Sandy Creek Energy Station
Coal Combustion Residual Waste Management Facility
Registration Application
TCEQ Registration No. CCR107
McLennan County

Technical Notice-of-Deficiency Response 2

Marked and Unmarked Version

Prepared for
Sandy Creek Services, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

SCS ENGINEERS

SCS Project No. 16221059.00
Revision 1 – May 2022
Revision 2 – October 2022

1901 Central Drive, Suite 550
Bedford, Texas 76021
817.571.2288

Sandy Creek Services, LLC
c/o Sandy Creek Energy Station
PO Box 370
Riesel, TX 76682
(254) 896-4205 tel.
(254) 896-7726 fax.

October 20, 2022

Mr. Charles Brown
Industrial and Hazardous Waste Permits Section, MC-130
Coal Combustion Residuals Program
Waste Permits Division
Texas Commission on Environmental Quality
P. O. Box 13087
Austin, Texas 78711-3087

Subject: Sandy Creek Energy Associates, LP – Riesel, McLennan County
CCR Registration No. CCR107
Response to Technical Notice-of-Deficiency 2
Tracking No. 27237612; CN604335455/RN105905657

Letter No. SCS-TCEQ-198

Dear Mr. Brown:

Sandy Creek Services, LLC (Owner and Operator) is submitting this response to the September 22, 2022 Technical Notice-of-Deficiency (i.e. NOD 2) for the Sandy Creek Energy Station (Plant) Coal Combustion Residual (CCR) Waste Management Facility (Landfill) related to the subject Registration Application.

For ease of review, we have attached to this response letter your original comment table from your September 22, 2022 NOD email with the response location and response statements provided in a separate column in the table. Additionally, attached to this response letter, we have included one original and two (2) unmarked copies, and one marked copy of all revised pages for use as replacement pages in the Registration Application. Where possible, we have identified proposed changes from the existing Registration Application in a redline/strike-out version (i.e., marked version). Additionally, we have included a revision date (October 2022) and revision number (Revision 2) on pages that have been revised as part of this NOD response. This response has been posted on the publicly accessible internet website http://www.sandycreekpower.net/registrationapplication.

We appreciate your review of this Registration Application NOD response. If you or your staff have any questions, please do not hesitate to contact Dana Perry at (254) 896-4218.

Sincerely,

Bryon Kohls
Project Director
Sandy Creek Services, LLC

Attachments: as described herein

cc: Dana Perry – Sandy Creek Services, LLC
Ryan Kuntz, P.E. – SCS Engineers
Brett DeVries, Ph.D., P.E. – SCS Engineers
TCEQ Region 9 Office

ATTACHMENT A

RESPONSE TABLE

Sandy Creek Services, LLC, Coal Combustion Residuals Registration No. CCR107
September 22, 2022 Notice-of-Deficiency Response Table

NOD ID	APP. Section	App. Sub Section	Location	Citation	NOD Description	Response
1	IV	IV.25.F	Table IV.D	Application Instructions 40 CFR 257.84(a)(i)	Revise table to indicate that weekly inspection items will be conducted at intervals not exceeding 7 days.	In accordance with 40 CFR 257.84(a)(i)), Table IV.D and Table 3.1 in Part V – Site Operating Plan have been revised to indicate that weekly inspection elements will be inspected at intervals not exceeding seven days.
2	IV	IV.25	[Drawing IV-3]	40 CFR 257.70(d)	Revise Drawing IV-3 to show a Leachate Collection Sump for Cell 2.	Although a callout to indicate the location of the leachate collection sump for Cell 2 was already depicted on Drawing IV-3, this drawing has been revised to further indicate the leachate collection sump location in Cell 2.
3	IV and VII	IV.25 and VII.31	[Drawing lV-10]	40 CFR 257.7	Remove "optional" for Top Slopes (design for Composite Final Cover) and indicate that composite final cover is required for Cell 3.	In accordance with 40 CFR §257.102(d)(3)(I)(A), the permeability of the final cover system must be less than or equal to the permeability of any bottom liner system. Since Cell 3 is the only cell that has a composite liner system, a composite liner system (having permeability less than or equal to the bottom liner system) is only required over Cell 3, as indicated in Note 1 on Drawing IV-10. Since the topslope is not overlying Cell 3 (overlays portions of Cells 1 and 2), composite final cover on the topslope is not required. However, and in accordance with Note 3 on Drawing IV-10, composite final cover may be installed over Cells 1 and 2 (including on the topslope) at the discretion of the Landfill Owner/Operator. Therefore, composite final cover on the topslope is optional and "(Optional)" indicated on Detail D on Drawing IV-10 does not need to be removed. To clarify the locations of soil only and composite final covers, Drawings IV-4, IV-5, and IV-6 have been revised to include cell boundaries. Additionally, callouts and revisions to notes have been made on Drawings IV-4, IV-5, and IV-6 for clarity purposes.
4	IV and VII	IV.25 and VII.31	[Drawings]	40 CFR 257.70 and 257.102 (d)(3)	Provide details and design drawings for the tie-in between the Cell 2 clay-liner system and final cover and the Cell 3 composite liner system and final cover.	In accordance with this NOD comment and the call between Charles Brown and Brett DeVries on September 9, 2022; Drawing IV-13 has been added to provide liner tie-in details between Cells 1/2 and Cells 1/3 (see Details A and B), and final cover tie-in details between the soil only and composite final covers (see Details C and D). Note that since Cell 1 is located between Cells 2 and 3, a Cells 2/3 liner tie-in detail is not required or included. The table of contents for Parts I and IV have also been revised to include the addition of Drawing IV-13.
5	IV	IV.25	[App.IV.A, Subsec. 4.5]	40 CFR 257.70(d)(1)	Provide procedures for ensuring a leachate level of less than 30cm over the liner in the event of a pump failure of more than 24 hours.	As indicated in Section 4.5 of Appendix IV.1 (first paragraph), the Cell 3 leachate collection and removal (LCRS) sump will provide in excess of one-day of leachate storage for the maximum calculated generation rate. Since the maximum leachate generation rate was used for Cell 3 LCRS sump sizing, this calculation does not necessary indicate that the LCRS sump will be full and result in a leachate level greater than 30 centimeters over the liner within 24 hours of pump failure. As a result, Section 4.5 of Appendix IV.A has been revised to indicate that in the event of pump failure, the Landfill Owner/Operator will monitor the liquid level within the sump daily to verify liquid levels less than 30 centimeters above the bottom liner. Additionally, Section 4.5 has been revised to indicate that the Landfill Owner/Operator will have a spare pump and parts onsite or otherwise be capable of pumping liquids from the sump for disposal in the event of pump failure.

NOD ID	APP. Section	App. Sub Section	Location	Citation	NOD Description	Response
6	IV	IV.25	[App. IV.A, Subsec. 4.5]	40 CFR 257.70(d) and 257.80(b)(1)	Clarify if leachate and contact water will be used for dust suppression outside of the landfill cells.	Section 2.5 (third paragraph) of Part V – Site Operating Plan currently indicates that water for dust control within the active area of the Landfill (i.e., within the lined area without intermediate cover) is pumped by the Landfill Owner/Operator from the leachate/evaporation pond. This statement has been revised to clarify that active areas are without intermediate or final cover. Sections 4.5 and 5 in Appendix IV.A – Leachate Collection and Removal System Plan have been revised to clarify that leachate and contact water for dust control may be used within the active lined area (i.e., without intermediate or final cover) of the Landfill in accordance with Section 2.5 of the Site Operating Plan.
7	VI	VI.27	[Part VI, Subsec. 7.3]	Application Instructions 30 TAC 352.911; 40 CFR 257.94 and 257.95	Provide a narrative to explain how the facility will comply with the requirements for the detection monitoring program and assessment monitoring program.	Section 7.3 in Part VI has been revised to indicate how the Landfill Owner/Operator will comply with requirements of 40 CFR §257.94 and §257.95, including a statement that the Landfill Owner/Operator will comply with all requirements of §257.94 and §257.95.
8	VI	VI.27	[Part VI, Subsec. 7.3]	40 CFR 257.91(b)	Provide criteria for expanding the groundwater monitoring system during development of the landfill.	Section 7.3 in Part VI and Drawing VI-2 have been revised to include criteria for the installation of two additional groundwater monitoring wells (MW-6 and 7) to be installed in the future. Tables VIII.A.1 and VIII.A.2 in Appendix I.A and Part VIII and tables in Appendix VIII.A have been revised to include these wells in the post-closure care cost estimates. Note that MW-6 was included in the post-closure cost summary for the existing registered units because it will be installed prior to waste placement in Subcell 3D (an existing subcell) and MW-7 was included in the tables related to proposed registered units (future cells) because it will be installed prior to waste placement in Subcell 3F (a future subcell).
9	VI	VI.28	[Part VI, Subsec. 7.4]	40 CFR 257.96(a)	Indicate that the owner/operator must initiate assessment of corrective measures immediately upon detection of a release from a CCR unit and that any extension to complete the assessment of corrective measures must be based on a site-specific demonstration.	The first paragraph in Section 7.4 (Part VI) has been revised to comply with the NOD.
10	VI	VI.29	Table VI.C.1	Application Instructions 30 TAC 352.941; 40 CFR 257.94 Appendix III	Add and complete attached "Table VI.C-1 – Groundwater Detection Monitoring Parameters.", if applicable. This table was inadvertently omitted in the application form.	Table VI.C.1 has been completed and added to Appendix I.A.
11	VI	VI.29.B	[Part IV]	40 CFR 257.93(d)	Provide a background evaluation report for the CCR Unit which discusses the establishment of background concentrations of Appendix III and IV constituents.	A background evaluation report for the CCR unit is included in the 2017 Annual Groundwater Monitoring and Corrective Action Reported, which was provided in the original application in Appendix VI.C. Section 7.2 of Part VI – Groundwater and Corrective Action Plan has been revised to clarify the location of the background evaluation report.
12	VI	VI.30	[Part VI. Subsec. 7.5]	40 CFR 257.97	Address all provisions of the cited rule.	The first paragraph in Section 7.5 (Part VI) has been revised to include provisions meeting 40 CFR §257.97; including evaluation factors, scheduling for implementing and completing remedial activities, and considerations for factors that may affect remedial activities.

NOD ID	APP. Section	App. Sub Section	Location	Citation	NOD Description	Response
13	VI	VI.30	[Part VI. Subsec. 7.6]	40 CFR 257.98(a)	Indicate that remedial activities will be initiated within 90 days of selection of a remedy.	The first paragraph in Section 7.6 (Part VI) has been revised to indicate that the Landfill Owner/Operator will implement a corrective action groundwater monitoring program within 90 days of selection of a remedy consistent with the NOD.
14	VI	VI.30	[Part IV. Subsec. 7.6]	40 CFR 257.98(c)(1) – (3)	Address the requirements of the cited rule.	Section 7.6 (Part VI) has been revised to indicate that the Landfill Owner/Operator will submit documentation that demonstrates that requirements of 40 CFR §257.98(c)(1)-(3) have been fulfilled.
15	VI	VI.30	[App. IV.A Subsec. 3.2]	40 CFR 257.93(c)	Indicate that the rate and direction of groundwater flow unit must be determined each time groundwater is sampled	Section 3.3 (Appendix VI.A) has been revised to indicate that the rate and direction of groundwater flow will be calculated and reported following each groundwater sampling event.
16	VI	VI.30.H	Table VI.D-2.	Application Instructions 30 TAC 352.951; 40 CFR 257.94 Appendix IV	Replace the title of "Table VI.D.2 – Groundwater Detection Monitoring Parameters" with "Table VI.D-2 – Groundwater Assessment Monitoring Parameters" and complete if applicable.	Table VI.D.2 in Appendix I.A has been revised in consistent with the NOD and updated to indicate that assessment monitoring parameters are not applicable (N/A) since the groundwater wells are not in assessment monitoring.
17	VII	VI.32	[Part VII, Subsec. 6]	40 CFR 257.104	Provide an inspection schedule for post-closure care inspections of the landfill.	Part VII – Closure and Post-Closure Care Plan has been revised to include a site inspection and maintenance schedule for the post-closure care period (Table 6.1); and Section 6.1 and table of contents for Part VII have been revised to reference Table 6.1. Additionally, Part V – Site Operating Plan has been revised to indicate that Table 3.1 – Site Inspection and Maintenance Schedule is applicable for the active Landfill period.

ATTACHMENT B

REGISTRATION APPLICATION REVISIONS (MARKED)

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART I
GENERAL REGISTRATION APPLICATION REQUIREMENTS

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
P.O. Box 370
Riesel, TX 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

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APPENDIX I.A

APPLICATION FORMS

Table IV.D. – Inspection Schedule of Landfills

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Unit 002 - Waste Spilled in route to landfill	Waste spilled in route to landfill.	Daily
Unit 002 - Landfill Structure and Slope	Sloughing, slumping, sliding, surface cracking, sinkholes, excessively steep slope, toe of slope movement, and vehicle damage.	Weekly[1]
Unit 002 - Landfill Access Roads	Damage from vehicle traffic and erosion.	Monthly
Unit 002 - Intermediate Cover	Improper placement, thickness, erosion, vegetation, animal burrows, and for presence of waste or other contamination.	Weekly[1]
Unit 002 - Final Cover	Improper placement, thickness, erosion, vegetation, animal burrows, and for presence of waste or other contamination.	Monthly
Unit 002 - Dust Emissions	Fugitive dust at the landfill and from haul trucks	Daily
Unit 002 - Erosion Control	Erosion of intermediate and final cover	Weekly[1] (Interim), Monthly (Final)
Unit 002 - Ponding Water	Ponding water on landfill cover.	Weekly[1]
Unit 002 - Run-on and Run-off Control Systems (Uncontaminated and Contact Water)	Damage to diversion berms, downchutes, perimeter drainage channels, culverts, detention basin(s) for damage.	Weekly[1]
Unit 002 - Leachate Collection and Removal System	Damage to leachate riser pipes, sump pump/controls, and evaporation pond for damage and height of freeboard in the pond. Damage to isolation valves, protective cover, exposed geosynthetics, and leachate evaporation pond underdrain system for damage or blockage.	Weekly[1] Monthly
Unit 002 - Groundwater Monitoring System	Damage, excess vegetation, and other deficiencies to the groundwater monitoring wells.	Monthly

Note:
1. Weekly inspection elements will be inspected at intervals not exceeding seven days.

Table VI.C.1. – Groundwater Detection Monitoring Parameters

Well[1] and Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[2]
BW-1 (upgradient)				
Boron	Semiannual	6010B	0.100 mg/L	6.787 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	723.7 mg/L
Chloride	Semiannual	9056	2.50 mg/L	1540.0 mg/L
Fluoride	Semiannual	9056	0.500 mg/L	2.356 mg/L
pH	Semiannual	9040C	0.100 pH units	6.8 – 9.5 ph units
Sulfate	Semiannual	9056	25.0 mg/L	3884 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	10119.0 mg/L
MW-1 (downgradient)				
Boron	Semiannual	6010B	0.100 mg/L	2.6 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	1030.0 mg/L
Chloride	Semiannual	9056	2.50 mg/L	402.0 mg/L
Fluoride	Semiannual	9056	0.500 mg/L	0.4 mg/L
pH	Semiannual	9040C	0.100 pH units	6.136 – 8.289 ph units
Sulfate	Semiannual	9056	25.0 mg/L	3402 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	6765 mg/L
MW-2 (downgradient)				
Boron	Semiannual	6010B	0.100 mg/L	2.4 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	874.4 mg/L
Chloride	Semiannual	9056	2.50 mg/L	3336.0 mg/L
Fluoride	Semiannual	9056	0.500 mg/L	2.831 mg/L
pH	Semiannual	9040C	0.100 pH units	6.7 – 7.5 ph units
Sulfate	Semiannual	9056	25.0 mg/L	4635 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	23969.0 mg/L
MW-3 (downgradient)				
Boron	Semiannual	6010B	0.100 mg/L	1.2 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	688.1 mg/L
Chloride	Semiannual	9056	2.50 mg/L	606.9 mg/L

Fluoride	Semiannual	9056	0.500 mg/L	2.201 mg/L
pH	Semiannual	9040C	0.100 pH units	5.71 – 8.09 ph units
Sulfate	Semiannual	9056	25.0 mg/L	4447.0 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	9375.0 mg/L

[1]Monitor wells MW-4 and MW-5 (not listed) have not completed background monitoring, so concentration limits have not yet been determined.

[2] The concentration limit, which is the basis for determining whether a release has occurred from the CCR unit/area, is applicable to downgradient wells only. Note, concentration limits may change as data are accumulated.

Table VI.D-2. – Groundwater ~~Detection~~ Assessment Monitoring Parameters

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[1]
~~Boron~~	~~Semiannual~~	~~6010B~~	~~0.200~~	~~See Note 2~~
~~Calcium~~	~~Semiannual~~	~~6010B~~	~~5.00~~	~~See Note 2~~
~~Chloride~~	~~Semiannual~~	~~9056~~	~~25.0~~	~~See Note 2~~
~~Fluoride~~	~~Semiannual~~	~~9056~~	~~0.500~~	~~4.0~~
~~pH~~	~~Semiannual~~	~~9040C~~	~~0.100~~	~~See Note 2~~
~~Sulfate~~	~~Semiannual~~	~~9056~~	~~25.0~~	~~See Note 2~~
~~Total Dissolved Solids~~	~~Semiannual~~	~~160.1~~	~~10.0~~	~~See Note 2~~
N/A				

1 The concentration limit is the basis for determining whether a release has occurred from the CCR unit/area.

2 MCL does not exist

Table VIII.A.1. – Post-Closure Cost Summary for Existing Registered Units

Unit	Cost
1.0 Engineering:	
1.1 Site Inspection: Security (signs and fencing, benchmarks, final cover)	$2,986
1.2 Correctional Plans and Specifications (engineering plans to correct erosion issues every other year)	$8,500
2.0 Site Monitoring:	
2.1 Groundwater Sampling and Analysis (6 wells x 2 sampling events/yr)	$~~18,000~~21,000
2.2 Groundwater Well Plugging and Abandonment	$~~200~~233
3.0 Construction and Maintenance:	
3.1 Cap and Sideslope Repairs and Revegetation	$1,700
3.2 Mowing and Vegetation Management	$3,400
3.3 Groundwater Monitoring system Maintenance	$2,500
3.4 Perimeter Fence and Gates Maintenance	$1,500
3.5 Access Roads Maintenance	$4,500
3.6 Drainage System Cleanout/Repairs	$3,500
4.0 Leachate Management:	
4.1 Leachate Management System Operation and Maintenance	$5,000
4.2 Decommissioning of Existing leachate Evaporation Pond	$2,333
4.3 Contaminated leachate disposal-profiling, transportation and disposal (all leachate discharged into evaporation pond)	N/A
5.0 Administration:	
5.1 Annual Report Preparation and Submittal to TCEQ	$4,500
Subtotal	$~~58,619~~61,652
10% Contingency	$~~5,862~~6165
Third Party Administration and Project Management (2.5% of Subtotal)	$~~1,465~~1,541
Estimated Annual PCC Cost Total	**$ ~~65,946~~69,358 (2021 dollars)**
30 Year Post-Closure Costs	**$ ~~1,978,380~~2,080,740 (2021 dollars)**

Table VIII.A.2. - Post-Closure Cost Summary for Proposed Registered Units

Unit	Cost
1.0 Engineering:	
1.1 Site Inspection: Security (signs and fencing, benchmarks, final cover)	N/A
1.2 Correctional Plans and Specifications (engineering plans to correct erosion issues every other year)	$1,675
2.0 Site Monitoring:	
2.1 Groundwater Sampling and Analysis (6 wells x 2 sampling events/yr)	~~N/A~~$3.000
2.2 Groundwater Well Plugging and Abandonment	~~N/A~~$33
3.0 Construction and Maintenance:	
3.1 Cap and Sideslope Repairs and Revegetation	$340
3.2 Mowing and Vegetation Management	$670
3.3 Groundwater Monitoring system Maintenance	N/A
3.4 Perimeter Fence and Gates Maintenance	N/A
3.5 Access Roads Maintenance	N/A
3.6 Drainage System Cleanout/Repairs	N/A
4.0 Leachate Management:	
4.1 Leachate Management System Operation and Maintenance	N/A
4.2 Decommissioning of Existing leachate Evaporation Pond	N/A
4.3 Contaminated leachate disposal-profiling, transportation and disposal (all leachate discharged into evaporation pond)	N/A
5.0 Administration:	
5.1 Annual Report Preparation and Submittal to TCEQ	N/A
Subtotal	$~~2,685~~5,718
10% Contingency	$~~269~~572
Third Party Administration and Project Management (2.5% of Subtotal)	$~~67~~143
Estimated Annual PCC Cost Total	**$ ~~3,021~~6,433 (2021 dollars)**
30 Year Post-Closure Costs	**$ ~~90,630~~192,990 (2021 dollars)**

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
RESGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART IV
LANDFILL CRITERIA AND DESIGN DRAWINGS

