ENVIROTECH

ENGINEERING

580-234-8780

QUALITY ACTIONS FOR QUALITY CLIENTS

SELECT WATER SOLUTIONS

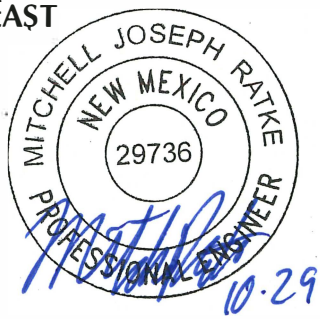
TWIN LAKES RECYCLE FACILITY

C-147 FLUID RECYCLING FACILITY APPLICATION

SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST

LEA COUNTY, NEW MEXICO

OCTOBER 2025



025315-00

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-147
Revised April 3, 2017

Recycling Facility and/or Recycling Containment

Type of Facility: [X] Recycling Facility [ ] Recycling Containment*

Type of action: [X] Permit [ ] Registration [ ] Modification [ ] Extension [ ] Closure [ ] Other (explain) _____

*** At the time C-147 is submitted to the division for a Recycling Containment, a copy shall be provided to the surface owner.**

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Select Water Solutions, LLC. (For multiple operators attach page with information) OGRID #: 289068
Address: 1820 North I-35, Gainesville, TX 76240
Facility or well name (include API# if associated with a well): Twin Lakes South Storage Containment
OCD Permit Number: 1RF-545 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr SE/4 Section 15 Township 17 South Range 37 East County: Lea
Surface Owner: [ ] Federal [ ] State [X] Private [ ] Tribal Trust or Indian Allotment

2.
[X] **Recycling Facility:**
Location of recycling facility (if applicable): Latitude 32.830811 Longitude -103.231917 NAD83
Proposed Use: [X] Drilling* [X] Completion* [X] Production* [X] Plugging *
****The re-use of produced water may NOT be used until fresh water zones are cased and cemented***
[ ] Other, ***requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.***
[X] Fluid Storage
[ ] Above ground tanks [X] Recycling containment [ ] Activity permitted under 19.15.17 NMAC explain type_____
[ ] Activity permitted under 19.15.36 NMAC explain type:_____ [ ] Other explain _____
[ ] For multiple or additional recycling containments, attach design and location information of each containment
[ ] **Closure Report (required within 60 days of closure completion):** [ ] Recycling Facility Closure Completion Date:_____

3.
[X] **Recycling Containment:**
[ ] Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)
Center of Recycling Containment (if applicable): Latitude 32.831864 Longitude -103.233366 NAD83
[ ] For multiple or additional recycling containments, attach design and location information of each containment
[X] Lined [ ] Liner type: Thickness 60/40 mil [ ] LLDPE [X] HDPE [ ] PVC [ ] Other _____
[ ] String-Reinforced
Liner Seams: [X] Welded [ ] Factory [ ] Other _____ Volume: 1,048,031 bbl Dimensions: L 825 x W 600 x D 21
[ ] Recycling Containment Closure Completion Date:_____

4.

Bonding:

☐ Covered under bonding pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC **(These containments are limited to only the wells owned or operated by the owners of the containment.)**

☒ Bonding in accordance with 19.15.34.15(A)(1). Amount of bond $1,602,621.94 **(work on these facilities cannot commence until bonding amounts are approved)**

☒ Attach closure cost estimate and documentation on how the closure cost was calculated.

5.

Fencing:

☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☒ Alternate. Please specify 8-ft Tall Wire Mesh Game Fence

6.

Signs:

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.16.8 NMAC

7.

Variances:

Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.

Check the below box only if a variance is requested:

☒ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.

If a Variance is requested, it must be approved prior to implementation.

8.

Siting Criteria for Recycling Containment

Instructions: The applicant must provide attachments that demonstrate compliance for each siting criteria below as part of the application. Potential examples of the siting attachment source material are provided below under each criteria.

General siting

Ground water is less than 50 feet below the bottom of the Recycling Containment. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality	☐ Yes ☒ No ☐ NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	☐ Yes ☒ No
Within a 100-year floodplain. FEMA map	☐ Yes ☒ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No

9.
Recycling Facility and/or Containment Checklist:
Instructions: Each of the following items must be attached to the application. Indicate, by a check mark in the box, that the documents are attached.

- [X] Design Plan - based upon the appropriate requirements.
- [X] Operating and Maintenance Plan - based upon the appropriate requirements.
- [X] Closure Plan - based upon the appropriate requirements.
- [X] Site Specific Groundwater Data -
- [X] Siting Criteria Compliance Demonstrations –
- [X] **Certify that notice of the C-147 (only) has been sent to the surface owner(s)**

10.
Operator Application Certification:
I hereby certify that the information and attachments submitted with this application are true, accurate and complete to the best of my knowledge and belief.

Name (Print): Kim Henderson Title: Sr Director

Signature: Date: 10/30/25

e-mail address: khenderson@selectwater.com Telephone: 405-664-0158

11.
OCD Representative Signature: Victoria Venegas **Approval Date:** 11/17/2025

Title: Environmental Specialist **OCD Permit Number:** 1RF-545

- [X] OCD Conditions
- [X] Additional OCD Conditions on Attachment

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[X] Lined [ ] Liner type: Thickness 60/40 mil [ ] LLDPE [X] HDPE [ ] PVC [ ] Other _____
[ ] String-Reinforced
Liner Seams: [X] Welded [ ] Factory [ ] Other _____ Volume: 50,410 bbl Dimensions: L 200 x W 200 x D 19
[ ] Recycling Containment Closure Completion Date:_____

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Bonding:

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Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality	☐ Yes ☒ No ☐ NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	☐ Yes ☒ No
Within a 100-year floodplain. FEMA map	☐ Yes ☒ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	☐ Yes ☒ No
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Signature: Date: 10/30/25

e-mail address: khenderson@selectwater.com Telephone: 405-664-0158

11.
OCD Representative Signature: Victoria Venegas **Approval Date:** 11/17/2025

Title: Environmental Specialist **OCD Permit Number:** 1RF-545

- [X] OCD Conditions
- [X] Additional OCD Conditions on Attachment

ENVIROTECH
ENGINEERING

October 29, 2025

Ms. Victoria Venegas
New Mexico EMNRD
Oil Conservation Division

RE: Rule 34 Variance Request –Produced Water Impoundment Bird Netting

Ms. Venegas:

Select Water Solutions (Select) is requesting a variance to Rule 34-Part 12(E) Netting to ensure the recycling facility is protected from wildlife. Based on our experience from previous projects, we believe audible bird deterrents provide equal or better protection when compared to netting. In addition, they require less inspection, maintenance, and repair over the life of the facility.

Select is proposing to use the "Bird-X Mega Blaster Pro" system. This system will replace the netting required by the current rule. It should be noted that this variance has been granted on previous sites.

Should you have any questions or require additional information, please contact me by phone at 580-234-8780 or by email at mratke@envirotechconsulting.com at your convenience.

Thank you for your consideration.
Best regards,

ENVIROTECH ENGINEERING & CONSULTING, INC.

MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER

10-29-2025

Mitchell Ratke, P.E.
Senior Project Engineer, Energy Infrastructure

ENVIROTECH
ENGINEERING

October 29, 2025

Ms. Victoria Venegas
New Mexico EMNRD
Oil Conservation Division

RE: Rule 34 Variance Request –Produced Water Impoundment Fencing

Ms. Venegas:

Select Water Solutions (Select) is requesting a variance to C-147 Fencing requirement for requiring a fence four foot in height, with four strands of barbed wire evenly spaced between one and four feet. Select is requesting approval to a wire mesh, game fence, eight (8) feet in height. Based on our experience, we feel that the requested fencing will provide greater security to the facility for excluding animals and unauthorized individual access. Details for this type of fence can be found on Sheet 13 of 15 in Attachment C Engineering Drawings.

The proposed fencing has been approved for other C-147 facilities and used extensively on similar projects in New Mexico and Texas with outstanding success in deterring unauthorized entry by both humans and wildlife. It should be noted that this variance request has been approved on previous sites.

Should you have any questions or require additional information, please contact me by phone at 580-234-8780 or by email at mratke@envirotechconsulting.com at your convenience.

Thank you for your consideration.
Best regards,

ENVIROTECH ENGINEERING & CONSULTING, INC.

MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER

10.29.2025

Mitchell Ratke, P.E.
Senior Project Engineer, Energy Infrastructure

2500 N. Eleventh Street Enid, OK 73701 envirotechconsulting.com info@envirotechconsulting.com 580.234.8780

ENVIROTECH
ENGINEERING

October 29, 2025

Ms. Victoria Venegas
New Mexico EMNRD
Oil Conservation Division

RE: Rule 34 Variance Request –Produced Water Recycling Containment Secondary Liner

Ms. Venegas:

Select Water Solutions (Select) is requesting a variance to Rule 34 Part 12(A)(4) requiring secondary liners to be 30-mil string reinforced LLDPE. Select is requesting approval to use 40-mil HDPE in place of the specified material in the proposed Recycle Containment. Based on our experience, we feel that the requested material will allow us to provide equal environmental protection in our impoundments.

Due to the construction of the 30-mil reinforced LLDPE material, nondestructive QA/QC testing cannot be performed. The proposed 40-mil HDPE will be seamed in a manner that will allow nondestructive pressure testing of the seams to ensure proper sealing.

The proposed HDPE is appropriate material for the proposed use in the impoundment and is compatible with the material that will be stored. This material will provide equal or better environmental protection as the specified 30-mil reinforced LLDPE.

The proposed new liner system cross-section for the earthen containments is as follows: prepared subgrade, 10 oz. geotextile, 40-mil HDPE, 200-mil geonet, 60-mil HDPE. This will replace the cross-section required by the current rule. It should also be noted that this variance has been granted on past sites.

Should you have any questions or require additional information, please contact me by phone at 580-234-8780 or by email at mratke@envirotechconsulting.com at your convenience.

Thank you for your consideration.
Best regards,

ENVIROTECH ENGINEERING & CONSULTING, INC.

MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER

10-29-2025

Mitchell Ratke, P.E.
Senior Project Engineer, Energy Infrastructure

2500 N. Eleventh Street Enid, OK 73701 envirotechconsulting.com info@envirotechconsulting.com 580.234.8780

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Attachments:

Attachment A — Banks Water Well Report
Attachment B — Geotechnical Report
Attachment C — Engineering Drawings
Attachment D — Design and Construction Plans
Attachment E — Material Specification
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Attachment G — Closure Plan

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Figure 1 — Site Map
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Figure 10 — Permanent Residences and Structures Map
Figure 11 — Non-Public Water Supply Map
Figure 12 — NWI Wetlands Map

SITE CRITERIA FOR RECYCLING FACILITY

1.0 LOCATION

Select Water Solutions, Select, is proposing to construct 2 (two) recycle containments, known as the Twin Lakes South Storage Containment and Twin Lakes South Treatment Containment, located in Section 15, Township 17 South, Range 37 East, in Lea County, New Mexico. An aerial photographic map, *Figure 1*, shows the location of the proposed containment. This report was generated for the proposed location to evaluate that the proposed containment location would be in accordance with the 19.15.34.11 NMAC Siting Requirements for Recycling Containments.

2.0 DISTANCE TO GROUNDWATER

2.1 GROUNDWATER WELLS

Banks Environmental Data (Banks) was contracted to search the New Mexico Office of State Engineers (OSE) records for water wells within a 1.0-mi. radius of the proposed containment location. According to Banks, 73 water wells were identified within a 1.0-mi radius of the proposed containment. The Banks Water Well Report is included as *Attachment A*, and *Figure 2* illustrates that there is 73 water wells located within the 1.0-mi. radius of the proposed containment.

The New Mexico Oil and Gas Division (NMOCD) requires that groundwater (freshwater as defined by NMOCD rules) at the location be greater than 50-ft below the containment bottom. *Figure 2* demonstrates the following to meet these criteria:

1. The location of the proposed containment shown on the United States Geologic Survey (USGS) Humble City quadrangle, NM 7.5 Minute Series Topographic Map.
2. A 1.0-mile radius from the site, and location of water wells in comparison to that radius. It should be noted, OSE wells can be mis-located as older wells are plotted in the center of the quarter, quarter, quarter section, township, and range.
3. The Banks search of the OSE records show there were 73 water wells located within a 1.0-mi radius from the boundary of the proposed containment.

During onsite investigation, conducted by COZ Engineering, LLC. on October 22, 2025, five (5) total borings were advanced on the proposed containment location. Two (2) borings were drilled to a total depth of approximately 3-ft. bgs., two (2) boring was drilled to a total depth of approximately 26-ft. bgs, and the last boring was drilled to a total depth of approximately 75-ft. bgs. The groundwater table was not encountered during the field investigation. The geotechnical investigation report prepared by COZ Engineering, LLC. is included in *Attachment B*.

2.2 AQUIFERS

Information reviewed from the Bureau of Land Management (BLM) Carlsbad Field Office shows the proposed containment is located within an aquifer system labeled "High Plains". *Figure 3* shows the site location in reference to Bureau of Land Management Declared Aquifers in the State of New Mexico.

2.3 GEOLOGY

A geological map of New Mexico was obtained from the United States Geological Survey (USGS) to review the geologic setting for the proposed containment location. Based on the review of the geologic map, the proposed containment lies within the Ogallala Formation. This includes Alluvial and Eolian deposits, and petrocalcic soils of the southern High Plains. Locally includes Qoa.

Figure 4 is reproduction of the USGS New Mexico Geologic Map. *Figure 4* shows the following:

1. Location of the proposed Containment
2. Geologic setting of the Containment

Area stratigraphy to a depth of approximately 75-ft. bgs. was obtained from five (5) geotechnical borings conducted near the site by COZ Engineering, LLC on October 22, 2025. The borings identified the site conditions to be composed of very dense soils or soft rock. Soils were composed of silty sand with gravel, silty sand, poorly graded sand with silt, and light brown trace gravel.

3.0 DISTANCE TO MUNICIPALITIES AND FRESHWATER FIELDS

Figure 5 demonstrates that the location is not located within incorporated municipal boundaries or within a defined municipal freshwater field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3. *Figure 5* illustrates the following:

1. The closest municipality to the proposed containment is North Hobbs, New Mexico, located approximately 2.5-mi. to the southeast.
2. The closest municipal freshwater field to the proposed containment is the Hobbs Municipal Water Supply approximately 3.3-mi. to the southeast.

4.0 DISTANCE TO SUBSURFACE MINES

According to the New Mexico Mining and Minerals Division there are no subsurface mines near the proposed containment. The proposed containment location is not within an area overlying a subsurface mine. *Figure 6* illustrates the following:

1. The nearest registered subsurface mine is Pit 1109, an active aggregate and stone mining site. The aggregate & stone mine is labeled as a surface open pit and is located approximately 5.3-mi. west of the proposed containment location.

5.0 DISTANCE TO MEDIUM, HIGH, OR CRITICAL KARST AREAS (UNSTABLE AREAS)

The Bureau of Land Management Carlsbad Field Office Cave Potential map was reviewed for the proposed containment. *Figure 7* illustrates the following:

1. The proposed containment is located in a "low" karst potential area.

6.0 DISTANCE TO 100-YEAR FLOOD PLAIN

The Federal Emergency Management Agency (FEMA) Flood Map Service Center was utilized to review the flood map for the proposed containment location. The proposed containment is located on FEMA flood map panel number 35025C1175D effective on 12/16/2008. *Figure 8* demonstrates the area of the site is not located within a mapped flood zone boundary.

1. The proposed containment is located within "Zone D." FEMA defines Zone D as an area of undetermined flood hazard.
2. The proposed containment is not within a mapped 100-year flood plain.

7.0 DISTANCE TO SURFACE WATER

After review of the Humble City Quadrangle, NM, USGS 7.5-Minute Series Topographic map, *Figure 9*, there is no continuously flowing surface waters located within the proposed containment. *Figure 9* illustrates the following:

1. No continuously flowing surface waters or other water bodies defined by NMOCD are located on the proposed containment.
2. The closest surface waterbody falls outside of the 500-ft buffer around the containment boundary and is a surface water body feature, located approximately 1,500-ft southwest of the containment boundary.

8.0 DISTANCE TO PERMANENT RESIDENCE OR STRUCTURES

The aerial image provided in *Figure 10*, demonstrates:

1. The proposed containment is not within 1,000-ft. of an occupied permanent residence, school, hospital, institution, church, or other permanent structure. The only items of interest found were existing oil and gas infrastructure. No churches, schools, or residential structures were identified.
2. *Figure 10* and *Figure 1 (Site Map)* show that the nearest structure to the site appears to be a residence located approx. 1,800-ft north of the proposed containment.

9.0 DISTANCE TO NON-PUBLIC WATER SUPPLY

The proposed containment must not be within 500-ft. horizontally of a spring or freshwater well used for domestic or stock watering purposes, in existence at the time of initial application. *Figure 11* demonstrates the following:

1. The proposed containment is not located within 500-ft. horizontally of a spring or freshwater well.
2. No springs or wells were identified within the proposed containment location.

In addition, *Figure 2 (Groundwater Wells Map)* illustrates that the proposed containment location is not located within 500-ft. of known domestic water wells and that there is 73 groundwater or domestic water well located within 1.0-mi. of the proposed containment.

10.0 DISTANCE TO WETLANDS

The United States Fish and Wildlife National Wetlands Inventory Google Earth Maps were reviewed for the area of the proposed containment. *Figure 12* confirms the proposed containment is not located within an area of a potential wetland. In addition, *Figure 12* illustrates the following:

1. The nearest potential wetland is located approximately 2,400-ft. southwest of the proposed facilities southwest corner.
2. The National Wetlands Inventory Maps do not show a potential wetland located within 500-ft. of the proposed containment location.

It should be noted the United States Fish and Wildlife Service generates the NWI maps through infrared aerial imagery and aerial photograph interpretation; no actual field reconnaissance was conducted in the making of the maps. As such, the NWI maps do not always accurately identify wetlands or the extent of those wetlands; therefore, the maps are used for preliminary analysis only.

ENVIROTECH
ENGINEERING
2500 N. Eleventh Street Enid, OK 73701 ● 580.234.8780 ● envirotechconsulting.com
P.E. #29736 - Expiration Date: 12-31-2026

SITE MAP

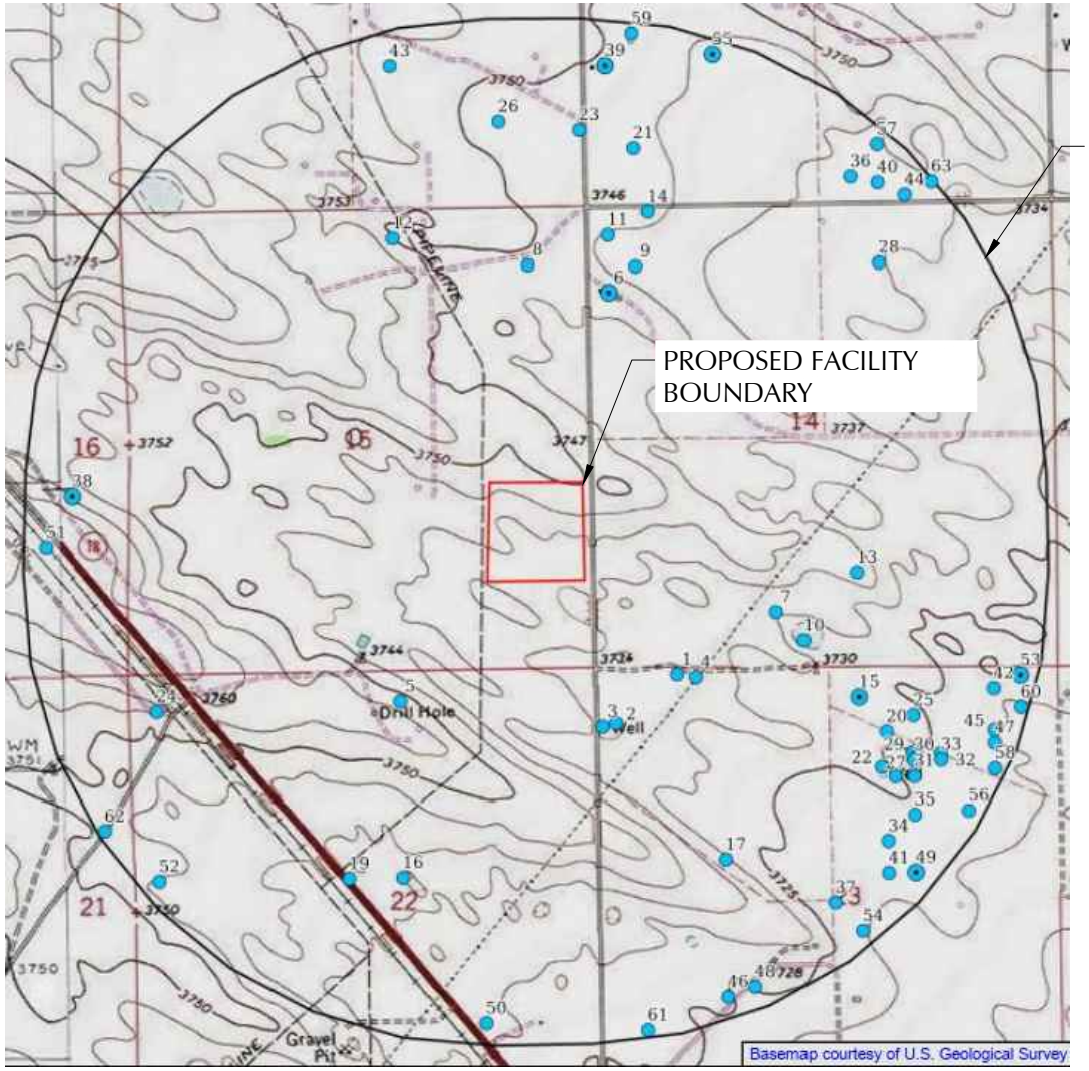
TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

SELECT

Project No.
025315-00

Figure 1

10/29/2025 1:14:34 PM
x:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaaplication figures\CAD\FIGURE 1 - SITE MAP.dwg



N
NORTH

Single Water Well
Water Well Cluster

Subject Site
Search Buffer
Texas Quad Index

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GROUNDWATER WELLS MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

SELECT

Project No.
025315-00

Figure 2

10/29/2025 1:14:40 PM
x:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\application figures\CAD\FIGURE 2.1 - GROUNDWATER WELL MAP.dwg

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NEW MEXICO AQUIFERS MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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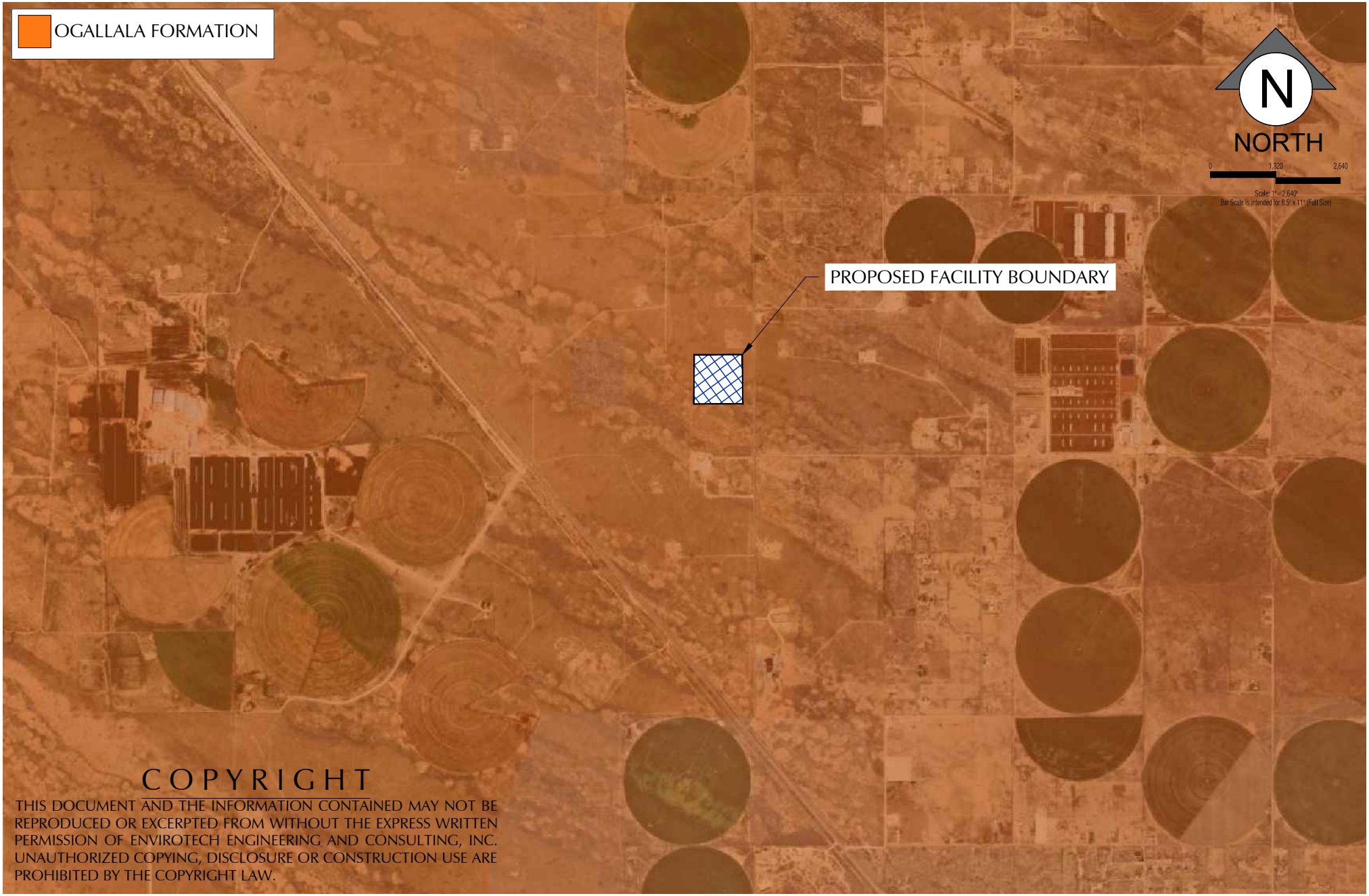
Figure 3

10/29/2025 1:14:46 PM
X:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaaplication figures\CAD\FIGURE 2.2 - NEW MEXICO AQUIFERS MAP.dwg



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NEW MEXICO GEOLOGICAL MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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025315-00

Figure 4

10/29/2025 1:14:52 PM
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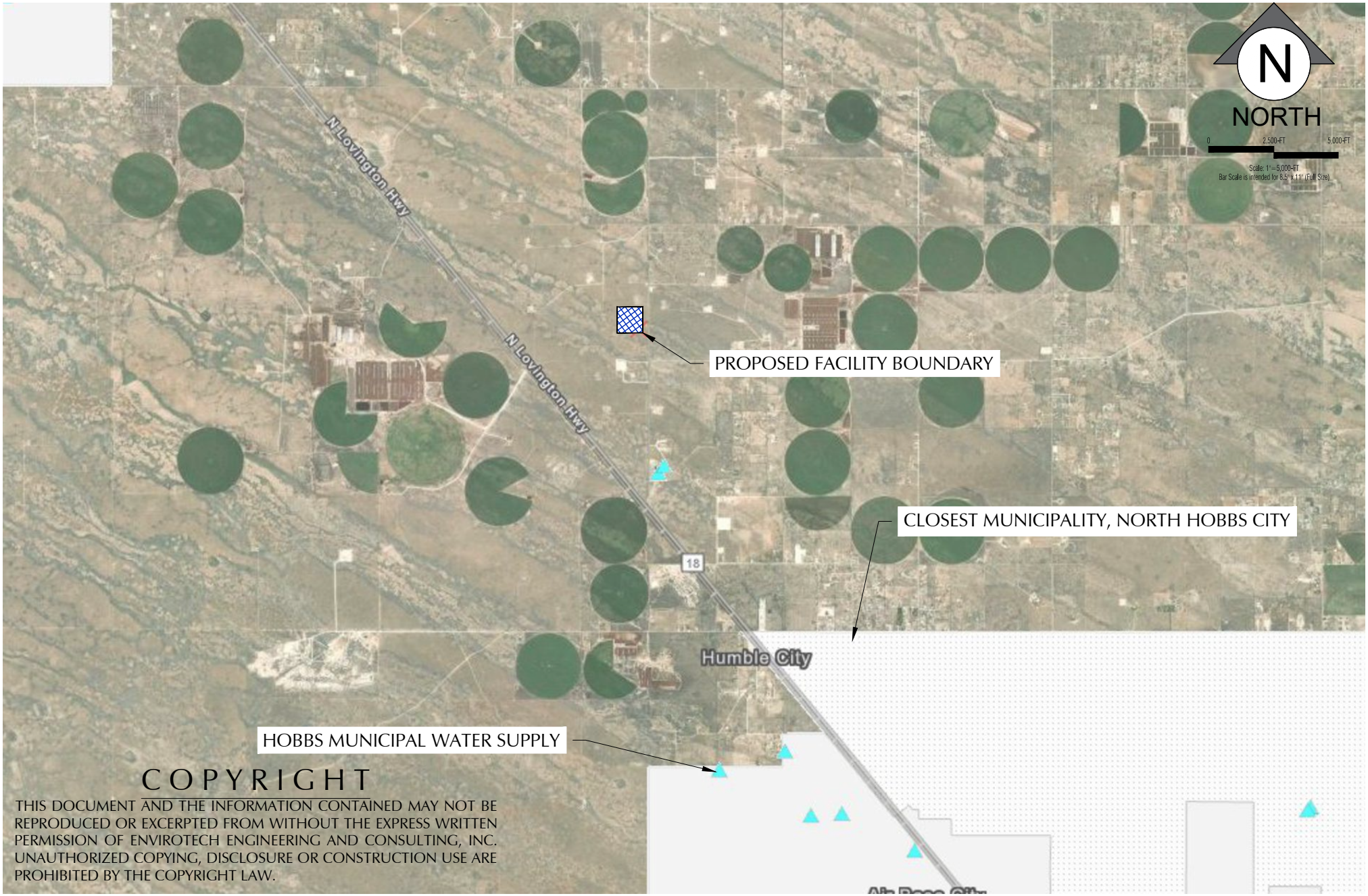

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MUNICIPALITIES & FRESHWATER FIELDS MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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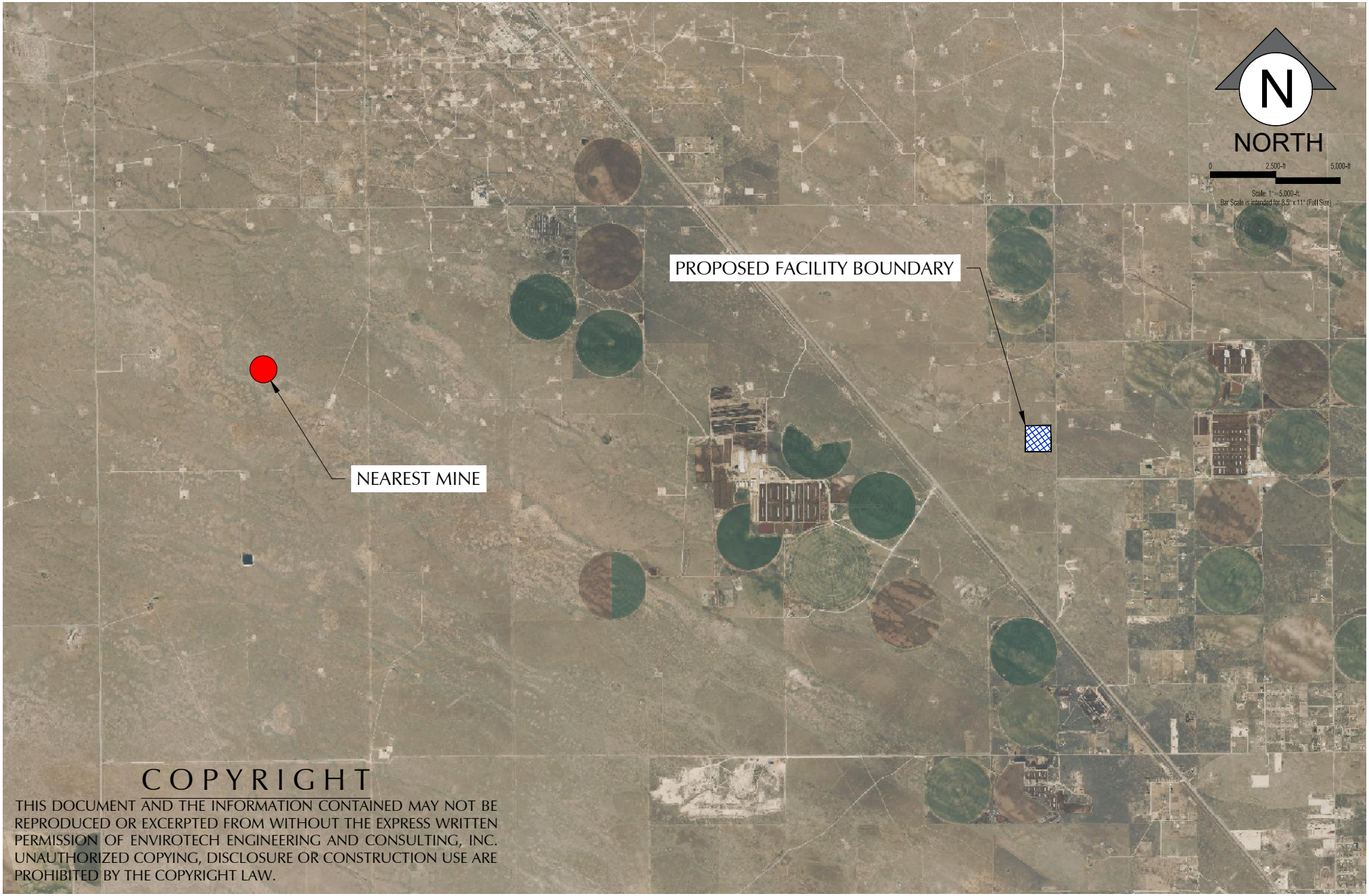
Figure 5

10/29/2025 1:14:58 PM
x:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaapplication figures\CAD\FIGURE 3 - MUNICIPALITIES & FRESHWATER FIELDS MAP.dwg



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NEW MEXICO REGISTERED MINES MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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Figure 6

10/29/2025 1:15:04 PM
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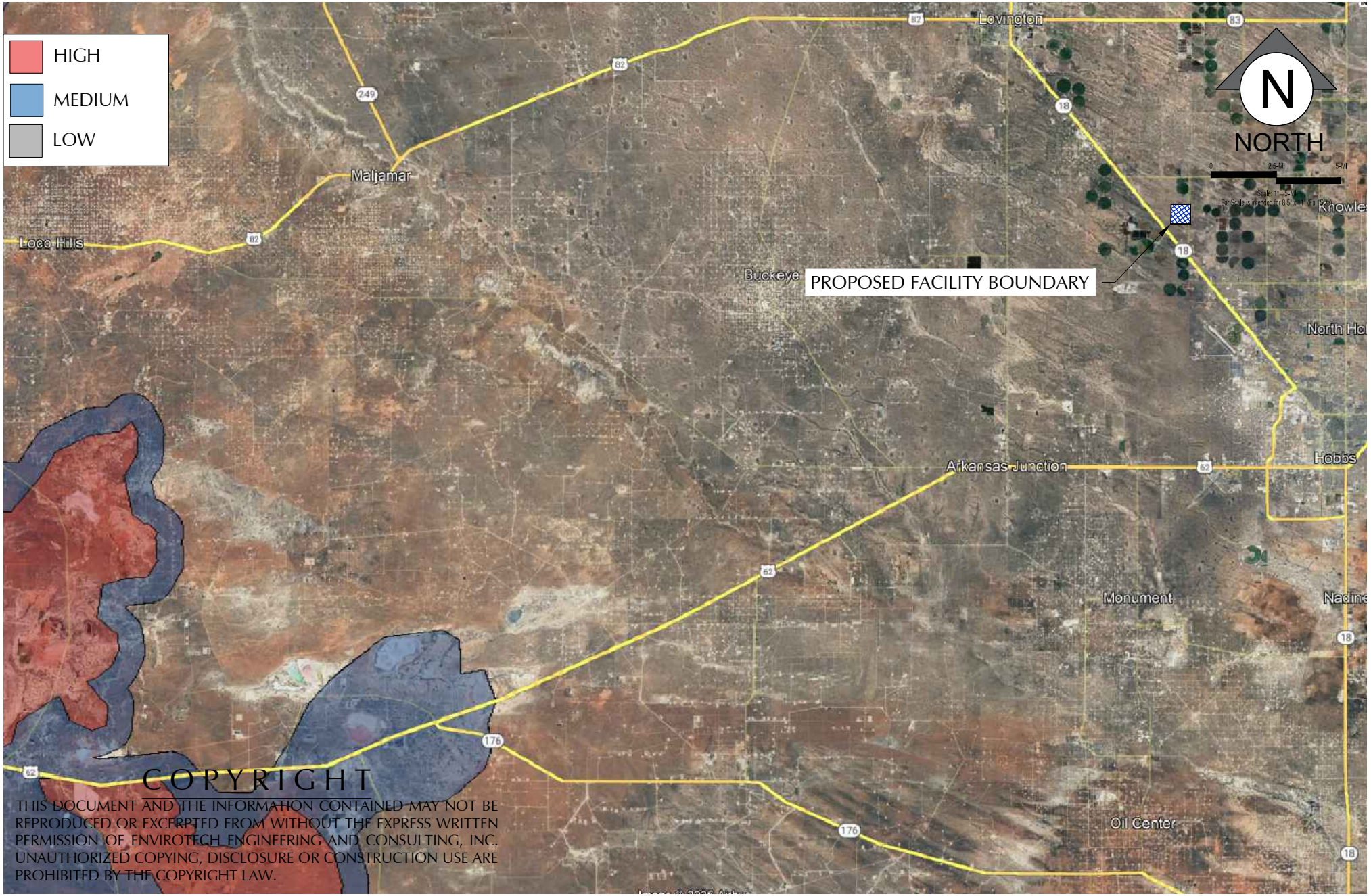

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KARST AND CAVE POTENTIAL MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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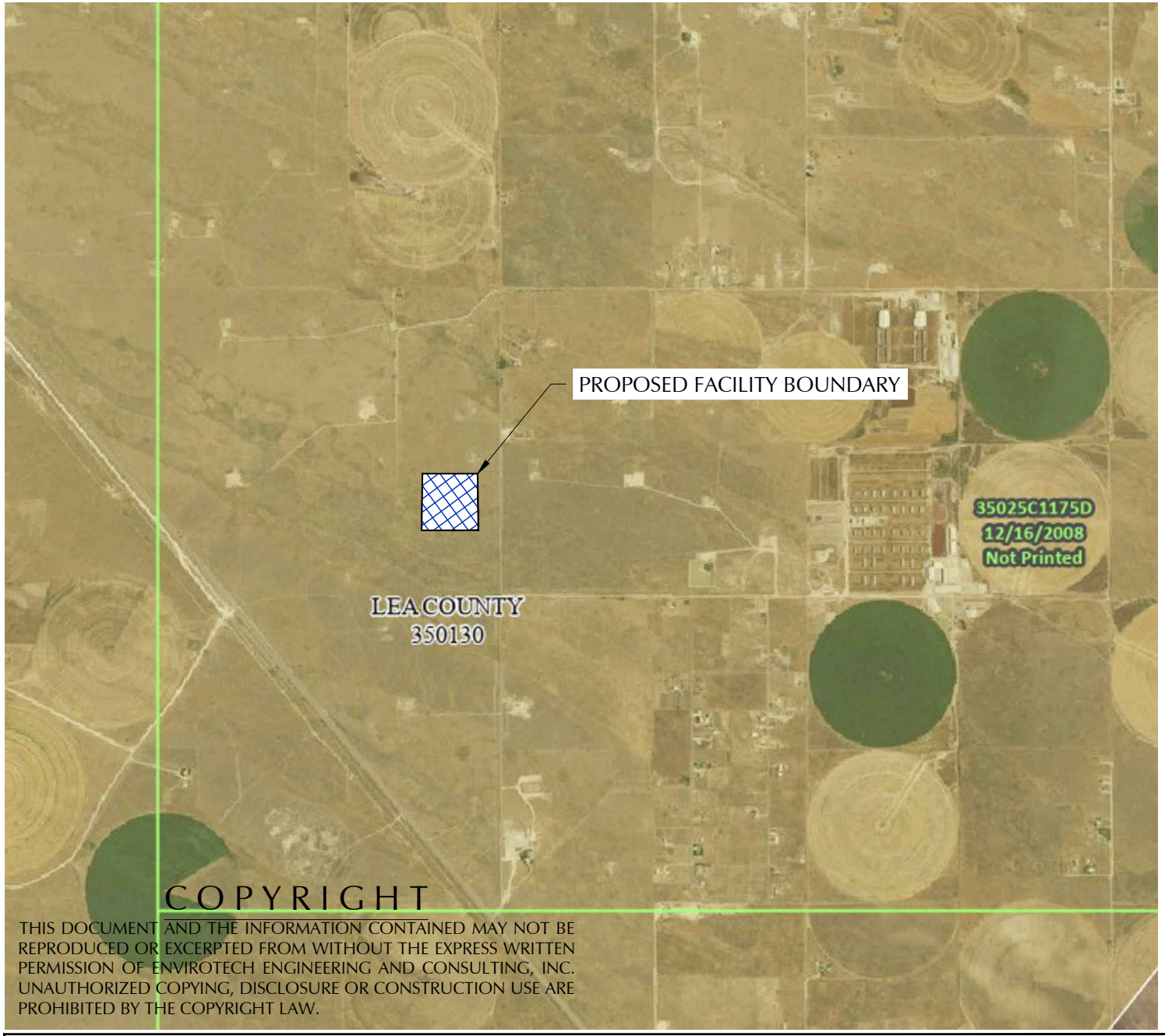
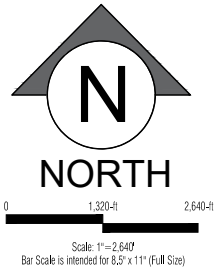
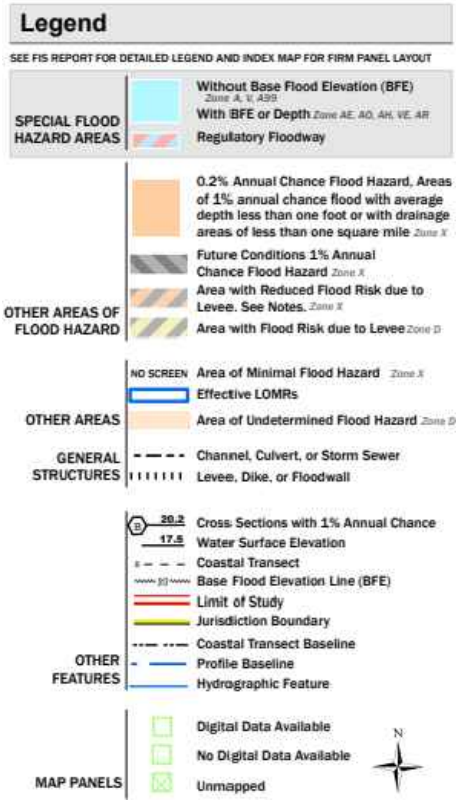
Figure 7

