Adriane Kenney
Environmental Specialist, Permian Permitting

April 8, 2026

Ms. Victoria Venegas
New Mexico Oil Conservation Division
1220 S. St. Francis Drive
Sante Fe, NM 87505

Via Electronic Submittal

RE: C-147 – McCloy Ranch Section 2 Recycling Facility and Containment
Section 2 of T24S, R32E, Lea County, New Mexico

Dear Ms. Venegas,

Enclosed is a complete C-147 registration application for the McCloy Ranch Section 2 Recycling Facility & Containment proposed on an existing Chevron U.S.A. Inc. BLM lease NMNM129262. This package was prepared by Arcadis U.S., Inc and includes the following documentation:

- Form C-147
- Siting Requirements
- Design and Construction Plan
- Operating and Maintenance Plan
- Closure Plan
- Financial Assurance Requirements
- Variance Requests
- References
- Figures 1 through 8
- Appendices A through E

Should you have any questions or require additional information, please contact me at your convenience.

Respectfully,

Enclosure

Chevron U.S.A. Inc.
1500 Louisiana Street, 35 Floor, Houston, TX 77002
Tel 832 854 5620
akenney@chevron.com ,

ARCADIS

Chevron U.S.A. Inc.

C-147 REGISTRATION APPLICATION PACKAGE

McCloy Ranch Development Area

April 2026

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McCloy Ranch Development Area

April 2026

Prepared By:
Arcadis U.S., Inc.
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Lubbock
Texas 79424
Phone: 432 687 5400
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Prepared For:
Adriane Kenney
Chevron U.S.A. Inc.
1500 Louisiana Street
35th Floor
Houston, Texas 77002

Our Ref:
30306677

Contents

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Appendices

1. Introduction

Arcadis on behalf of Chevron U.S.A., Inc. (Chevron) requests registration under 19.15.34 NMAC of the following containment in the McCloy Ranch Development Area located in Township 24 South, Range 32 East in southern Eddy County.

- Section 2 Recycling Facility and Containment

Appendix A contains a survey plat identifying the location of the proposed recycling facility and containment. Note that the Section 2 recycling facility and containment is identified as “McCloy Ranch Recycle Pad & Frac Pond” respectively on the plat.

Compliance with the requirements of 19.15.34.11 through 19.15.34.15 is described in this application. Note that Chevron is requesting a total of three variances from these requirements as noted in Section 4 and fully described in Section 8.

A copy of Form C-147 found in Section 2 has been submitted to the Bureau of Land Management, the surface landowner, as required under 19.15.34.10.A.

2. NMOCD Form C-147

State of New Mexico
Energy Minerals and Natural Resources
Department Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
https://www.emnrd.nm.gov/ocd/ocd-e-permitting/

Form C-147
Revised October 11, 2022

Recycling Facility and/or Recycling Containment

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

Type of action: [ ] Permit [X] 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: **Chevron U.S.A. Inc.** (For multiple operators attach page with information) OGRID #: **4323**

Address: **6301 Deauville Blvd., Midland, TX 79706**

Facility or well name (include API# if associated with a well): **McCloy Ranch Section 2 Recycling Facility & Containment**

OCD Permit Number: FVV2609933317 (For new facilities the permit number will be assigned by the district office)

U/L or Qtr/Qtr NWSE Section **2** Township **24S** Range **32E** County: **Lea**

Surface Owner: [X] Federal [ ] State [ ] Private [ ] Tribal Trust or Indian Allotment

2.

[X] **Recycling Facility:**

Location of recycling facility (if applicable): Latitude 32.244626 Longitude -103.641730 NAD83

Proposed Use: [ ] Drilling* [X] Completion* [ ] Production* [ ] 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

[X] Above ground tanks [ ] 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 32.245696 Longitude -103.640833 NAD83

[ ] For multiple or additional recycling containments, attach design and location information of each containment

[x] Lined [x] Liner type: Thickness **60** mil [ ] LLDPE [x] HDPE [ ] PVC [ ] Other _____

[ ] String-Reinforced

Liner Seams: [x] Welded [ ] Factory [ ] Other _____ Volume: 764,000 bbl Dimensions: L **1200'** x W **1200'** x D 16

[ ] 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 $__915,550_____ **(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__Eight-foot tall 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): Adriane Kenney Title: Environmental Specialist

Signature: Adriane Kenney Date: 04/01/2026

e-mail address: akenney@chevron.com Telephone: 832-854-5620

11.

OCD Representative Signature: Victoria Venegas **Approval Date:** 04/09/2026

Title: Senior Environmental Scientist **OCD Permit Number:** FVV2609933317

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

KS INDUSTRIES, LLC

04/08/2026

Attn: CVX Adriane Kenney

In regard to the total estimated cost for closure, reclamation, and restoration of the proposed McCloy Ranch Section 2 Recycling Facility and Containment based on NMAC 19.15.34.14 please see the provided breakdown below. Labor, equipment, material, and disposal costs, including mobilization and demobilization costs, are included within each category item.

Item:	Unit	Subtotal
1. Removal of fluids	1	$95,090
2. Removal of contents and liners	1	$335,000
3. Soil characterization beneath liner	1	$ 5,000
4. Fence and debris removal	1	$112,600
5. Backfill and Regrading	1	$295,360
6. Revegetation	1	$72,500

Total Lump Sum: $915,550

Respectfully Submitted,

Bedo R. Juarez
Civil Project Manager

KS Industries, LLC
1602 Corrales Drive
Carlsbad, NM 88220
Bjuarez@ksilp.com
Mobile: (432) 250-5458

3. Siting Requirements

3.1 Distance to Ground Water

The depth to groundwater at the proposed recycling facility and containment is greater than 50 feet as shown in the geotechnical report in **Appendix B** and the discussion below.. **Figure 1** is a geologic map showing the USGS map of geologic units and structural features in the general location of the proposed recycling facility and containment.

Between January 30 and February 5, 2026, site-specific geotechnical borings were drilled to depths ranging from 35 feet to 65 feet below the existing ground surface (bgs). Water was not encountered in any of the boring during or immediately after drilling. The boreholes were backfilled with the excavated soils following completion of drilling. Approximate locations of the borings are shown in Appendix B.

3.2 Distance to Municipal Boundaries and Fresh Water Fields

The recycling facility and containment is not within incorporated municipal boundaries or within defined municipal fresh water well fields (**Figure 2**) covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978, as amended.

The nearest municipal community to the recycling containment is:

- Village of Loving, which is incorporated, but does not operate any municipal fresh water well fields, located approximately 27 miles west; and
- Village of Malaga, which is not incorporated, located approximately 26 miles west.

3.3 Distance to Subsurface Mines

General knowledge based on interaction with the Bureau of Land Management (BLM) Carlsbad Field Office (CFO) staff and a search of the NM EMNRD Mining and Minerals Division database confirms that there are no subsurface mines in proximity of the recycling containment (**Figure 3**). The only identified facilities in the general vicinity are surface caliche and aggregate pits and nearby potash leases.

3.4 Distance to 100-Year Floodplains

The proposed location of the recycling facility and containment is located in Federal Emergency Management Agency (FEMA) Flood Zone D (Figure 4). FEMA Flood Zone D is subject to minimal flood hazard. No 100-year flood plains are located near the proposed recycling containment facility.

3.5 Distance to Surface Water and Wetlands

The proposed recycling facility and containment is not located within 300 feet of any NHD mapped continuously flowing watercourse or 200 feet of any other significant NHD mapped watercourse, lakebed, sinkhole or playa lake (measured from the ordinary water mark) or located within the prescribed setbacks, as defined by NMOCD rules (**Figure 5**).

The proposed recycling containment facility is not located within 500 feet of any USFWS NWI Mapped wetlands (**Figure 5**).

3.6 Distance to Permanent Residence or Institutions

The proposed recycling facility and containment is not located within 1,000 feet of a permanent residence, school, hospital, institution, or church at the time of this initial registration (**Figure 6**). The only development and structures in the prescribed setback area are associated with oil and gas production operations.

3.7 Distance to Domestic and Stock Water Supplies

The proposed recycling facility and containment is not located within 500 feet of a spring or fresh water well used for domestic or stock watering purposes at the time of this initial registration (Figure 2 and 7)

3.8 Distance to Cave and Karst Features

The proposed recycling facility and containment is located within a BLM-identified low potential karst zone (**Figure 8**). Results from site-specific geotechnical studies (**Appendix B**) and BLM CFO inventory data of existing cave and karst features show that the proposed recycling containment facility is not located within an unstable area.

4. Design and Construction Plan

The design drawings and details for the recycling containment, which were developed and stamped by a Professional Engineer licensed in the state of New Mexico are found in **Appendix C**. The construction specifications to accompany the design drawings and details are included in **Appendix D**. These design and construction specifications meet or exceed NMOCD requirements for recycling containments. The Geotechnical Engineering Study Report for the recycling containment site is included in **Appendix B**.

4.1 General Specifications

The following general specifications have been incorporated into the design and will be met during construction.

- The recycling containment is designed and will be constructed to ensure confinement of produced water, to prevent releases, and to prevent overtopping due to wave action or rainfall.
- The recycling containment, as designed, will be constructed with a proper foundation and interior slopes consisting of a firm, unyielding base, which is smooth and free of rocks, debris, sharp objects, and irregularities. In addition, a non-woven geotextile will be installed under the secondary liner to provide additional protection from any protuberances in the foundation and reduction of localized stress-strain.
- The recycling containment will be constructed in a levee with inside and outside grades of three horizontal feet to one vertical foot (3H:1V), which is shallower and provides greater stability than the NMOCD 2H:1V specification for the inside grade.
- The recycling containment will be constructed with a 60 mil HDPE primary and secondary liner and an interstitial leak detection system. Note that the 60 mil HDPE secondary liner exhibits a hydraulic conductivity of less than 1 x 10^{-12} cm/sec. **Note that this is a variance** from the specified 30 mil LLDPE string reinforced liner or equivalent with a hydraulic conductivity of 1 x 10^{-9} cm/sec and provides greater protection of fresh water, public health, and the environment. Please refer to Section 8.1 that provides a full description and basis for this variance request.
- The exterior edges of both liners will be anchored in the bottom of a 24-inch deep compacted earth-filled trench, which exceeds the NMOCD 18 inch specification.
- Liner seams will be minimized and oriented vertically rather than across all levee slopes. Factory welded seams will be utilized to the maximum extent possible. Sloped liner panels will extend a minimum of five feet beyond the point of grade change to prevent seams from resting on the grade break.
- All field seams and welds will be subjected to non-destructive field testing by qualified personnel per the appropriate testing standard to ensure proper thermal sealing. Details on liner testing procedures may be found in Section 33 47 13 / Subpart 3.04 of the construction specification (**Appendix D**). Field seams will be overlapped a minimum of six inches.
- The primary liner will be protected from excessive hydraulic force or mechanical damage from discharge or suction within the recycling containment. No discharge or suction lines penetrate the liners.
- The recycling containment will be constructed with a leak detection system between the primary and secondary liners comprised of a 200-mil geonet. The system is properly designed to facilitate effective drainage, collection, and removal of liquid above the secondary liner and leakage detection at the earliest possible time.

- The recycling containment is designed to prevent run-on of surface water. The minimal distance from the existing surface elevation to the top of the containment berm will be approximately four feet.

4.2 Stockpiling of Topsoil

Where topsoil is present, prior to constructing the recycling containment, it will be stripped and stockpiled on site for use as final cover or fill at time of closure.

4.3 Signs

An upright sign no less than 12 inches by 24 inches with lettering no less than two inches in height will be installed in a conspicuous place on the fence surrounding the containment. The sign will be installed in such a manner and location that a person can easily read the legend. The sign will include the following information:

- The operator's name;
- The location of the site by quarter-quarter or unit letter, section, township, and range;
- Emergency telephone number.

4.4 Fencing

The recycling containment will be constructed with an eight-foot-tall game fence to deter unauthorized wildlife and human access. **Note that this is a variance** from the minimum required four-foot fence with at least four stands of barbed wire evenly spaced in the intervals between one foot and four feet above ground level and provides equivalent or greater wildlife and human deterrence. Please refer to Section 8.2 that provides a full description and basis for this variance request.

The fence will be gated to provide access to Operations personnel and will be closed and locked when access is not required.

4.5 Netting and Wildlife Protection

The game fence, as described above, surrounding the recycling containment will be effective in excluding terrestrial wildlife. Due to infeasibility of installing netting on a recycling containment system of this size (1200 feet by 1200 feet), an audible avian deterrence system has been designed and will be installed as an alternative. This type of system has been utilized by other recycling containment operators in southeast New Mexico and has been demonstrated as providing effective protection for avian species, including migratory birds. **Note that this is a variance** from the specified screening or netting and will provide equal protection of avian species. Please refer to Section 8.3 that provides a full description and basis for this variance request.

Containment inspections will be conducted at least once per week to include visual determination of any wildlife impacts. If any dead migratory birds or other wildlife is detected, notification to the New Mexico Department of Game and Fish and NMOCD District Office will provided as soon as practicable but no later than 30 days from the date of discovery.

5. Operating and Maintenance Plan

The recycling containment will be operated in such a manner to contain liquids and solids and the integrity of the liner and leak detection system will be monitored in such a manner to prevent contamination of fresh water and protect public health and the environment as described below. The purpose of the recycling containment is to facilitate recycling of treated produced water from nearby oil and gas wells for new well completions. When treated produced water is not needed for well completion activity, produced water will be properly injected at one of Chevron's or third party's authorized SWDs. The recycling containment will not be used for disposal of produced water or other oilfield wastes.

The recycling containment and associated leak detection system will be inspected at least weekly while it contains any fluid and results of the inspection will be documented on an inspection checklist. The completed checklists will be retained and made available for review upon request.

These inspections will address, at a minimum, the following:

- Removal of any visible layer of oil from the liquid surface;
- Verification that a minimum of three-foot freeboard is maintained;
- If a liner breach is identified above the liquid surface, the liner will be repaired or liner replacement will be initiated within 48 hours of detection. Alternatively, the NMOCD district office will be contacted within 48 hours to seek an extension for liner repair / replacement.
- If a liner breach is identified below the liquid surface, all liquid above the identified breach will be removed, the NMOCD district office will be notified, and liner repair / replacement shall be initiated within 48 hours of discovery.
- Visual inspection of berm integrity and condition to ensure the prevention of surface water run-on.
- Determination that an oil absorbent boom is present on site and in proper condition to contain an unanticipated release.

The recycling containment will be equipped with continuous liquid level monitoring and interstitial leak detection systems utilizing pressure transducers connected through a SCADA system to provide immediate notification to Chevron field personnel.

Treated produced water deposits into and withdrawals from the recycling containment will be measured and documented to determine when the system has ceased operations (less than 20% of the total fluid capacity is used during each rolling six-month period following the initial withdrawal of produced water). Chevron will submit Form C-148 monthly to NMOCD within 30 days of the end of the calendar month listing: volumes of produced water received; volumes of fresh or brackish water received; and total volume of water leaving the recycling facility.

Upon cessation of operation, the NMOCD district office will be notified. Chevron will submit to NMOCD a completed Form C-148 within 30 days following the end of each calendar month. Each submittal will certify that the recycling containment has not ceased operation based on the 20% threshold described above.

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6. Closure Plan

After operations cease, all fluids will be removed within 60 days and the recycling containment closed within six months.

All removed liquids, solids, and liner materials will be removed and transferred to an NMOCD-approved disposal facility within the six-month period.

A five-point composite sample will be collected from beneath the containment and tested for contamination. The composite sample will include stained or wet soil areas, if any, and analyzed for constituents listed in Table I of 19.15.34.14 NMAC.

- If any contaminant concentration exceeds the values listed in Table I (based on depth from bottom of containment to groundwater), the NMOCD district office will be contacted requesting approval before proceeding with closure activity.
- If all contaminant concentrations are less than or equal to the values listed in Table I, closure will proceed by backfilling with non-waste containing, uncontaminated, earthen material.

Within 60 days of completing closure, a Closure Report on NMOCD Form C-147, including required attachments, will be submitted to document all closure activities including sampling results and details of any backfilling, capping, or covering, were applicable. The Closure Report will certify that all information in the report and attachments is correct and that all applicable closure requirements and conditions specified in NMOCD rules and directives have been met.

The recycling containment's locations will be reclaimed to a safe and stable condition that blends with the surrounding undisturbed areas. Topsoils and subsoils will be replaced to their original relative positions and contoured to achieve erosion control, long-term stability, and preservation of surface water flow patterns.

The location will be reseeded in the first favorable growing season following closure with the goal of substantially restoring the impact surface location to the existing condition prior to construction of the recycling containment. Surface reclamation will be deemed complete when: all ground surface disturbing activities have been completed; a uniform vegetative cover with a life-form ratio of plus or minus 50% of pre-disturbance levels has been established; and a total percent plant over of at least 70%, excluding noxious weeds, has been established.

Surface reclamation obligations imposed by the Bureau of Land Management or New Mexico State Trust Land on lands managed by those agencies will supersede these requirements, provided that these other requirements provide equal or greater protection of fresh water, human health, and the environment.

NMOCD will be notified when reclamation and re-vegetation are complete.

7. Financial Assurance Requirements

Chevron U.S.A. Inc. (OGRID 4323) has existing financial assurance in place with NMOCD as required by 19.15.8 NMAC per 19.15.34.15(A)(2) which is limited to only wells owned and operated by Chevron U.S.A. Inc.

However, a separate financial assurance is in place and in accordance with 19.15.34.15(A)(1) to allow sharing fluids with other companies/operators who have drilling/fracking operations in the area. An added benefit of this is to minimize future surface disturbance by potentially alleviating the need to build additional recycled water containment structures in the area.

8. Variance Requests

This registration includes requests for three variances from the requirements for each recycling containment as described below.

8.1 Secondary Liner Specification

The recycling containment has been designed and will be constructed with a 60 mil HDPE secondary liner rather than the prescribed 30 mil LLDPE secondary liner. Chevron has selected the 60 mil HPDE material for the following reasons:

- The 60 mil HDPE exhibits a maximum hydraulic conductivity of 1 x 10^{-12} cm/sec, which exceeds the specified performance of 1 x 10^{-9} cm/sec.
- The US Environmental Protection Agency identifies 60 mil as the recommended minimum thickness for HDPE as detailed in the EPA's Guide for Industrial Waste Management, Part IV, Chapter 7, Section B, page 7B-24 addressing protection of groundwater through proper design and installation of double liner systems.
- HDPE was selected as the preferred secondary liner material based upon weathering/aging characteristics, mechanical properties, and chemical resistance.
- HDPE liner life is expected to exceed twenty years, which is substantially longer than the anticipated age of the recycling containment to support well completion activities in the development area.
- The 60 mil HDPE liner is compliant with internal Chevron Global engineering design and environmental performance standards.

Chevron believes that this variance from the NMOCD prescribed liner specification is warranted and provides greater protection of groundwater resources as shown above. Liner hydraulic conductivity and performance specifications are found in **Appendix E**.

8.2 Fencing

The recycling containment has been designed and will be equipped with an eight-foot-tall game fence. This fence will not be installed with the specified four stands of barbed wire but offers equivalent entry deterrence to wildlife and unauthorized human entry without introducing the risk of injury resulting from unintended or incidental contact with the barbed wire.

8.3 Netting

The recycling containment has been designed and will be equipped with an audible avian species protection system, which effectively deters birds from approaching the area. Due to the size of the proposed recycling containment structure (1200 feet by 1200 feet), design, construction, and maintenance of netting is not practicable. Chevron has evaluated multiple alternatives, determined that an audible system is the most effective and viable option, and selected the Bird Gard Super Pro AMP for use. This particular product has been used by other operators with registered recycling containments in southeast New Mexico and proven effective.

9. References

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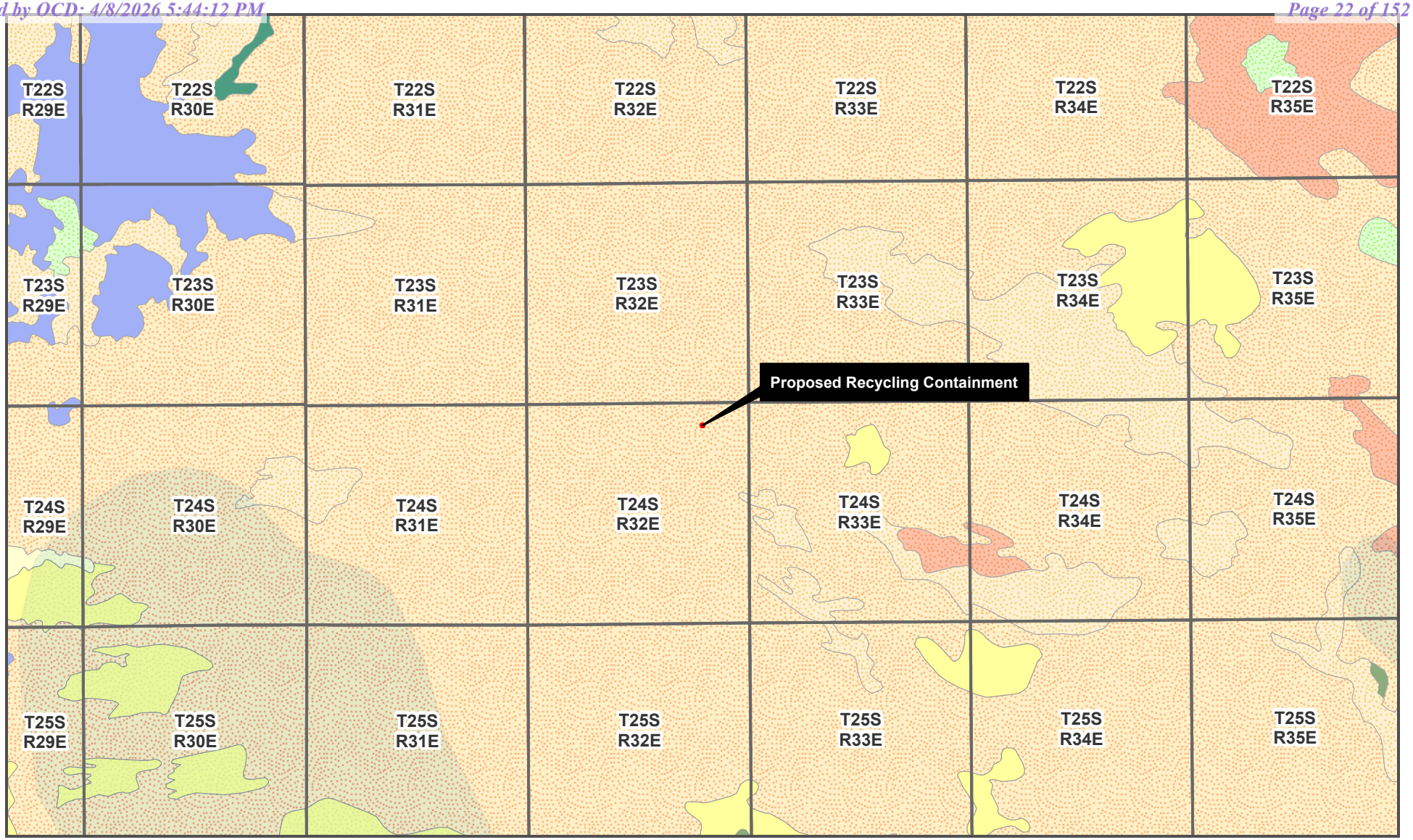
Figures



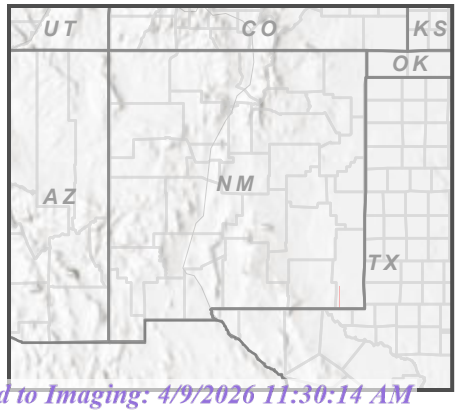


FIGURE 1

GEOLOGIC MAP

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

0 10,000 20,000 ft
0 3,000 6,000 m

Legend

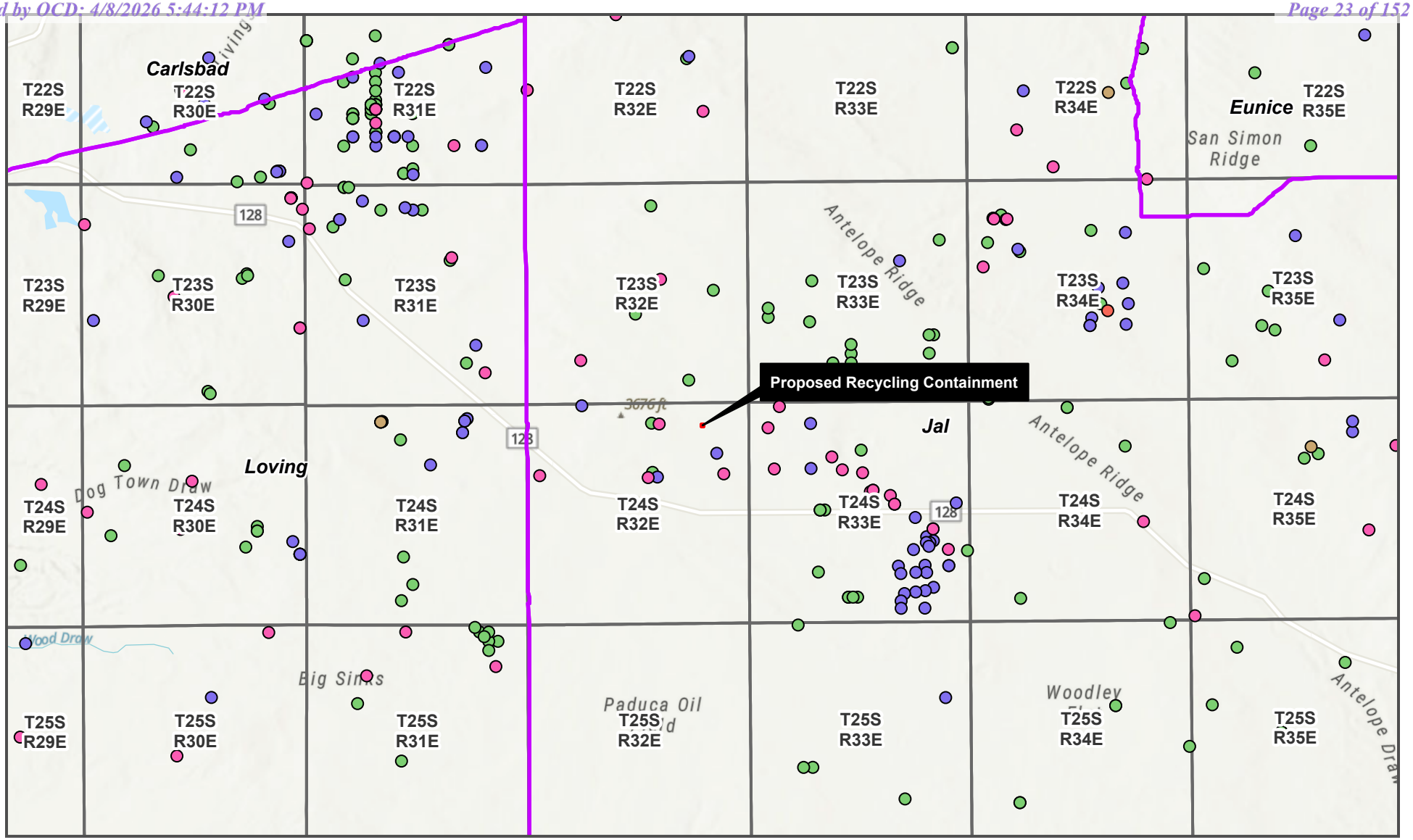
- Pad
- Townships

Geology

- @cu
- Pqm
- Pr
- Qa
- Qe/Qp
- Qoa
- Qp
- Qpl
- To

ARCADIS

Creator: vmn1306 Last Saved: 2/6/2026 4:35 PM
Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Location: I:_ENV\Chevron_MCB\Projects\McCloy_Ranch\Recycle Frac Pond C-147 Figures\MXD_Pro\Recycle Frac Pond C-147 Figures aprx\Figure 1 Geologic Map
Disclaimer: the information shown in this map was assembled from GIS data created and/or acquired by Arcadis. The data is not to survey accuracy and is meant for planning and visualization purposes only.



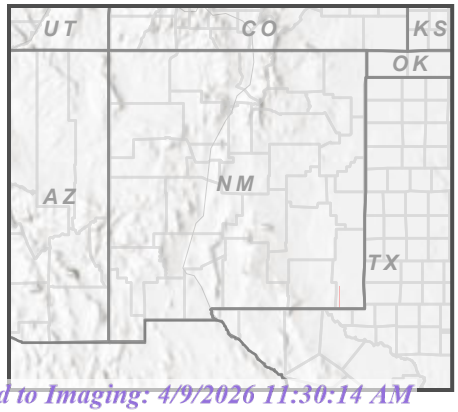


FIGURE 2
MUNICIPAL BOUNDARIES AND FRESH WATER FIELDS
McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

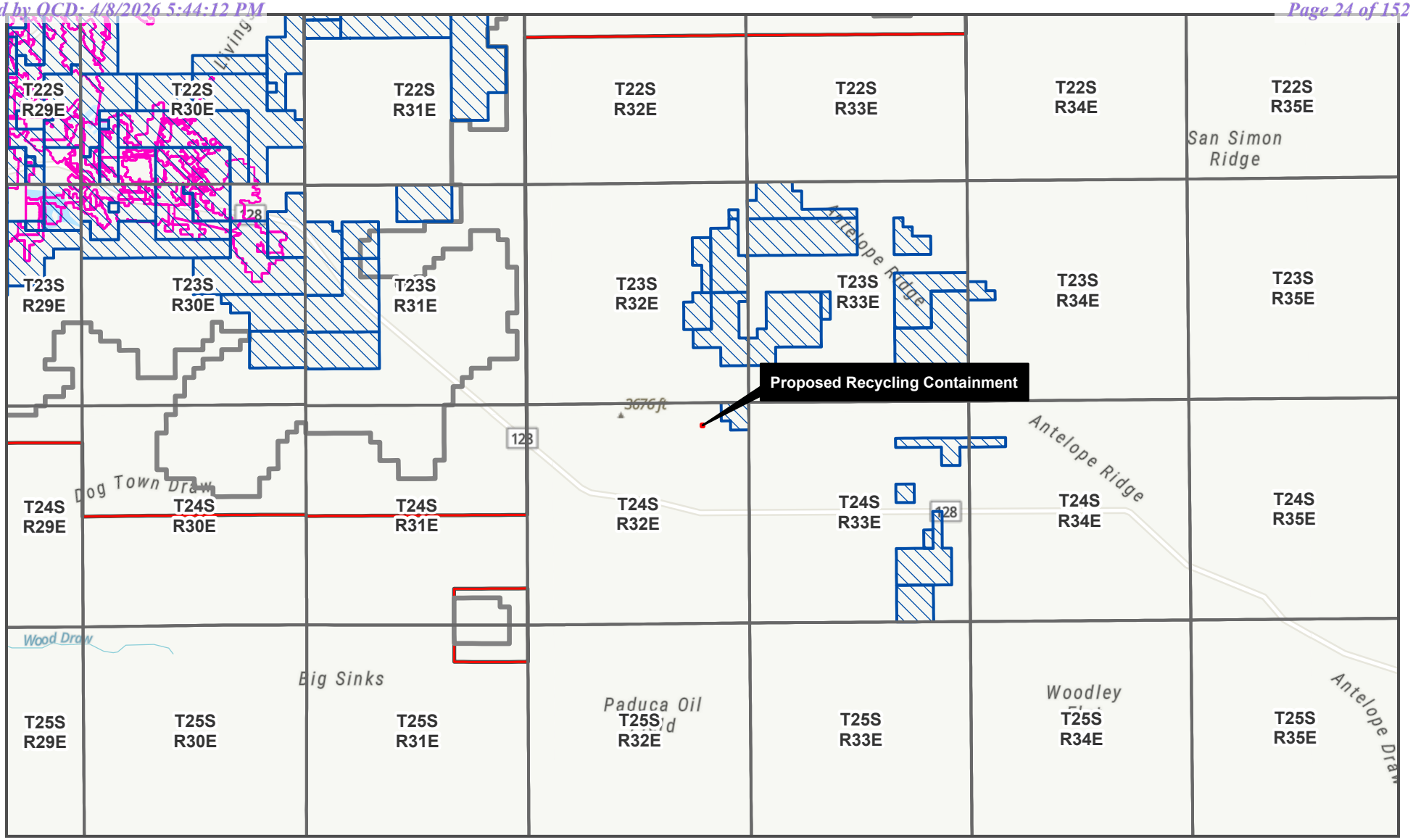
Notes:
1. ESRI World Imagery Aerial (2022)

Legend
- Pad
- Municipal Boundaries
- Townships

OSE POD Wells
- Unknown
- Active
- Capped
- Pending
- Plugged

0 10,000 20,000 ft
0 3,000 6,000 m

ARCADIS



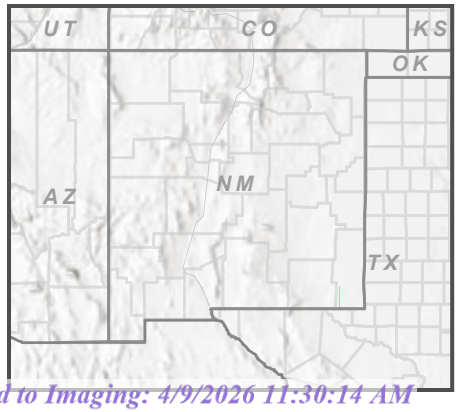


FIGURE 3

SUB SURFACE MAP

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

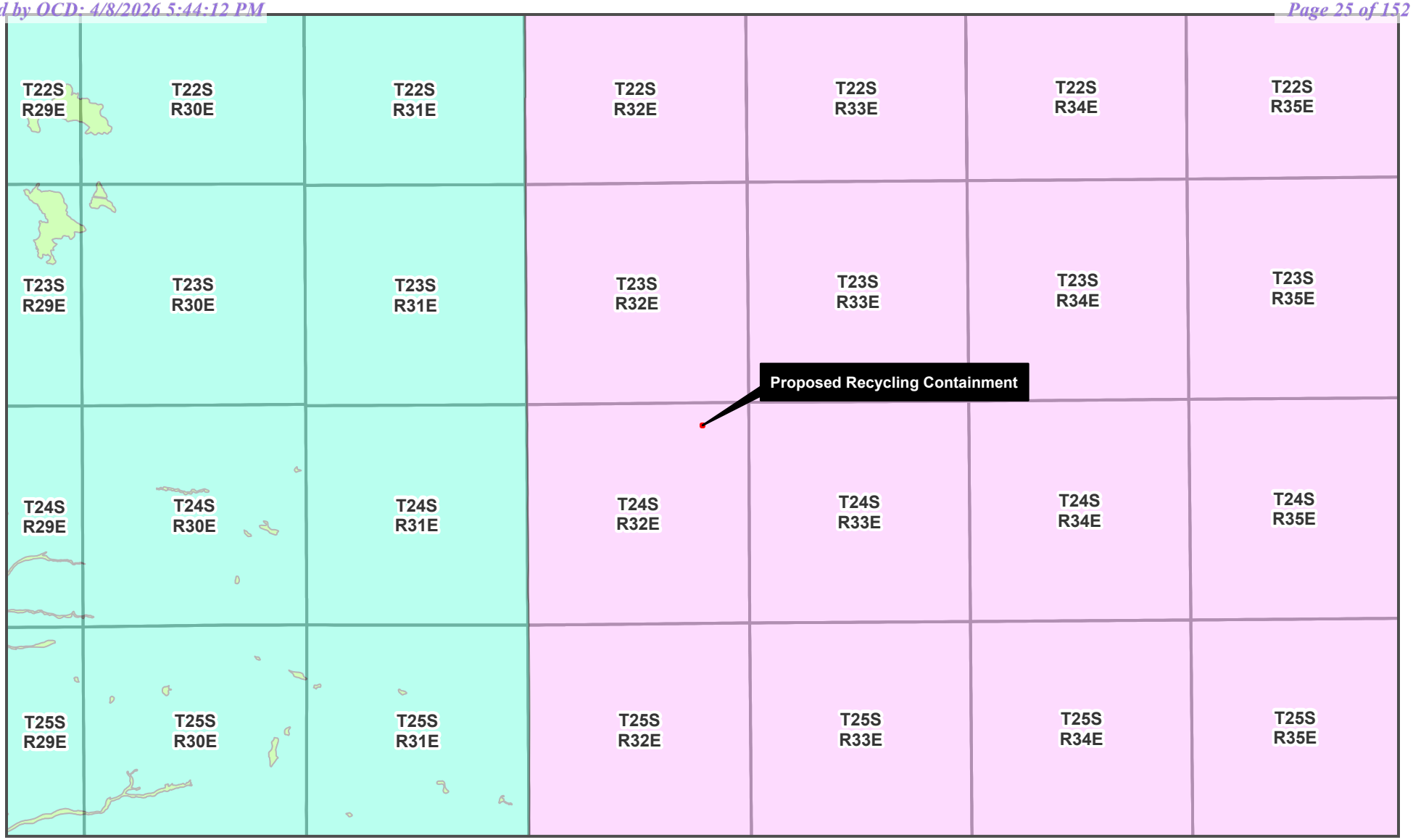
Legend

- Pad
- Townships
- Potash Leases
- Known Potash Leasing Area
- Schedule of Proposed Actions
- Mine Workings

0 10,000 20,000 ft
0 3,000 6,000 m

ARCADIS

Creator: vmn1306 Last Saved: 2/6/2026 4:35 PM
Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Location: I:_ENV\Chevron_MCB\Projects\McCloy_Ranch\Recycle Frac Pond C-147 Figures\MXD_Pro\Recycle Frac Pond C-147 Figures aprx\Figure 3 Subsurface Mines
Disclaimer: the information shown in this map was assembled from GIS data created and/or acquired by Arcadis. The data is not to survey accuracy and is meant for planning and visualization purposes only.