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
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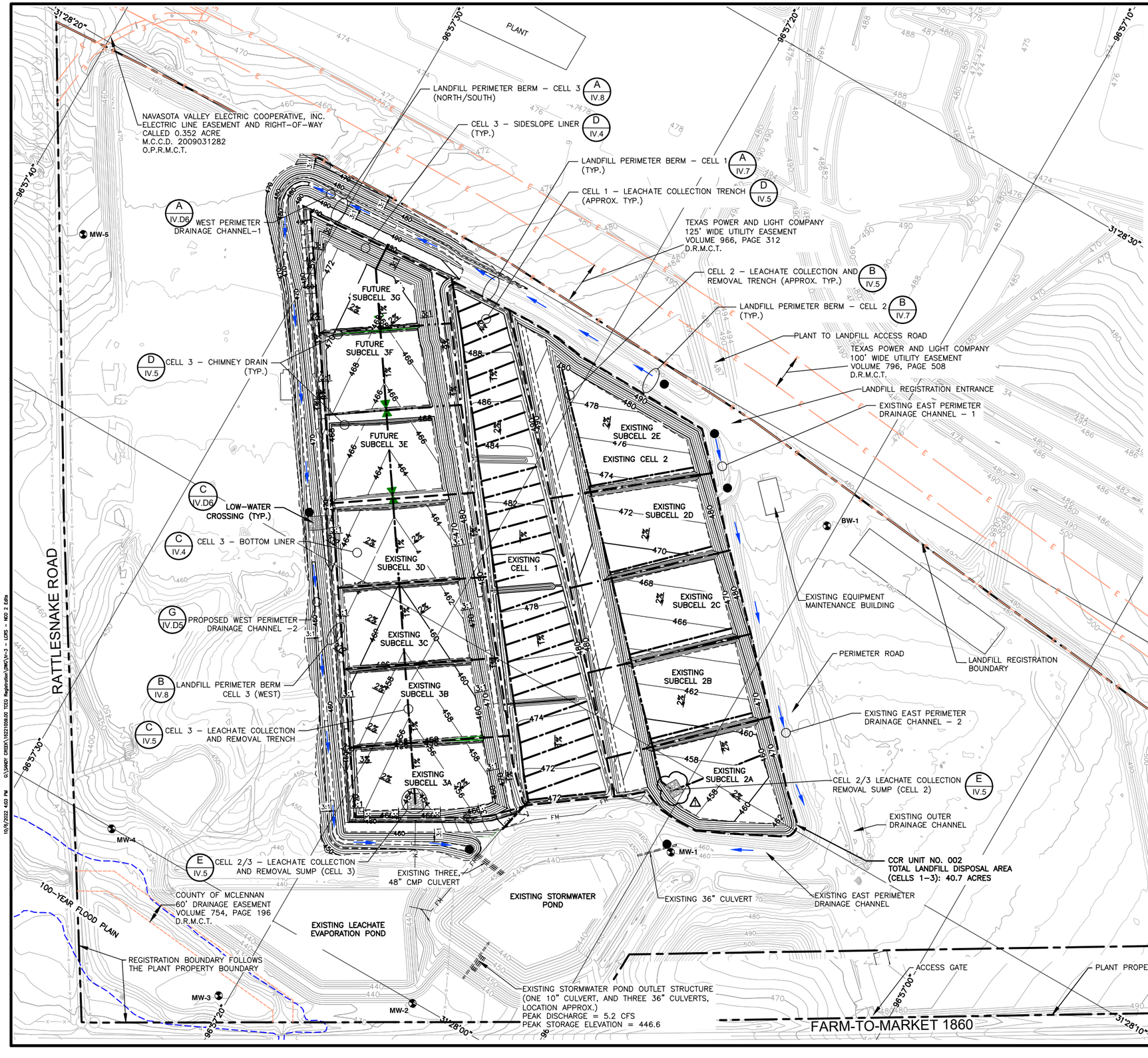
SCS Project No. 16221059.00

Drawings

Appendices



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SCALE IN FEET

LEGEND

- EXISTING CONTOURS (SEE NOTE 1)
- PROPOSED/EXISTING TOP OF LINER
- PLANT PROPERTY BOUNDARY (SEE NOTE 2)
- LANDFILL REGISTRATION BOUNDARY (SEE NOTE 4)
- REGISTERED LIMITS OF WASTE (SEE NOTE 2)
- PHASE LIMITS
- LATITUDE/LONGITUDE LINES
- 100-YEAR FLOOD PLAIN (SEE NOTE 3)
- EXISTING MONITORING WELL
- PROPOSED/EXISTING LEACHATE FORCEMAIN LINE
- EXISTING ELECTRIC LINE
- PROPOSED/EXISTING TOE/TOP OF SLOPE
- PROPOSED/EXISTING LEACHATE COLLECTION AND REMOVAL TRENCH
- CHANNEL SECTION

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.
2. EXISTING CELL 1 AND 2 BOUNDARIES ARE FROM THE FINAL GRADING PLAN DATED DECEMBER 2014; DEVELOPED BY GEOSYNTEC CONSULTANTS. THERE CELL 3 BOUNDARY IS FROM A CELL EXPANSION PLAN DATED FEBRUARY 2021; DEVELOPED BY SCS ENGINEERS.
3. 100-YEAR FLOOD PLAIN IS DESIGNATED AS ZONE A, BASED ON FIRM PANEL 48309C0600D, DATED 10/20/2019.
4. REGISTRATION BOUNDARY IS FROM AN EXHIBIT AND FIELD NOTES FOR A 148.84 ACRES SOLID WASTE DISPOSAL FACILITY TRACT DEVELOPED BY WALKER PARTNERS IN SEPTEMBER 2021.
5. PROPOSED/EXISTING FEATURES IN CELLS 1,2 AND SUBCELLS 3A THROUGH 3D ARE EXISTING AND SUBCELLS 3E THROUGH 3G ARE PROPOSED AT THE TIME OF THIS REGISTRATION APPLICATION DEVELOPMENT.

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

REV	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL 2 SUMP LIMITS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: LEACHATE COLLECTION AND REMOVAL SYSTEM PLAN

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2168

PROJ. NO. 162210459.00
D/A R/W BY: BJD
APP. BY: BJD
DWN. BY: QRA
CHK. BY: BJD
DSN. BY: BJD

CADD FILE: IV-3 – LCRS – NOD 2 EDITS
DATE: 11/2021
SCALE: AS SHOWN
DRAWING NO. IV-3

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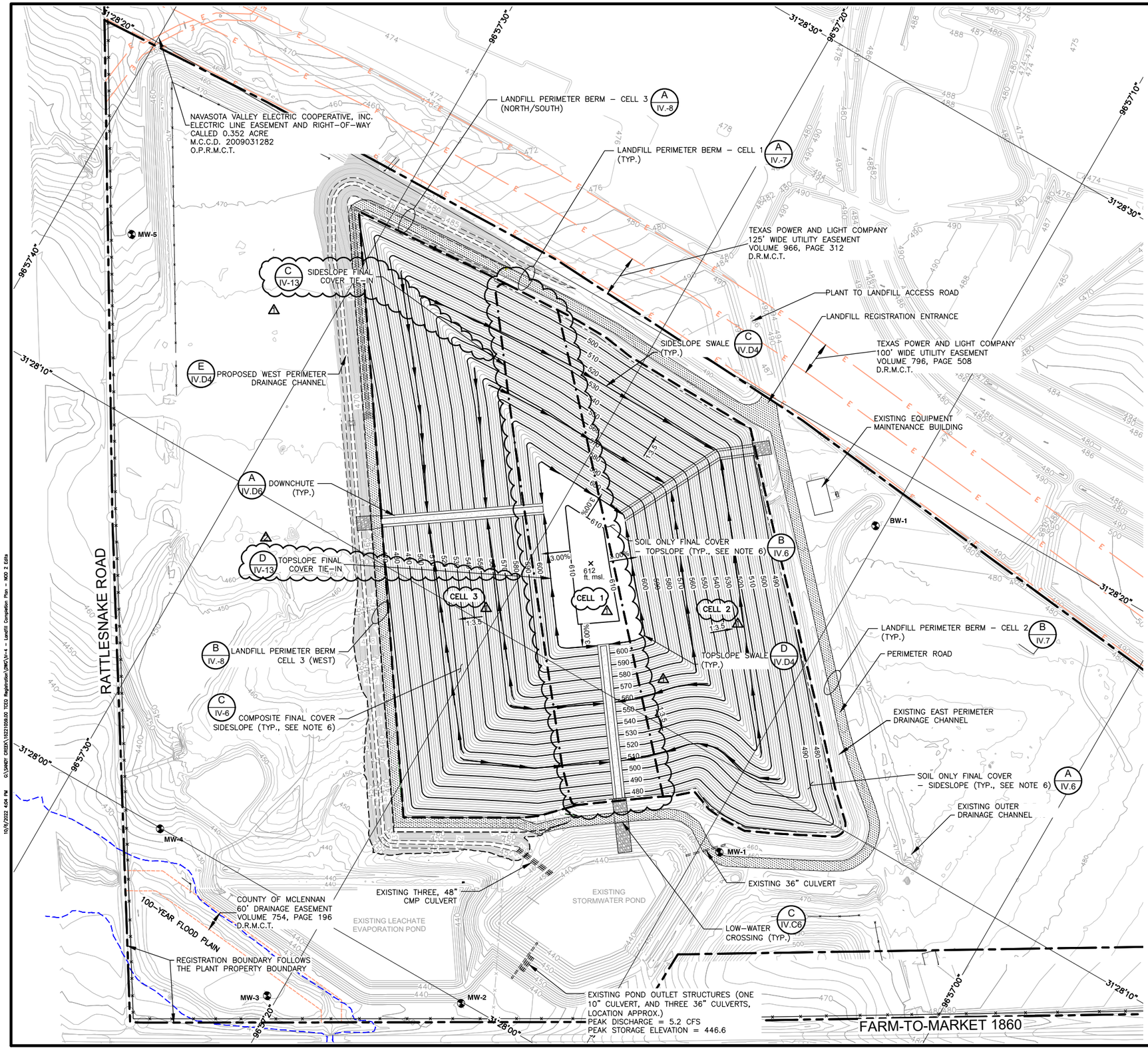

0 150 300
SCALE IN FEET

LEGEND

- EXISTING CONTOURS (SEE NOTE 1)
- PLANT PROPERTY BOUNDARY
- LANDFILL REGISTRATION BOUNDARY (SEE NOTE 3)
- REGISTERED LIMITS OF WASTE (SEE NOTE 4)
- CELL BOUNDARY
- 96°57'10" LATITUDE/LONGITUDE LINES
- MW-1 EXISTING GROUNDWATER MONITORING WELL
- PROPOSED FINAL COVER CONTOUR (SEE NOTE 5)
- PROPOSED DRAINAGE SWALES
- PROPOSED DOWNCHUTES
- EXISTING FENCE
- EXISTING DRAINAGE EASEMENT
- EXISTING ELECTRICAL EASEMENT
- 100-YEAR FLOOD PLAIN (SEE NOTE 2)
- PERIMETER ROAD

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.
2. 100-YEAR FLOOD PLAIN IS DESIGNATED AS ZONE A, BASED ON FIRM PANEL 48309C0600D, DATED 10/20/2019.
3. REGISTRATION BOUNDARY IS FROM AN EXHIBIT AND FIELD NOTES FOR A 148.84 ACRES SOLID WASTE DISPOSAL FACILITY TRACT DEVELOPED BY WALKER PARTNERS IN SEPTEMBER 2021.
4. EXISTING CELL 1 AND 2 BOUNDARIES ARE FROM THE FINAL GRADING PLAN DATED DECEMBER 2014; DEVELOPED BY GEOSYNTEC CONSULTANTS. THERE CELL 3 BOUNDARY IS FROM A CELL EXPANSION PLAN DATED FEBRUARY 2021; DEVELOPED BY SCS ENGINEERS.
5. ELEVATIONS SHOWN ON THIS DRAWING WITHIN REGISTERED LIMITS OF WASTE ARE TOP OF FINAL COVER ELEVATIONS IN FT MEAN SEA LEVEL (FT MSL).
6. SOIL ONLY FINAL COVER WILL BE INSTALLED OVERLAYING CELL 1 AND 2. COMPOSITE FINAL COVER WILL BE INSTALLED OVERLAYING CELL 3 AND UP TO THE TOPSLOPE. TEXTURED GEOMEMBRANE AND DOUBLE-SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 7.5 FEET ON TO THE LANDFILL TOPDECK. A

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV.	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL BOUNDARIES AND FINAL COVER TIE-IN LABELS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: **LANDFILL COMPLETION PLAN**

PROJECT TITLE: **SANDY CREEK ENERGY STATION CCR WASTE MANAGEMENT FACILITY TCEQ REGISTRATION APPLICATION**

CLIENT: **SANDY CREEK SERVICES, LLC 2161 RATTLESNAKE ROAD RIESEL, TEXAS 76682**

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 162721059.00 | DWN. BY: AGA | CHK. BY: SS | DSN. BY: BJD | O/A RVW BY: SS | APP. BY: BJD

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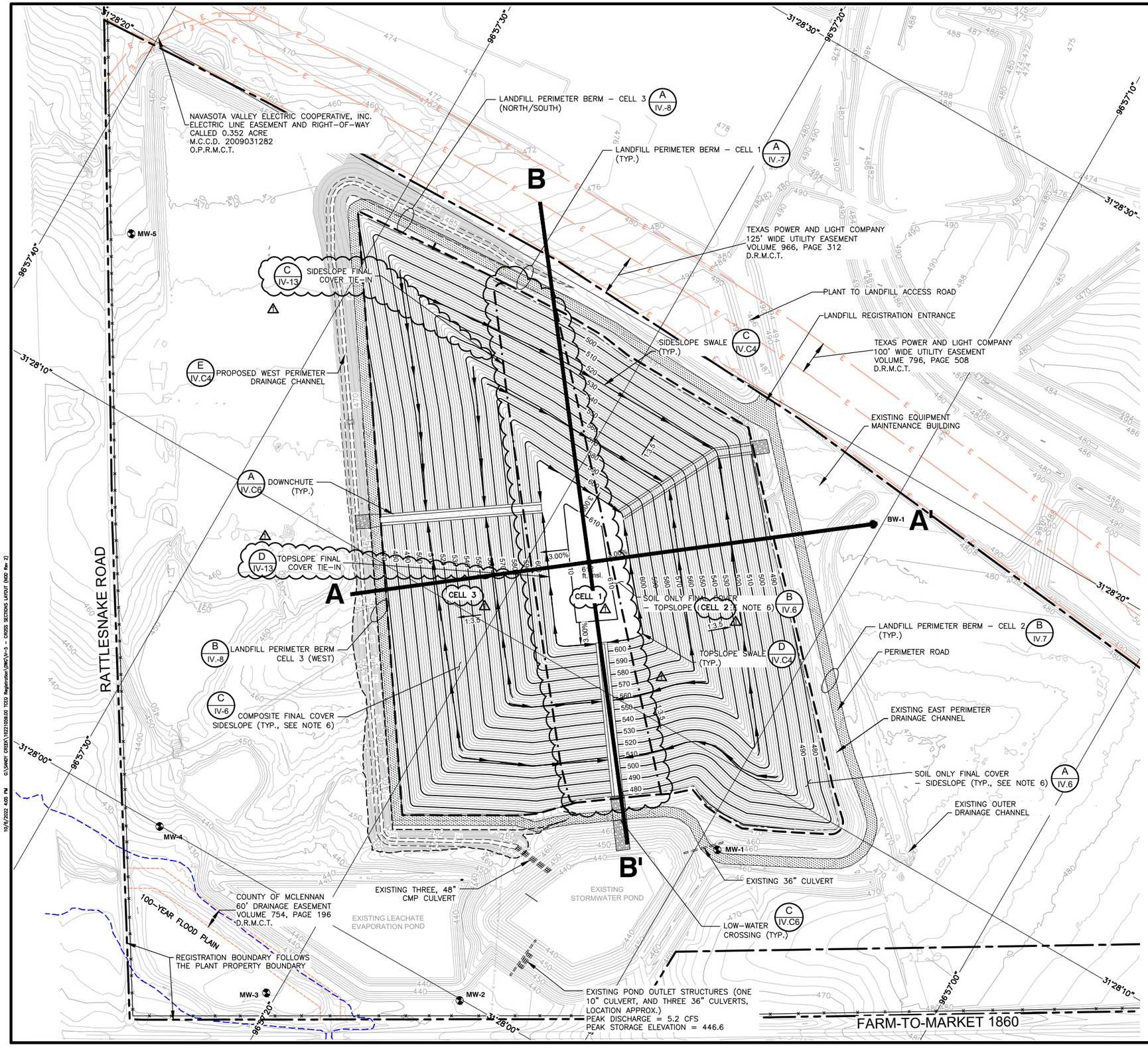
DATE: 9/2021

SCALE: AS SHOWN

DRAWING NO. **IV-4**



0 150 300
SCALE IN FEET

LEGEND

- EXISTING CONTOURS (SEE NOTE 1)
- PLANT PROPERTY BOUNDARY
- LANDFILL REGISTRATION BOUNDARY
- REGISTERED LIMITS OF WASTE
- CELL BOUNDARY
- LATITUDE/LONGITUDE LINES
- EXISTING GROUNDWATER MONITORING WELL
- PROPOSED FINAL COVER CONTOUR
- PROPOSED DRAINAGE SWALES
- PROPOSED DOWNCHUTES
- EXISTING FENCE
- EXISTING DRAINAGE EASEMENT
- EXISTING ELECTRICAL EASEMENT
- 100-YEAR FLOOD PLAIN (SEE NOTE 2)
- PERIMETER ROAD

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

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REV	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL BOUNDARIES AND FINAL COVER TIE-IN LABELS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
CROSS SECTION LAYOUT PLAN

PROJECT TITLE
SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT
SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 16221059.00 | DWN. BY: ORA | CHK. BY: BJD | DSN. BY: BJD | O/A RVW BY: BJD | APP. BY: BJD

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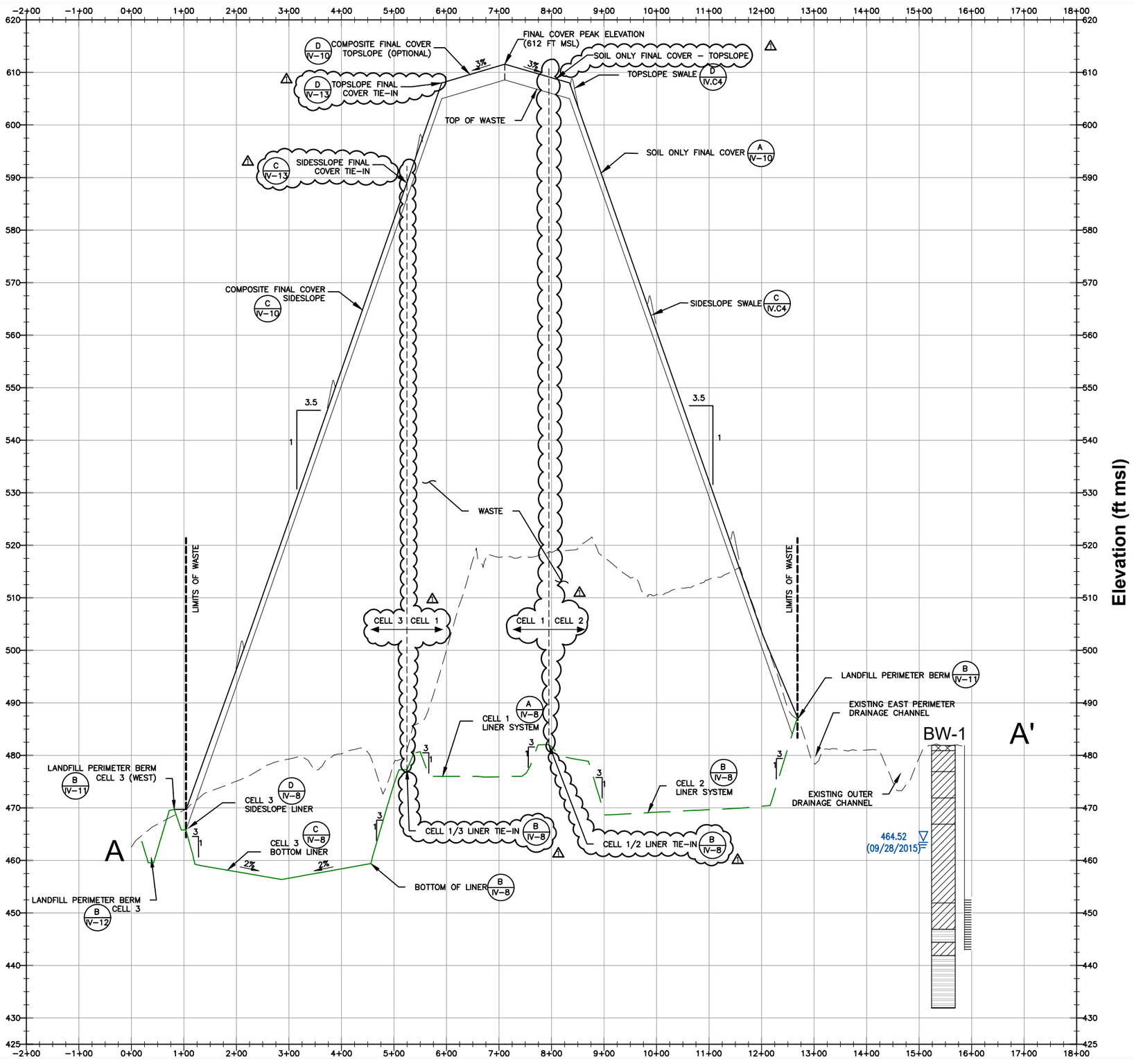
DATE: 11/2021

SCALE: AS SHOWN

DRAWING NO.
IV-5



0 10 20
VERTICAL SCALE IN FEET

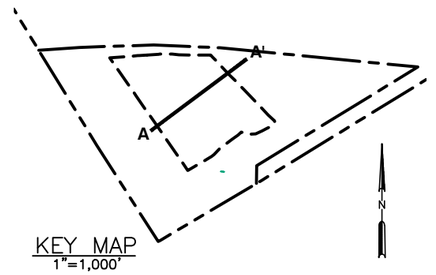
0 100 200
HORIZONTAL SCALE IN FEET

LEGEND

- LIMITS OF WASTE/CELL BOUNDARIES
- EXISTING TOPOGRAPHY
- BOTTOM OF LINER
- TOP OF WASTE
- SEASONAL HIGH GROUNDWATER
- SOIL (BROWN/BLACK CLAY)
- WEATHERED SHALE
- UNWEATHERED SHALE
- SCREENED INTERVAL
- 510.74 (7/8/20) STATIC WATER LEVEL IN MONITORING WELL (DATE OF WATER LEVEL READING)

NOTE:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.