10/29/2025 1:15:10 PM
X:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaapplication figures\CAD\FIGURE 5 - KARST AND CAVE MAP.dwg







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FEMA FLOOD MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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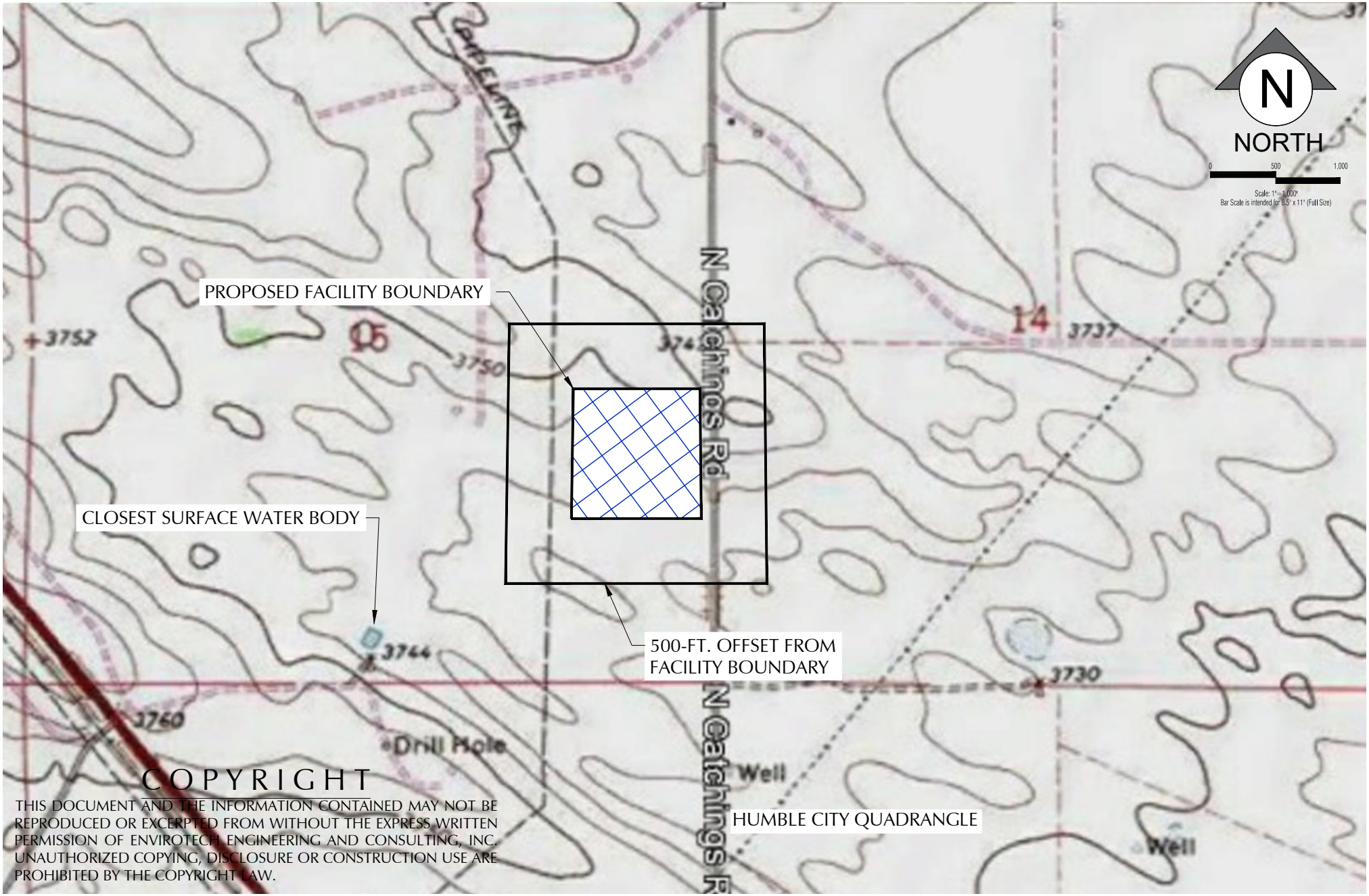
Figure 8

10/29/2025 1:15:17 PM
x:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaaplication figures\CAD\FIGURE 6 - FEMA FLOOD MAP.dwg



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SURFACE WATER MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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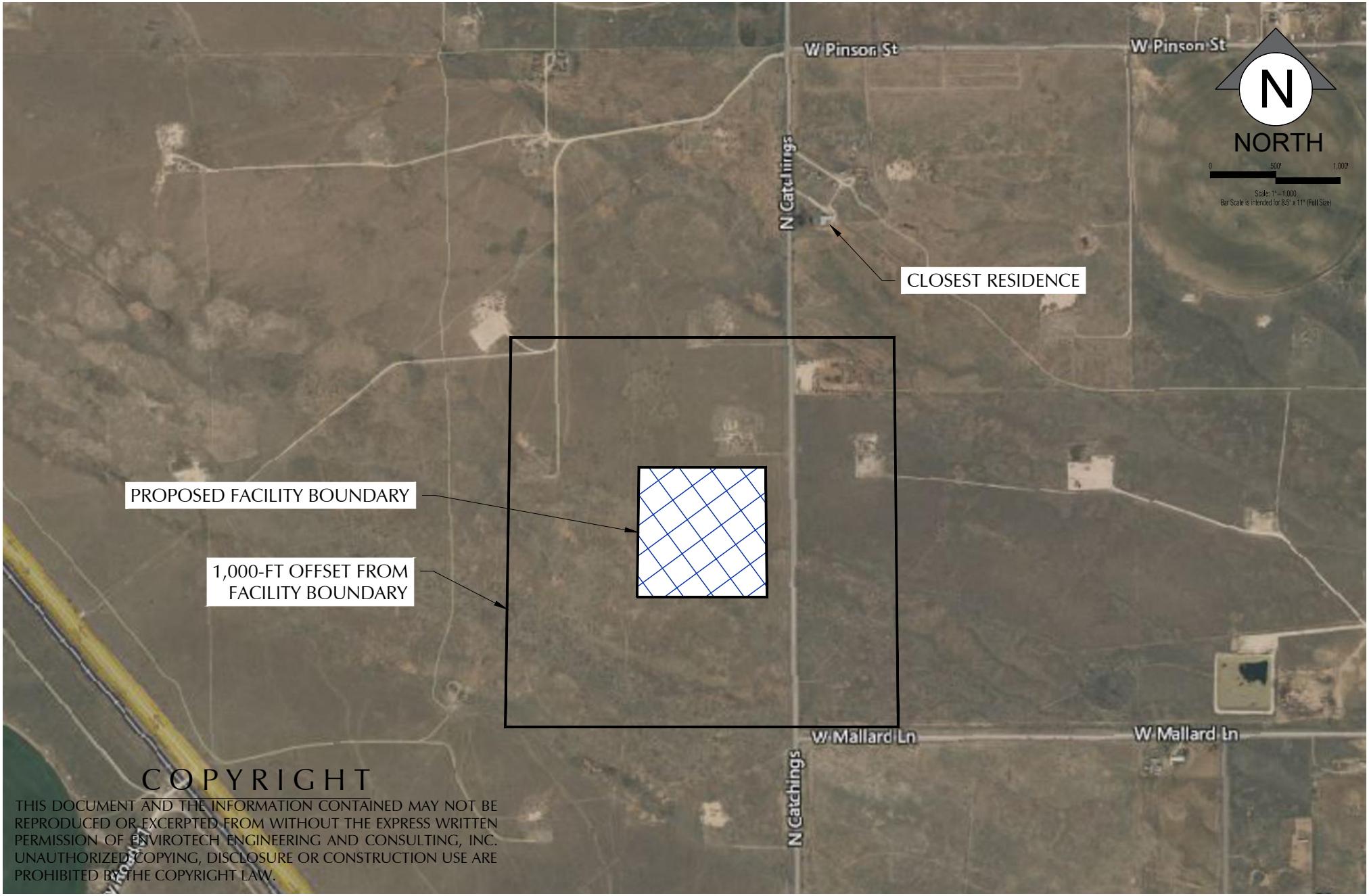
Project No.
025315-00

Figure 9



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PERMANENT RESIDENCES & STRUCTURES MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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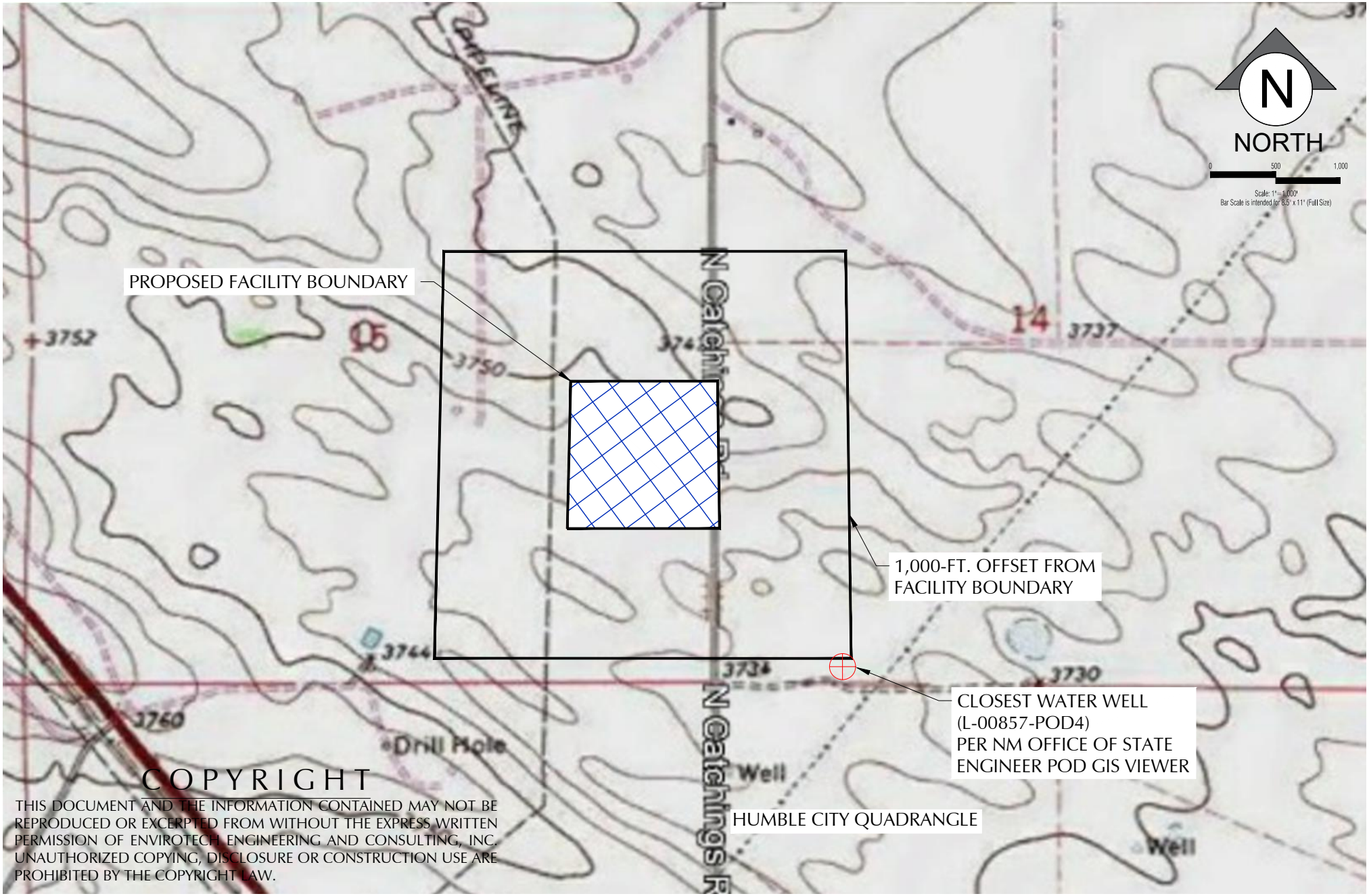
Figure 10

10/29/2025 1:15:30 PM
x:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaaplication figures\CAD\FIGURE 8 - PERMANENT RESIDENCE AND STRUCTURES MAP.dwg



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NON-PUBLIC WATER SUPPLY MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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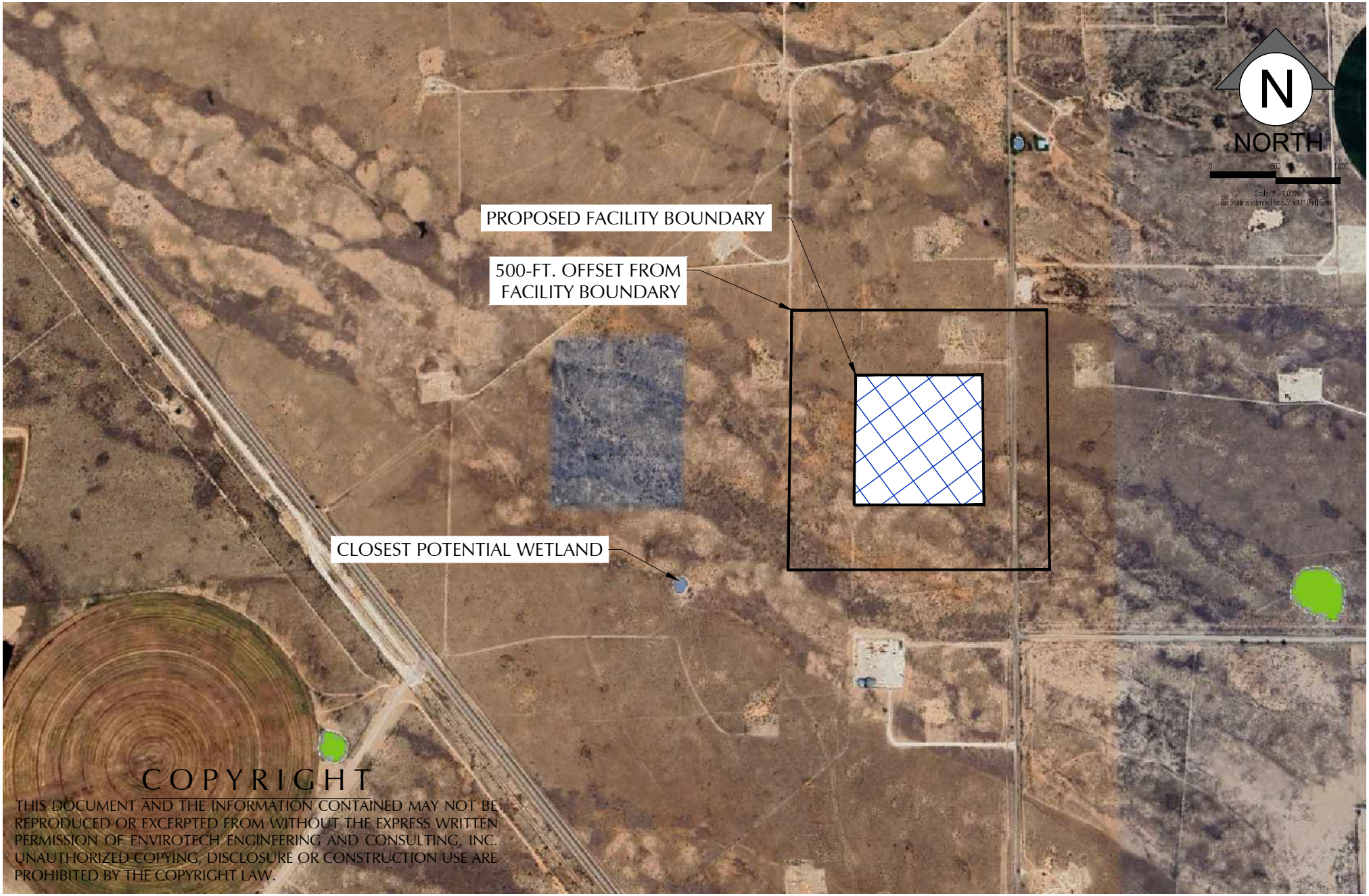
Project No. 025315-00

Figure 11

10/29/2025 1:15:36 PM
X:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaapplication figures\CAD\FIGURE 9 - NON-PUBLIC WATER SUPPLY MAP.dwg



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NWI WETLANDS MAP

TWIN LAKES SOUTH RECYCLE FACILITY
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

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025315-00

Figure 12

10/29/2025 1:15:43 PM
X:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\aaapplication figures\CAD\FIGURE 10 - NWI WETLANDS MAP.dwg

Attachment A

Banks Water Well Report

Prepared for:
ENVIROTECH ENGINEERING & CONSULTING, INC. - OKC
2500 N. 11th St
Enid, OK 73701

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Water Well Report

Twin Lakes South Containment

NM

Lea County

PO #: 025315-00

ES-146595

Thursday, October 16, 2025

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Summary Map - 1.0 Mile Radius	5
Topographic Overlay Map - 1.0 Mile Radius	6
Current Imagery Overlay Map - 1.0 Mile Radius	7
Zip Code Map - 1.0 Mile Radius	8
Water Well Summary	9
Water Well Details	12
Dataset Descriptions	85
Disclaimer	86

Geographic Summary

Location
Lea County, NM
Subject property is 28.19 acres, 0.044 square miles, and has a 0.84 mile perimeter

Coordinates (centroid)	
Lat/Long in Degrees Minutes Seconds	32° 49' 54.70", -103° 13' 58.38"
Lat/Long in Decimal Degrees	32.8318604333289, -103.23288467883651
X/Y in NAD83 / UTM Zone 13N	665402.7322906614, 3634028.622223145

Elevation (centroid)
Subject Property lies 3743.27 feet above sea level.

Zip Codes Searched	
Search Distance	**Zip Codes**
Subject Property	88242
1.0 miles	88240, 88242

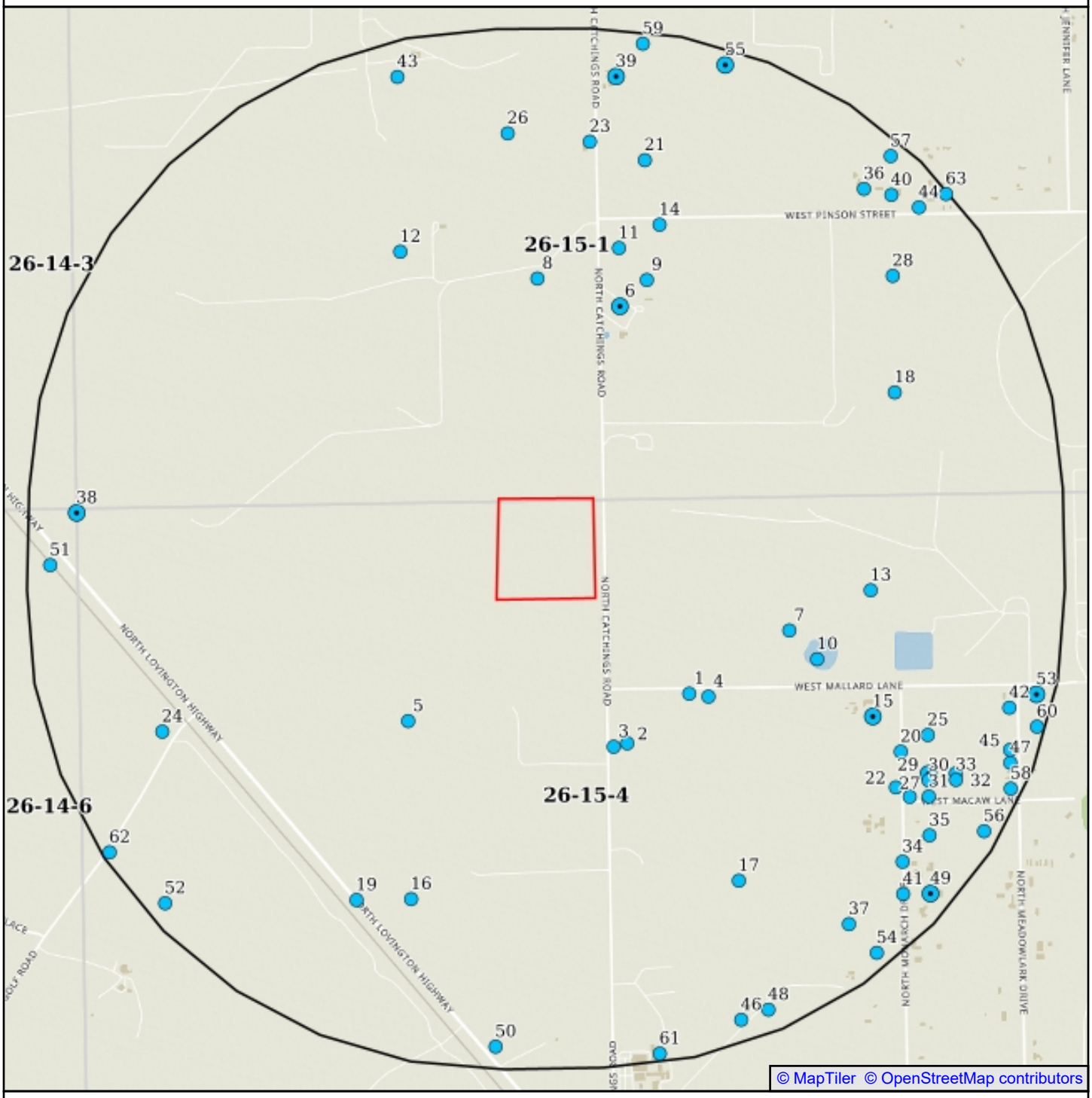
Topos Searched	
Search Distance	**Topo Name**
Subject Property	Humble City (1977)
1.0 miles	Humble City (1977), Lovington SE

Water Well Summary

Datasets Searched	Distance	Total
US Water Well (WW)	1.0	5
NM Water Well (WW)	1.0	68
Total Wells Found		**73**

Summary Map - 1.0 Mile Radius

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP



Twin Lakes South Containment

Single Water Well
Water Well Cluster
US WW,NM WW

Subject Site
Search Buffer
Texas Quad Index

0' 1083' 2167'

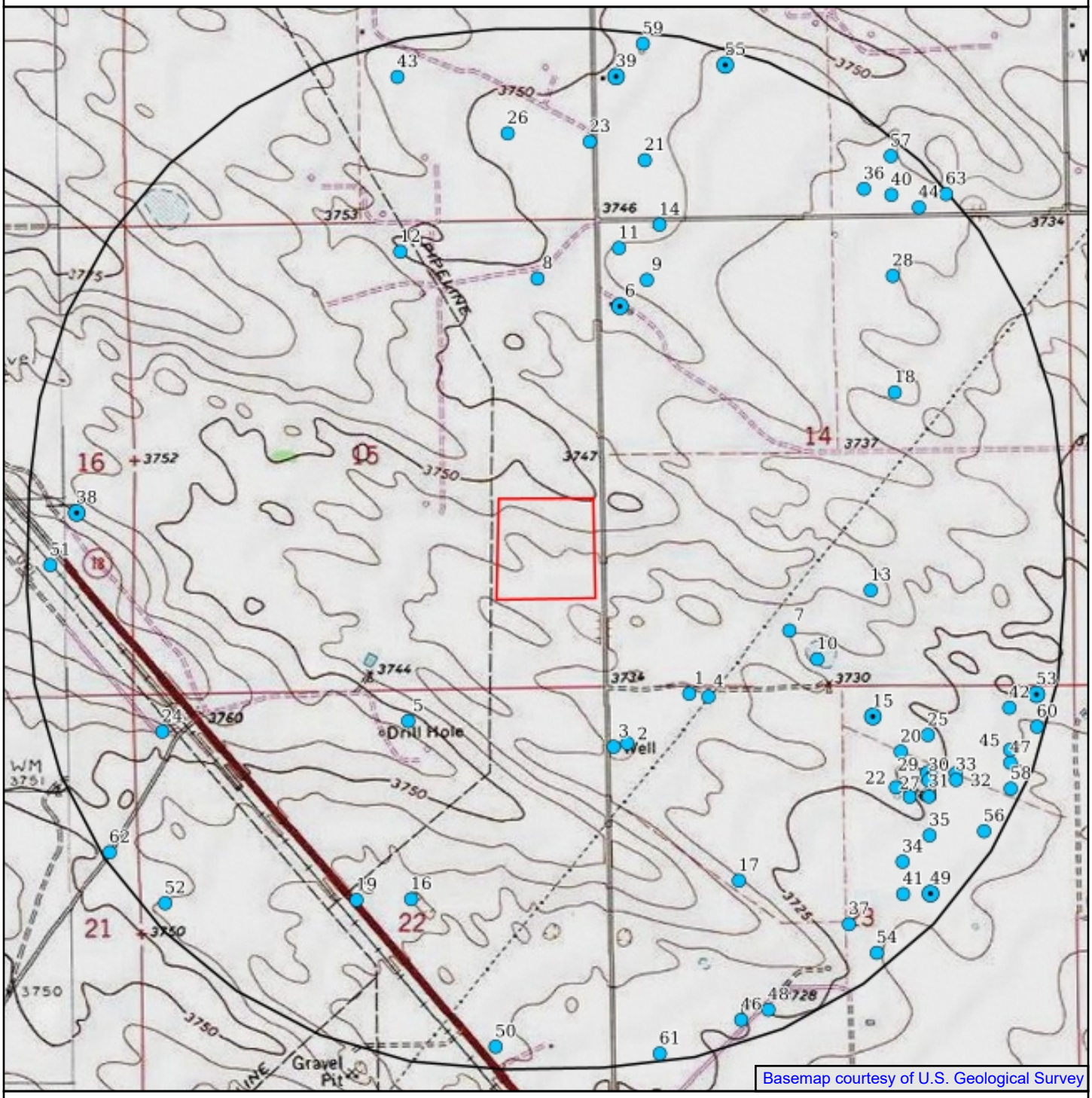
1:19500
1 in = 1625 ft
1 in = 0.308 mi
1 cm = 195 m
1 cm = 0.195 km

N

NAD83 / UTM Zone 13N
North American Datum 1983
Western Meridian: 108 0' 00" West
Eastern Meridian: 102 0' 00" West
Latitude of Origin: 0 0' 00" North

Topographic Overlay Map - 1.0 Mile Radius

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP



Basemap courtesy of U.S. Geological Survey

Twin Lakes South Containment

Subject Property Quad Name(s)
See Geographic Summary

Single Water Well
Water Well Cluster
US WW,NM WW

Subject Site
Search Buffer

0' 1083' 2167'

1:19500
1 in = 1625 ft
1 in = 0.308 mi
1 cm = 195 m
1 cm = 0.195 km

N

NAD83 / UTM Zone 13N
North American Datum 1983
Western Meridian: 108 0' 00" West
Eastern Meridian: 102 0' 00" West
Latitude of Origin: 0 0' 00" North

Current Imagery Overlay Map - 1.0 Mile Radius

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP

Twin Lakes South Containment

Single Water Well
Water Well Cluster
US WW,NM WW

Subject Site
Search Buffer

0' 1083' 2167'

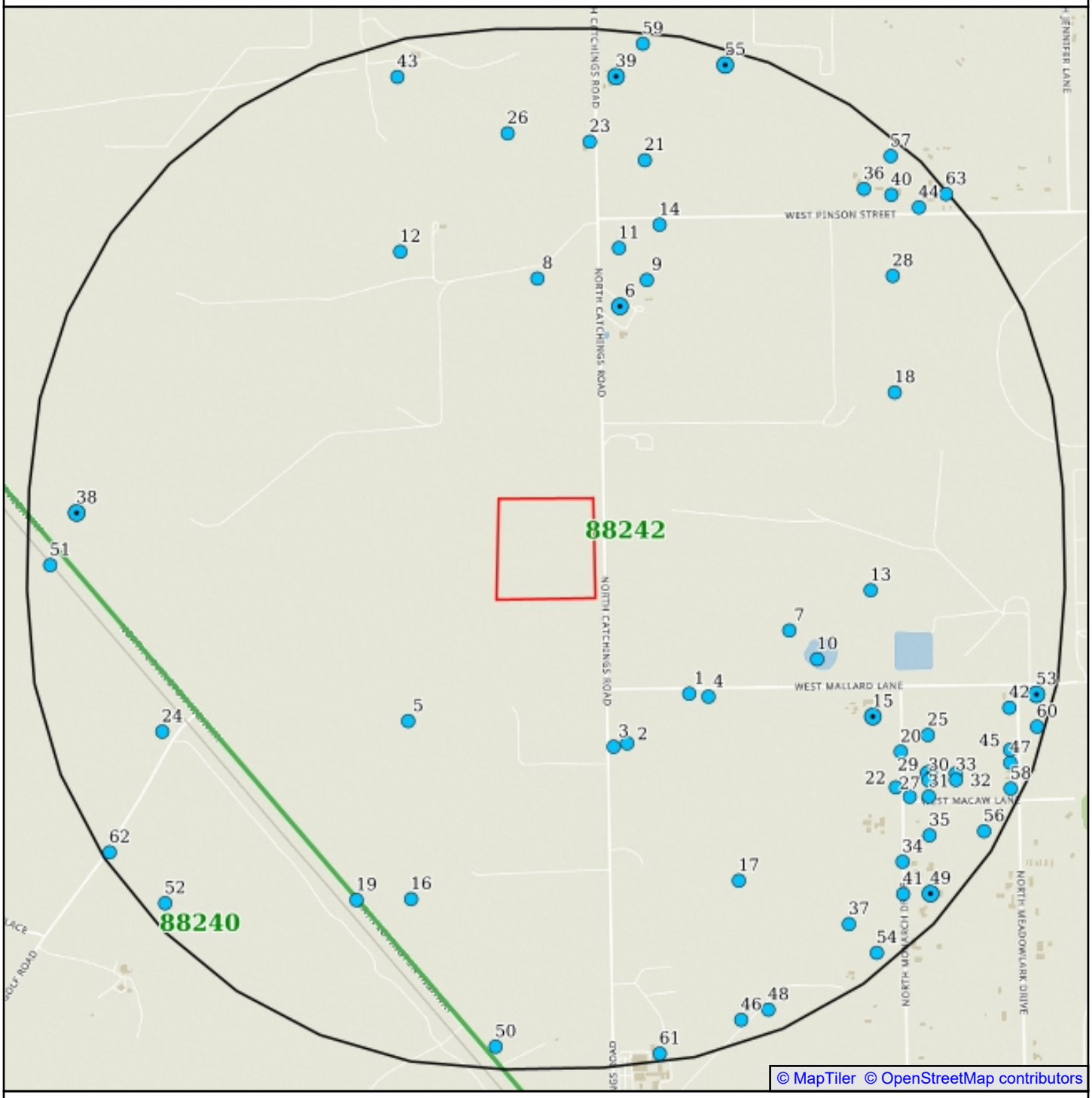
1:19500
1 in = 1625 ft
1 in = 0.308 mi
1 cm = 195 m
1 cm = 0.195 km

N

NAD83 / UTM Zone 13N
North American Datum 1983
Western Meridian: 108 0' 00" West
Eastern Meridian: 102 0' 00" West
Latitude of Origin: 0 0' 00" North

Zip Code Map - 1.0 Mile Radius

BANKS ENVIRONMENTAL DATA
A DIVISION OF THE BANKS GROUP



Twin Lakes South Containment

Single Water Well
Water Well Cluster
US WW,NM WW

Subject Site
Search Buffer
Zip Code Boundary

0' 1083' 2167'

1:19500
1 in = 1625 ft
1 in = 0.308 mi
1 cm = 195 m
1 cm = 0.195 km

N

NAD83 / UTM Zone 13N
North American Datum 1983
Western Meridian: 108 0' 00" West
Eastern Meridian: 102 0' 00" West
Latitude of Origin: 0 0' 00" North

Water Well Summary

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID	Source ID	Dataset	Owner	Well Type	Drill Depth	Static Level	Completion Date	Distance	Elevation	Details Page #
1	USGS32493 0103132601	WW	USGS	Not Reported	135			0.29mi SE	-8.07 ft	12
2	L-00857	WW	Devon Energy	PRO	138	26	1953-02-28	0.32mi S	-10.40 ft	13
3	USGS32492 1103133701	WW	USGS	Not Reported	138			0.32mi S	-7.48 ft	14
4	L-00857-S	WW	Ronald M. And Patricia Fox Trust Dated 11/21/1988	COM	135	64	1958-08-26	0.32mi SE	-11.12 ft	15
5	L-05829	WW	Joseph O Walton	DOL	125	85	1966-02-05	0.32mi SW	+11.42 ft	16
6	L-02806	WW	R L Davis	DOM	98	55	1955-03-05	0.41mi N	+4.20 ft	17
6	L-00546	WW	First Interstate Bank Lea Co.	IRR	130	65	1949-02-28	0.41mi N	+4.20 ft	18
6	L-09309	WW	Bryon Drown	DOM	160	85	1983-08-18	0.41mi N	+4.20 ft	19
7	L-05442	WW	J.C. Crow	STK	75	62	1964-08-05	0.42mi E	-11.68 ft	20
8	L-07185	WW	Robinson Bros. Drilling Co.	PRO	132	60	1974-03-20	0.47mi N	+6.30 ft	21
9	L-08918	WW	Byron Drown	STK	120	65	1982-08-10	0.48mi N	+2.20 ft	22
10	L-11918-PO D1	WW	Lee Ann Richards	STK			1899-12-30	0.49mi E	-17.95 ft	23
11	L-00546-S	WW	Goff Properties, Llc	IRR	120		1955-03-31	0.54mi N	+2.13 ft	24
12	L-11676	WW	Mike Drown	DOM	235		2004-11-09	0.57mi N	+9.55 ft	25
13	L-12737-PO D1	WW	Michael Parson	DOM	160		1899-12-30	0.59mi E	-6.27 ft	26
14	USGS32502 0103133001	WW	USGS	Not Reported	120			0.60mi N	+2.36 ft	27
15	L-09219	WW	John R. Ellis	DOM	140	45	1983-05-26	0.64mi SE	-15.78 ft	28
15	L-09219-PO D2	WW	John R. Ellis	DOM	158	45	1987-05-21	0.64mi SE	-15.78 ft	29
16	L-05555	WW	Ronald Dale Prince	IRR			1899-12-30	0.66mi S	-7.81 ft	30
17	L-00729-PO D4	WW	Cowboy Junction Church	IRR			1899-12-30	0.67mi S	-12.93 ft	31
18	L-03020	WW	G.T. Hanners	IRR			1899-12-30	0.68mi E	-7.22 ft	32
19	L-10633-PO D13	WW	Farm Credit Of Nm, Flca	IRR			1899-12-30	0.71mi SW	-0.92 ft	33
20	L-13808-PO D1	WW	Eric Gutierrez	DOL			1899-12-30	0.73mi SE	-14.93 ft	34
21	L-09979	WW	Sohio Petroleum	PRO	150	65	1988-02-17	0.73mi N	+3.87 ft	35
22	USGS32491 6103125801	WW	USGS	Not Reported	125			0.76mi SE	-16.63 ft	36

Water Well Summary

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

23	L-14803-PO D1	WW	Buster Goff	DOM	245	120	2020-01-20	0.76mi N	+5.77 ft	37
24	L-11303	WW	Buster Goff	STK	160	66	2002-04-04	0.77mi W	+10.79 ft	38
25	L-15851-PO D1	WW	Alejandro Hernandez	DOM			1899-12-30	0.77mi SE	-16.24 ft	39
26	L-06981	WW	M G F Drilling Corp	PRO	135	56	1972-08-12	0.78mi N	+8.83 ft	40
27	USGS32491 8103125801	WW	USGS	Not Reported	120			0.79mi SE	-16.63 ft	41
28	L-09907	WW	Inexco Oil Company	PRO			1899-12-30	0.79mi NE	-6.46 ft	42
29	L-00217-PO D6	WW	Ofelia Sanchez	IRR	125	97	1962-08-07	0.80mi SE	-17.72 ft	43
29	L-00217-S	WW	Ray W Lovejoy	IRR	120	45	1948-10-13	0.80mi SE	-17.72 ft	44
29	L-00217-PO D5	WW	Ray W Lovejoy	IRR	128	115	1960-07-25	0.80mi SE	-17.72 ft	45
30	L-15532-PO D1	WW	Tomas A. Vargas	DOL	250	110	2023-11-15	0.81mi SE	-17.09 ft	46
31	L-15575-PO D1	WW	Ubaldo Marquez	DOM	250	118	2023-09-15	0.83mi SE	-18.14 ft	47
32	L-14947-PO D1	WW	Idalia Cazares	DOM	200		1899-12-30	0.85mi SE	-17.68 ft	48
33	L-15513-PO D1	WW	Maria Hernandez	DOL	180	98	2023-07-28	0.86mi SE	-18.44 ft	49
34	L-04630	WW	Cowboy Junction Church	PRO	100	85	1961-04-25	0.86mi SE	-19.09 ft	50
35	L-09865	WW	Michael N. Kneese	DOM	158	65	1986-08-28	0.87mi SE	-18.86 ft	51
36	L-15667-PO D1	WW	Alfredo Silva-Fonseca	DOM	240	115	2024-03-18	0.88mi NE	-3.71 ft	52
37	L-11088	WW	Kelvin Hawkins	DOM			1899-12-30	0.88mi SE	-20.21 ft	53
38	L-13403-PO D4	WW	Talon Lpe	MON			1899-12-30	0.90mi W	+16.57 ft	54
38	L-13403-PO D3	WW	Talon Lpe	MON			1899-12-30	0.90mi W	+16.57 ft	55
39	L-00489	WW	W F Bradshaw	IRR	130		1948-02-28	0.91mi N	+6.56 ft	56
39	L-14951-PO D1	WW	Buster Goff	DOM	255	100	2020-07-15	0.90mi N	+6.50 ft	57
40	L-13907-PO D1	WW	Jose J Holguin	DOL	252		2015-06-05	0.91mi NE	-4.13 ft	58
41	L-10293-PO D2	WW	Robert Skinner	DOL	173	120	2023-01-24	0.91mi SE	-19.65 ft	59
42	L-13547-PO D1	WW	Elvia Hernandez	DOM	180	85	2014-05-08	0.91mi E	-18.37 ft	60
43	L-07450	WW	Jimmy Evans	DOM	127		1975-12-19	0.92mi N	+11.38 ft	61
44	L-14782-PO D1	WW	Carlo Prieto	DOL			1899-12-30	0.93mi NE	-4.95 ft	62

Water Well Summary

45	L-13577-PO D1	WW	Gladys Resendis Saucedo	STK	234		2014-08-07	0.94mi SE	-19.85 ft	63
46	L-04630-PO D2	WW	Cowboy Junction Church	PRO			1899-12-30	0.95mi S	-16.01 ft	64
47	L-14826-PO D1	WW	Jesus Montoya	DOL			1899-12-30	0.95mi SE	-19.46 ft	65
48	L-13450-PO D1	WW	Cowboy Junction Church	EXP			1899-12-30	0.95mi S	-16.67 ft	66
49	L-09984	WW	Western Commerce Bank (Lienhdr	DOM	158	65	1988-03-25	0.95mi SE	-21.16 ft	67
49	L-10293	WW	Robert Skinner	DOL	140	58	1992-11-14	0.95mi SE	-21.16 ft	68
50	L-06817	WW	John Parry	DOM	150	65	1971-06-15	0.95mi S	-11.35 ft	69
51	L-13403-PO D2	WW	Plains All American Pipeline	MON			1899-12-30	0.95mi W	+29.10 ft	70
52	L-10633-PO D12	WW	Kenneth Goff	IRR			1899-12-30	0.96mi SW	+3.31 ft	71
53	L-14907-PO D1	WW	Jose Ivan Montes Mendez	DOM			1899-12-30	0.96mi E	-16.90 ft	72
53	L-15684-PO D1	WW	Jose Montes Ituarte	DOL	180	108	2024-05-13	0.96mi E	-16.90 ft	73
54	L-00217-PO D7	WW	Thurman F Duncan	IRR	162	65	1983-09-16	0.96mi SE	-21.03 ft	74
55	L-03019	WW	Farm Credit Of Nm, Flca	IRR	245	100	2020-02-07	0.96mi N	+2.89 ft	75
55	L-03019-PO D13	WW	Melody J. Te Velde	IRR	245	100	2020-02-07	0.96mi N	+2.89 ft	76
56	L-09398	WW	Kelly D. Cook	DOM	147	65	1984-01-06	0.97mi SE	-20.18 ft	77
57	L-09801	WW	Yates Petroleum	PRO	197	75	1986-02-26	0.97mi NE	-3.05 ft	78
58	L-13494-PO D1	WW	Carlos Camacho	DOM	180	85	2014-05-01	0.97mi SE	-18.11 ft	79
59	L-02459	WW	W F Bradshaw	DOM	115	45	1954-02-12	0.97mi N	+5.91 ft	80
60	L-15682-PO D1	WW	Carla Lucia Saenz	DOL	180	110	2024-05-10	0.98mi E	-19.91 ft	81
61	L-15116-PO D1	WW	Cowboy Junction Inc	SAN	250	105	2021-04-21	0.98mi S	-14.63 ft	82
62	L-15306-PO D1	WW	Buster Goff	STK	207	97	2022-07-05	0.98mi SW	+7.32 ft	83
63	L-13554-PO D1	WW	Ramon Yanez	DOL	155	93	2014-05-30	0.99mi NE	-4.86 ft	84

End of Water Well Summary

Map ID 1: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 1		**Source: U.S. Geological Survey**
State ID: USGS324930103132601	**WW - Water Well**	**Banks ID: USGS324930103132601**
Well Address: US		**Rel. Loc.: 0.29mi SE**
Completion Date:		**Drill Depth: 135.0**
Owner: USGS		**Elevation: 3735.20 ft (-8.07 ft)**

Agency Cd:	USGS
Site No:	324930103132601
Station Nm:	17S.37E.23.112122
Site Tp Cd:	GW

Map ID 2: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 2		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00857	**WW - Water Well**	**Banks ID: L-00857**
Well Address: NM		**Rel. Loc.: 0.32mi S**
Completion Date: 1953-02-28		**Drill Depth: 138.0**
Owner: Devon Energy		**Elevation: 3732.87 ft (-10.40 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	Po Box 692
Owner City:	Tatum
Owner State:	NM
Owner Zip:	88267
Contact Last Name:	Glenns Water Well Service Inc
Contact First Name:	Travis
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 3: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 3		**Source: U.S. Geological Survey**
State ID: USGS324921103133701	**WW - Water Well**	**Banks ID: USGS324921103133701**
Well Address: US		**Rel. Loc.: 0.32mi S**
Completion Date:		**Drill Depth: 138.0**
Owner: USGS		**Elevation: 3735.79 ft (-7.48 ft)**