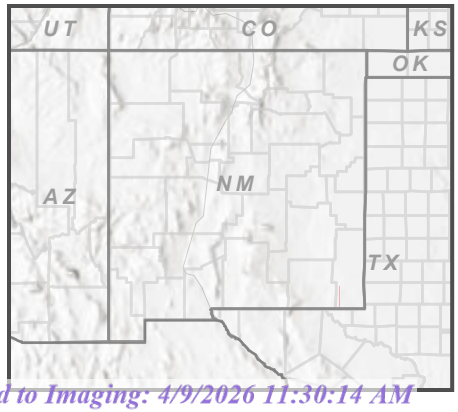


FIGURE 4

100 YEAR FLOOD PLAIN

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

Legend

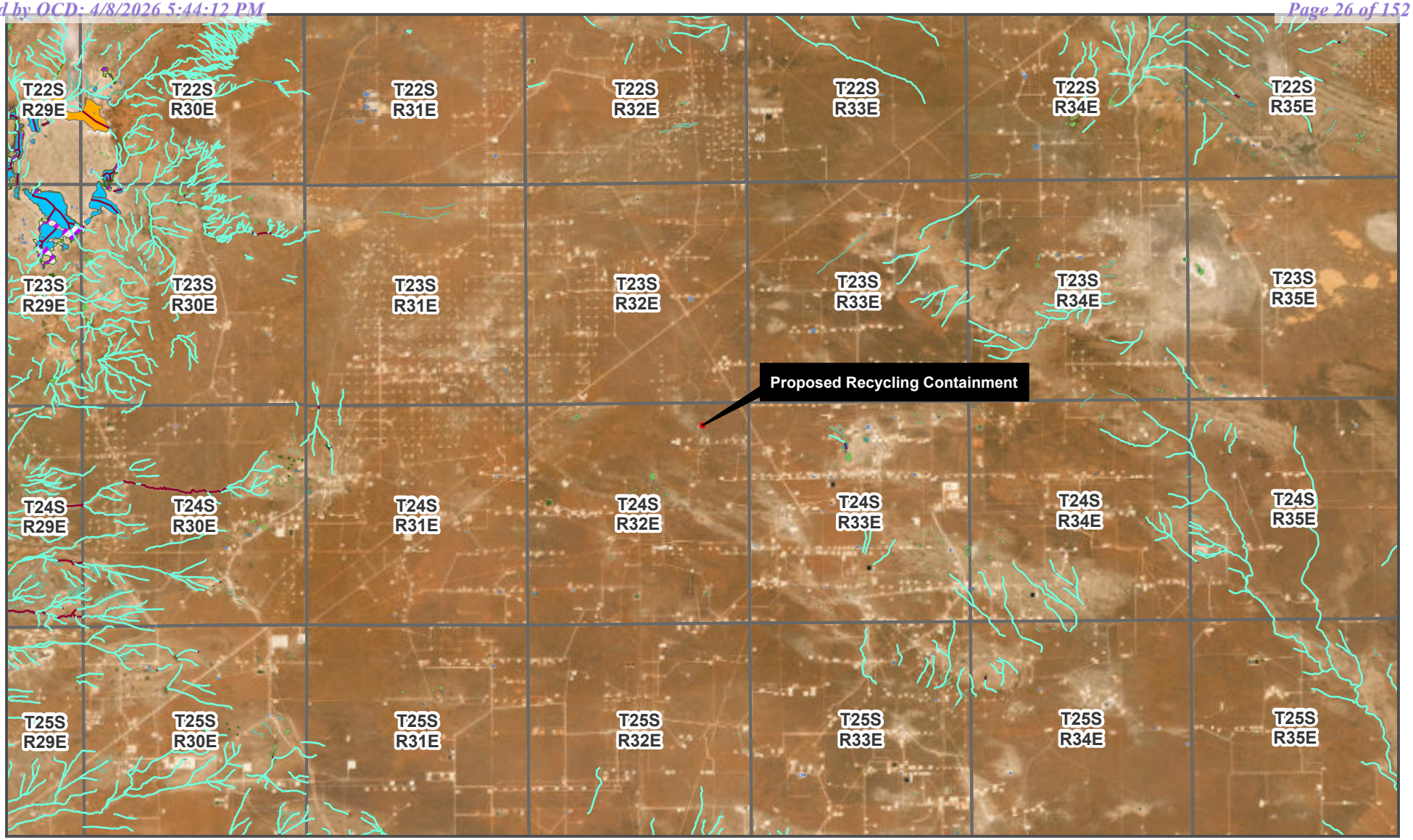
- Pad
- Townships

FEMA Floodplain

- Zone A
- Zone D
- Zone X

0 10,000 20,000 ft
0 3,000 6,000 m

ARCADIS



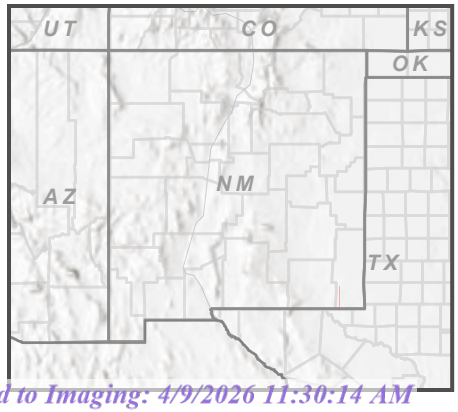


FIGURE 5

SURFACE WATER FEATURES AND WATERCOURSES, WETLAND

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

0 10,000 20,000 ft
0 3,000 6,000 m

Legend

- Pad
- Townships

Wetlands

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

NHDArea

- StreamRiver
- Wash

NHDWaterbody

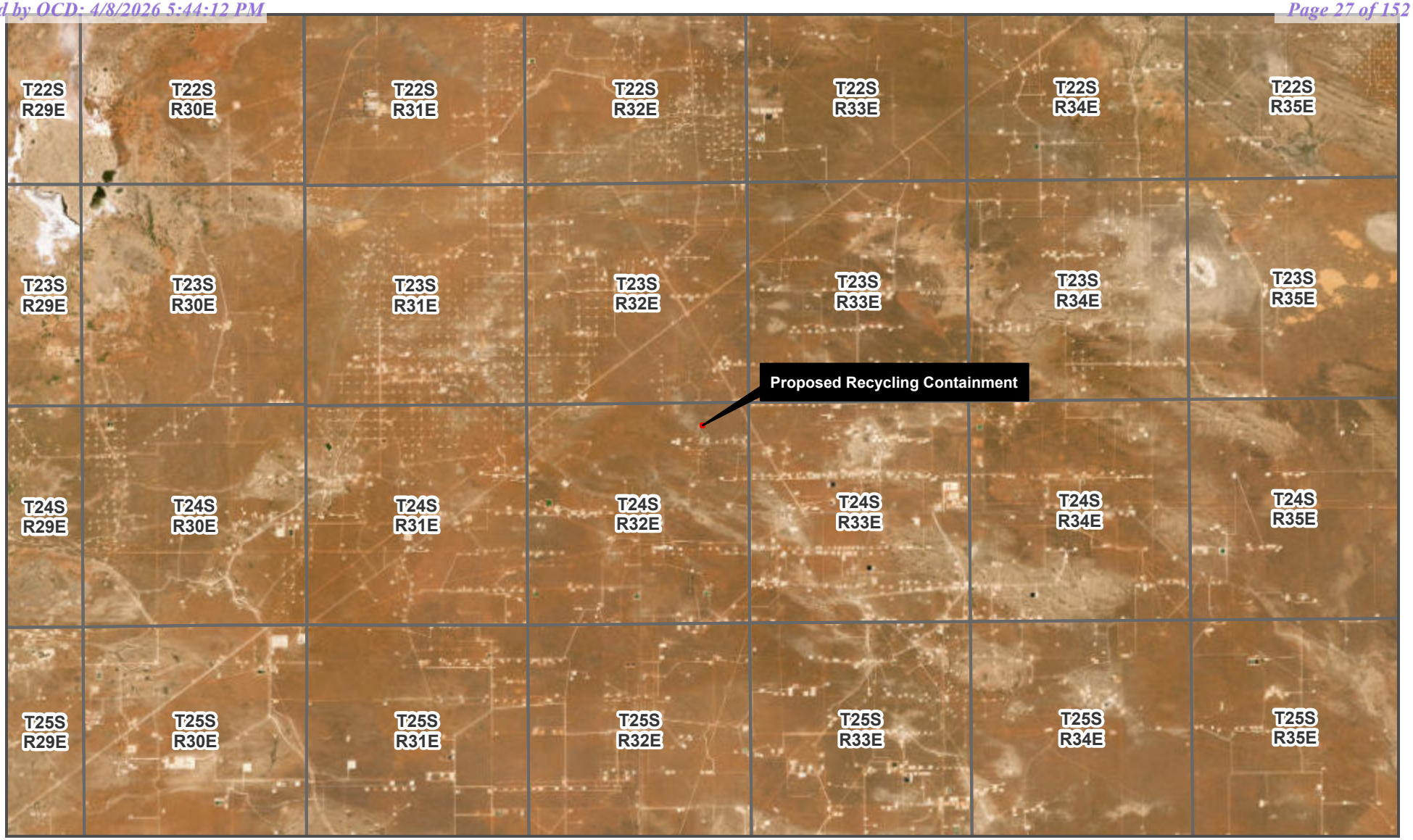
- LakePond
- Reservoir

NHDFlowline

- ArtificialPath
- CanalDitch
- Connector
- StreamRiver

ARCADIS

Creator: vmn1306 Last Saved: 2/6/2026 4:35 PM
Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Location: I:_ENV\Chevron_MCB\Projects\McCloy_Ranch\Recycle Frac Pond C-147 Figures\MXD_Pro\Recycle Frac Pond C-147 Figures aprx\Figure 5 Surface Water Features and Watercourses, Wetlands
Disclaimer: the information shown in this map was assembled from GIS data created and/or acquired by Arcadis. The data is not to survey accuracy and is meant for planning and visualization purposes only.



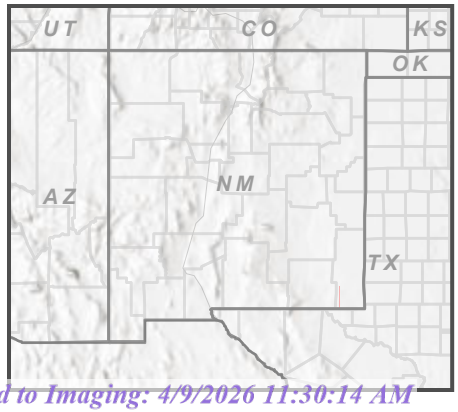


FIGURE 6

PERMANENT RESIDENCES AND INSTITUTIONS

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

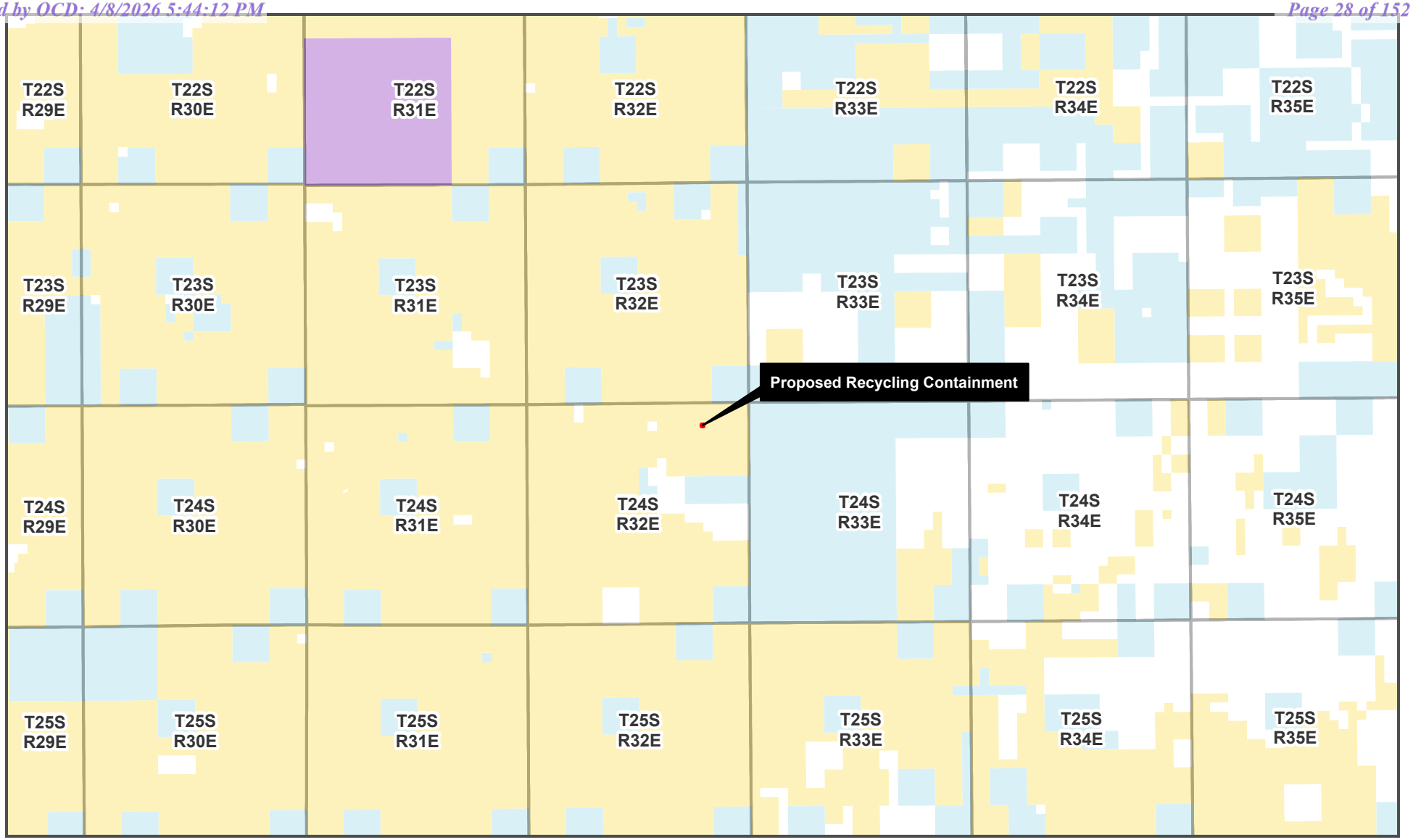
Legend

- Pad
- Townships

0 10,000 20,000 ft
0 3,000 6,000 m

ARCADIS

Creator: vmn1306 Last Saved: 2/6/2026 4:35 PM
Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Location: I:_ENV\Chevron_MCBU\Projects\McCloy_Ranch\Recycle Frac Pond C-147 Figures\MXD_Pro\Recycle Frac Pond C-147 Figures aprx\Figure 6 Permanent Residences and Institutions
Disclaimer: the information shown in this map was assembled from GIS data created and/or acquired by Arcadis. The data is not to survey accuracy and is meant for planning and visualization purposes only.



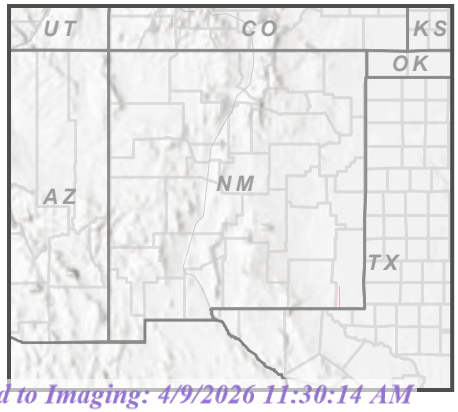


FIGURE 7

DOMESTIC AND STOCK WATER SUPPLIES

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

0 10,000 20,000 ft
0 3,000 6,000 m

Legend

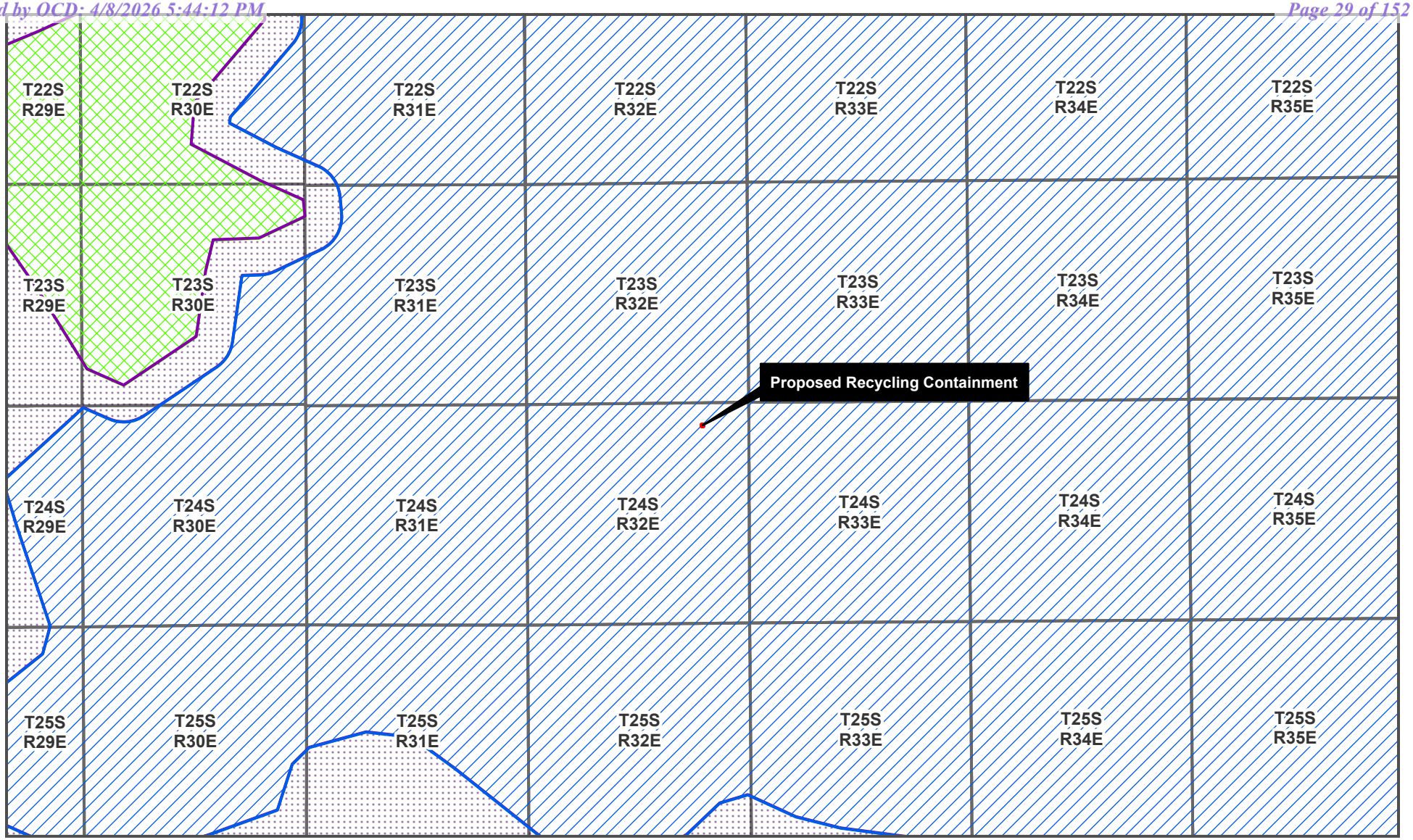
- Pad
- Townships

SURFACE OWNERSHIP

- Bureau of Land Management
- Dept. of Energy
- Private
- State

ARCADIS

Creator: vmn1306 Last Saved: 2/6/2026 4:35 PM
Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Location: I:_ENV\Chevron_MCB\Projects\McCloy_Ranch\Recycle Frac Pond C-147 Figures\MXD_Pro\Recycle Frac Pond C-147 Figures aprx\Figure 7 Domestic and Stock Water Supplies
Disclaimer: the information shown in this map was assembled from GIS data created and/or acquired by Arcadis. The data is not to survey accuracy and is meant for planning and visualization purposes only.



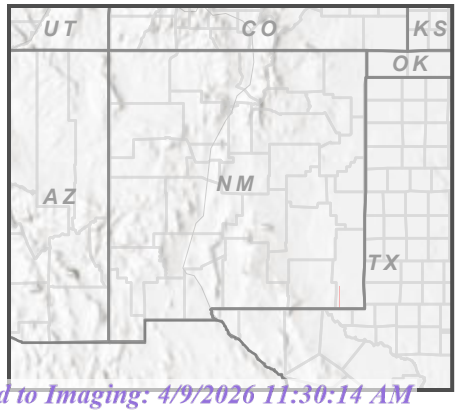


FIGURE 8

CAVE AND KARST FEATURES

McCloy Ranch Recycle Facility and Containment
Chevron
Lea County, New Mexico

Notes:
1. ESRI World Imagery Aerial (2022)

Legend

- Pad
- Townships

Karst Occurence Potential

- High
- Medium
- Low

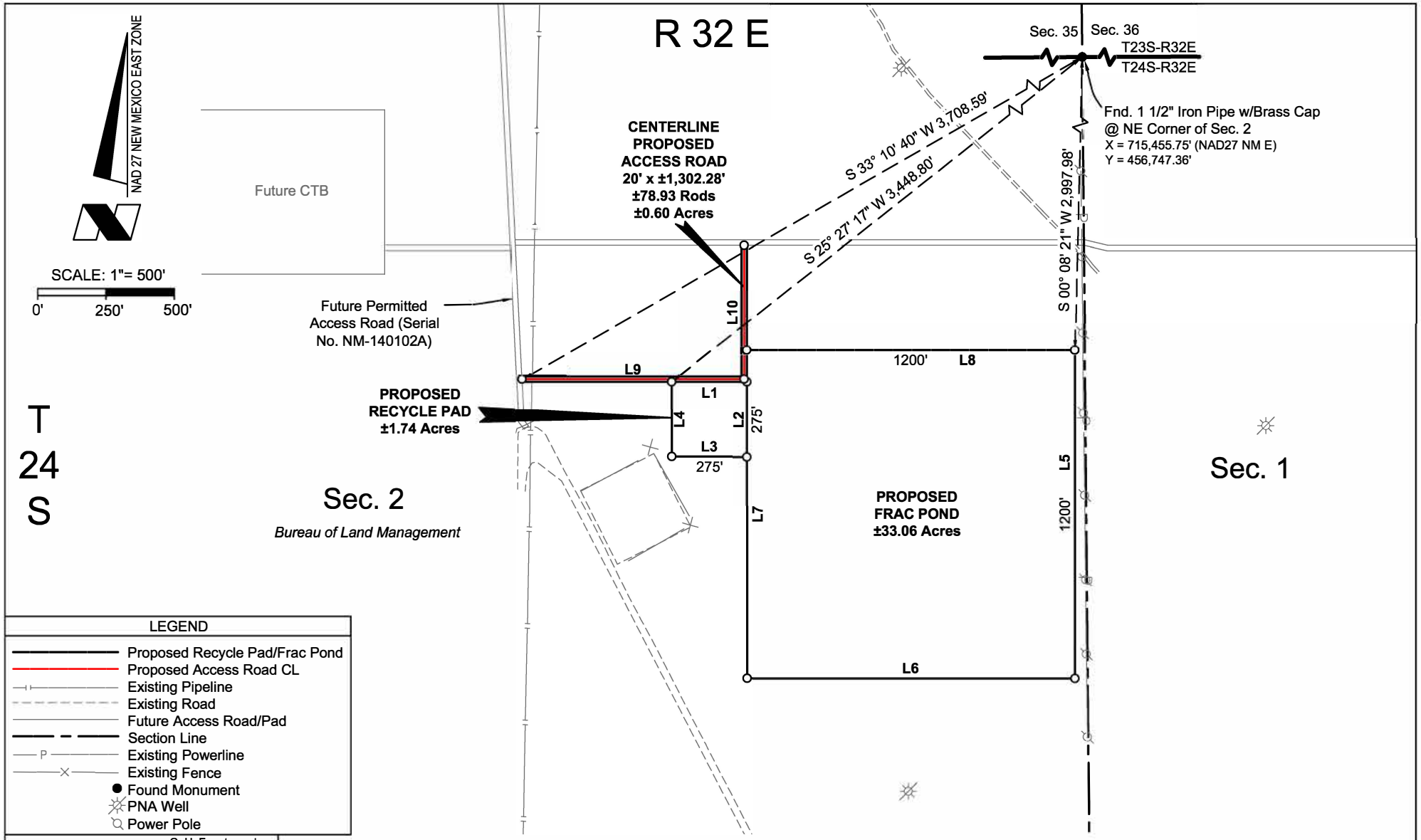
0 10,000 20,000 ft
0 3,000 6,000 m

ARCADIS

Creator: vmn1306 Last Saved: 2/6/2026 4:35 PM
Coordinate System: NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Location: T:_ENV\Chevron_MCB\Projects\McCloy_Ranch\Recycle Frac Pond C-147 Figures\MXD_Pro\Recycle Frac Pond C-147 Figures aprx\Figure 8 Cave and Karst Features
Disclaimer: the information shown in this map was assembled from GIS data created and/or acquired by Arcadis. The data is not to survey accuracy and is meant for planning and visualization purposes only.

Appendix A

Survey Plat



LEGEND

- Proposed Recycle Pad/Frac Pond
- Proposed Access Road CL
- Existing Pipeline
- Existing Road
- Future Access Road/Pad
- Section Line
- Existing Powerline
- Existing Fence
- Found Monument
- PNA Well
- Power Pole

C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq.
Lafayette, LA 70508
Ph. 337-237-2200
Fax. 337-232-3299

REVISIONS	

DRAWN BY: RMB	PROJ. MGR.: VHV
DATE: 03/27/2023	
JOB#: 2236130.00C	SHEET 1 OF 2

NOTE:
See Page 2 of 2 for Reference Notes and Certification.

FACILITY PAD PLAT
MCCLOY RANCH RECYCLE PAD & FRAC POND
CHEVRON U.S.A. INC.
SITUATED IN
SECTION 2, T24S-R32E
LEA COUNTY, NEW MEXICO

T:\2023\2236130\DWG\McCloy Ranch Recycle_Frac Pond Pad Plat.dwg

PROPOSED RECYCLE PAD		
Line	**Bearing**	**Distance**
L1	EAST	275.00'
L2	SOUTH	275.00'
L3	WEST	275.00'
L4	NORTH	275.00'

PROPOSED FRAC POND		
Line	**Bearing**	**Distance**
L5	SOUTH	1200.00'
L6	WEST	1200.00'
L7	NORTH	1200.00'
L8	EAST	1200.00'

CENTERLINE PROPOSED ACCESS ROAD		
Line	**Bearing**	**Distance**
L9	EAST	812.20'
L10	NORTH	490.08'

NW RECYCLE PAD CORNER
X = 713,973.47' (NAD27 NM E)
Y = 453,633.35'
LAT. 32.245260° N (NAD27)
LONG. 103.641243° W
X = 755,157.32' (NAD83/2011 NM E)
Y = 453,692.09'
LAT. 32.245382° N (NAD83/2011)
LONG. 103.641724° W
ELEV. +3,617' (NAVD88)

NE RECYCLE PAD CORNER
X = 714,248.47' (NAD27 NM E)
Y = 453,633.35'
LAT. 32.245255° N (NAD27)
LONG. 103.640354° W
X = 755,432.32' (NAD83/2011 NM E)
Y = 453,692.08'
LAT. 32.245377° N (NAD83/2011)
LONG. 103.640835° W
ELEV. +3,618' (NAVD88)

SW RECYCLE PAD CORNER
X = 713,973.47' (NAD27 NM E)
Y = 453,358.35'
LAT. 32.244504° N (NAD27)
LONG. 103.641249° W
X = 755,157.33' (NAD83/2011 NM E)
Y = 453,417.08'
LAT. 32.244626° N (NAD83/2011)
LONG. 103.641730° W
ELEV. +3,616' (NAVD88)

SE RECYCLE PAD CORNER
X = 714,248.47' (NAD27 NM E)
Y = 453,358.35'
LAT. 32.244499° N (NAD27)
LONG. 103.640360° W
X = 755,432.33' (NAD83/2011 NM E)
Y = 453,417.08'
LAT. 32.244622° N (NAD83/2011)
LONG. 103.640841° W
ELEV. +3,617' (NAVD88)

NW FRAC POND CORNER
X = 714,248.47' (NAD27 NM E)
Y = 453,749.39'
LAT. 32.245574° N (NAD27)
LONG. 103.640351° W
X = 755,432.32' (NAD83/2011 NM E)
Y = 453,808.13'
LAT. 32.245696° N (NAD83/2011)
LONG. 103.640833° W
ELEV. +3,617' (NAVD88)

NE FRAC POND CORNER
X = 715,448.47' (NAD27 NM E)
Y = 453,749.39'
LAT. 32.245552° N (NAD27)
LONG. 103.636470° W
X = 756,632.32' (NAD83/2011 NM E)
Y = 453,808.12'
LAT. 32.245675° N (NAD83/2011)
LONG. 103.636951° W
ELEV. +3,617' (NAVD88)

SW FRAC POND CORNER
X = 714,248.47' (NAD27 NM E)
Y = 452,549.39'
LAT. 32.242275° N (NAD27)
LONG. 103.640376° W
X = 755,432.37' (NAD83/2011 NM E)
Y = 452,608.10'
LAT. 32.242398° N (NAD83/2011)
LONG. 103.640857° W
ELEV. +3,611' (NAVD88)

SE FRAC POND CORNER
X = 715,448.47' (NAD27 NM E)
Y = 452,549.39'
LAT. 32.242254° N (NAD27)
LONG. 103.636495° W
X = 756,632.38' (NAD83/2011 NM E)
Y = 452,608.09'
LAT. 32.242377° N (NAD83/2011)
LONG. 103.636976° W
ELEV. +3,614' (NAVD88)

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

NOTE:
Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc. may exist undetected on site.

NOTE:
Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance, New Mexico One Call www.nm811.org

NOTE:
This plat represents a limited survey made on the ground on March 25, 2023 for construction purposes and is for the exclusive use of Chevron U.S.A. Inc. This plat does not represent a boundary survey. Boundary lines and monuments depicted hereon are for reference purposes only. The basis of bearings of this survey is the New Mexico Coordinate System of 1927, East Zone. All bearings, distances, areas and coordinates shown hereon are grid.

C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq.
Lafayette, LA 70508
Ph. 337-237-2200
Fax. 337-232-3299

REVISIONS	
DRAWN BY: RMB	PROJ. MGR.: VHV
DATE: 03/27/2023	
JOB#: 2236130.00C	SHEET 2 OF 2

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Steven M. Coleman, Professional Surveyor, do hereby state the above plat to be true and correct to the best of my knowledge.

Steven M. Coleman
Professional Surveyor
Registration No. 22921

STEVEN M. COLEMAN
NEW MEXICO
22921
07/14/2023
PROFESSIONAL SURVEYOR

FACILITY PAD PLAT
MCCLOY RANCH RECYCLE PAD & FRAC POND
CHEVRON U.S.A. INC.
SITUATED IN
SECTION 2, T24S-R32E
LEA COUNTY, NEW MEXICO

T:\2023\2236130\DWG\McCloy Ranch Recycle_Frac Pond Pad Plat.dwg

Appendix B

Recycling Containment Geotechnical Engineering Report

TETRA TECH

Chevron North America - MCBU

Geotechnical Investigation Report
McCloy Ranch Frac Pond

Lea County, New Mexico

March 27, 2026

complex world

CLEAR SOLUTIONS™

Geotechnical Investigation Report

McCloy Ranch Frac Pond
Lea County, New Mexico

Prepared for:

Mr. Joseph Henderson
Facilities Engineer
Chevron North America – MCBU
Exploration and Production Company
6301 Deauville Boulevard
Midland, Texas 79706

Prepared by:

Tetra Tech Inc.

901 W. Wall Street, Suite 100
Midland, Texas 79701
Phone (432) 682-4559

Nathan Langford, P.E.
Senior Project Manager

Jack Wright, P.E. (TX)
Geotechnical Engineer/Department Manager

Nohelia Monasterios, E.I.T.
Geotechnical Engineer

Project 212C-MD-04101

March 27, 2026

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EXECUTIVE SUMMARY

Chevron MCBU (Chevron) plans to construct two hydraulic fracturing ponds (frac ponds) to store produced water at the proposed McCloy Ranch Frac Pond facility located in Lea County, New Mexico.

The proposed ponds will be constructed using a combination of below-grade excavation and above grade compacted berms for storage of waters to be reused for drilling and completions of oil and gas production wells, including treated produced waters and fresh waters. Each pond will have an operational storage capacity of approximately 382,000 barrels (bbls.) per pond or a total water storage of 764,000 in both ponds for the facility. The ponds will be approximately 16 feet deep (not including the sump) with a maximum operational depth of approximately 13 feet plus 3 feet of freeboard capacity. The crest of the earthen embankment is expected to be a maximum of 11 feet above the existing ground for each cell at the exterior of the tallest portion of the embankments with 3:1 upstream and downstream slopes. Refer to Appendix D for a preliminary grading plan of the ponds. According to Chevron, both ponds will be constructed using earthen materials and will be equipped with a dual liner and leak detection system consisting of two high density polyethylene (HDPE) geomembrane liners (double-lined with leak detection).

A total of ten (10) exploratory geotechnical borings were drilled at this site. Borings B-1 through B-8, and B-10 were drilled to approximately 35 feet below grade. Boring B-9 was planned to be drilled to approximately 100-feet below existing grade to observe for the presence of groundwater, however the borehole collapsed at 65-feet and filled to 41-feet during drilling and the auger could not be advanced. Groundwater was not observed in boring B-9 during drilling.

Tetra Tech performed in-situ testing in the field and laboratory testing to characterize subsurface soil properties. Geographic boring locations were proposed by Chevron and were authorized for drilling following a utility locate of the proposed ponds' site within proximity of the locations of the geotechnical borings as noted on Figure 1.