KEY MAP
1"=1,000'

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV.	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL BOUNDARIES, LINER TIE–IN, AND FINAL COVER TIE–IN LABELS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
CROSS SECTION A-A'

PROJECT TITLE
SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT
SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
191 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 162221059.00 | DSN. BY: BJD | DWN. BY: ORA | CHK. BY: BJD | QA/QC BY: BJD | APP. BY: BJD

CADD FILE: IV-6" IV–7 – CROSS SECTIONS – NOD 2 EDITS

DATE: 11/2021

SCALE: AS SHOWN

DRAWING NO.
IV-6

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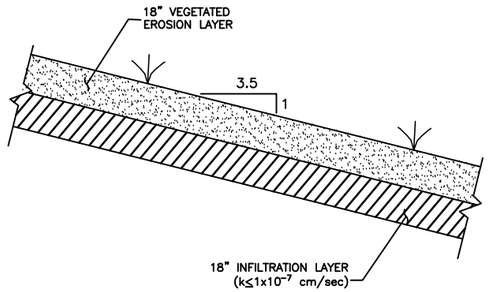
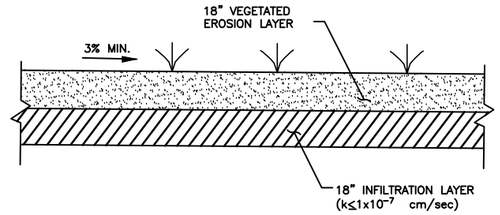


SOIL ONLY FINAL COVER – SIDESLOPE (A / IV–10)

NTS

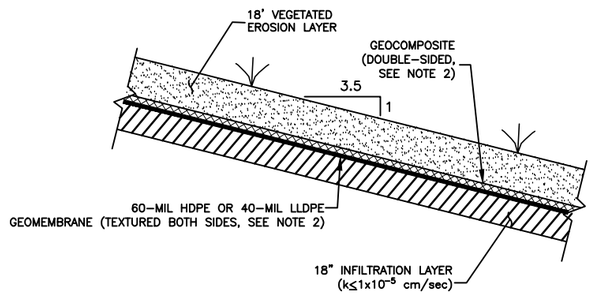


SOIL ONLY FINAL COVER – TOPSLOPE (B / IV–10)

NTS

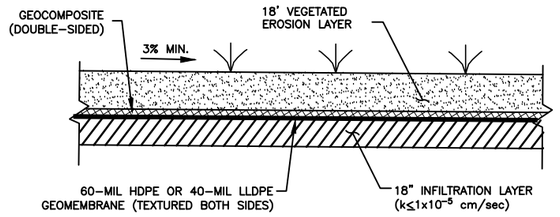
NOTE:

1. SOIL ONLY FINAL COVER WILL BE INSTALLED OVERLAYING CELL 1 AND 2. COMPOSITE FINAL COVER WILL BE INSTALLED OVERLAYING CELL 3 AND UP TO THE TOP OF DECK (CONSISTENT WITH NOTE 2 AND DETAIL D DRAWING IV–13). 1
2. TEXTURED GEOMEMBRANE AND DOUBLE–SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 7.5 FEET ONTO THE LANDFILL TOPSLOPE. 1
3. AT THE DISCRETION OF THE LANDFILL OWNER/OPERATOR IN AREAS OVERLAYING CELLS 1 AND 2, THE COMPOSITE FINAL COVER (SEE THIS DRAWING, DETAILS C AND D) MAY BE INSTALLED OVER CELLS 1 AND 2.



COMPOSITE FINAL COVER – SIDESLOPE (C / IV–10)

NTS



COMPOSITE FINAL COVER – TOPSLOPE (OPTIONAL) (D / IV–10)

NTS

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

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REV	DATE	DESCRIPTION	BY
1	10/2022	NOTE EDITS AND ADDED REFERENCES.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: FINAL COVER DETAILS

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 162210059.00 | DSN. BY: BJD | DWN. BY: CRA | CHK. BY: BJD | O/A RVW BY: | APP. BY: BJD

CADD FILE: IV-10 – FINAL COVER DETAIL-1

DATE: 11/2021

SCALE: AS SHOWN

DRAWING NO. IV-10

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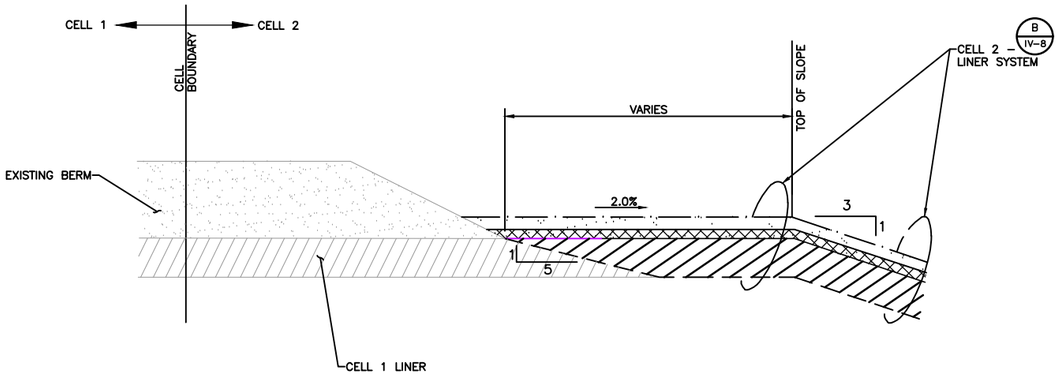
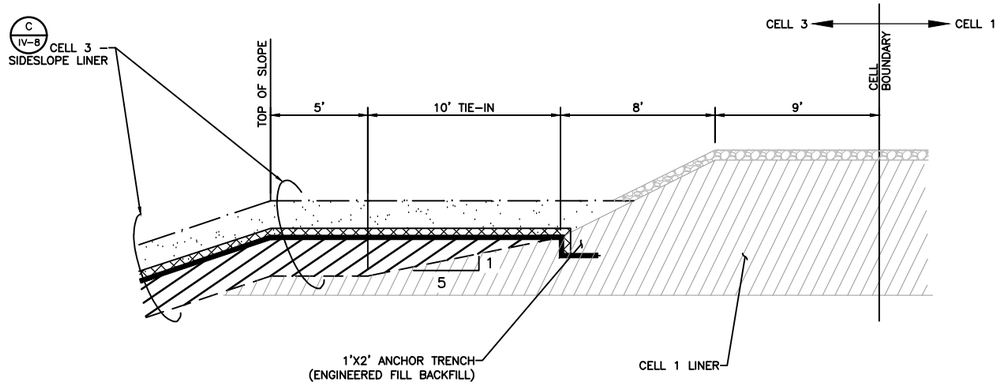


NOTE:

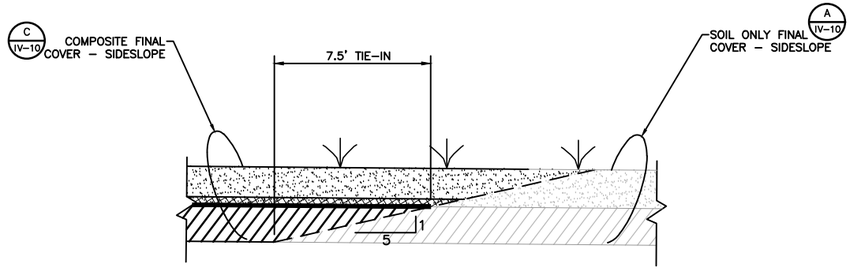
1. THIS DEATAIL CONSISTENT WITH CELL 2 LINER SYSTEM CONSTRUCTION DRAWINGS DEVELOPED BY GEOSYNTEC CONSULTANTS, DATED DECEMBER 9, 2019 AND CELL 2 LINER EVALUATION REPORT DEVELOPED BY SCS ENGINEERS SATED, JULY 2014.

CELL 1/2 LINER TIE–IN A IV–13
NTS

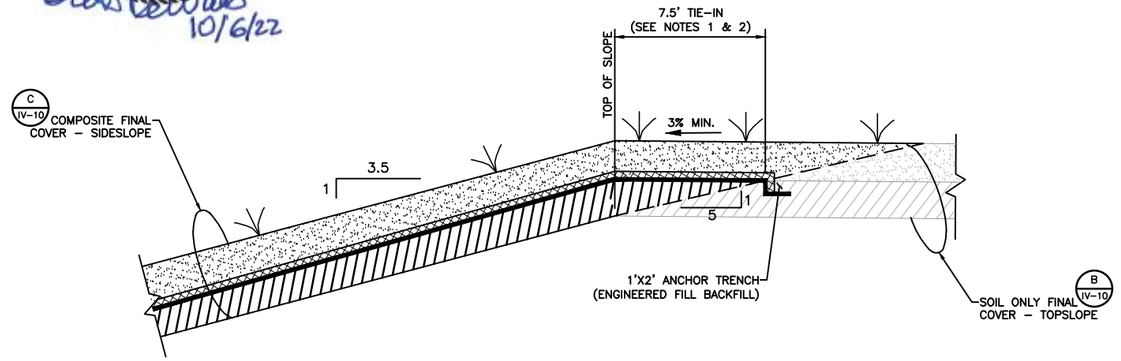


CELL 1/3 LINER TIE–IN B IV–13
NTS

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22



SIDESLOPE FINAL COVER TIE–IN C IV–13
NTS



NOTE:

1. SOIL ONLY FINAL COVER WILL BE INSTALLED OVERLAYING CELL 1 AND 2, COMPOSITE FINAL COVER WILL BE INSTALLED OVERLAYING CELL 3 AND UP TO THE TOP OF DECK.
2. TEXTURED GEOMEMBRANE AND DOUBLE–SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 7.5 FEET ONTO THE LANDFILL TOPSLOPE.

TOPSLOPE FINAL COVER TIE–IN D IV–13
NTS

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: LINER/FINAL COVER TIE-IN DETAILS

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO.	DSN. BY:	CHK. BY:	DWN. BY:	O/A RVW BY:	APP. BY:
162210059.00	BJD	BJD	ORA	BJD	BJD

CADD FILE: IV-13 – DETAILS

DATE: 10/2022

SCALE: AS SHOWN

DRAWING NO. **IV-13**

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SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

APPENDIX IV.A
LEACHATE COLLECTION AND REMOVAL SYSTEM PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

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SECTION **PAGE**

Attachments

1 PE CERTIFICATION (40 CFR §257.70(e))

I, Brett DeVries, Ph.D., P.E., hereby certify that the composite liner system and leachate collection and removal system for Cell 3 at the Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility meets the requirements in 30 TAC §352.701 [40 CFR §257.70(b) and (d)]. This certification is based on this Registration Application and was prepared by or under my supervision. I am a duly licensed Professional Engineer under the laws of the State of Texas.

Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/~~2022~~2023

sump in both Cells 2 and 3 will be at least 3 feet deep with minimum dimensions shown on Drawing IV-9 (see Detail E). The sump in Cell 3 has been designed to provide storage of approximately 7,911 gallons of leachate (Note, this capacity excludes approximately 6 inches of lost storage required for the pump head volume). The Cell 3 sump will provide in excess of one-day of leachate storage for the maximum calculated leachate generation rate, as provided in the sump design calculations provided in Attachment IV.A2. The sump in Cell 3 will be backfilled with drainage stone meeting the gradation requirements specified in Section 4.6 of this Plan.

Leachate will be removed from the sump using a submersible pump located in an 18-inch diameter sideslope sump riser pipe. Leachate will be transferred to the leachate evaporation pond as described in Section 5 of this Plan. As described in Section 5 of this Plan, the primary method of leachate management will be through evaporation in the leachate evaporation pond. Occasionally, leachate maybe used by the Landfill Owner/Operator for dust control within the active lined area of the Landfill or sent offsite by the Landfill Owner/Operator for disposal at a permitted wastewater treatment facility or other authorized disposal facility.

The sumps in Cells 2 and 3 will be equipped with a permanent submersible pump and controls. Each pump will be equipped with sensors (i.e., pressure transducers) to turn the pump on and off based on leachate levels within the respective sump. The pump-on liquid level will be set at a maximum elevation of 30 inches above the bottom of the sump. The pump-off liquid level will be set at a maximum elevation of 6 inches above the bottom of the sump or the manufacturer's recommended minimum depth to protect the pump from damage during low-level pumping. Using the pump's level controls, leachate levels will be maintained within the sumps at a depth ranging from 6 to 30 inches, thereby preventing the sumps from overtopping. Additionally, each sump pump will be equipped with a pressure transducer that will allow monitoring of leachate levels within the sump. Plant personnel or other qualified person will inspect the leachate levels in the sumps at the control panel on a weekly basis during the weekly inspections to verify that the pumps are operating correctly and leachate levels are being maintained within the sumps consistent with Section 3 of the Site Operating Plan (Part V). The pump control panel will also be equipped with a high-level indicator light, which will indicate when leachate levels within the sump reach a depth that may result in leachate levels above the bottom liner system greater than 30 centimeters.

In the unlikely event of a pump failure, the leachate storage capacity of the sump will provide adequate storage capacity to prevent accumulation of leachate on the liner outside the sump for a period of at least one-day. In the event of pump failure, the landfill Owner/Operator will monitor the liquid level within the sump daily to verify that liquid levels are less than 30 centimeters above the bottom liner. The Landfill Owner/Operator will have a spare pump and parts on site or otherwise be capable of pumping liquids from the sump for disposal in the event of pump failure. Sump design calculations for Cell 3 are presented in Attachment IV.A2. The LCRS sump configuration for Cells 2 and 3 are provided on Drawing IV-9 in Part IV.

4.6 DRAINAGE AGGREGATE

Granular drainage material around the leachate collection and removal pipes (i.e., chimney drains) and in the sumps will consist of durable particles of aggregate. Drainage aggregate requirements specified in the remainder of this section will be applicable to Cell 3 only. The aggregate will be tested (in accordance with JLT-S-105-89 or ASTM D3042 modified to use a solution of

hydrochloric acid having a pH of 5) to demonstrate that the loss of mass will be less than 15 percent.

The drainage aggregate will meet the following gradation:

Sieve Size Square Opening	Percent Passing
2 inches	100
½ inch	0 – 5

Drainage aggregate of this gradation will have a permeability greater than or equal to $1x10^{-2}$ cm/sec, therefore no permeability testing is required.

The drainage aggregate will be covered by a 12 oz/sy or greater weight non-woven geotextile to maintain separation of drainage aggregate from the overlying operational layers and surrounding protective cover. The geotextile used to protect the drainage aggregate will be chemically resistant to waste managed at the Landfill.

5 LEACHATE AND CONTACT WATER STORAGE AND DISPOSAL

As discussed in Section 4.5, leachate storage will be provided in the LCRS sumps and leachate evaporation pond. Initial leachate storage will be provided in the sumps. Leachate that is generated during operations is collected at the bottom of the Landfill and conveyed to the leachate evaporation pond as follows:

- Leachate from Cell 1 is directed to the leachate evaporation pond via a leachate gravity drain pipe;
- Leachate from Cell 2 is pumped from a leachate sump, located at the low end of the cell (Subcell 2A), to the leachate gravity drain pipe and directed to the leachate evaporation pond; and
- Leachate from Cell 3 is pumped from the leachate sump, located at the low end of the cell (Subcell 3A), to a leachate forcemain and directed to the leachate evaporation pond.

Contact water will be contained at the working face using temporary diversion berms, as described in Section 3.3 of this Plan. Water that infiltrates into the underlying waste will be managed as leachate. Contact water at the working face will be kept to a minimum and directed to the LCRS, which discharges into the leachate evaporation pond.

Leachate and contact water will be stored in the leachate evaporation pond until it evaporates, may be used for dust control within the active lined area of the Landfill (i.e. without intermediate or final cover), or disposed of at a permitted wastewater treatment facility or other authorized disposal facility. Actual leachate generation and evaporation rate in the leachate evaporation pond will govern the need for expanding the evaporation pond, other leachate storage devices (e.g., storage tanks), or disposal disposed of at a permitted wastewater treatment facility or other authorized disposal facility.

Leachate and contact water will be stored in the leachate evaporation pond, which is designed with a 2 foot compacted clay liner (hydraulic conductivity (k) $\leq 1 \times 10^{-7}$ cm/sec), a 60-mil high density polyethylene (HDPE) geomembrane (textured both sides), and a maximum operating depth of 6 feet and maximum storage capacity of 6.2 million gallons. This evaporation pond is a no-discharge pond and has a freeboard of 2 feet which will be maintained at all times. The liquid level indicator in the evaporation pond is placed in the southeast corner of the pond. If there is no available storage in the leachate evaporation pond, leachate will be used by the Landfill Owner/Operator for dust control within the active lined area of the Landfill (i.e. without intermediate or final cover) consistent with Section 2.5 of Part V – Site Operating Plan (SOP) and the Part III – Fugitive Dust Control Plan. Otherwise, the excess leachate will be sent offsite by the Landfill Owner/Operator for disposal at a permitted wastewater treatment facility or other authorized disposal facility.

Plant personnel and/or other qualified person will inspect the leachate evaporation pond for damage and document amount of freeboard on a weekly and annual basis consistent with Section 3 of the SOP. Records of these inspections and any maintenance as a result of the inspections will be maintained in the Site Operating Record in accordance with Section 3 of the SOP.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART V
SITE OPERATING PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

TABLE OF CONTENTS

SECTION **PAGE**

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Appendices

from the Plant to the Landfill have tailgates to prevent spillage of waste along haul roads. Hauling Equipment will be loaded to prevent waste spills over the sidewalls of the equipment or in such a way that waste accumulates on the wheel wells or bumpers. If waste is too wet prior to placement, the Landfill Owner/Operator will spread it out at the working face to dry before incorporating into normal disposal operations. Compaction of incoming waste provides more efficient use of available space and reduces the amount of settling after disposal of waste in the Landfill. The incoming waste is spread in layers and compacted by a Landfill compactor or similar equipment. Adequate compaction is accomplished to minimize future consolidation and settlement and provide for a proper foundation for application of intermediate and final cover.

Dust control during waste placement within the Landfill will be conducted in accordance with Section 2.5 of this SOP.

Heavy Equipment will not be used on any portion of the liner or leachate collection and removal system (LCRS) until at least three (3) feet of soil or select waste (bottom ash) is placed between Hauling Equipment and LCRS piping or liner geosynthetics.

In accordance with the Plant's air permit (TCEQ Permit No. 70861, Special Condition 25), the maximum working face size (active area) will not exceed one (1) acre and the maximum area of exposed waste will not exceed five (5) acres total. Inactive areas will be covered with intermediate cover (12-inch soil layer or alternate intermediate cover) to limit dust emissions consistent with the Fugitive Dust Control Plan (see Part III).

2.4 LANDFILL OPERATION HOURS

The hours of operation for the Landfill typically conforms to waste production and other Landfill activities. Normal hours of operation are 7 AM to 4 PM, Monday through Friday. The Landfill Owner/Operator may perform Landfill operations 24 hours per day, 7 days per week, or as needed, to accommodate ash unloading from the Plant and waste disposal at the Landfill.

2.5 FUGITIVE DUST CONTROL

The Landfill and associated ancillary facilities will be operated under a Fugitive Dust Control Plan (see Part III) that complies with 40 CFR §257.80, 30 TAC §352.801, and the Plant's air permit (TCEQ Permit No. 70861, Special Condition 25). The purpose of the plan is to present measures to be implemented at the Landfill to effectively minimize waste from becoming airborne during waste management activities.

Fugitive dust will be controlled on the onsite access roads or exposed waste areas and during waste placement by the periodic spraying from a water truck or other appropriate equipment as-needed during periods of significantly dry weather. Dust controls will be implemented by the Landfill Owner/Operator, as needed, to prevent dust from becoming a nuisance to surrounding areas. Care will be taken to utilize only the minimum amount of water needed for dust suppression within the lined area of the Landfill to avoid saturating the waste.

Water for dust control within the active lined area of the Landfill (i.e., within the lined area without intermediate cover) is pumped by the Landfill Owner/Operator from the leachate

that the expansion has been constructed in compliance with conditions of this registration, , will be submitted to the TCEQ. If within 15 days of submission of the certification letter to the TCEQ, the TCEQ has not notified the Landfill Owner/Operator of their intent to inspect, then it is understood that the TCEQ has waived the opportunity for this inspection and the Landfill Operator can commence disposal in the lateral expansion.

Table 3.1 Site Inspection and Maintenance Schedule (Active Landfill Period)

ITEM	TASK	SCHEDULE
Waste Spilled in route to Landfill	Inspect access roads used for waste delivery to the Landfill. Clean up prior to end of operation day.	Daily
Landfill Structure and Slope	Inspect for sloughing, slumping, sliding, surface cracking, sinkholes, excessive slope, toe of slope movement, and vehicle damage. Remedy deficiencies as needed and notify TCEQ as required in Section 3.	Weekly[1]
Landfill Access Roads	Inspect Landfill access roads for damage from vehicle traffic and erosion. Repair onsite access roads, as needed, based on inspections.	Monthly
Intermediate Cover	Inspect for proper placement, thickness, erosion, vegetation, animal burrows, and for presence of waste or other contamination. Remedy deficiencies as needed.	Weekly[1]
Final Cover	Inspect for proper placement, thickness, slope, settlement, vegetation, animal burrows, and erosion. Maintenance will be ongoing throughout post-closure care period. Remedy deficiencies as needed.	Monthly[1]
Dust Emissions	Inspect for fugitive dust at the Landfill and ash silo, and from haul trucks. If found, remedy deficiencies as needed.	Daily
Erosion Control	Inspect the intermediate and final cover for signs of erosion. Damaged areas will be repaired by restoring cover material, grading, compaction, and/or seeding or sodding.	Weekly[1] (Interim), Monthly (Final)
Ponding Water	Inspect Landfill cover for potential ponding water locations. Fill depressions and regrade potential areas as needed.	Weekly[1]
Run-on and Run-off Control Systems (Uncontaminated and Contact Water)	Inspect diversion berms, downchutes, perimeter drainage channels, culverts, detention basin(s) for damage. Remedy deficiencies as needed.	Weekly[1]

Table 3.1 (Continued)

Leachate Collection and Removal System	Inspect leachate riser pipes, sump pump/controls, evaporation pond for damage and height of freeboard in the pond. Inspection isolation valves, protective cover, exposed geosynthetics, and leachate evaporation pond underdrain system for damage or blockage, as applicable. Remedy deficiencies as needed.	Weekly[1] Monthly
Groundwater Monitoring System	Inspect groundwater monitoring wells for damage, excess vegetation, and other deficiencies. Remedy deficiencies as needed.	Monthly

Note:
1. Weekly inspections elements will be inspected at intervals not exceeding seven days.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART VI
GROUNDWATER MONITORING AND CORRECTIVE ACTION PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, TX 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

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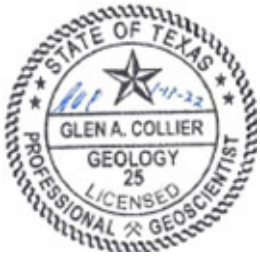
1 PE CERTIFICATION

I, Brett DeVries, Ph.D., P.E. and Glen Collier, P.G, hereby certify that the statistical method, as described in this Plan, is appropriate for evaluating the groundwater monitoring data for the Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility. This Plan was prepared by or under my supervision. I am a duly licensed Professional Engineer or Professional Geologist under the laws of the State of Texas.

Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/~~2022~~2023



Glen A. Collier, P.G.
(printed or typed name)

License number 25

My license renewal date is 12/30/~~2021~~ 2022

monitored during the first eight quarters and the first semiannual detection monitoring event include 18 inorganic compounds, total dissolved solids, radium-226, and radium-228. The constituents monitored in subsequent events and during the June 2021 semiannual detection monitoring event include Appendix III constituents only. Initial background monitoring for monitoring wells MW-1, MW-2, MW-3, and BW-1 commenced in December 2015 and was completed in August 2017. The subsequent Background Evaluation Report is included as Appendix III in the 2017 Annual Groundwater Monitoring and Corrective Action Report, which is provided in Appendix VI.C. MW-1, MW-2, MW-3, and BW-1 are currently in detection monitoring. Monitoring wells MW-4 and MW-5 are currently in background monitoring. None of the wells are in assessment monitoring at the time of developing this Registration Application.

The First Semiannual Groundwater Monitoring Report for 2020 is included as Appendix VI.C. Historical groundwater sampling results for all six wells are also provided in Appendix VI.C.