Agency Cd:	USGS
Site No:	324921103133701
Station Nm:	17S.37E.23.113111
Site Tp Cd:	GW

Map ID 4: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 4		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00857-S	**WW - Water Well**	**Banks ID: L-00857-S**
Well Address: NM		**Rel. Loc.: 0.32mi SE**
Completion Date: 1958-08-26		**Drill Depth: 135.0**
Owner: Ronald M. And Patricia Fox Trust Dated 11/21/1988		**Elevation: 3732.15 ft (-11.12 ft)**

Well Description:	COMMERCIAL
Owner Address:	74184 Bramlet Lane
Owner City:	Wallowa
Owner State:	OR
Owner Zip:	97885
Contact Last Name:	Cortez
Contact First Name:	Chris
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 5: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 5		**Source: New Mexico Office of the State Engineer**
POD File Number: L-05829	**WW - Water Well**	**Banks ID: L-05829**
Well Address: NM		**Rel. Loc.: 0.32mi SW**
Completion Date: 1966-02-05		**Drill Depth: 125.0**
Owner: Joseph O Walton		**Elevation: 3754.69 ft (+11.42 ft)**

Well Description:	Not Reported
Owner Address:	District Attorney'S Office
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 6: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 6		**Source: New Mexico Office of the State Engineer**
POD File Number: L-02806	**WW - Water Well**	**Banks ID: L-02806**
Well Address: NM		**Rel. Loc.: 0.41mi N**
Completion Date: 1955-03-05		**Drill Depth: 98.0**
Owner: R L Davis		**Elevation: 3747.47 ft (+4.20 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	Box 175
Owner City:	Lovington
Owner State:	NM
Owner Zip:	
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 6 Cluster

Dataset	Well Name	Well Address	Page #
WW	R L DAVIS	NM	17
WW	BYRON L. DROWN	NM	18
WW	BRYON DROWN	NM	19

Map ID 6: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 6		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00546	**WW - Water Well**	**Banks ID: L-00546**
Well Address: NM		**Rel. Loc.: 0.41mi N**
Completion Date: 1949-02-28		**Drill Depth: 130.0**
Owner: First Interstate Bank Lea Co.		**Elevation: 3747.47 ft (+4.20 ft)**

Well Description:	IRRIGATION
Owner Address:	
Owner City:	
Owner State:	
Owner Zip:	
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 6 Cluster

Dataset	Well Name	Well Address	Page #
WW	R L DAVIS	NM	17
WW	BYRON L. DROWN	NM	18
WW	BRYON DROWN	NM	19

Map ID 6: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 6		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09309	**WW - Water Well**	**Banks ID: L-09309**
Well Address: NM		**Rel. Loc.: 0.41mi N**
Completion Date: 1983-08-18		**Drill Depth: 160.0**
Owner: Bryon Drown		**Elevation: 3747.47 ft (+4.20 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	Star Rt C. Box 1825
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 6 Cluster

Dataset	Well Name	Well Address	Page #
WW	R L DAVIS	NM	17
WW	BYRON L. DROWN	NM	18
WW	BRYON DROWN	NM	19

Map ID 7: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 7		**Source: New Mexico Office of the State Engineer**
POD File Number: L-05442	**WW - Water Well**	**Banks ID: L-05442**
Well Address: NM		**Rel. Loc.: 0.42mi E**
Completion Date: 1964-08-05		**Drill Depth: 75.0**
Owner: J.C. Crow		**Elevation: 3731.59 ft (-11.68 ft)**

Well Description:	72-12-1 LIVESTOCK WATERING
Owner Address:	311 S. Third St.
Owner City:	Lovington
Owner State:	NM
Owner Zip:	
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 8: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 8		**Source: New Mexico Office of the State Engineer**
POD File Number: L-07185	**WW - Water Well**	**Banks ID: L-07185**
Well Address: NM		**Rel. Loc.: 0.47mi N**
Completion Date: 1974-03-20		**Drill Depth: 132.0**
Owner: Robinson Bros. Drilling Co.		**Elevation: 3749.57 ft (+6.30 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	914 Vaughn Bldg.
Owner City:	Midland
Owner State:	TX
Owner Zip:	79701
Contact Last Name:	
Contact First Name:	
Pod Status:	CAP
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1988-08-18
Aquifer:	
Other Location:	

Map ID 9: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 9		**Source: New Mexico Office of the State Engineer**
POD File Number: L-08918	**WW - Water Well**	**Banks ID: L-08918**
Well Address: NM		**Rel. Loc.: 0.48mi N**
Completion Date: 1982-08-10		**Drill Depth: 120.0**
Owner: Byron Drown		**Elevation: 3745.47 ft (+2.20 ft)**

Well Description:	72-12-1 LIVESTOCK WATERING
Owner Address:	Star Rt C, Box 1825
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	W1/2

Map ID 10: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 10		**Source: New Mexico Office of the State Engineer**
POD File Number: L-11918-POD1	**WW - Water Well**	**Banks ID: L-11918-POD1**
Well Address: NM		**Rel. Loc.: 0.49mi E**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Lee Ann Richards		**Elevation: 3725.33 ft (-17.95 ft)**

Well Description:	72-12-1 LIVESTOCK WATERING
Owner Address:	8711 E. Pinnnacle Peak Rd.#139
Owner City:	Scottsdale
Owner State:	AZ
Owner Zip:	85255
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	EXP
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 11: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 11		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00546-S	**WW - Water Well**	**Banks ID: L-00546-S**
Well Address: NM		**Rel. Loc.: 0.54mi N**
Completion Date: 1955-03-31		**Drill Depth: 120.0**
Owner: Goff Properties, Llc		**Elevation: 3745.41 ft (+2.13 ft)**

Well Description:	IRRIGATION
Owner Address:	9800 W. Goff Road
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	Goff
Contact First Name:	Kenneth Ivan
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 12: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 12		**Source: New Mexico Office of the State Engineer**
POD File Number: L-11676	**WW - Water Well**	**Banks ID: L-11676**
Well Address: NM		**Rel. Loc.: 0.57mi N**
Completion Date: 2004-11-09		**Drill Depth: 235.0**
Owner: Mike Drown		**Elevation: 3752.82 ft (+9.55 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	311 E. Broom
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 13: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 13		**Source: New Mexico Office of the State Engineer**
POD File Number: L-12737-POD1	**WW - Water Well**	**Banks ID: L-12737-POD1**
Well Address: NM		**Rel. Loc.: 0.59mi E**
Completion Date: 1899-12-30		**Drill Depth: 160.0**
Owner: Michael Parson		**Elevation: 3737.01 ft (-6.27 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	7446 Owens Road
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	Parson
Contact First Name:	Michael
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	EXP
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 14: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 14		**Source: U.S. Geological Survey**
State ID: USGS325020103133001	**WW - Water Well**	**Banks ID: USGS325020103133001**
Well Address: US		**Rel. Loc.: 0.60mi N**
Completion Date:		**Drill Depth: 120.0**
Owner: USGS		**Elevation: 3745.64 ft (+2.36 ft)**

Agency Cd:	USGS
Site No:	325020103133001
Station Nm:	17S.37E.14.111222
Site Tp Cd:	GW

Map ID 15: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 15		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09219	**WW - Water Well**	**Banks ID: L-09219**
Well Address: NM		**Rel. Loc.: 0.64mi SE**
Completion Date: 1983-05-26		**Drill Depth: 140.0**
Owner: John R. Ellis		**Elevation: 3727.49 ft (-15.78 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	7423 Kornegay Road
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	PLG
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1987-06-10
Aquifer:	
Other Location:	

Sites in Map ID 15 Cluster

Dataset	Well Name	Well Address	Page #
WW	JOHN R. ELLIS	NM	28
WW	RUBY E. ELLIS	NM	29

Map ID 15: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 15		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09219-POD2	**WW - Water Well**	**Banks ID: L-09219-POD2**
Well Address: NM		**Rel. Loc.: 0.64mi SE**
Completion Date: 1987-05-21		**Drill Depth: 158.0**
Owner: John R. Ellis		**Elevation: 3727.49 ft (-15.78 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	7423 Kornegay Road
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 15 Cluster

Dataset	Well Name	Well Address	Page #
WW	JOHN R. ELLIS	NM	28
WW	RUBY E. ELLIS	NM	29

Map ID 16: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 16		**Source: New Mexico Office of the State Engineer**
POD File Number: L-05555	**WW - Water Well**	**Banks ID: L-05555**
Well Address: NM		**Rel. Loc.: 0.66mi S**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Ronald Dale Prince		**Elevation: 3735.47 ft (-7.81 ft)**

Well Description:	IRRIGATION
Owner Address:	1017 East Gold
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	CAN
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 17: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 17		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00729-POD4	**WW - Water Well**	**Banks ID: L-00729-POD4**
Well Address: NM		**Rel. Loc.: 0.67mi S**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Cowboy Junction Church		**Elevation: 3730.35 ft (-12.93 ft)**

Well Description:	IRRIGATION
Owner Address:	9924 Catchings Rd.
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	Hardin
Contact First Name:	Clay
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 18: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 18		**Source: New Mexico Office of the State Engineer**
POD File Number: L-03020	**WW - Water Well**	**Banks ID: L-03020**
Well Address: NM		**Rel. Loc.: 0.68mi E**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: G.T. Hanners		**Elevation: 3736.06 ft (-7.22 ft)**

Well Description:	IRRIGATION
Owner Address:	
Owner City:	Lovington
Owner State:	NM
Owner Zip:	
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	TRN
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 19: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 19		**Source: New Mexico Office of the State Engineer**
POD File Number: L-10633-POD13	**WW - Water Well**	**Banks ID: L-10633-POD13**
Well Address: NM		**Rel. Loc.: 0.71mi SW**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Farm Credit Of Nm, Flca		**Elevation: 3742.36 ft (-0.92 ft)**

Well Description:	IRRIGATION
Owner Address:	P.O. Box 1537
Owner City:	Roswell
Owner State:	NM
Owner Zip:	88201
Contact Last Name:	
Contact First Name:	
Pod Status:	
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 20: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 20		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13808-POD1	**WW - Water Well**	**Banks ID: L-13808-POD1**
Well Address: NM		**Rel. Loc.: 0.73mi SE**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Eric Gutierrez		**Elevation: 3728.35 ft (-14.93 ft)**

Well Description:	Not Reported
Owner Address:	918 W Monroe
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 21: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 21		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09979	**WW - Water Well**	**Banks ID: L-09979**
Well Address: NM		**Rel. Loc.: 0.73mi N**
Completion Date: 1988-02-17		**Drill Depth: 150.0**
Owner: Sohio Petroleum		**Elevation: 3747.15 ft (+3.87 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	C/O Glenn'S Water Well Service
Owner City:	Tatum
Owner State:	NM
Owner Zip:	88267
Contact Last Name:	Glenn
Contact First Name:	Corky
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	W/2 - 660'Fsl, 320'Fwl

Map ID 22: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 22		**Source: U.S. Geological Survey**
State ID: USGS324916103125801	**WW - Water Well**	**Banks ID: USGS324916103125801**
Well Address: US		**Rel. Loc.: 0.76mi SE**
Completion Date:		**Drill Depth: 125.0**
Owner: USGS		**Elevation: 3726.64 ft (-16.63 ft)**

Agency Cd:	USGS
Site No:	324916103125801
Station Nm:	17S.37E.23.213442
Site Tp Cd:	GW

Map ID 23: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 23		**Source: New Mexico Office of the State Engineer**
POD File Number: L-14803-POD1	**WW - Water Well**	**Banks ID: L-14803-POD1**
Well Address: NM		**Rel. Loc.: 0.76mi N**
Completion Date: 2020-01-20		**Drill Depth: 245.0**
Owner: Buster Goff		**Elevation: 3749.05 ft (+5.77 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	9800 W Goff Rd
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 24: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 24		**Source: New Mexico Office of the State Engineer**
POD File Number: L-11303	**WW - Water Well**	**Banks ID: L-11303**
Well Address: NM		**Rel. Loc.: 0.77mi W**
Completion Date: 2002-04-04		**Drill Depth: 160.0**
Owner: Buster Goff		**Elevation: 3754.07 ft (+10.79 ft)**

Well Description:	72-12-1 LIVESTOCK WATERING
Owner Address:	11015 N. Goff Pl
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 25: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 25		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15851-POD1	**WW - Water Well**	**Banks ID: L-15851-POD1**
Well Address: NM		**Rel. Loc.: 0.77mi SE**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Alejandro Hernandez		**Elevation: 3727.03 ft (-16.24 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	11018 N. Monarch Dr.
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 26: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 26		**Source: New Mexico Office of the State Engineer**
POD File Number: L-06981	**WW - Water Well**	**Banks ID: L-06981**
Well Address: NM		**Rel. Loc.: 0.78mi N**
Completion Date: 1972-08-12		**Drill Depth: 135.0**
Owner: M G F Drilling Corp		**Elevation: 3752.10 ft (+8.83 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	1126 Vaughn Bldg
Owner City:	Midland
Owner State:	TX
Owner Zip:	79705
Contact Last Name:	Abbott
Contact First Name:	Murrell
Pod Status:	CAP
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1973-02-21
Aquifer:	
Other Location:	

Map ID 27: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 27		**Source: U.S. Geological Survey**
State ID: USGS324918103125801	**WW - Water Well**	**Banks ID: USGS324918103125801**
Well Address: US		**Rel. Loc.: 0.79mi SE**
Completion Date:		**Drill Depth: 120.0**
Owner: USGS		**Elevation: 3726.64 ft (-16.63 ft)**

Agency Cd:	USGS
Site No:	324918103125801
Station Nm:	17S.37E.23.21433
Site Tp Cd:	GW

Map ID 28: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 28		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09907	**WW - Water Well**	**Banks ID: L-09907**
Well Address: NM		**Rel. Loc.: 0.79mi NE**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Inexco Oil Company		**Elevation: 3736.81 ft (-6.46 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	211 Highland Cross
Owner City:	Huston
Owner State:	TX
Owner Zip:	77073
Contact Last Name:	West
Contact First Name:	John W.
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 29: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 29		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00217-POD6	**WW - Water Well**	**Banks ID: L-00217-POD6**
Well Address: NM		**Rel. Loc.: 0.80mi SE**
Completion Date: 1962-08-07		**Drill Depth: 125.0**
Owner: Ofelia Sanchez		**Elevation: 3725.56 ft (-17.72 ft)**

Well Description:	IRRIGATION
Owner Address:	10915 Goff Place
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	Sanchez
Contact First Name:	Esteban
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 29 Cluster

Dataset	Well Name	Well Address	Page #
WW	JUDY A BRANCH	NM	43
WW	RAY W LOVEJOY	NM	44
WW	THURMAN F DUNCAN	NM	45

Map ID 29: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 29		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00217-S	**WW - Water Well**	**Banks ID: L-00217-S**
Well Address: NM		**Rel. Loc.: 0.80mi SE**
Completion Date: 1948-10-13		**Drill Depth: 120.0**
Owner: Ray W Lovejoy		**Elevation: 3725.56 ft (-17.72 ft)**

Well Description:	IRRIGATION
Owner Address:	Po Drawer 1599
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	Samberson, Attorney At Law
Contact First Name:	C Gene
Pod Status:	INC
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 29 Cluster

Dataset	Well Name	Well Address	Page #
WW	JUDY A BRANCH	NM	43
WW	RAY W LOVEJOY	NM	44
WW	THURMAN F DUNCAN	NM	45

Map ID 29: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 29		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00217-POD5	**WW - Water Well**	**Banks ID: L-00217-POD5**
Well Address: NM		**Rel. Loc.: 0.80mi SE**
Completion Date: 1960-07-25		**Drill Depth: 128.0**
Owner: Ray W Lovejoy		**Elevation: 3725.56 ft (-17.72 ft)**

Well Description:	IRRIGATION
Owner Address:	Po Drawer 1599
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	Samberson, Attorney At Law
Contact First Name:	C Gene
Pod Status:	PLG
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1963-08-28
Aquifer:	
Other Location:	

Sites in Map ID 29 Cluster

Dataset	Well Name	Well Address	Page #
WW	JUDY A BRANCH	NM	43
WW	RAY W LOVEJOY	NM	44
WW	THURMAN F DUNCAN	NM	45

Map ID 30: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 30		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15532-POD1	**WW - Water Well**	**Banks ID: L-15532-POD1**
Well Address: NM		**Rel. Loc.: 0.81mi SE**
Completion Date: 2023-11-15		**Drill Depth: 250.0**
Owner: Tomas A. Vargas		**Elevation: 3726.18 ft (-17.09 ft)**

Well Description:	Not Reported
Owner Address:	7101 N Dal Paso
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 31: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 31		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15575-POD1	**WW - Water Well**	**Banks ID: L-15575-POD1**
Well Address: NM		**Rel. Loc.: 0.83mi SE**
Completion Date: 2023-09-15		**Drill Depth: 250.0**
Owner: Ubaldo Marquez		**Elevation: 3725.13 ft (-18.14 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	601 W Drake
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 32: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 32		**Source: New Mexico Office of the State Engineer**
POD File Number: L-14947-POD1	**WW - Water Well**	**Banks ID: L-14947-POD1**
Well Address: NM		**Rel. Loc.: 0.85mi SE**
Completion Date: 1899-12-30		**Drill Depth: 200.0**
Owner: Idalia Cazares		**Elevation: 3725.59 ft (-17.68 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	8007 N Cactus Ln
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	6320 W Macaw Ln, Hobbs, Nm

Map ID 33: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 33		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15513-POD1	**WW - Water Well**	**Banks ID: L-15513-POD1**
Well Address: NM		**Rel. Loc.: 0.86mi SE**
Completion Date: 2023-07-28		**Drill Depth: 180.0**
Owner: Maria Hernandez		**Elevation: 3724.84 ft (-18.44 ft)**

Well Description:	Not Reported
Owner Address:	6310 W Macaw Ln
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 34: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 34		**Source: New Mexico Office of the State Engineer**
POD File Number: L-04630	**WW - Water Well**	**Banks ID: L-04630**
Well Address: NM		**Rel. Loc.: 0.86mi SE**
Completion Date: 1961-04-25		**Drill Depth: 100.0**
Owner: Cowboy Junction Church		**Elevation: 3724.18 ft (-19.09 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	9924 Catchings Rd
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	James
Contact First Name:	Kelly
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 35: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 35		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09865	**WW - Water Well**	**Banks ID: L-09865**
Well Address: NM		**Rel. Loc.: 0.87mi SE**
Completion Date: 1986-08-28		**Drill Depth: 158.0**
Owner: Michael N. Kneese		**Elevation: 3724.41 ft (-18.86 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	10812 Monarch
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	Per Field Check

Map ID 36: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 36		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15667-POD1	**WW - Water Well**	**Banks ID: L-15667-POD1**
Well Address: NM		**Rel. Loc.: 0.88mi NE**
Completion Date: 2024-03-18		**Drill Depth: 240.0**
Owner: Alfredo Silva-Fonseca		**Elevation: 3739.57 ft (-3.71 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	6600 W. Pinson Rd.
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 37: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 37		**Source: New Mexico Office of the State Engineer**
POD File Number: L-11088	**WW - Water Well**	**Banks ID: L-11088**
Well Address: NM		**Rel. Loc.: 0.88mi SE**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Kelvin Hawkins		**Elevation: 3723.06 ft (-20.21 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	10311 N. Meadowlark Drive
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	EXP
Plug Date:	1899-12-30
Aquifer:	
Other Location:	E1/2

Map ID 38: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 38		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13403-POD4	**WW - Water Well**	**Banks ID: L-13403-POD4**
Well Address: NM		**Rel. Loc.: 0.90mi W**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Talon Lpe		**Elevation: 3759.84 ft (+16.57 ft)**

Well Description:	MONITORING WELL
Owner Address:	921 N Bivins
Owner City:	Amarillo
Owner State:	TX
Owner Zip:	79107
Contact Last Name:	Eberhard
Contact First Name:	Brent
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	Mw-3a

Sites in Map ID 38 Cluster

Dataset	Well Name	Well Address	Page #
WW	PLAINS ALL AMERICAN PIPELINE	NM	54
WW	TALON LPE	NM	55

Map ID 38: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 38		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13403-POD3	**WW - Water Well**	**Banks ID: L-13403-POD3**
Well Address: NM		**Rel. Loc.: 0.90mi W**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Talon Lpe		**Elevation: 3759.84 ft (+16.57 ft)**

Well Description:	MONITORING WELL
Owner Address:	921 N Bivins
Owner City:	Amarillo
Owner State:	TX
Owner Zip:	79107
Contact Last Name:	Eberhard
Contact First Name:	Brent
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	Mw-4a

Sites in Map ID 38 Cluster

Dataset	Well Name	Well Address	Page #
WW	PLAINS ALL AMERICAN PIPELINE	NM	54
WW	TALON LPE	NM	55

Map ID 39: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 39		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00489	**WW - Water Well**	**Banks ID: L-00489**
Well Address: NM		**Rel. Loc.: 0.91mi N**
Completion Date: 1948-02-28		**Drill Depth: 130.0**
Owner: W F Bradshaw		**Elevation: 3749.84 ft (+6.56 ft)**

Well Description:	IRRIGATION
Owner Address:	Box 200
Owner City:	Ropesville
Owner State:	TX
Owner Zip:	
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 39 Cluster

Dataset	Well Name	Well Address	Page #
WW	W F BRADSHAW	NM	56
WW	BUSTER GOFF	NM	57

Map ID 39: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 39		**Source: New Mexico Office of the State Engineer**
POD File Number: L-14951-POD1	**WW - Water Well**	**Banks ID: L-14951-POD1**
Well Address: NM		**Rel. Loc.: 0.90mi N**
Completion Date: 2020-07-15		**Drill Depth: 255.0**
Owner: Buster Goff		**Elevation: 3749.77 ft (+6.50 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	9800 West Goff Rd
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 39 Cluster

Dataset	Well Name	Well Address	Page #
WW	W F BRADSHAW	NM	56
WW	BUSTER GOFF	NM	57

Map ID 40: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 40		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13907-POD1	**WW - Water Well**	**Banks ID: L-13907-POD1**
Well Address: NM		**Rel. Loc.: 0.91mi NE**
Completion Date: 2015-06-05		**Drill Depth: 252.0**
Owner: Jose J Holguin		**Elevation: 3739.14 ft (-4.13 ft)**

Well Description:	Not Reported
Owner Address:	1201 E Pecos Drive
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 41: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 41		**Source: New Mexico Office of the State Engineer**
POD File Number: L-10293-POD2	**WW - Water Well**	**Banks ID: L-10293-POD2**
Well Address: NM		**Rel. Loc.: 0.91mi SE**
Completion Date: 2023-01-24		**Drill Depth: 173.0**
Owner: Robert Skinner		**Elevation: 3723.62 ft (-19.65 ft)**

Well Description:	Not Reported
Owner Address:	10600 N. Monarch
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 42: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 42		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13547-POD1	**WW - Water Well**	**Banks ID: L-13547-POD1**
Well Address: NM		**Rel. Loc.: 0.91mi E**
Completion Date: 2014-05-08		**Drill Depth: 180.0**
Owner: Elvia Hernandez		**Elevation: 3724.90 ft (-18.37 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	10605 Meadowlark
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 43: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 43		**Source: New Mexico Office of the State Engineer**
POD File Number: L-07450	**WW - Water Well**	**Banks ID: L-07450**
Well Address: NM		**Rel. Loc.: 0.92mi N**
Completion Date: 1975-12-19		**Drill Depth: 127.0**
Owner: Jimmy Evans		**Elevation: 3754.66 ft (+11.38 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	Po Box 2063
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 44: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 44		**Source: New Mexico Office of the State Engineer**
POD File Number: L-14782-POD1	**WW - Water Well**	**Banks ID: L-14782-POD1**
Well Address: NM		**Rel. Loc.: 0.93mi NE**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Carlo Prieto		**Elevation: 3738.32 ft (-4.95 ft)**

Well Description:	Not Reported
Owner Address:	5200 N Fowler St
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 45: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 45		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13577-POD1	**WW - Water Well**	**Banks ID: L-13577-POD1**
Well Address: NM		**Rel. Loc.: 0.94mi SE**
Completion Date: 2014-08-07		**Drill Depth: 234.0**
Owner: Gladys Resendis Saucedo		**Elevation: 3723.43 ft (-19.85 ft)**

Well Description:	72-12-1 LIVESTOCK WATERING
Owner Address:	715 North Cochran
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	11031 N Meadowlark Dr, Hobbs

Map ID 46: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 46		**Source: New Mexico Office of the State Engineer**
POD File Number: L-04630-POD2	**WW - Water Well**	**Banks ID: L-04630-POD2**
Well Address: NM		**Rel. Loc.: 0.95mi S**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Cowboy Junction Church		**Elevation: 3727.26 ft (-16.01 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	9924 Catchings Rd
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	James
Contact First Name:	Kelly
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	200 Yds E Catching Rd

Map ID 47: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 47		**Source: New Mexico Office of the State Engineer**
POD File Number: L-14826-POD1	**WW - Water Well**	**Banks ID: L-14826-POD1**
Well Address: NM		**Rel. Loc.: 0.95mi SE**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Jesus Montoya		**Elevation: 3723.82 ft (-19.46 ft)**

Well Description:	Not Reported
Owner Address:	Po Box 1482
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 48: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 48		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13450-POD1	**WW - Water Well**	**Banks ID: L-13450-POD1**
Well Address: NM		**Rel. Loc.: 0.95mi S**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Cowboy Junction Church		**Elevation: 3726.61 ft (-16.67 ft)**

Well Description:	EXPLORATION
Owner Address:	9924 Catchings Rd
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	Bean
Contact First Name:	Ty
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	CAN
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 49: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 49		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09984	**WW - Water Well**	**Banks ID: L-09984**
Well Address: NM		**Rel. Loc.: 0.95mi SE**
Completion Date: 1988-03-25		**Drill Depth: 158.0**
Owner: Western Commerce Bank (Lienhdr		**Elevation: 3722.11 ft (-21.16 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	Po Box 1358
Owner City:	Carlsbad
Owner State:	NM
Owner Zip:	88220
Contact Last Name:	Doyal, Sr Vice President
Contact First Name:	Stacy
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 49 Cluster

Dataset	Well Name	Well Address	Page #
WW	CHRISTY L MANRY	NM	67
WW	ROBERT SKINNER	NM	68

Map ID 49: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 49		**Source: New Mexico Office of the State Engineer**
POD File Number: L-10293	**WW - Water Well**	**Banks ID: L-10293**
Well Address: NM		**Rel. Loc.: 0.95mi SE**
Completion Date: 1992-11-14		**Drill Depth: 140.0**
Owner: Robert Skinner		**Elevation: 3722.11 ft (-21.16 ft)**

Well Description:	Not Reported
Owner Address:	10600 N. Monarch
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	INC
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	Monarch Drive

Sites in Map ID 49 Cluster

Dataset	Well Name	Well Address	Page #
WW	CHRISTY L MANRY	NM	67
WW	ROBERT SKINNER	NM	68

Map ID 50: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 50		**Source: New Mexico Office of the State Engineer**
POD File Number: L-06817	**WW - Water Well**	**Banks ID: L-06817**
Well Address: NM		**Rel. Loc.: 0.95mi S**
Completion Date: 1971-06-15		**Drill Depth: 150.0**
Owner: John Parry		**Elevation: 3731.92 ft (-11.35 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	%Glasspoole Water Well Service
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 51: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 51		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13403-POD2	**WW - Water Well**	**Banks ID: L-13403-POD2**
Well Address: NM		**Rel. Loc.: 0.95mi W**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Plains All American Pipeline		**Elevation: 3772.38 ft (+29.10 ft)**

Well Description:	MONITORING WELL
Owner Address:	3112 W Us Highway 82
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	Groves
Contact First Name:	Amber L
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	Mw-23

Map ID 52: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 52		**Source: New Mexico Office of the State Engineer**
POD File Number: L-10633-POD12	**WW - Water Well**	**Banks ID: L-10633-POD12**
Well Address: NM		**Rel. Loc.: 0.96mi SW**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Kenneth Goff		**Elevation: 3746.59 ft (+3.31 ft)**

Well Description:	IRRIGATION
Owner Address:	1512 S. Adams Ave.
Owner City:	Roswell
Owner State:	NM
Owner Zip:	88203
Contact Last Name:	Mason
Contact First Name:	Art
Pod Status:	
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 53: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 53		**Source: New Mexico Office of the State Engineer**
POD File Number: L-14907-POD1	**WW - Water Well**	**Banks ID: L-14907-POD1**
Well Address: NM		**Rel. Loc.: 0.96mi E**
Completion Date: 1899-12-30		**Drill Depth:**
Owner: Jose Ivan Montes Mendez		**Elevation: 3726.38 ft (-16.90 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	1915 E Dunn St
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	PEN
Digital Log:	Go to webpage
Well Status:	EXP
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 53 Cluster

Dataset	Well Name	Well Address	Page #
WW	TOMAS MONTES MENDEZ	NM	72
WW		NM	73

Map ID 53: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 53		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15684-POD1	**WW - Water Well**	**Banks ID: L-15684-POD1**
Well Address: NM		**Rel. Loc.: 0.96mi E**
Completion Date: 2024-05-13		**Drill Depth: 180.0**
Owner: Jose Montes Ituarte		**Elevation: 3726.38 ft (-16.90 ft)**

Well Description:	Not Reported
Owner Address:	1915 E. Dunn St
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 53 Cluster

Dataset	Well Name	Well Address	Page #
WW	TOMAS MONTES MENDEZ	NM	72
WW		NM	73

Map ID 54: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 54		**Source: New Mexico Office of the State Engineer**
POD File Number: L-00217-POD7	**WW - Water Well**	**Banks ID: L-00217-POD7**
Well Address: NM		**Rel. Loc.: 0.96mi SE**
Completion Date: 1983-09-16		**Drill Depth: 162.0**
Owner: Thurman F Duncan		**Elevation: 3722.24 ft (-21.03 ft)**

Well Description:	IRRIGATION
Owner Address:	Po Drawer 1599
Owner City:	Lovington
Owner State:	NM
Owner Zip:	88260
Contact Last Name:	Samberson, Attorney At Law
Contact First Name:	C Gene
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	W1/2 (Corrected)

Map ID 55: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 55		**Source: New Mexico Office of the State Engineer**
POD File Number: L-03019	**WW - Water Well**	**Banks ID: L-03019**
Well Address: NM		**Rel. Loc.: 0.96mi N**
Completion Date: 2020-02-07		**Drill Depth: 245.0**
Owner: Farm Credit Of Nm, Flca		**Elevation: 3746.16 ft (+2.89 ft)**

Well Description:	IRRIGATION
Owner Address:	P.O. Box 15039
Owner City:	Las Cruces
Owner State:	NM
Owner Zip:	88004
Contact Last Name:	Penn
Contact First Name:	Jacob
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 55 Cluster

Dataset	Well Name	Well Address	Page #
WW	FARM CREDIT OF NM, FLCA	NM	75
WW	FARM CREDIT OF NM, FLCA	NM	76

Map ID 55: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 55		**Source: New Mexico Office of the State Engineer**
POD File Number: L-03019-POD13	**WW - Water Well**	**Banks ID: L-03019-POD13**
Well Address: NM		**Rel. Loc.: 0.96mi N**
Completion Date: 2020-02-07		**Drill Depth: 245.0**
Owner: Melody J. Te Velde		**Elevation: 3746.16 ft (+2.89 ft)**

Well Description:	IRRIGATION
Owner Address:	5401 W. Pinson
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	LIC
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Sites in Map ID 55 Cluster

Dataset	Well Name	Well Address	Page #
WW	FARM CREDIT OF NM, FLCA	NM	75
WW	FARM CREDIT OF NM, FLCA	NM	76

Map ID 56: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 56		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09398	**WW - Water Well**	**Banks ID: L-09398**
Well Address: NM		**Rel. Loc.: 0.97mi SE**
Completion Date: 1984-01-06		**Drill Depth: 147.0**
Owner: Kelly D. Cook		**Elevation: 3723.10 ft (-20.18 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	200 W. Millen
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 57: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 57		**Source: New Mexico Office of the State Engineer**
POD File Number: L-09801	**WW - Water Well**	**Banks ID: L-09801**
Well Address: NM		**Rel. Loc.: 0.97mi NE**
Completion Date: 1986-02-26		**Drill Depth: 197.0**
Owner: Yates Petroleum		**Elevation: 3740.22 ft (-3.05 ft)**

Well Description:	72-12-1 PROSPECTING OR DEVELOPMENT OF NATURAL RESOURCE
Owner Address:	C/O Glenn'S Water Well Service
Owner City:	Tatum
Owner State:	NM
Owner Zip:	88267
Contact Last Name:	Glenn
Contact First Name:	Corky
Pod Status:	CAP
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	W1/2 - 660'Fsl, 2180'Fel

Map ID 58: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 58		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13494-POD1	**WW - Water Well**	**Banks ID: L-13494-POD1**
Well Address: NM		**Rel. Loc.: 0.97mi SE**
Completion Date: 2014-05-01		**Drill Depth: 180.0**
Owner: Carlos Camacho		**Elevation: 3725.16 ft (-18.11 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	10601 Meadowlark
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	10911 N. Meadowlark Dr,Hobbs

Map ID 59: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 59		**Source: New Mexico Office of the State Engineer**
POD File Number: L-02459	**WW - Water Well**	**Banks ID: L-02459**
Well Address: NM		**Rel. Loc.: 0.97mi N**
Completion Date: 1954-02-12		**Drill Depth: 115.0**
Owner: W F Bradshaw		**Elevation: 3749.18 ft (+5.91 ft)**

Well Description:	DOMESTIC ONE HOUSEHOLD
Owner Address:	Box 175
Owner City:	Lovington
Owner State:	NM
Owner Zip:	
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 60: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 60		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15682-POD1	**WW - Water Well**	**Banks ID: L-15682-POD1**
Well Address: NM		**Rel. Loc.: 0.98mi E**
Completion Date: 2024-05-10		**Drill Depth: 180.0**
Owner: Carla Lucia Saenz		**Elevation: 3723.36 ft (-19.91 ft)**

Well Description:	Not Reported
Owner Address:	1919 E Dunn St
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 61: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 61		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15116-POD1	**WW - Water Well**	**Banks ID: L-15116-POD1**
Well Address: NM		**Rel. Loc.: 0.98mi S**
Completion Date: 2021-04-21		**Drill Depth: 250.0**
Owner: Cowboy Junction Inc		**Elevation: 3728.64 ft (-14.63 ft)**

Well Description:	72-12-1 SANITARY IN CONJUNCTION WITH A COMMERCIAL USE
Owner Address:	9924 N Catchings
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88242
Contact Last Name:	Hardin
Contact First Name:	Daniel Clay
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 62: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 62		**Source: New Mexico Office of the State Engineer**
POD File Number: L-15306-POD1	**WW - Water Well**	**Banks ID: L-15306-POD1**
Well Address: NM		**Rel. Loc.: 0.98mi SW**
Completion Date: 2022-07-05		**Drill Depth: 207.0**
Owner: Buster Goff		**Elevation: 3750.59 ft (+7.32 ft)**

Well Description:	72-12-1 LIVESTOCK WATERING
Owner Address:	110 E Mill Rd
Owner City:	Artesia
Owner State:	NM
Owner Zip:	88210
Contact Last Name:	Conklin
Contact First Name:	Eric
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Map ID 63: WW

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Map ID: 63		**Source: New Mexico Office of the State Engineer**
POD File Number: L-13554-POD1	**WW - Water Well**	**Banks ID: L-13554-POD1**
Well Address: NM		**Rel. Loc.: 0.99mi NE**
Completion Date: 2014-05-30		**Drill Depth: 155.0**
Owner: Ramon Yanez		**Elevation: 3738.42 ft (-4.86 ft)**

Well Description:	Not Reported
Owner Address:	3511 1st Sanger #3
Owner City:	Hobbs
Owner State:	NM
Owner Zip:	88240
Contact Last Name:	
Contact First Name:	
Pod Status:	ACT
Digital Log:	Go to webpage
Well Status:	PMT
Plug Date:	1899-12-30
Aquifer:	
Other Location:	

Dataset Descriptions and Sources

BANKS ENVIRONMENTAL DATA A DIVISION OF THE BANKS GROUP

Dataset	Source	Dataset Description	Update Schedule	Requested Date	Received Date	Update Date	Source Update Date
WW - Water Well (US)	U.S. Geological Survey	This dataset contains groundwater well records from the U.S. Geological Survey.	Quarterly	2025-09-09	2025-09-09	2025-09-10	2025-09-09
WW - Water Well (NM)	New Mexico Office of the State Engineer	The NM Office of the State Engineer (OSE) "Point of Diversions" (POD) layer includes well locations, surface declarations, or surface permits updated on a monthly basis. These data were extracted from the OSE W.A.T.E.R.S. (Water Administration Technical Engineering Resource System) database and geo-located (mapped). These data have varying degrees of accuracy and have not been validated. Data included in this dataset only includes PODs that have coordinates located within the State of New Mexico.	Quarterly	2025-09-02	2025-09-02	2025-10-07	2025-08-08

Disclaimer

The Banks Environmental Data Water Well Report was prepared from existing state water well databases and/or additional file data/records research conducted at the state agency and the U.S. Geological Survey. Banks Environmental Data has performed a thorough and diligent search of all groundwater well information provided and recorded. All mapped locations are based on information obtained from the source. Although Banks performs quality assurance and quality control on all research projects, we recognize that any inaccuracies of the records and mapped well locations could possibly be traced to the appropriate regulatory authority or the actual driller. It may be possible that some water well schedules and logs have never been submitted to the regulatory authority by the water driller and, thus, may explain the possible unaccountability of privately drilled wells. It is uncertain if the above listing provides 100% of the existing wells within the area of review. Therefore, Banks Environmental Data cannot fully guarantee the accuracy of the data or well location(s) of those maps and records maintained by the regulatory authorities.

Attachment B

Geotechnical Report

COZ Engineering, LLC

GEOTECHNICAL ENGINEERING REPORT

TWIN LAKES SOUTH RECYCLING FACILITY

LEA COUNTY, NEW MEXICO
Project No. 4225137
October 29, 2025

Prepared for:

ENVIROTECH ENGINEERING & CONSULTING, INC.
Enid, Oklahoma

Prepared by:

COZ ENGINEERING, LLC
Las Cruces, New Mexico

COZ Engineering, LLC

PO Box 13331
Las Cruces, New Mexico 88013
Cell: 575.642.7671
Email: thecoz42@gmail.com

October 29, 2025

Envirotech Engineering & Consulting, Inc.
2500 North Eleventh Street
Enid, OK 73701

Attn. Mitchell Ratke, P.E.
P: 580.234.8780
E: mratke@envirotechconsulting.com

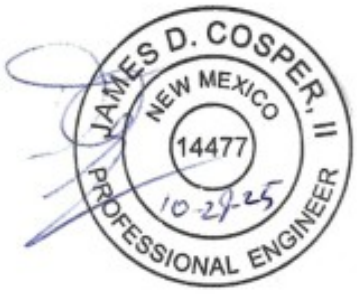
Re: Geotechnical Engineering Report
Twin Lakes South Recycling Facility
32.833478, -103.230800, N. Catchings Road
Lea County, New Mexico
COZ Report No. 4225137

Dear Mr. Ratke:

The following is a geotechnical engineering report for the proposed Twin Lakes South Recycling Facility in Lea County, New Mexico. Recommendations for earthwork, embankments and other geotechnical considerations are presented in the report.

Thank you for the opportunity to provide this geotechnical engineering report. If you have any questions or concerns, please contact me at (575)-642-7671.

Sincerely,
COZ Engineering, LLC



Dan Cosper, P.E.

Twin Lakes South Recycling Facility
October 29, 2025
COZ Report No. 4225137

Site Investigation:	*1*
Site Conditions:	*1*
Planned Construction:	*1*
Site Grading:	*2*
Soil Improvements:	*2*
Fill Material:	*2*
Excavation of Embankment Areas:	*3*
Embankment Placement:	*3*
Seismic Site Classification:	*4*
Testing and Inspection:	*4*
Report Limitations:	*5*

Appendix:

Site Plan
Boring Logs
Laboratory Results

Twin Lakes South Recycling Facility
October 29, 2025
COZ Report No. 4225137

Site Investigation:

A subsurface investigation was performed for the proposed Twin Lakes South Recycling Facility to be located at Lat.: 32.833478° Long.: -103.230800° in Lea County, New Mexico. Five (5) test borings were advanced within the proposed facility near client requested locations. The borings were advanced to depths of 3 to 75 feet below ground surface (bgs). Auger refusal was encountered in Borings B-1, B-3 and B-4 at depths of 3 and 9 feet bgs due to very dense cemented soils or suspected limestone.

Site Conditions:

The ground surface was exposed native subgrade with sparse to dense vegetation consisting of brush and native grasses. Soils investigated at this site were comprised of silty sand with varying amounts of gravel and varying degrees of carbonate cementation from the surface to a depth of about 30 feet bgs. The upper soils were underlain by poorly graded sand with silt and varying amounts of gravel to the total explored depth of 75 feet bgs.

The groundwater table was not encountered during the field investigation.

Planned Construction:

Based on the information provided, the project will include the construction of a recycling facility.

Site Grading:

Areas for planned construction should be clear of debris, vegetation and any oversized or deleterious material prior to grading operations. Fill construction shall not be allowed on surfaces that contain vegetation or rocks larger than four inches in greatest dimension. No fill shall be placed that contains vegetative material as decomposition of that material can cause voids and possibly result in surface settlement. Voids in the soil matrix created or encountered during grading operations shall be backfilled with compacted fill material.

Positive drainage away from embankments should be provided throughout the life of the project. Areas adjacent to embankments that could retain water should be sealed or eliminated.

Soil Improvements:

Subgrade preparation (beneath embankments and engineered fills) should consist of scarifying the native soil surface a minimum thickness of 10 inches, moisture conditioning (+/- 2% of optimum moisture content per ASTM D-698) and compaction to a minimum of 95% of standard Proctor density (per ASTM D-698). Engineered fill materials should be placed in 10-inch maximum lifts, moisture conditioned to within 2% of optimum moisture content (per ASTM D-698) and compacted to a minimum of 95% of standard Proctor density (per ASTM D-698).

Fill Material:

Engineered fill material for this project should meet the following gradation criteria:

Sieve	% Passing
4″	100
¾	70-100
#4	50-100
#200	50 max.

The plasticity index of the minus #40 sieve portion should not exceed twenty (20). The on-site soils tested meet the above specifications.