Subsurface soils observed in Borings B-1 through B-10 generally consisted of silty sand, silty sand with gravel, and poorly graded sand overlying sandstone bedrock. Sandstone bedrock was observed in all borings starting at depths that ranged from about 5 feet to 12 feet. Groundwater was not observed in Borings B-1 through B-10 during our field program.

Detailed results of the investigation and construction recommendations are provided in the report which follows.

This executive summary has been prepared solely to provide a general overview; it should not be used for any purpose except that for which it was intended. A detailed review is recommended of the entire report for information about findings,

recommendations, and other concerns related to geotechnical conditions for the proposed project site.

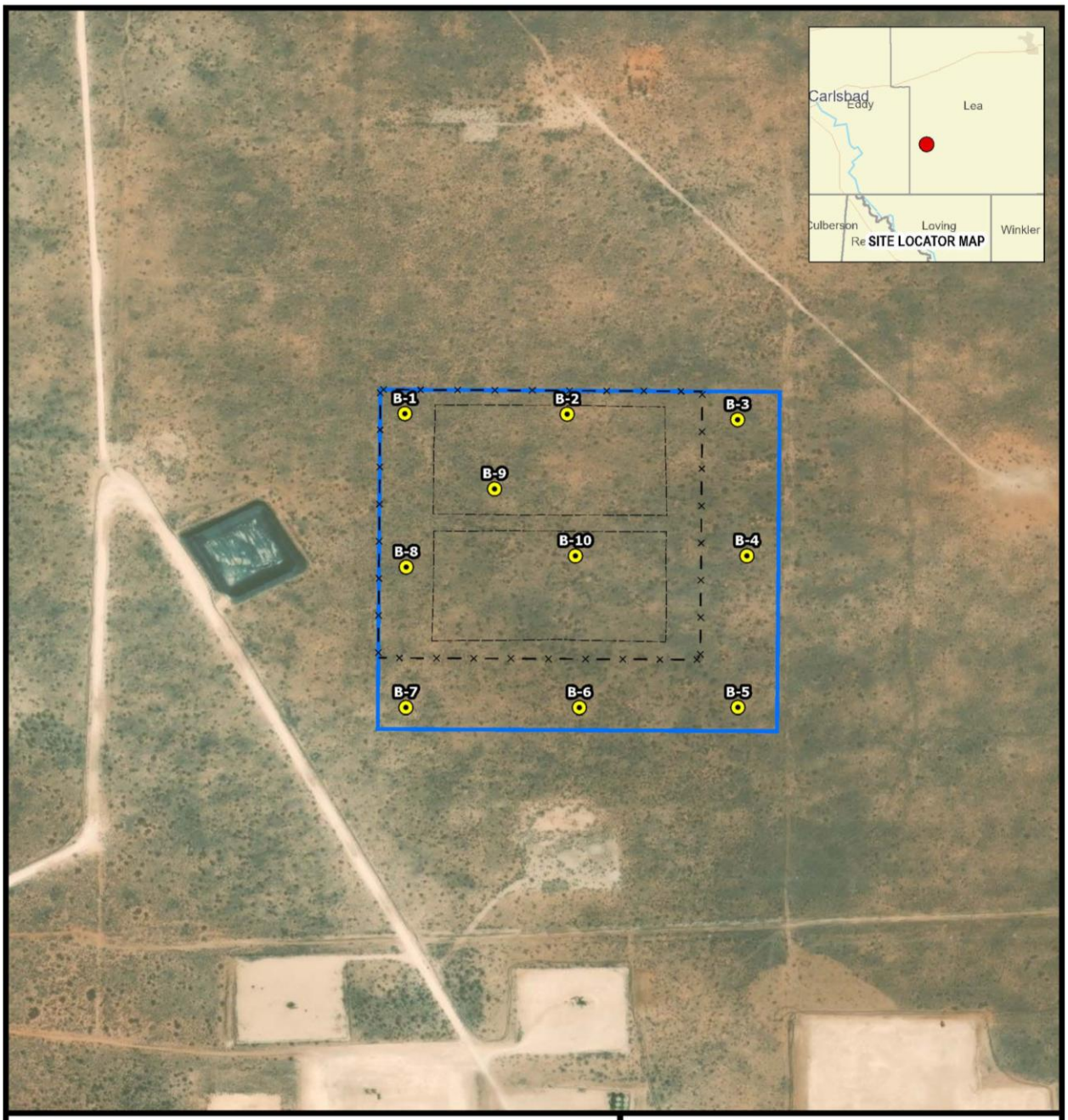
1. PURPOSE AND SCOPE OF STUDY

Tetra Tech was retained by Chevron MCBU (Chevron) to conduct a geotechnical investigation for the proposed McCloy Ranch Frac Pond facility located in Lea County, New Mexico (32.244102°N, 103.638921°W). The scope of this project was performed in general accordance with Tetra Tech proposal number 433070, dated December 18, 2025. The project was authorized by Mr. Joseph Henderson of Chevron via electronic mail, on January 8, 2026.

The purpose of this investigation was to characterize the subsurface lithology and provide geotechnical design and construction recommendations for the proposed frac ponds. Geographic boring locations were proposed by Tetra Tech and approved by Chevron and were authorized for drilling following a utility locate of the proposed frac ponds' site within proximity of the locations of the geotechnical borings as noted on Figure 1. Tetra Tech performed the following tasks for the geotechnical investigation:

1) Request a Texas 811 Utility locate;
2) Mobilize a track-mounted, air rotary drilling rig to drill 10 borings to depths that ranged from approximately 35 to 65 feet below the existing grade to characterize the subsurface soils;
3) Collect Standard Penetration Test (SPT) samples at the ground surface, and at depths of 0, 1.5, 3.5, 5.0, 6.5 and 8.5 feet within the upper 10 feet, and at 5-foot intervals to a depth of about 35 feet to evaluate the subsurface soils. Bag samples were collected below 35 feet to a depth of 65-feet in Boring B-9;
4) Backfill borings with cuttings after completion of drilling;
5) Perform laboratory testing on select soil samples; and
6) Prepare a geotechnical engineering report summarizing the results of the investigation and provide geotechnical design criteria and recommendations for the construction of the ponds.

Drilling and sampling methods are described in more detail below. The following sections of this report summarize the field data and presents conclusions and recommendations for the design and construction of the ponds based on the proposed construction, the assumptions used, and subsurface conditions encountered during geotechnical exploration. The report also includes design parameters and geotechnical engineering considerations related to construction.


Carlsbad
Eddy
Lea
Culberson
Loving
Winkler
SITE LOCATOR MAP
B-1
B-2
B-3
B-9
B-10
B-8
B-4
B-7
B-6
B-5
PROPOSED SOIL BORING LOCATION
APPROXIMATE PERMITTED AREA
PROPOSED POND LIMITS
PROPOSED FENCE
N
W
E
S
0 200 400
Approximate Scale in Feet
THE BORING LOCATIONS SHOWN ON THE FIGURE ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED.
Chevron
FIGURE 1
MCCLOY RANCH FRAC POND
(32.244102°, -103.638921°)
AERIAL MAP
LEA COUNTY, NEW MEXICO
Project: 212C-MD-04101
Date: 3/10/2026
Filepath: H:\Acad data\CHEVRON\212C-MD-04101 - McCloy Ranch Frac Pond

2. SITE CONDITIONS

Based on results of a topographical survey, the existing ground surface at the site appears to have relatively low relief with a difference in elevation on the order of 5 feet across the site with the natural grade sloping on the order of 0 to 1% downgradient from northeast to southwest in the area of the ponds.

3. PROPOSED DEVELOPMENT

Chevron plans to construct two frac ponds using a combination of below-grade excavation and above-grade compacted berms. The ponds will be used for storage of waters to be reused for drilling and completions of oil and gas production wells, including treated produced waters and fresh waters. Each pond will have an operational storage capacity of approximately 382,000 barrels (bbls.) per pond or a total water storage of 764,000 in both ponds for the facility. An earthen pad will be constructed on the west end of each of the ponds for staging of mobile transfer pumps and ancillary equipment or materials. A 25-foot wide road will be constructed around the perimeter of both ponds. The pad and roads will be constructed in accordance with Chevron's typical standard for lease roads and are expected to have an 8-inch and 12-inch caliche cap/surface, respectively. We understand that Chevron will not be driving vehicles (i.e. pickup trucks or maintenance vehicles/trucks, etc.) on top of the pond berms. A perimeter fence will be installed around the roads at the limits of the facility.

The footprint of the frac pond facility is approximately 21 acres. The ponds are of similar size and the footprint of each pond is approximately 6.2 acres. The lined portion of each of the ponds will be approximately 4.3 acres in area, 16 feet deep (not including the sump) with a maximum operational depth of approximately 13 feet plus 3 feet of freeboard capacity. The crest of the earthen embankment is expected to be a maximum of 11 feet above the existing ground for each cell at the exterior of the tallest portion of the embankments. All pond embankments will have a proposed side slope of 3H:1V on interior and exterior embankments. Refer to Appendix D for preliminary grading plan of the ponds.

According to Chevron, both ponds will be constructed using earthen materials and will be equipped with a dual liner and leak detection system consisting of two high density polyethylene (HDPE) geomembrane liners (double-lined with leak detection) The Earthwork Contractor will be responsible for preparing and maintaining the subgrade in the condition suitable for installation of the liner system as described further in this report.

We understand that Chevron prefers to balance cut and fill volumes using onsite materials for engineered fill to construct the earthen embankments for the ponds. The ponds will be

sloped to drain to a sump below the base of each pond. The ponds will be filled and emptied using a system of portable pumps and surface piping.

4. GEOLOGIC CONDITIONS

Mapping by the Natural Resources Conservation Service (NRCS, 2016) identifies the site soils as the Ratliff-Wink fine sandy loams (map unit MN), Pyote loamy fine sand (map unit PT), and Pyote and Maljamar fine sands (PU) (see Figure 2).

Ratliff-Wink fine sandy loams:

- Ratliff typical soil profile:
  - 0 to 4 inches bgs: fine sandy loam
  - 4 to 22 inches bgs: clay loam
  - 22 to 60 inches: clay loam
- Wink typical soil profile:
  - 0 to 12 inches: fine sandy loam
  - 12 to 23 inches: sandy loam
  - 23 to 60 inches: sandy loam
- Parent material: Calcareous alluvium and/or calcareous eolian deposits derived from sedimentary rock
- Typical ground surface slope: 0 to 3 percent

Pyote loamy fine sand:

- Typical soil profile:
  - 0 to 25 inches: loamy fine sand
  - 25 to 60 inches: fine sandy loam
- Parent material: Sandy eolian deposits derived from sedimentary rock
- Typical ground surface slope: 0 to 3 percent

Pyote and Maljamar fine sands:

- Pyote typical soil profile:
  - 0 to 30 inches: loamy fine sand
  - 30 to 60 inches: fine sandy loam
- Maljamar typical soil profile:
  - 0 to 24 inches: fine sand
  - 24 to 50 inches: sandy clay loam
  - 50 to 60 inches: cemented material
- Parent material: Sandy eolian deposits derived from sedimentary rock
- Typical ground surface slope: 0 to 3 percent

Review of mapping by the U.S. Geological Survey (see Figure 3) and Texas Bureau of Economic Geology indicates geology below the site includes Windblown cover sand (map unit Qsu and Qs), Caliche (map unit Qcc), Colluvial deposits (map unit Qsgc), and the Ogallala Formation (map unit To).

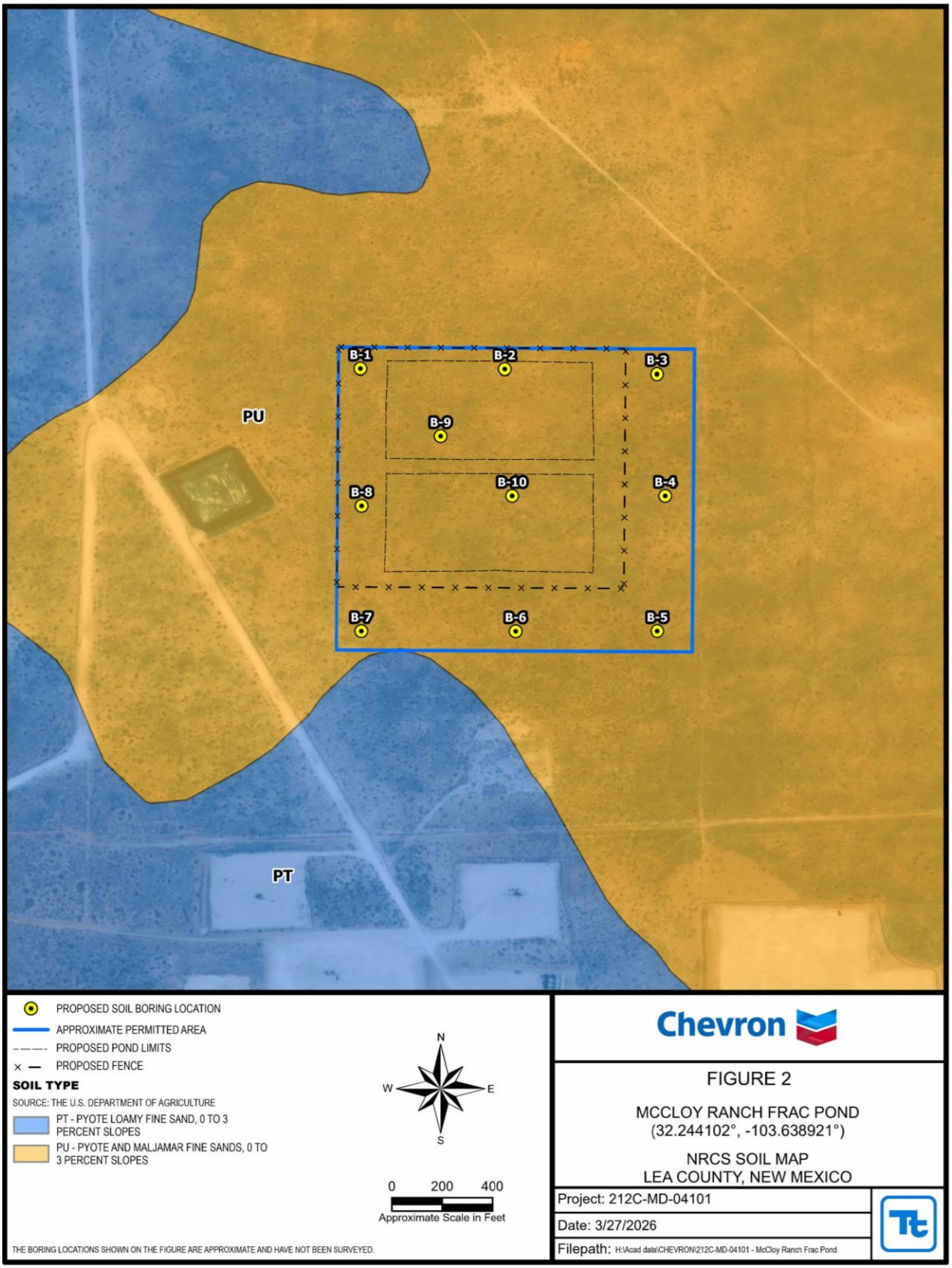
- Windblown cover sand (Qsu/Qs) consists mainly of sand and silt with calcareous deposits and caliche nodules up to 15 feet in thickness.
- Caliche (Qcc) is predominantly made up of small gravel and sand cemented with calcium carbonate, often lacking overlying sediments.
- Colluvial Deposits (Qsgc) are made up of sand, silt, and gravel deposited by slopewash and talus coming off of the Ogallala Formation. Colluvial Deposits are calichified in part, with sections of caliche ranging between 1 and 20 feet in thickness.
- The Ogallala Formation (To) contains fluviatile sand, silt, clay, and gravel units typically capped by a caliche or calcrete layer. Sand is fine- to medium-grained, silty and/or calcareous at times, with increasing clay content upwards. Silt and clay units contain caliche nodules. Gravel, not found in all areas, is typically located at the base of the formation. Caliche and calcrete layers are found throughout the formation. Caprock may contain algal limestone locally.

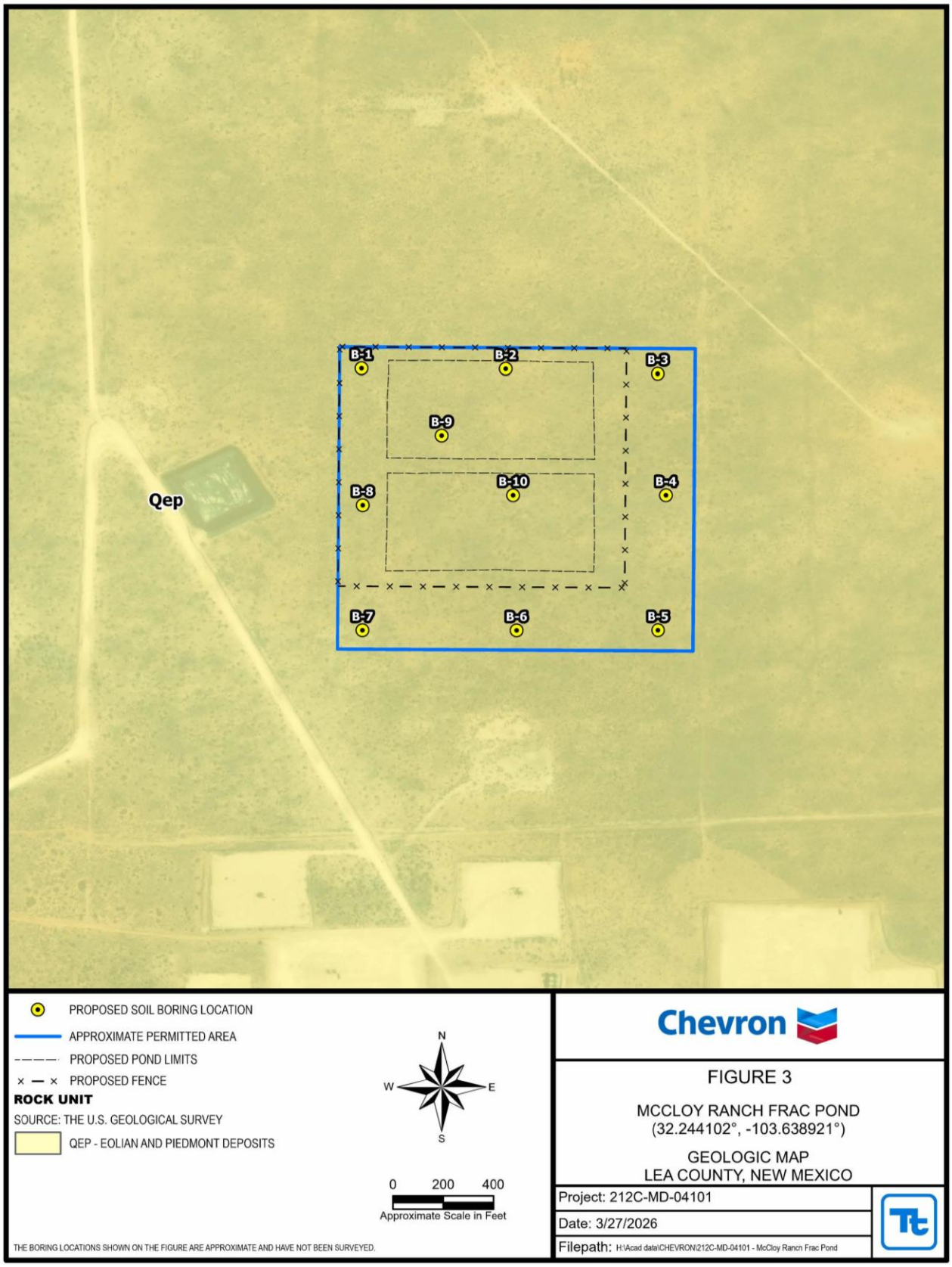
A groundwater study is not part of the scope of review of this report, however, review of limited publicly available groundwater data and wells identified one well within three miles of the site which indicates that groundwater is on the order of 130 feet below the ground surface.

The USGS published the “Karst in the United States: A Digital Map Compilation and Database” report in 2014, which describes areas within the United States that have karst or pseudokarst features or that have the potential to develop karst or pseudokarst features. The report features geologic units mapped that qualify as ‘soluble rock’. These include carbonate and evaporite rocks, which are prone to dissolution when exposed to water. The report subdivides the mapped soluble rocks between ‘humid’ and ‘arid’ climates, where the approximate annual precipitation is above or below 30 inches respectively. Areas of mature surface karst within the United States primarily occur where precipitation exceeds 30 inches annually and soluble rock is located near or at the land surface. At the Site, no areas directly underlying the proposed facility have been identified as having a high potential for karst. The nearest mapped section of soluble rock is 12 miles northwest of the Site. An outcropping of carbonate rock of the Rustler Formation is identified as having the potential for karst formation.

The New Mexico Bureau of Land Management (BLM) has developed a map depicting the potential for karst in southeast New Mexico. The map depicts four categories for the

potential for cave occurrence, ranging from low, to medium, high, or critical potential. The classifications are derived from a comprehensive analysis of geological factors including known caves, density of karst features, and possible impacts on freshwater aquifers. The Site is located in an area of low potential for cave occurrence. Overall, the risk of karst features is low based on the review of available resources discussing the geographic potential for karst. The information provided in this Section and by the USGS “Karst in the United States: A Digital Map Compilation and Database” report, as well as the BLM Karst Potential Areas, are not intended for site-specific purposes, rather they are intended for use as guidance in determining the distribution of areas of potential karst.


B-1
B-2
B-3
B-9
B-8
B-10
B-4
B-7
B-6
B-5
PU
PT
PROPOSED SOIL BORING LOCATION
APPROXIMATE PERMITTED AREA
PROPOSED POND LIMITS
PROPOSED FENCE
SOIL TYPE
SOURCE: THE U.S. DEPARTMENT OF AGRICULTURE
PT - PYOTE LOAMY FINE SAND, 0 TO 3 PERCENT SLOPES
PU - PYOTE AND MALJAMAR FINE SANDS, 0 TO 3 PERCENT SLOPES
N
W
E
S
0 200 400
Approximate Scale in Feet
THE BORING LOCATIONS SHOWN ON THE FIGURE ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED.
Chevron
FIGURE 2
MCCLOY RANCH FRAC POND
(32.244102°, -103.638921°)
NRCS SOIL MAP
LEA COUNTY, NEW MEXICO
Project: 212C-MD-04101
Date: 3/27/2026
Filepath: H:\Acad data\CHEVRON\212C-MD-04101 - McCloy Ranch Frac Pond


B-1
B-2
B-3
B-9
B-8
B-10
B-4
B-7
B-6
B-5
Qep
PROPOSED SOIL BORING LOCATION
APPROXIMATE PERMITTED AREA
PROPOSED POND LIMITS
PROPOSED FENCE
ROCK UNIT
SOURCE: THE U.S. GEOLOGICAL SURVEY
QEP - EOLIAN AND PIEDMONT DEPOSITS
N
W
E
S
0 200 400
Approximate Scale in Feet
THE BORING LOCATIONS SHOWN ON THE FIGURE ARE APPROXIMATE AND HAVE NOT BEEN SURVEYED.
Chevron
FIGURE 3
MCCLOY RANCH FRAC POND
(32.244102°, -103.638921°)
GEOLOGIC MAP
LEA COUNTY, NEW MEXICO
Project: 212C-MD-04101
Date: 3/27/2026
Filepath: H:\Acad data\CHEVRON\212C-MD-04101 - McCloy Ranch Frac Pond

5. EXPLORATORY SOIL BORINGS

Between January 30, 2026 and February 5, 2026, Tetra Tech drilled 10 exploratory geotechnical borings, B-1 through B-10 to depths that ranged from approximately 35 to 65 feet below ground surface (bgs). Coordinates of the planned exploratory borings were established using Google Earth and utilizing a commercially available hand-held GPS to locate borings in the field. All borings were advanced using a truck-mounted drilling rig and air-rotary drilling methods. Tetra Tech's representative monitored the drilling and logged the subsurface materials observed.

In-situ samples of the subsurface soils were collected using a modified California-style Standard Penetration Test (SPT) split spoon sampler driven into the soil by vertically dropping a 140-pound hammer a distance of 30 inches. The number of blows required to advance the sampler each successive 6-inch increment was recorded. The total number of blows required to advance the sampler the second and third 6-inch increments is the penetration resistance (N value) in general accordance with the method described by American Society for Testing and Materials (ASTM) D 1586. SPT values shown on the boring logs have been corrected for the larger diameter California-style sampler. Penetration resistance values were used to estimate the relative density or consistency of the soils. Depths at which the samples were collected with the associated SPT penetration resistance values are shown on the boring logs in Appendix A. Grab samples of drill cuttings were also collected in sandstone bedrock.

6. SUBSURFACE CONDITIONS

6.1 Subsurface Soil Stratigraphy

Subsurface native soils observed generally consisted of silty sand, silty sand with gravel, and poorly graded sand overlying sandstone bedrock. Sandstone bedrock was observed in all borings starting at depths that ranged from about 6 feet to 12 feet bgs within the proposed frac ponds' footprint and at depths of approximately 5 feet to 12 feet bgs within the permitted area of the facility. The Standard Penetration Testing (SPT) N-values in the soils ranged from 3 blows per foot to greater than 50 and were generally greater than 50 in the sandstone bedrock. Soil samples obtained during the field exploration were transported to the laboratory where they were observed and visually classified in general accordance with the Unified Soil Classification System (USCS) as described by ASTM D 2487.

6.2 Laboratory Testing

Soil samples were tested to evaluate for engineering and physical properties of the soils in general accordance with ASTM or other approved procedures. Tests included natural

moisture content, dry density, particle size distribution, and Atterberg Limits. A summary of the laboratory test results for soil classification performed on select samples is provided below in Table 1. Dry density results are generally low due to sands being uncemented and are likely lower than the actual in-situ conditions. The results of the laboratory testing for soil classification are also provided on the lab summary in Appendix B.

Table 1. Summary of Laboratory Test Results

Tested Material	Moisture Content (%)	Dry Density (pcf)	Liquid Limit	Plasticity Index	Percent Fines(%)[2]	USCS Classifications
On-Site Coarse-Grained Soils	**1.1 to 6.1**	**72.8 to 106.1**	**NP**	**NP**	**2.3 to 29.1**	**SP, SM**

1. NP= Non-plastic.
2. Percentage of material passing -200 sieve.

6.3 Groundwater

Groundwater was not observed during the field investigation. It is not anticipated that groundwater will impact the proposed construction, however the occurrence and depth of groundwater can vary due to many factors. These factors include seasonal changes, site topography, regrading, surface runoff, the layering and permeability of subsurface strata, water levels in waterways, utilities, and other factors not evident at the time of this study. Groundwater observations have been made during the course of the field investigation; however, long-term groundwater monitoring would be necessary to more accurately identify and evaluate the groundwater levels and fluctuations in the region and at the Site.

7. ENGINEERING ANALYSES AND RECOMMENDATIONS

7.1 Primary Geotechnical Considerations

The primary geotechnical consideration for the proposed ponds is stability of the constructed embankments. Using the commercially available slope stability software Slope/W, we performed three stability analyses and calculated the factor of safety for various conditions. Based on our analysis, the stability of the embankment is considered acceptable. Slope stability analyses are described in Section 7.2.

An additional consideration that may impact the design and construction of the ponds is the relative density of the soils encountered and the relatively shallow sandstone bedrock that predominates the subsurface profile as shallow as 5 feet bgs within explored areas and as shallow as approximately 6-feet below the ground surface in the area of the proposed south pond. The sandstone bedrock has SPT N-values as high as 50 blows per 1 inch. Soil conditions at the site indicate that the contractor should expect excavation difficulty as shallow as approximately 3-feet bgs, including the need for use of heavy

equipment such as large bull dozers or similar equipment with ripping capability or excavators with hoe ram attachments.

In addition, processed soils which are very dense, cemented, or consist of poorly graded sand (SP) or crushed sandstone bedrock that are to be used as structural fill for the ponds' subgrade may degrade or settle under construction equipment traffic if they are not properly processed and mixed with the overburden in-situ silty sand (SM) soils. Once processed and mixed, soils should be moisture conditioned and compacted per our recommendations in Section 7.5 Fill Placement and Compaction of this report. Materials which do not meet these requirements will impact the embankment construction and liner installations due to settling, rutting, increased potential for erosion and will have potential for protrusions of aggregate materials through subgrade and geosynthetic materials. Proper methods for excavating, processing, placement, moisture conditioning, and compaction of very dense, cemented soils or sandstone bedrock are discussed in greater detail in the sections below.

7.2 Slope Stability

The stability of the constructed embankment slopes were evaluated using Slope/W for the critical cross-section. The engineering properties of the on-site soils were developed based on laboratory testing, SPT values, and our experience with similar soils. We anticipate that Chevron will use on-site Silty Sand (SM) soils or Poorly Graded Sand with Silt (SP-SM) mixed material with a minimum fines content of 12% as structural fill to construct the embankments. We evaluated the critical section by modeling side slopes of 3H:1V with a max depth of 18 feet represented by the area of the ponds' sumps. The properties used in our analysis are presented below in Table 2.

Table 2. Engineering Properties for Slope Stability Analysis

Material	Elevation/Depth (ft)	Total Unit Weight (pcf)	c' (psf) Drained	c (psf) Undrained	phi' (degrees) Drained
Embankment Fill - Silty Sand with Gravel[1]	+12 to 0	115	0	0	32
Native – Silty Sand with Gravel	0 to -8	90	0	0	30
Native – Sandstone Bedrock	-8 to -50	120	0	0	35

1. The provided soil parameters assume that the earthwork recommendations provided in this report are followed and the embankment fill will consist of SM material with fines content greater than 12%.

Factor of Saftey were calculated for steady state, conditions, and pseudo-static (seismic) loading conditions using “typical” values from the ranges above. Pseudo-static analyses were performed using a peak horizontal ground acceleration coefficient of 0.06g based on the USGS Earthquake Hazard Toolbox (NSHM Conterminous U.S. 2023 Model) for a Soil Site Class C and 2,475-year return period at the project location. Slope stability results are shown in Table 3 below and are compared with typical target minimum values.

Table 3. Calculated and Minimum Factors of Safety for Slope Stability Analysis

Scenario No.	Scenario	FS calculated	FS minimum
1	Silty Sand with Gravel Fill, Static, End of Construction	1.8	1.3
1A	Silty Sand with Gravel Fill, Pseudo-static, End of Construction (0.06g)	1.5	1.1
2	Silty Sand with Gravel Fill, Static, Long-Term	2.0	1.5
2A	Silty Sand with Gravel Fill, Pseudo-static, Long-Term (0.06g)	1.7	1.1

Based on the information provided by Chevron, we understand that the ponds will be constructed as a HDPE double-lined pond with a leak detection system designed to prevent and address leaks as they occur. As such, we believe the probability of water leaking into and saturating the underlying soils is minimal, provided the leak detection system is maintained during operations.

Based on our evaluation, we have concluded that using the slopes specified by Chevron (minimum 3H:1V) may be achieved, assuming that on-site soils, processed to a consistency as described in this report, will be used to construct the ponds and impoundments are constructed in a stable configuration.

7.3 Settlement of Subgrade

The on-site silty sand and gravel soils have a relatively low potential for post-construction settlement when prepared, processed and constructed in accordance with the recommendations in this report. Construction recommendations from above for subgrade proof rolling, subgrade improvements, and fill placement will reduce the amount of settlement. Settlement of up to about 2 inches is anticipated for the ponds’ embankments, however, due to the silty to sandy nature of the soils and limited grading, most of the settlement should occur upon completion of construction of the embankment. Our scope did not include a detailed settlement study. We can perform a detailed settlement analysis if requested.

7.4 Site Preparation

Site preparation should include stripping, clearing, and grubbing of the surficial soils for removal of vegetation and deleterious materials. An area larger than the proposed

footprint by at least 10 feet in plan dimension on all sides should be stripped of vegetation, roots, organic material, existing construction materials, debris, large sharp rocks and other unsuitable materials for preparation of the site for construction and installation of liners. A typical stripping depth is approximately 6 inches; however, the actual thickness will vary and should be based on field conditions and observations. Suitable materials which cannot be used as structural fill, may be stockpiled for later application as topsoil.

Obstructions that could hinder preparation of the site should also be removed, with particular attention given to unknown or un-documented below ground appurtenances and any existing above and below ground flow lines. Care should be taken not to damage any existing buried utilities located within the footprint of the proposed construction. Any resulting utility trenches/excavations due to replacement or relocation of utilities should be backfilled as discussed in the Fill Placement and Compaction section of this report.

7.5 Subgrade Preparation

After stripping and removal of vegetation and deleterious materials, the bases of fills should be prepared by scarifying, watering and processing the upper 8 inches of suitable/competent subgrade to a uniform condition within +/-2 percent of optimum moisture content, and recompacted to at least 95 percent of maximum dry density for soils compacted in accordance with standard Proctor methods (ASTM D 698).

Proof rolling of the subgrade prior to fill placement and liner installation should be used to detect areas of soft and/or pumping soil. Proof rolling should be conducted using a heavy, rubber-tired vehicle weighing at least 25 tons, with the tires inflated to the manufacturer's specified operating pressure. The entire area should be proof rolled, with each succeeding pass offset by not greater than one tire width. The geotechnical engineer or an experienced soils technician should be present during proof rolling activities to assist with the identification of unsuitable soil. Unsuitable soil should be undercut and reworked, or otherwise improved in a manner that is suitable to the design and approved by the geotechnical engineer.

The base of excavation for the ponds should be prepared in a manner similar to the base of embankment fill described above. We anticipate a moderately uniform and stable surface for support of construction equipment and liner materials. Any unsuitable areas (such as those with loose, wet, soft, yielding, and/or pumping subgrade) should be over-excavated, removed and replaced or corrected before construction and installation of any overlying fill proceeds.

Soil and bedrock excavated from the ponds' area can be used as engineered fill provided that they have been processed and or mixed to a consistency, as described in this report.

7.6 Fill Material Types

On-site Soils for Structural Fill

We understand that Chevron intends to utilize the onsite soils and processed bedrock as structural fill for the constructed embankments. The in-situ silty sand (SM) material and the sandstone bedrock appear suitable for re-use as structural fill, however we would expect some rill erosion of the downstream embankment face after large precipitation events. The fines content for tested SM soil samples in the upper 8.5 feet ranged between 15.9% to 29.1%. Generally, a fines content of 30% and greater would provide enough cohesion after placement to significantly resist erosion after precipitation events. We recommend Chevron consider importing predominately fine-grained material or consider reducing the slope grades from 3:1 to 4:1, or consider an on-going maintenance program to regrade slopes when rill erosion occurs after precipitation events.

On site soils and bedrock can be used as structural fill if they are excavated and thoroughly mixed or otherwise processed to be free from aggregate or clods greater than 3 inches, organic material, and other deleterious materials.

Import Soils for Embankment Construction

If imported soils are used as engineered structural fill this material should be classified as SM, SC, GC or GM in accordance with USCS and meet the gradation in Table 5, below, or a similar aggregate mix pre-approved by Tetra Tech.

Table 4. Gradation Recommendations for Imported Structural Fill

Sieve or Screen size	Percent Passing
3-inch	100
1-inch	75 – 100
No. 4	65 - 70
No. 40	35 – 50
No. 200	15 – 35

Import and On-site Soils for Subgrade Below Liner

In the upper 6 inches of subgrade that will underlie the proposed HDPE liner system, or if additional fill is needed for construction of the embankment, select fill should be screened or crushed on-site or imported. Imported fill for the upper 6 inches of the subgrade should be a silty sand (SM) or clayey sand (SC) or other imported soils with engineering properties

that are similar to on-site soils. We recommend a uniform, granular material meeting the gradation provided in Table 5, below, as liner subgrade. No protrusions or sharp edges should be in proximity to the liner system. Additional recommendations regarding the liner system and its protection are provided below.

