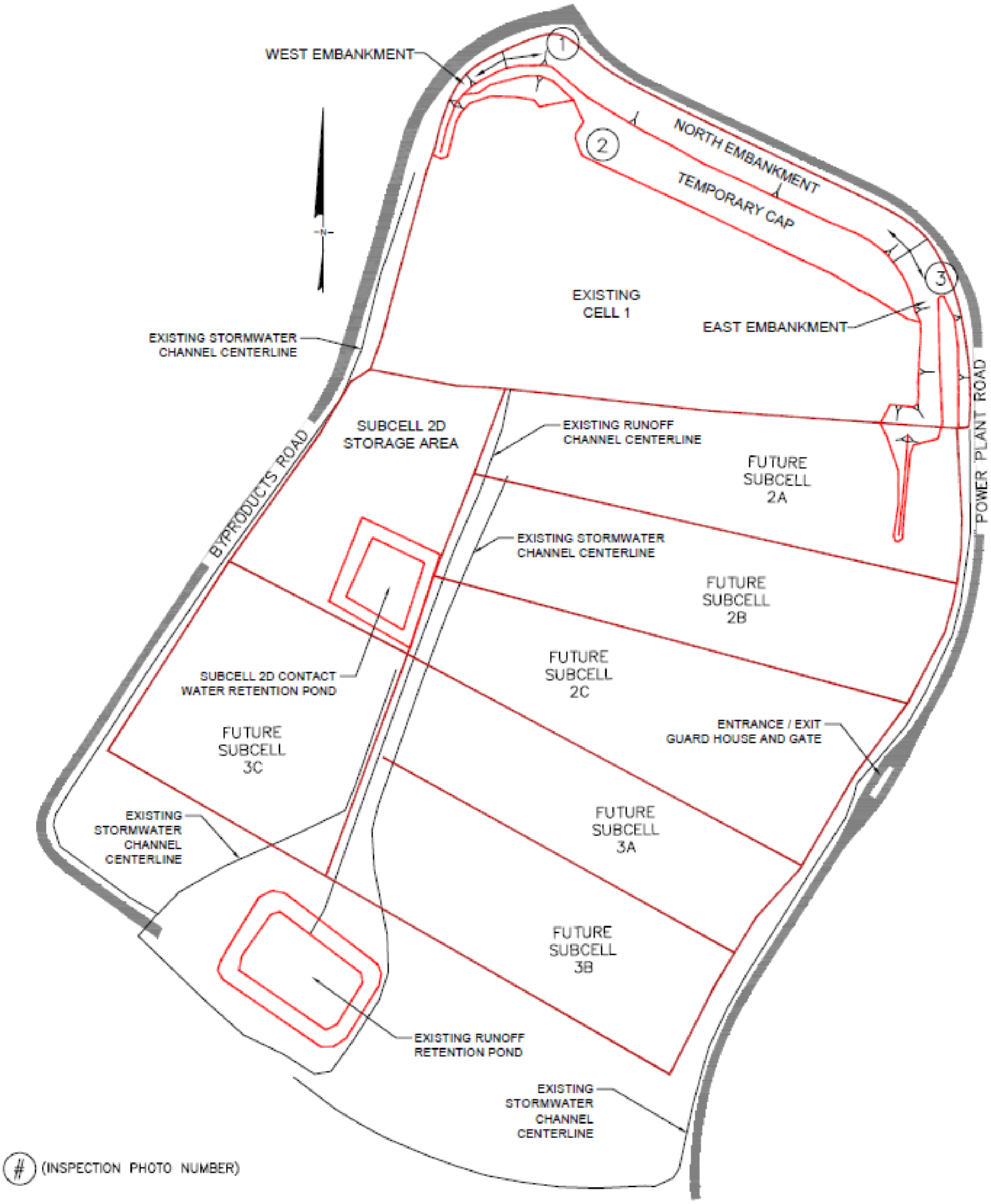
FPP COMBUSTION BY-PRODUCTS LANDFILL LOCATION DRAWING


LAKE FAYETTE
MW-500
FAYETTE POWER PROJECT
CBL-401
CBL-120
COMBUSTION BYPRODUCT LANDFILL
CBL-300M
HWY 71 TO LA GRANGE
Halsted
Cedar Creek
0
800'
1600'
SCALE IN FEET
LEGEND
FAYETTE POWER PLANT PROPERTY BOUNDARY
MW-500 GROUNDWATER MONITORING WELL
NOTE:
BASE MAP SOURCE: UNITED STATES GEOLOGIC SURVEY (USGS), 7.5 MINUTE SERIES QUADRANGLE (TOPOGRAPHIC) MAP OF: LA GRANGE EAST, TEXAS 1957 REVISED 1981 FAYETTEVILLE, TEXAS 1958 REVISED 1981
03/2014 REVISED PROPERTY BOUNDARY & MONITORING WELL NAME (NOT SUBMITTED WITH NOTIFICATION) KH BG
03/2013 REVISED TOTAL NUMBER OF DRAWINGS JJV BG
REV DATE DESCRIPTION DRN APP
LCRA
Geosyntec
OVERALL SITE PLAN
REVISION TO NOTIFICATION
FAYETTE POWER PROJECT
COMBUSTION BYPRODUCT LANDFILL
DESIGN BY: MZI
DRAWN BY: JJV
CHECKED BY: MZI
REVIEWED BY: BG
APPROVED BY: BG
DATE: MARCH 2013
PROJECT NO.: TXLG225.02
FILE: 0225023400
DRAWING NO.: 1 OF 9
03/28/2013
NOTIFICATION DRAWING

APPENDIX B

FPP COMBUSTION BY-PRODUCTS LANDFILL INSPECTION DRAWING

FPP COMBUSTION BY-PRODUCTS LANDFILL
INSPECTION DRAWING



APPENDIX C
INSPECTION PHOTOS

PHOTO 1 – View of Cell 1 North Embankment Looking East (12-01-2022)

PHOTO 2 – View of Cell 1 Temporary Cap and Landfill Material Looking East (12-01-2022)

PHOTO 3 – View of Properly Functioning Non-Contact Water Drainage Culvert Pipe at Northeast Corner of Cell 1 (12-01-2022)