Excavation of Embankment Areas:

Difficult excavations due to very dense cemented soils or suspected limestone will require particular attention in the design and construction.

The soils below the new embankments should be scarified, moisture conditioned and compacted. The interior/exterior width of subgrade preparation should extend to the intersection of the slopes of the embankment fill. Once the subgrade preparation has been observed and approved by the geotechnical engineer, embankment fill operations can initiate.

Embankment Placement:

Once the subgrade has been prepared, on-site embankment material stockpiles should be moisture conditioned in preparation for lift placement. The embankments should be constructed as a unit from the bottom elevation to the rim elevation.

The distal slopes of the embankments should be overbuilt and cut to final grade to provide compaction to these edges of the embankments. The embankments should be constructed in strict accordance with the project plans and specifications.

Seismic Site Classification:

The seismic site classification is based upon the soil profile in the upper 100 feet as defined by the weighted average of standard penetration blow-counts or shear wave velocity in accordance with Section 20.4 of the ASCE 7 and the International Building Code (IBC). Based upon my field investigation, it is my opinion that the Seismic Site Classification is C **("Very Dense Soils or Soft Rock")**. The maximum depth of the borings advanced at the site was 75 feet. Therefore, soil properties below the maximum boring depth to 100 feet were estimated based on my experience with the general area. Deeper borings or geophysical testing would be required to confirm the conditions below the current boring depth.

Testing and Inspection:

It is recommended that all site grading operations be inspected by a geotechnical engineer. The inspecting engineer should be responsible for immediately reporting any site or soil conditions that vary significantly from this report.

The testing of materials should be made at the following:

1) One (1) soil density every 5,000 square feet of prepared subgrade and embankment fill areas (ASTM D-1556, ASTM D-2167, or ASTM D-2922, ASTM D-3017).

2) One (1) sieve analysis and plasticity index per material used according to ASTM D-422 and ASTM D-4318.

3) One (1) proctor per each type of material used according to ASTM D-698.

Report Limitations:

The conclusions, recommendations and opinions presented herein are:

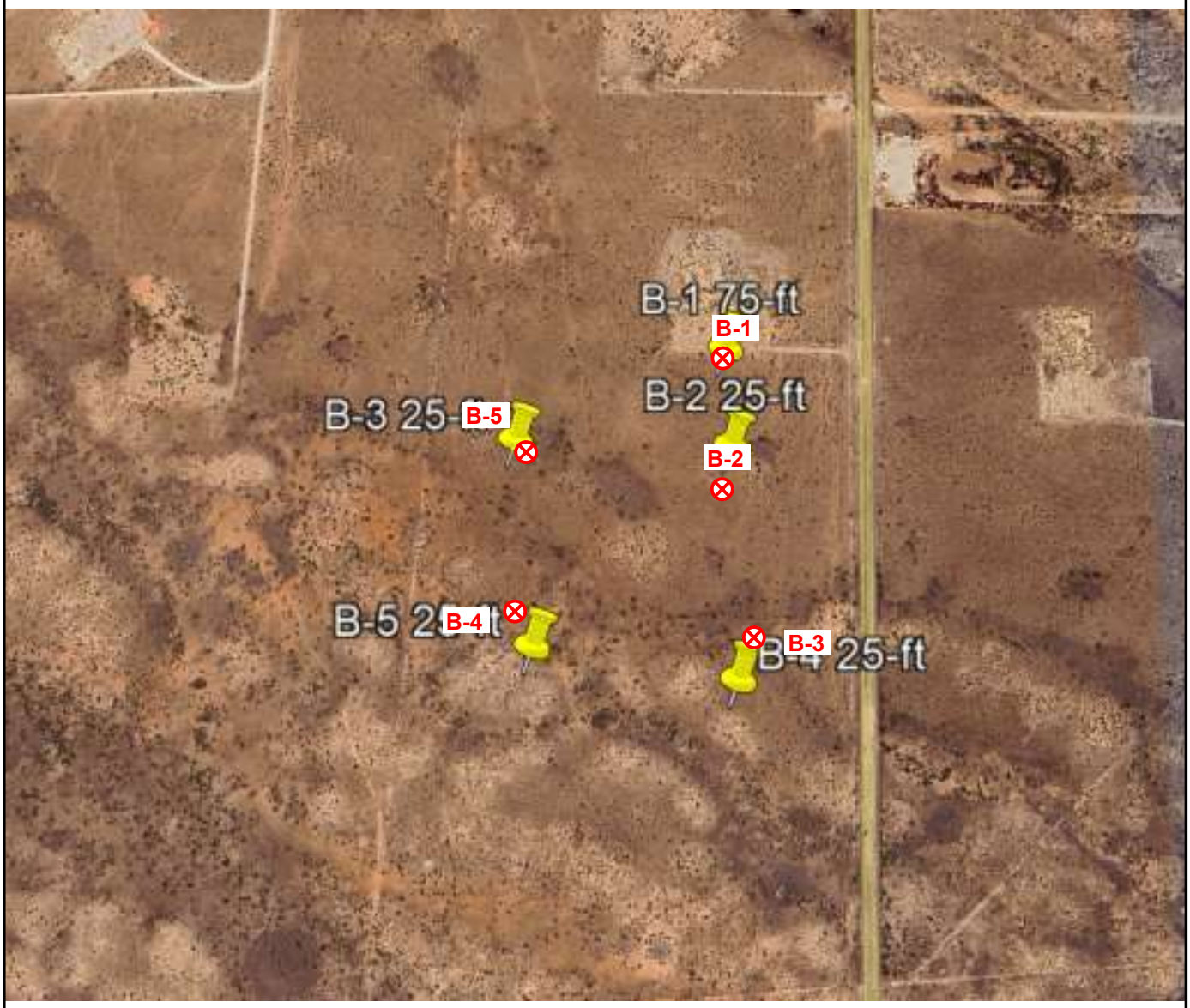
1) Based upon evaluation and interpretation of the findings of the field and laboratory program.

2) Based upon an interpolation of soil conditions between and beyond the explorations.

3) Subject to confirmation of the conditions encountered during construction.

4) Based upon the assumption that sufficient observation and testing will be provided during construction.

There is no other warranty, either express or implied. Any person using this report for bidding or construction purposes should perform such independent investigation as he deems necessary to satisfy himself as to the surface and subsurface conditions to be encountered and the procedures to be used in the performance of work on this project. If conditions are encountered during construction that appear to differ from those indicated in this report, I should be notified immediately.



N

⊗ Approximate Boring Location

Project Manager: DC Drawn by: DC Checked by: DC Approved by: DC	Project No. 4225137 Scale: AS SHOWN File Name: Figures Date: 10-29-25	COZ Engineering, LLC PO Box 13331 Las Cruces, NM 88013	BORING LOCATION PLAN Twin Lakes South Recycling Facility Lat.: 32.833478° Long.: -103.230800° Lea County, New Mexico	Exhibit 1

Project: **Twin Lakes South Recycling Facility** Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM** Project Number: **4225137**	Log of Boring B-1 **Sheet 1 of 1**

Date(s) Drilled **10-22-25**	Logged By **RC**	Checked By **COZ**
Drilling Method **hollow-stem auger**	Drill Bit Size/Type	Total Depth of Borehole **9 feet bgs**
Drill Rig Type **CME-75**	Drilling Contractor **Southlands**	Approximate Surface Elevation
Groundwater Level and Date Measured **not encountered**	Sampling Method(s) **SPT**	Hammer Data
Borehole Backfill **cuttings**	Location **see boring plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Percent Fines	LL, %	PI, %
	0				SM		SILTY SAND: white to light brown, dry, very dense, carbonate indurated				
	5		1	50				2.8	20.6		NP
	9						Auger refusal encountered at 9 feet due to very dense cemented soils or suspected limestone				

C:\Users\theco\AppData\Local\Temp\borings_temp\tmpfile.bgs[COZ Engineering 1.tpl]

Project: **Twin Lakes South Recycling Facility** Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM** Project Number: **4225137**	Log of Boring B-2 **Sheet 1 of 1**

Date(s) Drilled **10-22-25**	Logged By **RC**	Checked By **COZ**
Drilling Method **hollow-stem auger**	Drill Bit Size/Type	Total Depth of Borehole **25.5 feet bgs**
Drill Rig Type **CME-75**	Drilling Contractor **Southlands**	Approximate Surface Elevation
Groundwater Level and Date Measured **not encountered**	Sampling Method(s) **SPT**	Hammer Data
Borehole Backfill **cuttings**	Location **see boring plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Percent Fines	LL, %	PI, %
	0				SM		SILTY SAND WITH GRAVEL: white, dry, very dense, carbonate indurated				
	5		1	25\27\25							
	10		2	28\50				4.2	19.8	20	3
	15		3	50			light brown				
	20		4	22\50			red brown				
	25		5	50							
	25.5						Bottom of Boring				

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Project: **Twin Lakes South Recycling Facility**
Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM**
Project Number: **4225137**

Log of Boring B-3
Sheet 1 of 1

Date(s) Drilled **10-22-25**	Logged By **RC**	Checked By **COZ**
Drilling Method **hollow-stem auger**	Drill Bit Size/Type	Total Depth of Borehole **3 feet bgs**
Drill Rig Type **CME-75**	Drilling Contractor **Southlands**	Approximate Surface Elevation
Groundwater Level and Date Measured **not encountered**	Sampling Method(s) **Auger**	Hammer Data
Borehole Backfill **cuttings**	Location **see boring plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Percent Fines	LL, %	PI, %
	0–3		1		GM		SILTY GRAVEL WITH SAND: white, dry, very dense, carbonate indurated	2.5	23.5		NP
	3						Auger refusal encountered at 3 feet due to very dense cemented soils or suspected limestone				

C:\Users\theco\AppData\Local\Temp\borings_temp\tmpfile.bgs[COZ Engineering 1.tpl]

Project: **Twin Lakes South Recycling Facility**
Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM**
Project Number: **4225137**

Log of Boring B-4
Sheet 1 of 1

Date(s) Drilled **10-22-25**	Logged By **RC**	Checked By **COZ**
Drilling Method **hollow-stem auger**	Drill Bit Size/Type	Total Depth of Borehole
Drill Rig Type **CME-75**	Drilling Contractor **Southlands**	Approximate Surface Elevation
Groundwater Level and Date Measured **not encountered**	Sampling Method(s)	Hammer Data
Borehole Backfill **cuttings**	Location **see boring plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Percent Fines	LL, %	PI, %
	0–3		1		SM		SILTY SAND WITH GRAVEL: white to light brown, dry, very dense, carbonate indurated	4.6	26.2		NP
	3						Auger refusal encountered at 3 feet due to very dense cemented soils or suspected limestone				

C:\Users\theco\AppData\Local\Temp\borings_temp\tmpfile.bgs[COZ Engineering 1.tpl]

Project: **Twin Lakes South Recycling Facility** Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM** Project Number: **4225137**	Log of Boring B-5 **Sheet 1 of 2**

Date(s) Drilled **10-22-25**	Logged By **RC**	Checked By **COZ**
Drilling Method **hollow-stem auger**	Drill Bit Size/Type	Total Depth of Borehole **75 feet bgs**
Drill Rig Type **CME-75**	Drilling Contractor **Southlands**	Approximate Surface Elevation
Groundwater Level and Date Measured **not encountered**	Sampling Method(s)	Hammer Data
Borehole Backfill **cuttings**	Location **see boring plan**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Percent Fines	LL, %	PI, %
	0				SM		SILTY SAND WITH GRAVEL: white, dry, carbonate indurated				
	20				SM		SILTY SAND: light red brown, dry, carbonate indurated				
	30				SP-SM		POORLY GRADED SAND WITH SILT: red brown, dry, carbonate indurated				
	35										

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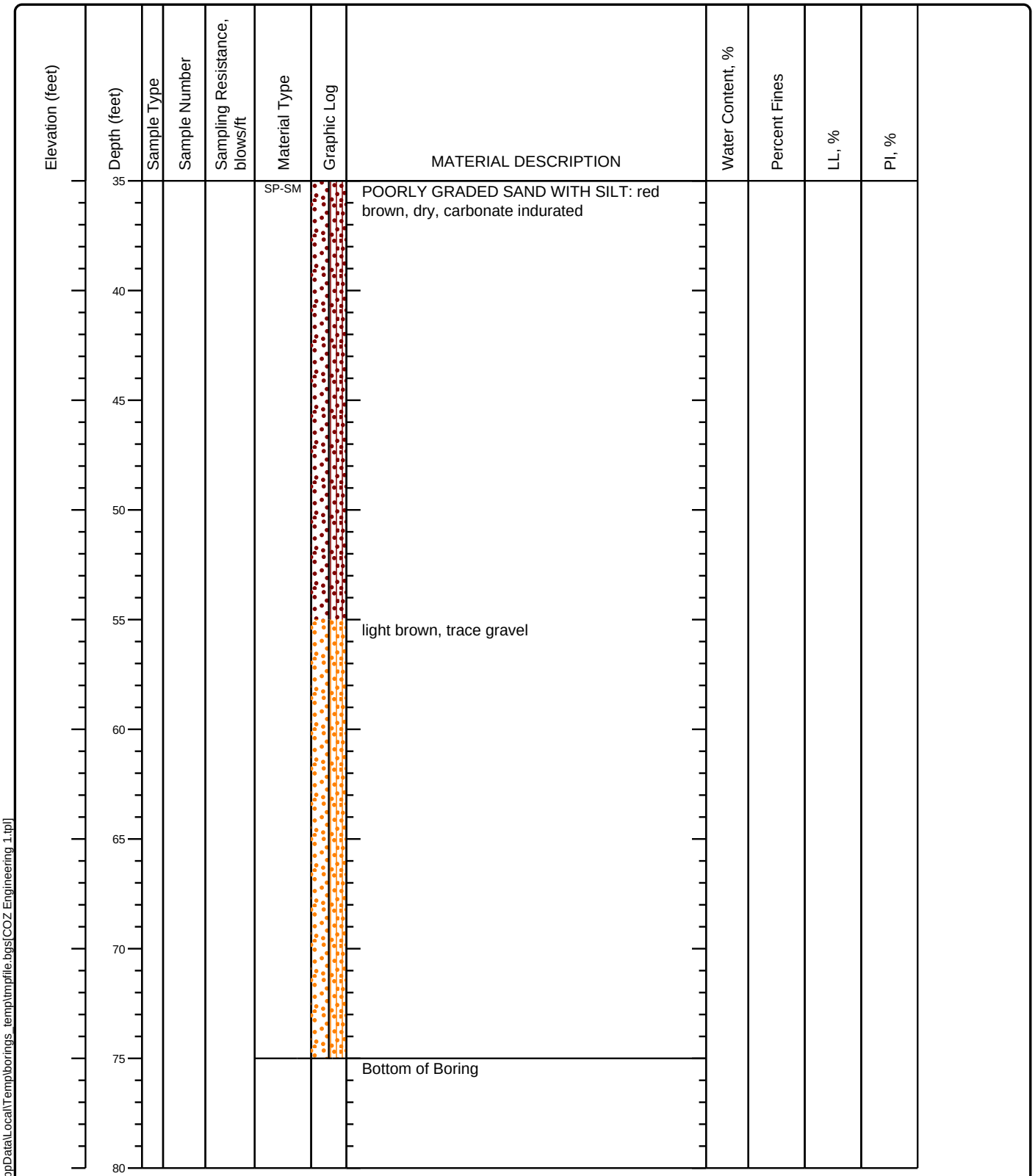
Project: **Twin Lakes South Recycling Facility**
Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM**
Project Number: **4225137**

Log of Boring B-5

Sheet 2 of 2



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Project: **Twin Lakes South Recycling Facility**
Project Location: **Lat.: 32.833478 Long.:-103.230800, Lea County, NM**
Project Number: **4225137**

Key to Log of Boring
Sheet 1 of 1

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	Percent Fines	LL, %	PI, %
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1 Elevation (feet): Elevation (MSL, feet).
2 Depth (feet): Depth in feet below the ground surface.
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample Number: Sample identification number.
5 Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6 Material Type: Type of material encountered.
7 Graphic Log: Graphic depiction of the subsurface material encountered.
8 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9 Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
10 Percent Fines: The percent fines (soil passing the No. 200 Sieve) in the sample. WA indicates a Wash Sieve, SA indicates a Sieve Analysis.
11 LL, %: Liquid Limit, expressed as a water content.
12 PI, %: Plasticity Index, expressed as a water content.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Silty GRAVEL (GM)
Silty SAND (SM)
Poorly graded SAND with Silt (SP-SM)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Bulk Sample
3-inch-OD California w/ brass rings
CME Sampler
Grab Sample
2.5-inch-OD Modified California w/ brass liners
Pitcher Sample
2-inch-OD unlined split spoon (SPT)
Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
Queried contact between strata

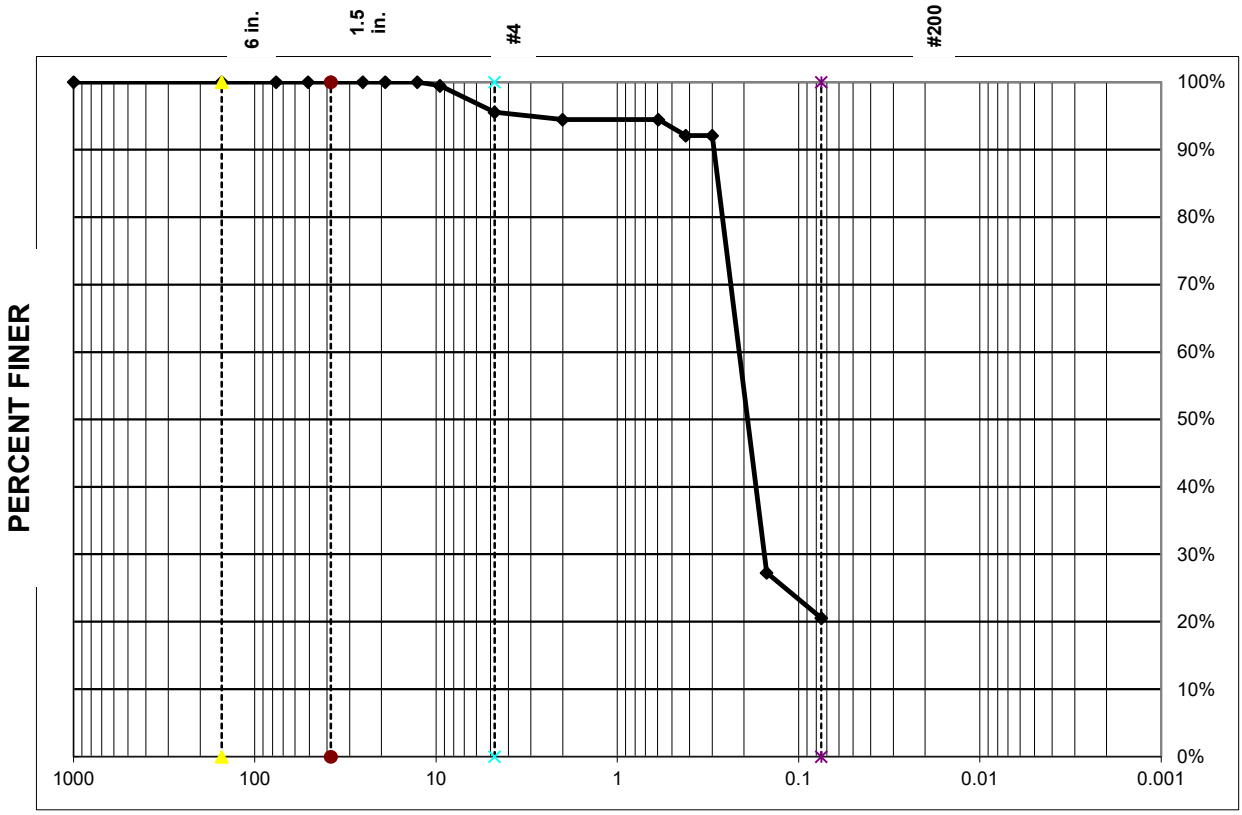
GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

C:\Users\theco\AppData\Local\Temp\borings_temp\tmpfile.bgs[COZ Engineering 1.tpl]

Figure B-1

GRAIN SIZE DISTRIBUTION GRAPH



TEST SUMMARY (ASTM C136)

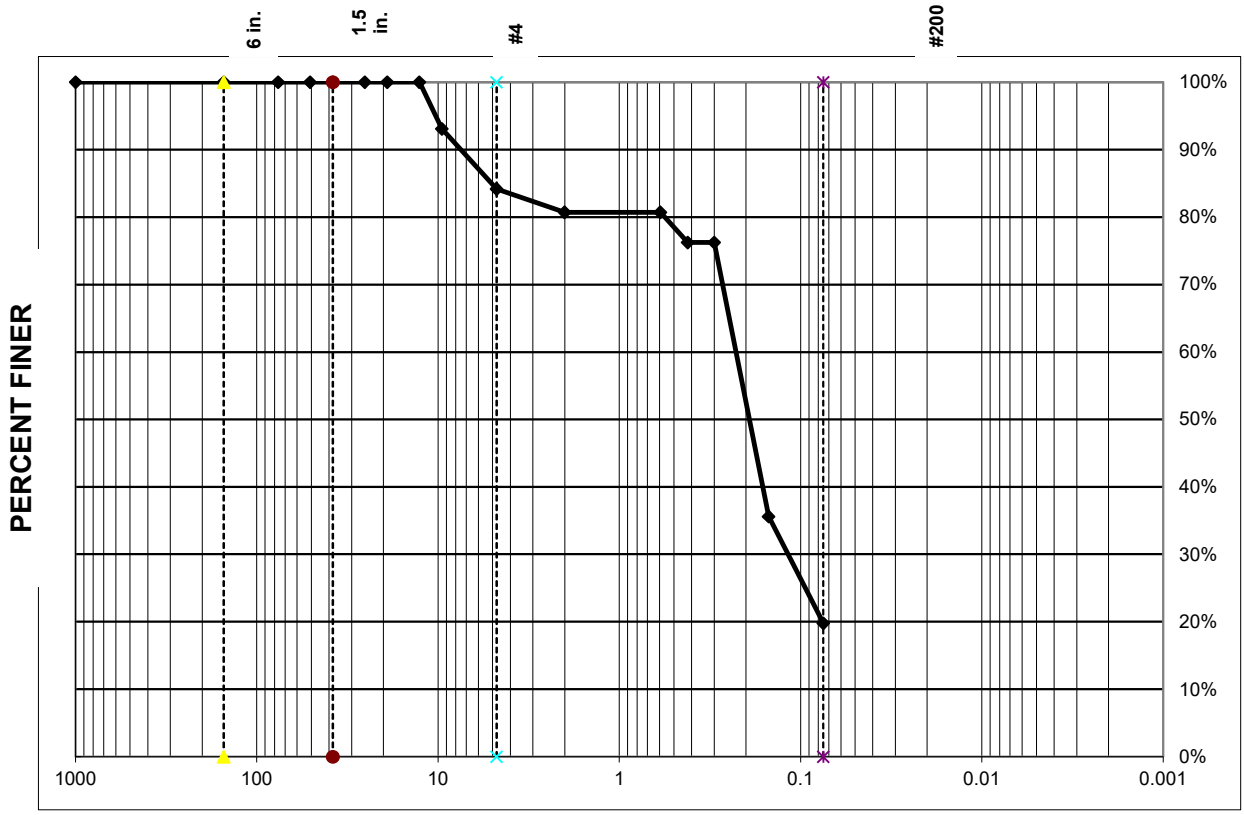
Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100%	100%	99%	96%	94%	92%	27%	20.6%
Specification								

% GRAVEL =	4%	**D_{85} =**	0.3	**D_{15} =**	
% SAND =	75%	**D_{60} =**	0.2	**D_{10} =**	
% SILT & CLAY =	21%	**D_{50} =**	0.2	**C_U =**	
		D_{30} =	0.2	**C_C =**	

Sample Date: 10/22/25
Project No.: 4225137
Project Name: Twin Lakes South Recycling Facility
Report Date: 10/29/25
Sample Location: B-1 at 5'
Liquid Limit: **Plasticity Index:** NP
USCS Classification: SM
Material Description: Silty Sand
Moisture Content: 2.8%

COZ Engineering, LLC
PO Box 13331
Las Cruces, NM 88013
(575) 642-7671

GRAIN SIZE DISTRIBUTION GRAPH



TEST SUMMARY (ASTM C136)

Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100%	100%	93%	84%	81%	76%	36%	19.8%
Specification								

% GRAVEL =	16%		**D_{85} =** 5.1	**D_{15} =**	
% SAND =	64%		**D_{60} =** 0.2	**D_{10} =**	
% SILT & CLAY =	20%		**D_{50} =** 0.2	**C_U =**	
			D_{30} = 0.1	**C_C =**	

Sample Date: 10/22/25
Project No.: 4225137
Project Name: Twin Lakes South Recycling Facility
Report Date: 10/29/25
Sample Location: B-2 at 10'
Liquid Limit: 20 **Plasticity Index:** 3
USCS Classification: SM
Material Description: Silty Sand with Gravel
Moisture Content: 4.2%

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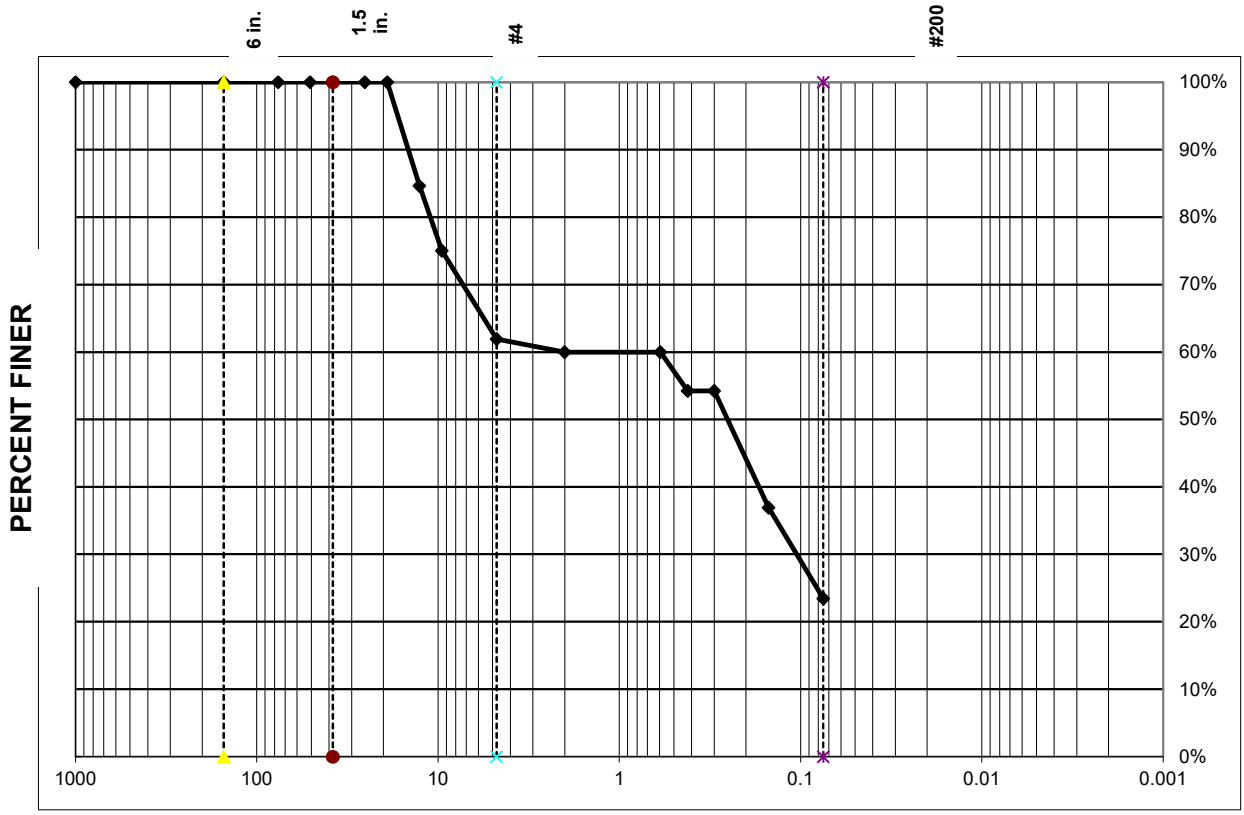
GRAIN SIZE DISTRIBUTION GRAPH



TEST SUMMARY (ASTM C136)

Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100%	100%	75%	62%	60%	54%	37%	23.5%
Specification								

% GRAVEL =	38%	**D_{85} =** 12.8	**D_{15} =**
% SAND =	38%	**D_{60} =** 0.6	**D_{10} =**
% SILT & CLAY =	23%	**D_{50} =** 0.3	**C_U =**
		D_{30} = 0.1	**C_C =**

Sample Date: 10/22/25
Project No.: 4225137
Project Name: Twin Lakes South Recycling Facility
Report Date: 10/29/25
Sample Location: B-3 at 3'
Liquid Limit: **Plasticity Index:** NP
USCS Classification: GM
Material Description: Silty Gravel with Sand
Moisture Content: 2.5%

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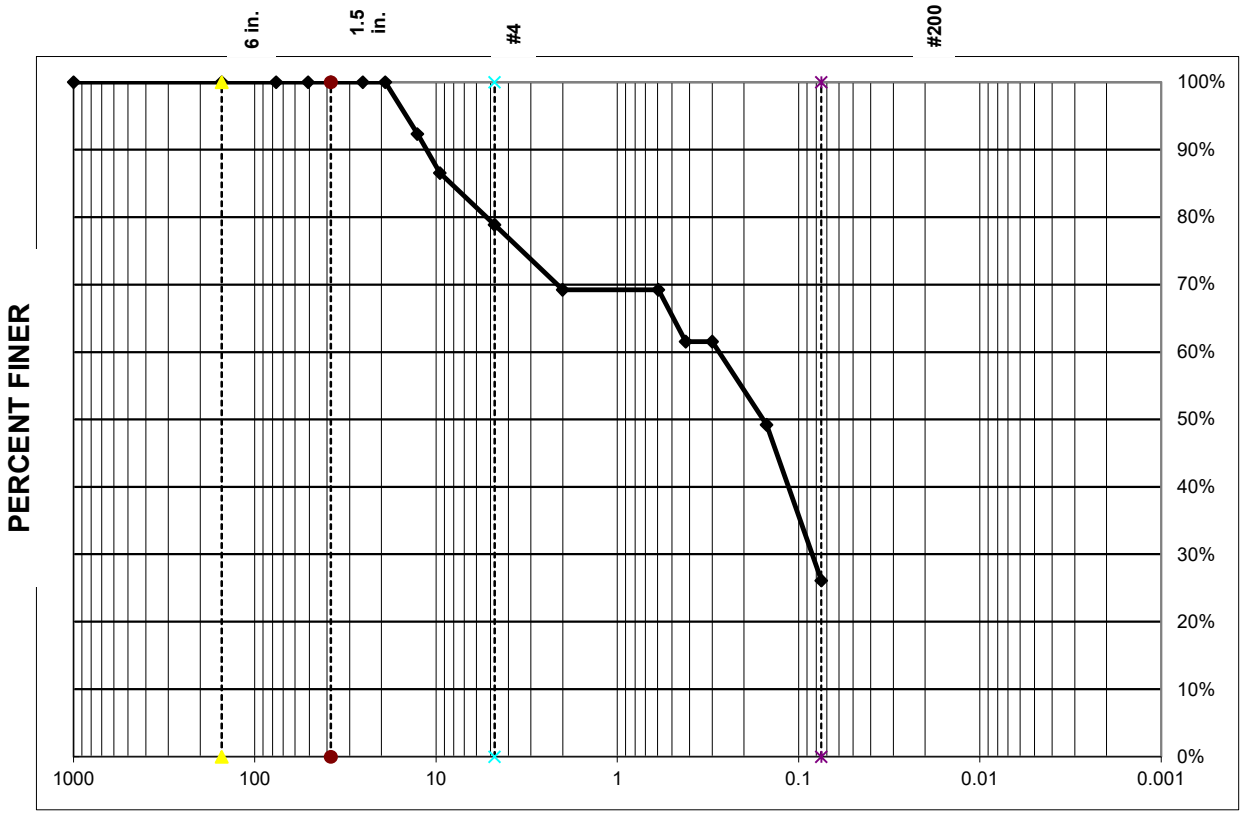
GRAIN SIZE DISTRIBUTION GRAPH



TEST SUMMARY (ASTM C136)

Sieve Size	1 1/2"	3/4"	3/8"	#4	#10	#40	#100	#200
% Passing (Cumulative)	100%	100%	87%	79%	69%	62%	49%	26.2%
Specification								

% GRAVEL =	21%	**D_{85} =** 8.3	**D_{15} =**
% SAND =	53%	**D_{60} =** 0.3	**D_{10} =**
% SILT & CLAY =	26%	**D_{50} =** 0.2	**C_U =**
		D_{30} = 0.1	**C_C =**

Sample Date: 10/22/25
Project No.: 4225137
Project Name: Twin Lakes South Recycling Facility
Report Date: 10/29/25
Sample Location: B-4 at 3'
Liquid Limit: **Plasticity Index:** NP
USCS Classification: SM
Material Description: Silty Sand with Gravel
Moisture Content: 4.6%

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Laboratory Compaction Characteristics of Soil

COZ Engineering, LLC
P. O. Box 13331
Las Cruces, NM 88013
575-642-7671

Client Name: Envirotech
Project Name: Twin Lakes South Recycling Facility
Location: 32.833478, -103.230800
Lea County, New Mexico

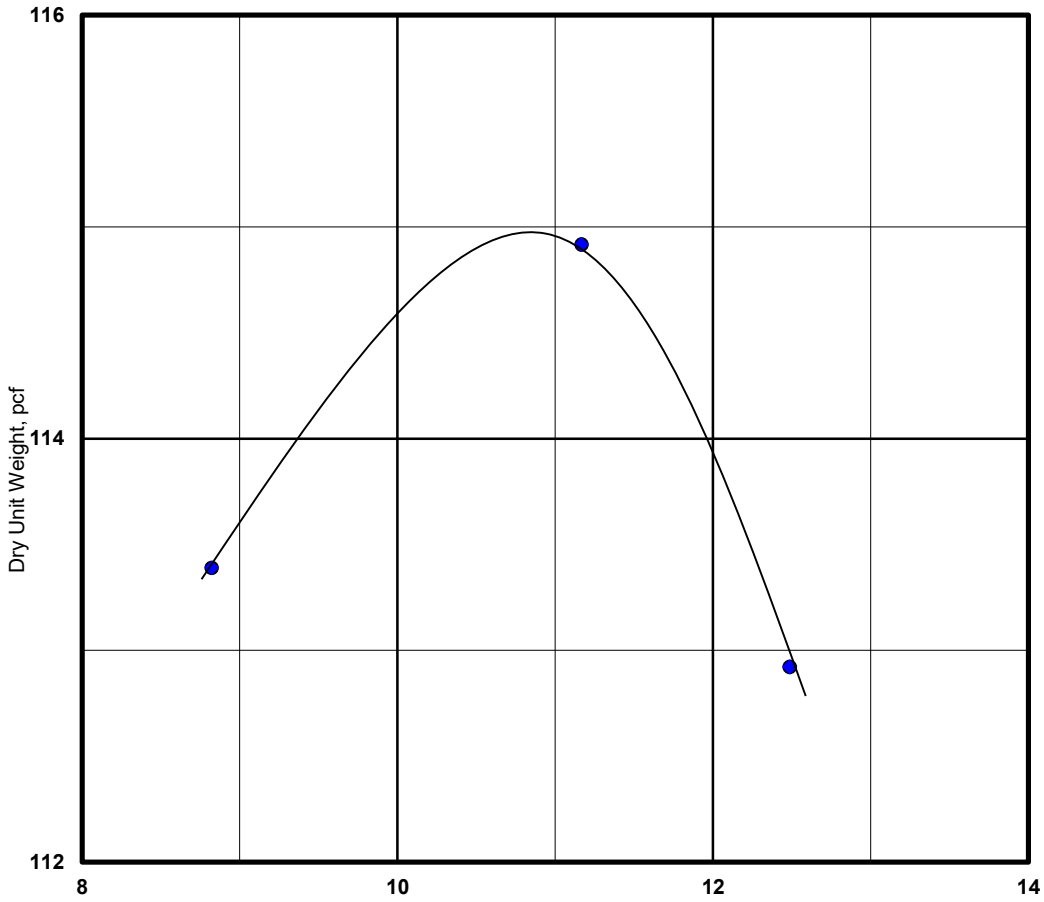
Source Material: B-1 at 0-5'
Sample Description: Silty Sand
Proctor #1
Material Designation: SM Sample date: 10/22/2025
Test Method: ASTM-698
Test Procedure: A
Sample Preparation: COZ
Rammer: ____ Mechanical X Manual

Project No.: 4225137 Date: 10/29/2025

TEST RESULTS
Maximum Dry Unit Wt.: 115.0 pcf
Optimum Water Content: 10.9 %

Liquid Limit: ____ Plastic Limit: ____
Plasticity Index: NP
% passing # 200 sieve: 21

Reviewed by: Dan Cosper, P. E.



Laboratory Compaction Characteristics of Soil

COZ Engineering, LLC
P. O. Box 13331
Las Cruces, NM 88013
575-642-7671

Client Name: Envirotech
Project Name: Twin Lakes South Recycling Facility
Location: 32.833478, -103.230800
Lea County, NM

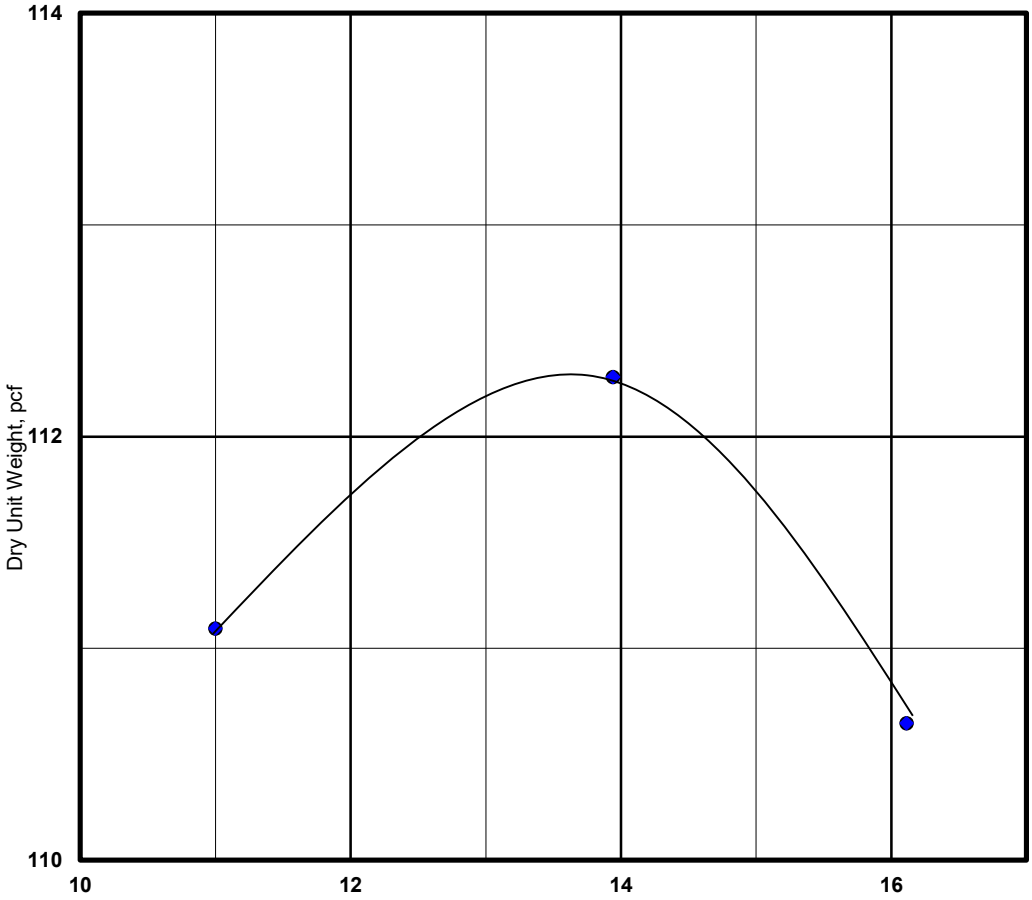
Source Material: B-2 at 5'-10'
Sample Description: Silty Sand with Gravel
Proctor #2
Material Designation: SM Sample date: 10/22/2025
Test Method: ASTM-698
Test Procedure: C
Sample Preparation: COZ
Rammer: ___ Mechanical X Manual

Project No.: 4225137 Date: 10/29/2025

TEST RESULTS
Maximum Dry Unit Wt.: 112.3 pcf
Optimum Water Content: 13.6 %

Liquid Limit: 20 Plastic Limit: 17
Plasticity Index: 3
% passing # 200 sieve: 20

Reviewed by: Dan Cosper, P. E.