7.3 GROUNDWATER MONITORING SYSTEM (30 TAC §352.911 [40 CFR §257.91])

As required by 40 CFR §257.91, the groundwater monitoring system will consist of a sufficient number of appropriately located wells to yield groundwater samples from the uppermost aquifer that represent the quality of background groundwater and the quality of groundwater passing the point of compliance.

Previously described Stratum II is the uppermost water bearing zone beneath the Landfill Registration Boundary. Based on the boring logs for the monitoring wells, the thickness of the water bearing zone within Stratum II (i.e., the zone with sand or gypsum lenses or iron oxide staining) ranges from eight to 18 feet thick beneath the facility.

Water levels measured periodically from 2010 to the present indicate a general south-southwesterly direction to groundwater movement in Stratum II. The velocity of groundwater moving through Stratum II has been calculated to range from 67 to 86 feet per year.

Based on the thickness of the uppermost water-bearing zone, groundwater flow direction, and groundwater velocity, the groundwater monitoring system consists of a sufficient number of appropriately located wells to yield representative samples of groundwater passing beneath the Landfill.

As required by 40 CFR §257.94 and §257.95, Landfill Owner/Operator will conduct detection monitoring at all groundwater monitoring wells in detection status as well as assessment monitoring at all groundwater monitoring wells in assessment status when applicable. Furthermore, Landfill Owner/Operator will comply with all requirements involving §257.94 and §257.95 as provided in Appendix VI.A.5.3. Detection monitoring constituents are listed on Table VI,C-1 in Appendix I.A.

Installation of the groundwater monitoring system will be phased to correspond to subcell development and waste placement. As shown on Drawing VI-2, well MW-6 will be installed prior to waste placement in Subcell 3D and MW-7 will be installed prior to waste placement in Subcell 3F.

7.4 ASSESSMENT OF CORRECTIVE MEASURES (30 TAC §352.961 [40 CFR §257.96])

Within 90 days of finding that any of the Appendix IV constituents have been detected at a statistically significant level above a Groundwater Protection Standards (GWPS), Landfill Owner/Operator ~~(Sandy Creek Services, LLC)~~ will initiate an assessment of corrective measures immediately. This assessment will be completed within 90 days of initiating the assessment and may be extended for no longer than 60 days. Any extension to complete the assessment of corrective measures will be based on a site-specific demonstration. The assessment will be included in the annual groundwater monitoring and corrective action report required by 40 CFR §257.90(e), in addition to the certification by a qualified professional engineer.

Unless preceded by an Alternative Source Demonstration showing that the statistically significant increase (SSI) is not attributable to the Landfill, the assessment will analyze the effectiveness of potential corrective measures, including performance, reliability, ease of implementation, and potential impacts. The assessment will also discuss the control of exposure to residual contamination, time required to begin and complete the remedy, costs of remedy implementation, and any institutional requirements that may substantially affect implementation of the remedy or remedies.

At least 30 days prior to selecting a remedy, Landfill Owner/Operator will discuss the results of the assessment of corrective measures in a public meeting with interested and affected parties. The Landfill Owner/Operator of the Landfill must comply with the recordkeeping requirements specified in 40 CFR §257.105(h), the notification requirements specified in 40 CFR §257.106(h), and the Internet requirements specified in 40 CFR §257.107(h).

Within 30 days of completing the assessment of corrective measures required by this section, and before implementation of the remedy, Landfill Owner/Operator will submit an amendment application, on forms prescribed by the Executive Director, in accordance with §352.131. Landfill Owner/Operator will provide any additional information as the Executive Director may require that compliance with §352.131 be demonstrated. The application will include, at a minimum:

- Documentation that characterizes the nature and extent of the release, both vertically and horizontally, and meets the applicable requirements of §352.951,
- The completed assessment of corrective measures,
- The proposed selection of remedy required by §352.971,
- A comparison of the Appendix III constituents with a statistically significant increase over the background value, and the corresponding background value at each monitoring well,
- A comparison of the Appendix IV constituents and the corresponding groundwater protection standard meeting the requirements of §352.951(b) at each monitoring well,
- A proposed timeline for the submission of the corrective action effectiveness report required by §352.991, and

- A signed affidavit certifying that the owner or operator has complied with the applicable notification requirements of §352.951.

7.5 SELECTION OF REMEDY (30 TAC §352.971 [40 CFR §257.97])

Based on the results of the corrective measures assessment, Landfill Owner/Operator must as soon as feasible, select a remedy that, at a minimum, meets the remedy standards in 40 CFR §257.97(b). When selecting a remedy, the Landfill Owner/Operator will consider the evaluation factors presented in 40 CFR §257.97(c). Once a remedy is selected, in accordance with 40 CFR §257.97(d), the Landfill Owner/Operator will specify a schedule(s) for implementing and completing remedial activities, while also considering the factors that may affect remedial activities listed in §257.97(d). Landfill Owner/Operator will prepare a semiannual report describing the progress in selecting and designing the remedy. Upon selection of a remedy, in accordance with 40 CFR §257.97(e), Landfill Owner/Operator must prepare a final report describing the selected remedy and how it meets the standards specified in 40 CFR §257.97(b). The final remedy selection will be achieved through issuance of the registration amendment required under §352.961.

7.6 IMPLEMENTATION OF THE CORRECTIVE ACTION PROGRAM (30 TAC §352.981 [40 CFR §257.98])

The Landfill Owner/Operator will implement a corrective action groundwater monitoring program within 90 days of selection of a remedy and follow~~ing~~ the schedule specified for the selected remedy. The corrective action is considered complete when the concentrations of all constituents are shown to be at or below GWPSs for a period of three consecutive years. Landfill Owner/Operator will also take any interim measures necessary to ensure the protection of human health and the environment. Interim measures will, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of the approved remedy.

Prior to returning to detection monitoring or assessment monitoring, Landfill Owner/Operator will submit documentation that demonstrates that the requirements of this section have been fulfilled, and the remedy has been achieved for the impacted property. The documentation submitted will include at a minimum:

- All analytical data prepared and presented in accordance with §352.931 that demonstrates achievement of the remedy,

- A narrative discussion, in accordance with 40 CFR §257.98(c)(1)-(3), of how the requirements of this section have been fulfilled for the impacted property, and

- A description of the volume and final disposal location, and a copy of any waste manifests or other documentation of disposition, for waste or environmental media which were removed from the impacted property.

The Landfill Owner/Operator may return to either detection monitoring or assessment monitoring only after satisfying the conditions of this section, and after obtaining written approval from the

Executive Director. All coal combustion residuals managed under a remedy required under §352.971, or an interim measure required under this section, will be managed in a manner that complies with all applicable United States Resource Conservation and Recovery Act and state requirements.

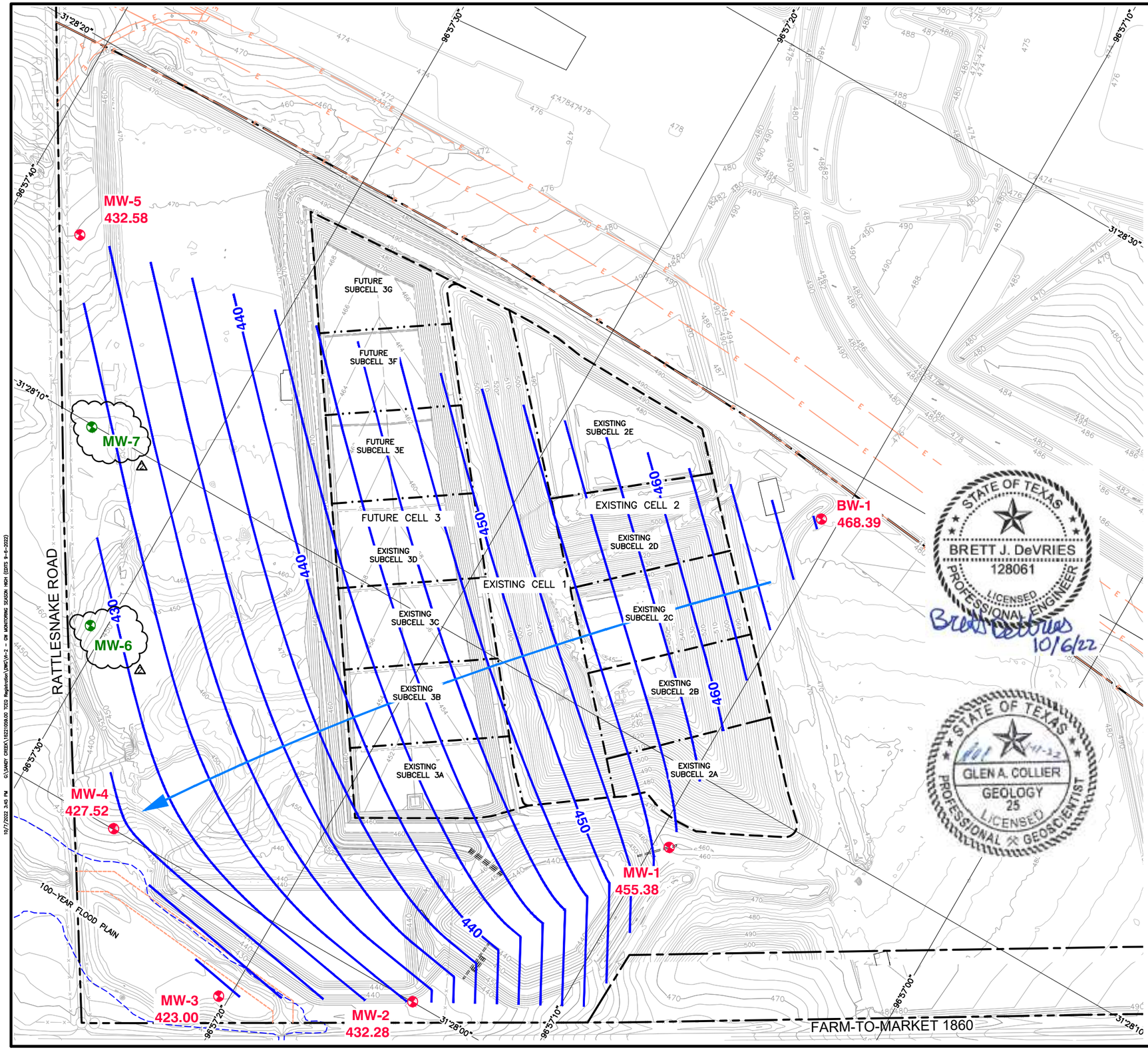
7.7 CORRECTIVE ACTION EFFECTIVENESS REPORT (30 TAC §352.991)

If the Landfill is performing corrective action, a corrective action effectiveness report will be submitted to the TCEQ following each reporting period.

DRAWINGS

Drawing VI-1: Typical Monitoring Well Detail

Drawing VI-2: Groundwater Monitoring System and Groundwater Contour Map



0 150 300
SCALE IN FEET

LEGEND

- 450 — EXISTING/PROPOSED CONTOURS
- PLANT PROPERTY BOUNDARY
- LANDFILL REGISTRATION BOUNDARY
- REGISTERED LIMITS OF WASTE
- EXISTING CELL BOUNDARY
- FUTURE CELL BOUNDARY
- 96°57'10" — LATITUDE/LONGITUDE LINES
- 100-YEAR FLOOD PLAIN
- MW-1 — EXISTING MONITORING WELL
- MW-6 — FUTURE MONITORING WELL (SEE NOTE 4)
- 450 — GROUNDWATER CONTOUR
- 450 — PROPOSED/EXISTING EXCAVATION CONTOURS (SEE NOTE 3)

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.
2. ELEVATION ARE IN FEET ABOVE MEAN SEA LEVEL (FT, MSL) AS DEFINED BY THE USGS NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1988. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM OF 1983 (NAD–83).
3. EXISTING FEATURES IN SUBCELLS 3A THROUGH 3D ARE EXISTING AND SUBCELLS 3E THROUGH 3G ARE PROPOSED AT THE TIME OF THIS REGISTRATION APPLICATION DEVELOPMENT.
4. MONITORING WELL MW–6 WILL BE INSTALLED PRIOR TO WASTE PLACEMENT IN SUBCELL 3D AND MONITORING WELL MW–7 WILL BE INSTALLED PRIOR TO WASTE PLACEMENT IN SUBCELL 3F.

SEASONAL HIGH GROUNDWATER

MONITORING WELL	SAMPLE DATE	GW ELEVATION
BW–1	11/10/2020	468.39
MW–1	06/24/2019	455.38
MW–2	06/24/2019	432.28
MW–3	06/24/2019	423.00
MW–4	06/22/2021	427.52
MW–5	03/24/2021	432.58

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

STATE OF TEXAS
GLEN A. COLLIER
GEOLOGY
25
LICENSED
PROFESSIONAL GEOSCIENTIST
11-3-22

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
2	10/2022	ADDITION OF TWO FUTURE MONITORING WELLS, LEGEND ITEM, AND NOTE 4.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
GROUNDWATER MONITORING SYSTEM AND SEASONAL HIGH GROUNDWATER CONTOUR MAP

PROJECT TITLE
SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT
SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

D/A R/W BY: BJD
APP. BY:
DWN. BY: ORA
CHK. BY: BJD
PROJ. NO. 162210459.00
DSN. BY: BJD

CADD FILE: VI-2 – GW MONITORING SEASON HIGH (EDITS 9-6-2022)
DATE: 11/2021
SCALE: AS SHOWN
DRAWING NO. VI-2

APPENDIX VI.A

GROUNDWATER MONITORING SAMPLING AND ANALYSIS PROGRAM

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

APPENDIX VI.A
GROUNDWATER SAMPLING AND ANALYSIS PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, TX 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

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1 PE CERTIFICATION

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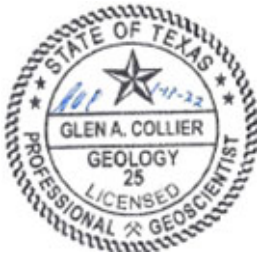
Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/~~2022~~2023



Glen A. Collier, P.G.
(printed or typed name)

License number 25

My license renewal date is 12/30/~~2021~~ 2022

Water level measurements will be collected from the highest water elevation to the lowest water elevation wells (based on previous event results) unless any constituents are detected at concentrations of concern. If the constituents are detected at concentrations of concern, then water level measurements will be collected from the least to greatest impacted well.

Following field measurements, the rate and direction of groundwater flow will be calculated and reported following each groundwater sampling event in accordance with 40 CFR §257.93(c).

3.4 WELL PURGING

Each well will be purged prior to sampling. Purging will remove stagnant water in the well casing and allow formation water to enter the well for sampling. Based on well construction, depth to water, recharge rate, and analytical results to date, purging with a bailer is the primary purging method. Acceptable alternative methods include purging with a pump and low-flow purging and sampling.

The order of well purging will be from the highest water elevation to the lowest water elevation wells (based on water level measurements obtained immediately prior to the event), unless non-naturally occurring impacts are confirmed. In the event that non-naturally occurring impacts are confirmed, purging will be conducted from the least-impacted to the most impacted well.
During the purging operations, a field log or equivalent, will be maintained that will record pertinent data and noteworthy observations. The information will include the following:

- Sampler's name.
- Date and time.
- Outdoor temperature and weather conditions.
- Initial depth to water, well depth, and calculated height and volume of the water column.
- Desired well volume to purge (for example, three casing volumes).
- Purge-discharge rate, if known, and purge duration (elapsed time).
- Volume of water actually purged from a well.
- Low-flow parameter readings, if a low-flow method is used.
- Well inspection results.
- Any other pertinent information.

Water purged from each well, along with unused water obtained during sampling and water used for decontamination, is to be collected and disposed as follows: purge and decontamination water will be collected in drums and stored for subsequent disposal in an approved manner. Analytical data will be reviewed prior to disposal of the water.

SANDY CREEK ENERGY STATION
COAL COMBSUTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART VII
CLOSURE AND POST-CLOSURE CARE PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

Tables

1 PE CERTIFICATION (40 CFR §257.102(b)(4))

I, Brett DeVries, Ph.D., P.E., hereby certify that this Closure and Post Closure Care Plan for the Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility meets the requirements in 30 TAC §352.1221 [40 CFR §257.102(b)], including demonstrating that the final cover systems meet the performance standards in 40 CFR §257.102(d). This plan was prepared by or under my supervision. I am a duly licensed Professional Engineer under the laws of the State of Texas.

Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/~~2022~~2023

6 POST-CLOSURE CARE ACTIVITIES

6.1 MONITORING AND MAINTENANCE

In accordance with §257.104, post-closure care requirements, including monitoring and maintenance, will commence upon completion of final closure requirements set forth in Sections 2 through 5 of this Plan. Post-closure care monitoring and maintenance will continue for a period of 30 years in accordance with §257.104(c)(1) unless the Landfill is operating under assessment monitoring in accordance with §257.95 at the end of the post-closure care period. Post-closure care monitoring and maintenance will consist, at a minimum, of the following requirements to be carried out by the Landfill Owner/Operator, in accordance with §257.104(b):

- Inspections of the Landfill cover, run-on and run-off drainage system, and leachate collection and removal system (LCRS) will be conducted monthly in accordance with Section 3 of the SOP and Table 6.1 of this Plan. As a result of these inspections the following maintenance or remediation activities will be performed:
    - Conduct maintenance and/or remediation activities, as a result of inspections, in order to maintain the integrity and effectiveness of the final cover, site vegetation, run-on and run-off drainage system, and LCRS.
    - Maintain adequate vegetation coverage on the final cover to minimize erosion.
    - Maintain surface water run-on and run-off controls in order to minimize the erosion of the final cover system.
    - Correct the effects of settlement, subsidence, ponded water, erosion, or other events or failures determined to be detrimental to the integrity of the closed Landfill.
- Maintain and operate the LCRS in accordance with Part IV, Appendix IV.A – Leachate Collection and Removal System Plan. The Landfill Owner/Operator reserves the right to submit a demonstration to the TCEQ at the appropriate time that leachate will no longer pose a threat to human health, the environment, or property. If the demonstration is approved by the TCEQ, the Landfill Owner/Operator may be allowed to discontinue the maintenance and operation of the LCRS. Following the discontinuation of maintenance and operation of the LCRS or completion of the post-closure care period, the leachate evaporation pond will be decommissioned by disposing of the geomembrane and protective cover soil at an authorized facility. It is assumed that leachate will be evaporated in the existing leachate evaporation pond and that off-site disposal will not be required following pond decommissioning at the end of post-closure care period.
- Maintain the groundwater monitoring system in accordance with Section 3 of the SOP, Table 6.1 of this Plan, and monitor groundwater in accordance with§257.95 through §257.98 and Part VI, Appendix VI.A - Groundwater Sampling and Analysis Plan. In accordance with Part VI, Appendix VI.A, the minimum monitoring frequency will be semiannually. However, the Landfill Owner/Operator reserves the right to request TCEQ approval of (1) an alternative monitoring frequency, and (2) an alternative list of

parameters to be monitored. Such requests will be based on supporting data available at the time of the request.

Table 6.1 Site Inspection and Maintenance Schedule (Post Closure Care Period)

ITEM	TASK	SCHEDULE
Landfill Structure and Slope	Inspect for sloughing, slumping, sliding, surface cracking, sinkholes, excessive slope, toe of slope movement, and vehicle damage. Remedy deficiencies as needed and notify TCEQ as required in Section 3 of the SOP.	Monthly
Final Cover	Inspect for proper placement, thickness, slope, settlement, vegetation, animal burrows, and erosion. Maintenance will be ongoing throughout post-closure care period. Remedy deficiencies as needed.	Monthly
Erosion Control	Inspect the final cover for signs of erosion. Damaged areas will be repaired by restoring cover material, grading, compaction, and/or seeding or sodding.	Monthly
Ponding Water	Inspect Landfill cover for potential ponding water locations. Fill depressions and regrade potential areas as needed.	Monthly
Run-on and Run-off Control Systems	Inspect diversion berms, downchutes, perimeter drainage channels, culverts, detention basin(s) for damage. Remedy deficiencies as needed.	Monthly
Leachate Collection & Removal System	Inspect leachate riser pipes, sump pump/controls, evaporation pond for damage and height of freeboard in the pond and leachate evaporation pond underdrain system for damage or blockage, as applicable. Remedy deficiencies as needed.	Monthly
Groundwater Monitoring System	Inspect groundwater monitoring wells for damage, excess vegetation, and other deficiencies. Remedy deficiencies as needed.	Monthly

6.2 COMPLETION OF POST-CLOSURE CARE PERIOD

In accordance with §352.1241 [§257.104(e)], no later than 60 days following the completion of the post-closure care period, a written notification by a qualified professional engineer verifying that post-closure care has been completed in accordance with this Plan and the Landfill possess no threat to human health, the environment, or property will be placed in the Site Operating Record. The notification will be submitted to the TCEQ for approval and placed on the Landfill's publically accessible website within 30 days of placing in the Site Operating Record in accordance with Section 4 of the SOP.

The post-closure period will be extended until the TCEQ approves a demonstration that the Landfill poses no threat to human health, the environment, or property. The Landfill Owner/Operator will maintain the financial assurance required in §352.1101(d) (see Part VIII) until the TCEQ post-closure care is no longer required.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART VIII
POST-CLOSURE CARE COST ESTIMATE AND FINANCIAL ASSURANCE

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

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SECTION **PAGE**

Appendix

Table VIII.A.1 - POST-CLOSURE COST SUMMARY FOR EXISTING REGISTERED UNITS.
EXISTING CELLS 1, 2, AND 3A THROUGH 3D
SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST SUMMARY

Description	Quantity	Unit	Unit Cost	Total Cost		
1.0 ENGINEERING						
1.1 Annual Site Inspections	1	YR	$ 2,986	$ 2,986		
1.2 Correctional Plans and Specifications (annual)	1	YR	$ 8,500	$ 8,500		
				$ 11,486		
2.0 Site Monitoring						
2.1 Groundwater Sampling and Analysis (semi-annual)	1	YR	~~$ 18,000~~	$ 21,000	~~$ 18,000~~	$ 21,000
2.2 Groundwater Well Plugging and Abandonment	1	YR	~~$ 200~~	$ 233	~~$ 200~~	$ 233
					~~$ 18,200~~	$ 21,233
3.0 CONSTRUCTION / MAINTENANCE						
3.1 Cap and Sideslopes Repairs and Revegetation	1	YR	$ 1,700	$ 1,700		
3.2 Mowing and Vegetation Management	1	YR	$ 3,400	$ 3,400		
3.3 Groundwater Monitoring System Maintenance	1	YR	$ 2,500	$ 2,500		
3.4 Perimeter Fence and Gates Maintenance	1	YR	$ 1,500	$ 1,500		
3.5 Access Roads Maintenance	1	YR	$ 4,500	$ 4,500		
3.6 Drainage System Cleanout/Repairs	1	YR	$ 3,500	$ 3,500		
				$ 17,100		
4.0 LEACHATE MANAGEMENT						
4.1 Leachate Management System Operation and Maintenance	1	YR	$ 5,000	$ 5,000		
4.2 Decommissioning of Existing Leachate Pond	1	YR	$ 2,333	$ 2,333		
4.2 Leachate Disposal	N/A	N/A	N/A	N/A		
				$ 7,333		
5.0 ADMINISTRATIVE						
5.1 Annual Report Preparation and Submittal to TCEQ	1	YR	$ 4,500	$ 4,500		
SUBTOTAL			~~$ 58,619~~	$ 61,652		
CONTINGENCY	10%		~~$ 5,862~~	$ 6,165		
THIRD PARTY ADMINISTRATION AND PROJECT MGMT	2.5%		~~$ 1,465~~	$ 1,541		
TOTAL ANNUAL POST-CLOSURE CARE COST			~~$ 65,946~~	**$ 69,358**		
30 YEAR POST-CLOSURE CARE COST			~~$ 1,978,380~~	**$ 2,080,740**		

Note:
1.) Costs are in 2021 dollars.