Table 5. Gradation Recommendations for Imported and On-Site Soils for Subgrade Liner

Sieve or Screen size	Percent Passing
1-inch	100
No. 4	80 – 100
No. 40	50 – 70
No. 200	3 – 35

Prior to importation, samples of soils being considered as fill should be examined and evaluated by a geotechnical engineer for engineering properties to determine the suitability of the material for its intended use.

7.7 Fill Placement and Compaction

Fill and backfill should not be placed on organics or other deleterious materials. Care should be taken to ensure sandstone bedrock is processed per the recommendations and is thoroughly mixed with the overburden in-situ or borrow soils prior to placement to avoid nesting of larger crushed rock aggregate from any excavation.

Structural fill should be compacted using heavy vibratory equipment. In areas with limited space for heavy equipment, appropriate compaction equipment such as a jumping jack or other hand tools should be used. Where smaller compacting equipment or hand tools are used, the fill lifts should be 6 inches or less in loose thickness. The contractor should select the equipment type based upon the fill soil conditions. Structural fill placed for embankment construction should meet the maximum dry density and moisture requirements outlined in the table below.

Table 6. Summary of Compaction Recommendations

Soil Type	% Maximum Dry Density	Moisture Content
On-site soils and imported soils used for structural fill and backfill	95	+/-2% Optimum Moisture Content

1. All compaction according to ASTM D 698, Standard Proctor

Structural fill should not be placed on frozen subgrade, and should be free of frost, ice, snow, frozen material, brush, roots, any organics, rock fragments greater than 3 inches in diameter, or other deleterious materials.

Placement and compaction of structural fill should be observed and tested by a qualified geotechnical engineer or their qualified representative during construction. Each vertical foot of compacted fill placed should be tested for compaction comparison to standard Proctor results. A minimum of one moisture/density verification test should be performed for every 5,000-square-feet of the compacted area, or for every 150-lineal feet of utility trench backfill. For smaller areas, a minimum of 3 verification tests should be conducted for every lift. Subsequent lifts should not be placed until the exposed lift has been tested to confirm compliance with the specified moisture and density. Lifts failing to meet the moisture and density requirements should be reworked to meet the required specifications prior to subsequent lifts being placed. Density and moisture verification testing is recommended to provide an indication that adequate earthwork is being performed. However, the quality of the fill and compaction is the sole responsibility of the contractor. Satisfactory verification testing is not a guarantee of the quality of the contractor's earthwork operations, and it is recommended that a construction quality control and quality assurance (QC/QA) program be implemented by the general contractor and the owner during construction of the ponds.

The specified moisture content must be maintained until compaction of the overlying lift, or until the cushioning sand layer or the geomembrane liner system is installed. Failure to maintain the specified moisture content could result in excessive soil movement resulting in embankment failure. The contractor must provide some means of controlling the moisture content (such as water hoses, water trucks, etc.). Maintaining subgrade moisture is always critical, but will require the most effort during warm, windy and/or sunny conditions.

7.8 Geomembrane Liner Protection

The exposed foundation surface to receive the geomembrane liner should be free of rock protrusions and sharp edges that will potentially damage the geomembrane liner. Additionally, an irregular foundation with voids can create localized stress points on the geomembrane liner. If the protrusions are greater than 3/8-inch or if voids are greater than 2 inches deep below the liner, a cushion, such as a compacted fine-grained, well-graded clayey sand or a low plasticity clay layer, approximately 6 inches thick, or an adequately designed cushion geotextile should be used to reduce the risk of damage to the liner. We recommend a certificate of acceptance of the subgrade surface be provided by the liner system installer prior to liner construction.

8. LIMITATIONS

This report was prepared from data developed during our field exploration, laboratory testing, and engineering judgment as well as data provided by the client. Design recommendations were based on subsurface data and our experience with similar projects and subsurface conditions. Borings were located to obtain a reasonable interpretation of subsurface conditions. It should be noted that the borings were widely spaced and variation in the subsoils between borings is likely.

A qualified, experienced geotechnical engineer or their designated representative should observe the construction to observe any evidence that would indicate differences in subsurface conditions from those described in this report. If any information becomes available that would alter assumptions, conclusions or recommendations, the opinions presented in this report should be considered invalid until Tetra Tech has been contacted to review recommendations based on the new information. The geotechnical engineer should review plans and specifications during the design. In the event any changes occur in the design, nature, or location of the proposed site, we should review the applicability of conclusions and recommendations in this report. Placement and compaction of engineered fill, backfill, subgrade, and other fills should be observed and tested by the geotechnical engineer or a representative of a Construction Materials Testing (CMT) firm during construction, and Tetra Tech should be retained to review these data.

This study was conducted in a manner consistent with that level of skill and care ordinarily used by members of the profession currently practicing under similar conditions in the locality of this project. No warranty, express or implied, is made. This report has been prepared for the exclusive use of Chevron for the proposed project described herein. Tetra Tech is not responsible for technical interpretations by others. If Tetra Tech can be of further service in discussing the contents of this report or in the analysis of the planned project from the geotechnical point of view, please contact us.

9. REFERENCES

[1] U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS, 2016). Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx.

[2] Barnes, V.E., et. al., (University of Texas, Bureau of Economic Geology, 1976). Geologic atlas of Texas, Hobbs sheet. Geologic Atlas of Texas 17

[3] New Mexico Office of the State Engineer, 2026, New Mexico Water Rights Reporting System (NMWRRS), Water Column/Average Depth to Water Reports, accessed March 10, 2026, https://nmwrrs.ose.nm.gov/nmwrrs/water-column-form

APPENDIX A

EXPLORATORY BORING LOGS

TETRA TECH
Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-1

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 01/30/2026 **GROUND ELEVATION: 3615 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.245469 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.640593 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	100	1-3-9		SM		Medium Dense, Brown, **SILTY SAND**, Non-Plastic, Uncemented, Coarse-Grained, Moist
	CA 2	100	10-13-16	MC = 4.9% DD = 74.6 pcf LL = NV PI = NV Fines = 25.8%			Changes to Reddish Brown, Weakly Cemented, Dry, with Trace Clay and Silt
5	CA 3	0	50/5"				Changes to Very Dense, Pinkish Brown, Uncemented
	CA 4	75	21-24-50/5"				Changes to Weakly Cemented
						8.0	3607.0
10	CA 5	0	50/1"				**SANDSTONE**: Very Soft, Light Brown, Highly Weathered, Very Broken, Coarse-Grained, Dry
15	CA 6	0	50/3"				
20	CA 7	100	15-50/5"				Changes to Pink, Completely Weathered, Recovered as **POORLY GRADED GRAVEL with SILT and SAND**
25	CA 8	0	21-50/5"				
30	CA 9	0	29-50/5"				Changes to Pinkish Brown
35	CA 10	25	50/5"				
						35.0	3580.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-2

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 01/30/2026 **GROUND ELEVATION: 3615 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.245459 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.639019 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	100	4-10-18	MC = 5.3% DD = 85.7 pcf LL = NV PI = NV Fines = 15.9%	SM		Medium Dense, Brown, **SILTY SAND**, Non-Plastic, Uncemented, Coarse-Grained, Slightly Moist
	CA 2	100	7-11-50/5"				Changes to Very Dense, Reddish Brown and White, Weakly Cemented, Dry
5	CA 3	100	24-50/6"				Changes to Pinkish White
	CA 4	0	50/4"				Changes to Pinkish Brown
10	CA 5	100	17-50/6"	MC = 5.1% DD = 80.0 pcf			Changes to with Trace Gravel
10.5							3604.5
							SANDSTONE: Very Soft, Light Brown and Pink, Highly Weathered, Very Broken, Coarse-Grained, Dry
15	CA 6	0	50/2"				
20	CA 7	0	50/1"				
25	CA 8	0	50/5"				Changes to Pinkish Brown
30	CA 9	0	22-50/4"				
35	CA 10	0	17-11-16				
35.0							3580.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-3

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 01/30/2026 **GROUND ELEVATION: 3616 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.245405 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.637361 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	100	2-5-10		SM		Medium Dense, Brown and White, **SILTY SAND**, Non-Plastic, Uncemented, Moist
	CA 2	100	9-14-21	MC = 4.7% DD = 85.7 pcf LL = NV PI = NV Fines = 21.2%			Changes to Dense, Reddish Brown, Dry, with Trace Clay
5	CA 3	0	50/5"				Changes to Very Dense
	CA 4	100	13-19-50/5"				Changes to Pinkish Brown, Weakly Cemented
10	CA 5	100	23-30-27				Changes to **SILTY SAND with GRAVEL**
						12.0	3604.0
15	CA 6	25	50/6"				**SANDSTONE**: Very Soft, Pinkish White, Highly Weathered, Very Broken, Coarse-Grained, Dry
20	CA 7	25	50/5"				Changes to Pink
25	CA 8	0	50/1"				Changes to Reddish Brown
30	CA 9	100	20-23-50/3"				Changes to Pink, Completely Weathered, Recovered as **POORLY GRADED SAND with GRAVEL**
35	CA 10	100	10-12-16				
						35.0	3581.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-4

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 01/31/2026 **GROUND ELEVATION: 3612 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.244080 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.637270 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	100	1-1-5	MC = 4.8% DD = 83.9 pcf LL = NV PI = NV Fines = 20.7%	SM		Loose, Reddish Brown, **SILTY SAND**, Non-Plastic, Uncemented, Coarse-Grained, Dry
	CA 2	100	11-15-16				Changes to Dense, Light Brown, Weakly Cemented
5	CA 3	75	21-50/3"				Changes to Very Dense, Pinkish Brown
	CA 4	100	12-13-13	MC = 3.5% DD = 89.5 pcf LL = NV PI = NV Fines = 23.4%			Changes to Medium Dense, Pink and White, Moderately Cemented
10	CA 5	100	16-21-50/3"				Changes to Very Dense
							12.0 3600.0
15	CA 6	0	50/5"				**SANDSTONE**: Very Soft, Pink, Highly Weathered, Very Broken, Coarse-Grained, Dry
20	CA 7	0	50/2"				Changes to Pinkish Brown
25	CA 8	0	50/5"				
30	CA 9	0	3-5-8				Changes to Light Brown, Completely Weathered, Recovered as **POORLY GRADED SAND**
35	CA 10	75	1-3-10				Changes to Pinkish Brown
							35.0 3577.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-5

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 01/31/2026 **GROUND ELEVATION: 3612 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.242605 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.637358 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0	CA 1	100	2-4-7	MC = 3.3% DD = 72.8 pcf LL = NV PI = NV Fines = 18.6%	SM		Medium Dense, Reddish Brown, **SILTY SAND**, Non-Plastic, Weakly Cemented, Coarse-Grained, Dry	
	CA 2	75	10-50/5"				Changes to Very Dense, Reddish Brown and White	
5	CA 3	0	50/2"				5.0	3607.0
	CA 4	0	50/2"				**SANDSTONE**: Very Soft, Reddish Brown and Pink, Highly Weathered, Very Broken, Coarse-Grained, Dry	
10	CA 5	0	50/5"				Changes to Pinkish Brown	
15	CA 6	0	50/4"					
20	CA 7	0	50/3"					
25	CA 8	0	50/2"					
30	CA 9	100	3-7-13	MC = 1.1% DD = 88.8 pcf LL = NV PI = NV Fines = 2.3%			Changes to Completely Weathered, Recovered as **POORLY GRADED SAND**, with Trace Gravel	
35	CA 10	100	1-5-13				35.0	3577.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-6

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 02/02/2026 **GROUND ELEVATION: 3614 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.242603 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.638900 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	75	1-3-9		SM		Medium Dense, Reddish Brown, **SILTY SAND**, Non-Plastic, Weakly Cemented, Coarse-Grained, Dry
	CA 2	100	21-22-25	MC = 5.2% DD = 85.5 pcf LL = NV PI = NV Fines = 23.0%			Changes to Dense, Pinkish White, Moist
5	CA 3	0	21-50/1"				Changes to Very Dense, Pinkish Brown, Dry
	CA 4	100	10-25-50/5"				Changes to **SILTY SAND with GRAVEL**, Moderately Cemented
10	CA 5	75	29-50/6"				Changes to Pale Pink, Weakly Cemented
						12.0	3602.0
15	CA 6	100	10-10-10				**SANDSTONE**: Very Soft, Pink, Completely Weathered, Very Broken, Coarse-Grained, Dry. (Recovered as **POORLY GRADED SAND with GRAVEL**
20	CA 7	50	8-9-50/3"				Changes to Pinkish White
25	CA 8	50	12-15-50/3"				
30	CA 9	100	7-7-23				Changes to Pink, Recovered as **POORLY GRADED SAND**
35	CA 10	100	5-50/2"				
						35.0	3579.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
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Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-7

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 02/04/2026 **GROUND ELEVATION: 3611 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.242605 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.640583 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0	CA 1	100	2-3-5	MC = 3.8% DD = 86.3 pcf LL = NV PI = NV Fines = 27.1%	SM		Loose, Reddish Brown, **SILTY SAND**, Non-Plastic, Uncemented, Coarse-Grained, Dry	
	CA 2	100	18-20-26				Changes to Dense, Pinkish White, **SILTY SAND with GRAVEL**, Weakly Cemented	
5	CA 3	100	4-7-11	MC = 5.8% DD = 80.6 pcf			Changes to Medium Dense, Moist	
	CA 4	100	8-16-50/4"				Changes to Very Dense, Pinkish Brown, Dry	
							8.5	3602.5
10	CA 5	25	50/4"		GM		Very Dense, Pale Pink, **SILTY GRAVEL**, Non-Plastic, Uncemented, Dry	
							11.0	3600.0
15	CA 6	0	50/5"				**SANDSTONE**: Very Soft, Pink, Highly Weathered, Very Broken, Coarse-Grained, Dry	
20	CA 7	0	50/4"					
25	CA 8	0	50/6"				Changes to Pinkish Brown	
30	CA 9	0	50/5"					
35	CA 10	100	14-50/5"				35.0	3576.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
901 West Wall, Suite 100
Midland, TX, 79701
Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-8

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 02/04/2026 **GROUND ELEVATION: 3615 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.243971 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.640580 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0								
	CA 1	100	7-8-21	MC = 6.1% DD = 106.1 pcf LL = NV PI = NV Fines = 28.2%	SM		Medium Dense, Reddish Brown, **SILTY SAND**, Non-Plastic, Weakly Cemented, Coarse-Grained, Moist	
	CA 2	25	50/3"				Changes to Very Dense, Reddish Brown and White, **SILTY SAND with GRAVEL**, Uncemented, Dry	
5	CA 3	0	50/5"				Changes to Light Brown	
							6.0	3609.0
	CA 4	0	50/3"				**SANDSTONE**: Very Soft, Pinkish Brown, Highly Weathered, Very Broken, Coarse-Grained, Dry	
10	CA 5	0	13-50/3"					
15	CA 6	0	10-50/6"				Changes to Pink	
20	CA 7	0	17-50/6"					
25	CA 8	0	50/5"					
30	CA 9	0	50/3"					
35	CA 10	0	50/2"				35.0	3580.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
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Fax: 432-682-3946

BOREHOLE ID: B-9

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 02/05/2026 **GROUND ELEVATION: 3615 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.244731 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.639721 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	100	3-8-13	SM		Medium Dense, Reddish Brown, **SILTY SAND**, Non-Plastic, Weakly Cemented, Coarse-Grained, Slightly Moist
	CA 2	100	8-8-8			Changes to Dry
5	CA 3	0	50/6"			Changes to Very Dense, Pale Pink, **SILTY SAND with GRAVEL**, Uncemented
	CA 4	100	10-12-15			Changes to Medium Dense, Moderately Cemented
10	CA 5	0	50/5"			Changes to Very Dense
10.5						3604.5
						SANDSTONE: Very Soft, Pinkish Brown, Highly Weathered, Very Broken, Coarse-Grained, Dry
15	CA 6	0	50/3"			
20	CA 7	0	50/1"			
25	CA 8	0	50/3"			
30	CA 9	0	12-50/5"			
35	CA 10	100	5-12-19			Changes to Pink, Completely Weathered, Recovered as **POORLY GRADED SAND**

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

(Continued Next Page)

TETRA TECH
Tetra Tech Inc.
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Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-9

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
35						**SANDSTONE**: Very Soft, Pinkish Brown, Highly Weathered, Very Broken, Coarse-Grained, Dry *(continued)*
40	BS 11					
45	BS 12					
50	BS 13					
55	BS 14					
60	BS 15					
65	BS 16					65.0 3550.0
						Borehole Collapsed at 65feet back to 41feet Due to Loss in Formation. Borehole terminated at 65.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

TETRA TECH
Tetra Tech Inc.
901 West Wall, Suite 100
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Telephone: 432-682-4559
Fax: 432-682-3946

BOREHOLE ID: B-10

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM

DATE(S) OF DRILLING: 02/05/2026 **GROUND ELEVATION: 3615 ft** **METHOD: Air Rotary**

CONSULTANT: Tetra Tech, Inc. **LATITUDE: 32.244079 N** **LOGGED BY: Nohelia Monasterios**

DRILLING CONTRACTOR: Savage Drilling **LONGITUDE: -103.638939 W** **DRILLED BY: Adan Ruiz**

Notes: No groundwater encountered. Blow counts have been corrected for sample diameter. Boreholes were backfilled with the excavated soils following completion of drilling.
Surface Description: Light mesquite and brush. Sandy surface. Topographical relief in the area of borings is approximately 0-1.0% towards the southwest.

DEPTH (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0	CA 1	100	5-7-8	MC = 4.2% DD = 91.6 pcf LL = NV PI = NV Fines = 29.1%	SM		Medium Dense, Reddish Brown, **SILTY SAND**, Non-Plastic, Weakly Cemented, Coarse-Grained, Dry
	CA 2	100	11-12-12				
5	CA 3	100	5-6-7				
	CA 4	100	3-4-5				Changes to Loose, Pinkish Brown
10	CA 5	100	1-2-1	MC = 5.0% LL = NV PI = NV Fines = 23.0%			Changes to Very Loose, Pinkish Brown and White, Uncemented, with Trace Gravel, Moist
							12.0 3603.0
15	CA 6	75	14-50/4"				**SANDSTONE**: Very Soft, Pinkish White, Highly Weathered, Very Broken, Coarse-Grained, Dry
20	CA 7	100	4-8-13				Changes to Completely Weathered, Recovered as **POORLY GRADED SAND with SILT and GRAVEL**
25	CA 8	25	50/6"				
30	CA 9	0	50/3"				Changes to Pink, Highly Weathered
35	CA 10	0	50/3"				35.0 3580.0

Borehole terminated at 35.0 ft.

BOREHOLE/TP/WELL - TT MCCLOY RANCH FRAC POND - COPY.GPJ LAB SUMMARY.GDT 3/10/26

APPENDIX B

LABORATORY SUMMARY

TETRA TECH
Tetra Tech Inc.
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Midland, TX, 79701
Telephone: 432-682-4559
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SUMMARY OF LABORATORY RESULTS

CLIENT Chevron

PROJECT NAME McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101

PROJECT LOCATION Lea County, NM

Borehole	Depth	Water Content (%)	Dry Density (pcf)	Atterbeg's Limits (LL/PI)	Fines Content (%)	Class-ification	Swell (%), Swell pressure(psf)	Collapse (%), Collapse pressure (psf)	Cc, Cr	Unconfined compression strength (tsf)	Strain at Failure (%)	pH,Soil resistivity (Ohm-m)	Sulfate, Chloride content (ppm)	CBR (%)
B-1	2.0	4.9	74.6	NV/NP	25.8	SM								
B-2	0.0	5.3	85.7	NV/NP	15.9	SM								
B-2	8.5	5.1	80.0											
B-3	2.0	4.7	85.7	NV/NP	21.2	SM								
B-4	0.0	4.8	83.9	NV/NP	20.7	SM								
B-4	6.0	3.5	89.5	NV/NP	23.4	SM								
B-5	0.0	3.3	72.8	NV/NP	18.6	SM								
B-5	28.5	1.1	88.8	NV/NP	2.3	SP								
B-6	2.0	5.2	85.5	NV/NP	23.0	SM								
B-7	0.0	3.8	86.3	NV/NP	27.1	SM								
B-7	4.0	5.8	80.6											
B-8	0.0	6.1	106.1	NV/NP	28.2	SM								
B-10	0.0	4.2	91.6	NV/NP	29.1	SM								
B-10	8.5	5.0		NV/NP	23.0	SM								

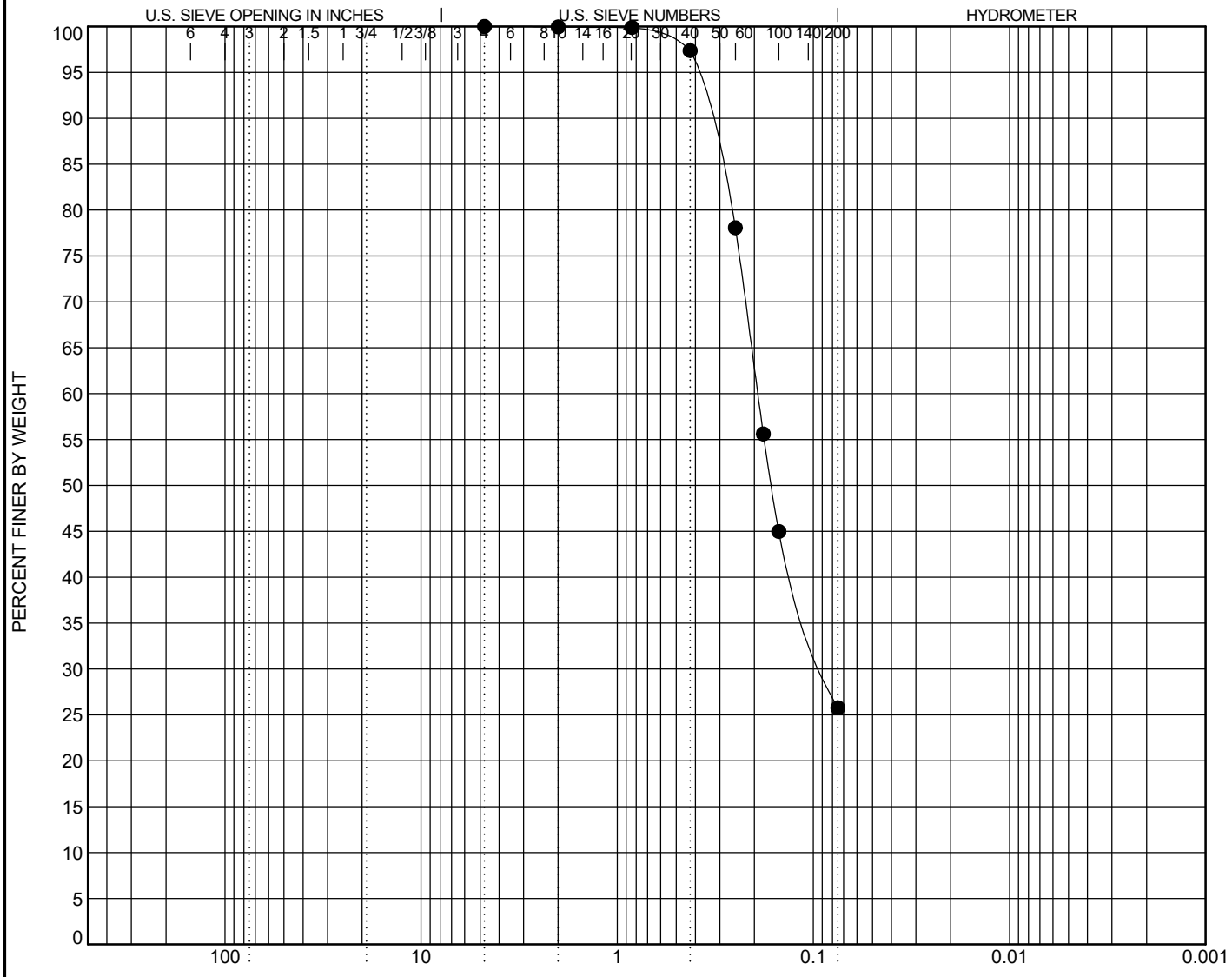
LAB SUMMARY - CONSOL MCCLOY RANCH FRAC POND.GPJ LAB SUMMARY.GDT 2/18/26

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● B-1	2.0	SILTY SAND (SM)	NV	NV	NP		

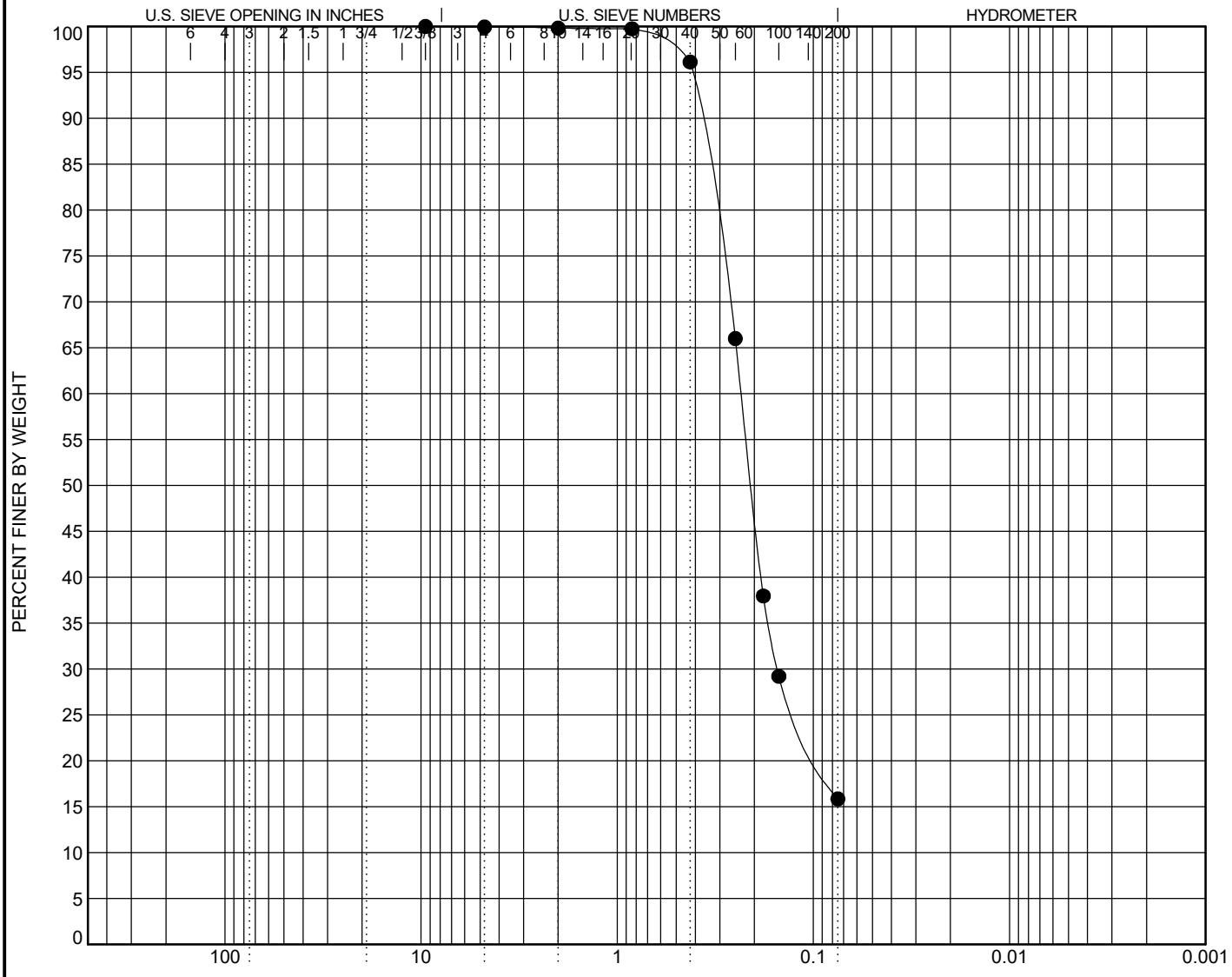
ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-1	2.0	4.75	0.192	0.087		0.0	74.2	25.8	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● **B-2**	**0.0**	**SILTY SAND (SM)**	**NV**	**NV**	**NP**		

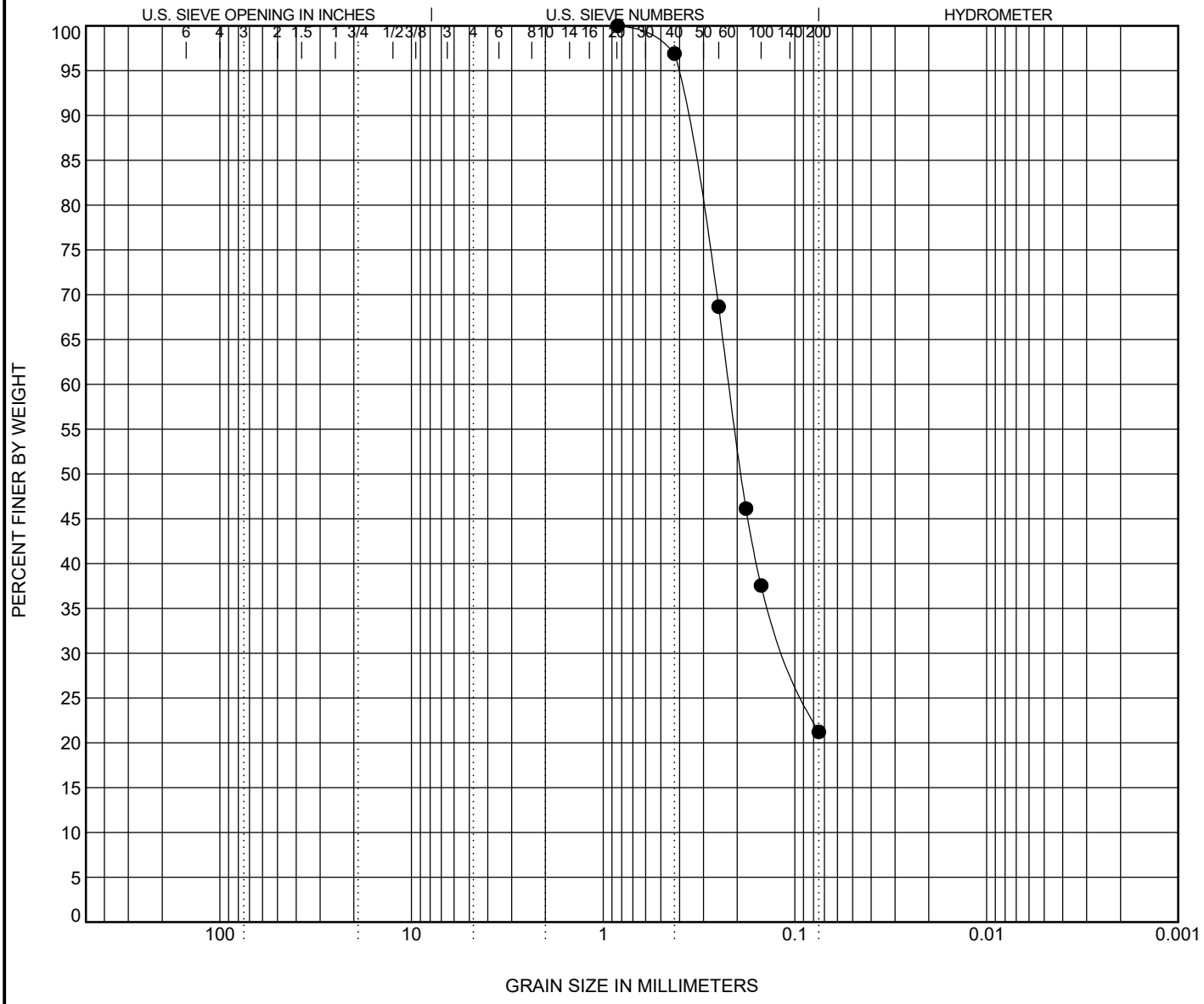
ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **B-2**	**0.0**	**9.5**	**0.233**	**0.153**		**0.1**	**84.1**	**15.9**	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● B-3	2.0	SILTY SAND (SM)	NV	NV	NP		

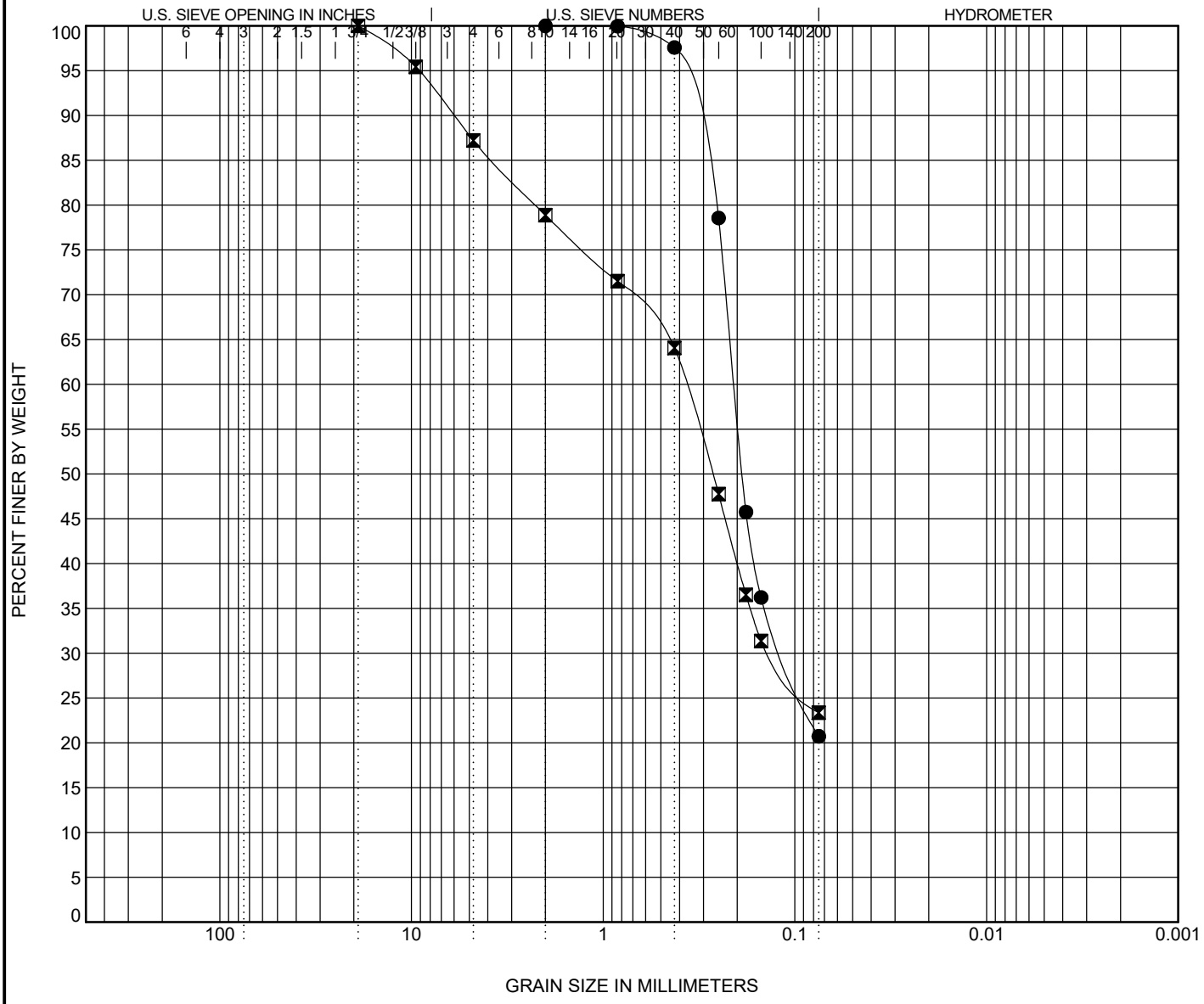
ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-3	2.0	0.841	0.22	0.109		0.0	78.8	21.2	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
●	B-4	0.0	SILTY SAND (SM)	NV	NV	NP		
⊠	B-4	6.0	SILTY SAND (SM)	NV	NV	NP		