Attachment C

Engineering Drawings

TWIN LAKES SOUTH RECYCLE FACILITY

SELECT WATER SOLUTIONS

SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST

LEA COUNTY, NEW MEXICO

32° 49' 50.9190" N, 103° 13' 54.9006" W

32.830811°, -103.231917°

CONTACTS

JOHN MCGILLIS - SELECT WATER SOLUTIONS - (713)-806-0488

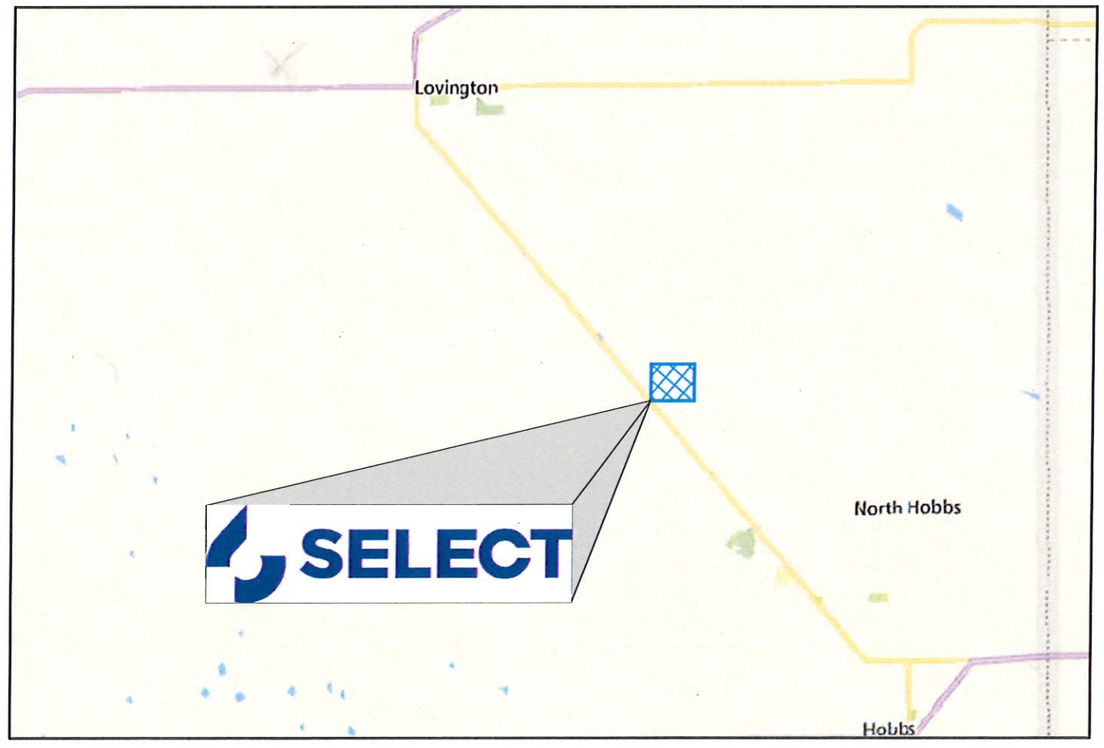
ENVIROTECH ENGINEERING & CONSULTING - ROSHAN MOHAN (580)-234-8780 (DESIGN ENGINEER)

ENVIROTECH ENGINEERING & CONSULTING - MITCHELL RATKE, PE (580)-234-8780 (SUPERVISING ENGINEER)

nm811 Professional Resources for Damage Prevention

UTILITY CAUTION

THE CONTRACTOR IS CAUTIONED THE LOCATION AND DEPTH OF EXISTING UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON PUBLICLY AVAILABLE RECORDS OF THE VARIOUS UTILITY COMPANIES AND FIELD MEASUREMENTS. THE INFORMATION PROVIDED IS NOT TO BE RELIED ON AS BEING PRECISE OR COMPLETE. THE CONTRACTOR MUST CONTACT THE LOCAL UTILITY LOCATION CENTER AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF THE UTILITIES.



INDEX TO DRAWINGS

SHEET NO.	DESCRIPTION
1	COVER
2	PROJECT LOCATION
3	EXISTING SITE FEATURES
4	SITE PLAN
5	TREATMENT CONTAINMENT SITE PLAN
6	PIT CAPACITIES
7	RUBSHEET & FENCE PLAN
8	CROSS SECTIONS A & B
9	CROSS SECTIONS C & D
10	STORAGE CONTAINMENT SUMP DETAILS
11	TREATMENT CONTAINMENT SUMP DETAILS
12	LINER DETAILS
13	FENCE DETAILS
14	SWPPP
15	SWPPP DETAILS

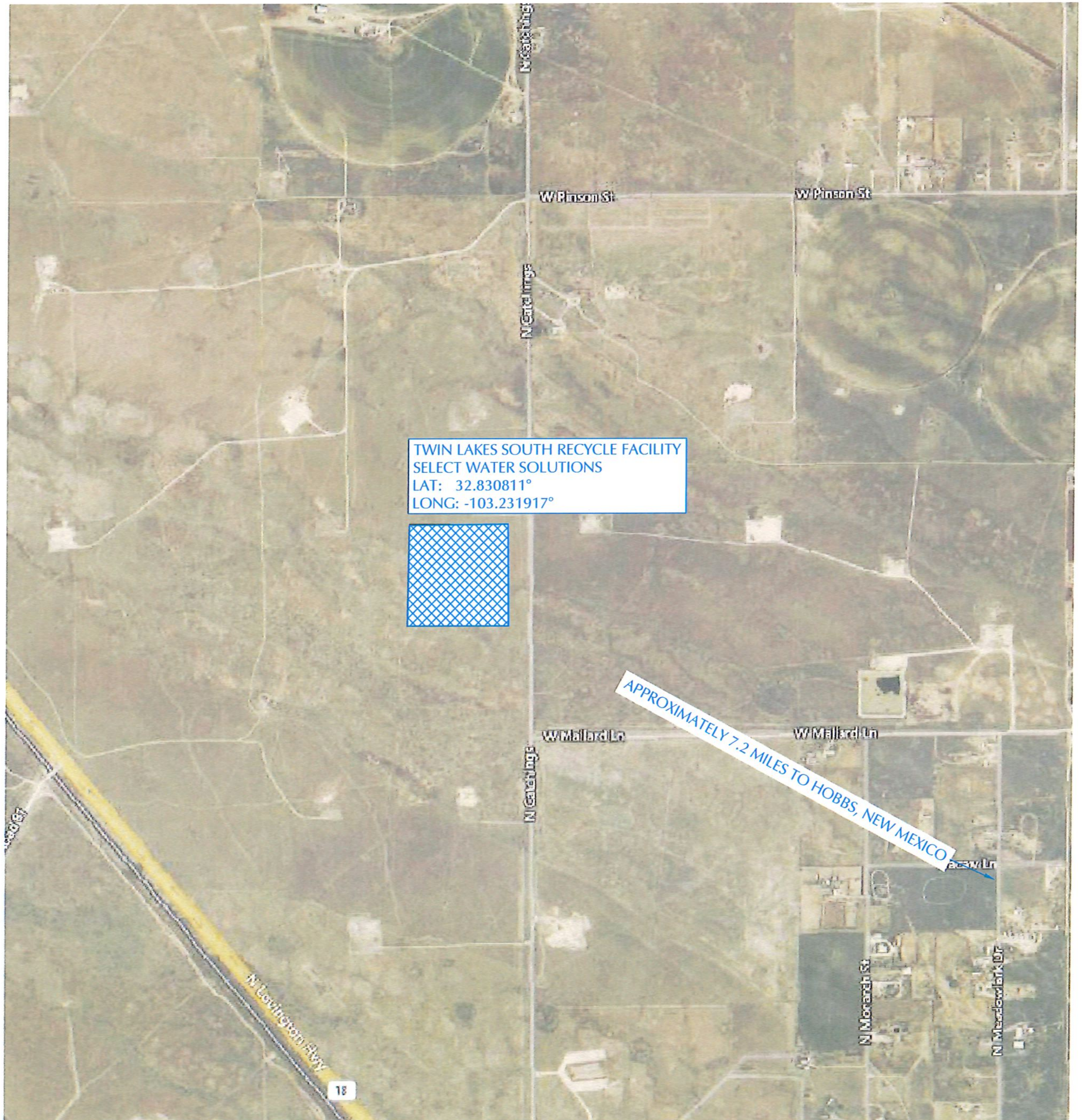
MITCHELL JOSEPH RATKE NEW MEXICO 29736 PROFESSIONAL ENGINEER

10-29-2025

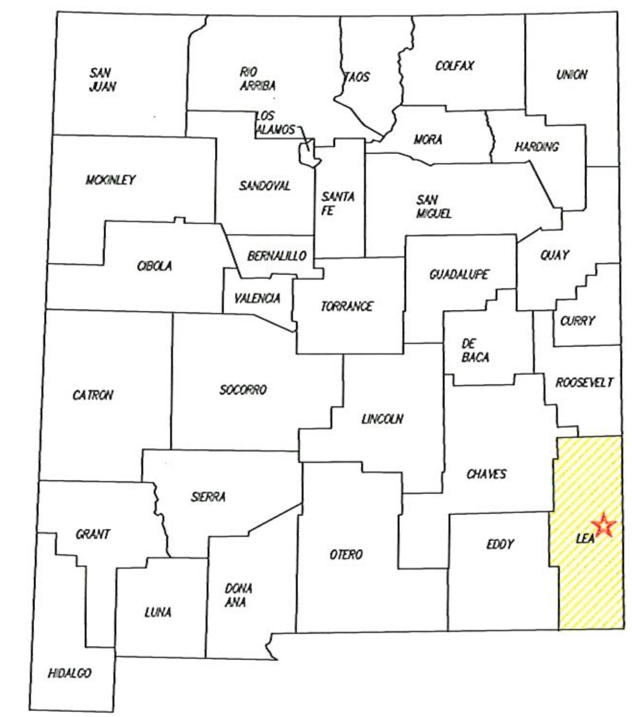
ENVIROTECH ENGINEERING

2500 N. Eleventh Street Enid, OK 73701 • 580.234.8780 • envirotechconsulting.com

PE #29736 - Expiration Date: 12-31-2026



N
NORTH



MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER
10-29-2025

ENVIROTECH ENGINEERING
2500 North Eleventh Street
Enid, Oklahoma
580.234.8780
envirotechconsulting.com
P.E. #29736 - Expiration Date: 12-31-2026

NO.	DATE	DESCRIPTION

SELECT

PROJECT LOCATION
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	NOT TO SCALE
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	2 OF 15

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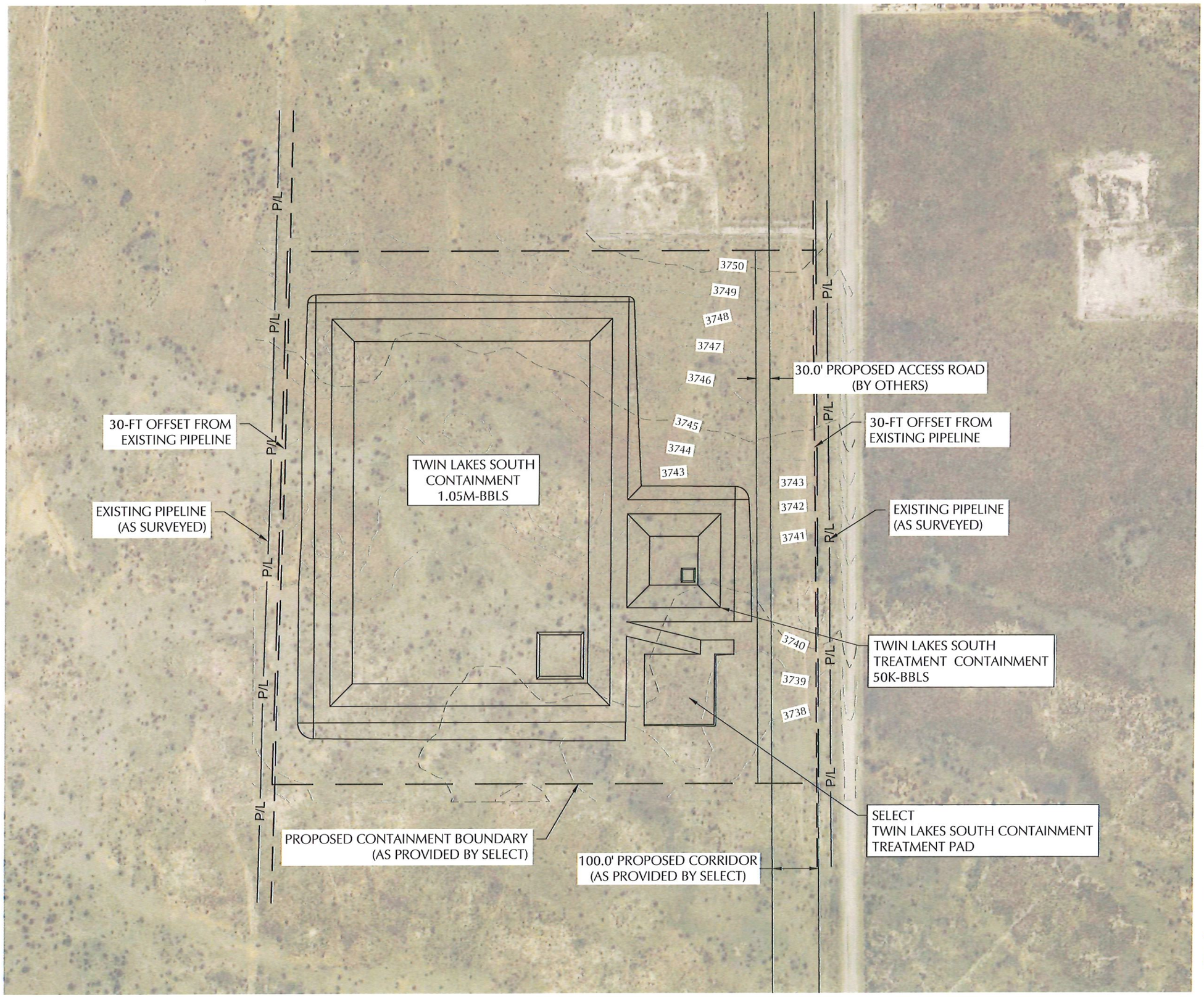

N
NORTH
0 100 200
Scale: 1"=200'
Bar Scale is intended for 11" x 17" (Full Size)

ENVIROTECH ENGINEERING
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Enid, Oklahoma
580.234.8780
envirotechconsulting.com
P.E. #29736 - Expiration Date: 12-31-2026

NO.	DATE	DESCRIPTION

SELECT

EXISTING SITE FEATURES
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	1" = 200'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	3 OF 15

10/29/2025 11:46:34 AM
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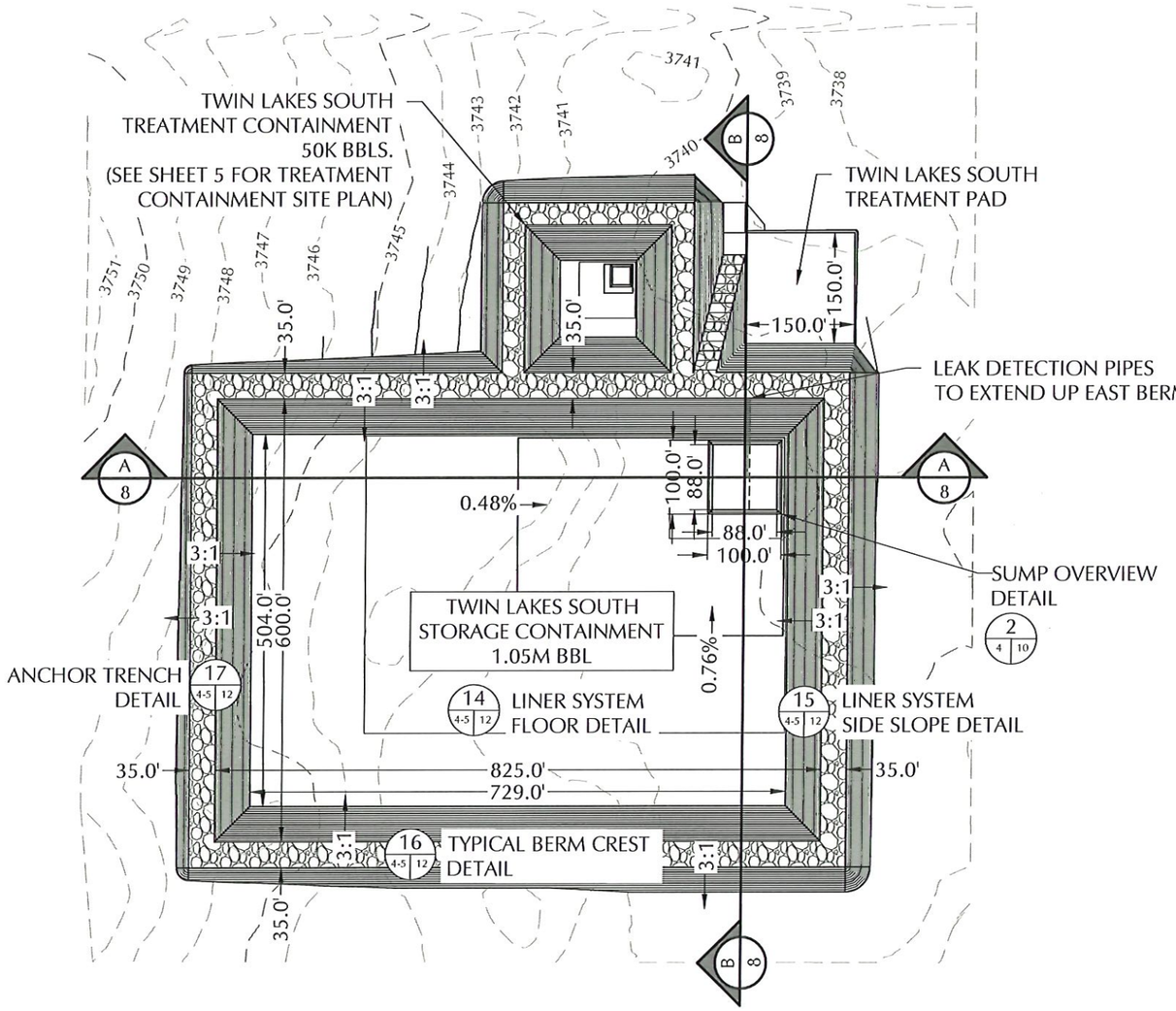
MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER
10-29-2025

DETAIL NUMBER

SHEET NUMBER WHERE DETAIL IS LOCATED ON PLAN SHEET

SHEET NUMBER WHERE DETAIL IS LOCATED WITHIN SET



NORTH

0 100 200

Scale: 1"=200'
Bar Scale is intended for 11 x 17 (Full Size)

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Enid, Oklahoma
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P.E. #29736 - Expiration Date: 12-31-2026

NO.	DATE	DESCRIPTION

SELECT

SITE PLAN
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER
10-29-2025

DATE:	OCTOBER 2025
SCALE:	1" = 200'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	4 OF 15

10/29/2025 11:46:43 AM
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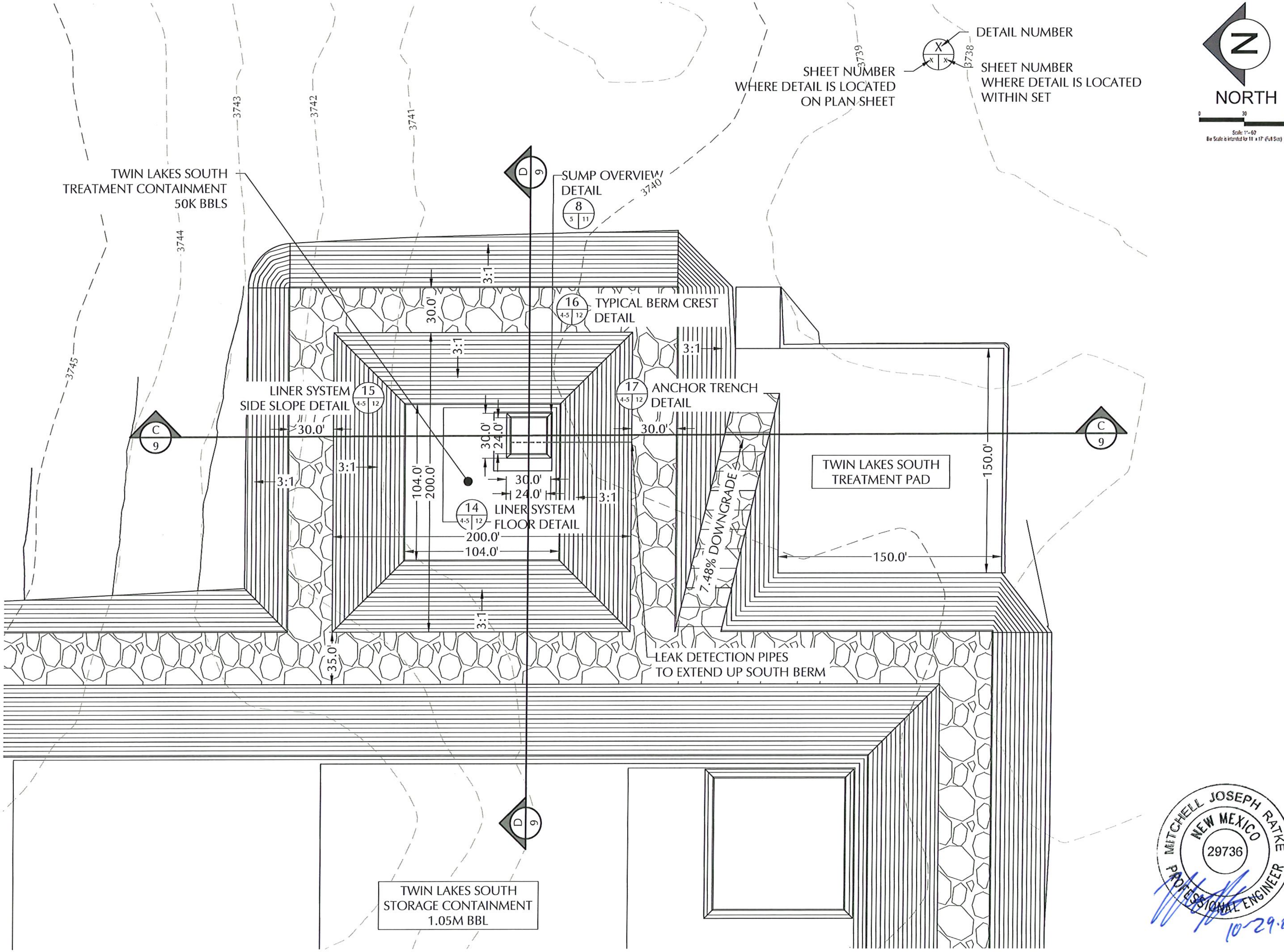
DETAIL NUMBER
SHEET NUMBER WHERE DETAIL IS LOCATED ON PLAN SHEET
SHEET NUMBER WHERE DETAIL IS LOCATED WITHIN SET
NORTH
TWIN LAKES SOUTH TREATMENT CONTAINMENT 50K BBLS
SUMP OVERVIEW DETAIL
TYPICAL BERM CREST DETAIL
LINER SYSTEM SIDE SLOPE DETAIL
ANCHOR TRENCH DETAIL
LINER SYSTEM FLOOR DETAIL
7.48% DOWNGRADE
TWIN LAKES SOUTH TREATMENT PAD
LEAK DETECTION PIPES TO EXTEND UP SOUTH BERM
TWIN LAKES SOUTH STORAGE CONTAINMENT 1.05M BBL
30.0'
24.0'
104.0'
200.0'
150.0'
35.0'
3:1
3745
3744
3743
3742
3741
3740
3739
3738
MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER
10-29-2025

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2500 North Eleventh Street
Enid, Oklahoma
580.234.8780
envirotechconsulting.com
P.E. #29736 - Expiration Date: 12-31-2026

NO.	DATE	DESCRIPTION

SELECT

TREATMENT CONTAINMENT SITE PLAN

TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	1" = 60'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	5 OF 15

Owner: SELECT WATER SOLUTIONS
Site Name: TWIN LAKES SOUTH STORAGE CONTAINMENT

Lagoon Features	Top	Bottom	Max Liq. Level
Side slope Ratio	3		3
Maximum Depth (ft)	21.0		18.0
Lagoon Top Width (ft)	825	729	807
Lagoon Top Length (ft)	600	504	582
Maximum Total Vol (ft^3)	7,330,534		5,883,879
Maximum Total Vol (bbls)	1,305,708		1,048,031

Freeboard
Maximum Capacity
Storage Volume
Floor
Sump

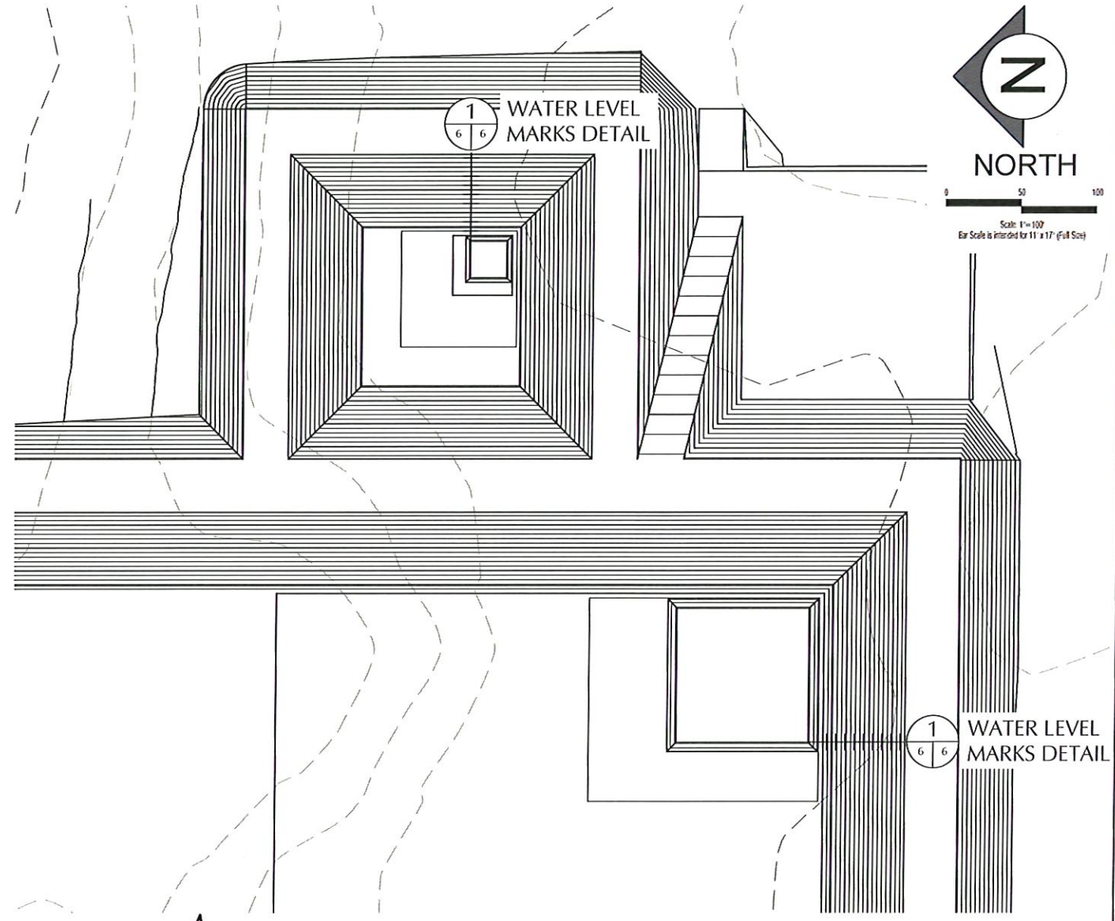
Elevation ft	Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft3	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol in lagoon ft^3	Gallons Storage gal	Vol in Lagoon bbls	Vol in Lagoon ac-ft	Percent Total Vol %
3752.75	21.0	0.0	-	-	-	0.0%	7,330,534	54,839,726	1,305,708	168.29	100%
3751.75	20.0	1.0	490,672	3,670,714	87,398	6.7%	6,839,863	51,169,012	1,218,310	157.02	93%
3750.75	19.0	2.0	972,868	7,278,010	173,286	13.3%	6,357,668	47,561,715	1,132,422	145.95	87%
3749.75	**18.0**	**3.0**	**1,446,656**	**10,822,431**	**257,677**	**19.7%**	**5,883,879**	**44,017,295**	**1,048,031**	**135.08**	**80%**
3748.75	17.0	4.0	1,912,113	14,304,514	340,584	26.1%	5,418,422	40,535,212	965,124	124.39	74%
3747.75	16.0	5.0	2,369,308	17,724,795	422,019	32.3%	4,961,226	37,114,930	883,689	113.89	68%
3746.75	15.0	6.0	2,818,315	21,083,816	501,996	38.4%	4,512,219	33,755,909	803,712	103.59	62%
3745.75	14.0	7.0	3,259,205	24,382,116	580,527	44.5%	4,071,329	30,457,610	725,181	93.46	56%
3744.75	13.0	8.0	3,692,050	27,620,229	657,625	50.4%	3,638,484	27,219,496	648,083	83.53	50%
3743.75	12.0	9.0	4,116,923	30,798,698	733,302	56.2%	3,213,611	24,041,028	572,405	73.77	44%
3742.75	11.0	10.0	4,533,894	33,918,061	807,573	61.8%	2,796,640	20,921,664	498,135	64.20	38%
3741.75	10.0	11.0	4,943,036	36,978,854	880,449	67.4%	2,387,498	17,860,872	425,259	54.81	33%
3740.75	9.0	12.0	5,344,422	39,981,617	951,943	72.9%	1,986,113	14,858,108	353,764	45.59	27%
3739.75	8.0	13.0	5,738,122	42,926,891	1,022,069	78.3%	1,592,412	11,912,835	283,639	36.56	22%
3738.75	7.0	14.0	6,124,209	45,815,210	1,090,838	83.5%	1,206,325	9,024,516	214,869	27.69	16%
3737.75	6.0	15.0	6,502,756	48,647,115	1,158,265	88.7%	827,778	6,192,611	147,443	19.00	11%
3736.75	5.0	16.0	6,873,833	51,423,146	1,224,361	93.8%	456,701	3,416,580	81,347	10.48	6%
3735.75	4.0	17.0	7,148,702	53,479,440	1,273,320	97.5%	181,832	1,360,285	32,388	4.17	2%
3734.75	3.0	18.0	7,276,217	54,433,380	1,296,033	99.3%	54,317	406,346	9,675	1.25	1%
3733.75	2.0	19.0	7,312,840	54,707,359	1,302,556	99.8%	17,694	132,367	3,152	0.41	0%
3732.75	1.0	20.0	7,322,251	54,777,762	1,304,232	99.9%	8,283	61,963	1,475	0.19	0%
3731.75	0.0	21.0	7,330,534	54,839,726	1,305,708	100.0%	-	-	-	-	0%

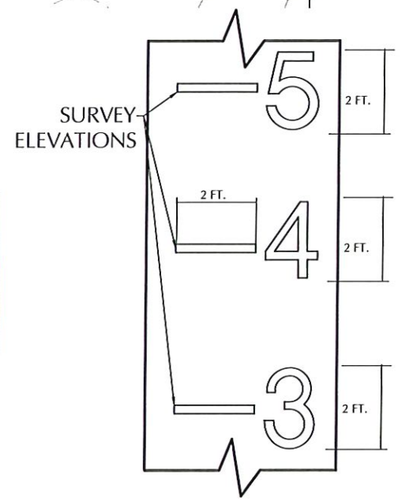
Owner: SELECT WATER SOLUTIONS
Site Name: TWIN LAKES SOUTH TREATMENT CONTAINMENT

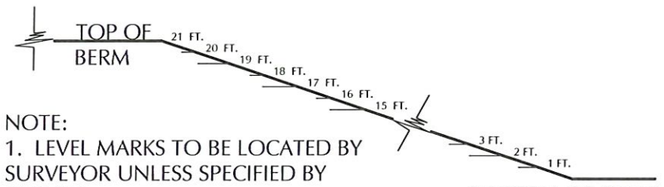
Lagoon Features	Top	Bottom	Max Liq. Level
Side slope Ratio	3		3
Maximum Depth (ft)	19.0		16.0
Lagoon Top Width (ft)	200	104	182
Lagoon Top Length (ft)	200	104	182
Maximum Total Vol (ft^3)	392,522		283,013
Maximum Total Vol (bbls)	69,916		50,410

Freeboard
Maximum Capacity
Storage Volume
Floor
Sump

Elevation ft	Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft3	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol in lagoon ft^3	Gallons Storage gal	Vol in Lagoon bbls	Vol in Lagoon ac-ft	Percent Total Vol %
3752.75	19.0	0.0	-	-	-	0.0%	392,522	2,936,458	69,916	9.01	100%
3751.75	18.0	1.0	38,807	290,313	6,912	9.9%	353,715	2,646,145	63,003	8.12	90%
3750.75	17.0	2.0	75,286	563,214	13,410	19.2%	317,230	2,373,244	56,506	7.28	81%
3749.75	**16.0**	**3.0**	**109,509**	**819,239**	**19,506**	**27.9%**	**283,013**	**2,117,219**	**50,410**	**6.50**	**72%**
3748.75	15.0	4.0	141,549	1,058,929	25,213	36.1%	250,973	1,877,529	44,703	5.76	64%
3747.75	14.0	5.0	171,477	1,282,820	30,543	43.7%	221,045	1,653,638	39,372	5.07	56%
3746.75	13.0	6.0	199,365	1,491,452	35,511	50.8%	193,157	1,445,006	34,405	4.43	49%
3745.75	12.0	7.0	225,286	1,685,362	40,128	57.4%	167,236	1,251,096	29,788	3.84	43%
3744.75	11.0	8.0	249,311	1,865,093	44,407	63.5%	143,212	1,071,365	25,509	3.29	36%
3743.75	10.0	9.0	271,512	2,031,178	48,361	69.2%	121,011	905,280	21,554	2.78	31%
3742.75	9.0	10.0	291,961	2,184,159	52,004	74.4%	100,561	752,299	17,912	2.31	26%
3741.75	8.0	11.0	310,730	2,324,574	55,347	79.2%	81,792	611,884	14,569	1.88	21%
3740.75	7.0	12.0	327,892	2,452,962	58,404	83.5%	64,630	483,496	11,512	1.48	16%
3739.75	6.0	13.0	343,518	2,569,858	61,187	87.5%	49,004	366,600	8,729	1.12	12%
3738.75	5.0	14.0	357,680	2,675,804	63,710	91.1%	34,842	260,654	6,206	0.80	9%
3737.75	4.0	15.0	370,450	2,771,340	65,984	94.4%	22,072	165,118	3,931	0.51	6%
3736.75	3.0	16.0	381,901	2,857,001	68,024	97.3%	10,621	79,457	1,892	0.24	3%
3735.75	2.0	17.0	389,324	2,912,534	69,346	99.2%	3,198	23,924	570	0.07	1%
3734.75	1.0	18.0	391,790	2,930,983	69,785	99.8%	732	5,475	130	0.02	0%
3733.75	0.0	19.0	392,522	2,936,458	69,916	100.0%	-	-	-	-	0%







NOTE:
1. LEVEL MARKS TO BE LOCATED BY SURVEYOR UNLESS SPECIFIED BY OWNER

2. MARKS TO BE MADE BY AN EXTRUSION WELDER USING BLACK FILAMENT (OR WHITE FILAMENT ON BLACK LINER).

3. MARKS SHOULD BEGIN AT THE TOP OF BERM AND CONTINUE TO THE BOTTOM OF THE SUMP. (TOP OF BERM SHOULD READ 21-FT ON THE STORAGE CONTAINMENT AND 19-FT ON THE TREATMENT CONTAINMENT, BOTTOM OF SUMP +1-FT SHOULD READ 1-FT)

4. REFERENCE PIT CAPACITY TABLES FOR ACCURATE ELEVATIONS

WATER LEVEL MARKS DETAIL (1 / 6 6)
NOT TO SCALE

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SELECT

PIT CAPACITIES
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	1" = 100'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	6 OF 15

10/29/2025 11:46:51 AM
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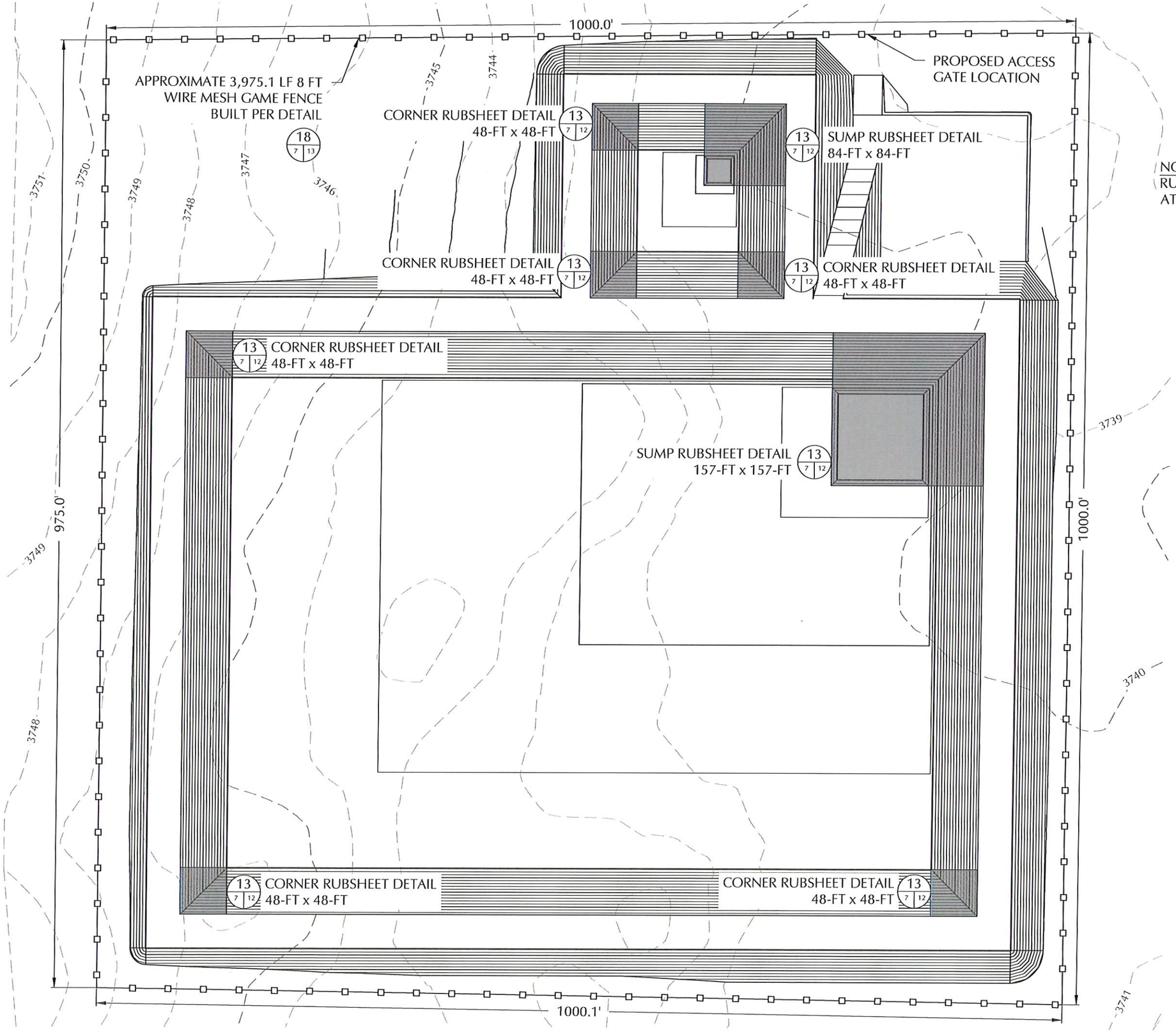

NOTE
RUBSHEET DIMENSIONS TAKEN AT ANCHOR TRENCH

NORTH
0 50 100
Scale 1"=100
Bar Scale is intended for 11" x 17" (Full Size)

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envitechconsulting@cox.com
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RUBSHEET & FENCE PLAN
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER
10-20-2025

DATE:	OCTOBER 2025
SCALE:	1" = 100'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	7 OF 15

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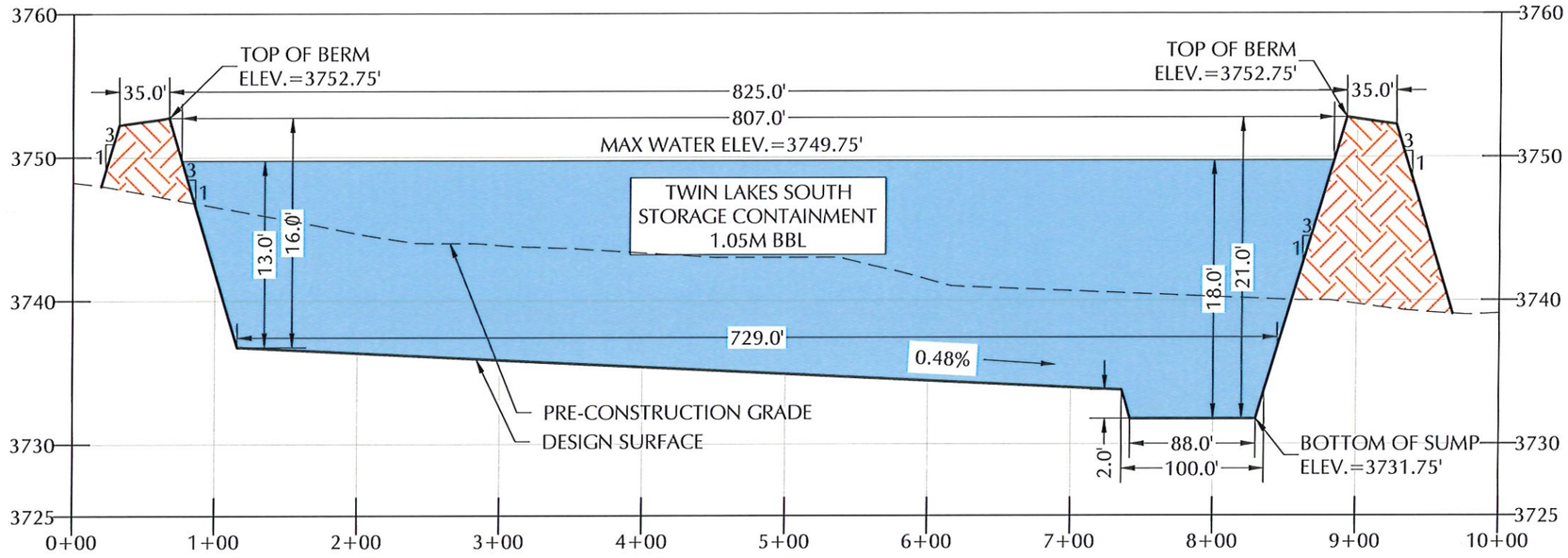
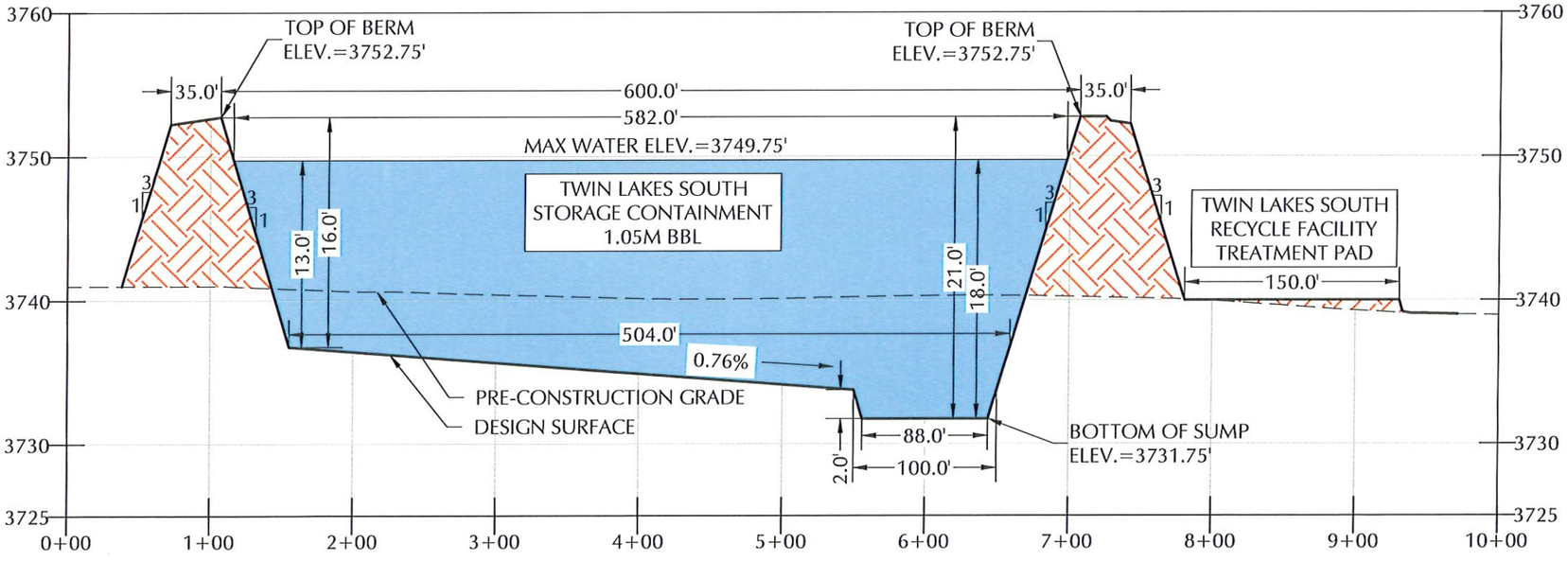
CROSS SECTION A-A