APPENDIX VIII.A

POST-CLOSURE CARE COST ESTIMATE CALCULATIONS

SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST ESTIMATE CALCULATIONS
EXISTING CELLS 1, 2, AND 3A THROUGH 3D

Required:

Estimate the cost to hire a third party to conduct post-closure care activities for **existing cells 1, 2, and 3A through 3D prior to and during the time of preparing this registration application. Note, these costs are in 2021 dollars.**

References:

1. TCEQ, Technical Guideline No. 10, Closure and Post-Closure Care Cost Estimates (Revised December 7, 2017).
2. Unit rate cost estimates are based on data available from similar work and/or construction and monitoring projects.

Solution:

Develop annual cost for the required 30-year post-closure period. The item numbers are from Table VIII.A.1 - Post-Closure Cost Summary for Existing Registered Units (Cells 1, 2, and 3A though 3D).

Post closure care period =	30	yr	
Area to be administratively closed =	149.3	ac	
Area with waste in place =	34.0	ac	**(Includes Cells 1 and 2, and 3A through 3D)**

1.0 Engineering Costs

1.1 Site Inspection and Recordkeeping

149.3	ac @	$ 20.00	/ ac / yr =	$	2,986	/ yr

1.2 Correctional Plans and Specifications

Assume engineering plans required to correct erosion issues every other year.

34.0	ac @	$ 500	/ ac / 2-yr =	$	17,000	/ 2-yr
				$	8,500	/ yr
			Engineering Costs Subtotal =	**$**	**11,486**	**/ yr**

2.0 Site Monitoring

2.1 Groundwater Sampling and Analysis of Monitoring Wells **(~~6~~7 wells at time of closure)**

~~6~~ 7	wells					
$ 1,500	/ well / event					
2	events / yr		Total =	~~$ 18,000~~	$ 21,000	/ yr

2.2 Groundwater Well Plugging and Abandonment

~~6~~ 7 wells @	$ 1,000	/well		~~$ 6,000~~	$ 7,000	total (one-time event)
				~~$ 200~~	$ 233	/ yr
			Site Monitoring Costs Subtotal =	~~$ 18,200~~	**$ 21,233**	**/ yr**

3.0 Construction and Maintenance Costs

3.1 Cap and Sideslopes Repairs and Revegetation (Assumes 5% of Final Cover area each year)

1.70	ac @	$ 1,000	/ ac / yr =	$	1,700	/ yr

SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST ESTIMATE CALCULATIONS
Future Cells

Required: Estimate the cost to hire a third party to conduct post-closure care activities for **future cells following preparation of this registration application. Note, these costs are in 2021 dollars.**

References:

1. TCEQ, Technical Guideline No. 10, Closure and Post-Closure Care Cost Estimates (Revised December 7, 2017).
2. Unit rate cost estimates are based on data available from similar work and/or construction and monitoring projects.

Solution: Develop annual cost for the required 30-year post-closure period. The item numbers are from Table VIII.A.2 – Post-Closure Cost Summary for Proposed Registered Units.

Post-closure care period =	30	yr	
Area to be administratively closed =	0.0	ac	
Area with waste in place =	6.7	ac	**(Includes future cells)**

1.0 Engineering Costs

1.1 Site Inspection and Recordkeeping **(entire area included for existing cells)**

-	ac @	$ 20.00	/ ac / yr =	$	-	/ yr

1.2 Correctional Plans and Specifications

Assume engineering plans required to correct erosion issues every other year.

6.7	ac @	$ 500	/ ac / 2-yr =	$	3,350	/ 2-yr
				$	1,675	/ yr
			Engineering Costs Subtotal =	**$**	**1,675**	**/ yr**

2.0 Site Monitoring

2.1 Groundwater Sampling and Analysis of Monitoring Wells **(~~68~~ wells at time of closure, included for existing cells)**

~~0~~	1	wells				
$ 1,500	/ well / event					
2	events / yr		Total =	~~$ -~~	$ 3,000	/ yr

2.2 Groundwater Well Plugging and Abandonment

~~0~~	1 wells @	$ 1,000	/well	~~$ -~~	$ 1,000	total (one-time event)
				~~$ -~~	$ 33	/ yr
			Site Monitoring Costs Subtotal =	~~$ -~~	**$ 3,033**	**/ yr**

3.0 Construction and Maintenance Costs

3.1 Cap and Sideslopes Repairs and Revegetation (Assumes 5% of Final Cover area each year)

0.34	ac @	$ 1,000	/ ac / yr =	$	340	/ yr

ATTACHMENT C

REGISTRATION APPLICATION REVISIONS (UNMARKED)

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART I
GENERAL REGISTRATION APPLICATION REQUIREMENTS

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
P.O. Box 370
Riesel, TX 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
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Part VIII – Post-Closure Care Cost Estimate and Financial Assurance Mechanism

- Appendix VIII.A – Post-Closure Care Cost Estimates Calculations
- Appendix VIII.B – Financial Assurance Mechanism

APPENDIX I.A

APPLICATION FORMS

Table IV.D. – Inspection Schedule of Landfills

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Unit 002 - Waste Spilled in route to landfill	Waste spilled in route to landfill.	Daily
Unit 002 - Landfill Structure and Slope	Sloughing, slumping, sliding, surface cracking, sinkholes, excessively steep slope, toe of slope movement, and vehicle damage.	Weekly[1]
Unit 002 - Landfill Access Roads	Damage from vehicle traffic and erosion.	Monthly
Unit 002 - Intermediate Cover	Improper placement, thickness, erosion, vegetation, animal burrows, and for presence of waste or other contamination.	Weekly[1]
Unit 002 - Final Cover	Improper placement, thickness, erosion, vegetation, animal burrows, and for presence of waste or other contamination.	Monthly
Unit 002 - Dust Emissions	Fugitive dust at the landfill and from haul trucks	Daily
Unit 002 - Erosion Control	Erosion of intermediate and final cover	Weekly[1] (Interim), Monthly (Final)
Unit 002 - Ponding Water	Ponding water on landfill cover.	Weekly[1]
Unit 002 - Run-on and Run-off Control Systems (Uncontaminated and Contact Water)	Damage to diversion berms, downchutes, perimeter drainage channels, culverts, detention basin(s) for damage.	Weekly[1]
Unit 002 - Leachate Collection and Removal System	Damage to leachate riser pipes, sump pump/controls, and evaporation pond for damage and height of freeboard in the pond. Damage to isolation valves, protective cover, exposed geosynthetics, and leachate evaporation pond underdrain system for damage or blockage.	Weekly[1] Monthly
Unit 002 - Groundwater Monitoring System	Damage, excess vegetation, and other deficiencies to the groundwater monitoring wells.	Monthly

Note:

1. Weekly inspection elements will be inspected at intervals not exceeding seven days.

Table VI.C.1. – Groundwater Detection Monitoring Parameters

Well[1] and Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[2]
BW-1 (upgradient)				
Boron	Semiannual	6010B	0.100 mg/L	6.787 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	723.7 mg/L
Chloride	Semiannual	9056	2.50 mg/L	1540.0 mg/L
Fluoride	Semiannual	9056	0.500 mg/L	2.356 mg/L
pH	Semiannual	9040C	0.100 pH units	6.8 – 9.5 ph units
Sulfate	Semiannual	9056	25.0 mg/L	3884 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	10119.0 mg/L
MW-1 (downgradient)				
Boron	Semiannual	6010B	0.100 mg/L	2.6 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	1030.0 mg/L
Chloride	Semiannual	9056	2.50 mg/L	402.0 mg/L
Fluoride	Semiannual	9056	0.500 mg/L	0.4 mg/L
pH	Semiannual	9040C	0.100 pH units	6.136 – 8.289 ph units
Sulfate	Semiannual	9056	25.0 mg/L	3402 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	6765 mg/L
MW-2 (downgradient)				
Boron	Semiannual	6010B	0.100 mg/L	2.4 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	874.4 mg/L
Chloride	Semiannual	9056	2.50 mg/L	3336.0 mg/L
Fluoride	Semiannual	9056	0.500 mg/L	2.831 mg/L
pH	Semiannual	9040C	0.100 pH units	6.7 – 7.5 ph units
Sulfate	Semiannual	9056	25.0 mg/L	4635 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	23969.0 mg/L
MW-3 (downgradient)				
Boron	Semiannual	6010B	0.100 mg/L	1.2 mg/L
Calcium	Semiannual	6010B	2.50 mg/L	688.1 mg/L
Chloride	Semiannual	9056	2.50 mg/L	606.9 mg/L

Fluoride	Semiannual	9056	0.500 mg/L	2.201 mg/L
pH	Semiannual	9040C	0.100 pH units	5.71 – 8.09 ph units
Sulfate	Semiannual	9056	25.0 mg/L	4447.0 mg/L
Total Dissolved Solids	Semiannual	160.1	10.0 mg/L	9375.0 mg/L

[1]Monitor wells MW-4 and MW-5 (not listed) have not completed background monitoring, so concentration limits have not yet been determined.

[2] The concentration limit, which is the basis for determining whether a release has occurred from the CCR unit/area, is applicable to downgradient wells only. Note, concentration limits may change as data are accumulated.

Table VI.D-2. – Groundwater Assessment Monitoring Parameters

Parameter	Sampling Frequency	Analytical Method	Practical Quantification Limit (units)	Concentration Limit[1]
N/A				

1 The concentration limit is the basis for determining whether a release has occurred from the CCR unit/area.

2 MCL does not exist

Table VII.A.1. – Unit Closure

For each unit to be registered, list the unit components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure.

Equipment or CCR Unit	Possible Methods of Decontamination[1]	Possible Methods of Disposal[1]
CCR Unit 002	Waste left in-place and installation of final cover	N/A
Landfill equipment	Wash off excessive waste material from equipment within landfill (active face)	N/A

1 Applicants may list more than one appropriate method.

Table VII.A.2. – CCR Units Under Alternative Closure Notification

Registered Unit No.	N.O.R. Unit No.	Unit Description[1,2]	Date of Receipt of Last Waste[3]	Date of Closure Notification[3]
N/A				

1 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been requested pursuant to 40 CFR §257.103.
2 Indicates a unit for which a 30 TAC Chapter 352/40 CFR Part 257, Subpart D alternative closure determination has been made pursuant to 40 CFR §257.103.
3 Enter month, day, and year.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
RESGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART IV
LANDFILL CRITERIA AND DESIGN DRAWINGS

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
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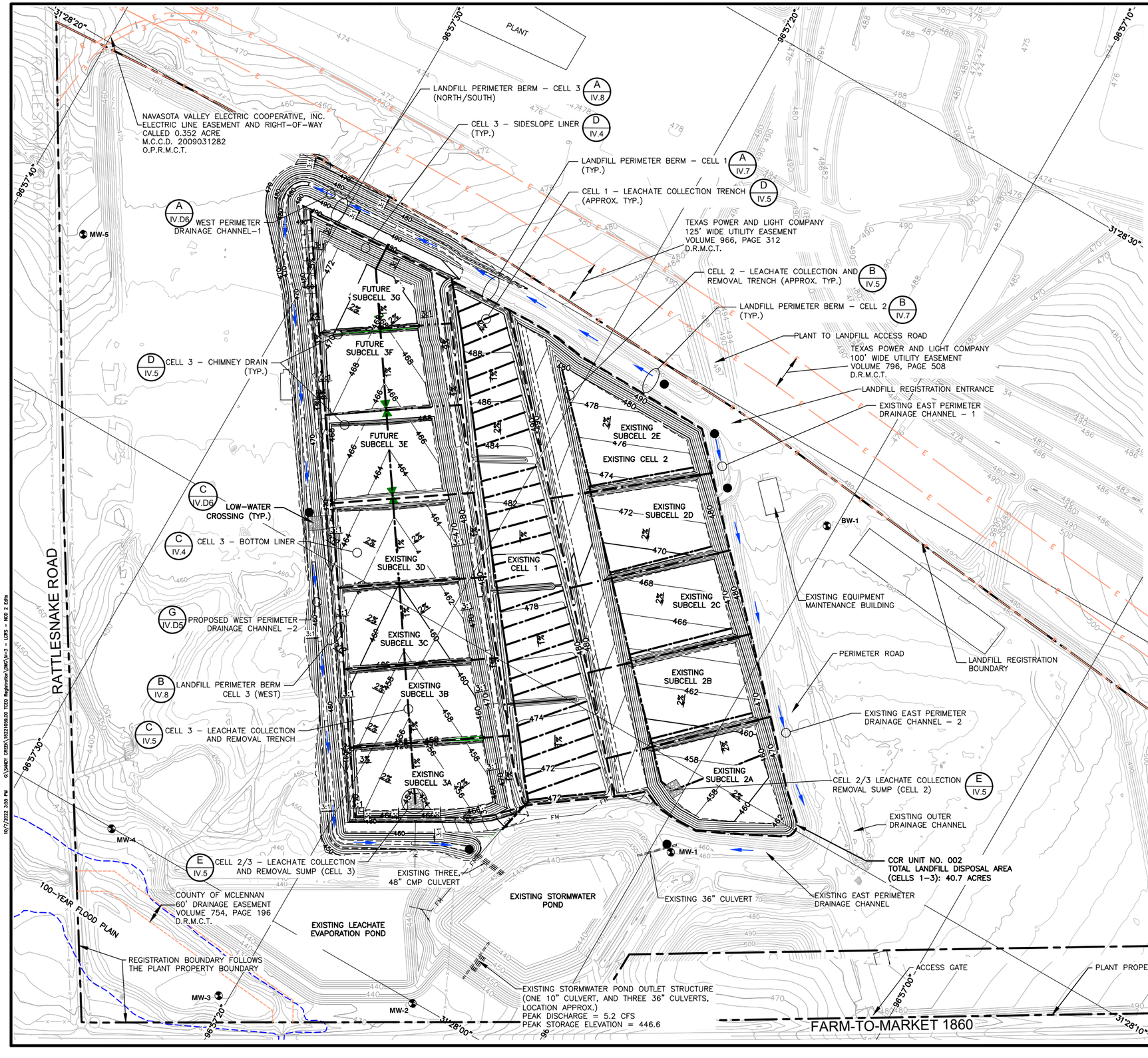
SCS Project No. 16221059.00

Drawings

Appendices



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LEGEND

- EXISTING CONTOURS (SEE NOTE 1)
- PROPOSED/EXISTING TOP OF LINER
- PLANT PROPERTY BOUNDARY (SEE NOTE 2)
- LANDFILL REGISTRATION BOUNDARY (SEE NOTE 4)
- REGISTERED LIMITS OF WASTE (SEE NOTE 2)
- PHASE LIMITS
- LATITUDE/LONGITUDE LINES
- 100-YEAR FLOOD PLAIN (SEE NOTE 3)
- EXISTING MONITORING WELL
- PROPOSED/EXISTING LEACHATE FORCEMAIN LINE
- EXISTING ELECTRIC LINE
- PROPOSED/EXISTING TOE/TOP OF SLOPE
- PROPOSED/EXISTING LEACHATE COLLECTION AND REMOVAL TRENCH
- CHANNEL SECTION

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.
2. EXISTING CELL 1 AND 2 BOUNDARIES ARE FROM THE FINAL GRADING PLAN DATED DECEMBER 2014; DEVELOPED BY GEOSYNTEC CONSULTANTS. THERE CELL 3 BOUNDARY IS FROM A CELL EXPANSION PLAN DATED FEBRUARY 2021; DEVELOPED BY SCS ENGINEERS.
3. 100-YEAR FLOOD PLAIN IS DESIGNATED AS ZONE A, BASED ON FIRM PANEL 48309C0600D, DATED 10/20/2019.
4. REGISTRATION BOUNDARY IS FROM AN EXHIBIT AND FIELD NOTES FOR A 148.84 ACRES SOLID WASTE DISPOSAL FACILITY TRACT DEVELOPED BY WALKER PARTNERS IN SEPTEMBER 2021.
5. PROPOSED/EXISTING FEATURES IN CELLS 1,2 AND SUBCELLS 3A THROUGH 3D ARE EXISTING AND SUBCELLS 3E THROUGH 3G ARE PROPOSED AT THE TIME OF THIS REGISTRATION APPLICATION DEVELOPMENT.

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV.	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL 2 SUMP LIMITS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: LEACHATE COLLECTION AND REMOVAL SYSTEM PLAN

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2168

PROJ. NO. 162210459.00
D/A R/W BY: BJD
APP. BY: BJD
DWN. BY: QRA
CHK. BY: BJD
DSN. BY: BJD

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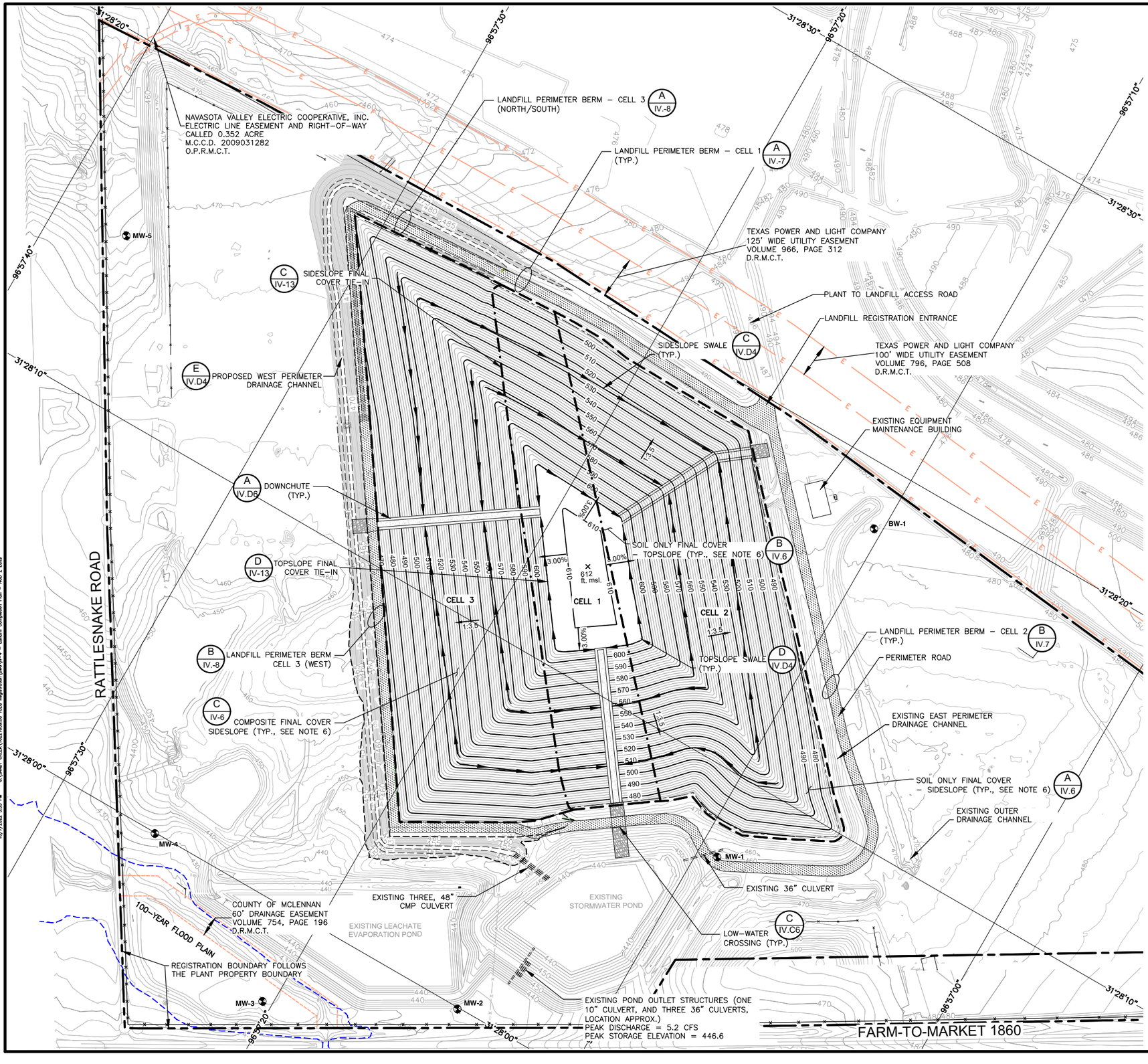

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SCALE IN FEET

LEGEND

- EXISTING CONTOURS (SEE NOTE 1)
- PLANT PROPERTY BOUNDARY
- LANDFILL REGISTRATION BOUNDARY (SEE NOTE 3)
- REGISTERED LIMITS OF WASTE (SEE NOTE 4)
- CELL BOUNDARY
- 96°57'10" LATITUDE/LONGITUDE LINES
- MW-1 EXISTING GROUNDWATER MONITORING WELL
- PROPOSED FINAL COVER CONTOUR (SEE NOTE 5)
- PROPOSED DRAINAGE SWALES
- PROPOSED DOWNCHUTES
- EXISTING FENCE
- EXISTING DRAINAGE EASEMENT
- EXISTING ELECTRICAL EASEMENT
- 100-YEAR FLOOD PLAIN (SEE NOTE 2)
- PERIMETER ROAD

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.
2. 100-YEAR FLOOD PLAIN IS DESIGNATED AS ZONE A, BASED ON FIRM PANEL 48309C0600D, DATED 10/20/2019.
3. REGISTRATION BOUNDARY IS FROM AN EXHIBIT AND FIELD NOTES FOR A 148.84 ACRES SOLID WASTE DISPOSAL FACILITY TRACT DEVELOPED BY WALKER PARTNERS IN SEPTEMBER 2021.
4. EXISTING CELL 1 AND 2 BOUNDARIES ARE FROM THE FINAL GRADING PLAN DATED DECEMBER 2014; DEVELOPED BY GEOSYNTEC CONSULTANTS. THERE CELL 3 BOUNDARY IS FROM A CELL EXPANSION PLAN DATED FEBRUARY 2021; DEVELOPED BY SCS ENGINEERS.
5. ELEVATIONS SHOWN ON THIS DRAWING WITHIN REGISTERED LIMITS OF WASTE ARE TOP OF FINAL COVER ELEVATIONS IN FT MEAN SEA LEVEL (FT MSL).
6. SOIL ONLY FINAL COVER WILL BE INSTALLED OVERLAYING CELL 1 AND 2, COMPOSITE FINAL COVER WILL BE INSTALLED OVERLAYING CELL 3 AND UP TO THE TOPSLOPE. TEXTURED GEOMEMBRANE AND DOUBLE-SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 7.5 FEET ON TO THE LANDFILL TOPDECK.