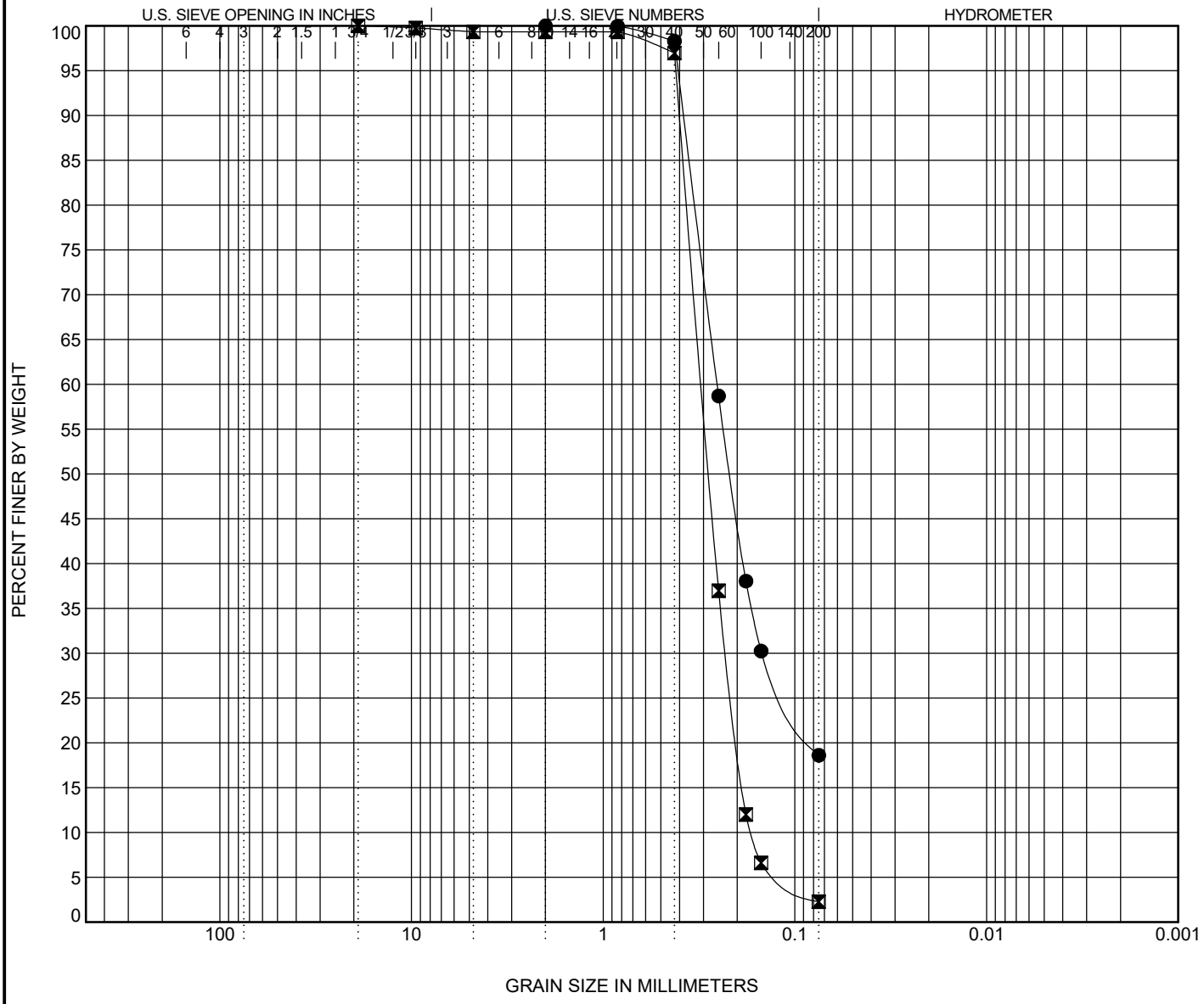
	ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-4	0.0	2	0.208	0.114		0.0	79.3	20.7	
⊠	B-4	6.0	19	0.372	0.133		12.8	63.8	23.4	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
●	B-5	0.0	SILTY SAND (SM)	NV	NV	NP		
⊠	B-5	28.5	POORLY GRADED SAND (SP)	NV	NV	NP	1.01	1.82

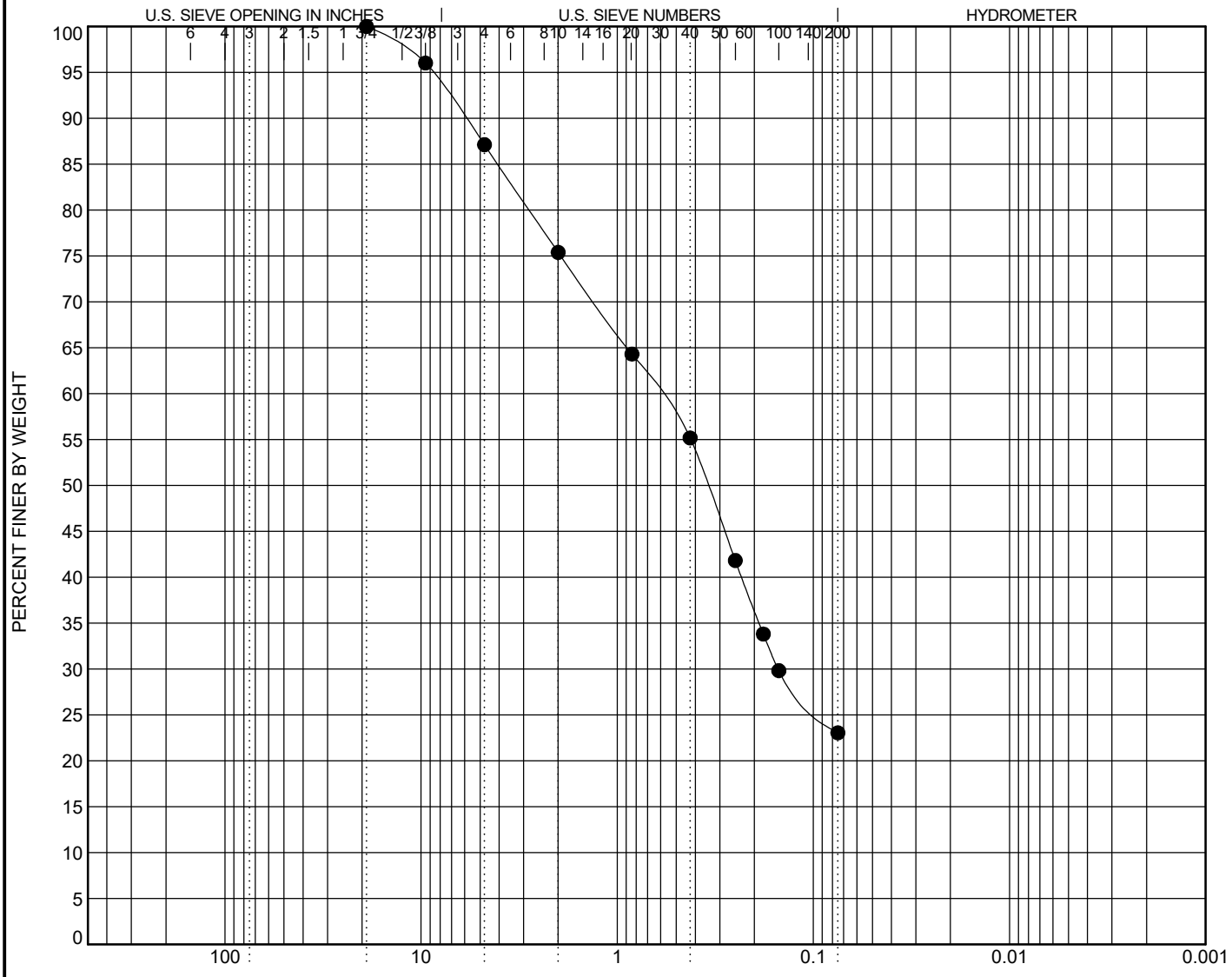
	ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-5	0.0	2	0.254	0.148		0.0	81.4	18.6	
⊠	B-5	28.5	19	0.306	0.228	0.168	0.7	97.1	2.3	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● **B-6**	**2.0**	**SILTY SAND (SM)**	**NV**	**NV**	**NP**		

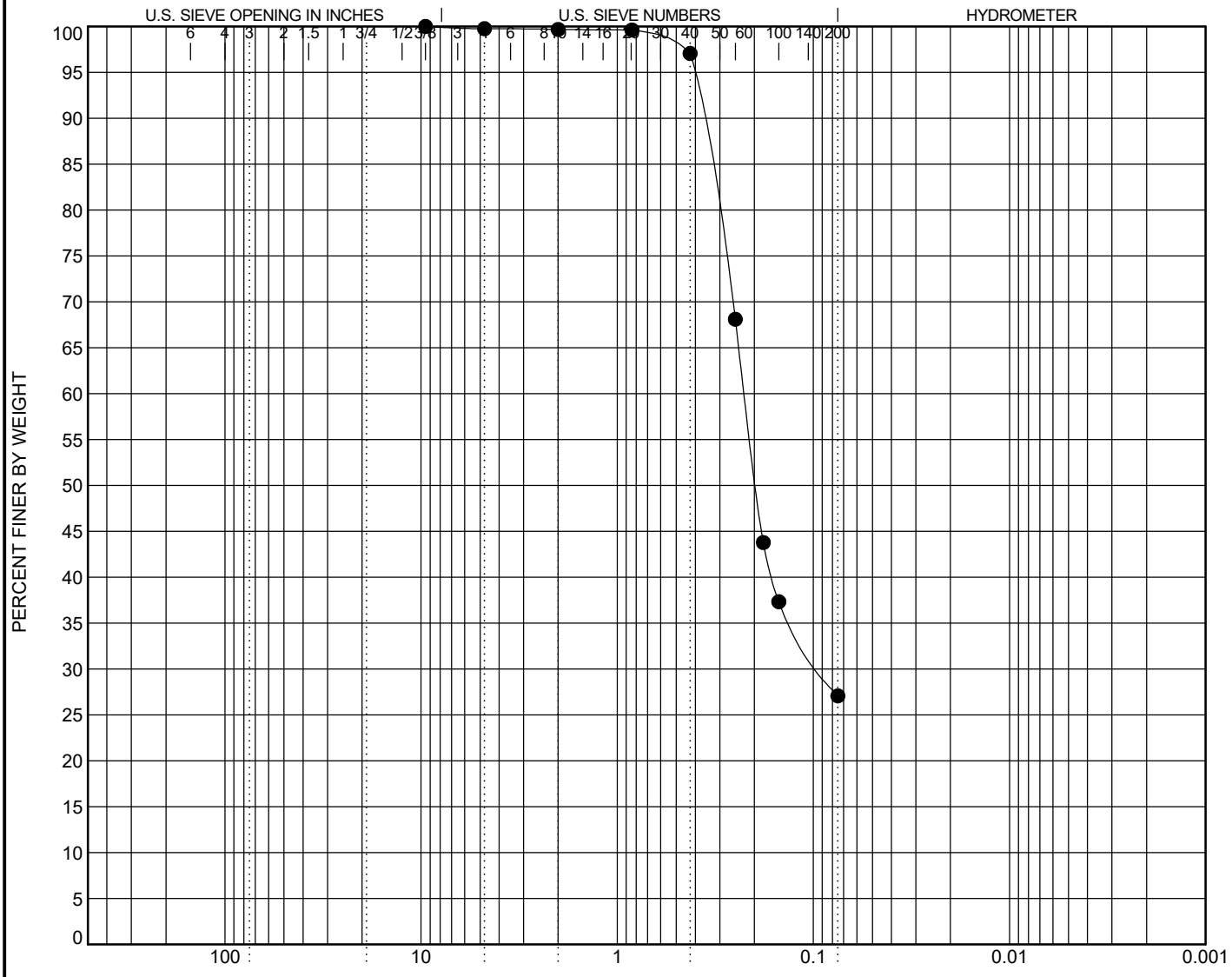
ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● **B-6**	**2.0**	**19**	**0.61**	**0.151**		**12.9**	**64.1**	**23.0**	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● B-7	0.0	SILTY SAND (SM)	NV	NV	NP		

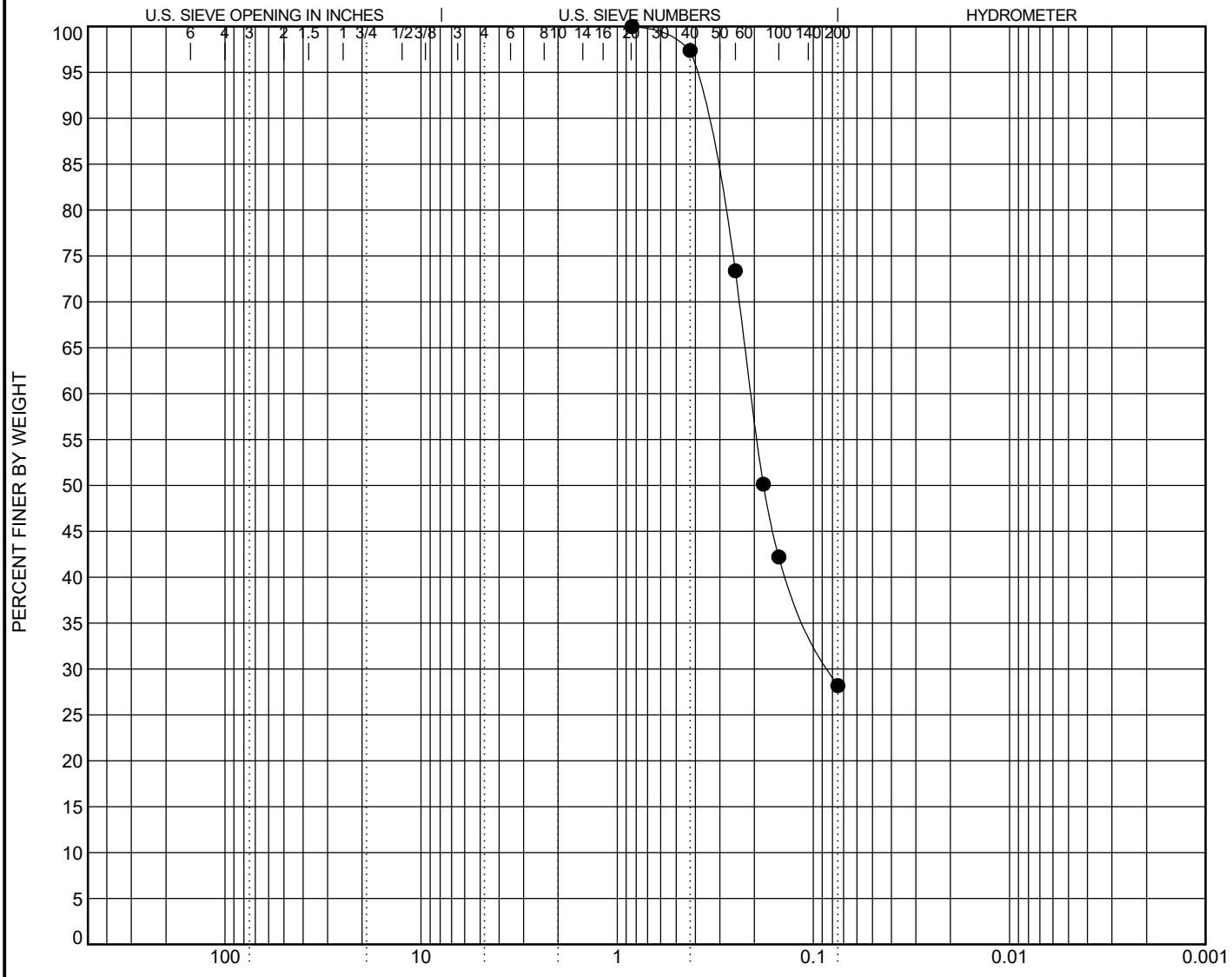
ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-7	0.0	9.5	0.224	0.091		0.2	72.7	27.1	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● B-8	0.0	SILTY SAND (SM)	NV	NV	NP		

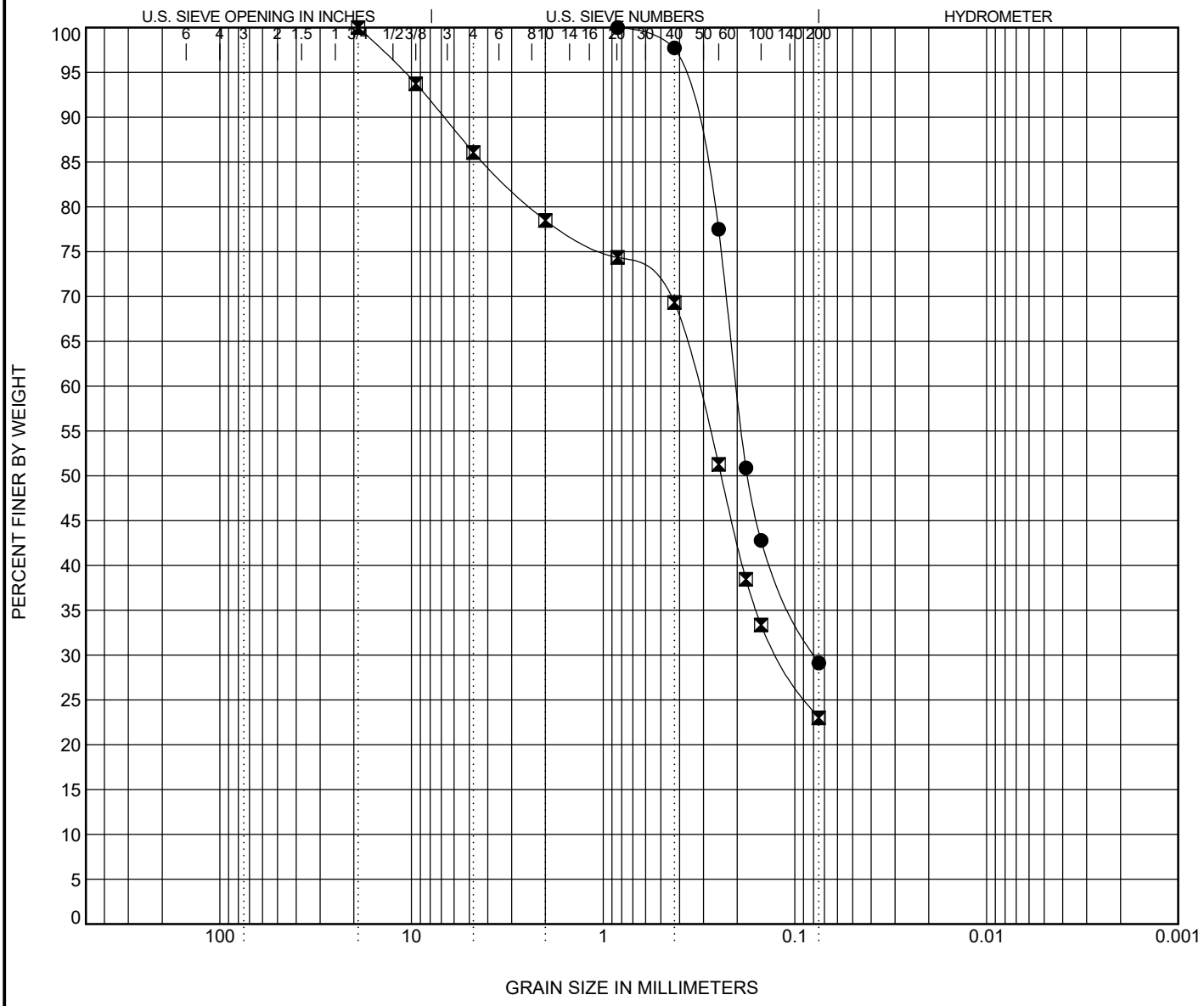
ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-8	0.0	0.841	0.207	0.082		0.0	71.8	28.2	

TETRA TECH

GRAIN SIZE DISTRIBUTION

CLIENT Chevron **PROJECT NAME** McCloy Ranch - Frac Pond

PROJECT NUMBER 212C-MD-04101 **PROJECT LOCATION** Lea County, NM



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

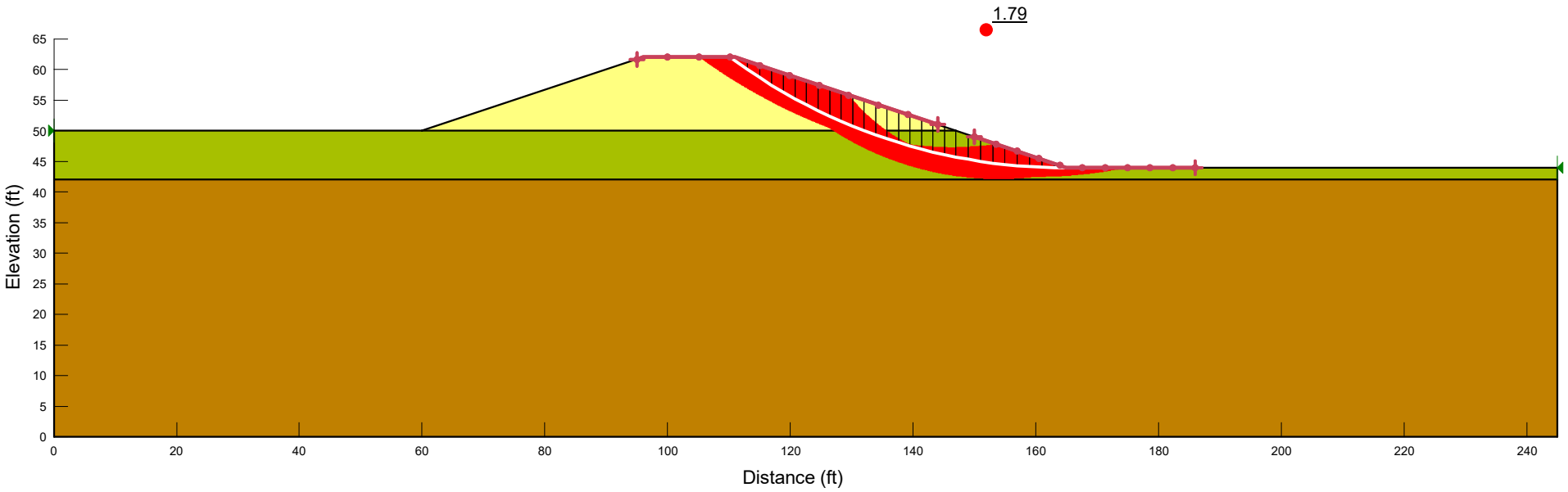
ID	Depth (ft)	Classification	LL	PL	PI	Cc	Cu
● B-10	0.0	SILTY SAND (SM)	NV	NV	NP		
⊠ B-10	8.5	SILTY SAND (SM)	NV	NV	NP		

ID	Depth (ft)	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-10	0.0	0.841	0.201	0.078		0.0	70.9	29.1	
⊠ B-10	8.5	19	0.323	0.12		13.9	63.1	23.0	

APPENDIX C

SLOPE STABILITY MODEL RESULTS

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1_Embankment Fill_Silty Sand with Gravel_Drained	Mohr-Coulomb	115	0	32
	2_Native_Silty Sand with Gravel	Mohr-Coulomb	90	0	30
	3_Native_Sandstone	Mohr-Coulomb	120	0	35



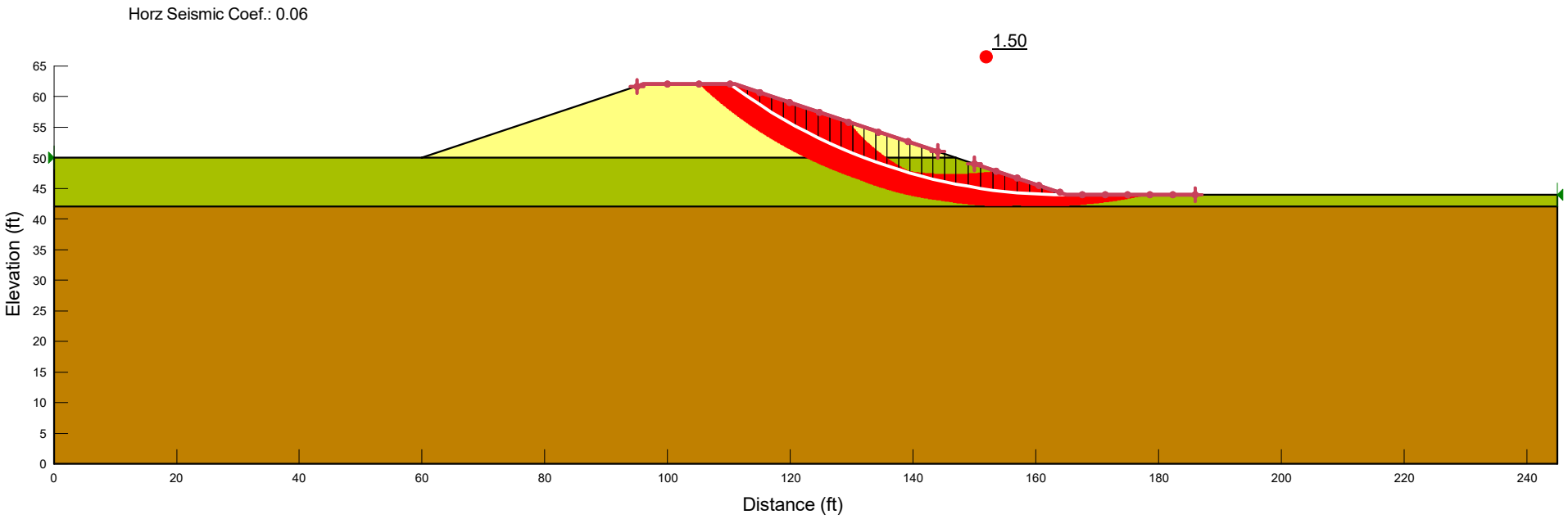
Project No.: 212C-MD-04101
Prepared By: Ouellette, Danika
Date: 03/09/2026
Checked By: Jack Wright

Chevron McCloy Ranch Frac Pond
Section A-A', Slope Stability Anaysis
1 - End of Construction, Drained

Analysis Name: 1_End of Construction_Static

TETRA TECH

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)
	1_Embankment Fill_Silty Sand with Gravel_Drained	Mohr-Coulomb	115	0	32
	2_Native_Silty Sand with Gravel	Mohr-Coulomb	90	0	30
	3_Native_Sandstone	Mohr-Coulomb	120	0	35



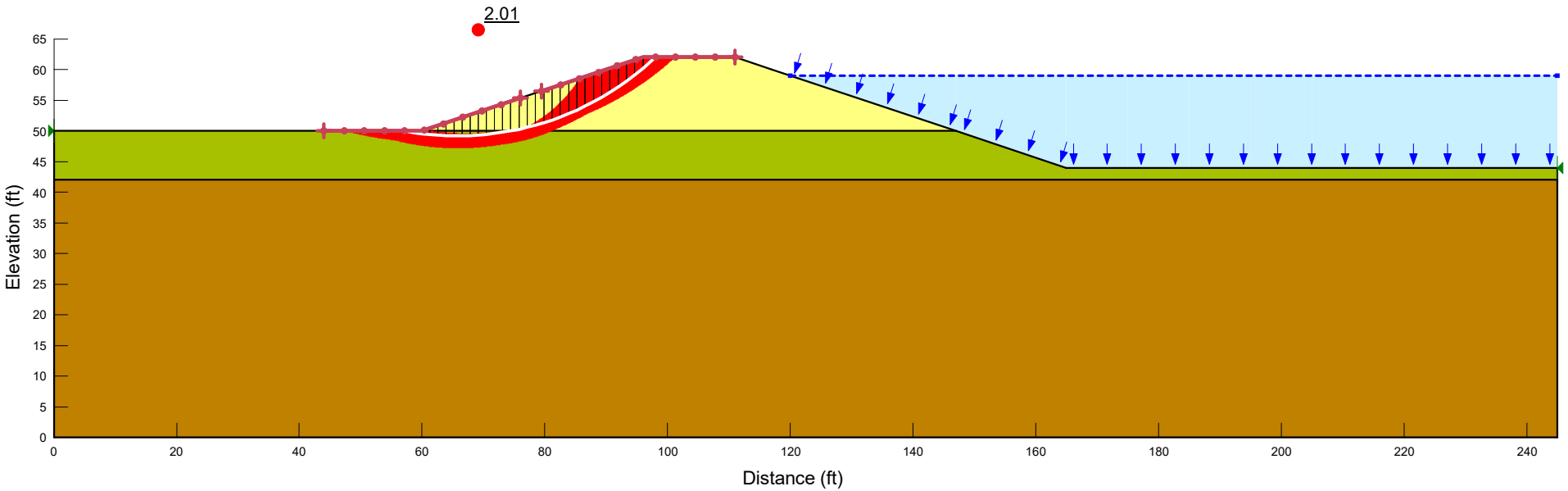
Project No.: 212C-MD-04101
Prepared By: Ouellette, Danika
Date: 03/09/2026
Checked By: Jack Wright

Chevron McCloy Ranch Frac Pond
Section A-A', Slope Stability Anaysis
1A - End of Construction, Pseudo-Static

Analysis Name: 1A End of Construction Pseudostatic

TETRA TECH

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)	Piezometric Surface
	1_Embankment Fill_Silty Sand with Gravel_Drained	Mohr-Coulomb	115	0	32	1
	2_Native_Silty Sand with Gravel	Mohr-Coulomb	90	0	30	1
	3_Native_Sandstone	Mohr-Coulomb	120	0	35	1



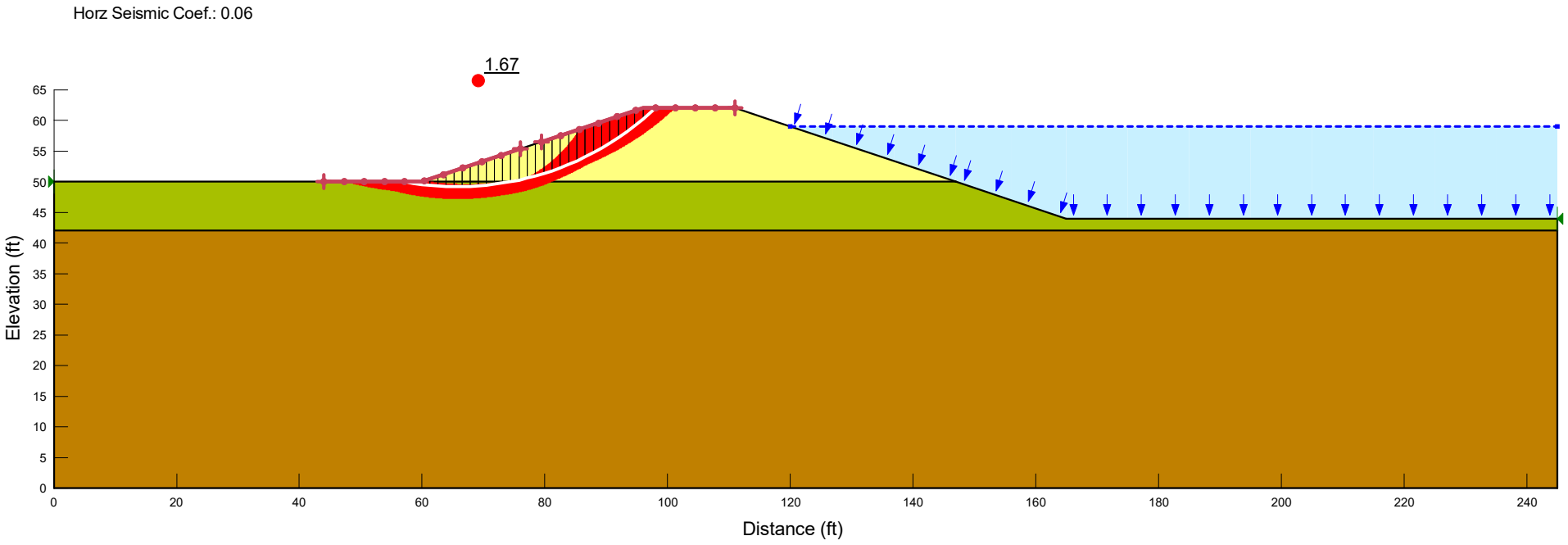
Project No.: 212C-MD-04101
Prepared By: Ouellette, Danika
Date: 03/09/2026
Checked By: Jack Wright

Chevron McCloy Ranch Frac Pond
Section A-A', Slope Stability Anaysis
2 - Long-Term, 3ft of Freeboard, Drained

Analysis Name: 2_Long Term_3ft Freeboard_Static

TETRA TECH

Color	Name	Slope Stability Material Model	Unit Weight (pcf)	Effective Cohesion (psf)	Effective Friction Angle (°)	Piezometric Surface
	1_Embankment Fill_Silty Sand with Gravel_Drained	Mohr-Coulomb	115	0	32	1
	2_Native_Silty Sand with Gravel	Mohr-Coulomb	90	0	30	1
	3_Native_Sandstone	Mohr-Coulomb	120	0	35	1



Project No.: 212C-MD-04101
Prepared By: Ouellette, Danika
Date: 03/09/2026
Checked By: Jack Wright

Chevron McCloy Ranch Frac Pond
Section A-A', Slope Stability Anaysis
2A - Long-Term, 3ft of Freeboard, Pseudo-Static

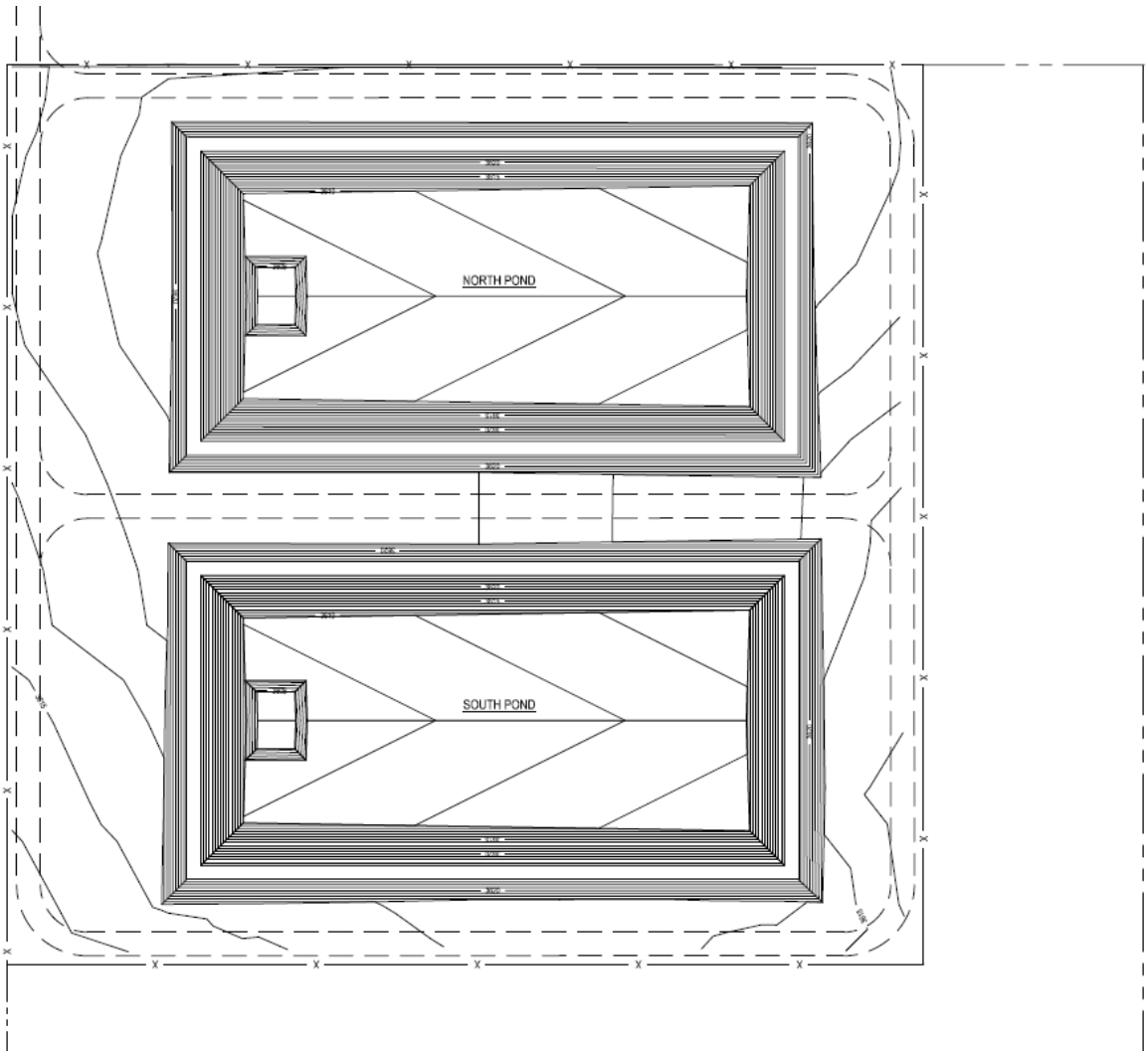
Analysis Name: 2A_Long Term_3ft Freeboard_Pseudostatic

TETRA TECH

APPENDIX D

PRELIIMINARY FRAC PONDS' GRADING PLAN

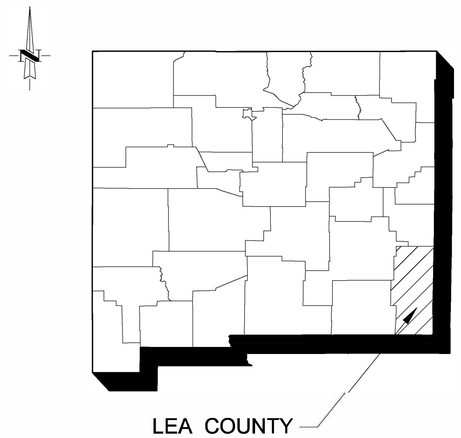
Preliminary McCloy Ranch Frac Ponds' Grading Plan



Appendix C

Recycling Containment Engineering Drawings

CHEVRON N.A. E&P, MCBU
MCCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
CONSTRUCTION PROJECT
LEA COUNTY, NEW MEXICO



INDEX OF DRAWINGS

GENERAL NOTES

1. ALL TOPOGRAPHIC, UTILITY AND CONTROL POINT LOCATION INFORMATION IS BASED ON SURVEY INFORMATION FURNISHED BY THE OWNER, THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR FIELD VERIFICATION.
2. COORDINATE INFORMATION IS BASED ON AND ARE BASED ON STATE PLANES COORDINATE NEW MEXICO EAST ZONE (4726) NAD83, THE CONTRACTOR SHALL IDENTIFY ANY DISCREPANCIES PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. CONTROL POINTS PROVIDED BY OWNER, FILE NAME:
4. THE CONTRACTOR SHALL IDENTIFY AND LOCATE UTILITY LINES, MONITOR WELLS, SURVEY MONUMENTS, AND OTHER NEARBY STRUCTURES PRIOR TO PERFORMING WORK. UTILITIES, MONITOR WELLS, SURVEY MONUMENTS AND OTHER NEARBY STRUCTURES SHALL BE PROTECTED FROM DAMAGE DURING THIS WORK. ANY DAMAGE TO UTILITY LINES, MONITOR WELLS, SURVEY MONUMENTS, AND OTHER NEARBY STRUCTURES DURING THE WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. COSTS ASSOCIATED WITH THESE REPAIRS SHALL INCLUDE THE ACTUAL REPAIR COSTS AND ALL ENGINEERING COSTS REQUIRED BY THE ENGINEER TO COORDINATE AND OBTAIN REGULATORY APPROVAL OF THE REPAIRS IF REQUIRED.
5. THE CONTRACTOR SHALL REFER TO THE MCCLOY RANCH FRAC POND SITE TECHNICIAL SPECIFICATIONS FOR CONSTRUCTION IN ADDITION TO THE DRAWINGS FOR THE PROJECT CONSTRUCTION .