CROSS SECTION B-B



0 50 100
Horizontal Scale: 1"=100'
0 5 10
Vertical Scale: 1"=10'
Bar Scale is intended for 11"x 17" (Full Size)

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CROSS SECTIONS A & B
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	HORIZONTAL 1"=100' VERTICAL 1"=10'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	8 OF 15

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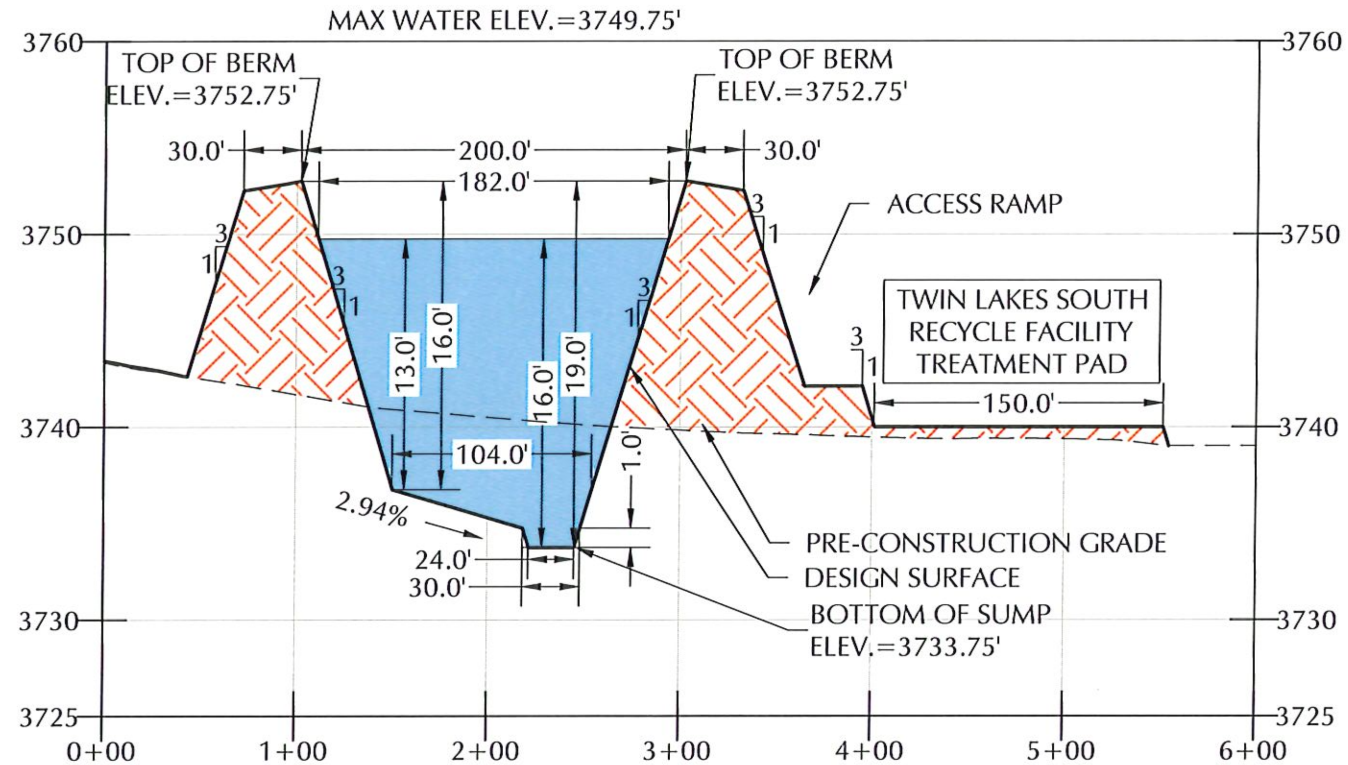
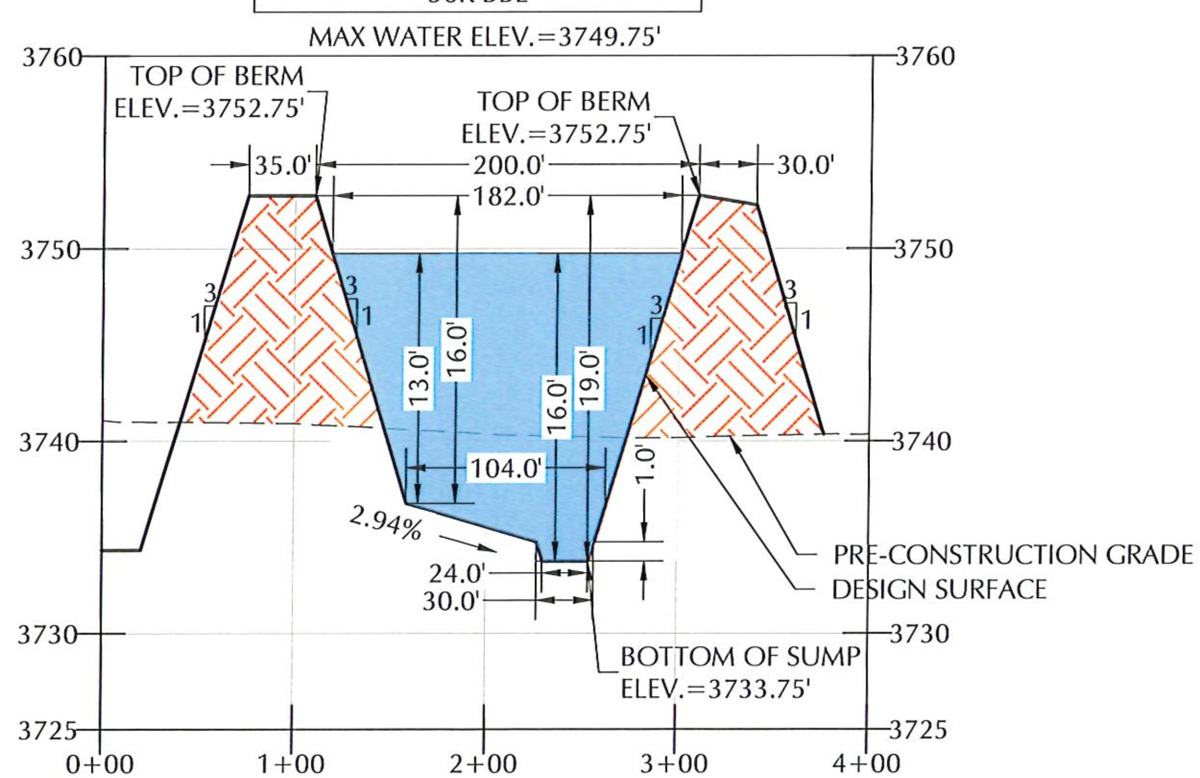
CROSS SECTION C-C

TWIN LAKES SOUTH
TREATMENT CONTAINMENT
50K BBL



CROSS SECTION D-D

TWIN LAKES SOUTH
TREATMENT CONTAINMENT
50K BBL



Horizontal Scale 1"=100'
Vertical Scale 1"=10'
Bar Scale is intended for 11" x 17" (Full Size)

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CROSS SECTIONS C & D
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	HORTIZONTAL 1'=100' VERTICAL 1'=10'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	9 OF 15

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10-29-2025

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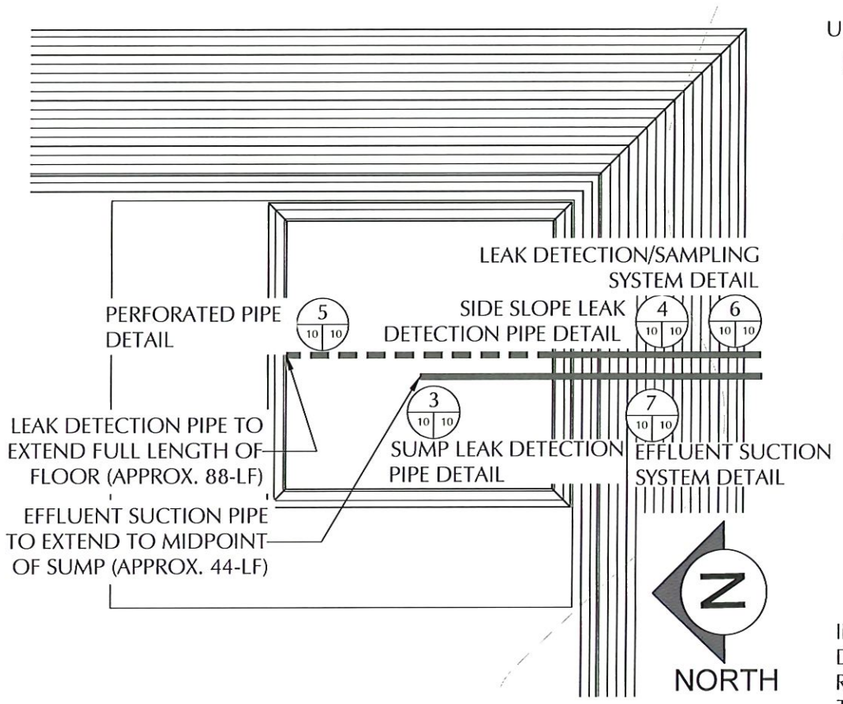

STORAGE PIT SUMP OVERVIEW DETAIL 2 (4 10)
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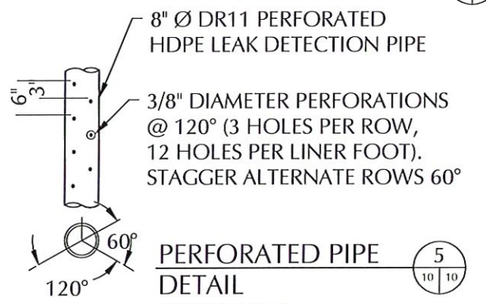

PERFORATED PIPE DETAIL 5 (10 10)
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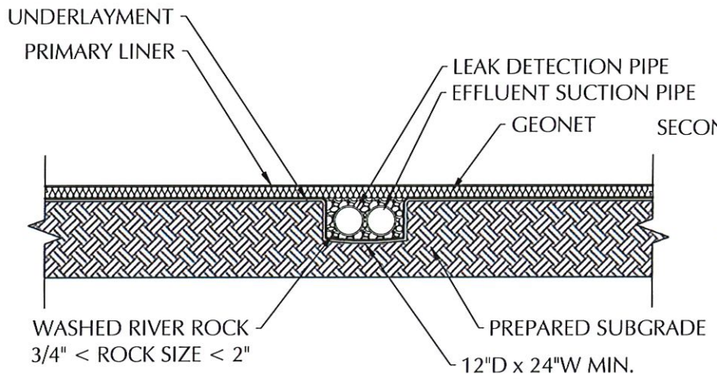

SUMP LEAK DETECTION PIPE DETAIL 3 (10 10)
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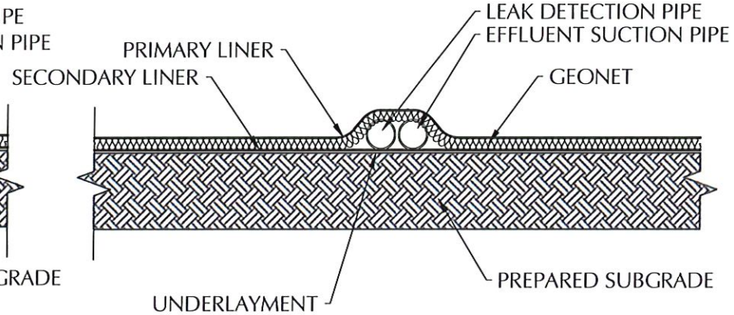
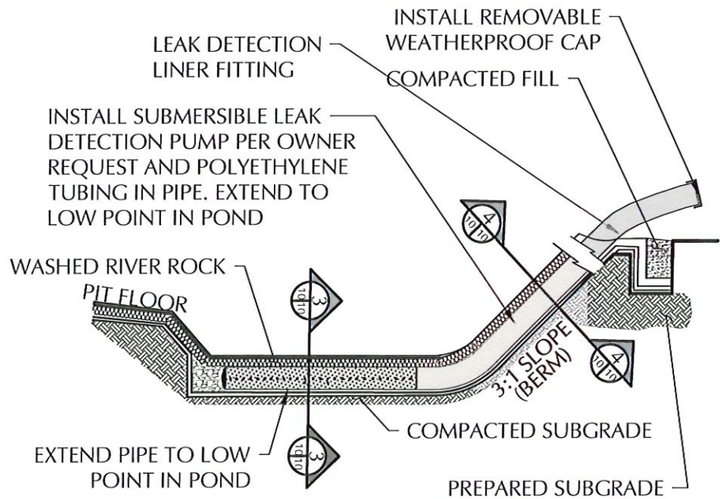
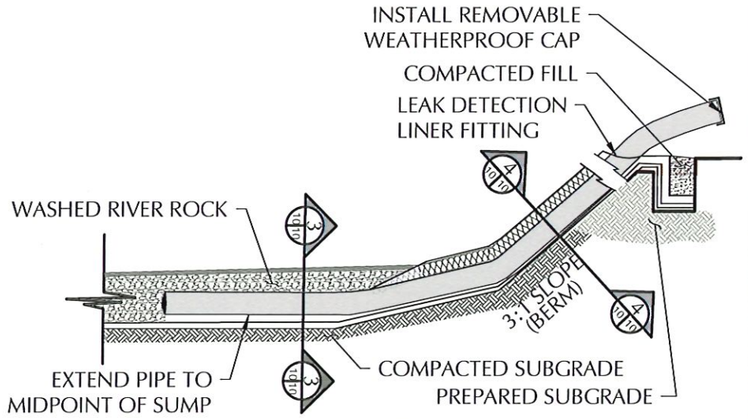


SIDE SLOPE LEAK DETECTION PIPE DETAIL 4 (10 10)
NOT TO SCALE



LEAK DETECTION/SAMPLING SYSTEM DETAIL 6 (10 10)
NOT TO SCALE



EFFLUENT SUCTION PIPE SAMPLING SYSTEM DETAIL 7 (10 10)
NOT TO SCALE

PROPOSED PIT REFERENCE TABLE

DETAIL	DESCRIPTION
PRIMARY LINER	60- MIL HDPE SMOOTH LINER
LEAK DETECTION	200-MIL GEONET
SECONDARY LINER	40-MIL HDPE SMOOTH LINER
UNDERLAYMENT	10 OZ GEOTEXTILE
STORAGE SUMP	3,731.75-FT ELEVATION
TREATMENT SUMP	3,733.75-FT ELEVATION
BERM (ROAD CREST)	DESIGN ELEV.3,752.75 FT- RD CREST (VARIES)
LEAK DETECTION PIPING	8-IN DR11.X PERFORATED HDPE LEAK DETECTION PIPE

NOTES:
1. LEAK DETECTION SYSTEM TO BE INSTALLED BY OWNER.
2. PERFORATED PIPE TO BE ALONG THE BOTTOM OF THE POND. SOLID PIPE ON THE SIDE SLOPE.
3. CONSTRUCT COMPACTED SUBGRADE TO 95% STANDARD PROCTOR AS PER ASTM D-698.
4. EXTEND 60 MIL. RUB SHEET 1.0-FT PAST TOP OF SHOULDER OF SUMP.
5. WASH RIVER ROCK SHALL BE 3/4" MIN. & 2" MAX.

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STORAGE CONTAINMENT SUMP DETAILS
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	NOT TO SCALE
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	10 OF 15

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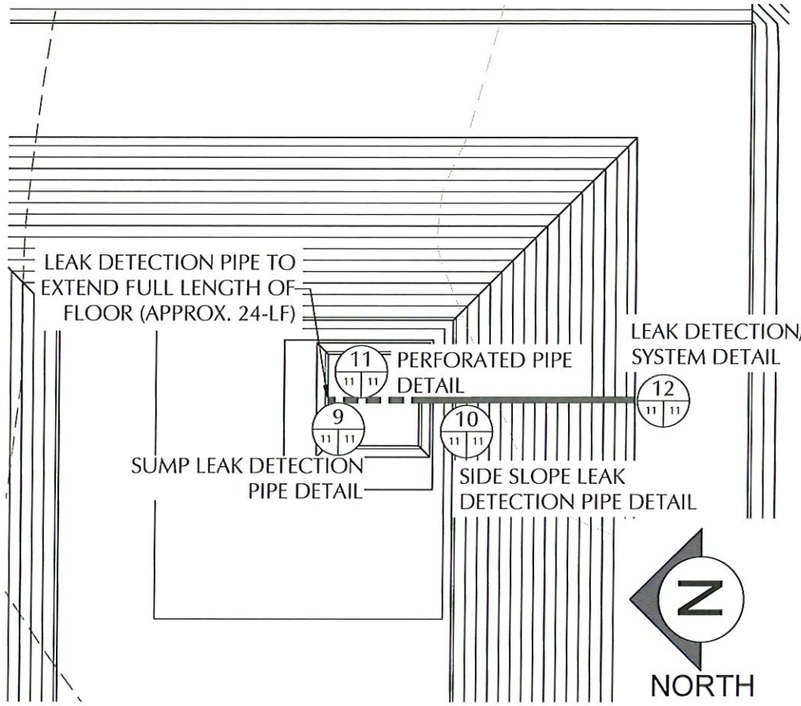
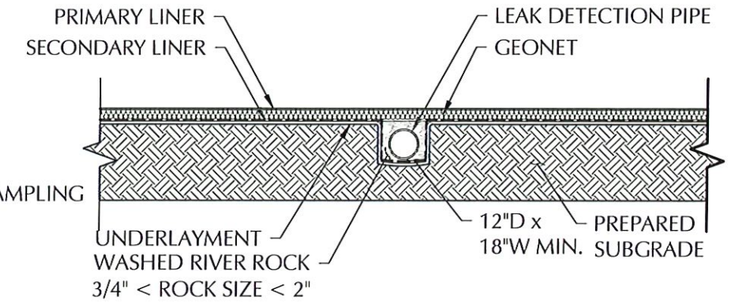
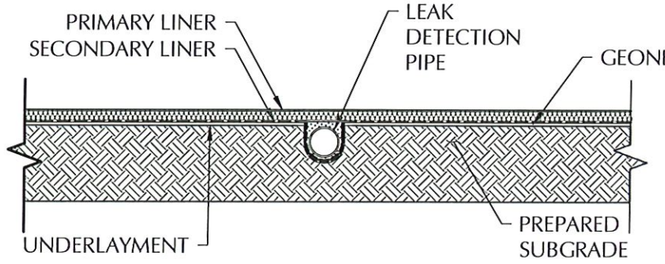
10-29-2025



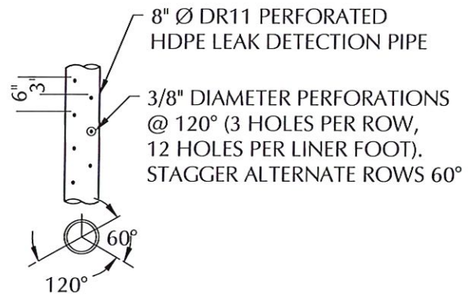
TREATMENT SUMP OVERVIEW DETAIL 8
NOT TO SCALE



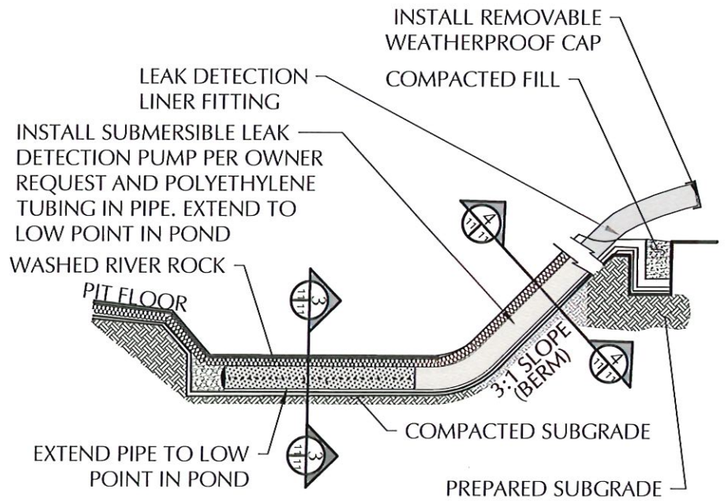
SUMP LEAK DETECTION PIPE DETAIL 9
NOT TO SCALE



SIDE SLOPE LEAK DETECTION PIPE DETAIL 10
NOT TO SCALE



PERFORATED PIPE DETAIL 11
NOT TO SCALE



LEAK DETECTION/SAMPLING SYSTEM DETAIL 12
NOT TO SCALE

PROPOSED PIT REFERENCE TABLE

DETAIL	DESCRIPTION
PRIMARY LINER	60- MIL HDPE SMOOTH LINER
LEAK DETECTION	200-MIL GEONET
SECONDARY LINER	40-MIL HDPE SMOOTH LINER
UNDERLAYMENT	10 OZ GEOTEXTILE
STORAGE SUMP	3,731.75-FT ELEVATION
TREATMENT SUMP	3,733.75-FT ELEVATION
BERM (ROAD CREST)	DESIGN ELEV.3,752.75 FT- RD CREST (VARIES)
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NOTES:
1. LEAK DETECTION SYSTEM TO BE INSTALLED BY OWNER.
2. PERFORATED PIPE TO BE ALONG THE BOTTOM OF THE POND. SOLID PIPE ON THE SIDE SLOPE.
3. CONSTRUCT COMPACTED SUBGRADE TO 95% STANDARD PROCTOR AS PER ASTM D-698.
4. EXTEND 60 MIL. RUB SHEET 1.0-FT PAST TOP OF SHOULDER OF SUMP.
5. WASH RIVER ROCK SHALL BE 3/4" MIN. & 2" MAX.

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TREATMENT CONTAINMENT SUMP DETAILS
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	NOT TO SCALE
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	11 OF 15

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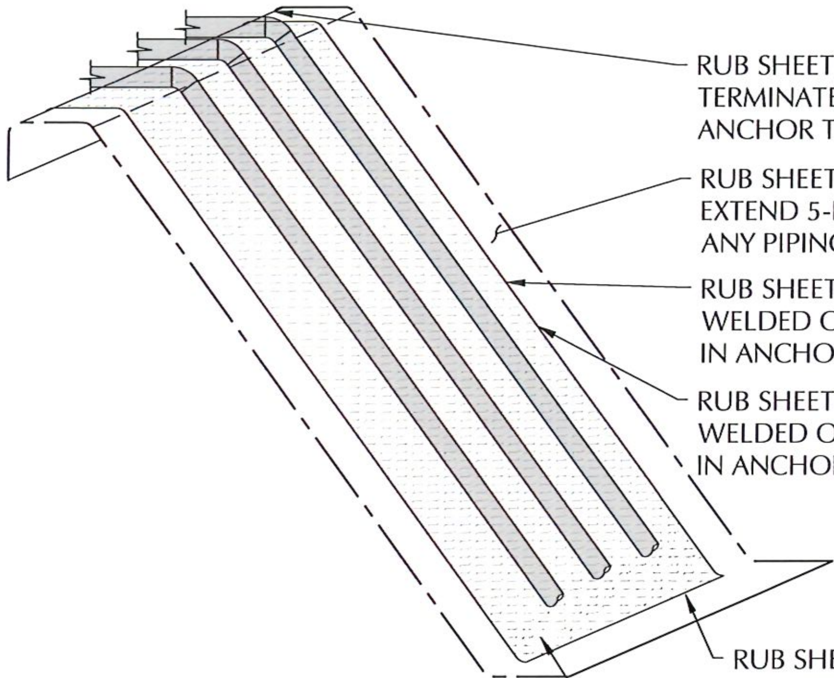
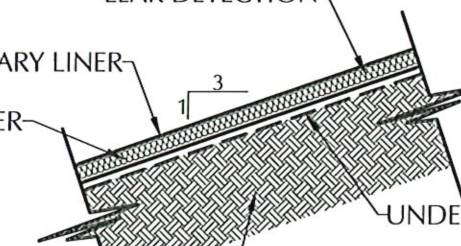


SUMP/CORNER RUB SHEET DETAIL (13, 7 | 12)
NOT TO SCALE

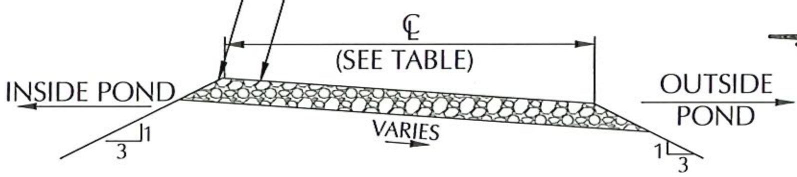
LINER SYSTEM FLOOR DETAIL (14, 4-5 | 12)
NOT TO SCALE



LINER SYSTEM SIDE SLOPE DETAIL (15, 4-5 | 12)
NOT TO SCALE

GENERAL NOTES:

1. SEE REFERENCE TABLES SHEET 10 & 11 FOR LINER SPECIFICATIONS
2. PREPARED SUBGRADE MEANS COMPACTED SMOOTH SUBGRADE FREE OF ROCK, ROOTS, WOOD DEBRIS, CONCRETE RUBBLE AND ANY SHARP OBJECTS THAT MIGHT PUNCTURE THE HDPE LINER.
3. ALL INTERIOR SLOPES AND TOP OF BERMS TO BE SMOOTH DRUM ROLLED.
4. ALL EMBANKMENT SLOPES SHALL HAVE A RATIO OF 3:1, COMPACTED EARTH EMBANKMENTS TO BE CONSTRUCTED WITH 8 INCH (MAXIMUM LOOSE LIFTS), COMPACTED TO 95% STANDARD PROCTOR DENSITY (ASTM D698), AND MOISTURE CONDITIONS TO +/- 2% OPTIMUM MOISTURE (ASTM D698)
5. PERFORM GEOTECHNICAL ANALYSIS ON EXISTING SOIL TO CONFIRM SOIL IS SUITABLE FOR USE IN THE LEVEE.
6. ALL BOTTOM OF PITS SHALL SLOPE TO THE SUMP.



TYPICAL BERM CREST DETAIL (16, 4-5 | 12)
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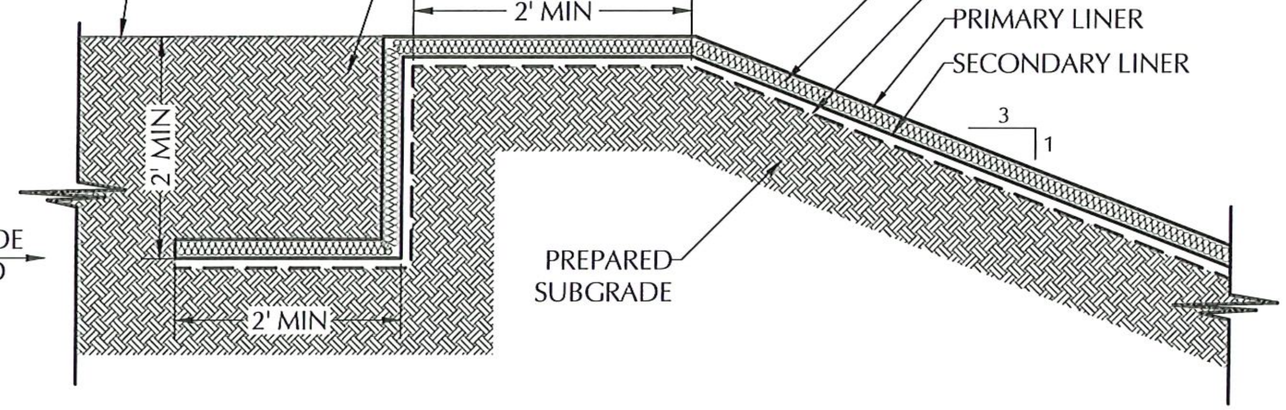

ANCHOR TRENCH DETAIL (17, 4-5 | 12)
NOT TO SCALE

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29736
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10-29-2025

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NO.	DATE	DESCRIPTION

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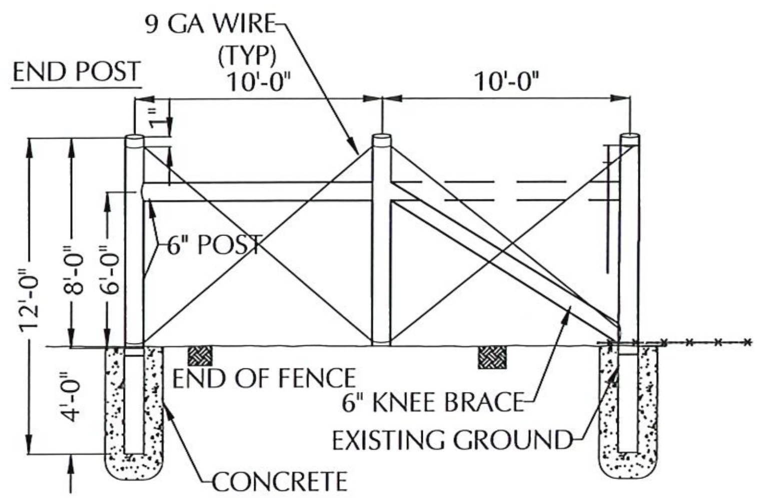
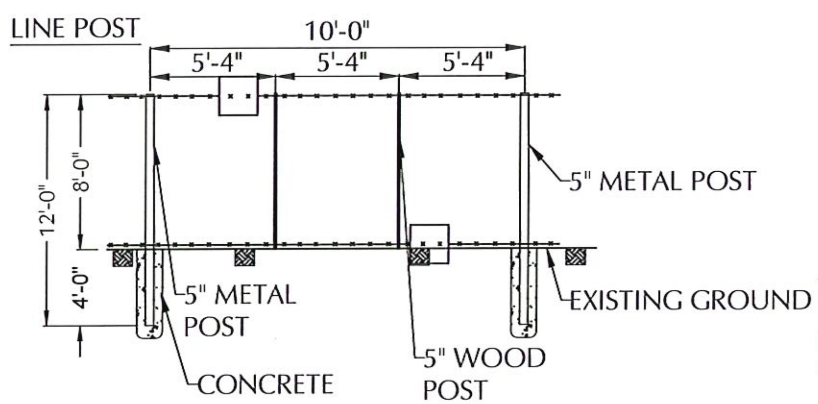
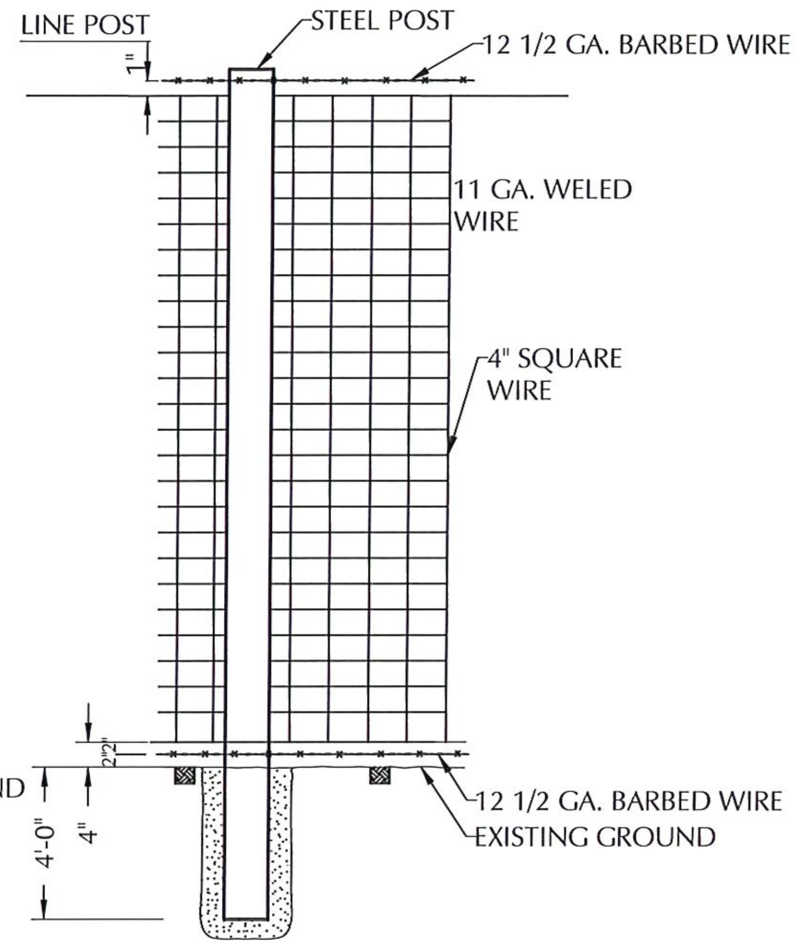
LINER DETAILS
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	NOT TO SCALE
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	12 OF 15

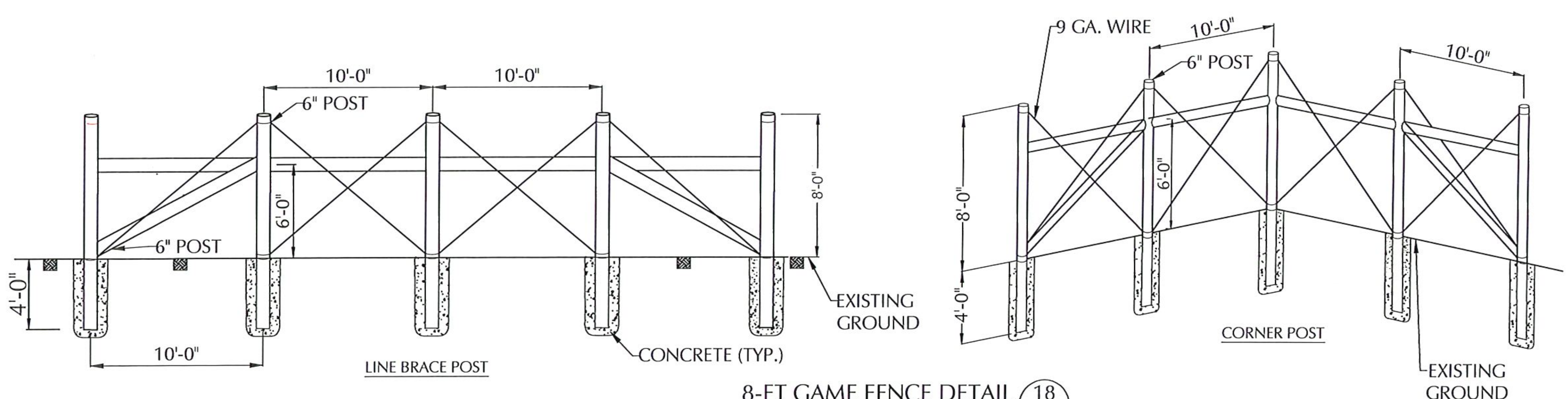






GENERAL NOTES:

1. AT EACH LOCATION WHERE AN ELECTRIC TRANSMISSION, DISTRIBUTION OR SECONDARY LINE CROSSES A BARRIER FENCE, THE CONTRACTOR SHALL FURNISH AND INSTALL A GROUND CONFORMING TO ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE- THE GROUND ROD SHALL 0E A MINIMUM DIAMETER OF 1\2-IN. AND 8-FT. IN LENGTH, AND DRIVEN AT LEAST 7 1/2 FT. INTO THE GROUND. THE ROD SHALL BE CONNECTED TO EACH WIRE WITH A MINIMUM AWG NO. 8 STRANDED COPPER WIRE. GROUNDING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
2. LINE BRACE POSTS SHALL BE SPACED AT 400 FT. INTERVALS, WHERE FENCING IS CONTINUOUS AND WHERE END, CORNER AND LINE BRACE POSTS ARE NOT SPECIFIED.
3. ALL LINE POSTS SHALL BE 5 IN. MIN. DIAMETER AND 12 FT. LONG. ALL END, CORNER AND LINE BRACE POSTS SHALL BE 6 IN. MIN. DIAMETER AND 12 FT. LONG.
4. BARBED WIRE SHALL BE DOUBLE WRAPPED AND TIED OFF AT END POSTS, CORNER POSTS AND LINE BRACE POSTS.
5. WOVEN WIRE SHALL BE SINGLE WRAPPED AND TIED OFF. FENCE TO BE CONTINUED, SHALL BE RESTARTED IN LIKE MANNER. WOVEN WIRE FENCE FABRIC SHALL CONFORM TO AASHTO M 279 (ASTM A 116) DESIGN NO. 1047-6-11 WITH CLASS I COATING.
6. STEEL BARBED WIRE SHALL CONFORM TO AASHTO M 200 (ASTM A 121) 12-1/2 GAGE WITH CLASS 1 COATING.
7. ALL FENCE WIRE TIES, BRACE WIRES, STAPLES AND OTHER WIRE APPURTENANCES SHALL BE GALVANIZED IN CONFORMANCE WITH AASHTO M 232.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING DISTURBED OR DESTROYED SURVEY MONUMENTS TO THE APPROPRIATE ACCURACY.
9. ALL MISCELLANEOUS HARDWARE SHALL BE FURNISHED GALVANIZED OR ALUMINUM COATED. ALL METAL PIPE POSTS SHALL BE CAPPED.
10. READY MIX CONCRETE MAY BE USED AS A SUBSTITUTE FOR CLASS "A" CONCRETE FOR THE CONCRETE FOOTING IF APPROVED BY THE ENGINEER.



8-FT GAME FENCE DETAIL (18 / 7 13)

Not to Scale

MITCHELL JOSEPH RATKE, NEW MEXICO, 29736, PROFESSIONAL ENGINEER

10-29-2025

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NO.	DATE	DESCRIPTION

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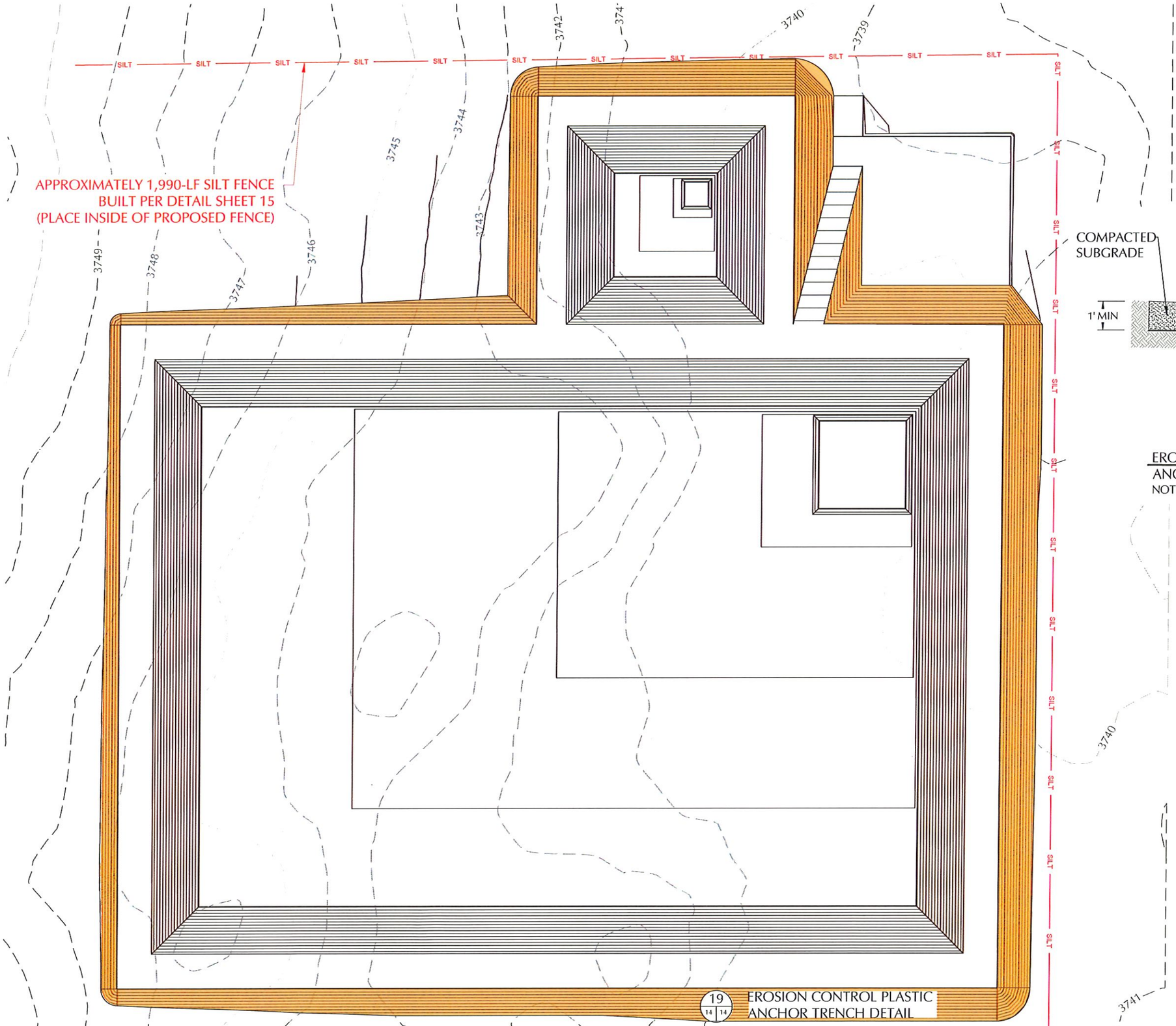
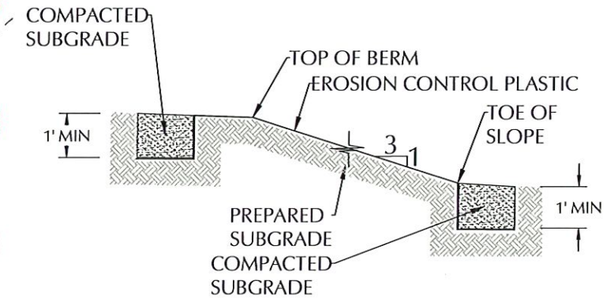
FENCE DETAILS

TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	NOT TO SCALE
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	13 OF 15



30-MIL LLDPE LINER OR EQUIVALENT



EROSION CONTROL PLASTIC ANCHOR TRENCH DETAIL (19 / 14 | 14)
NOT TO SCALE

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NO.	DATE	DESCRIPTION

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SWPPP
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	1" = 100'
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	14 OF 15

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X:\Projects\2025\025315-00-000 select twin lakes south recycle containment design\permit package\CAD\permit plans\SHEETS\15. SWPPP.dwg

MITCHELL JOSEPH RATKE
NEW MEXICO
29736
PROFESSIONAL ENGINEER
10-29-2025

DAILY	WEEKLY AND/OR WITHIN 24HRS OF 0.5 STORM EVENT OR GREATER	MONTHLY AND/OR UNTIL NOTICE OF TERMINATION
CONSTRUCTION EXIT STORAGE AREAS FOR POTENTIAL POLLUTANTS: PETROLEUM FERTILIZER PAINT CONCRETE DETERGENTS CLEANING SOLVENTS WOOD/MASONRY/ROOFING MATERIAL TAR METAL STUDS OTHER HAZARDOUS MATERIALS	ALL EROSION CONTROL MEASURES CONSTRUCTION EXIT SILT FENCE- SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT REACHES ½ THE HEIGHT OF THE FENCE. INSPECT SILT FENCE FOR TEARS, SEE THAT FABRIC IS FIRMLY IN PLACE AND ALL POSTS SECURE. SEDIMENT BASIN- INSPECT FOR DEPTH OF SEDIMENT, REMOVE WHEN SEDIMENT REACHES 10% OF DESIGN CAPACITY DIVERSION DIKES- INSPECT AND REPAIR ANY BREACHES ACCESSIBLE;E DISCHARGE POINTS- ENSURE THAT EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATERS TEMPORARY AND PERMANENT SEEDING- INSPECT FOR BARE SPOTS, WASHOUTS AND HEALTHY GROWTH.	ALL AREAS WHICH HAVE UNDERGONE FINAL STABILIZATION ALL EROSION CONTROL MEASURES INSPECT FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING THE DRAINAGE SYSTEM AND THE RECEIVING WATER ACCESSIBLE DISCHARGE POINTS- ENSURE THAT EROSION CONTROL MEASURES ARE EFFECTIVE IN PREVENTING SIGNIFICANT IMPACTS TO RECEIVING WATER.