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV.	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL BOUNDARIES AND FINAL COVER TIE-IN LABELS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: **LANDFILL COMPLETION PLAN**

PROJECT TITLE: **SANDY CREEK ENERGY STATION CCR WASTE MANAGEMENT FACILITY TCEQ REGISTRATION APPLICATION**

CLIENT: **SANDY CREEK SERVICES, LLC 2161 RATTLESNAKE ROAD RIESEL, TEXAS 76682**

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2186

PROJ. NO.	16221049.00
DSN. BY:	BJD
DWN. BY:	AGA
CHK. BY:	SS
QA/QC BY:	SS
APP. BY:	BJD

CADD FILE: V-4 – LANDFILL COMPLETION PLAN – MOD 2 EDITS

DATE: 9/2021

SCALE: AS SHOWN

DRAWING NO. **IV-4**

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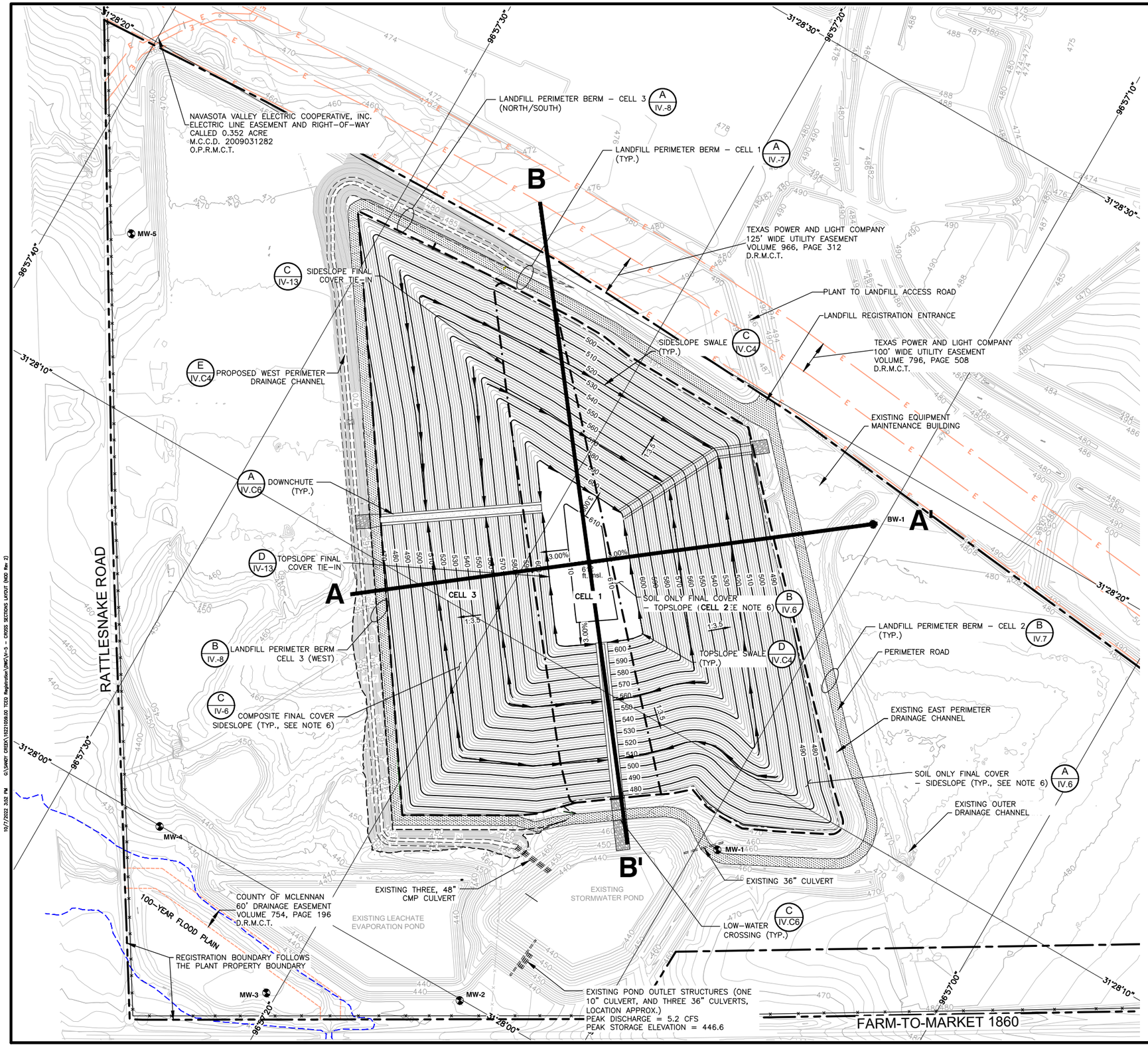

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SCALE IN FEET

LEGEND

- EXISTING CONTOURS (SEE NOTE 1)
- PLANT PROPERTY BOUNDARY
- LANDFILL REGISTRATION BOUNDARY
- REGISTERED LIMITS OF WASTE
- CELL BOUNDARY
- 96°57'10" LATITUDE/LONGITUDE LINES
- MW-1 EXISTING GROUNDWATER MONITORING WELL
- PROPOSED FINAL COVER CONTOUR
- PROPOSED DRAINAGE SWALES
- PROPOSED DOWNCHUTES
- EXISTING FENCE
- EXISTING DRAINAGE EASEMENT
- EXISTING ELECTRICAL EASEMENT
- 100-YEAR FLOOD PLAIN (SEE NOTE 2)
- PERIMETER ROAD

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL BOUNDARIES AND FINAL COVER TIE-IN LABELS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
CROSS SECTION LAYOUT PLAN

PROJECT TITLE
SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT
SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO. 162210059.00 | DSN. BY: BJD | DWN. BY: ORA | CHK. BY: BJD | QA RVW BY: | APP. BY: BJD

CADD FILE: IV-5 – CROSS SECTIONS LAYOUT (NOD REV. 2)

DATE: 11/2021

SCALE: AS SHOWN

DRAWING NO.
IV-5

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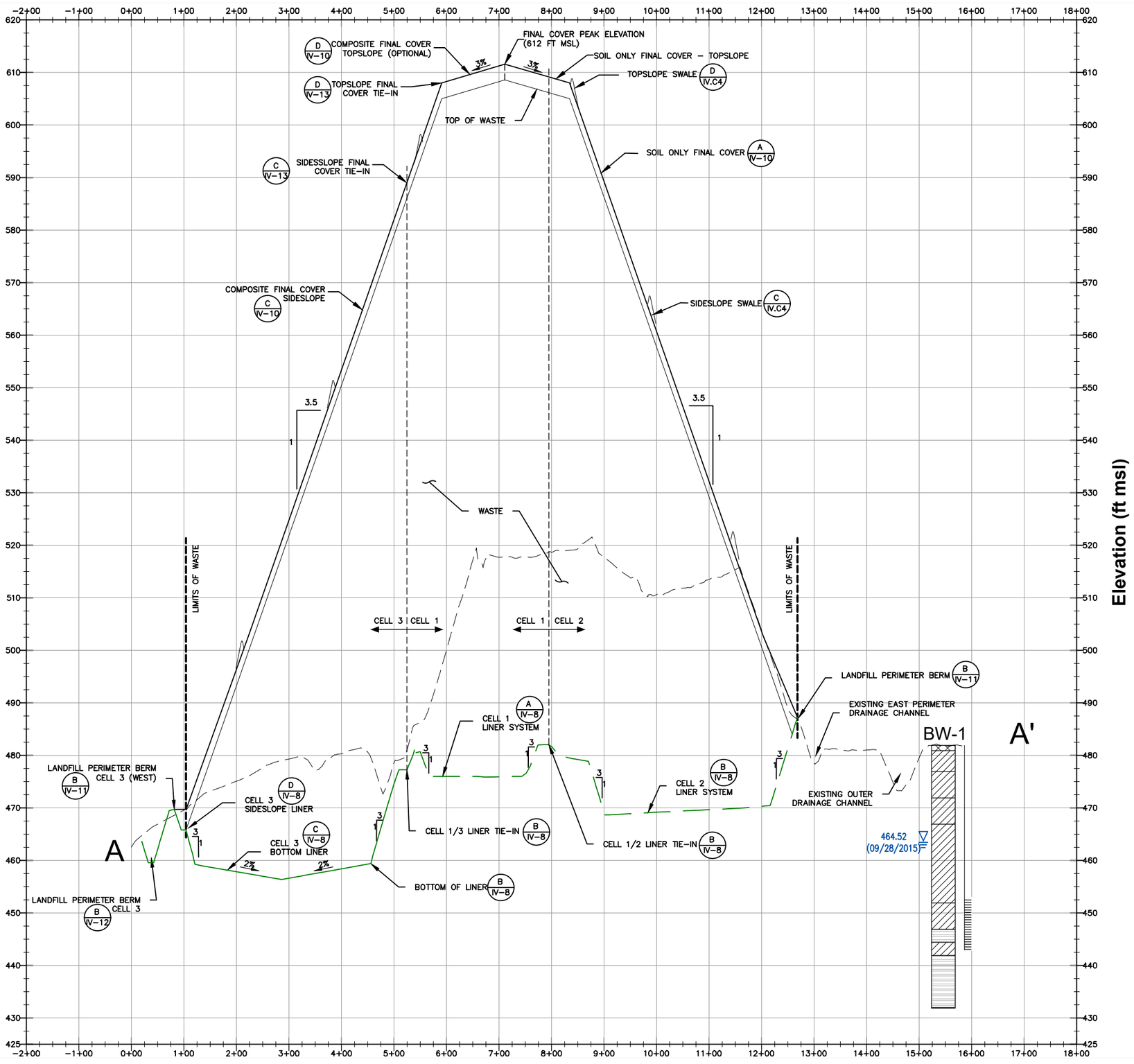


0 10 20
VERTICAL SCALE IN FEET

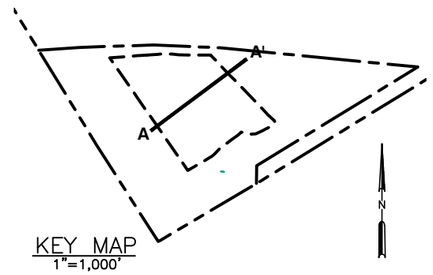
0 100 200
HORIZONTAL SCALE IN FEET

LEGEND

- LIMITS OF WASTE/CELL BOUNDARIES
- EXISTING TOPOGRAPHY
- BOTTOM OF LINER
- TOP OF WASTE
- SEASONAL HIGH GROUNDWATER
- SOIL (BROWN/BLACK CLAY)
- WEATHERED SHALE
- UNWEATHERED SHALE
- SCREENED INTERVAL
- 510.74 (7/8/20) STATIC WATER LEVEL IN MONITORING WELL (DATE OF WATER LEVEL READING)

NOTE:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.



KEY MAP
1"=1,000'

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	10/2022	ADDITION OF THE CELL BOUNDARIES, LINER TIE–IN, AND FINAL COVER TIE–IN LABELS.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE
CROSS SECTION A-A'

PROJECT TITLE
SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT
SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188
PROJ. NO. 162221059.00
DSN. BY: BJD | DWN. BY: ORA | CHK. BY: BJD | QA/QC BY: BJD | APP. BY: BJD

CADD FILE: V-6" IV–7 – CROSS SECTIONS – NOD 2 EDITS

DATE: 11/2021

SCALE: AS SHOWN

DRAWING NO.
IV-6

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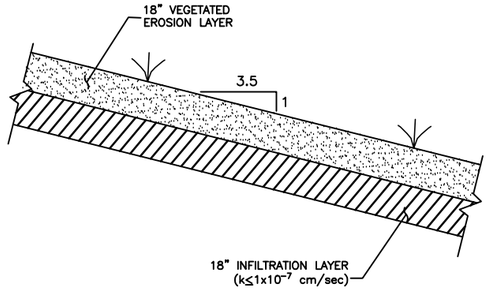
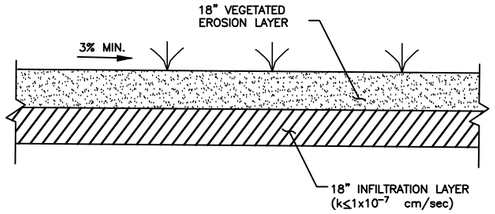


SOIL ONLY FINAL COVER – SIDESLOPE (A / IV–10)

NTS

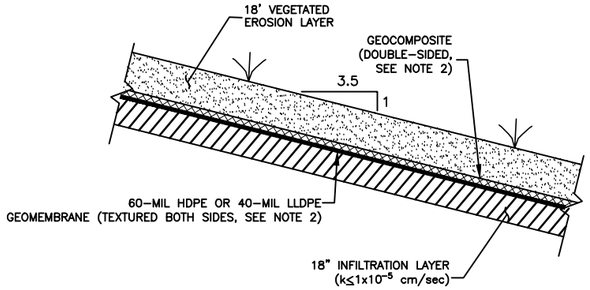


SOIL ONLY FINAL COVER – TOPSLOPE (B / IV–10)

NTS

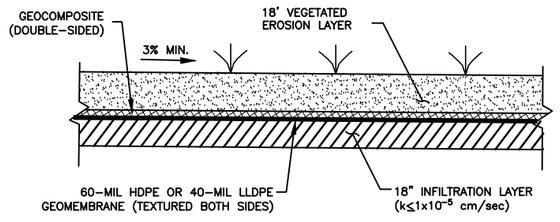
NOTE:

1. SOIL ONLY FINAL COVER WILL BE INSTALLED OVERLAYING CELL 1 AND 2, COMPOSITE FINAL COVER WILL BE INSTALLED OVERLAYING CELL 3 AND UP TO THE TOP OF DECK (CONSISTENT WITH NOTE 2 AND DETAIL D DRAWING IV–13).
2. TEXTURED GEOMEMBRANE AND DOUBLE–SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 7.5 FEET ONTO THE LANDFILL TOPSLOPE.
3. AT THE DISCRETION OF THE LANDFILL OWNER/OPERATOR IN AREAS OVERLAYING CELLS 1 AND 2, THE COMPOSITE FINAL COVER (SEE THIS DRAWING, DETAILS C AND D) MAY BE INSTALLED OVER CELLS 1 AND 2.



COMPOSITE FINAL COVER – SIDESLOPE (C / IV–10)

NTS



COMPOSITE FINAL COVER – TOPSLOPE (OPTIONAL) (D / IV–10)

NTS

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
1	10/2022	NOTE EDITS AND ADDED REFERENCES.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: FINAL COVER DETAILS

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2186

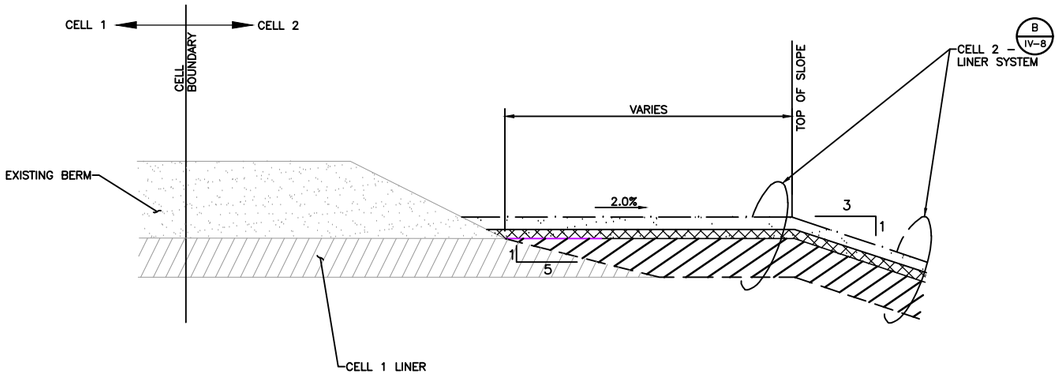
PROJ. NO. 162210459.00 | DSN. BY: BJD | DWN. BY: GRA | CHK. BY: BJD | Q/A RVW BY: BJD | APP. BY: BJD

CADD FILE: IV–10 – FINAL COVER DETAIL–1

DATE: 11/2021

SCALE: AS SHOWN

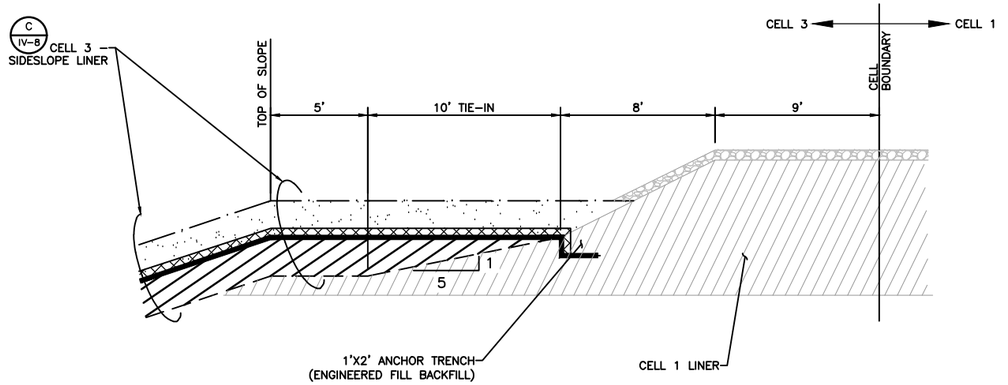
DRAWING NO. IV-10



NOTE:

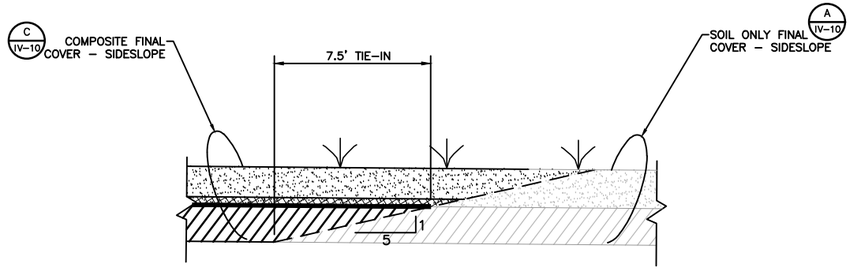
1. THIS DEATAIL CONSISTENT WITH CELL 2 LINER SYSTEM CONSTRUCTION DRAWINGS DEVELOPED BY GEOSYNTEC CONSULTANTS, DATED DECEMBER 9, 2019 AND CELL 2 LINER EVALUATION REPORT DEVELOPED BY SCS ENGINEERS SATED, JULY 2014.

CELL 1/2 LINER TIE–IN A IV–13
NTS

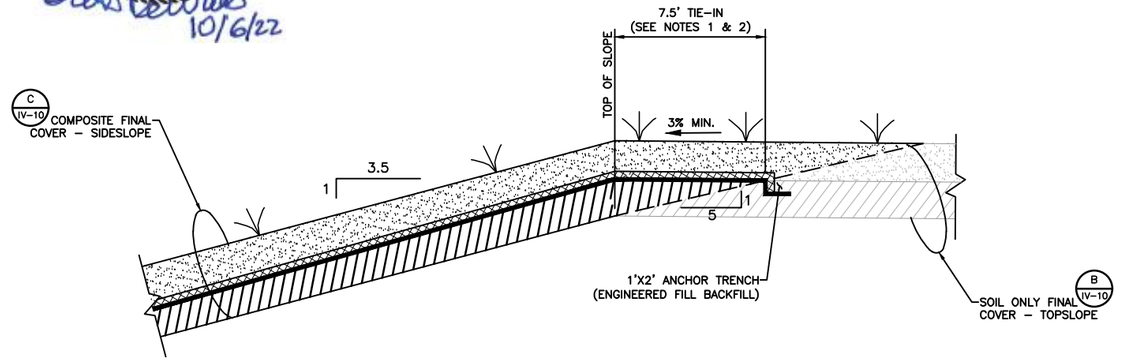


CELL 1/3 LINER TIE–IN B IV–13
NTS

STATE OF TEXAS
BRETT J. DeVRIES
128061
LICENSED
PROFESSIONAL ENGINEER
10/6/22



SIDESLOPE FINAL COVER TIE–IN C IV–13
NTS



NOTE:

1. SOIL ONLY FINAL COVER WILL BE INSTALLED OVERLAYING CELL 1 AND 2, COMPOSITE FINAL COVER WILL BE INSTALLED OVERLAYING CELL 3 AND UP TO THE TOP OF DECK.
2. TEXTURED GEOMEMBRANE AND DOUBLE–SIDED GEOCOMPOSITE WILL EXTEND A MINIMUM OF 7.5 FEET ONTO THE LANDFILL TOPSLOPE.

TOPSLOPE FINAL COVER TIE–IN D IV–13
NTS

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: LINER/FINAL COVER TIE-IN DETAILS

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

PROJ. NO.	DSN. BY:	CHK. BY:	DWN. BY:	O/A RVW BY:	APP. BY:
162210059.00	BJD	BJD	ORA	BJD	BJD

CADD FILE: IV-13 – DETAILS

DATE: 10/2022

SCALE: AS SHOWN

DRAWING NO. **IV-13**

10/19/2022 2:16 PM G:\SANDY CREEK\162210059.00 TCEQ Registration\DWG\IV-13 – Details

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

APPENDIX IV.A
LEACHATE COLLECTION AND REMOVAL SYSTEM PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
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SCS Project No. 16221059.00

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Attachments

1 PE CERTIFICATION (40 CFR §257.70(e))

I, Brett DeVries, Ph.D., P.E., hereby certify that the composite liner system and leachate collection and removal system for Cell 3 at the Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility meets the requirements in 30 TAC §352.701 [40 CFR §257.70(b) and (d)]. This certification is based on this Registration Application and was prepared by or under my supervision. I am a duly licensed Professional Engineer under the laws of the State of Texas.

Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/2023

sump in both Cells 2 and 3 will be at least 3 feet deep with minimum dimensions shown on Drawing IV-9 (see Detail E). The sump in Cell 3 has been designed to provide storage of approximately 7,911 gallons of leachate (Note, this capacity excludes approximately 6 inches of lost storage required for the pump head volume). The Cell 3 sump will provide in excess of one-day of leachate storage for the maximum calculated leachate generation rate, as provided in the sump design calculations provided in Attachment IV.A2. The sump in Cell 3 will be backfilled with drainage stone meeting the gradation requirements specified in Section 4.6 of this Plan.

Leachate will be removed from the sump using a submersible pump located in an 18-inch diameter sideslope sump riser pipe. Leachate will be transferred to the leachate evaporation pond as described in Section 5 of this Plan. As described in Section 5 of this Plan, the primary method of leachate management will be through evaporation in the leachate evaporation pond. Occasionally, leachate maybe used by the Landfill Owner/Operator for dust control within the active lined area of the Landfill or sent offsite by the Landfill Owner/Operator for disposal at a permitted wastewater treatment facility or other authorized disposal facility.

The sumps in Cells 2 and 3 will be equipped with a permanent submersible pump and controls. Each pump will be equipped with sensors (i.e., pressure transducers) to turn the pump on and off based on leachate levels within the respective sump. The pump-on liquid level will be set at a maximum elevation of 30 inches above the bottom of the sump. The pump-off liquid level will be set at a maximum elevation of 6 inches above the bottom of the sump or the manufacturer's recommended minimum depth to protect the pump from damage during low-level pumping. Using the pump's level controls, leachate levels will be maintained within the sumps at a depth ranging from 6 to 30 inches, thereby preventing the sumps from overtopping. Additionally, each sump pump will be equipped with a pressure transducer that will allow monitoring of leachate levels within the sump. Plant personnel or other qualified person will inspect the leachate levels in the sumps at the control panel on a weekly basis during the weekly inspections to verify that the pumps are operating correctly and leachate levels are being maintained within the sumps consistent with Section 3 of the Site Operating Plan (Part V). The pump control panel will also be equipped with a high-level indicator light, which will indicate when leachate levels within the sump reach a depth that may result in leachate levels above the bottom liner system greater than 30 centimeters.

In the unlikely event of a pump failure, the leachate storage capacity of the sump will provide adequate storage capacity to prevent accumulation of leachate on the liner outside the sump for a period of at least one-day. In the event of pump failure, the Landfill Owner/Operator will monitor the liquid level within the sump daily to verify that liquid levels are less than 30 centimeters above the bottom liner. The Landfill Owner/Operator will have a spare pump and parts on site or otherwise be capable of pumping liquids from the sump for disposal in the event of pump failure. Sump design calculations for Cell 3 are presented in Attachment IV.A2. The LCRS sump configuration for Cells 2 and 3 are provided on Drawing IV-9 in Part IV.

4.6 DRAINAGE AGGREGATE

Granular drainage material around the leachate collection and removal pipes (i.e., chimney drains) and in the sumps will consist of durable particles of aggregate. Drainage aggregate requirements specified in the remainder of this section will be applicable to Cell 3 only. The aggregate will be tested (in accordance with JLT-S-105-89 or ASTM D3042 modified to use a solution of

hydrochloric acid having a pH of 5) to demonstrate that the loss of mass will be less than 15 percent.

The drainage aggregate will meet the following gradation:

Sieve Size Square Opening	Percent Passing
2 inches	100
½ inch	0 – 5

Drainage aggregate of this gradation will have a permeability greater than or equal to $1x10^{-2}$ cm/sec, therefore no permeability testing is required.

The drainage aggregate will be covered by a 12 oz/sy or greater weight non-woven geotextile to maintain separation of drainage aggregate from the overlying operational layers and surrounding protective cover. The geotextile used to protect the drainage aggregate will be chemically resistant to waste managed at the Landfill.

5 LEACHATE AND CONTACT WATER STORAGE AND DISPOSAL

As discussed in Section 4.5, leachate storage will be provided in the LCRS sumps and leachate evaporation pond. Initial leachate storage will be provided in the sumps. Leachate that is generated during operations is collected at the bottom of the Landfill and conveyed to the leachate evaporation pond as follows:

- Leachate from Cell 1 is directed to the leachate evaporation pond via a leachate gravity drain pipe;
- Leachate from Cell 2 is pumped from a leachate sump, located at the low end of the cell (Subcell 2A), to the leachate gravity drain pipe and directed to the leachate evaporation pond; and
- Leachate from Cell 3 is pumped from the leachate sump, located at the low end of the cell (Subcell 3A), to a leachate forcemain and directed to the leachate evaporation pond.

Contact water will be contained at the working face using temporary diversion berms, as described in Section 3.3 of this Plan. Water that infiltrates into the underlying waste will be managed as leachate. Contact water at the working face will be kept to a minimum and directed to the LCRS, which discharges into the leachate evaporation pond.

Leachate and contact water will be stored in the leachate evaporation pond until it evaporates, may be used for dust control within the active lined area of the Landfill (i.e. without intermediate or final cover), or disposed of at a permitted wastewater treatment facility or other authorized disposal facility. Actual leachate generation and evaporation rate in the leachate evaporation pond will govern the need for expanding the evaporation pond, other leachate storage devices (e.g., storage tanks), or disposal disposed of at a permitted wastewater treatment facility or other authorized disposal facility.

Leachate and contact water will be stored in the leachate evaporation pond, which is designed with a 2 foot compacted clay liner (hydraulic conductivity (k) $\leq 1 \times 10^{-7}$ cm/sec), a 60-mil high density polyethylene (HDPE) geomembrane (textured both sides), and a maximum operating depth of 6 feet and maximum storage capacity of 6.2 million gallons. This evaporation pond is a no-discharge pond and has a freeboard of 2 feet which will be maintained at all times. The liquid level indicator in the evaporation pond is placed in the southeast corner of the pond. If there is no available storage in the leachate evaporation pond, leachate will be used by the Landfill Owner/Operator for dust control within the active lined area of the Landfill (i.e. without intermediate or final cover) consistent with Section 2.5 of Part V – Site Operating Plan (SOP) and the Part III – Fugitive Dust Control Plan. Otherwise, the excess leachate will be sent offsite by the Landfill Owner/Operator for disposal at a permitted wastewater treatment facility or other authorized disposal facility.

Plant personnel and/or other qualified person will inspect the leachate evaporation pond for damage and document amount of freeboard on a weekly and annual basis consistent with Section 3 of the SOP. Records of these inspections and any maintenance as a result of the inspections will be maintained in the Site Operating Record in accordance with Section 3 of the SOP.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART V
SITE OPERATING PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

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3 INSPECTION PROCEDURES

Plant personnel or other qualified person will perform weekly inspections of the Landfill area for appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the landfill. A weekly inspection checklist is provided in Appendix V.A of the SOP and summarized in Table IV.D of TCEQ Form 20870, which will be used to document weekly inspections of the Landfill. Following completion of weekly inspections, the completed checklist will be placed and maintained in the Site Operating Record in accordance with Section 4 of this SOP.

The Landfill will be inspected once per calendar year by a qualified professional engineer in the state of Texas, who will verify that the design, construction, operation, and maintenance of the Landfill is consistent with recognized and generally accepted good engineering standards. The inspection will include a review of available information regarding the status and condition of the Landfill, including files available in the Site Operating Record, and a visual inspection of the Landfill to identify signs of distress or malfunction of the Landfill. The professional engineer will prepare a report following each inspection that addresses changes in geometry of the structure since the previous annual inspection, the approximate volume of waste contained in the Landfill at the time of the inspection, any appearances of an actual or potential structural weakness of the Landfill, in additional to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the Landfill, and any other change(s) which may have affected the stability or operation of the Landfill since the previous annual inspection. An annual inspection checklist, is provided in Appendix V.B of the SOP and summarized in Table IV.D of TCEQ Form 20870, which will be used to document annual inspections of the Landfill. Following completion of annual inspection, the completed annual report and checklist will be placed and maintained in the Site Operating Record and Landfill's publicly accessible website in accordance with Section 4 of this SOP.

The checklists have been developed for the weekly and annual inspections required for an active Landfill, and may be revised as needed throughout the life of the Landfill. After final cover has been installed on the Landfill, a new inspection checklist will be developed for post-closure activities.

A site inspection and maintenance schedule is provided in Table 3.1 of this SOP.

Consistent with 30 TAC §352.841(b), the Landfill Owner/Operator will verbally notify the TCEQ within 24 hours and in writing within five (5) days if a deficiency is observed during a weekly or annual inspection that could result in harm to human health, the environment, or has resulted in a release. Additionally, the TCEQ will be notified in writing within 14 days of all other deficiencies following annual inspections that could have the potential to disrupt operation of the Landfill. If a waste release or deficiency is found, the Landfill Owner/Operator will prepare a written corrective action plan to remedy the release or deficiency as soon as feasible consistent with 40 CFR §257.84(b)(5). Notifications and correction action plans will be placed in the Site Operating Record and on the Landfill's publicly accessible website in accordance with Section 4 of this SOP.

Prior to placing waste in a lateral expansion of the Landfill, (1) a certification letter signed by the Responsible Official for the Plant and a licensed professional engineer in the state of Texas, stating

that the expansion has been constructed in compliance with conditions of this registration, , will be submitted to the TCEQ. If within 15 days of submission of the certification letter to the TCEQ, the TCEQ has not notified the Landfill Owner/Operator of their intent to inspect, then it is understood that the TCEQ has waived the opportunity for this inspection and the Landfill Operator can commence disposal in the lateral expansion.

Table 3.1 Site Inspection and Maintenance Schedule (Active Landfill Period)

ITEM	TASK	SCHEDULE
Waste Spilled in route to Landfill	Inspect access roads used for waste delivery to the Landfill. Clean up prior to end of operation day.	Daily
Landfill Structure and Slope	Inspect for sloughing, slumping, sliding, surface cracking, sinkholes, excessive slope, toe of slope movement, and vehicle damage. Remedy deficiencies as needed and notify TCEQ as required in Section 3.	Weekly[1]
Landfill Access Roads	Inspect Landfill access roads for damage from vehicle traffic and erosion. Repair onsite access roads, as needed, based on inspections.	Monthly
Intermediate Cover	Inspect for proper placement, thickness, erosion, vegetation, animal burrows, and for presence of waste or other contamination. Remedy deficiencies as needed.	Weekly[1]
Final Cover	Inspect for proper placement, thickness, slope, settlement, vegetation, animal burrows, and erosion. Maintenance will be ongoing throughout post-closure care period. Remedy deficiencies as needed.	Monthly[1]
Dust Emissions	Inspect for fugitive dust at the Landfill and ash silo, and from haul trucks. If found, remedy deficiencies as needed.	Daily
Erosion Control	Inspect the intermediate and final cover for signs of erosion. Damaged areas will be repaired by restoring cover material, grading, compaction, and/or seeding or sodding.	Weekly[1] (Interim), Monthly (Final)
Ponding Water	Inspect Landfill cover for potential ponding water locations. Fill depressions and regrade potential areas as needed.	Weekly[1]
Run-on and Run-off Control Systems (Uncontaminated and Contact Water)	Inspect diversion berms, downchutes, perimeter drainage channels, culverts, detention basin(s) for damage. Remedy deficiencies as needed.	Weekly[1]

Table 3.1 (Continued)

Leachate Collection and Removal System	Inspect leachate riser pipes, sump pump/controls, evaporation pond for damage and height of freeboard in the pond. Inspection isolation valves, protective cover, exposed geosynthetics, and leachate evaporation pond underdrain system for damage or blockage, as applicable. Remedy deficiencies as needed.	Weekly[1] Monthly
Groundwater Monitoring System	Inspect groundwater monitoring wells for damage, excess vegetation, and other deficiencies. Remedy deficiencies as needed.	Monthly

Note:

1. Weekly inspections elements will be inspected at intervals not exceeding seven days.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART VI
GROUNDWATER MONITORING AND CORRECTIVE ACTION PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, TX 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

Revision 0 – January 2022
Revision 1 – May 2022
Revision 2 – October 2022
SCS Project No. 16221059.00

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Tables

Drawings

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Appendices

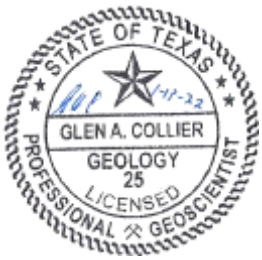
1 PE CERTIFICATION

I, Brett DeVries, Ph.D., P.E. and Glen Collier, P.G., hereby certify that the groundwater monitoring system Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility meets the requirements in 30 TAC §352.911 (40 CFR §257.93). This certification is based on investigated available geologic and hydrogeologic information within the Landfill Registration Boundary. This Plan was prepared by or under my supervision. I am a duly licensed Professional Engineer or Professional Geologist under the laws of the State of Texas.

(printed or typed name)

License number 128061

My license renewal date is 9/30/2023



Glen A. Collier, P.G.
(printed or typed name)

License number 25

My license renewal date is 12/30/2022

monitored during the first eight quarters and the first semiannual detection monitoring event include 18 inorganic compounds, total dissolved solids, radium-226, and radium-228. The constituents monitored in subsequent events and during the June 2021 semiannual detection monitoring event include Appendix III constituents only. Initial background monitoring for monitoring wells MW-1, MW-2, MW-3, and BW-1 commenced in December 2015 and was completed in August 2017. The subsequent Background Evaluation Report is included as Appendix III in the 2017 Annual Groundwater Monitoring and Corrective Action Report, which is provided in Appendix VI.C. MW-1, MW-2, MW-3, and BW-1 are currently in detection monitoring. Monitoring wells MW-4 and MW-5 are currently in background monitoring. None of the wells are in assessment monitoring at the time of developing this Registration Application.

The First Semiannual Groundwater Monitoring Report for 2020 is included as Appendix VI.C. Historical groundwater sampling results for all six wells are also provided in Appendix VI.C.

7.3 GROUNDWATER MONITORING SYSTEM (30 TAC §352.911 [40 CFR §257.91])

As required by 40 CFR §257.91, the groundwater monitoring system will consist of a sufficient number of appropriately located wells to yield groundwater samples from the uppermost aquifer that represent the quality of background groundwater and the quality of groundwater passing the point of compliance.

Previously described Stratum II is the uppermost water bearing zone beneath the Landfill Registration Boundary. Based on the boring logs for the monitoring wells, the thickness of the water bearing zone within Stratum II (i.e., the zone with sand or gypsum lenses or iron oxide staining) ranges from eight to 18 feet thick beneath the facility.

Water levels measured periodically from 2010 to the present indicate a general south-southwesterly direction to groundwater movement in Stratum II. The velocity of groundwater moving through Stratum II has been calculated to range from 67 to 86 feet per year.

Based on the thickness of the uppermost water-bearing zone, groundwater flow direction, and groundwater velocity, the groundwater monitoring system consists of a sufficient number of appropriately located wells to yield representative samples of groundwater passing beneath the Landfill.

As required by 40 CFR §257.94 and §257.95, Landfill Owner/Operator will conduct detection monitoring at all groundwater monitoring wells in detection status as well as assessment monitoring at all groundwater monitoring wells in assessment status when applicable. Furthermore, Landfill Owner/Operator will comply with all requirements involving §257.94 and §257.95 as provided in Appendix VI.A.5.3. Detection monitoring constituents are listed on Table VI,C-1 in Appendix I.A.

Installation of the groundwater monitoring system will be phased to correspond to subcell development and waste placement. As shown on Drawing VI-2, well MW-6 will be installed prior to waste placement in Subcell 3D and MW-7 will be installed prior to waste placement in Subcell 3F.

7.4 ASSESSMENT OF CORRECTIVE MEASURES (30 TAC §352.961 [40 CFR §257.96])

Within 90 days of finding that any of the Appendix IV constituents have been detected at a statistically significant level above a Groundwater Protection Standards (GWPS), Landfill Owner/Operator will initiate an assessment of corrective measures immediately. This assessment will be completed within 90 days of initiating the assessment and may be extended for no longer than 60 days. Any extension to complete the assessment of corrective measures will be based on a site-specific demonstration. The assessment will be included in the annual groundwater monitoring and corrective action report required by 40 CFR §257.90(e), in addition to the certification by a qualified professional engineer.

Unless preceded by an Alternative Source Demonstration showing that the statistically significant increase (SSI) is not attributable to the Landfill, the assessment will analyze the effectiveness of potential corrective measures, including performance, reliability, ease of implementation, and potential impacts. The assessment will also discuss the control of exposure to residual contamination, time required to begin and complete the remedy, costs of remedy implementation, and any institutional requirements that may substantially affect implementation of the remedy or remedies.

At least 30 days prior to selecting a remedy, Landfill Owner/Operator will discuss the results of the assessment of corrective measures in a public meeting with interested and affected parties. The Landfill Owner/Operator of the Landfill must comply with the recordkeeping requirements specified in 40 CFR §257.105(h), the notification requirements specified in 40 CFR §257.106(h), and the Internet requirements specified in 40 CFR §257.107(h).

Within 30 days of completing the assessment of corrective measures required by this section, and before implementation of the remedy, Landfill Owner/Operator will submit an amendment application, on forms prescribed by the Executive Director, in accordance with §352.131. Landfill Owner/Operator will provide any additional information as the Executive Director may require that compliance with §352.131 be demonstrated. The application will include, at a minimum:

- Documentation that characterizes the nature and extent of the release, both vertically and horizontally, and meets the applicable requirements of §352.951,
- The completed assessment of corrective measures,
- The proposed selection of remedy required by §352.971,
- A comparison of the Appendix III constituents with a statistically significant increase over the background value, and the corresponding background value at each monitoring well,
- A comparison of the Appendix IV constituents and the corresponding groundwater protection standard meeting the requirements of §352.951(b) at each monitoring well,
- A proposed timeline for the submission of the corrective action effectiveness report required by §352.991, and

- A signed affidavit certifying that the owner or operator has complied with the applicable notification requirements of §352.951.

7.5 SELECTION OF REMEDY (30 TAC §352.971 [40 CFR §257.97])

Based on the results of the corrective measures assessment, Landfill Owner/Operator must as soon as feasible, select a remedy that, at a minimum, meets the remedy standards in 40 CFR §257.97(b). When selecting a remedy, the Landfill Owner/Operator will consider the evaluation factors presented in 40 CFR §257.97(c). Once a remedy is selected, in accordance with 40 CFR §257.97(d), Landfill Owner/Operator must specify a schedule(s) for implementing and completing remedial activities, while also considering the factors that may affect remedial activities listed in §257.97(d). Landfill Owner/Operator will prepare a semiannual report describing the progress in selecting and designing the remedy. Upon selection of a remedy, in accordance with 40 CFR §257.97(e), Landfill Owner/Operator must prepare a final report describing the selected remedy and how it meets the standards specified in 40 CFR §257.97(b). The final remedy selection will be achieved through issuance of the registration amendment required under §352.961.

7.6 IMPLEMENTATION OF THE CORRECTIVE ACTION PROGRAM (30 TAC §352.981 [40 CFR §257.98])

The Landfill Owner/Operator will implement a corrective action groundwater monitoring program within 90 days of selection of a remedy and follow the schedule specified for the selected remedy. The corrective action is considered complete when the concentrations of all constituents are shown to be at or below GWPSs for a period of three consecutive years. Landfill Owner/Operator will also take any interim measures necessary to ensure the protection of human health and the environment. Interim measures will, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of the approved remedy.

Prior to returning to detection monitoring or assessment monitoring, Landfill Owner/Operator will submit documentation that demonstrates that the requirements of this section have been fulfilled, and the remedy has been achieved for the impacted property. The documentation submitted will include at a minimum:

- All analytical data prepared and presented in accordance with §352.931 that demonstrates achievement of the remedy,

- A narrative discussion, in accordance with 40 CFR §257.98(c)(1)-(3), of how the requirements of this section have been fulfilled for the impacted property, and

- A description of the volume and final disposal location, and a copy of any waste manifests or other documentation of disposition, for waste or environmental media which were removed from the impacted property.

The Landfill Owner/Operator may return to either detection monitoring or assessment monitoring only after satisfying the conditions of this section, and after obtaining written approval from the Executive Director. All coal combustion residuals managed under a remedy required under

§352.971, or an interim measure required under this section, will be managed in a manner that complies with all applicable United States Resource Conservation and Recovery Act and state requirements.

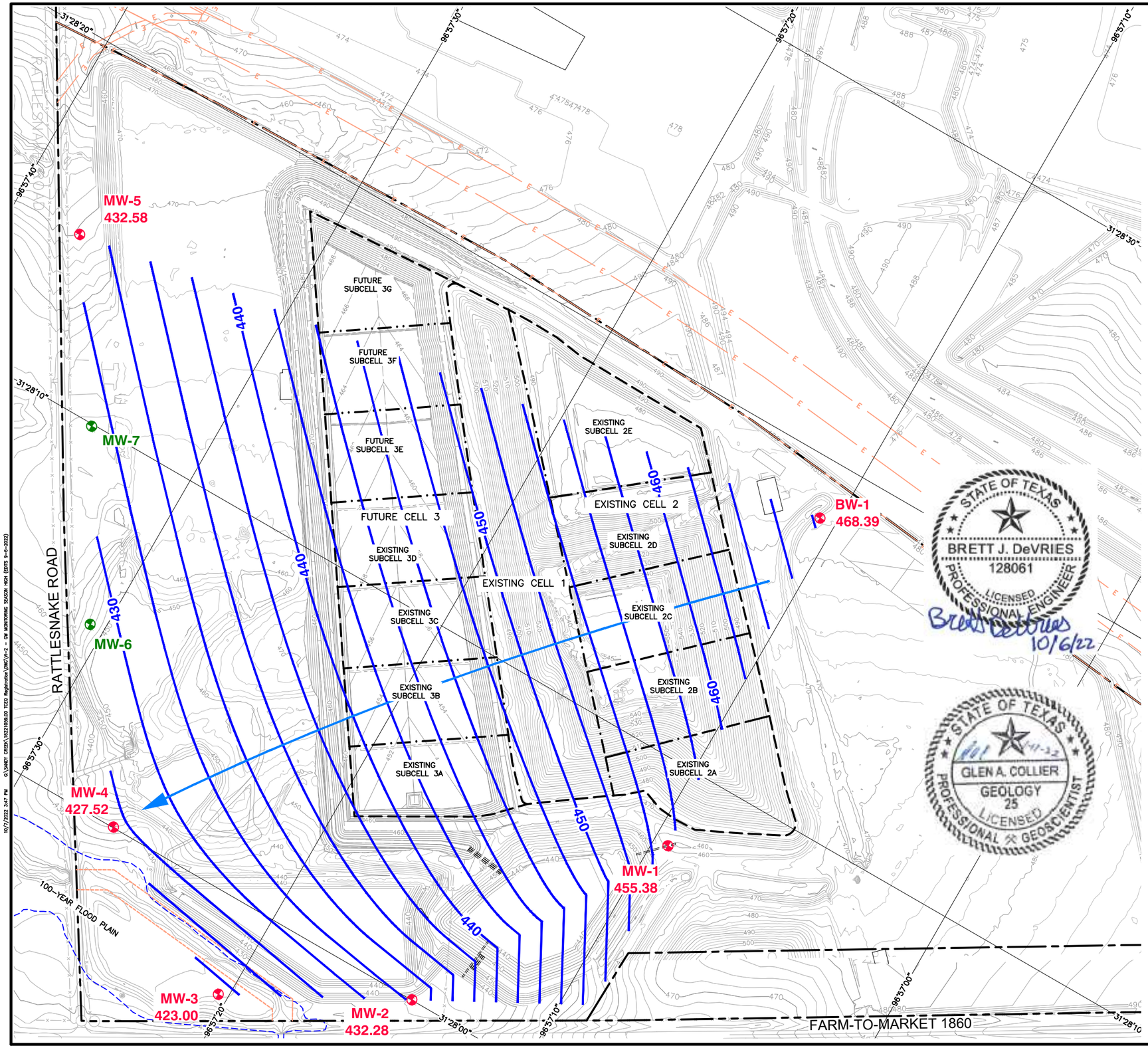
7.7 CORRECTIVE ACTION EFFECTIVENESS REPORT (30 TAC §352.991)

If the Landfill is performing corrective action, a corrective action effectiveness report will be submitted to the TCEQ following each reporting period.