For Permit Review

03/27/2026 10:23:50 AM

REVISIONS		
NO.	DATE	DESCRIPTION
0	3/20/26	ISSUED FOR PERMIT REVIEW

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CHECKED NAL
DATE 3/20/26

TETRA TECH
1500 City West Blvd, Suite 1000
Houston, Texas 7742
(832) 251-6051

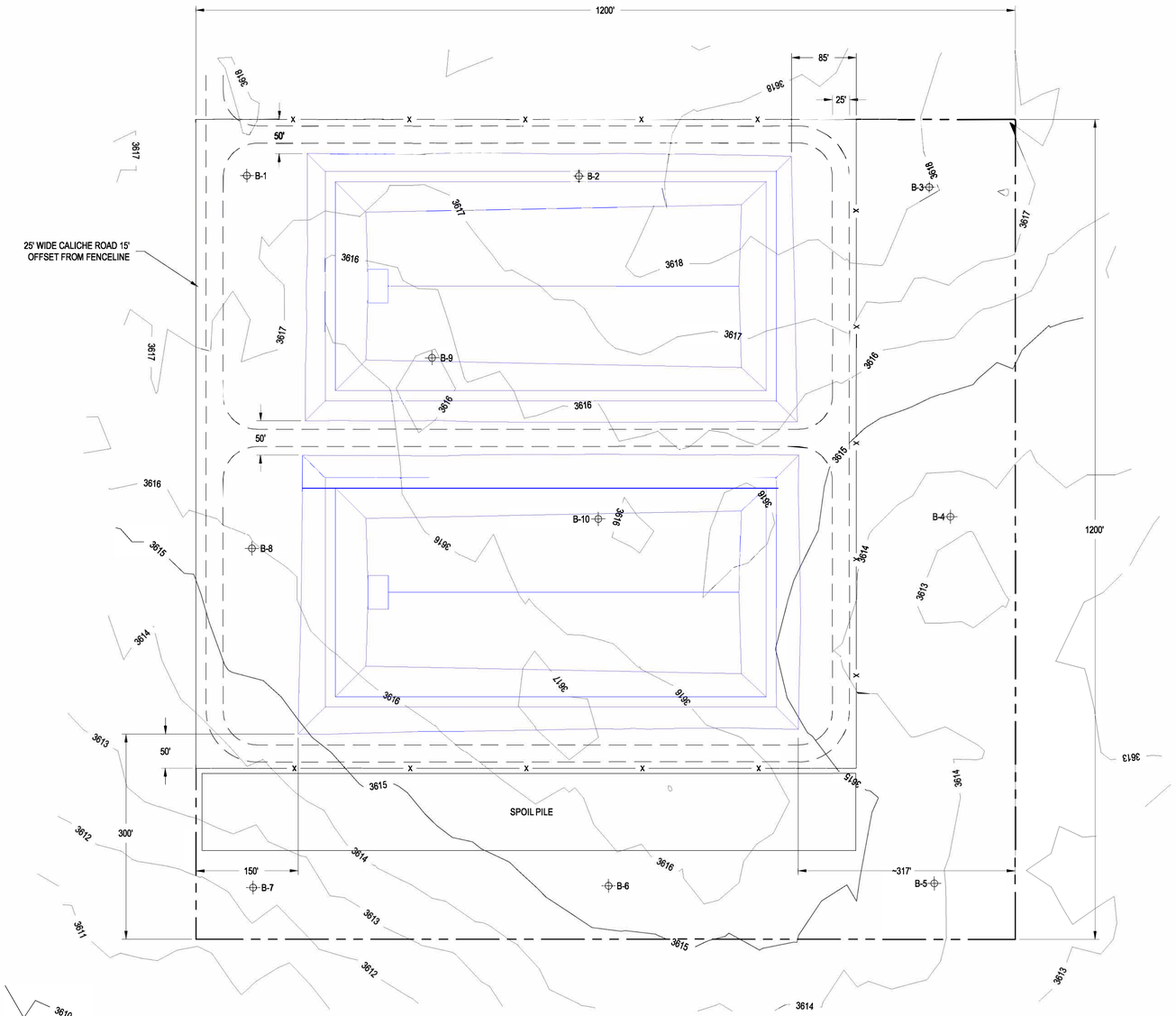
CHEVRON N.A. E&P, MCBU
NEW MEXICO PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA

TITLE SHEET
MCCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-1
SHEET NO. 1 OF 11



LEGEND

3615	EXISTING 5' CONTOUR INTERVAL (FEET, MSL)
	EXISTING 1' CONTOUR INTERVAL
	SURVEY BOUNDARY
B-10	SOIL BORING LOCATION AND NUMBER

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DATE 02/04/26

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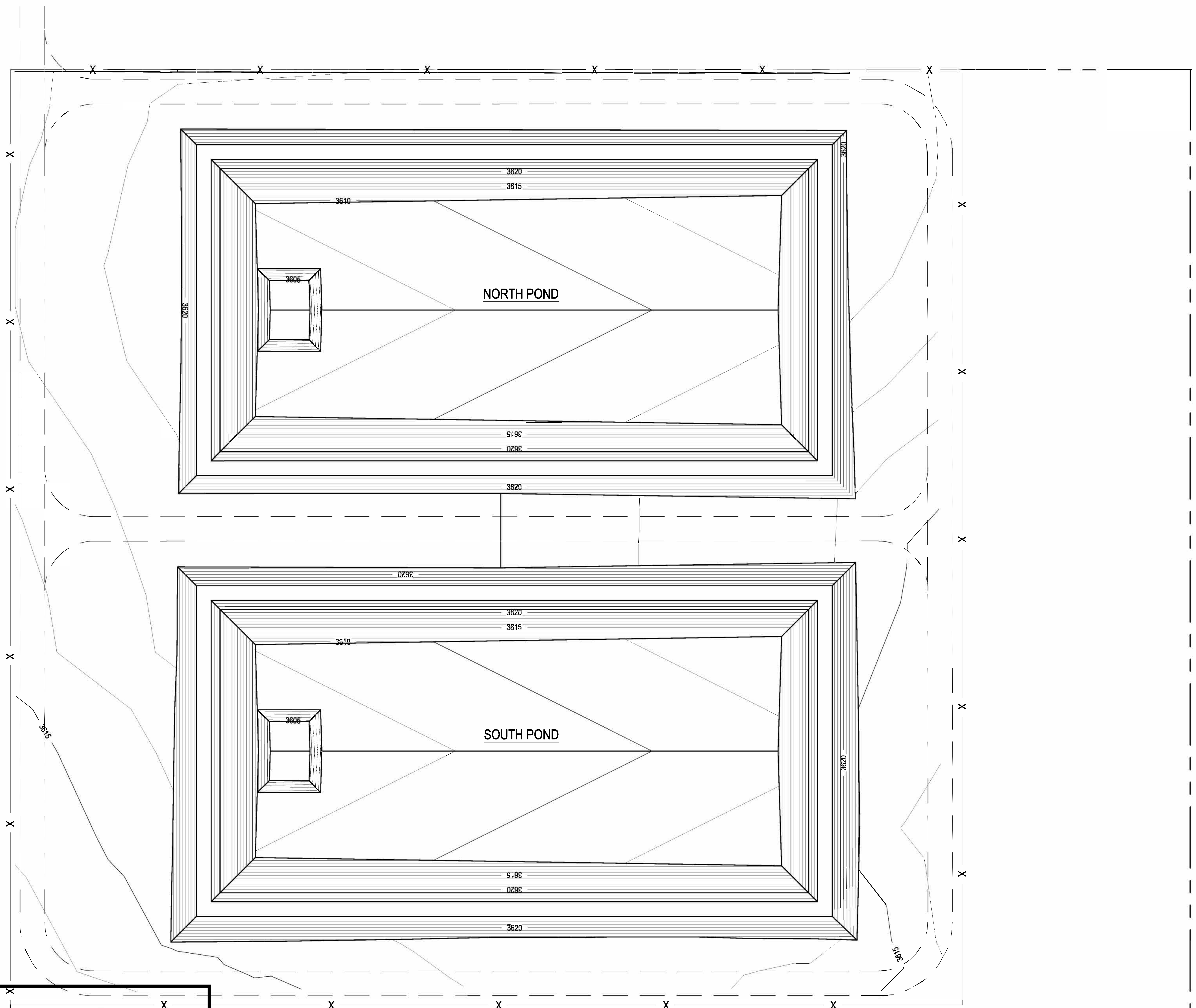
CHEVRON N.A. E&P, MCBU
PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: NA

EXISTING SITE CONDITIONS
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-2
SHEET NO. 2 OF X



SITE SOIL BALANCE
AREA WITHIN POND FOOTPRINT = 21.09 acres
EXCAVATION VOLUME = 62,101 cu. yds.
FILL VOLUME (1.15x) = 59,7902 cu. yds.
NET DIFFERENCE (WASTE) = 2,312 cu. yds.

NORTH POND SOIL BALANCE
AREA WITHIN POND FOOTPRINT = 6.01 acres
EXCAVATION VOLUME = 33,364 cu. yds.
FILL VOLUME (1.15x) = 22,382 cu. yds.
NET DIFFERENCE (WASTE) = 10,982 cu. yds.

NORTH POND TOTAL CAPACITY
TOP OF BERM EL=3624.00'
SURFACE AREA WITHIN BOUNDARY = 4.33 acres
VOLUME BELOW FREEBOARD = 79,420 cu. yds.
BBL CAPACITY (4.81) = 382,010 bbls

NORTH POND FREEBOARD CAPACITY
3.0' FREEBOARD EL=3621.00'
SURFACE AREA WITHIN BOUNDARY = 3.95 acres
VOLUME BELOW FREEBOARD = 59,865 cu. yds.
BBL CAPACITY (4.81) = 287,950 bbls

SOUTH POND SOIL BALANCE
AREA WITHIN POND FOOTPRINT = 6.21 acres
EXCAVATION VOLUME = 28,136 cu. yds.
FILL VOLUME (1.15x) = 27,361 cu. yds.
NET DIFFERENCE (WASTE) = 744 cu. yds.

SOUTH POND TOTAL CAPACITY
TOP OF BERM EL=3624.00'
SURFACE AREA WITHIN BOUNDARY = 4.33 acres
VOLUME BELOW FREEBOARD = 79,420 cu. yds.
BBL CAPACITY (4.81) = 382,010 bbls

SOUTH POND FREEBOARD CAPACITY
3.0' FREEBOARD EL=3621.00'
SURFACE AREA WITHIN BOUNDARY = 3.95 acres
VOLUME BELOW FREEBOARD = 59,865 cu. yds.
BBL CAPACITY (4.81) = 287,950 bbls

LEGEND

- 3620 — CONSTRUCTED 5' CONTOUR INTERVAL (FEET, MSL)
- CONSTRUCTED 1' CONTOUR INTERVAL
- X — SURVEY BOUNDARY
- 25' ACCESS ROAD
- SURVEY BOUNDARY

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Chevron
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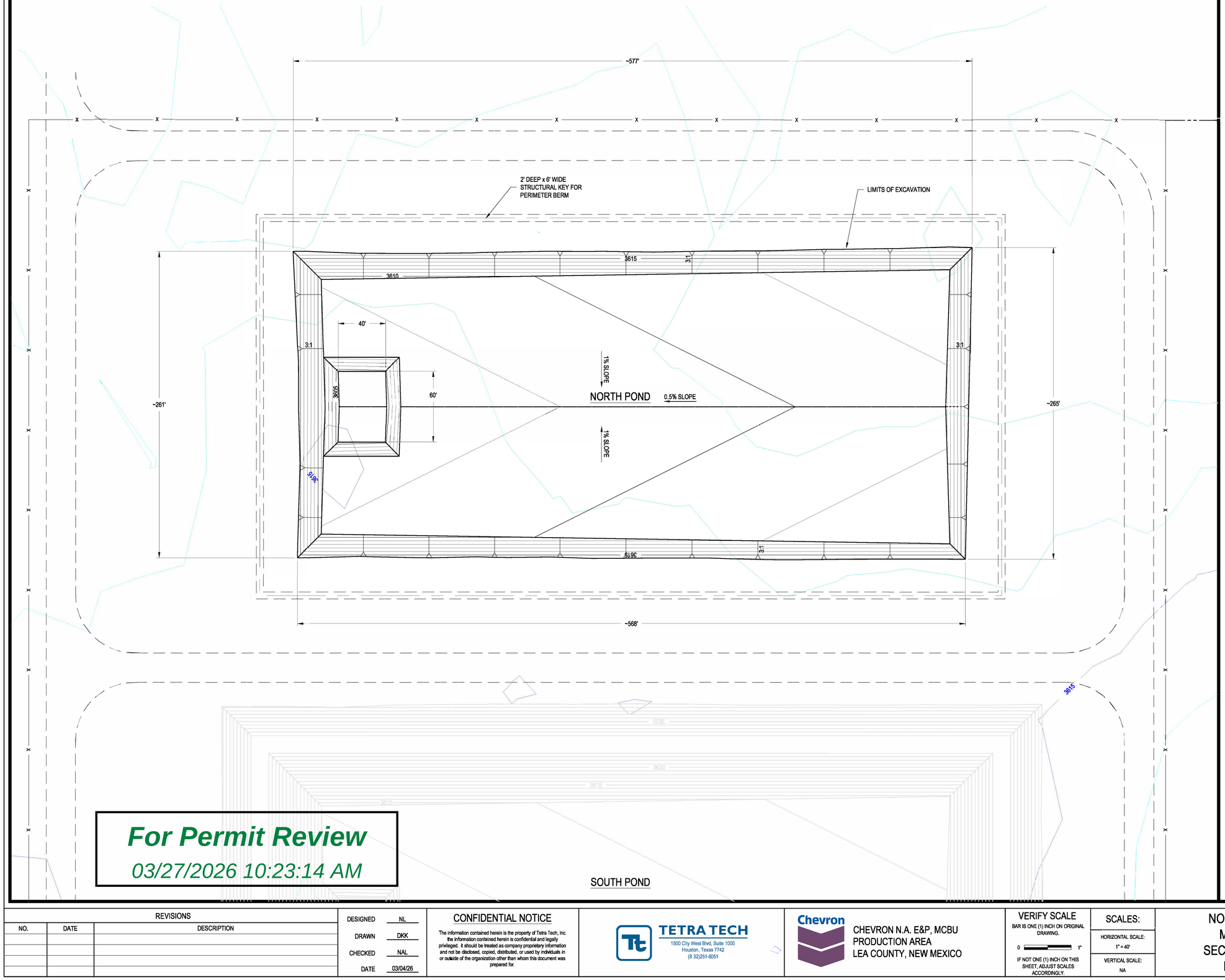
PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 60'
VERTICAL SCALE: NA

SITE COMPLETION PLAN
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-3
SHEET NO. 3 OF X



EXCAVATION CALCULATION
EXCAVATION BOUNDARY AREA = 3.42 acres
EXCAVATION VOLUME = 33,364 cu. yds.

LEGEND

- 3620 — EXISTING 5' CONTOUR INTERVAL (FEET, MSL)
- EXISTING 1' CONTOUR INTERVAL
- 3620 — EXCAVATION 5' CONTOUR INTERVAL (FEET, MSL)
- EXCAVATION 1' CONTOUR INTERVAL
- x — PERIMETER FENCING
- 25' ACCESS ROAD
- SURVEY BOUNDARY
- 3:1 — CUT SYMBOL AND SLOPE

For Permit Review
03/27/2026 10:23:14 AM

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			DATE 03/04/26

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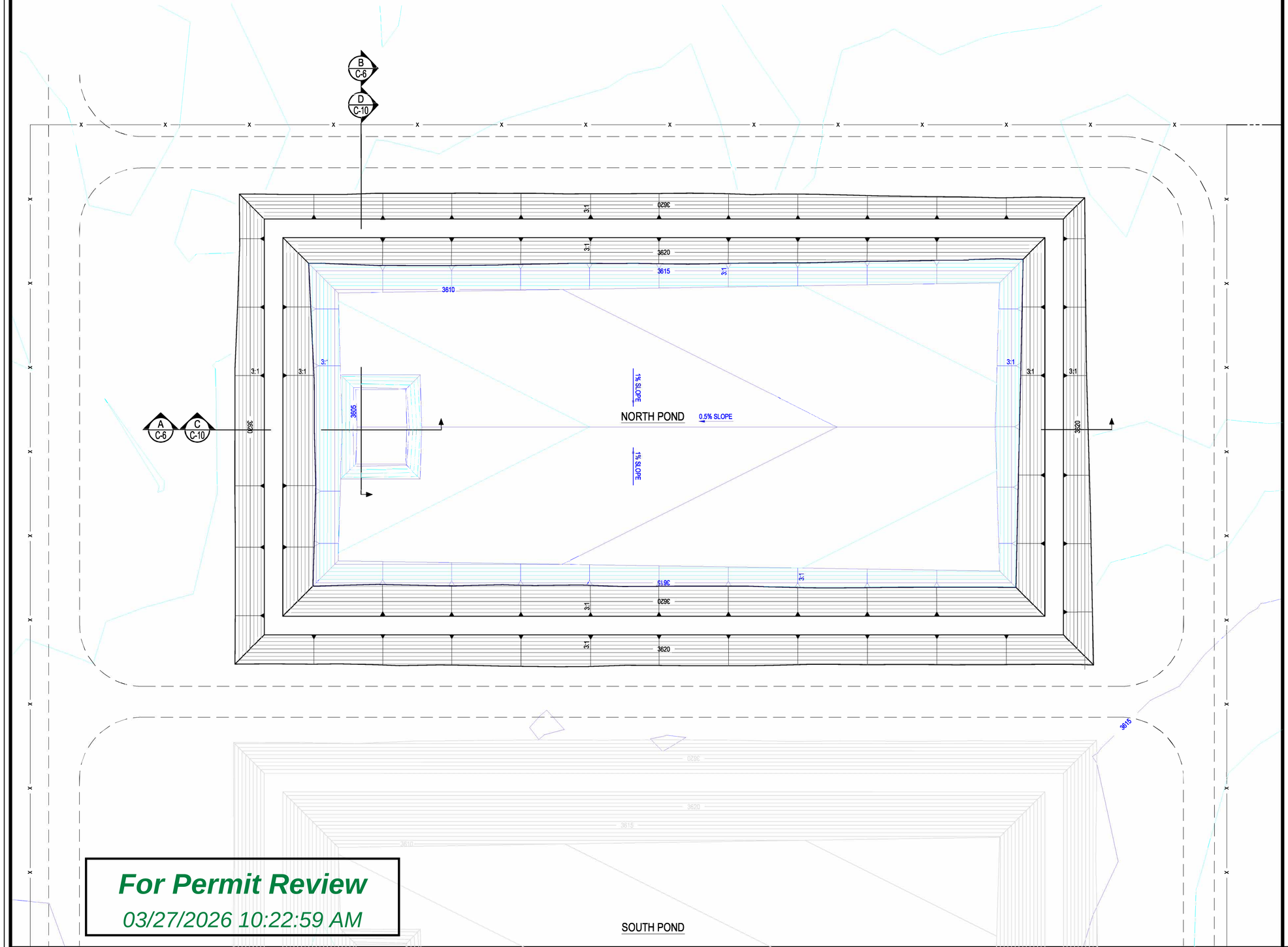
CHEVRON N.A. E&P, MCBU
PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 — 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: NA

NORTH POND EXCAVATION PLAN
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-4
SHEET NO. 4 OF X



NORTH POND TOTAL CAPACITY
TOP OF BERM EL=3624.00'
SURFACE AREA WITHIN BOUNDARY = 4.33 acres
VOLUME BELOW FREEBOARD = 79,420 cu. yds.
BBL CAPACITY (4.81) = 382,010 bbls

NORTH POND FREEBOARD CAPACITY
3.0' FREEBOARD EL=3621.00'
SURFACE AREA WITHIN BOUNDARY = 3.95 acres
VOLUME BELOW FREEBOARD = 59,865 cu. yds.
BBL CAPACITY (4.81) = 287,950 bbls

LEGEND

- 3620 — EXISTING 5' CONTOUR INTERVAL (FEET, MSL)
- EXISTING 1' CONTOUR INTERVAL
- 3620 — CONSTRUCTED 5' CONTOUR INTERVAL (FEET, MSL)
- CONSTRUCTED 1' CONTOUR INTERVAL
- X — PERIMETER FENCING
- 25' ACCESS ROAD
- SURVEY BOUNDARY
- 3:1 — CUT SYMBOL AND SLOPE
- 3:1 — FILL SYMBOL AND SLOPE

For Permit Review
03/27/2026 10:22:59 AM

REVISIONS		
NO.	DATE	DESCRIPTION

DESIGNED NL
DRAWN DKK
CHECKED NAL
DATE 03/04/26

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Houston, Texas 7742
(832) 251-6051

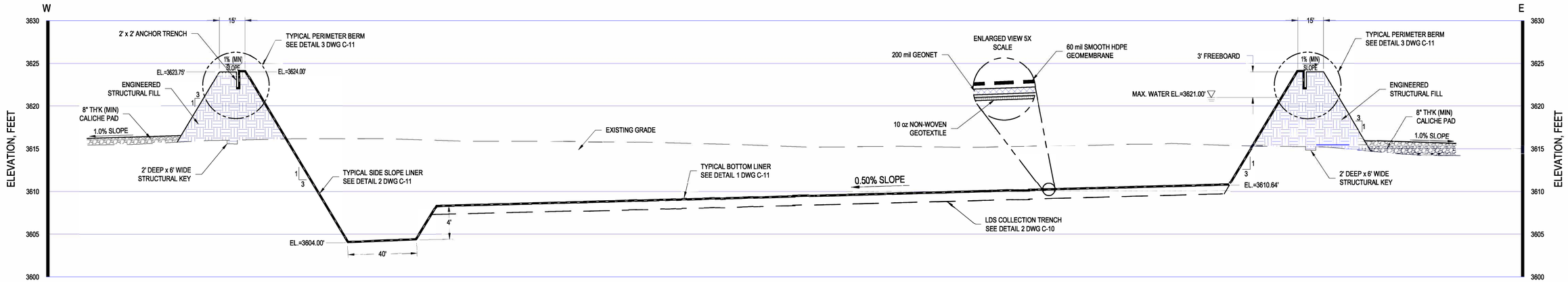
CHEVRON N.A. E&P, MCBU
PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 — 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: NA

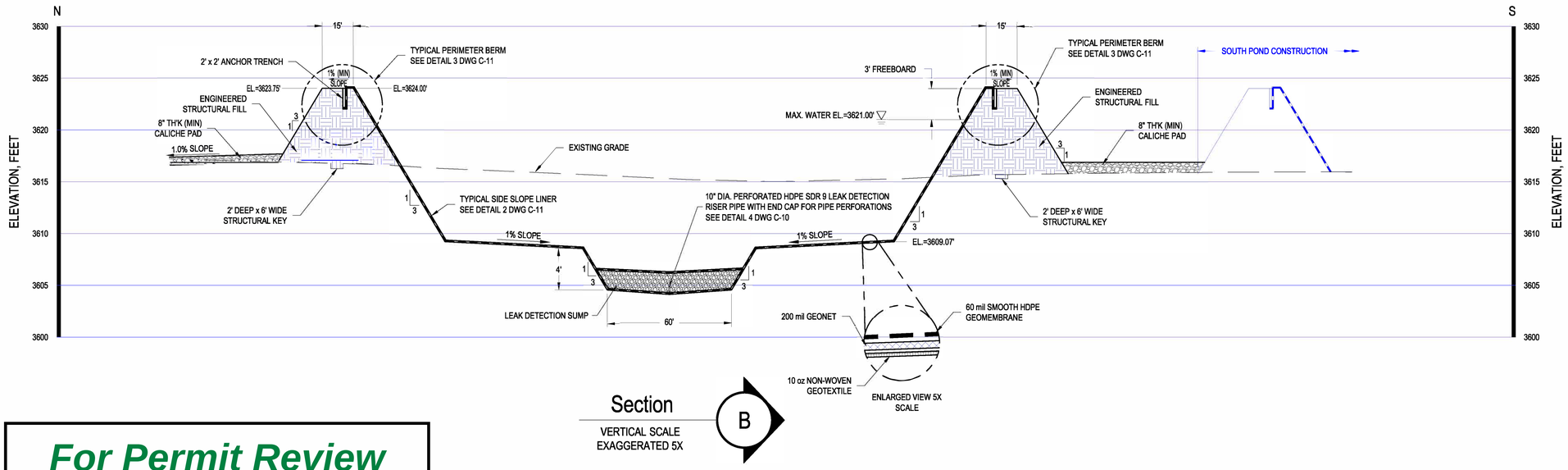
NORTH POND FINAL GRADING PLAN
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-5
SHEET NO. 5 OF X



Section A

VERTICAL SCALE
EXAGGERATED 5X



Section B

VERTICAL SCALE
EXAGGERATED 5X

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CHEVRON N.A. E&P, MCBU
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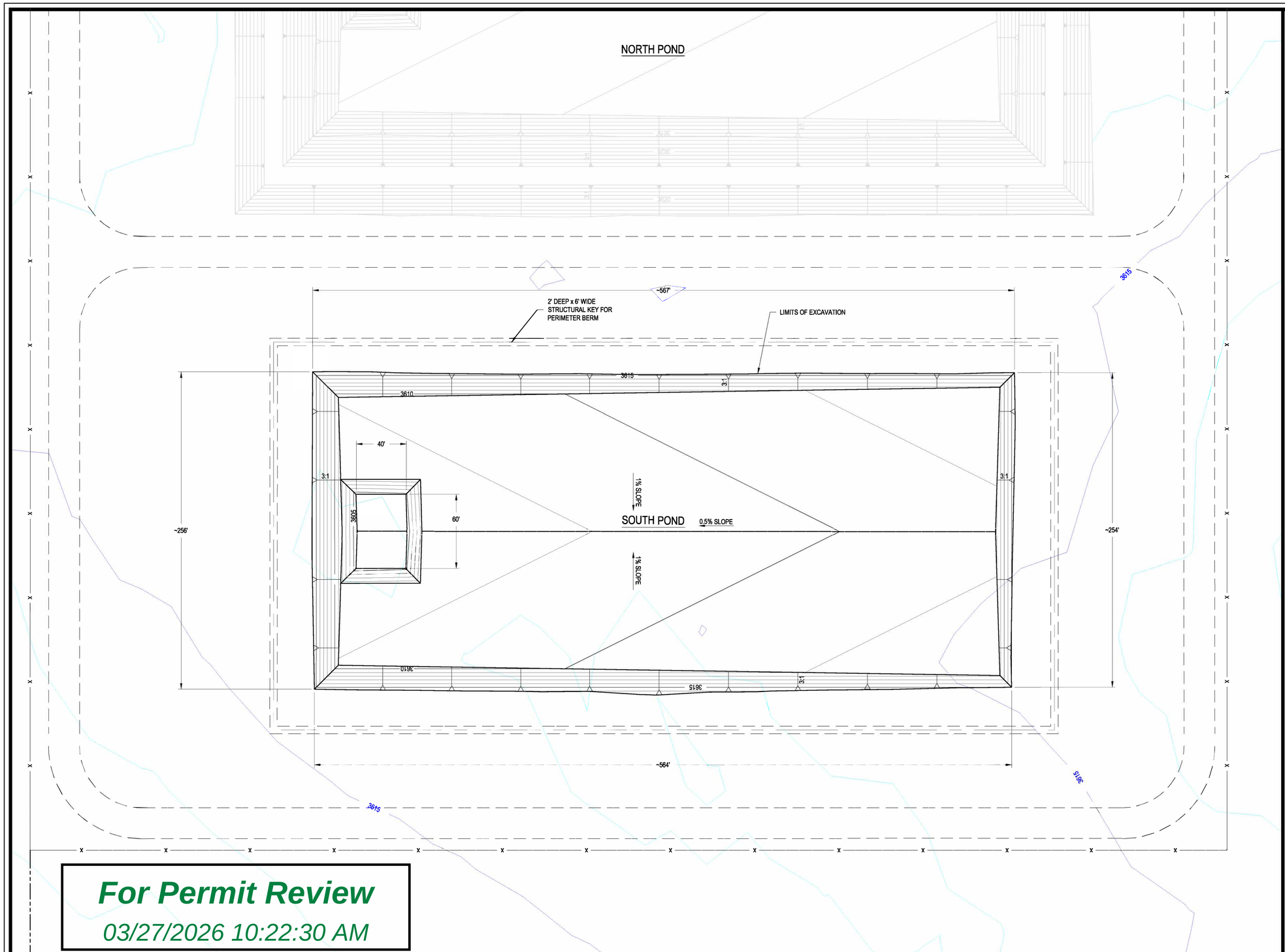
LEA COUNTY, NEW MEXICO

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 30'-0"
VERTICAL SCALE: NA

NORTH POND CROSS-SECTIONS
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-6
SHEET NO. 6 OF x



EXCAVATION CALCULATION
EXCAVATION BOUNDARY AREA = 3.33 acres
EXCAVATION VOLUME = 28,537 cu. yds.