A MAINTENANCE REPORT WILL BE MADE AFTER EACH INSPECTION. A COPY OF THE REPORT FORM TO BE COMPLETED IS ATTACHED TO PLANS.

INSPECTIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF THE PRIMARY PERMITTEE BY "QUALIFIED PERSONNEL". QUALIFIED PERSONNEL MEANS A PERSON WHO HAS SUCCESSFULLY COMPLETED AN EROSION AND SEDIMENT CONTROL SHORT COURSE ELIGIBLE FOR CONTINUING EDUCATION UNITS, OR AN EQUIVALENT COURSE APPROVED BY EPD.

RECORD KEEPING- A REPORT SHALL BE MADE AFTER EACH INSPECTION SUMMARIZING THE RESULTS. THE INSPECTOR MUST RECORD ANY DAMAGE OR DEFICIENCIES IN THE CONTROL MEASURES ON THE PROVIDED REPORT FORM. THE OPERATOR SHALL REPAIR ANY DAMAGE AS SOON AS PRACTICAL AND NO LATER THAN (7) SEVEN DAYS AFTER THE INSPECTION. THE PLANS MUST BE KEPT CURRENT. IT IS THE RESPONSIBILITY OF THE PRIMARY PERMITTEE TO REVISE THE METHODS USED TO CONTROL EROSION AND SEDIMENTS ONSITE.

MAJOR SOIL DISTURBANCE ACTIVITY

CONSTRUCTION ACTIVITY	SOIL DISTURBANCE	BMP
CLEARING AND GRUBBING TOPSOIL REMOVAL TREE REMOVAL - AS NECESSARY	TOPSOIL REMOVAL STOCKPILING	FILTER FABRIC RIP-RAP CHECK DAM
SEDIMENTATION PONDS AS REQUIRED UTILITY LINES GRADING	EARTHWORK CUT AND FILL ACTIVITY	FILTER FABRIC RIP-RAP CHECK DAM
CONCRETE CHANNEL FOUNDATIONS	FINISH GRADING	MAINTAIN AND MONITOR EROSION CONTROL PERMANENT GRASSING
WALKWAYS PERMANENT GRASSING AND LANDSCAPING		REMOVAL OF TEMPORARY SEDIMENT CONTROL AND TREE PROTECTION

SEEDING REQUIREMENTS

AREA	SOWING SEASON	SPECIES	SEED
CHANNEL AND ENBANKMENTS PERMANENT	SPRING-SUMMER	BERMUDA SPRIGING	BUSHEL/ACRE

FERTILIZER LBS/ACRE
450 lbs. (10-20-10)
* APPROVED EQUALS INCLUDES FRIO COUNTY SANDY SOIL AND CLAY SOILS MIXES FROM TEXAS NATIVE SEED PROJECT

PETROLEUM PRODUCTS:
ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY PETROLEUM TO BE STORED IN TANKS WILL BE SURROUNDED BY AN EARTHEN BERM AS A SECONDARY PROTECTIVE MEASURE. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

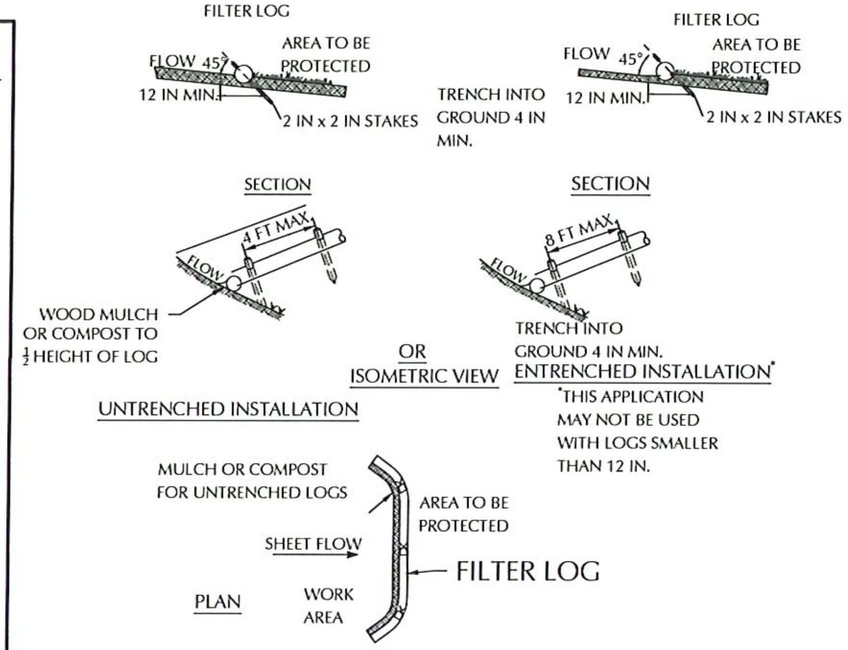
PAINTS:
ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM, BUT WILL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

CONCRETE TRUCKS:
CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASHOUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH TRUCK ON SITE.

FERTILIZERS:
FERTILIZER USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

WASTE DISPOSAL:
KEEP PORTA-JOHNS AWAY FROM STORM DRAIN INLETS AND RECEIVING BODIES OF WATER OR RINSING OF PORTA-JOHNS INTO STORM INLETS OR RECEIVING BODIES OF WATER. RUNOFF FROM PORTA-JOHNS INTO WATER SYSTEMS IS A VIOLATION OF FEDERAL, STATE AND LOCAL ORDINANCES.

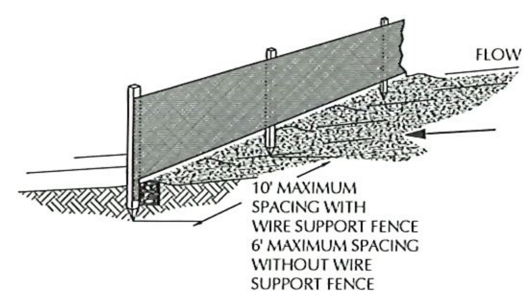
MULCH:
MULCH STORAGE MUST COMPLY WITH THE FOLLOWING SECTION OF THE STANDARD FIRE PREVENTION CODE. SECTION 502.3.1 - NO PERSON SHALL STORE IN ANY BUILDING OR UPON ANY PREMISES IN EXCESS OF 2,500 CU.FT. GROSS VOLUME OF COMBUSTIBLE EMPTY PACKING CASES, BOXES, BARRELS OR SIMILAR CONTAINERS OR RUBBER TIRES, OR RUBBER OR OTHER SIMILARLY COMBUSTIBLE MATERIALS WITHOUT A PERMIT.



CONSTRUCTION SPECIFICATIONS

1. PRIOR TO INSTALLATION, CLEAR ALL OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH THAT MAY INTERFERE WITH PROPER FUNCTION OF FILTER LOG.
2. FILL LOG NETTING UNIFORMLY WITH COMPOST (IN ACCORDANCE WITH SECTION H-1 MATERIALS), OR OTHER APPROVED BIODEGRADABLE MATERIAL TO DESIRED LENGTH SUCH THAT LOGS DO NOT DEFORM.
3. INSTALL FILTER LOGS PERPENDICULAR TO THE FLOW DIRECTION AND PARALLEL TO THE SLOPE WITH THE BEGINNING AND END OF THE INSTALLATION POINTING SLIGHTLY UP THE SLOPE CREATING A "J" SHAPE AT EACH END TO PREVENT BYPASS.
4. FOR UNTRENCHED INSTALLATION BLOW OR HAND PLACE MULCH OR COMPOST ON UPHILL SIDE OF THE SLOPE ALONG LOG.
5. STAKE FILTER LOG EVERY 4 FEET OR CLOSER ALONG ENTIRE LENGTH OF LOG OR TRENCH LOG INTO GROUND A MINIMUM OF 4 INCHES AND STAKE LOG EVERY 8 FEET OR CLOSER.
6. USE STAKES WITH A MINIMUM NOMINAL CROSS SECTION OF 2X2 INCH AND OF SUFFICIENT LENGTH TO ATTAIN A MINIMUM OF 12 INCHES INTO THE GROUND AND 3 INCHES PROTRUDING ABOVE LOG.
7. WHEN MORE THAN ONE LOG IS NEEDED, OVERLAP ENDS 12 INCHES MINIMUM AND STAKE.
8. REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO A DEPTH OF ½ THE EXPOSED HEIGHT OF LOG AND REPLACE MULCH. REPLACE FILTER LOG IF TORN. REINSTALL FILTER LOG IF UNDERMINING OR DISLODGING OCCURS. REPLACE CLOGGED FILTER LOGS. FOR PERMANENT APPLICATIONS, ESTABLISH AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

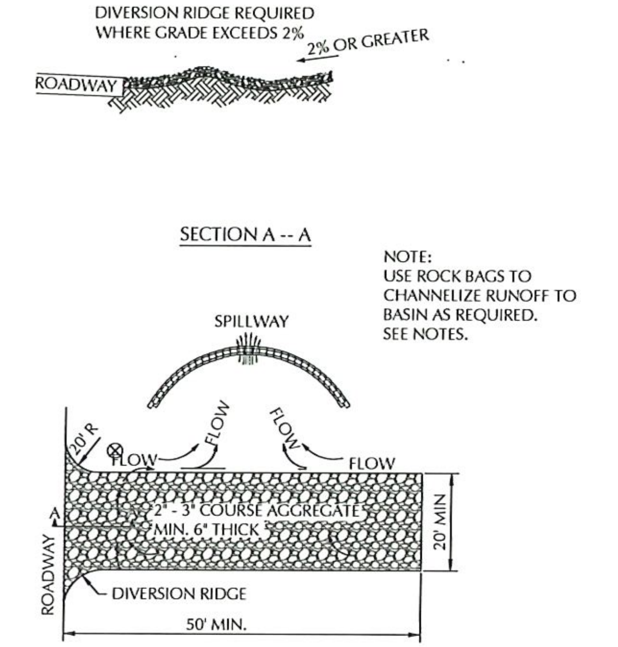
WADDLE FILTER LOG
(AS NEEDED FOR LOCALIZED WASHES)



SILT FENCE DETAILS

NOTES:

1. MUST BE INSTALLED PROPERLY TO AVOID NOTICE OF VIOLATION.
2. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE POUNDING EFFICIENCY.
3. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" MAXIMUM RECOMMENDED STORAGE HEIGHT.
4. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE TO SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

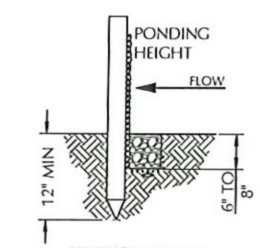


NOTE:
USE ROCK BAGS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.
SEE NOTES.

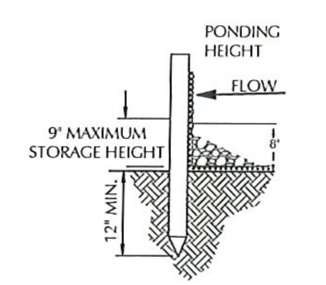
CONSTRUCTION ENTRANCE DETAILS

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. ROCK BAGS OR SANDBAGS SHALL BE PLACED SUCH THAT NO GAPS ARE EVIDENT. SEE NOTES ERO-03.



TRENCH DETAIL



INSTALLATION WITHOUT TRENCHING

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10-29-2025

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NO.	DATE	DESCRIPTION

SELECT

SWPPP DETAILS
TWIN LAKES SOUTH RECYCLE FACILITY
SELECT WATER SOLUTIONS
SECTION 15, TOWNSHIP 17 SOUTH, RANGE 37 EAST
LEA COUNTY, NEW MEXICO

DATE:	OCTOBER 2025
SCALE:	NOT TO SCALE
DESIGNED BY:	R. MOHAN
DRAWN BY:	R. MOHAN
CHECKED BY:	M. RATKE
PROJECT NO.	025315-00
SHEET NO.	15 OF 15

Attachment D

Design and Construction Plans

Select Water Solutions is proposing to construct two (2) storage containments in Section 15, Township 17 South, Range 37 East, Lea County, New Mexico. Twin Lakes South Recycle Facility shall consist of two (2) containments with a total operational volume of approximately 1,098,441-bbls.

OPERATION AND MAINTENANCE PROCEDURES

Applicable mandates in Rule 34 are underlined. This plan addresses construction of lined earthen containments. *Attachment C* presents Engineering Design Plans. *Attachment E* provides liner and geotextile specifications.

Field conditions may create the need for minor modification of the containment design (e.g. changing the length, width, or depth). Any significant changes to the design will be submitted to the state for permit modification and as-built documentation will be provided.

Dike Protection and Structural Integrity

Design elements are addressed in the section of this submission containing the foundation recommendations. The recommendations are based on site-specific data. The operator, engineer, and selected contractor will review the recommendations prior to beginning the earthwork and adhere to the specific recommendations.

The design and operation provide for the confinement of produced water to prevent releases and to prevent overtopping due to wave action or rainfall. Additionally, the design prevents run-on of surface water as the containment is surrounded by an above-grade levee (berm) and diversion ditch to prevent run-on of surface water.

Stockpile Topsoil

Where topsoil is present, prior to constructing containment, the operator will strip and stockpile the topsoil for use as the final cover or fill at the time of closure. The topsoil will be stockpiled adjacent to perimeter fence surrounding the containment or incorporated into the levee.

Signage

The design calls for an upright sign no less than 12-in by 24-in with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The sign is posted in a manner and location such that a person can easily read the legend. The sign will provide the following information:

1. The operator's name,
2. The location of the site by quarter-quarter or unit letter, section, township and range, and
3. Emergency telephone numbers.

Fencing

The design provides for a fence to enclose the Recycling Containment in a manner that deters unauthorized wildlife and human access. The design calls for a 8-ft tall wire mesh game fence around the containment to exclude wildlife (see detail contained in engineering design drawings). This fence provides greater wildlife (and human) deterrence than the minimum required barbed wire fence with four strands evenly spaced in the interval between one foot and four feet above ground level. The fence will be gated to provide access for maintenance and placement of pumps and other necessary equipment. As stated in the O&M plan, the operator will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Netting and Protection of Wildlife

The game fence around the containment will be effective in excluding antelope, deer, coyotes, and most other terrestrial wildlife.

The Recycling Containment is otherwise protective of wildlife, including migratory birds. The containment will contain treated produced water that has not shown to be a material threat to birds due to hydrogen sulfide gas or floating, free-phase hydrocarbons. The O&M plan calls for the operator to inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

The containment will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile may be placed under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity.

Attachment C shows for earthen containments;

1. The levee has an inside grade no steeper than three horizontal feet to one vertical foot (3H:1V).
2. The levee outside grade is no steeper than three horizontal feet to one vertical foot (3H:1V).
3. The top of the levee is wide enough to install an anchor trench and provide adequate room for inspection and maintenance.
4. The caliche gravel placed on the outside levee provides additional erosion control.

Field conditions may create the need for changes to the design. Any changes to the construction or grade requirements due to unforeseen conditions will be reviewed and approved prior to initiating installation of the liner system. Any design change that does not conform to the NMOCD Rule will be the subject of a variance request and will be submitted to the OCD for review and approval.

LINER AND DRAINAGE GEOTEXTILE INSTALLATION

The containment has a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

The primary (upper) liner is a geomembrane liner composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. It is 60-mil HDPE. The secondary liner is 40-mil HDPE. Liner compatibility meets or exceeds a subsequent relevant publication to EPA SW-846 method 9090A.

The Recycling Containment design has a leak detection system between the upper and lower geomembrane liners of 200-mil geonet to facilitate drainage. The leak detection system consists of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection. The containment floor design calls for a slope toward the sump. This slope, combined with the highly transmissive geonet drainage layer, provides for the earliest possible leak detection.

The liners and drainage material will be installed consistent with the manufacture's specifications (See *Attachment E*). In addition to any specifications of the manufacturer, protocols for liner installation include measures to:

1. Minimize liner seams and orient them up and down, not across, a slope of the levee.
2. Use factory welded seams where possible.
3. Field seams in geosynthetic material are thermally seamed; prior to field seaming, overlap liner four to six inches.
4. Minimize the number of field seams and corners and irregularly shaped areas.
5. Provide for no horizontal seams within five feet of the slope's toe.
6. Use qualified personnel to perform field welding and testing.
7. Avoid excessive stress-strain on the liner.
8. The edges of all liners are anchored in the bottom of a compacted earth-filled trench that is at least 18-in deep.

At points of discharge into the lined earthen containment, the pipe configuration effectively protects the liner from excessive hydrostatic force or mechanical damage during filling. The design shows that at any point of discharge into or suction from the recycling containment, the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines do not penetrate the liner.

Pumping from the containment to hydraulic fracturing operations is the responsibility of stimulation contractors. Typically, numerous lines are permanently placed in the containment with floats attached to prevent damage to the liner system. The containment may be equipped with permanent HDPE stinger (supported by a sacrificial liner or geotextile) for withdrawal of fluid during operations, if the owner deems necessary. External discharge or suction lines do not penetrate the liner.

LEAK DETECTION AND FLUID REMOVAL SYSTEM INSTALLATION

The leak detection system, contains the following design elements:

1. The 200-mil geonet drainage material between the primary and secondary liner is sufficiently permeable to allow the transport of fluids to the observation ports (*Attachment C*).
2. The containment floor, sloped towards the monitoring riser pipe, facilitates the earliest possible leak detection of the containment bottom. A pump may be placed in an observation port to provide for fluid removal.
3. Piping will withstand chemical attack from any seepage, structural loading from stresses and disturbances from overlying water, cover materials, equipment operation, and expansion or contraction (see *Attachment E*).
4. The slope of the interior subgrade should be great enough to facilitate drainage.

Attachment E

Material Specifications

Select Water Solutions is proposing to construct two (2) storage containments in Section 15, Township 17 South, Range 37 East, Lea County, New Mexico. Twin Lakes South Recycle Facility shall consist of two (2) containments with a total operational volume of approximately 1,098,441-bbls.

GEOMEMBRANE SPECIFICATION

This specification covers the technical requirements for the Manufacturing and Installation of the geomembrane. All materials meet or exceed the requirements of this specification, and all work will be performed in accordance with the procedures provided in these project specifications.

1.1 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. D 1004 Test Method for Initial Tear Resistance of Plastic Film and Sheeting
   2. D 1238 Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer
   3. D 1505 Test Method for Density of Plastics by the Density-Gradient Technique
   4. D 1603 Test Method for Carbon Black in Olefin Plastics
   5. D 3895 Standard Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
   6. D 4218 Standard Test Method for Determination of Carbon Black in Polyethylene Compounds
   7. D 4833 Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
   8. D 5199 Standard Test Method for Measuring Nominal Thickness of Geotextiles and Geomembranes
   9. D 5397 Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
   10. D 5596 Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
   11. D 5994 Standard Test Method for Measuring Core Thickness of Textured Geomembranes
   12. D 6392 Standard Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
   13. D 6693 Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes
   14. D 7240 Standard Practice for Leak Location using Geomembranes with an Insulating Layer in Intimate Contact with a Conductive Layer via Electrical Capacitance Technique (Conductive Geomembrane Spark Test)

B. Geosynthetic Research Institute
   1. GRI GM 13 Test Properties, Testing Frequency and Recommended Warranty for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes
   2. GRI GM 17 Test Properties, Testing Frequency and Recommended Warranty for Linear Low Density Polyethylene (LLDPE) Smooth and Textured Geomembranes

1.2 DEFINITIONS

A. Lot - A quantity of resin (usually the capacity of one rail car) used in the manufacture of geomembranes. Finished roll will be identified by a roll number traceable to the resin lot used.
B. Construction Quality Assurance Consultant (CONSULTANT) – The Party, independent from MANUFACTURER and INSTALLER, that is responsible for observing and documenting activities related to quality assurance during the lining system construction.
C. ENGINEER- The individual or firm responsible for the design and preparation of the project's Contract Drawings and Specifications.
D. Geomembrane Manufacturer (MANUFACTURER) - The party responsible for manufacturing the geomembrane rolls.
E. Geosynthetic Quality Assurance Laboratory (TESTING LABORATORY) – The Party, independent from the OWNER, MANUFACTURER, and INSTALLER, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the OWNER.
F. INSTALLER- The Party responsible for field handling, transporting, storing, deploying, seaming, and testing of the geomembrane seams.
G. Panel- Unit area of geomembrane that will be seamed in the field that is larger than 100-ft^2.
H. Patch - Unit area of geomembrane that will be seamed in the field that is less than 100-ft^2.
I. Subgrade Surface - Soil layer surface which immediately underlies the geosynthetic material(s).

1.3 SUBMITTALS POST-AWARD

A. Furnish the following product data, in writing, to ENGINEER prior to installation of the geomembrane material:
    1. Resin Data shall include the following:
    a. Certification stating that the resin meets the specification requirements (see *Table 1.9B*).
    2. Geomembrane Roll
    a. Statement certifying no recycled polymer and no more than 10% rework of the same type of material is added to the resin (product run may be recycled).
B. The INSTALLER shall furnish the following information to the ENGINEER and OWNER prior to installation:
    1. Installation layout drawings
    2. Must show proposed panel layout including field seams and details
    3. Must be approved prior to installing the geomembrane
    4. Approved drawings will be for concept only; actual panel placement will be determined by site conditions
    5. Installer's Geosynthetic Field Installation Quality Assurance Plan

C. The INSTALLER will submit the following to the ENGINEER upon completion of installation:
   1. Certificate stating the geomembrane has been installed in accordance with the Contract Documents
   2. Material and installation warranties
   3. As-built drawings showing actual geomembrane placement and seams including typical anchor trench detail

1.4 QUALITY ASSURANCE

A. The OWNER will engage and pay for the services of a Geosynthetic Quality Assurance Consultant and Laboratory to monitor geomembrane installation.

1.5 QUALIFICATIONS

A. MANUFACTURER
   1. Geomembrane shall be manufactured by the following:
      a. GSE Lining Technology, LLC
      b. approved equal
   2. MANUFACTURER shall have manufactured a minimum of 10,000,000 square feet of polyethylene geomembrane during the last year.

B. INSTALLER
   1. Installation shall be performed by one of the following installation companies (or approved equal)
      a. GSE Lining Technology, LLC
      b. GSE Approved Installers
   2. INSTALLER shall have installed a minimum of 5,000,000-ft^2 of HDPE geomembrane during the last two years.
   3. INSTALLER shall have worked in a similar capacity on at least 5 projects similar in complexity to the project described in the contract documents, and with at least 500,000-ft^2 of HDPE geomembrane installation on each project.
   4. The Installation Supervisor shall have worked in a similar capacity on projects similar in size and complexity to the project described in the Contract Documents.
   5. The INSTALLER shall provide a minimum of one Master Seamer for work on the project.
   6. Must have completed a minimum of 1,000,000-ft^2 of geomembrane seaming work using the type of seaming apparatus proposed for the use on this Project.

1.6 MATERIAL LABELING, DELIVERY, STORAGE AND HANDLING

A. LABELING - Each roll of geomembrane delivered to the site shall be labeled by the MANUFACTURER. The label will identify:
   1. manufacturer's name
   2. product identification
   3. thickness
   4. length
   5. width
   6. roll number

B. DELIVERY - Rolls of liner will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.
C. STORAGE - The on-site storage location for geomembrane material, provided by the CONTRACTOR to protect the geomembrane from punctures, abrasions and excessive dirt and moisture, should have the following characteristics:
    1. level (no wooden pallets)
    2. smooth
    3. dry
    4. protected from theft and vandalism
    5. adjacent to the area being lined
D. Handling- Materials are to be handled so as to prevent damage.

1.7 WARRANTY

A. Material shall be warrantied, on a pro-rata basis, against Manufacturer's defects for a period of 5 years from the date of geomembrane installation.
B. Installation shall be warrantied against defects in workmanship for a period of 1 year from the date of geomembrane completion.

1.8 GEOMEMBRANE PROPERTIES

A. Material shall be smooth/textured polyethylene geomembrane as shown on the drawings.
B. Resin
    1. Resin shall be new, first quality, compounded and manufactured specifically for producing geomembrane.
    2. Natural resin (without carbon black) shall meet the following requirements:

Table 1.9B RAW MATERIAL PROPERTIES			
Property	Test Method	HDPE	LLDPE
Density (g/cm3)	ASTM D 1505	$\geq$0.932	$\geq$0.915
Melt Flow Index (g/10 min)	ASTM D 1238 (190/2.16)	$\leq$1.0	$\leq$1.0
OIT (minutes)	ASTM D 3895 (1 atm/200^{0}C)	$\geq$100	$\geq$100

C. Geomembrane Rolls
    1. Do not exceed a combined maximum total of 1 percent by weight of additives other than carbon black.
    2. Geomembrane shall be free of holes, pinholes as verified by on-line electrical detection, bubbles, blisters, excessive contamination by foreign matter, and nicks and cuts on roll edges.
    3. Geomembrane material is to be supplied in roll form. Each roll is to be identified with labels indicating roll number, thickness, length, width, and MANUFACTURER.

4. All liner sheets produced at the factory shall be inspected prior to shipment for compliance with the physical property requirements listed in section 1.09 D and be tested by an acceptable method of inspecting for pinholes. If pinholes are located, identified and indicated during manufacturing, these pinholes may be corrected during installation.

D. Smooth surfaced geomembrane shall meet the requirements shown in the following data sheets below:

1. *Table 1.1* for Black HDPE
2. *Table 1.2* for Green HDPE
3. *Table 1.3* for White HDPE
    a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
    b. The white surface shall be installed upwards.
4. *Table 1.4* for Smooth Leak Location Liner HDPE
    a. The geomembrane shall have a coextruded, electrically conductive layer.
    b. The conductive layer is installed downward.
    c. Electrical testing shall be performed after liner installation by the INSTALLER.
5. *Table 1.5* for Smooth White Leak Location Liner HDPE
    a. The geomembrane shall have a coextruded, electrically conductive layer.
    b. The conductive layer is installed downward.
    c. The geomembrane shall be a white-surfaced, coextruded geomembrane.
    d. The white surface shall be installed upwards.
    e. Electrical testing shall be performed after liner installation by the INSTALLER.
6. *Table 1.6* for Black LLDPE
7. *Table 1.7* for White-surfaced LLDPE
    a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
    b. The white surface shall be installed upwards.
8. *Table 1.8* for Leak Location Liner LLDPE
    a. The geomembrane shall have a coextruded, electrically conductive layer.
    b. The conductive layer is installed downward.
    c. Electrical testing shall be performed after liner installation by the INSTALLER.
9. *Table 1.9* for White Leak Location Liner LLDPE
    a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
    b. The white surface shall be installed upwards.
    c. The geomembrane shall have a coextruded, electrically conductive layer.
    d. The conductive layer is installed downward.
    e. Electrical testing shall be performed after liner installation by the INSTALLER.

TABLE 1.1: GSE HD SMOOTH GEOMEMBRANE							
Tested Property	Test Method	Frequency	Minimum Average Values				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	30 27	40 36	60 54	80 72	100 90
Density, g/cm^3, (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 114 63 700 12	 152 84 700 12	 228 126 700 12	 304 168 700 12	 380 210 700 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	54	72	108	144	180
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(1)	Note(1)	Note(1)	Note(1)	Note(1)
Notch Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100	>100
Typical Roll Dimensions							
Roll Length(2), ft			1,120	870	560	430	340
Roll Width(2), ft			22.5	22.5	22.5	22.5	22.5
Roll Area, ft^2			25,200	19,575	12,600	9,675	7,650

- NOTES:
  - (1)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (2)Roll lengths and widths have a tolerance of ± 1%.
  - GSE HD Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 1.2: GSE GREEN SMOOTH GEOMEMBRANE							
Tested Property	Test Method	Frequency	Minimum Average Values				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	30 27	40 36	60 54	80 72	100 90
Density, g/cm^3 , (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 114 63 700 12	 152 84 700 12	 228 126 700 12	 304 168 700 12	 380 210 700 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	54	72	108	144	180
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Notch Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100	>100
Typical Roll Dimensions							
Roll Length[(3)], ft			1,120	870	560	430	340
Roll Width[(3)], ft			22.5	22.5	22.5	22.5	22.5
Roll Area, ft^2			25,200	19,575	12,600	9,675	7,650

- NOTES:
  - (1)GSE Green Smooth may have an overall ash content of 3.0% due to the green layer. These values apply to the black layer only.
  - (2)Dispersion applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)Roll lengths and widths have a tolerance of ± 1%.
  - GSE Green Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 1.3: GSE WHITE SMOOTH GEOMEMBRANE							
Tested Property	Test Method	Frequency	Minimum Average Values				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	30 27	40 36	60 54	80 72	100 90
Density, g/cm^3 , (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 114 63 700 12	 152 84 700 12	 228 126 700 12	 304 168 700 12	 380 210 700 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	54	72	108	144	180
Carbon Black Content(1), % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(2)	Note(2)	Note(2)	Note(2)	Note(2)
Notch Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100	>100
Typical Roll Dimensions							
Roll Length(3), ft			1,120	870	560	430	340
Roll Width(3), ft			22.5	22.5	22.5	22.5	22.5

Roll Area, ft^2	25,200	19,575	12,600	9,675	7,650

- NOTES:
  - (1)GSE White Smooth may have an overall ash content of 3.0% due to the white layer. These values apply to the black layer only.
  - (2)Dispersion applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)Roll lengths and widths have a tolerance of ± 1%.
  - GSE White Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 1.4: GSE LEAK LOCATION SMOOTH GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 , (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 152 84 700 12	 228 126 700 12	 304 168 700 12	 380 210 700 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	72	108	144	180
Carbon Black Content(1), % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(2)	Note(2)	Note(2)	Note(2)
Notch Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length(3), ft			870	560	430	340
Roll Width(3), ft			22.5	22.5	22.5	22.5

Roll Area, ft^2	19,575	12,600	9,675	7,650

- NOTES:
  - (1)GSE Leak Location Smooth may have an overall ash content of 3.0% due to the conductive layer. These values apply to the non-conductive black layer only.
  - (2)Dispersion applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)Roll lengths and widths have a tolerance of ± 1%.
  - GSE Leak Location Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D746.
  - *Modified.

TABLE 1.5: GSE LEAK LOCATION WHITE SMOOTH GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3, (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 152 84 700 12	 228 126 700 12	 304 168 700 12	 380 210 700 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	72	108	144	180
Carbon Black Content(1), % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(2)	Note(2)	Note(2)	Note(2)
Notch Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length(3), ft			870	560	430	340
Roll Width(3), ft			22.5	22.5	22.5	22.5
Roll Area, ft^2			19,575	12,600	9,675	7,650

- NOTES:
  - (1)GSE Leak Location White Smooth may have an overall ash content of 3.0% due to the white and conductive layers. These values apply to the black layer only.
  - (2)Dispersion applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)Roll lengths and widths have a tolerance of ± 1%.
  - GSE Leak Location White Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 1.6: GSE ULTRAFLEX SMOOTH GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Value			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	152 800	228 800	304 800	380 800
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	56	84	112	140
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(1)	Note(1)	Note(1)	Note(1)
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length(2), ft			870	560	430	340
Roll Width(2), ft			22.5	22.5	22.5	22.5
Roll Area, ft^2			19,575	12,600	9,675	7,650

- NOTES:
  - (1)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (2)Roll lengths and widths have a tolerance of ±1 %.
  - GSE UltraFlex is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

TALBE 1.7: GSE ULTRAFLEX WHITE SMOOTH GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Value			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	152 800	228 800	304 800	380 800
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	56	84	112	140
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(3)], ft			870	560	430	340
Roll Width[(3)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2			19,575	12,600	9,675	7,650

- NOTES:
  - [(1)]GSE UltraFlex White Smooth may have an overall ash content greater than 3.0% due to the white layer. These values apply to the black layer only.
  - [(2)] Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex White Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

TABLE 1.8: GSE ULTRAFLEX LEAK LOCATION LINER SMOOTH GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Value			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	152 800	228 800	304 800	380 800
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	56	84	112	140
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(3)], ft			870	560	430	340
Roll Width[(3)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2			19,575	12,600	9,675	7,650

- NOTES:
  - [(1)]GSE UltraFlex Leak Location Smooth may have an overall ash content greater than 3.0% due to the conductive layer. These values apply to the non-conductive black layer only.
  - [(2)]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex Leak Location Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

TABLE 1.9: GSE ULTRAFLEX LEAK LOCATION LINER WHITE SMOOTH GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Value			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	152 800	228 800	304 800	380 800
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	56	84	112	140
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(3)], ft			870	560	430	340
Roll Width[(3)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2			19,575	12,600	9,675	7,650

- NOTES:
  - [(1)]GSE UltraFlex Leak Location White Smooth may have an overall ash content greater than 3.0% due to the white and conductive layers. These values apply to the non-conductive black layer only.
  - [(2)]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex Leak Location White Smooth is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

E. Textured surfaced geomembrane shall meet the requirements shown in the following data sheets below.
   1. *Table 2.1* for Black coextruded textured HDPE
   2. *Table 2.2* for Green coextruded textured HDPE
   3. *Table 2.3* for White coextruded textured HDPE
      a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
      b. The white surface shall be installed upwards.
   4. *Table 2.4* for Leak Location Liner coextruded textured HDPE
      a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
      b. The white surface shall be installed upwards.
   5. *Table 2.5* for White Leak Location Liner coextruded textured HDPE
      a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
      b. The white surface shall be installed upwards.
   6. *Table 2.6* for Black coextruded textured LLDPE
   7. *Table 2.7* for White coextruded textured LLDPE
      a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
      b. The white surface shall be installed upwards.
   8. *Table 2.8* for Leak Location Liner coextruded textured LLDPE
      a. The geomembrane shall have a coextruded, electrically conductive layer.
      b. The conductive layer is installed downward.
      c. Electrical testing shall be performed after liner installation by the INSTALLER.
   9. *Table 2.9* for White Leak Location Liner coextruded textured LLDPE
      a. The geomembrane shall be a white-surfaced, coextruded geomembrane.
      b. The white surface shall be installed upwards.
      c. The geomembrane shall have a coextruded, electrically conductive layer.
      d. The conductive layer is installed downward.
      e. Electrical testing shall be performed after liner installation by the INSTALLER.

TABLE 2.1: GSE HD TEXTURED GEOMEMBRANE							
Tested Property	Test Method	Frequency	Minimum Average Values				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5994	every roll	30 27	40 36	60 54	80 72	100 90
Density, g/cm^3, (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 45 63 100 12	 60 84 100 12	 90 126 100 12	 120 168 100 12	 150 210 100 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	45	60	90	120	150
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(1)	Note(1)	Note(1)	Note(1)	Note(1)
Asperity Height, mil	ASTM D 7466	second roll	16	18	18	18	18
Notch Constant Tensile Load(2), hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100	>100
Typical Roll Dimensions							
Roll Length(3), ft	Double-Sided Textured Single-Sided Textured		830 1,010	700 780	520 540	400 410	330 330
Roll Width(3), ft			22.5	22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		18,675 22,725	15,750 17,550	11,700 12,150	9,000 9,225	7,425 7,425

- NOTES:
  - (1)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (2)NCTL for GSE HD Textured is conducted on representative smooth geomembrane samples.
  - (3)Roll lengths and widths have a tolerance of ± 1%.
  - GSE HD Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.2 GSE GREEN TEXTURED GEOMEMBRANE							
Tested Property	Test Method	Frequency	Minimum Average Values				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5994	every roll	30 27	40 36	60 54	80 72	100 90
Density, g/cm^3, (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 45 63 100 12	 60 84 100 12	 90 126 100 12	 120 168 100 12	 150 210 100 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	45	60	90	120	150
Carbon Black Content(1), % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(2)	Note(2)	Note(2)	Note(2)	Note(2)
Asperity Height, mil	ASTM D 7466	second roll	16	18	18	18	18
Notch Constant Tensile Load(3), hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100	>100
Typical Roll Dimensions							
Roll Length(4), ft	Double-Sided Textured Single-Sided Textured		830 1,010	700 780	520 540	400 410	330 330
Roll Width(4), ft			22.5	22.5	22.5	22.5	22.5

Roll Area, ft^2	Double-Sided Textured	18,675	15,750	11,700	9,000	7,425
	Single-Sided Textured	22,725	17,550	12,150	9,225	7,425

- NOTES:
  - (1)GSE Green may have an overall ash content greater than 3.0% due to the green layer. These values apply to the black layer only.
  - (2)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)NCTL for GSE Green Textured is conducted on representative smooth geomembrane samples.
  - (4)Roll lengths and widths have a tolerance of ±1%.
  - GSE Green Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.3: GSE WHITE TEXTURED GEOMEMBRANE							
Tested Property	Test Method	Frequency	Minimum Average Values				
			30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5994	every roll	30 27	40 36	60 54	80 72	100 90
Density, g/cm3 , (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 45 63 100 12	 60 84 100 12	 90 126 100 12	 120 168 100 12	 150 210 100 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	21	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	45	60	90	120	150
Carbon Black Content[1], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[2]	Note[2]	Note[2]	Note[2]	Note[2]
Asperity Height, mil	ASTM D 7466	second roll	16	18	18	18	18
Notch Constant Tensile Load[3], hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100	>100
Typical Roll Dimensions							
Roll Length[4], ft	Double-Sided Textured Single-Sided Textured		830 1,010	700 780	520 540	400 410	330 330
Roll Width[4], ft			22.5	22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		18,675 22,725	15,750 17,550	11,700 12,150	9,000 9,225	7,425 7,425

- NOTES:
  - [(1)]GSE White may have an overall ash content greater than 3.0% due to the white layer. These values apply to the black layer only.
  - [(2)]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]NCTL for GSE White Textured is conducted on representative smooth geomembrane samples.
  - [(4)]Roll lengths and widths have a tolerance of ±1%.
  - GSE White Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.4: GSE LEAK LOCATION LINER TEXTURED GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5994	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3, (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 60 84 100 12	 90 126 100 12	 120 168 100 12	 150 210 100 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	60	90	120	150
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Asperity Height, mil	ASTM D 7466	second roll	18	18	18	18
Notch Constant Tensile Load[(3)], hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(4)], ft	Double-Sided Textured Single-Sided Textured		700 780	520 540	400 410	330 330
Roll Width[(4)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		15,750 17,550	11,700 12,150	9,000 9,225	7,425 7,425

- NOTES:
  - (1)GSE Leak Location may have an overall ash content greater than 3.0% due to the conductive layer. These values apply to the non-conductive layer only.
  - (2)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)NCTL for GSE Leak Location Textured is conducted on representative smooth geomembrane samples.
  - (4)Roll lengths and widths have a tolerance of ±1%.
  - GSE Leak Location Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.5: GSE LEAK LOCATION LINER WHITE TEXTURED GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5994	every roll	40 36	60 54	80 72	100 90
Density, g/cm3 , (min.)	ASTM D 1505	200,000 lbs	0.940	0.940	0.940	0.940
Tensile Properties (each direction) Strength at Break, lb/in-width Strength at Yield, lb/in-width Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in G.L. 1.3 in	20,000 lbs	 60 84 100 12	 90 126 100 12	 120 168 100 12	 150 210 100 12
Tear Resistance, lb	ASTM D 1004	45,000 lbs	28	42	56	70
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	60	90	120	150
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Asperity Height, mil	ASTM D 7466	second roll	18	18	18	18
Notch Constant Tensile Load[(2)], hr	ASTM D 5397, Appendix	200,000 lbs	300	300	300	300
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(4)], ft	Double-Sided Textured Single-Sided Textured		700 780	520 540	400 410	330 330
Roll Width[(4)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		15,750 17,550	11,700 12,150	9,000 9,225	7,425 7,425

- NOTES:
  - (1)GSE Leak Location White may have an overall ash content greater than 3.0% due to the conductive and white layers. These values apply to the non-conductive black layer only.
  - (2)Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - (3)NCTL for GSE Leak Location White Textured is conducted on representative smooth geomembrane samples.
  - (4)Roll lengths and widths have a tolerance of ±1%.
  - GSE Leak Location White Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.6: GSE ULTRAFLEX TEXTURED GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	60 250	90 250	120 250	150 250
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	44	66	88	110
Carbon Black Content, % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note(1)	Note(1)	Note(1)	Note(1)
Asperity Height, mil	ASTM D 7466	second roll	18	18	18	18
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length(2), ft	Double-Sided Textured Single-Sided Textured		700 650	520 420	400 320	330 250
Roll Width(2), ft			22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		15,750 14,625	11,700 9,450	9,000 7,200	7,425 5,625

- NOTES:
  - [1]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [2]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.7: GSE ULTRAFLEX WHITE TEXTURED GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	60 250	90 250	120 250	150 250
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	44	66	88	110
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Asperity Height, mil	ASTM D 7466	second roll	18	18	18	18
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(3)], ft	Double-Sided Textured Single-Sided Textured		700 650	520 420	400 320	330 250
Roll Width[(3)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		15,750 14,625	11,700 9,450	9,000 7,200	7,425 5,625

- NOTES:
  - [(1)]GSE UltraFlex White Textured may have an overall ash content greater than 3.0% due to the white layer. These values apply to the black layer only.
  - [(2)]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex White Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.8: GSE ULTRAFLEX LEAK LOCATION TEXTURED GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	60 250	90 250	120 250	150 250
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	44	66	88	110
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Asperity Height, mil	ASTM D 7466	second roll	18	18	18	18
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(3)], ft	Double-Sided Textured Single-Sided Textured		700 650	520 420	400 320	330 250
Roll Width[(3)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		15,750 14,625	11,700 9,450	9,000 7,200	7,425 5,625

- NOTES:
  - [(1)]GSE UltraFlex Leak Location Textured may have an overall ash content greater than 3.0% due to the conductive layer. These values apply to the non-conductive black layer only.
  - [(2)]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex Leak Location Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

TABLE 2.9: GSE ULTRAFLEX LEAK LOCATION WHITE TEXTURED GEOMEMBRANE						
Tested Property	Test Method	Frequency	Minimum Average Values			
			40 mil	60 mil	80 mil	100 mil
Thickness, mil Lowest individual reading	ASTM D 5199	every roll	40 36	60 54	80 72	100 90
Density, g/cm^3 (max.)	ASTM D 1505	200,000 lbs	0.939	0.939	0.939	0.939
Tensile Properties (each direction) Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 ipm G.L. 2.0 in	20,000 lbs	60 250	90 250	120 250	150 250
Tear Resistance, lb	ASTM D 1004	45,000 lbs	22	33	44	55
Puncture Resistance, lb	ASTM D 4833	45,000 lbs	44	66	88	110
Carbon Black Content[(1)], % (Range)	ASTM D 1603*/4218	20,000 lbs	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0	2.0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lbs	Note[(2)]	Note[(2)]	Note[(2)]	Note[(2)]
Asperity Height, mil	ASTM D 7466	second roll	18	18	18	18
Oxidative Induction Time, min	ASTM D 3895, 200°C; O_2, 1 atm	200,000 lbs	>100	>100	>100	>100
Typical Roll Dimensions						
Roll Length[(3)], ft	Double-Sided Textured Single-Sided Textured		700 650	520 420	400 320	330 250
Roll Width[(3)], ft			22.5	22.5	22.5	22.5
Roll Area, ft^2	Double-Sided Textured Single-Sided Textured		15,750 14,625	11,700 9,450	9,000 7,200	7,425 5,625

- NOTES:
  - [(1)]GSE UltraFlex Leak Location White Textured may have an overall ash content greater than 3.0% due to the white and conductive layers. These values apply to the non-conductive black layer only.
  - [(2)]Dispersion only applies to near spherical agglomerates. 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3.
  - [(3)]Roll lengths and widths have a tolerance of ±1%.
  - GSE UltraFlex Leak Location White Textured is available in rolls weighing approximately 4,000 lb.
  - All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77°C when tested according to ASTM D 746.
  - *Modified.