DRAWINGS

Drawing VI-1: Typical Monitoring Well Detail

Drawing VI-2: Groundwater Monitoring System and Groundwater Contour Map



LEGEND

- 450 — EXISTING/PROPOSED CONTOURS
- PLANT PROPERTY BOUNDARY
- LANDFILL REGISTRATION BOUNDARY
- REGISTERED LIMITS OF WASTE
- EXISTING CELL BOUNDARY
- FUTURE CELL BOUNDARY
- 96°57'10" — LATITUDE/LONGITUDE LINES
- 100-YEAR FLOOD PLAIN
- MW-1 — EXISTING MONITORING WELL
- MW-6 — FUTURE MONITORING WELL (SEE NOTE 4)
- 450 — GROUNDWATER CONTOUR
- 450 — PROPOSED/EXISTING EXCAVATION CONTOURS (SEE NOTE 3)

NOTES:

1. THE EXISTING CONTOUR MAP SHOWN ON THIS DRAWING WAS COMPILED FROM AN AERIAL SURVEY CONDUCTED BY DALLAS AERIAL SURVEY, INC. IN NOVEMBER, 2020 AND EXISTING TOPOGRAPHY BY BLACK & VEATCH CORPORATION DATED APRIL 2006. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE PLAN COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM 83 (NAD83) 1983.
2. ELEVATION ARE IN FEET ABOVE MEAN SEA LEVEL (FT, MSL) AS DEFINED BY THE USGS NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1988. STATE PLANE COORDINATE GRID CORRESPONDS TO TEXAS STATE COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NORTH AMERICAN DATUM OF 1983 (NAD-83).
3. EXISTING FEATURES IN SUBCELLS 3A THROUGH 3D ARE EXISTING AND SUBCELLS 3E THROUGH 3G ARE PROPOSED AT THE TIME OF THIS REGISTRATION APPLICATION DEVELOPMENT.
4. MONITORING WELL MW-6 WILL BE INSTALLED PRIOR TO WASTE PLACEMENT IN SUBCELL 3D AND MONITORING WELL MW-7 WILL BE INSTALLED PRIOR TO WASTE PLACEMENT IN SUBCELL 3F.

SEASONAL HIGH GROUNDWATER

MONITORING WELL	SAMPLE DATE	GW ELEVATION
BW-1	11/10/2020	468.39
MW-1	06/24/2019	455.38
MW-2	06/24/2019	432.28
MW-3	06/24/2019	423.00
MW-4	06/22/2021	427.52
MW-5	03/24/2021	432.58

STATE OF TEXAS — BRETT J. DeVRIES — 128061 — LICENSED PROFESSIONAL ENGINEER — 10/6/22

STATE OF TEXAS — GLEN A. COLLIER — GEOLOGY 25 — LICENSED PROFESSIONAL GEOSCIENTIST — 10-6-22

FOR REGISTRATION PURPOSES ONLY

REV	DATE	DESCRIPTION	BY
2	10/2022	ADDITION OF TWO FUTURE MONITORING WELLS, LEGEND ITEM, AND NOTE 4.	BJD

TEXAS BOARD OF PROFESSIONAL ENGINEERS REG. NO. F-3407

DRAWING TITLE: GROUNDWATER MONITORING SYSTEM AND SEASONAL HIGH GROUNDWATER CONTOUR MAP

PROJECT TITLE: SANDY CREEK ENERGY STATION
CCR WASTE MANAGEMENT FACILITY
TCEQ REGISTRATION APPLICATION

CLIENT: SANDY CREEK SERVICES, LLC
2161 RATTLESNAKE ROAD
RIESEL, TEXAS 76682

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS
1901 CENTRAL DRIVE, SUITE 550, BEDFORD, TX 76021
PH (817) 571-2288 FAX NO. (817) 571-2188

D/A RVW BY: BJD
APP. BY:
DWN. BY: ORA
CHK. BY: BJD
PROJ. NO. 162210159.00
DSN. BY: BJD

CADD FILE: VI-2 - GW MONITORING SEASON HIGH (EDITS 9-6-2022)
DATE: 11/2021
SCALE: AS SHOWN
DRAWING NO. VI-2

APPENDIX VI.A

GROUNDWATER MONITORING SAMPLING AND ANALYSIS PROGRAM

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

APPENDIX VI.A
GROUNDWATER SAMPLING AND ANALYSIS PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, TX 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

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SCS Project No. 16221059.00

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Tables

1 PE CERTIFICATION

I, Brett DeVries, Ph.D., P.E. and Glen Collier, P.G, hereby certify that the statistical method, as described in this Plan, is appropriate for evaluating the groundwater monitoring data for the Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility. This Plan was prepared by or under my supervision. I am a duly licensed Professional Engineer or Professional Geologist under the laws of the State of Texas.

Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/2023

Glen A. Collier, P.G.
(printed or typed name)

License number 25

My license renewal date is 12/30/2022

Water level measurements will be collected from the highest water elevation to the lowest water elevation wells (based on previous event results) unless any constituents are detected at concentrations of concern. If the constituents are detected at concentrations of concern, then water level measurements will be collected from the least to greatest impacted well.

Following field measurements, the rate and direction of groundwater flow will be calculated and reported following each groundwater sampling event in accordance with 40 CFR §257.93(c).

3.4 WELL PURGING

Each well will be purged prior to sampling. Purging will remove stagnant water in the well casing and allow formation water to enter the well for sampling. Based on well construction, depth to water, recharge rate, and analytical results to date, purging with a bailer is the primary purging method. Acceptable alternative methods include purging with a pump and low-flow purging and sampling.

The order of well purging will be from the highest water elevation to the lowest water elevation wells (based on water level measurements obtained immediately prior to the event), unless non-naturally occurring impacts are confirmed. In the event that non-naturally occurring impacts are confirmed, purging will be conducted from the least-impacted to the most impacted well.
During the purging operations, a field log or equivalent, will be maintained that will record pertinent data and noteworthy observations. The information will include the following:

- Sampler's name.
- Date and time.
- Outdoor temperature and weather conditions.
- Initial depth to water, well depth, and calculated height and volume of the water column.
- Desired well volume to purge (for example, three casing volumes).
- Purge-discharge rate, if known, and purge duration (elapsed time).
- Volume of water actually purged from a well.
- Low-flow parameter readings, if a low-flow method is used.
- Well inspection results.
- Any other pertinent information.

Water purged from each well, along with unused water obtained during sampling and water used for decontamination, is to be collected and disposed as follows: purge and decontamination water will be collected in drums and stored for subsequent disposal in an approved manner. Analytical data will be reviewed prior to disposal of the water.

SANDY CREEK ENERGY STATION
COAL COMBSUTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART VII
CLOSURE AND POST-CLOSURE CARE PLAN

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

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SCS Project No. 16221059.00

Tables

1 PE CERTIFICATION (40 CFR §257.102(b)(4))

I, Brett DeVries, Ph.D., P.E., hereby certify that this Closure and Post Closure Care Plan for the Sandy Creek Energy Station Coal Combustion Residual Waste Management Facility meets the requirements in 30 TAC §352.1221 [40 CFR §257.102(b)], including demonstrating that the final cover systems meet the performance standards in 40 CFR §257.102(d). This plan was prepared by or under my supervision. I am a duly licensed Professional Engineer under the laws of the State of Texas.

Brett DeVries, Ph.D., P.E.
(printed or typed name)

License number 128061

My license renewal date is 9/30/2023

6 POST-CLOSURE CARE ACTIVITIES

6.1 MONITORING AND MAINTENANCE

In accordance with §257.104, post-closure care requirements, including monitoring and maintenance, will commence upon completion of final closure requirements set forth in Sections 2 through 5 of this Plan. Post-closure care monitoring and maintenance will continue for a period of 30 years in accordance with §257.104(c)(1) unless the Landfill is operating under assessment monitoring in accordance with §257.95 at the end of the post-closure care period. Post-closure care monitoring and maintenance will consist, at a minimum, of the following requirements to be carried out by the Landfill Owner/Operator, in accordance with §257.104(b):

- Inspections of the Landfill cover, run-on and run-off drainage system, and leachate collection and removal system (LCRS) will be conducted monthly in accordance with Section 3 of the SOP and Table 6.1 of this Plan. As a result of these inspections the following maintenance or remediation activities will be performed:
    - Conduct maintenance and/or remediation activities, as a result of inspections, in order to maintain the integrity and effectiveness of the final cover, site vegetation, run-on and run-off drainage system, and LCRS.
    - Maintain adequate vegetation coverage on the final cover to minimize erosion.
    - Maintain surface water run-on and run-off controls in order to minimize the erosion of the final cover system.
    - Correct the effects of settlement, subsidence, ponded water, erosion, or other events or failures determined to be detrimental to the integrity of the closed Landfill.
- Maintain and operate the LCRS in accordance with Part IV, Appendix IV.A – Leachate Collection and Removal System Plan. The Landfill Owner/Operator reserves the right to submit a demonstration to the TCEQ at the appropriate time that leachate will no longer pose a threat to human health, the environment, or property. If the demonstration is approved by the TCEQ, the Landfill Owner/Operator may be allowed to discontinue the maintenance and operation of the LCRS. Following the discontinuation of maintenance and operation of the LCRS or completion of the post-closure care period, the leachate evaporation pond will be decommissioned by disposing of the geomembrane and protective cover soil at an authorized facility. It is assumed that leachate will be evaporated in the existing leachate evaporation pond and that off-site disposal will not be required following pond decommissioning at the end of post-closure care period.
- Maintain the groundwater monitoring system in accordance with Section 3 of the SOP, Table 6.1 of this Plan, and monitor groundwater in accordance with§257.95 through §257.98 and Part VI, Appendix VI.A - Groundwater Sampling and Analysis Plan. In accordance with Part VI, Appendix VI.A, the minimum monitoring frequency will be semiannually. However, the Landfill Owner/Operator reserves the right to request TCEQ approval of (1) an alternative monitoring frequency, and (2) an alternative list of

parameters to be monitored. Such requests will be based on supporting data available at the time of the request.

Table 6.1 Site Inspection and Maintenance Schedule (Post Closure Care Period)

ITEM	TASK	SCHEDULE
Landfill Structure and Slope	Inspect for sloughing, slumping, sliding, surface cracking, sinkholes, excessive slope, toe of slope movement, and vehicle damage. Remedy deficiencies as needed and notify TCEQ as required in Section 3 of the SOP.	Monthly
Final Cover	Inspect for proper placement, thickness, slope, settlement, vegetation, animal burrows, and erosion. Maintenance will be ongoing throughout post-closure care period. Remedy deficiencies as needed.	Monthly
Erosion Control	Inspect the final cover for signs of erosion. Damaged areas will be repaired by restoring cover material, grading, compaction, and/or seeding or sodding.	Monthly
Ponding Water	Inspect Landfill cover for potential ponding water locations. Fill depressions and regrade potential areas as needed.	Monthly
Run-on and Run-off Control Systems	Inspect diversion berms, downchutes, perimeter drainage channels, culverts, detention basin(s) for damage. Remedy deficiencies as needed.	Monthly
Leachate Collection & Removal System	Inspect leachate riser pipes, sump pump/controls, evaporation pond for damage and height of freeboard in the pond and leachate evaporation pond underdrain system for damage or blockage, as applicable. Remedy deficiencies as needed.	Monthly
Groundwater Monitoring System	Inspect groundwater monitoring wells for damage, excess vegetation, and other deficiencies. Remedy deficiencies as needed.	Monthly

6.2 COMPLETION OF POST-CLOSURE CARE PERIOD

In accordance with §352.1241 [§257.104(e)], no later than 60 days following the completion of the post-closure care period, a written notification by a qualified professional engineer verifying that post-closure care has been completed in accordance with this Plan and the Landfill possess no threat to human health, the environment, or property will be placed in the Site Operating Record. The notification will be submitted to the TCEQ for approval and placed on the Landfill's publically accessible website within 30 days of placing in the Site Operating Record in accordance with Section 4 of the SOP.

The post-closure period will be extended until the TCEQ approves a demonstration that the Landfill poses no threat to human health, the environment, or property. The Landfill Owner/Operator will maintain the financial assurance required in §352.1101(d) (see Part VIII) until the TCEQ post-closure care is no longer required.

SANDY CREEK ENERGY STATION
COAL COMBUSTION RESIDUAL WASTE MANAGEMENT FACILITY
REGISTRATION APPLICATION
TCEQ REGISTRATION NO. CCR107
McLENNAN COUNTY, TEXAS

PART VIII
POST-CLOSURE CARE COST ESTIMATE AND FINANCIAL ASSURANCE

Prepared for:

SANDY CREEK SERVICES, LLC
2161 Rattlesnake Road
Riesel, Texas 76682

Prepared by:

SCS ENGINEERS
Texas Board of Professional Engineers, Reg. No. F-3407
Dallas/Fort Worth Office
1901 Central Drive, Suite 550
Bedford, Texas 76021
817/571-2288

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Appendix

Table VIII.A.1 - POST-CLOSURE COST SUMMARY FOR EXISTING REGISTERED UNITS.
EXISTING CELLS 1, 2, AND 3A THROUGH 3D
SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST SUMMARY

Description	Quantity	Unit	Unit Cost	Total Cost
1.0 ENGINEERING				
1.1 Annual Site Inspections	1	YR	$ 2,986	$ 2,986
1.2 Correctional Plans and Specifications (annual)	1	YR	$ 8,500	$ 8,500
				$ 11,486
2.0 Site Monitoring				
2.1 Groundwater Sampling and Analysis (semi-annual)	1	YR	$ 21,000	$ 21,000
2.2 Groundwater Well Plugging and Abandonment	1	YR	$ 233	$ 233
				$ 21,233
3.0 CONSTRUCTION / MAINTENANCE				
3.1 Cap and Sideslopes Repairs and Revegetation	1	YR	$ 1,700	$ 1,700
3.2 Mowing and Vegetation Management	1	YR	$ 3,400	$ 3,400
3.3 Groundwater Monitoring System Maintenance	1	YR	$ 2,500	$ 2,500
3.4 Perimeter Fence and Gates Maintenance	1	YR	$ 1,500	$ 1,500
3.5 Access Roads Maintenance	1	YR	$ 4,500	$ 4,500
3.6 Drainage System Cleanout/Repairs	1	YR	$ 3,500	$ 3,500
				$ 17,100
4.0 LEACHATE MANAGEMENT				
4.1 Leachate Management System Operation and Maintenance	1	YR	$ 5,000	$ 5,000
4.2 Decommissioning of Existing Leachate Pond	1	YR	$ 2,333	$ 2,333
4.2 Leachate Disposal	N/A	N/A	N/A	N/A
				$ 7,333
5.0 ADMINISTRATIVE				
5.1 Annual Report Preparation and Submittal to TCEQ	1	YR	$ 4,500	$ 4,500
SUBTOTAL				$ 61,652
CONTINGENCY	10%			$ 6,165
THIRD PARTY ADMINISTRATION AND PROJECT MGMT	2.5%			$ 1,541
TOTAL ANNUAL POST-CLOSURE CARE COST				**$ 69,358**
30 YEAR POST-CLOSURE CARE COST				**$ 2,080,740**

Note:
1.) Costs are in 2021 dollars.

Table VIII.A.2 - POST-CLOSURE COST SUMMARY FOR PROPOSED REGISTERED UNITS.
FUTURE CELLS
SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST SUMMARY

Description	Quantity	Unit	Unit Cost	Total Cost
1.0 ENGINEERING				
1.1 Annual Site Inspections	1	YR	$ -	$ -
1.2 Correctional Plans and Specifications (annual)	1	YR	$ 1,675	$ 1,675
				$ 1,675
2.0 Site Monitoring				
2.1 Groundwater Sampling and Analysis (semi-annual)	1	YR	$ 3,000	$ 3,000
2.2 Groundwater Well Plugging and Abandonment	1	YR	$ 33	$ 33
				$ 3,033
3.0 CONSTRUCTION / MAINTENANCE				
3.1 Cap and Sideslopes Repairs and Revegetation	1	YR	$ 340	$ 340
3.2 Mowing and Vegetation Management	1	YR	$ 670	$ 670
3.3 Groundwater Monitoring System Maintenance	1	YR	$ -	$ -
3.4 Perimeter Fence and Gates Maintenance	1	YR	$ -	$ -
3.5 Access Roads Maintenance	1	YR	$ -	$ -
3.6 Drainage System Cleanout/Repairs	1	YR	$ -	$ -
				$ 1,010
4.0 LEACHATE MANAGEMENT				
4.1 Leachate Management System Operation and Maintenance	1	YR	$ -	$ -
4.2 Decommissioning of Existing Leachate Pond	1	YR	$ -	$ -
4.2 Leachate Disposal	N/A	N/A	N/A	N/A
				$ -
5.0 ADMINISTRATIVE				
5.1 Annual Report Preparation and Submittal to TCEQ	1	YR	$ -	$ -
SUBTOTAL				$ 5,718
CONTINGENCY	10%			$ 572
THIRD PARTY ADMINISTRATION AND PROJECT MGMT	2.5%			$ 143
TOTAL ANNUAL POST-CLOSURE CARE COST				**$ 6,433**
30 YEAR POST-CLOSURE CARE COST				**$ 192,990**

Note:
1.) Costs are in 2021 dollars.

APPENDIX VIII.A

POST-CLOSURE CARE COST ESTIMATE CALCULATIONS

SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST ESTIMATE CALCULATIONS
EXISTING CELLS 1, 2, AND 3A THROUGH 3D

Required:

Estimate the cost to hire a third party to conduct post-closure care activities for **existing cells 1, 2, and 3A through 3D prior to and during the time of preparing this registration application. Note, these costs are in 2021 dollars.**

References:

1. TCEQ, Technical Guideline No. 10, Closure and Post-Closure Care Cost Estimates (Revised December 7, 2017).
2. Unit rate cost estimates are based on data available from similar work and/or construction and monitoring projects.

Solution:

Develop annual cost for the required 30-year post-closure period. The item numbers are from Table VIII.A.1 - Post-Closure Cost Summary for Existing Registered Units (Cells 1, 2, and 3A though 3D).

Post closure care period =	30	yr	
Area to be administratively closed =	149.3	ac	
Area with waste in place =	34.0	ac	**(Includes Cells 1 and 2, and 3A through 3D)**

1.0 Engineering Costs

1.1 Site Inspection and Recordkeeping

149.3	ac @	$ 20.00	/ ac / yr =	$	2,986	/ yr

1.2 Correctional Plans and Specifications

Assume engineering plans required to correct erosion issues every other year.

34.0	ac @	$ 500	/ ac / 2-yr =	$	17,000	/ 2-yr
				$	8,500	/ yr
			Engineering Costs Subtotal =	**$**	**11,486**	**/ yr**

2.0 Site Monitoring

2.1 Groundwater Sampling and Analysis of Monitoring Wells **(7 wells at time of closure)**

7	wells				
$ 1,500	/ well / event				
2	events / yr	Total =	$	21,000	/ yr

2.2 Groundwater Well Plugging and Abandonment

7 wells @	$ 1,000	/well	$	7,000	total (one-time event)
			$	233	/ yr
		Site Monitoring Costs Subtotal =	**$**	**21,233**	**/ yr**

3.0 Construction and Maintenance Costs

3.1 Cap and Sideslopes Repairs and Revegetation (Assumes 5% of Final Cover area each year)

1.70	ac @	$ 1,000	/ ac / yr =	$	1,700	/ yr

SANDY CREEK ENERGY STATION
POST-CLOSURE CARE COST ESTIMATE CALCULATIONS
Future Cells

Required: Estimate the cost to hire a third party to conduct post-closure care activities for **future cells following preparation of this registration application. Note, these costs are in 2021 dollars.**

References:

1. TCEQ, Technical Guideline No. 10, Closure and Post-Closure Care Cost Estimates (Revised December 7, 2017).
2. Unit rate cost estimates are based on data available from similar work and/or construction and monitoring projects.

Solution: Develop annual cost for the required 30-year post-closure period. The item numbers are from Table VIII.A.2 – Post-Closure Cost Summary for Proposed Registered Units.

Post-closure care period =	30	yr	
Area to be administratively closed =	0.0	ac	
Area with waste in place =	6.7	ac	**(Includes future cells)**

1.0 Engineering Costs

1.1 Site Inspection and Recordkeeping **(entire area included for existing cells)**

-	ac @	$ 20.00	/ ac / yr =	$	-	/ yr

1.2 Correctional Plans and Specifications

Assume engineering plans required to correct erosion issues every other year.

6.7	ac @	$ 500	/ ac / 2-yr =	$	3,350	/ 2-yr
				$	1,675	/ yr
			Engineering Costs Subtotal =	**$**	**1,675**	**/ yr**

2.0 Site Monitoring

2.1 Groundwater Sampling and Analysis of Monitoring Wells **(8 wells at time of closure, included for existing cells)**

1	wells				
$ 1,500	/ well / event				
2	events / yr	Total =	$	3,000	/ yr

2.2 Groundwater Well Plugging and Abandonment

1 wells @	$ 1,000	/well	$	1,000	total (one-time event)
			$	33	/ yr
		Site Monitoring Costs Subtotal =	**$**	**3,033**	**/ yr**

3.0 Construction and Maintenance Costs

3.1 Cap and Sideslopes Repairs and Revegetation (Assumes 5% of Final Cover area each year)

0.34	ac @	$ 1,000	/ ac / yr =	$	340	/ yr