LEGEND

- 3615 — EXISTING 5' CONTOUR INTERVAL (FEET, MSL)
- EXISTING 1' CONTOUR INTERVAL
- 3620 — EXCAVATION 5' CONTOUR INTERVAL (FEET, MSL)
- EXCAVATION 1' CONTOUR INTERVAL
- x — PERIMETER FENCING
- 25' ACCESS ROAD
- SURVEY BOUNDARY
- 3:1 — CUT SYMBOL AND SLOPE

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Chevron
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PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
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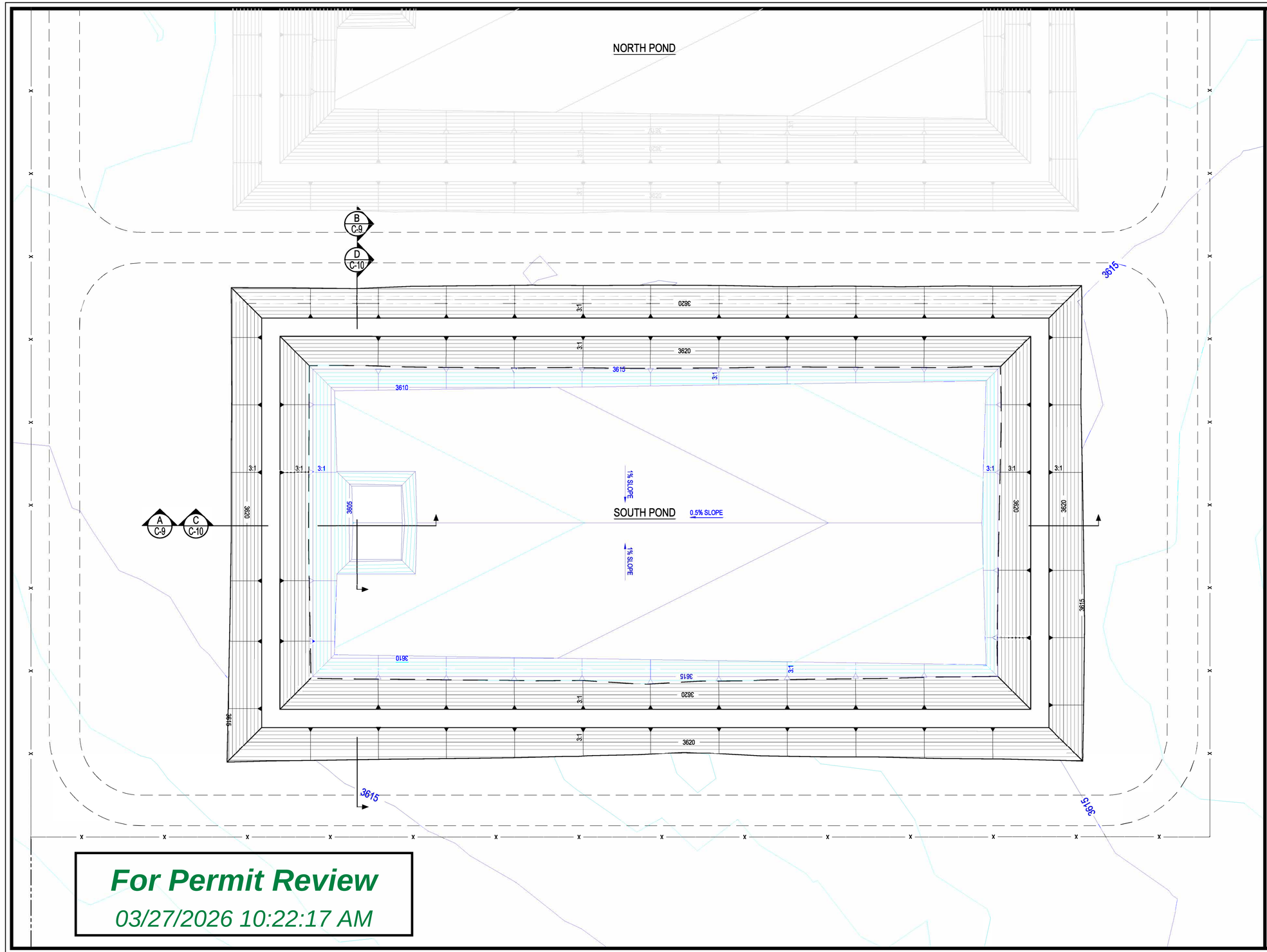
0 — 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: NA

SOUTH POND EXCAVATION PLAN
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-7
SHEET NO. 7 OF X



SOUTH POND TOTAL CAPACITY
TOP OF BERM EL=3624.00'
SURFACE AREA WITHIN BOUNDARY = 4.33 acres
VOLUME BELOW FREEBOARD = 79,420 cu. yds.
BBL CAPACITY (4.81) = 382,010 bbls

SOUTH POND FREEBOARD CAPACITY
3.0' FREEBOARD EL=3621.00'
SURFACE AREA WITHIN BOUNDARY = 3.95 acres
VOLUME BELOW FREEBOARD = 59,865 cu. yds.
BBL CAPACITY (4.81) = 287,950 bbls

LEGEND

- 3615 — EXISTING 5' CONTOUR INTERVAL (FEET, MSL)
- EXISTING 1' CONTOUR INTERVAL
- 36 20 — CONSTRUCTED 5' CONTOUR INTERVAL (FEET, MSL)
- CONSTRUCTED 1' CONTOUR INTERVAL
- X — PERIMETER FENCING
- 25' ACCESS ROAD
- SURVEY BOUNDARY

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PRODUCTION AREA
LEA COUNTY, NEW MEXICO

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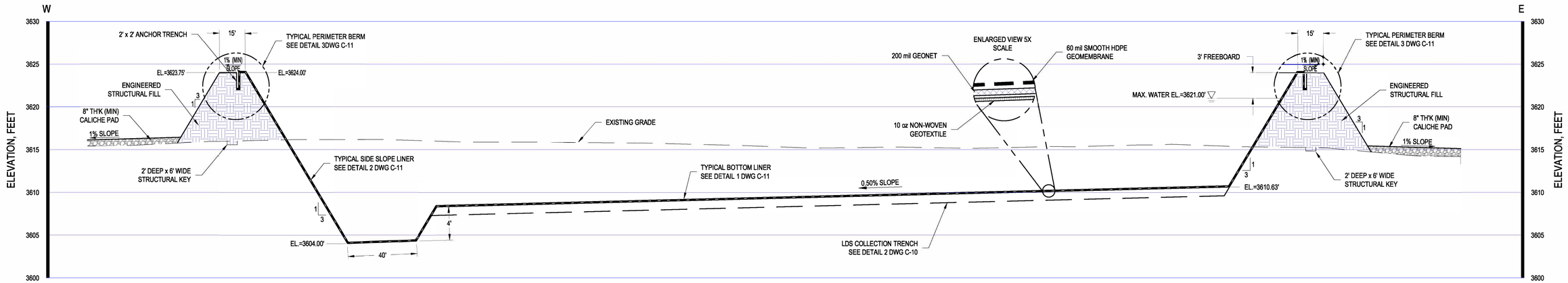
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: NA

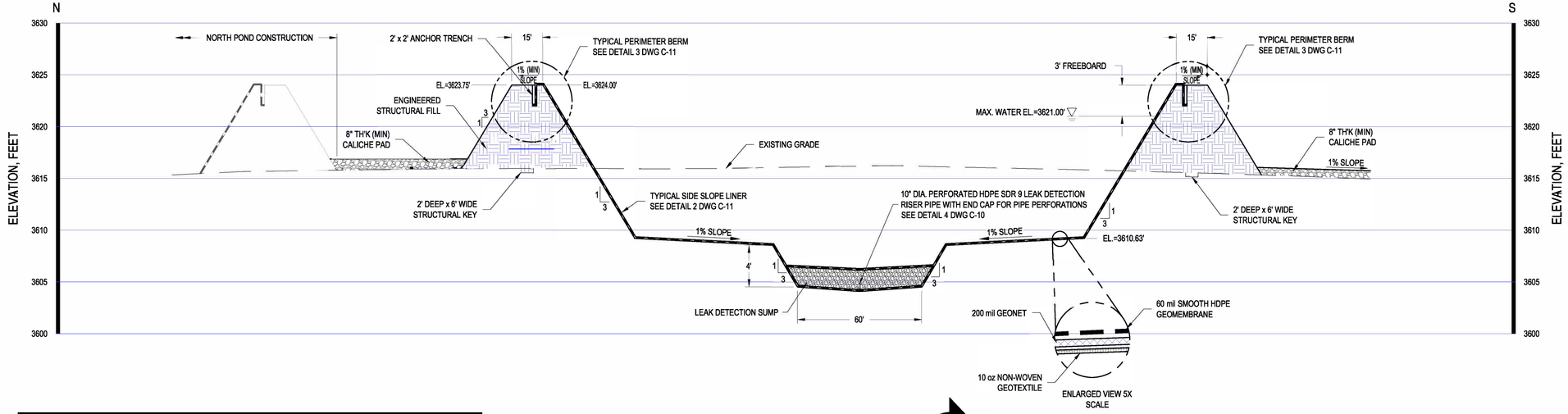
SOUTH POND FINAL GRADING PLAN
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-8
SHEET NO. 8 OF X



Section A

VERTICAL SCALE
EXAGGERATED 5X



Section B

VERTICAL SCALE
EXAGGERATED 5X

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DATE 3/18/26

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CHEVRON N.A. E&P, MCBU
NEW MEXICO PRODUCTION AREA
LEA COUNTY, NEW MEXICO

VERIFY SCALE
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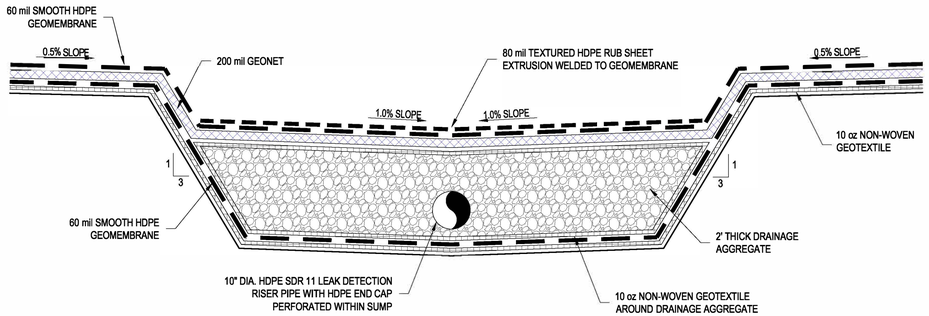
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: 1" = 30'-0"
VERTICAL SCALE: NA

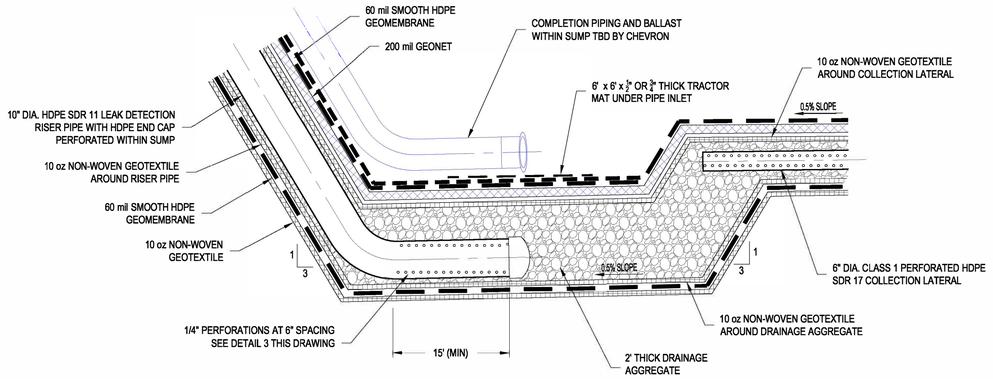
SOUTH POND CROSS-SECTIONS
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-9
SHEET NO. 9 OF X



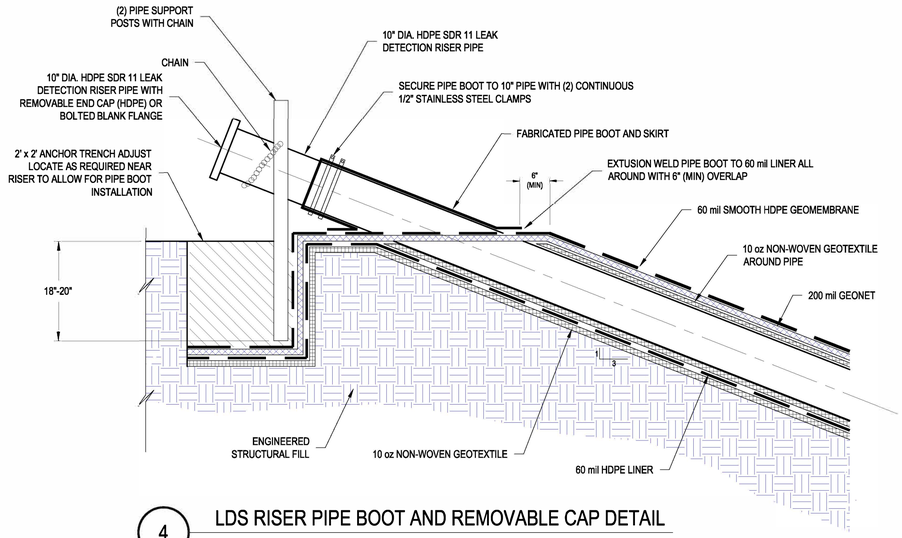
Section C

VERTICAL SCALE EXAGGERATED 5X



Section D

VERTICAL SCALE EXAGGERATED 5X

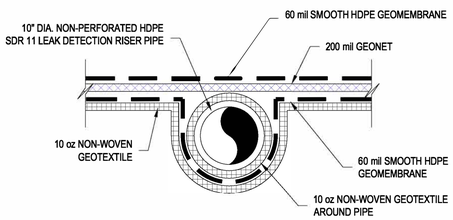


4 LDS RISER PIPE BOOT AND REMOVABLE CAP DETAIL

GEOSYNTHETICS EXAGGERATED FOR CLARITY

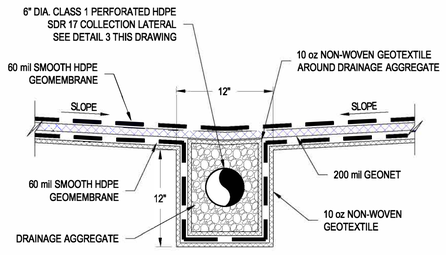
NOTES

1. SEE SPECIFICATIONS FOR GEOSYNTHETICS SECTIONS 33.47.13 FOR LINER SYSTEM.
2. 10" LEAK DETECTION RISER PIPE WILL BE PERFORATED WITHIN SUMP. PERFORATIONS WILL BE 1/4" DIAMETER HOLES AT 6" SPACING INTERVALS. PERFORATIONS WILL BE AT 120° AROUND THE CIRCUMFERENCE OF THE LEAK DETECTION SYSTEM RISER PIPE REFERENCE DETAIL 5 THIS SHEET.
3. THE CONTRACTOR SHALL REFER TO THE TECHNICAL SPECIFICATIONS FOR THE McCloy POND CONSTRUCTION IN ADDITION TO THE DRAWINGS FOR GEOSYNTHETICS SPECIFICATIONS.
4. GEOSYNTHETICS HAVE BEEN EXAGGERATED FOR CLARITY.



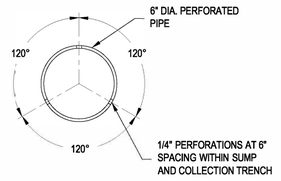
1 TYPICAL LDS RISER TRENCH

NTS



2 TYPICAL LDS COLLECTION TRENCH

NTS



3 PERFORATED PIPE DETAIL

NTS

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Chevron

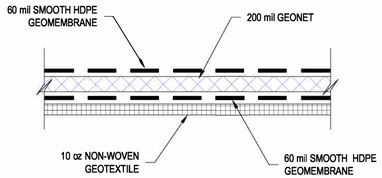
CHEVRON N.A. E&P, MCBU
PRODUCTION AREA
MIDLAND COUNTY, TEXAS
GPS: 31.734215°, -101.929042°

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

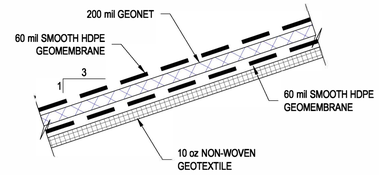
SCALES:
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA

SUMP SECTIONS AND LDS DETAILS
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

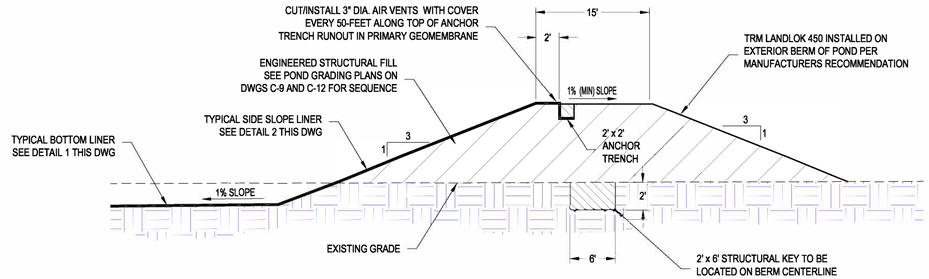
PROJECT NO. 212C-MD-04101
DRAWING NO. C-10
SHEET NO. 10 OF x



1 TYPICAL BOTTOM LINER
NTS



2 TYPICAL SIDE SLOPE LINER
NTS



3 TYPICAL PERIMETER BERM
NTS

NOTES

1. PRIOR TO PLACEMENT OF ANY STRUCTURAL FILL FOR THE BERMS, THE SUBGRADE BELOW THE FILL SHALL BE SCARIFIED TO A MINIMUM DEPTH OF (6) SIX INCHES.
2. ALL STRUCTURAL BERMS SHALL BE "KEYED" ONTO EXISTING GRADE AS SHOWN IN DETAIL 3 ON THIS DRAWING.
3. SEE POND EXCAVATION PLAN DRAWINGS C-4 AND C-7 FOR CENTERLINE OF BERM COORDINATES AND BERM FILL/COMPACTION SEQUENCE. THESE COORDINATES TO BE USE FOR LOCATION OF BERM STRUCTURAL KEYS.
4. SEE SPECIFICATIONS FOR GEOSYNTHETICS SECTIONS 33.47.13 FOR LINER SYSTEM.
5. ANCHOR TRENCH WILL BE INSTALLED PER THE DRAWINGS AND AS RECOMMENDED BY THE MANUFACTURER.
6. THE CONTRACTOR SHALL REFER TO THE TECHNICAL SPECIFICATIONS FOR THE McCLOY FRAC POND CONSTRUCTION IN ADDITION TO THE DRAWINGS FOR GEOSYNTHETICS SPECIFICATIONS.
7. GEOSYNTHETICS HAVE BEEN EXAGGERATED FOR CLARITY.

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CHEVRON N.A. E&P, MCBU
PRODUCTION AREA
MIDLAND COUNTY, TEXAS
GPS: 31.734215°, -101.929042°

VERIFY SCALE
BAR IS ONE (1) INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE (1) INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SCALES:
HORIZONTAL SCALE: NA
VERTICAL SCALE: NA

MISCELLANEOUS LINER DETAILS AND SECTIONS
McCLOY RANCH FRAC POND
SECTION 2, T-24-S, R-32-E, N.M.P.M.
LEA COUNTY, NEW MEXICO

PROJECT NO. 212C-MD-04101
DRAWING NO. C-11
SHEET NO. 11 OF x

Appendix D

Recycling Containment Construction Specifications

Technical Specifications
McCloy Ranch Hydraulic Fracturing Water Storage Pond - Section 2, T24S, R32E Lea County, New Mexico

Specifications for Construction

Chevron North America Exploration and Production
Mid-Continent Business Unit
Midland County, Texas

Prepared for:

Chevron North America Exploration and Production
Mid-Continent Business Unit
6301 Deauville, Blvd.
Midland, Texas 79706

Prepared by:

Tetra Tech, Inc.
901 W. Wall St., Suite 100
Midland, Texas 79705
Phone: 432-682-4559

Tetra Tech Project No. 212C-MD-04101

March 2026

SECTION 00 01 10 – TABLE OF CONTENTS

END OF SECTION 00 01 10

ISSUE FOR PERMIT REVIEW

3/27/2026

Note: Section 40 23 00, Polyethylene Pipe is approved by Chevron per Chevron's Standards for specifications for construction of HDPE polyethylene piping.

SECTION 00 01 15 – LIST OF DRAWING SHEETS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The DRAWINGS listed in this SPECIFICATIONS section form part of the contract documents.

B. CONTRACTOR shall completely coordinate the WORK shown on these DRAWINGS with all other contract WORK.

1.02 DRAWINGS INDEX

A. The following DRAWINGS are an integral part of the ENGINEERING DOCUMENTS.

Drawing Number	Drawing Title
C-1	Title Sheet
C-2	Existing Site Conditions
C-3	Site Completion Plan
C-4	North Pond Excavation Plan
C-5	North Pond Final Grading Plan
C-6	North Pond Cross-Sections
C-7	South Pond Excavation Plan
C-8	South Pond Final Grading Plan
C-9	South Pond Cross-Sections
C-10	Sump Sections and LDS Details
C-11	Miscellaneous Liner Details and Sections
N/A	N/A

PART 2 - MATERIALS (NOT USED)

PART 3 - EXECUTION (NOT USED)

SECTION 01 32 00 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 SUMMARY

A. Requirements of this Section shall consist of CONTRACTOR providing all required construction schedules, and services for the WORK.

B. The CONTRACTOR shall prepare a construction schedule for the OWNER's approval in accordance with the contract documents. The construction schedule shall include project milestones agreed upon by the OWNER as described in this Section.

PART 2 - PRODUCTS

PART 3 - EXCECUTION

3.01 Construction Schedule

A. Within two weeks of notice to proceed, submit a Construction Schedule as described in this section. Allow sufficient time for cycles of review, comment and resubmission so that the final version is delivered to the Engineer before start of construction activities.

3.02 Daily Reports

A. Submit daily reports on construction progress. These reports should include qualitative descriptions of work performed and include quantities to the extent practicable.

3.03 Weekly Reports

A. Submit weekly reports on construction progress. These reports should include qualitative descriptions of work performed and include weekly summaries of quantities to the extent practicable.

3.04 CPM SUBMITTAL PROCEDURES

A. Submit all network analysis and updates in hard copy and on electronic media that is acceptable to the Engineer. The project schedule will also be posted in the format specified as an Adobe PDF file. For hard copy submittals, a condensed critical path method schedule is preferred but another practicable form of presentation will be acceptable as approved by the Engineer.

3.05 SCHEDULING

A. The CONTRACTOR shall use the critical path method (CPM) to schedule and control construction activities in accordance with the CONTRACT. Schedules shall include start and stop dates, durations for tasks and subtasks and be prepared according to this Section.

3.06 Construction Schedule

A. The CONTRACTOR will:
1. Prepare a detailed schedule in graphic form (Gantt Chart) showing proposed dates of starting and completing each major division of the Work.
2. Develop the Project Schedule to an appropriate level of detail. Failure to develop the Project Schedule to an appropriate level of detail, as determined by the OWNER or ENGINEER, will result in its disapproval.
3. Subdivide tasks so that less than 2 percent of all non-procurement activities have Original Durations (OD) greater than 20 workdays or 30 calendar days.

B. The schedule shall identify as a minimum (start to finish and durations):

- Contractor mobilization to site
- Critical submittals (including submission and approval dates)
- Site set up including installation of temporary waste stockpiles, earthwork processing areas and survey control areas
- Excavation of each pond
- Construction of each pond
- Finish grade each of the ponds' subgrade prior to geosynthetics installations
- Each Ponds' Berms
- Pad and Access Road Construction
- Installation of the Pond's geosynthetics and leak detection system
- Installation of Erosion Controls
- Water transfer pumps, piping and associated appurtenances (Specified by Chevron)
- Fencing
- Demobilization

3.07 Construction Progress Schedule

A. The CONTRACTOR shall propose significant project milestone completions for the OWNER's or ENGINEER's approval as a basis for verifying progression of each of the ponds' and facility construction. The project milestones completions shall include the following at minimum:
1. Site clearing and grubbing;
2. Excavation;
3. Compaction of each of the ponds' subgrade or floor;
4. Finish grading of each of the ponds' floor;
5. Construction of the ponds' berms;
6. Finish grading for each of the ponds;
7. Installation of primary geomembrane;
8. Installation of leak detection system and sump;
9. Installation of secondary geomembrane;

10. Installation of completions, recirculation and drilling piping and appurtenances (as applicable);
11. Installation of Erosion Control
12. Construction of adjacent pads and access roads
13. Installation of fencing and ancillary construction
14. Project Completion.

B. The network analysis system shall be kept current, with changes made to reflect the actual progress and status of the construction. Update the construction schedule at monthly intervals or when the schedule has been revised. Reflect any changes occurring since the last update. The schedule should show the progress of work compared to the original project schedule. Application for progress payments will not be processed until the progress schedule is delivered to the OWNER.

END OF SECTION 01 32 00

SECTION 31 11 00 – CLEARING, GRUBBING, AND STRIPPING

PART 1 - GENERAL

1.01 SUMMARY

A. Requirements of this Section shall consist of CONTRACTOR providing all required clearing, grubbing, and stripping related labor, materials, equipment, tools, and services for the WORK.

1.02 DEFINITIONS

A. Clearing: Clearing shall consist of removal of all vegetation and the satisfactory disposal of brush, rubbish, and any other vegetation.

B. Grubbing: Grubbing shall consist of the removal and disposal of roots in excess of 1/2 inch in diameter, root mats, stumps, logs, peat, and other objectionable matter which could adversely affect the quality of the subgrade or borrow materials.

C. Topsoil: Topsoil is the upper soil horizon which is characterized by a significant organic content.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.01 AREAS TO BE CLEARED AND GRUBBED

A. Perform clearing and grubbing only in areas identified by the ENGINEER OR OWNER. Clear and grub all areas where WORK is to take place.

B. Clear and grub all borrow areas to the extent necessary to provide fill materials free of all objectionable matter described above.

C. Vegetation located outside the construction limits shall not be damaged.

D. Stripping depths are estimated up to 6 inches for this site but should be determined by the CONTRACTOR and shall be sufficient to facilitate the clearing and grubbing activities described.

3.02 DISPOSAL OF CLEARED AND GRUBBED MATERIALS

A. All brush, vegetation, rubbish, organic soils, and other debris from clearing and grubbing operations, including all debris remaining from previous clearing operations, shall be stockpiled separately as shown on the DRAWINGS OR at a location designated by the OWNER.

3.03 EXCAVATING, STOCKPILING, AND WASTING TOPSOIL

A. If present, excavate topsoil from areas designated for project grading or construction, as encountered. In addition, excavate topsoil from areas designated for use as waste locations for earth subsoil material.

B. Remove lumped soil, vegetative material, boulders, and rocks from the excavated topsoil to be stockpiled.

C. Stockpile, if available, sufficient topsoil material on-site for use as vegetative cover for future reclamation purposes. Protect stockpile from erosion and grade to prevent ponding of water. Organic soils shall be segregated from soil materials that may be suitable for other uses described in these SPECIFICATIONS and shown on the DRAWINGS.

D. Stockpiles and Temporary Stockpiles shall not exceed 8-feet in height and shall be graded at a 5H:1 maximum slope to existing grade.

E. Dispose of excess topsoil and waste topsoil not intended for reuse in a location selected by the OWNER. Disposal and handling of this material shall be performed following the requirements of the appropriate government agencies.

END OF SECTION 31 11 00

SECTION 31 00 00 - EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

A. The section describes the following:

1. All excavation required to reach planned grades and contours, install project components, and to construct temporary run-on and run-off conveyance systems.
2. Placement of various fill materials:
   a. Compacted embankment fill
   b. Drainage Aggregate or Drain Rock
3. Material placement and compaction
4. Site grading
5. Construction of fills and backfills
6. Compaction requirements
7. Site grading

B. The WORK shall be done in accordance with the SPECIFICATIONS and as shown on the DRAWINGS.

C. The WORK includes furnishing all labor, tools, materials, equipment, and supervision necessary to construct the project as described in the contract documents.

1.02 TOLERANCES

A. All excavations shall be constructed within the tolerance as shown in these SPECIFICATIONS except where dimensions or grades are shown or specified as minimum or maximum in the DRAWINGS. All grading shall be performed to maintain slopes and drainages as shown in the DRAWINGS.

B. Excavate to within a horizontal and vertical tolerance of ± 0.1 -foot on all slopes flatter than 10% and within a vertical tolerance of ± 0.2 -foot on all slopes 10% or steeper unless otherwise approved by the ENGINEER or OWNER.

C. Place Drainage Aggregate (Drain Rock) within a vertical tolerance of ±0.1-ft, regardless of the steepness of the slope.

1.03 SUBSURFACE CONDITIONS

A. Subsurface investigations have been performed at the site by the ENGINEER. The results of the subsurface investigations can be provided to the CONTRACTOR at the CONTRACTOR'S request during the bidding interval.

B. The CONTRACTOR shall identify and locate utility lines, flow lines, wells, survey monuments, and other nearby structures prior to performing work. Utilities, flow lines, wells, survey monuments and other nearby structures shall be protected from damage during the WORK. Any damage to utility lines, flow lines, wells, survey monuments, and other nearby structures during the WORK shall be repaired by the CONTRACTOR at no additional cost to the OWNER. Costs associated with these repairs shall include the actual repair costs and all engineering costs required by the ENGINEER to coordinate and obtain regulatory approval of repairs, if required.

1.04 SUBMITTALS

A. On-Site or Imported materials that may include Drainage Aggregate (Drain Rock), structural fill, or other materials shall have material properties such as grain size distribution submitted to the OWNER or ENGINEER for material approval prior to delivery to the site.

1.05 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. ASTM D698 – Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort
2. ASTM D2434 – Test Method for Permeability of Granular Soils
3. ASTM D6913 – Test Method for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis
4. ASTM D6938 – Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

B. Tetra Tech, Inc. - Geotechnical Investigation Report, McCloy Ranch Frac Pond Lea County, New Mexico, dated March 27, 2026.

1.06 DEFINITIONS

A. Liner – A completed system constructed as required by the DRAWINGS and SPECIFICATIONS, as specified in Section 33 47 13.

PART 2 - PRODUCTS (NOT USED)

2.01 ENGINEERED FILL

A. Engineered Fill is defined as material obtained from excavations associated with the WORK or designated on-site borrow sources, approved by the ENGINEER, which meet the requirements of the SPECIFICATIONS.

B. Engineered Fill material shall be free of debris, organics, oversized material (clods or rocks greater than 3 inches in diameter), frozen material, ice, snow, deleterious, or other unsuitable materials.

C. Based on the results of the geotechnical investigation, the silty sand (SP) native soils at the McCloy Ranch Frac Pond site in Lea County, New Mexico, are suitable for purposes of preparing "Engineered Fill", provided they are processed and mixed as described in this Section, Section 2.02, and the McCloy Ranch Frac Pond Geotechnical Investigation Report, dated March 27, 2026. Poorly graded sand (SP) shall not be used as "Engineered Fill" unless blended with import materials as recommended and approved by the ENGINEER.

D. All materials to be used as "Engineered Fill" or "Structural Fill" shall be submitted to the ENGINEER for approval prior to procurement and use for the Project.

E. Materials used for Engineered Fill for the berm, including lower portions berm, not including the subgrade, or for general fill may be imported or on-site soils and shall be classified as a silty-sand (SM), clayey sand (SC), clayey gravel (GC), or silty gravel (GM). On-site soils will likely require additional processing to meet the specifications.

F. Engineered Fill for structural support and construction of the lower portions of the embankments, not for the subgrade below the geosynthetics, shall consist of a uniform, granular material having 100 percent passing the 3 inch (75mm) sieve, 75 to 100 percent passing the 1 inch (25mm) sieve, 65 to 70 percent passing the No. 4 (4.75mm) sieve, 35 to 50 percent passing the No. 40 (425µm) sieve, and 15 to 35 percent passing the number 200 (75µm) sieve.

G. The CONTRACTOR will provide laboratory testing results to the OWNER for all fill material used in construction for verification of material compliance as required for the project.

H. Materials excavated from depths greater than three feet below surface will likely require heavy equipment with ripping capability to excavate and will likely require additional processing to meet the specifications for use as Engineered Fill.

2.02 ENGINEERED FILL MATERIAL USED IN SUBGRADE PREPARATION

A. Engineered Fill used for subgrade preparation of the pond bottom, interior embankment slopes, and sump shall meet the requirements stated in the McCloy Ranch Frac Pond Geotechnical Investigation Report, dated March 27, 2026 and this Section. Engineered Fill shall be screened or crushed and processed on-site soils or imported material. Engineered Fill used for the upper six inches of the pond bottom, interior embankment slopes, and sump shall be regular, smooth, and compacted; and shall be free of sharp changes in elevation, rocks larger than 1.0 inch, clods, organic debris, and standing water, other unsuitable objects, deleterious materials, or soft unsuitable areas. The material shall consist of a uniform, granular material having 100 percent passing the 1 inch (25mm) sieve, 80 to 100 percent passing the No. 4 sieve, 50 to 70 percent passing the No. 40 sieve (425µm), and 3 to 35 percent passing the number 200 (75µm) sieve.

B. Imported fills for the subgrade may be used and should be a well-graded, clayey sand (SC) or silty sand (SM) or other imported soils with similar properties as on site soils. Imported fills shall meet the gradation specified in this Section.

C. Engineered fill material used for the prepared pond bottom shall meet the liner manufacturer's specifications for material suitable for liner placement.

2.03 DRAINAGE AGGREGATE (DRAIN ROCK)

A. Drainage Aggregate (Drain Rock) is defined as engineered fill material consisting of selected or processed granular material that meets the requirements of the SPECIFICATIONS and is in accordance with this section. Drain Rock shall be obtained from on-site approved stockpiles or outside sources approved by the ENGINEER or OWNER.

B. The Drain Rock shall be clean washed sand and gravel with the following gradation:

Table 2.1 – Drain Rock Gradation

Sieve Size	Percent Passing by Weight
1 inch	95-100
½ inch	25-50
No. 4	0-10
No. 8	0

Particles shall be rounded and free of sharp, angular edges that may damage the liner.

C. Drain Rock shall be free of organic material and free of frozen material, ice, snow, or excess moisture.

D. Material must be hard, durable and not subject to grain crushing. Individual rock fragments shall be dense, sound, and resistant to abrasion and shall be free from cracks, seams, and other defects that would tend to increase their destruction from water and frost actions. Drain Rock shall be less than 5 percent carbonate, calcium carbonate, or calcium sulfate.

E. Material shall be poorly-graded within the SPECIFICATION limits with a uniform grading of coarse to fine particles. No gap-graded material, as determined by the ENGINEER, shall be acceptable.

F. Verify that all necessary pre-construction submittals such as conformance testing of the Drain Rock have been performed prior to placement or importing.

PART 3 - EXECUTION

3.01 PREPARATION, EXAMINATION, AND PROTECTION OF EARTHWORK

A. Provide construction staking and grade control. Establish and set required lines, levels, grade, contours and datum by construction staking.

B. Provide for dust control in accordance with site requirements and OWNER'S direction.

C. Provide for dewatering as necessary for finish excavation and fill placement.

D. Locate, identify and protect all utilities and existing structures from damage (including overhead and suspended utilities).

E. Protect temporary or permanent benchmarks, survey stakes, settlement monuments, existing structures, fences and existing WORK from damage or displacement by construction equipment and vehicular traffic.

F. Coordinate traffic control, operations, and haul routes with the OWNER and LINER CONTRACTOR.

G. Note that topography shown on DRAWINGS may differ from topography at time of construction.

H. Protect the foundation from drying, freezing, and softening due to excessive moisture until overlying fill material is placed and compacted.

I. Any earthen surface upon which the liner is installed shall be prepared and compacted in accordance with the project SPECIFICATIONS. The surface shall be smooth, firm, and unyielding. The top six inches of fill beneath the surface shall be free of:

1. Vegetation
2. Construction debris
3. Sticks
4. Sharp, angular rocks
5. Rocks larger than 1 inch in diameter
6. Void spaces
7. Abrupt elevation changes
8. Standing water
9. Cracks larger than 1/4-inch in width
10. Any other foreign matter that could contact the liner

J. Immediately prior to liner deployment, LINER CONTRACTOR shall arrange for the subgrade to be moisture-conditioned and final-graded by the EARTHWORK CONTRACTOR to fill in all voids or cracks, then smooth-rolled to provide the best practicable surface for the liner. At completion of this activity, no wheel ruts, footprints or other irregularities in the subgrade are permissible. Furthermore, all protrusions extending more than 0.375-inches (3/8”) from the surface shall be removed, crushed, or pushed into the surface with a smooth-drum roller compactor.

K. On a continuing basis, the OWNER’s REPRESENTATIVE shall examine the subgrade for suitability before liner placement.

L. It shall be the CONTRACTOR’S responsibility to indicate to the OWNER or ENGINEER any change in the condition of the subgrade that could cause the subgrade to be out of compliance with any SPECIFICATION requirement. If the CONTRACTOR has not notified the OWNER or ENGINEER of changes that cause the subgrade to be out of compliance and installs liner then the CONTRACTOR has determined that the subgrade is acceptable for liner installation.

M. At the crest of the embankments, an anchor trench for the liner shall be constructed as detailed on the DRAWINGS. Any deviation from the anchor trench details shown on the DRAWINGS requires review and approval by the ENGINEER. No loose soil shall be allowed at the bottom of the trench, and no sharp corners or protrusions shall exist anywhere within the trench.

N. Verify as applicable that all underlying components such as geosynthetics and piping have been installed, tested, and accepted in accordance with the DRAWINGS and SPECIFICATIONS.

3.02 EXCAVATION

A. Excavate material shown on the DRAWINGS and as necessary to complete the WORK. Excavation carried below the grade lines shown on the drawings shall be repaired as specified by the OWNER unless previously approved by the OWNER. Correction of all over-excavated areas shall be at the CONTRACTOR's sole expense.

B. All necessary precautions shall be taken to preserve the material below and beyond the established lines of all excavation in the soundest possible condition. Any damage to the WORK beyond the required excavation lines due to wetting, drying, or the CONTRACTOR'S operations shall be repaired at the CONTRACTOR'S sole expense.

C. Excavation, shaping, and any other work related to material removal, shall be carried out by the method(s) considered most suitable, provided it meets the design intent as determined by the ENGINEER.

D. Limits of excavation to accomplish the WORK safely shall be determined by the CONTRACTOR. Any minimum excavation limits shown on the DRAWINGS are for the purpose of material identification only and do not necessarily represent safe limits. All excavations shall be free of overhangs, and the sidewalls shall be kept free of loose material. As a minimum, the CONTRACTOR shall slope, bench and shore all excavations as necessary to prevent any unsafe conditions as required by OSHA 29 CFR 1926.651 and 1926.652.