F. Extrudate Rod or Bead
    1. Extrudate material shall be made from same type resin as the geomembrane.
    2. Additives shall be thoroughly dispersed.
    3. Materials shall be free of contamination by moisture or foreign matter.

1.9 EQUIPMENT

A. Welding equipment and accessories shall meet the following requirements:
    1. Gauges showing temperatures in apparatus such as extrusion welder or fusion welder shall be present.
    2. An adequate number of welding apparatus shall be available to avoid delaying work.
    3. Power source must be capable of providing constant voltage under combined line load.

1.10 DEPLOYMENT

A. Assign each panel a simple and logical identifying code. The coding system shall be subject to approval and shall be determined at the job site.
B. Visually inspect the geomembrane during deployment for imperfections and mark faulty or suspect areas.
C. Deployment of geomembrane panels shall be performed in a manner that will comply with the following guidelines:
    1. Geomembranes shall be installed according to site-specific specifications, and GSE Conductive should be installed with the Conductive layer down.
        i. *Note: A spark tester or ohm meter can be used to determine Conductive layer.*
    2. Unroll geomembrane using methods that will not damage geomembrane and will protect underlying surface from damage (spreader bar, protected equipment bucket).
    3. Place ballast (commonly sandbags) on geomembrane which will not damage geomembrane to prevent wind uplift.
    4. Personnel walking on geomembrane shall not engage in activities or wear shoes that could damage it. Smoking will not be permitted on the geomembrane.
    5. Do not allow heavy vehicular traffic directly on geomembrane. Rubber-tired ATV's and trucks are acceptable if wheel contact is less than 8 psi.
    6. Protect geomembrane in areas of heavy traffic by placing protective cover over the geomembrane.
D. Sufficient material (slack) shall be provided to allow for thermal expansion and contraction of the material.

1.11 FIELD SEAMING

A. Seams shall meet the following requirements:

1. To the maximum extent possible, orient seams parallel to the line of the slope, i.e., down and not across slope.
2. Minimize number of field seams in corners, odd-shaped geometric locations and outside corners.
3. Slope seams (panels) shall extend a minimum of 5-ft beyond the grade break into the flat area.
4. Use a sequential seam numbering system compatible with panel numbering system that is agreeable to the CONSULTANT and INSTALLER.
5. Align seam overlaps consistent with the requirements of the welding equipment being used. A 6-in overlap is commonly suggested.

B. During Welding Operations
1. Provide at least one Master Seamer who shall provide direct supervision over other welders as necessary.

C. Extrusion Welding
1. Hot-air tack adjacent pieces together using procedures that do not damage the geomembrane.
2. Clean geomembrane surfaces by disc grinder or equivalent.
3. Purge welding apparatus of heat-degraded extrudate before welding.

D. Hot Wedge Welding
1. Welding apparatus shall be a self-propelled device equipped with an electronic controller which displays applicable temperatures.
2. Clean seam area of dust, mud, moisture and debris immediately ahead of hot wedge welder.
3. Protect against moisture build-up between sheets.

E. Trial Welds
1. Perform trial welds on geomembrane samples to verify welding equipment is operating properly.
2. Make trial welds under the same surface and environmental conditions as the production welds, i.e., in contact with subgrade and similar ambient temperature.
3. Minimum of two trial welds per day, per welding apparatus, one made prior to the start of work and one completed at mid shift.
4. Cut four, one-inch wide by six-inch long test strips from the trial weld.
5. Quantitatively test specimens for peel adhesion, and then for shear strength.
6. Trial weld specimens shall pass when the results shown in the following tables for HDPE and LLDPE are achieved in both peel and shear test.

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TABLE 1.12.6A: MINIMUM WELD VALUES FOR HDPE GEOMEMBRANES							
Property	Test Method	30	40	60	80	100	120
Peel Strength (fusion), ppi Peel Strength (extrusion), ppi	ASTM D 6392 ASTM D 6392	49 39	65 52	98 78	130 104	162 130	196 157
Shear Strength (fusion & ext.), ppi	ASTM D 6392	61	81	121	162	203	242

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TABLE 1.2.6B: MINIMUM WELD VALUES FOR LLDPE GEOMEMBRANES						
Property	Test Method	30	40	60	80	100
Peel Strength (extrusion), ppi Peel Strength (fusion), ppi	ASTM D 6392 ASTM D 6392	36 38	48 50	72 75	96 100	120 125
Shear Strength (fusion & ext.), ppi	ASTM D 6392	45	60	90	120	150

7. The break, when peel testing, occurs in the liner material itself, not through peel separation (FTB).
8. The break is ductile.
9. Repeat the trial weld, in its entirety, when any of the trial weld samples fail in either peel or shear.
10. No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed trial weld.

F. Seaming shall not proceed when ambient air temperature or adverse weather conditions jeopardize the integrity of the liner installation. INSTALLER shall demonstrate that acceptable seaming can be performed by completing acceptable trial welds.

G. Defects and Repairs
1. Examine all seams and non-seam areas of the geomembrane for defects, holes, blisters, undispersed raw materials, and any sign of contamination by foreign matter.
2. Repair and non-destructively test each suspect location in both seam and non-seam areas. Do not cover geomembrane at locations that have been repaired until test results with passing values are available.

1.12 FIELD QUALITY ASSURANCE

A. MANUFACTURER and INSTALLER shall participate in and conform to all terms and requirements of the Owner's quality assurance program. CONTRACTOR shall be responsible for assuring this participation.
B. Quality assurance requirements are as specified in this Section and in the Field Installation Quality Assurance Manual if it is included in the contract.
C. Field Testing
    1. Non-destructive testing may be carried out as the seaming progresses or at completion of all field seaming.
        b. Vacuum Testing
            1) Shall be performed in accordance with ASTM D 5641, Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber.
        b. Air Pressure Testing
            1) Shall be performed in accordance with ASTM D 5820, Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes.
        c. Spark Testing
            1. Shall be performed accordance with ASTM D 7240 Standard Practice for Leak Location using Geomembranes with an Insulating Layer in Intimate Contact with a Conductive Layer via Electrical Capacitance Technique (Conductive Geomembrane Spark Test).
        d. Other approved methods.
    2. Destructive Testing (performed by CONSULTANT with assistance from INSTALLER)
        b. Location and Frequency of Testing
            1) Collect destructive test samples at a frequency of one per every 500 lineal feet of seam length.
            2) Test locations will be determined after seaming.
            3) Exercise Method of Attributes as described by GRI GM-14 (Geosynthetic Research Institute, http://www.geosynthetic-institute.org) to minimize test samples taken.

        c. Sampling Procedures are performed as follows:
            1) INSTALLER shall cut samples at locations designated by the CONSULTANT as the seaming progresses in order to obtain field laboratory test results before the geomembrane is covered.
            2) CONSULTANT will number each sample, and the location will be noted on the installation as-built.
                a) Samples shall be 12-in wide by minimal length with the seam centered lengthwise.
                b) Cut a 2-in wide strip from each end of the sample for field-testing.
                c) Cut the remaining sample into two parts for distribution as follows:
                d) One portion for INSTALLER, 12-in by 12-in

e) One portion for the Third-Party laboratory, 12-in by 18-in
f) Additional samples may be archived if required.

3) Destructive testing shall be performed in accordance with ASTM D 6392, Standard Test Method for Determining the Integrity of Non-Reinforced Geomembrane Seams Produced Using Thermo-Fusion Methods.
   a) INSTALLER shall repair all holes in the geomembrane resulting from destructive sampling.
4) Repair and test the continuity of the repair in accordance with these Specifications.

3. Failed Seam Procedures
   a. If the seam fails, INSTALLER shall follow one of two options:
      1) Reconstruct the seam between any two passed test locations.
      2) Trace the weld to intermediate location at least 10-ft minimum or where the seam ends in both directions from the location of the failed test.
      b) The next seam welded using the same welding device is required to obtain an additional sample, i.e., if one side of the seam is less than 10-ft long.
      c) If sample passes, then the seam shall be reconstructed or capped between the test sample locations.
      d) If any sample fails, the process shall be repeated to establish the zone in which the seam shall be reconstructed.

1.13 REPAIR PROCEDURES

A. Remove damaged geomembrane and replace with acceptable geomembrane materials if damage cannot be satisfactorily repaired.
B. Repair any portion of unsatisfactory geomembrane or seam area failing a destructive or non-destructive test.
C. INSTALLER shall be responsible for repair of defective areas.
D. Agreement upon the appropriate repair method shall be decided between
   1. CONSULTANT and INSTALLER by using one of the following repair methods:
      a. Patching- Used to repair large holes, tears, undispersed raw materials and contamination by foreign matter.
      b. Abrading and Re-welding- Used to repair short section of a seam.
      c. Spot Welding- Used to repair pinholes or other minor, localized flaws or where geomembrane thickness has been reduced.
      d. Capping- Used to repair long lengths of failed seams.
      e. Flap Welding- Used to extrusion weld the flap (excess outer portion) of a fusion weld in lieu of a full cap.
         1) Remove the unacceptable seam and replace with new material.
E. The following procedures shall be observed when a repair method is used:
   1. All geomembrane surfaces shall be clean and dry at the time of repair.
   2. Surfaces of the polyethylene which are to be repaired by extrusion welds shall be lightly abraded to assure cleanliness.

3. Extend patches or caps at least 6 inches for extrusion welds and 4 inches for wedge welds beyond the edge of the defect, and around all corners of patch material.

F. Repair Verification
1. Number and log each patch repair (performed by CONSULTANT).
2. Non-destructively test each repair using methods specified in this Specification.

1.1 SCOPE

This specification covers the technical requirements for the Manufacturing and Installation of the nonwoven geotextile. All materials meet or exceed the requirements of this specification, and all work will be performed in accordance with the procedures provided in these project specifications.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
1. ASTM D 5261, Standard Test Method for Measuring Mass per Unit Area of Geotextiles
2. ASTM D 4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles
3. ASTM D 4533, Standard Test Method for Index Trapezoidal Tearing Strength of Geotextiles
4. ASTM D 4833, Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
5. ASTM D 4491, Standard Test Method for Water Permeability of Geotextiles by Permittivity
6. ASTM D 4751, Standard Test Method for Determining Apparent Opening Size of a Geotextile
7. ASTM D 4354, Standard Practice for Sampling of Geosynthetics for Testing
8. ASTM D 4759, Standard Practice for Determining the Specifications Conformance of Geosynthetics

1.3 SUBMITTALS

A. Prior to material delivery to project site, the contractor shall provide the engineer with a written certification or manufacturers quality control data which displays that the geotextile meets or exceeds minimum average roll values (MARV) specified herein.
B. The contractor shall submit, if required by the engineer, manufacturer's quality control manual for the geotextile to be delivered to the site.

2. PRODUCT

2.1 GEOTEXTILE

A. The nonwoven needle-punched geotextile specified herein shall be made from staple fiber.
B. The geotextile shall be manufactured from prime quality virgin polymer.
C. The geotextile shall be able to withstand direct exposure to ultraviolet radiation from Sun for up to 30 days without any noticeable effect on index or performance properties.
D. Geotextile shall meet or exceed all material properties listed in *Table 1*.

TABLE 1: GEOTEXTILE PROPERTIES			
Property	**Test Method**	**Test Frequency**	**Value**
Mass per Unit Area, oz/yd^2	ASTM D 5261	90,000-ft^2	12
Grab Tensile Strength, lb	ASTM D 4632	90,000-ft^2	320
CBR Puncture Strength, lb	ASTM D 6241	540,000-ft^2	925
Grab Elongation, %	ASTM D 4632	90,000-ft^2	50
Trapezoidal Tear Strength, lb	ASTM D 4533	90,000-ft^2	125
UV Resistance, % retained after 500 hours	ASTM D 4355	per formulation	70

2.2 MANUFACTURE

A. All rolls of the geotextile shall be identified with permanent marking on the roll or packaging, with the manufacturers name, product identification, roll number, and roll dimensions.

2.3 TRANSPORT

A. Transportation of the geotextile shall be the responsibility of the contractor.
B. During shipment, the geotextile shall be protected from ultraviolet light exposure, precipitation, mud, dirt, dust, puncture, or other damaging or deleterious conditions.
C. Upon delivery at the job site, the contractor shall ensure that the geotextile rolls are handled and stored in accordance with the manufacturer's instructions as to prevent damage.

3. EXECUTION

3.1 QUALITY ASSURANCE

A. The engineer shall examine the geotextile rolls upon delivery to the site and report any deviations from project specifications to the contractor.

3.2 INSTALLATION

A. The geotextile shall be handled in such a manner as to ensure that it is not damaged in any way. Should the contractor damage the geotextile to the extent that it is no longer usable as determined by these specifications or by the engineer, the contractor shall replace the geotextile at his own cost.
B. The geotextile shall be installed to the lines and grades as shown on the contract drawings and as described herein.
C. The geotextile shall be rolled down the slope in such a manner as to continuously keep the geotextile in tension by self-weight. The geotextile shall be securely anchored in an anchor trench where applicable, or by other approved or specified methods.
D. In the presence of wind, all geotextiles shall be weighted by sandbags or approved equivalent. Such anchors shall be installed during placement and shall remain in place until replaced with cover material.
E. The contractor shall take necessary precautions to prevent damage to adjacent or underlying materials during placement of the geotextile. Should damage to such material occur due to the fault of the contractor, the latter shall repair the damaged materials at his own cost and to the satisfaction of the engineer.
F. During placement of the geotextile, care shall be taken not to entrap soil, stones or excessive moisture that could hamper subsequent seaming of the geotextile as judged by the engineer.
G. The geotextile shall not be exposed to precipitation prior to being installed and shall not be exposed to direct sunlight for more than 15 days after installation.
H. The geotextile shall be seamed using heat seaming or stitching methods as recommended by the manufacturer and approved by the engineer. Sewn seams shall be made using polymeric thread with chemical resistance equal to or exceeding that of the geotextile. All sewn seams shall be continuous. Seams shall be oriented down slopes perpendicular to grading contours unless otherwise specified. For heat-seaming, fusion welding techniques recommended by the manufacturer shall be used.
I. The contractor shall not use heavy equipment to traffic above the geotextile without approved protection.
J. The geotextile shall be covered as soon as possible after installation and approval. Installed geotextile shall not be left exposed for more than 15 days.
K. Material overlying the geotextile shall be carefully placed to avoid wrinkling or damage to the geotextile.

SINGLE SIDED GEOCOMPOSITE

1.1 SCOPE

This specification covers the technical requirements for the manufacturing and installation of the geocomposite drainage layer. All materials meet or exceed the requirements of this specification, and all work will be performed in accordance with the procedures provided in these project specifications.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D 1238 Standard Test Method for Melt Flow Rates of Thermoplastics
2. by Extrusion Plastometer
3. D 1505-98 Standard Test Method for Density of Plastics by the Density-Gradient Technique
4. ASTM D 4218, Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle Furnace Technique D 1603-94 Standard Test Method for Carbon Black in Olefin Plastics
5. D 4355-02 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus
6. D 4491-99 Standard Test Method for Water Permeability of Geotextiles by Permittivity
7. D4533 Standard Test Method for Trapezoid Tearing Strength of Geotextiles
8. D 4716-00 Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
9. D 4751-99 Standard Test Method for Determining Apparent Opening Size of a Geotextile
10. D 6241 Standard Test Method for the Static Puncture Strength of Geotextiles and Geotextile- Related Products Using a 50-mm Probe D 4833-88 (1996) Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
11. D 5261-92 (1996) Standard Test Method for Measuring the Mass Per Unit Area of Geotextiles
12. D7005-03 Determining The Bond Strength (Ply-Adhesion) of Geocomposites
13. D 7179 Standard Test Method for Determining Geonet Breaking Force

B. Relevant publications from the Environmental Protection Agency (EPA):
1. Daniel, D.E. and R.M. Koerner, (1993), Technical Guidance Document: Quality Assurance and Quality Control for Waste Containment Facilities, EPA/600/R-93/182.

1.3 DEFINITIONS

A. Construction Quality Assurance Consultant (CONSULTANT) – The Party, independent from MANUFACTURER and INSTALLER, that is responsible for observing and documenting activities related to quality assurance during the lining system construction.
B. ENGINEER - The individual or firm responsible for the design and preparation of the project's Contract Drawings and Specifications.
C. Geocomposite Manufacturer (MANUFACTURER) - The party responsible for manufacturing the geocomposite rolls.
D. Geosynthetic Quality Assurance Laboratory (TESTING LABORATORY) -The Party, independent from the MANUFACTURER and INSTALLER, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the OWNER.
E. INSTALLER- Party responsible for field handling, transporting, storing and deploying the geocomposite.
F. Lot- A quantity of resin (usually the capacity of one rail car) used to manufacture polyethylene geocomposite rolls. The finished rolls will be identified by a roll number traceable to the resin lot.

1.4 QUALIFICATIONS

A. MANUFACTURER
    1. Geocomposite shall be manufactured by the following:
    a. GSE Lining Technology, Inc.
    b. Approved Equal
    2. MANUFACTURER shall have manufactured a minimum of 10,000,000-ft^2 of polyethylene geocomposite material during the last year.
B. INSTALLER
    1. INSTALLER shall have installed a minimum of 500,000 square feet of geocomposite in the last 3 years.
    2. INSTALLER shall have worked in a similar capacity on at least 5 projects similar in complexity to the project described in the contract documents, and within at least 50,000 square feet of geonet installation on each project.
    3. The Installation Supervisor shall have worked in a similar capacity on projects similar in size and complexity to the project described in the Contract Documents.

1.5 MATERIAL LABELING, DELIVERY, STORAGE AND HANDLING

A. Labeling- Each roll delivered to the site shall be wrapped and labeled by the MANUFACTURER. The label will identify:
    1. Manufacturer's name
    2. Product identification
    3. Length
    4. Width
    5. Roll number

C. Delivery- Rolls will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.
D. Storage- The on-site storage location provided by the CONTRACTOR to protect the geonet from abrasions, excessive dirt and moisture, shall have the following characteristics:
    1. Level (no wooden pallets)
    2. Smooth
    3. Dry
    4. Protected from theft and vandalism
    5. Adjacent to the area being lined

E. Handling
    1. The CONTRACTOR and INSTALLER shall handle all rolls in such a manner to ensure they are not damaged in any way.
    2. The INSTALLER shall take any necessary precautions to prevent damage to underlying layers during placement of the drainage material.

1.6 WARRANTY

A. Material shall be warranted, on a pro-rata basis against defects for a period of 1-year from the date of the geocomposite installation.
B. Installation shall be warranted against defects in workmanship for a period of 1-year from the date of geocomposite completion.

2. PRODUCTS

2.1 GEOCOMPOSITE PROPERTIES

A. A geocomposite shall be manufactured by extruding two crossing strands to form a bi-planar drainage net structure with a non-woven geotextile bonded to one or both sides.
B. The geocomposite specified shall have properties that meet or exceed the values listed in the following data sheets below.

TABLE 1: GEOCOMPOSITE PROPERTIES			
Property	**Test Method**	**Frequency**	**Value**
Geocomposite			
Transmissivity (1), gal/min/ft (m2/sec) Single-Sided Composite	ASTM D 4716	1/540,000-ft^2	6.2 (1.3 x 10-3)
Ply Adhesion, lb/in	ASTM D 7005	1/50,000-ft^2	0.5
Geonet			
Geonet Core Thickness, mil (1)	ASTM D 5199	1/50,000-ft^2	270
Transmissivity (2), gal/min/ft (m2/sec)	ASTM D 4716	1/540,000-ft^2	19 (4 x 10-3)
Compressive Strength, lbs/ft	ASTM D 6364	1/540,000-ft^2	40,000
Density, g/cm3	ASTM D 1505	1/50,000-ft^2	0.94
Tensile Strength (MD), lb/in	ASTM D 7179	1/50,000-ft^2	100
Carbon Black Content, %	ASTM D 4218	1/50,000-ft^2	2.0
8 oz. Geotextile (prior to lamination)			
Mass per Unit Area, oz/yd2	ASTM D 5261	1/90,000-ft^2	8
Grab Tensile Strength, lb	ASTM D 4632	1/90,000-ft^2	220
Grab Elongation	ASTM D 4632	1/90,000-ft^2	50%
CBR Puncture Strength, lb	ASTM D 6241	1/540,000-ft^2	575
Trapezoidal Tear Strength, lb	ASTM D 4533	1/90,000-ft^2	90
AOS, US Sieve (mm)	ASTM D 4751	1/540,000-ft^2	80 (0.180)
Permittivity, sec-1	ASTM D 4491	1/540,000-ft^2	1.3
Water Flow Rate, gpm/ft2	ASTM D 4491	1/540,000-ft^2	95
UV Resistance, % Retained	ASTM D 4355 (after 500 hours)	per formulation	70

- *Note: The design engineer shall prepare the table above based on the GSE product data sheet and then delete this note*

C. Resin
1. Resin shall be new first quality, compounded polyethylene resin.
2. Natural resin (without carbon black) shall meet the following additional
a. minimum requirements:

TABLE 2: RAW MATERIAL PROPERTIES		
Property	**Test Method[(1)]**	**Value**
Density (g/cm^3)	ASTM D 1505	>0.94
Melt Flow Index (g/10 min)	ASTM D 1238	$\leq$ 1.0

[1]GSE utilizes test equipment and procedures that enable effective and economical confirmation that the product will conform to specifications based on the noted procedures. Some test procedures have been modified for application to geosynthetics. All procedures and values are subject to change without prior notification.

2.2 MANUFACTURING QUALITY CONTROL

The geocomposite shall be manufactured in accordance with the Manufacturer's Quality Control Plan submitted to and approved by the ENGINEER.
The geocomposite shall be tested according to the test methods and frequencies listed on *Table 1* which has been prepared based on product data sheets.

3. EXECUTION

3.1 FAMILIARIZATION

A. Inspection
1. Prior to implementing any of the work in the Section to be lined, the INSTALLER shall carefully inspect the installed work of all other Sections and verify that all Work is complete to the point where the installation of the Section may properly commence without adverse impact.
2. If the INSTALLER has any concerns regarding the installed work of other Sections, he shall notify the Project ENGINEER.

3.2 MATERIAL PLACEMENT

A. The geocomposite roll should be installed in the direction of the slope and in the intended direction of flow unless otherwise specified by the ENGINEER.
1. If the project contains long, steep slopes, special care should be taken so that only full length rolls are used at the top of the slope.

B. In the presence of wind, all geocomposites shall be weighted down with sandbags or the equivalent. Such sandbags shall be used during placement and remain until replaced with cover material.
C. If the project includes an anchor trench at the top of the slopes, the geocomposite shall be properly anchored to resist sliding. Anchor trench compacting equipment shall not come into direct contact with the geocomposite.
D. In applying fill material, no equipment can drive directly across the geocomposite. The specified fill material shall be placed and spread utilizing vehicles with a low ground pressure.
E. The cover soil shall be placed in the geocomposite in a manner that prevents damage to the geocomposite. Placement of the cover soil shall proceed immediately following the placement and inspection of the geocomposite.

3.3 SEAMS AND OVERLAPS

A. Each component of the geocomposite will be secured or seamed to the like component at overlaps.
B. Geonet Components
    1. Adjacent edges of the geonet along the length of the geocomposite roll shall be placed with the edges of each geonet butted against each other.
    2. The overlaps shall be joined by tying the geonet structure with cable ties. These ties shall be spaced every 5-ft along the roll length.
    3. Adjoining geocomposite rolls (end to end) across the roll width should be shingled down in the direction of the slope, with the geonet portion of the top overlapping the geonet portion of the bottom geocomposite a minimum of 12-in across the roll width.
    4. The geonet portion should be tied every 6-in in the anchor trench or as specified by the ENGINEER.

3.4 REPAIR

A. Prior to covering the deployed geocomposite, each roll shall be inspected for damage resulting from construction.
B. Any rips, tears or damaged areas on the deployed geocomposite shall be removed and patched. The patch shall be secured to the original geonet by tying every 6-in with the approved tying devices. If the area to be repaired is more than 50 percent of the width of the panel, the damaged area shall be cut out and the two portions of the geonet shall be cut out and the two portions of the geonet shall be joined in accordance with *Subsection 3.03*.

Attachment F

Operating and Maintenance Plan

Select Water Solutions is proposing to construct two (2) storage containments in Section 15, Township 17 South, Range 37 East, Lea County, New Mexico. Twin Lakes South Recycle Facility shall consist of two (2) containments with a total operational volume of approximately 1,098,441-bbls.

OPERATION AND MAINTENANCE PROCEDURES

In this plan, the underlined text represents the language of the Rule.

The operator will operate and maintain the lined earthen containments to contain liquids and solids (blow sand and minimal precipitates from the treated produced water) and maintain the integrity of the liner system in a manner that prevents contamination of fresh water and protects public health and the environment as described below. The purpose of the lined earthen containment is to facilitate recycling, reuse, and reclamation of produced water derived from nearby oil and gas wells. During periods when water for E&P operations is not needed, produced water will discharge to one of the injection wells in the operator's SWD system. The containment will not be used for the disposal of produced water or other oilfield waste.

The operation of the Recycling Containment is summarized below:

1. Via pipeline, produced water generated from nearby oil and gas wells is delivered to a treatment system located as indicated in the C-147.
2. After treatment, the produced water discharges into the containment.
3. When required, treated produced water is removed from the containment for E&P operations. At this time, treated produced water will be used for drilling beneath the fresh water zones (beneath surface casing), for well stimulation (e.g. hydraulic fracturing) and other E&P uses as approved by OCD.
4. Whenever the maximum fluid capacity of the containment is reached, treatment and discharge to the containment ceases (see Freeboard and Overtopping Plan, below).
5. The operator will keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.
6. The operator will maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.
7. The containment shall be deemed to have ceased operations if less than 20 % of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator will report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

The operation of the lined earthen containment will follow the mandates listed below:

1. The operator will not discharge into or store any hazardous waste (as defined by 40 CFR 261 and NMAC 19.15.2.7.H.3) in the containments.
2. If the containment's primary liner is compromised above the fluid's surface, the operator will repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the Division District office.

3. If the primary liner is compromised below the fluid's surface, the operator will remove all fluid above the damage or leak within 48 hours of discover, notify the division district office, and repair the damage or replace the primary liner.
4. If any penetration of the containment liner is confirmed by sampling of fluid in the leak detection system (see Inspection and Monitoring Plan), the operator will:
    a. Begin and maintain fluid removal from the leak detection/pump-back system,
    b. Notify the District office within 48 hours (phone or email) of the discovery,
    c. Identify the location of the leak, and
    d. Repair the damage or, if necessary, replace the containment liner.
5. The operator will install, or maintain onsite, an oil absorbent boom or other device to contain an unanticipated release and the operator will remove any visible layer of oil from the surface of the recycling containment.
6. The operator will report releases of fluid in a manner consistent with NMAC 19.15.29.
7. The containment will be operated to prevent the collection of surface water run-on.
8. The operator will maintain the containment free of miscellaneous solid waste or debris.
9. The operator will maintain at least 3-ft of freeboard for the containment and will use a welded ladder gauge to allow easy determination of the required 3-ft of freeboard.
10. As described in the design/construction plan, the injection or withdrawal of fluids from the containment is accomplished through hardware that prevents damage to the liner by erosion, fluid jets, or impact from installation and removal of hoses or pipes.
11. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
12. The operator will maintain the fences in good repair.

MONITORING, INSPECTION, AND REPORTING PLAN

The operator will inspect the recycling containment and associated leak detection systems weekly while it contains fluids. The operator shall maintain a current log of such inspections and make the log available for review by the division upon request.

Weekly inspections consist of:

1. Reading and recording the fluid height of staff gauges,
2. Recording any evidence that the pond surface shows visible oil,
3. Visually inspecting the containment's exposed liners, and
4. Checking the leak detection system for any evidence of a loss of integrity of the primary liner.

As stated above, if a liner's integrity is compromised, or if any penetration of the liner occurs above the water surface, then the operator will notify the District office within 48 hours (phone or email).

Monthly, the operator will:

1. Inspect diversion ditches and berms around the containment to check for erosion and collection of surface water run-on.
2. Inspect the leak detection system for evidence of damage or malfunction and monitor for leakage.
3. Inspect the containment for migratory birds and other wildlife. Within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency

and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

4. Report to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.
5. Record sources and disposition of all recycled water.

The operator will maintain a log of all inspections and make the log available for the appropriate Division District office's review upon request.

FREEBOARD AND OVERTOPPING PREVENTION PLAN

The method of operation of the containment allows for maintaining freeboard with very few potential problems. When the capacity of the containment is reached (3-ft of freeboard), the discharge of treated produced water ceases and the produced water generated by nearby oil and gas wells is managed by disposing of fluid at a local injection well.

If rising water levels suggest that 3-ft of freeboard will not be maintained, the operator will implement one or more of the following options:

1. Cease discharging treated produced water to the containment.
2. Accelerate re-use of the treated produced water for purposes approved by the Division.
3. Transfer treated produced water from the containment to a Division approved injection well.

The reading of the staff gauge typically occurs daily when treatment operations are ongoing and weekly when discharge to the containment is not occurring.

PROTOCOL FOR LEAK DETECTION MONITORING, FLUID REMOVAL, AND REPORTING

As shown in *Attachment C*, the leak detection system includes a monitoring system. Any fluid released from the primary liner will flow to the collection sump, where fluid level monitoring is possible at the monitoring riser pipe associated with the leak detection system.

Staff may employ a portable electronic water level meter to determine if fluid exists in the monitoring riser pipe. Obtaining accurate readings of water levels in a sloped pipe beneath a containment can be a challenge. An electrician's wire snake may be required to push the probe to the bottom of the port and the probe may be fixed in a 2-in pipe "dry housing" to avoid false readings due to water condensation on the pipe. There are many techniques to determine the existence of water in the sumps, including low-flow pumps and a simple small bailer affixed to an electrician's snake. The operator will use the method that works best for this containment.

If seepage from the containment into the leak detection system is suspected by a positive fluid level measurement, the operator will:

1. Re-measure fluid levels in the monitoring riser pipe on a daily basis for one week to determine the rate of seepage.
2. Collect a water sample from the monitoring riser pipe to confirm the seepage is treated produced water from the containment via field conductivity and chloride measurements.

3. Notify NMOCD of a confirmed positive detection in the system within 48 hours of sampling (initial notification).
4. Install a pump into the monitoring riser pipe sump to continually (manually on a daily basis or via automatic timers) remove fluids from the leak detection system into the containment until the liner is repaired or replaced.
5. Dispatch a liner professional to inspect the portion of the containment suspected of leakage during a "low water" monitoring event.
6. Provide NMOCD a second report describing the inspection and/or repair within 20 days of the initial notification.

If the point of release is obvious from a low water inspection, the liner professional will repair the loss of integrity. If the point of release cannot be determined by the inspection, the liner professional will develop a more robust plan to identify the point(s) of release. The inspection plan and schedule will be submitted to OCD with the second report. The operator will implement the plan upon OCD approval.

Attachment G

Closure Plan

Select Water Solutions is proposing to construct two (2) storage containments in Section 15, Township 17 South, Range 37 East, Lea County, New Mexico. Twin Lakes South Recycle Facility shall consist of two (2) containments with a total operational volume of approximately 1,098,441-bbls.

CLOSURE PLAN

In this plan, the underlined text represents the language of the Rule.

After operations cease, the operator will remove all fluids within 60 days and close the containment within six months from the date the operator ceases operations from the containment for use.

The operator shall substantially restore the impacted surface area to

1. The condition that existed prior to the construction of the recycling containment or
2. To a condition imposed by federal, state trust land, or tribal agencies on lands managed by those agencies as these provisions govern the obligations of any operator subject to those provisions.

EXCAVATION AND REMOVAL CLOSURE PLAN - PROTOCOLS AND PROCEDURES

The operator will remove all liquids from the pits and either:

a. Dispose of the liquids in a division-approved facility, or
b. Recycle, reuse, or reclaim the water for reuse in drilling and stimulation

The operator will close the recycling containment by first removing all fluids, contents, and synthetic liners and transferring these materials to a Division approved facility.

After the removal of the pit contents and liners, soils beneath the pit will be tested by collection of a five-point (minimum) composite sample, which includes stained or wet soils, if any. That sample shall be analyzed for the constituents listed in *Table 1* of *19.15.34.14*.

After review of the laboratory results:

a. If any contaminant concentration is higher than the parameters listed in *Table 1*, additional delineation may be required, and the operator must receive approval before proceeding with closure.
b. If all contaminant concentrations are less than or equal to the parameters listed in *Table 1*, then the operator will proceed to:
    i. Backfill with non-waste containing, uncontaminated earthen material or
    ii. Undertake an alternative closure process pursuant to a variance request after approval by OCD.

The operator will reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.

Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability, and preservation of surface water flow patterns.

The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

CLOSURE DOCUMENTATION

Within 60 days of closure completion, the operator shall submit a closure report on Form C-147, including required attachments, to document all closure activities including sampling results and the details on any backfilling, capping or covering, where applicable. The closure report shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in division rules or directives.

The operator shall notify the division when reclamation and re-vegetation are complete. Specifically, the notice will document that all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

ENVIROTECH
ENGINEERING

Select Water Solutions
Twin Lakes South Recycle Containment
Closure Cost Estimate
025315-00

Item	Units	Quanity	$/Unit	Estimate Cost
Facility Closure				
1 Fluid removal				
Twin Lakes South Containment (1.04M bbls)	bbls	1,048,031	$ 0.50	$ 524,015.50
Twin Lakes South Treatment Containment (50k bbls)	bbls	50,410	$ 0.50	$ 25,205.00
2 Vac truck (final fluid removal)	hrs	40	$ 125.00	$ 5,000.00
3 Liner removal (fold-in-place)				
Storage Containment removal and disposal	SF	2,115,102	$ 0.18	$ 380,718.36
Treatment Containment removal and disposal	SF	203,926	$ 0.18	$ 36,706.68
Erosion Control removal and disposal	SF	156,480	$ 0.18	$ 28,166.40
4 Equipment removal				
Pit clean-out and residue haul-off	LS	1	$ 20,000.00	$ 20,000.00
Equipment removal (tanks, gun barrel, FWKO)	LS	1	$ 7,500.00	$ 7,500.00
Electrical decomissioning (pumps and panels)	LS	1	$ 10,000.00	$ 10,000.00
Misc equipment clean-up and removal	hr	200	$ 135.00	$ 27,000.00
5 Site Restoration				
Twin Lakes South Recycle Facility Dozer - push in berms (bid) and final grading of the site	CY	100,852	$ 5.00	$ 504,260.00
Re-vegetation	AC	23	$ 1,500.00	$ 34,050.00
Estimated Total				**$ 1,602,621.94**

Assumptions
No Remediation will be necessary
Pit is full at time of closure
Pit berms above natural grade will be used to fill voids below natural grade

10-29-2025

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Monday, November 17, 2025 10:06 AM
To: Kim Henderson; Mitchell Ratke
Subject: 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768]
Attachments: C-147 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768].pdf

1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768]

Good afternoon Ms. Henderson.
The NMOCD has reviewed the recycling containment permit application and related documents, submitted by [289068] SELECT WATER SOLUTIONS, LLC on 10/30/2025, Application ID **521416**, for 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] in P-15-17S-37E, Lea County, New Mexico. [289068] SELECT WATER SOLUTIONS, LLC, LLC requested variances from 19.15.34 NMAC for 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768].

The following variances have been approved:

- The variance from 19.15.34.13.E NMAC for the installation of an audible “Bird-X Mega Blaster Pro” bird deterrence system is approved.
- The variance to NMAC 19.15.34.12.D to install a wire mesh, game fence, eight (8) feet in height is approved.
- The variance to 19.15.34.12.A.(4) NMAC for the installation of a 40-mil HDPE secondary liner is approved. The proposed liner system cross-section for the earthen containments is as follows: prepare subgrade, 10 oz. geotextile, 40-mil HDPE secondary liner, 200-mil geonet, 60-mil HDPE primary liner.

The form C-147 and related documents for the 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] are approved with the following conditions of approval:

- The purpose of this permit is for oil and gas activities regulated under the NMAC 19.15.34.3 STATUTORY AUTHORITY: 19.15.34 NMAC is adopted pursuant to the Oil and Gas Act, Paragraph (15) of Section 70-2-12(B) NMSA 1978, which authorizes the division to regulate the disposition of water produced or used in connection with the drilling for or producing of oil and gas or both and Paragraph (21) of Section 70-2-12(B) NMSA 1978 which authorizes the regulation of the disposition of nondomestic wastes from the exploration, development, production or storage of crude oil or natural gas.
- 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] is approved for five years of operation from the date of the permit application of 10/30/2025. 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] permit expires on 10/30/2030.
- The 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] consists of two (2) earthen Containments: Twin Lakes South Storage Containment 1,048,031-bbl and Twin Lakes South Recycle Treatment Containment 50,410-bbl. The total operational volume of 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] is approximately 1,098,441-bbls.
- Per NMAC 19.15.34.15.A.(1) operators without existing financial assurance pursuant to NMAC 19.15.8 shall furnish financial assurance acceptable to the division in the amount of the recycling containment’s estimated closure cost.
- The total closure cost estimated of permit 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] in the amount of $ 1,602,621.94, meets the requirements of NMAC 19.15.34.15.A. The financial assurance should be mailed to: EMNRD - Oil Conservation Division, Administration & Compliance Bureau, Attn: Bond Administrator. 1220 S. St. Francis Drive| Santa Fe, NM 87505.

- [289068] SELECT WATER SOLUTIONS, LLC, LLC shall construct, operate, maintain, close, and reclaim the 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] in compliance with 19.15.34 NMAC.
- [289068] SELECT WATER SOLUTIONS, LLC, LLC shall notify NMOCD when construction of the 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] commences.
- [289068] SELECT WATER SOLUTIONS, LLC, LLC shall notify NMOCD when recycling operations commence and cease at 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768].
- A minimum of 3-feet freeboard must be maintained 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] recycling containment, at all times during operations.
- If less than 20% of the total fluid capacity is utilized every six months, beginning from the first withdrawal, operation of the facility is considered ceased and notification of cessation of operations should be sent electronically to OCD Permitting. An extension to extend the cessation of operation, not to exceed six months, may be submitted using a C-147 form through OCD Permitting.
- [289068] SELECT WATER SOLUTIONS, LLC, LLC shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste on NMOCD form C-148 even if there is zero activity.
- [289068] SELECT WATER SOLUTIONS, LLC, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768].
- According to Table 1 of NMAC 19.15.34.14, the closure criteria for 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] is for groundwater depth of 51 to 100 feet.

Please include number 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] in all future communications.
Best,

Victoria Venegas • Senior Environmental Scientist
EMNRD - Oil Conservation Division
506 W. Texas Ave. Artesia, NM 88210
575.909.0269 | **Victoria.Venegas@emnrd.nm.gov**

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https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: SELECT WATER SOLUTIONS, LLC 1820 N I-35 Gainesville, TX 76240	OGRID: 289068
	Action Number: 521416
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	• 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] is approved for five years of operation from the date of the permit application of 10/30/2025. 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] permit expires on 10/30/2030. • [289068] SELECT WATER SOLUTIONS, LLC, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768]. • [289068] SELECT WATER SOLUTIONS, LLC, LLC shall construct, operate, maintain, close, and reclaim the 1RF-545 - TWIN LAKES RECYCLE FACILITY [FVV2531839768] in compliance with 19.15.34 NMAC.	11/17/2025