E. Excavation of hard and very dense soil and materials below about **two to three (2'-3') feet in depth will be difficult to excavate** and will likely require equipment with ripping capability. Highly weathered Sandstone bedrock may be encountered below about **six (6') feet in depth** and will require equipment with ripping capability or hoe-ram for removal.

F. Accurate trimming of the slopes of excavations to be filled will not be required, but such excavations shall conform as closely as practical to the established lines and grades.

G. For pipe/riser/collection trench excavations, grade trench bottom to provide uniform bearing for the entire length of pipe to be installed. Fill in voids, gaps, low points ("dips" or "bellys") and bridging areas within trench bottom and along the entire length of pipe.

H. Subsoil not to be used in the construction of earth fills or reclamation shall be stockpiled in areas designated by OWNER and in accordance with applicable laws, rules, and regulations.

I. Permanently stockpiled earth material shall be graded to drain and blended seamlessly into the natural landscape.

J. Provide and operate equipment adequate to keep all excavations and trenches free of water.

K. Excavate unsuitable areas of the subgrade and replace with approved fill materials. Compact to density equal to requirements for subsequent fill material.

L. When possible, grade top perimeter of excavation to prevent surface water from draining into excavation.

M. Grade top perimeter of excavation to prevent surface water from draining into excavation.

3.03 FILL PLACEMENT

A. General

1. **The top 8 inches of the foundation subgrade surface for the ponds', ponds' subgrade, berms, pads, and access roads shall be scarified, moisture conditioned (as necessary), and compacted so fill material will bond firmly to surfaces of excavation.** Remove standing water prior to placement of all fill material.
2. Transport, process, place, spread, and compact fill using appropriate equipment to achieve lift thickness, design grades and compaction specified in the DRAWINGS and SPECIFICATIONS.
3. To the extent practicable, fill shall be placed by routing the hauling and spreading units approximately parallel to the axis of the embankment.
4. Hauling equipment shall be routed in such a manner that they do not follow in the same paths but spread their traveled routes evenly over the surface of the fill.
5. Protect installed measurement instrumentation, structures, and utilities from damage at all times.
6. Care shall be taken at all times to avoid segregation of material being placed, and all pockets of segregated or undesirable material shall be removed and replaced with material matching the surrounding material.
7. Each zone shall be constructed with materials meeting the specified requirements and shall be free from lenses, pockets, and layers of materials that are substantially different in gradation from surrounding material in the same zone.
8. No material shall be placed on material that is too soft, smooth, wet, or dry, or that has been damaged by drying, cracking, frost, runoff, or construction activities. Previously completed portions of the subgrade that are deemed unsuitable for construction shall be repaired until approved by the ENGINEER.
9. To the extent practicable, fill materials shall be brought to the placement area at the recommended moisture content.
10. Moisture conditioning is the operation required to increase or decrease the moisture content of material to within the specified limits for proper material placement and compaction. If moisture conditioning is necessary, it may be carried out by whatever method CONTRACTOR deems suitable, provided it produces a uniform material moisture content specified in the SPECIFICATIONS.

3.04 MOISTURE CONTROL

A. Prior to and during all compacting operations, maintain moisture content within the limits recommended herein. Maintain uniform moisture content throughout the lift. Add water to materials that are too dry at the site of excavation. Supplement, if necessary, by sprinkling and mixing water into the fill material prior to placement and compaction. The moisture content

shall be within minus 2 to 2 percent above the optimum moisture content in accordance with ASTM D 698.

B. Do not attempt to compact fill material containing excessive moisture. Aerate material by blading, disking, harrowing, or other methods, to dry the material to acceptable moisture content.

3.05 LIFT THICKNESS REQUIREMENTS

A. Berm Fill:

1. Placement lift thickness for Engineered Fill shall not exceed 6 inches prior to compaction with hand-operated compaction equipment and shall not exceed 8 inches prior to compaction with heavy machine operated equipment. Installed compacted lifts shall be no greater than 6-inches in compacted thickness. It is the CONTACTOR's responsibility to ensure that the compaction achieved meets the specifications.
2. Fill placement for anchor trenches shall not exceed 6 inches in loose depth for each respective lift.

B. Drainage Aggregate (Drain Rock):

1. Drain Rock shall be placed in lifts not exceeding 12 inches in thickness.

3.06 COMPACTION AND MOISTURE CONTENT REQUIREMENTS

A. After material placement, spreading, and leveling to the appropriate lift thickness, all material shall be uniformly compacted in accordance with the requirements for each type of fill as indicated on the following table:

Table 3.1 - Compaction and Moisture Content Requirements

Fill Material	Compaction Specifications	Moisture Content
Engineered Fill Ponds / Subgrade	95% of Standard Proctor maximum dry density [1]	-2 to +2% of Optimum [1]
Access Road / Pads / Subgrade	98% of maximum dry density or per Chevron MCBU Standards [2]	-2 to +2% of Optimum [2]
Drainage Rock Aggregate	No requirements	No requirements

[1]As determined by ASTM D698
[2]As determined by ASTM D1557

3.07 COMPACTION EQUIPMENT

A. Compaction equipment shall be maintained in good working condition at all times to ensure that the amount of compaction obtained is the maximum for the equipment.

B. Compactor:

1. The fill is required to be compacted with a relatively heavy vibratory roller and a maximum roller speed of approximately 2 mph.
2. The compactor shall be of self-propelled design to develop 10,000 pounds in weight per linear foot of width at rest on level ground or equivalent as approved by the ENGINEER.

C. Special Compactors:

1. Special compactors shall be used to compact materials that, in the opinion of the ENGINEER, cannot be compacted properly by the specified roller because of location or accessibility.
2. Special compaction measures shall be adopted, such as hand-held compactors, smooth drum rollers, or other methods approved by the ENGINEER, to compact fill material in trenches, around structures, around geosynthetics, and in other confined areas that are not accessible to the Compactor. The final surface on which the geosynthetics will be placed shall be compacted with a smooth drum roller.
3. Anchor trenches shall be compacted with a hand-operated compactor.

3.08 COMPACTION TESTING OF ENGINEERED FILL

A. Field compaction testing of each lift shall be performed a minimum of one test every 150 linear feet or 5000 square feet.

B. Compaction testing of anchor trenches shall be performed such that puncturing of the geosynthetic materials is avoided.

3.09 SITE GRADING

A. Perform all placement of fill to lines and grades as shown in the DRAWINGS and/or established by the ENGINEER, with proper allowance for surface treatments (topsoil placement, etc.) where specified or shown. Neatly blend all new grading into surrounding, existing terrain.

END OF SECTION 31 00 00

SECTION 33 47 13 – GEOSYNTHETICS

SECTION 33 47 13.14 – GEOMEMBRANE

PART 1 - GENERAL

1.01 SUMMARY

A. The WORK described in this SPECIFICATION section includes specifications for manufacturing and installing HDPE geosynthetics.

1.02 SUBMITTALS

A. The CONTRACTOR shall submit a letter to the OWNER prior to installation of the geosynthetics stating the subgrade is acceptable and does not void the warranty.

B. The CONTRACTOR shall submit the following product data to the ENGINEER or the OWNER'S CQA ADMINISTRATOR:
   1. Resin Data:
      a. Certification stating that the resin meets the SPECIFICATION requirements.
   2. Geosynthetics Roll:
      a. Statement certifying no recycled polymer and no more than 10% rework of the same type of material is added to the resin.

C. Pre-Construction Submittals: Submit the following within 10 days of Notice to Proceed. Pre-Construction materials shall be submitted to the OWNER and ENGINEER or the OWNER'S CQA ADMINISTRATOR.

   1. The MANUFACTURER'S Information
      a. The MANUFACTURER'S name and address and primary contact.
      b. The manufacturing plant name and address where the geosynthetics for this project will be produced.
      c. The MANUFACTURER'S qualifications including:
         1) Evidence of production of at least 20 million square feet of geomembrane that meets the specifications.
         2) Certification that the MANUFACTURER has sufficient capacity to provide the required material in the given timeframe.
         3) A list of at least 10 projects for which geomembrane has been supplied by the MANUFACTURER, three of which shall have been for projects of similar size.
      d. Product name and the MANUFACTURER'S description of the proposed geosynthetics and five representative samples of the product proposed for use on this project.
      e. The MANUFACTURER'S material properties sheets (cut sheets) of proposed geosynthetic products meeting the requirements of the specification.

f. The MANUFACTURER'S Quality Control (MQC) Plan, including examples of geosynthetics certification documents, name and address of the quality control testing laboratory, quality control laboratory certification, examples of retesting notification, and documentation.
g. The MANUFACTURER'S written instructions for storing, handling, installing, seaming, protecting from hydration, and repairing the proposed geosynthetics, including recommendations for handling equipment (model number and load capacity).
h. Samples product warranty.

2. CONTRACTOR'S Information:
   a. CONTRACTOR'S name and address and primary contact.
   b. CONTRACTOR'S qualifications including a list of at least three previous projects of similar size to this project, including project name, location, size and date of installation, and evidence of installing at least 10 million square feet of geomembrane.
   c. The Construction Quality Control (CQC) Plan, including examples of subgrade certification documents, daily record documents, methods for repairing geomembrane and subgrade and example documents to certify repairs, method for removing rejected materials, proposed staffing, and proposed equipment.
   d. Description of welding equipment, techniques, and material, including a list of proposed equipment.
   e. A complete set of forms to be used for record installation CQC data.
   f. Résumés of key installation personnel. The Installation Supervisor, Master Seamers, and QC Representative must be clearly identified.
   g. Workmanship warranty.

D. The CONTRACTOR shall furnish SHOP DRAWINGS to the OWNER and ENGINEER or the OWNER'S CQA ADMINISTRATOR as follows:

1. Installation layout SHOP DRAWINGS.
   a. Must show proposed panel layout including field seams and details.
   b. Must show panel identification numbers.
   c. Installed square footage of the geomembrane.
   d. Must be approved prior to installing the geomembrane.
   e. Approved SHOP DRAWINGS will be for concept only and actual panel placement will be determined by site conditions.

E. CONTRACTOR'S geosynthetics field installation quality assurance plan.

F. The CONTRACTOR will submit the following to the OWNER and ENGINEER or the OWNER'S CQA ADMINISTRATOR upon completion of installation:

1. Certificate stating the geosynthetics have been installed in accordance with the contract documents.
2. Material and installation warranties:
   a. Material shall be warranted against MANUFACTURER's defects for a period of five years from the date of geosynthetics installation.
   b. Installation shall be warranted against defects in workmanship for a period of one year from the date of geosynthetics completion.
3. Subgrade Certification Document.

4. Final CQC daily record documents.
5. Final as-built drawings showing actual geosynthetics placement, seams, testing locations and results, and anchor trench details.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM D792 – Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
2. ASTM D1004 – Test Method for Initial Tear Resistance of Plastic Film and Sheeting
3. ASTM D1238 – Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
4. ASTM D1603 - Standard Test Method for Carbon Black Content in Olefin Plastics
5. ASTM D3895 – Standard Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry
6. ASTM D4218 – Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
7. ASTM D4716 - Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
8. ASTM D4873 Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
9. ASTM D4833 – Test Method for Index Puncture Resistance of Geomembranes and Related Products
10. ASTM D5035 - Standard Test Method for Breaking Force and Elongation of Textile Fabrics (Strip Method)
11. ASTM D5199 - Standard Test Method for Measuring the Nominal Thickness of Geosynthetics
12. ASTM D5596 – Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics
13. ASTM D5641 – Standard Practice for Geomembrane Seam Evaluation by Vacuum Chamber
14. ASTM D5820 – Standard Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes
15. ASTM D5885 - Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry
16. ASTM D5994 – Test Method for Measuring Core Thickness of Textured Geomembrane
17. ASTM D6364 - Standard Test Method for Determining Short-Term Compression Behavior of Geosynthetics
18. ASTM D6365 Standard Practice for Non Destructive Testing of Geomembrane Seams Using the Spark Test
19. ASTM D6392 – Test Method for Determining the Integrity of Non-reinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
20. ASTM D6693 – Test Method for Determining Tensile Properties of Non-reinforced Polyethylene and Non-reinforced Flexible Polypropylene Geomembranes
21. ASTM D7179 - Standard Test Method for Determining Geonet Breaking Force
22. ASTM D7240 - 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). *(IF APPLICABLE)*
23. ASTM D7406 - Standard Test Method for Time-Dependent (Creep) Deformation Under Constant Pressure for Geosynthetic Drainage Products

24. ASTM D7466 – Standard Test Method for Measuring the Asperity Height of Textured Geomembrane

B. Geosynthetic Research Institute (GRI)
1. GRI-GC8 Standard Guide for Determination of the Allowable Flow Rate of a Drainage Geocomposite
2. GRI GM14 - GM Sampling by Attributes
3. GRI GM10 – Specification for the Stress Crack Resistance of Geomembrane Sheet
4. GRI GM19 - Seam Strength and Related Properties of Thermally Bonded Polyolefin Geomembranes.

1.04 DEFINITIONS

A. Lot – A quantity of resin (usually the capacity of one rail car) used in the manufacture of geosynthetics. Finished roll will be identified by a roll number traceable to the resin lot used.

B. ENGINEER – Party, independent from manufacturer and CONTRACTOR, that is responsible for the engineering design of the liner system installation and as appointed by the OWNER as the Party responsible for observing and documenting activities related to quality assurance during the lining system construction.

C. OWNERs CQA ADMINISTRATOR – Party, independent from manufacturer and CONTRACTOR, that is responsible for observing and documenting activities related to quality assurance during the lining system construction.

D. Geosynthetics Manufacturer – The party responsible for manufacturing the geosynthetics rolls.

E. Geosynthetic Quality Assurance Laboratory (testing laboratory) – Party, independent from the OWNER, manufacturer, and CONTRACTOR, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing.

F. CONTRACTOR – Party responsible for field handling, transporting, storing, deploying, seaming and testing of the geomembrane seams.

G. Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will exceed value reported.

H. Panel – Unit area of a geomembrane that will be seamed in the field that is 10 square yards or larger.

I. Patch – Unit area of a geomembrane that will be seamed in the field that is less than 10 square yards.

J. Subgrade Surface – Soil layer surface which immediately underlies the geosynthetic material(s).

1.05 QUALIFICATIONS

A. MANUFACTURER

1. MANUFACTURER shall have manufactured a minimum of 20 million square feet or 460 acres of HDPE geomembrane material during the last year.
2. MANUFACTURER shall have manufactured a minimum of 10,000,000 square feet or 230 acres of polyethylene geonet material during the last year.
3. MANUFACTURER shall have a GAI-LAP Accredited Laboratory at the manufacturing facility.
4. MANUFACTURER shall have ISO 9001; 2008 certification.

B. CONTRACTOR

1. CONTRACTOR shall have installed a minimum of 10,000,000 square feet or 230 acres of geosynthetics in the last 3 years.
2. CONTRACTOR shall have worked in a similar capacity on at least 3 projects similar in complexity to the project described in the contract documents, and within a total of at least 440,000 square feet or 10-acres of geomembrane installation on each project.
3. The Installation Supervisor shall have worked in a similar capacity on at least 3 projects similar in size and complexity to the project described in the Contract Documents in the last 5 years.

1.06 MATERIAL LABELING, DELIVERY, STORAGE, AND HANDLING

A. Geosynthetics labeling, shipment, and storage shall follow ASTM D4873. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.

B. Each geonet roll shall be wrapped with a material that will protect the geonet from damage due to shipment, water, sunlight, and contaminants.

C. The CONTRACTOR shall note any visible damage to roll materials on the Bill of Lading prior to unloading roll materials. Should any visible damage be noted, CONTRACTOR or ENGINEER shall notify the MANUFACTURER in writing immediately.

D. Labeling – Each roll of geosynthetics 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
7. Date and time of production
8. Resin lot number

E. Delivery – Rolls of liner will be prepared to ship by appropriate means to prevent damage to the material and to facilitate off-loading.

F. Storage – The on-site storage location for geosynthetics material, provided by the CONTRACTOR to protect the geosynthetics 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
6. Geosynthetics shall not be stacked higher than three rolls

G. Handling – Materials are to be handled so as to prevent damage. The CONTRACTOR shall take any necessary precautions to prevent damage to underlying layers during placement of the geosynthetics.

1.07 WARRANTY

A. Material shall be warranted, against manufacturer's defects for a period of five years from the date of geosynthetics installation completion.

B. Installation shall be warranted against defects in workmanship for a minimum period of one year from the date of geosynthetics installation completion.

PART 2 - PRODUCTS

2.01 HIGH DENSITY POLYETHYLENE (HDPE) GEOMEMBRANE

A. Material shall be HDPE geomembrane meeting the thickness, texture, and color requirements as shown on the DRAWINGS.

B. Geomembrane Rolls

1. Geomembrane rolls must 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, 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 the tables below 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.

C. Geomembrane roll testing values for 60-mil smooth HDPE and testing frequencies requirements are presented in Table 2.1 below.

D. Geomembrane roll testing values for 80-mil textured HDPE and testing frequencies requirements are presented in Table 2.2 below

TABLE 2.1: MINIMUM VALUES FOR 60-MIL SMOOTH GEOMEMBRANES

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM VALUE
Thickness, (**minimum average**), mil Lowest **individual** value, mil	ASTM D5994 / D5199	Every roll	60 54
Asperity Height (mil) (+Note 1)	ASTM D7466	Every second roll	18
Density, g/cm3	ASTM D792	200,000 lb	0.940
Tensile Properties (each direction) Strength at Yield, lb/in-width Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 in/min G.L. = 2.0 in	20,000 lb	 132 243 700
Tear Resistance, lb	ASTM D1004	45,000 lb	42
Puncture Resistance, lb	ASTM D4833	45,000 lb	120
Carbon Black Content, %	ASTM D1603*/4218	20,000 lb	2.0 – 3.0
Carbon Black Dispersion Oxidative Induction Time, min (Standard OIT)	ASTM D5596 ASTM D3895, 200° C; 02, 1 atm	45,000 lb 200,000 lb	(+Note 2) ≥ 100
Melt Flow, g/10 min.	ASTM D1238, 190° C; 2.16kg	200,000 lb	≤ 1.0
Stress Crack Resistance, hrs.	ASTM D5397	200,000 lb	500
Oven Aging With HP OIT, (% retained after 90 hours)	ASTM D5721 ASTM D5885, 150° C; 500 psi O_2	Per resin formulation	80
UV Resistance With HP OIT, (% retained after 1600 hours)	ASTM D5885, 150° C; 500 psi O_2	Per resin formulation	50 (+Note 3)

+NOTE 1: ASPERITY PARAMETER PROVIDED FOR TEXTURED GEOMEMBRANE AND RUB SHEETS. 60-MIL TEXTURED HDPE GEOMEMBRANE SHALL MEET OTHER PARAMETERS IDENTIFIED IN TABLE 2.1. FIELD SEAM OR DESTRUCTIVE TESTING OF TEXTURE LINER USED FOR RUB-SHEETS IS NOT REQUIRED.
+NOTE 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.
+NOTE 3: 20-HOUR CYCLE AT 75° C/4 HR DARK CONDENSATION @ 60° C.
*MODIFIED.

TABLE 2.2: MINIMUM VALUES FOR 80-MIL TEXTURED GEOMEMBRANES (I.E. RUB SHEETS)

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM VALUE
Thickness, (**minimum average**), mil Lowest **individual** value, mil	ASTM D5994 / D5199	Every roll	80 72
Asperity Height (mil) (+Note 1)	ASTM D7466	Every second roll	16
Density, g/cm3	ASTM D792	200,000 lb	0.940
Tensile Properties (each direction) Strength at Yield, lb/in-width Strength at Break, lb/in-width Elongation at Break, %	ASTM D 6693, Type IV Dumbbell, 2 in/min G.L. = 2.0 in	20,000 lb	 176 320 700
Tear Resistance, lb	ASTM D1004	45,000 lb	60
Puncture Resistance, lb	ASTM D4833	45,000 lb	160
Carbon Black Content, %	ASTM D1603*/4218	20,000 lb	2.0 – 3.0
Carbon Black Dispersion Oxidative Induction Time, min (Standard OIT)	ASTM D5596 ASTM D3895, 200° C; 02, 1 atm	45,000 lb 200,000 lb	(+Note 2) ≥ 100
Melt Flow, g/10 min.	ASTM D1238, 190° C; 2.16kg	200,000 lb	≤ 1.0
Stress Crack Resistance, hrs.	ASTM D5397	200,000 lb	500
Oven Aging With HP OIT, (% retained after 90 hours)	ASTM D5721 ASTM D5885, 150° C; 500 psi O_2	Per resin formulation	80
UV Resistance With HP OIT, (% retained after 1600 hours)	ASTM D5885, 150° C; 500 psi O_2	Per resin formulation	50 (+Note 3)

+NOTE 1: ASPERITY PARAMETER PROVIDED FOR TEXTURED GEOMEMBRANE AND RUB SHEETS. 60-MIL TEXTURED HDPE GEOMEMBRANE SHALL MEET OTHER PARAMETERS IDENTIFIED IN TABLE 2.1. FIELD SEAM OR DESTRUCTIVE TESTING OF TEXTURE LINER USED FOR RUB-SHEETS IS NOT REQUIRED.
+NOTE 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.
+NOTE 3: 20-HOUR CYCLE AT 75° C/4 HR DARK CONDENSATION @ 60° C.
*MODIFIED.

2.02 RESIN

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

TABLE 2.3: RAW MATERIAL VALUES

Property	Test Method (1)	Testing Frequencies	Value
Density (g/cm^3)	ASTM D 1505	Once Per Resin Lot	>0.94
Melt Flow Index (g/10 min)	ASTM D 1238	Once Per Resin Lot	$\leq$ 1.0

[1]Manufacturer may utilize 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.

2.03 EQUIPMENT

A. Welding equipment and accessories shall meet the following requirements:

1. Gauges showing temperatures in apparatus (extrusion welder) or wedge (wedge 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.

B. Extrudate Rod or Bead

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

PART 3 - EXECUTION

3.01 EXAMINATION

A. Preparation of surfaces to be lined shall be completed by the EARTHWORKS CONTRACTOR and are the responsibility of the EARTHWORKS CONTRACTOR adhere to the specifications, but the LINER CONTRACTOR will also be responsible for inspecting the prepared surfaces to verify that the surfaces are acceptable for liner placement and free from any rocks, clods, sticks, surface irregularities or debris which could damage the liner. Acceptance of the subgrade shall be provided in a written submittal.

3.02 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 WORK site.

B. Visually inspect the geosynthetics during deployment for imperfections and mark faulty or suspect areas.

C. Deployment of geosynthetics panels shall be performed in a manner that will comply with the following guidelines:

1. Unroll geosynthetics using methods that will not damage geosynthetics and will protect underlying surface from damage (spreader bar, protected equipment bucket).
2. If applicable, the primary leak location liner shall be installed with the conductive side down. A spark tester or ohm meter may be used to determine the Conductive layer.
3. The geosynthetics roll shall be installed in the direction of the slope and in the intended direction of flow unless otherwise specified by the ENGINEER.
4. Use full length rolls or those with a significant length remaining at the top of the slope so that no roll end occurs on side slopes.
5. Place ballast (commonly sandbags) on geosynthetics, which will not damage geosynthetics, to prevent wind uplift.
6. Personnel walking on geosynthetics shall not engage in activities or wear shoes that could damage it. Smoking will not be permitted on the geosynthetics.
7. Do not allow heavy vehicular traffic directly on geosynthetics. Rubber-tired ATVs and trucks are acceptable if wheel contact is less than six pounds per square inch.

D. Sufficient material (slack) shall be provided to allow for thermal expansion and contraction of the material. Additionally, weighting (e.g., sandbags) should be used to control "walking" of the liner leading to accumulation of wrinkles or conversely high tension areas at slope toes and corner groins. This practice will be used to prevent excessive tension (trampolines) from developing. This is particularly important in cold weather conditions.

E. Anchor trench compacting equipment shall not come into direct contact with the geosynthetics. The specified fill material shall be placed and spread utilizing vehicles with a low ground pressure.

3.03 FIELD SEAMING

A. Seams shall meet the following requirements:

1. To the maximum extent possible, orient seams parallel to line of 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 five feet 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 ENGINEER or the OWNER'S CQA ADMINISTRATOR and CONTRACTOR.
5. All seam overlaps shall be aligned consistent with the requirements of the welding equipment being used. Seams shall be made by lapping the uphill material over the downhill material with sufficient overlap. Extrusion seaming shall have a minimum overlap of six inches. Wedge-welded seaming shall have a minimum overlap of four inches.
6. Seaming of the geomembrane at material temperatures below 32 degrees F and above 150 degrees F must be successfully demonstrated to the ENGINEER or the OWNER'S CQA ADMINISTRATOR by using prequalification test seams to demonstrate that the seams comply with these SPECIFICATIONS.

B. Geonet Components:

1. Adjacent edges along the length of the geonet roll shall be overlapped a minimum of 6 inches or as recommended by the ENGINEER.
2. The overlapped edges shall be joined by tying the geonet structure with cable ties.
3. These ties shall be spaced every 5 feet along the roll length.
4. Adjoining rolls across the roll width should be shingled down in the direction of the slope and joined together with cable ties spaced every foot along the roll width.

C. During Welding Operations

1. Provide at least one master seamer who shall provide direct supervision over other welders as necessary.

D. 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. Number 80-grit sandpaper shall be used.
3. Grinding shall not reduce the thickness of the geomembrane more than one mil.
4. Purge welding apparatus of heat-degraded extrudate before welding.
5. Extrusion welding shall be considered a secondary means of welding and shall be used for repairs unless otherwise approved by ENGINEER.

E. Hot Wedge Welding

1. Welding apparatus shall be a self-propelled device equipped with an electronic controller which displays applicable temperatures and travel speed setting.
2. Clean seam area of dust, mud, moisture and debris immediately ahead of hot wedge welder.
3. Protect against moisture build-up between sheets.
4. Hot wedge welding shall be considered the primary method of welding and shall be used for panel seaming unless otherwise approved by ENGINEER.

F. 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. A minimum of two trial welds shall be required per day, per welding apparatus, one made prior to the start of work and one completed at mid-shift. Additional trial welds will be required after a cold-restart or after any repairs are made to the apparatus.
4. Cut six one-inch wide by six-inch long test strips from the trial weld.
5. Quantitatively test three specimens for peel adhesion, and then three specimens for shear strength.
6. Trial weld specimens shall pass when the results shown in Table 2.4 are achieved in both peel and shear test.

TABLE 2.4: MINIMUM WELD VALUES FOR HDPE GEOMEMBRANES

Property	Test Method	Minimum Value (60 / 80)
Peel Strength (fusion), ppi Peel Strength (extrusion), ppi	ASTM D 6392 ASTM D 6392	98 / 132 83 / 110
Shear Strength (fusion & ext.), ppi	ASTM D 6392	125 /169

7. The break, when peel testing, occurs in the liner material itself, not through peel separation (Film Tear Bond (FTB) break).
8. The break is ductile.
9. A test will be considered a failure if one specimen on either peel or shear testing does not meet the requirements on Table 2.4 or does not achieve an FTB break.
10. Repeat the trial weld, in its entirety, when any of the trial weld samples fail in either peel or shear.
11. No welding equipment or welder shall be allowed to perform production welds until equipment and welders have successfully completed two additional trial welds.

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

H. 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.

3.04 FIELD QUALITY ASSURANCE

A. The manufacturer and CONTRACTOR shall participate in and conform to all terms and requirements of the OWNER'S quality assurance program. The CONTRACTOR shall be responsible for assuring this participation.

B. Quality Assurance requirements are as specified in this section.

C. Field Testing

1. Non-destructive testing shall be carried out as the seaming progresses, not at completion of all field seaming. Each seam shall be non-destructive tested.
   a. Vacuum Testing
      1) Shall be performed in all extrusion welds performed during installation and in accordance with ASTM D 5641.
      2) The vacuum box assembly shall consist of the following:
         a) Rigid housing;
         b) Transparent viewing window;
         c) Soft rubber gasket attached to bottom of housing;

d) Porthole or valve assembly;
e) Vacuum gauge; and
f) A vacuum pump capable of delivering a minimum of 4 pounds per square inch (psi) and up to a 8 psi vacuum.

3) When vacuum testing, the installer shall:
a) Carefully trim all overlapped material using an approved cutting instrument. The "pull-tear" method of overlap removal shall not be accepted;
b) Clean windows, gasket surfaces, and check for leaks;
c) Wet a strip of geomembrane approximately 1 foot by 2.5 feet (length of box) with soapy solution;
d) Place the vacuum box over the wetted area;
e) Ensure that a leak-tight seal is created;
f) Apply a minimum vacuum pressure of five psi;
g) For a period of not less than 15 seconds, examine the length of weld through the viewing window for the presence of soap bubbles;
h) If no bubbles appear after 15 seconds, move the box over the next adjoining area with a minimum three inches of overlap and repeat the process;
i) Areas where soap bubbles appear shall be marked, repaired, and re-tested;
j) All vacuum testing will be documented by the CONTRACTOR'S QC Technician and submitted to the ENGINEER or the OWNER'S CQA ADMINISTRATOR at the end of each WORK shift. The liner shall be indelibly marked near the seam to indicate passing or failing test results accordingly.

b. Air Pressure Testing
1) Shall be performed in all hot wedge welds performed during installation and in accordance with ASTM D5820
2) The equipment for pressure testing shall include the following:
a) Air pumps equipped with a pressure gauge capable of generating up to 50 psi and sustaining a pressure of 30 psi; and
b) Sharp hollow needles or other pressure feed devices approved by the ENGINEER. The liner shall be indelibly marked near the tested area to indicate passing or failing test results accordingly.
3) To perform the air pressure test, the installer's QC Technician shall:
a) Pass air through the channel to guarantee a clear pathway;
b) Seal both ends of the seam to be tested;
c) Insert a needle or other approved pressure-feed device into the tunnel created by double hot wedge seaming;
d) Energize the air pump to 30 psi;
e) Close the valve while sustaining the air pressure and allow the air to reach ambient liner temperature;
f) Read the pressure gauge;
g) Sustain the test for a minimum of five minutes and re-read the pressure gauge;
h) If the loss of pressure equals or exceeds three (3) psi after a two-minute period or does not stabilize, faulty areas shall be located and repaired. After testing, pressure-feed devices shall be removed and insertion points sealed; and

i) All pressure testing shall be documented by the CONTRACTOR'S QC Technician and submitted to the ENGINEER the OWNER'S CQA ADMINISTRATOR by the end of each WORK shift. The liner shall be indelibly marked near the seam to indicate passing or failing test results accordingly.

c. Alternative testing methods other than vacuum or pressure testing may be proposed by the CONTRACTOR and will be subject to the approval of the ENGINEER prior to their use.

d. Spark Testing
   1) Spark Testing shall be performed for extrusion welds where vacuum box testing cannot be performed. Spark Testing shall be performed in accordance with ASTM D6365 Standard Practice for Non Destructive Testing of Geomembrane Seams Using the Spark Test.

e. At locations where seams cannot be non-destructively tested, the CONTRACTOR shall:
   1) Cap-strip seams with the same geomembrane when possible; and
   2) If the seam is accessible to testing equipment prior to final installation, non-destructively test the seam prior to final installation.

f. Seaming and cap-stripping operations will be observed by the ENGINEER or the OWNER'S CQA ADMINISTRATOR for uniformity and completeness.

2. Destructive Testing (performed by the CONTRACTOR with observation from the ENGINEER or the OWNER'S CQA ADMINISTRATOR)
   a. Location and frequency of testing
      1) Collect destructive test samples at a frequency of one per every 500 lineal feet of seam length per machine used.
      2) Test locations will be determined after seaming.
      3) The CONTRACTOR may exercise the method of attributes as described by GRI GM-14 to minimize test samples taken with approval of the ENGINEER or the OWNER'S CQA ADMINISTRATOR.
   b. Sampling Procedures are performed as follows:
      1) The CONTRACTOR shall cut samples at locations designated by the ENGINEER or the OWNER'S CQA ADMINISTRATOR as seaming progresses in order to obtain field laboratory test results before the geomembrane is covered.
      2) The ENGINEER or the OWNER'S CQA ADMINISTRATOR will number each sample, and the location will be noted on the installation as-built.
      3) Samples shall be 12 inches wide by 38 inches long with the seam centered lengthwise (length may vary to minimize cutting of the liner).
      4) Cut ten (10) one-inch wide by six-inch long test strips from each end of the samples for field testing.
      5) The remaining sample shall be distributed as follows:
         a) One portion for OWNER, 12 by 12 inches
         b) One portion for the third party laboratory, 12 by 14 inches
         c) Additional samples may be archived if required by OWNER
      6) The CONTRACTOR shall repair all holes in the geomembrane resulting from destructive sampling.
      7) Repair and test the continuity of the repair in accordance with these SPECIFICATIONS.
   c. Destructive testing procedures
      1) Destructive testing shall be performed in accordance with ASTM D6392.

2) Quantitatively test five specimens for peel adhesion, and then five specimens for shear strength.
3) Destructive testing specimens shall pass when the results shown in Table 2.4 are achieved in both peel and shear test.
4) The break, when peel testing, shall occur in the liner material itself, not through peel separation (FTB).
5) The break is to be ductile.
6) A test will be considered a failure if one or more specimens on either peel or shear testing do not meet the requirements on Table 2.4 or does not achieve an FTB break.

3. Failed Seam Procedures
   a. If the seam fails, the CONTRACTOR shall follow one of two options:
      1) Reconstruct the seam between any two passed test locations.
      2) Trace the weld to intermediate locations at least 10 feet minimum or where the seam ends in both directions from the location of the failed test. If necessary, the failed seam shall be traced to previous days of seaming for the particular machine.
      3) All tracing events shall be recorded by the ENGINEER or the OWNER'S CQA ADMINISTRATOR.
   b. An additional sample is required for the next seam welded using the same welding device regardless of the length of the next seam.
   c. If the new sample passes, then the failed 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 is to be reconstructed.

3.05 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. Install additional liner anywhere excessive tension (trampolines) exists.

D. The CONTRACTOR shall be responsible for repair of defective areas.

E. Agreement upon the appropriate repair method shall be decided between the ENGINEER or OWNER and CONTRACTOR by using one of the following repair methods:

1. Patching – Used to repair holes, tears, undispersed raw materials and contamination by foreign matter. Patch materials shall be of the same material type and thickness as the material being repaired. A patch shall be a minimum of 8 inches larger in all directions than the area requiring repair, with a minimum size of 18"Lx18"W. All patches shall have rounded corners;
2. Abrading and Re-welding – Used to repair short section of a seam;
3. Spot Welding – Used to repair minor, localized flaws, or where geomembrane thickness has been reduced. Spot welding is not permitted for flaws over 12-inches, unless approved by the Engineer;
4. Capping – Used to repair long lengths of failed seams;

5. Flap Welding – (*only if Approved by the Engineer*) Used to extrusion-weld the flap (excess outer portion) of a fusion weld in lieu of a full cap; or
6. Remove the unacceptable seam and replace with new material.

F. 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 geomembrane which are to be repaired by extrusion welds shall be lightly abraded to assure cleanliness; and
   Extend patches or caps at least eight inches for extrusion welds and six inches for wedge welds beyond the edge of the defect, and around all corners of patch material. Patches shall be a minimum of 18”Lx18”W.

G. Repair Verification

1. Number and log each patch repair (performed by the CONTRACTOR and ENGINEER or the OWNER’S CQA ADMINISTRATOR)
2. Non-destructively test each repair using methods described in this SPECIFICATION
3. Any rips, tears or damaged areas on the deployed geonet shall be removed and patched. The patch shall be secured to the original geonet by tying every 6 inches 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, the two portions of the geonet shall be cut out, and the two portions of the geonet shall be joined in accordance with these SPECIFICATIONS.

3.06 DEPTH OR ELEVATION MARKINGS

A. Following completion of geomembrane installation paint depth or elevation markings as shown on the DRAWINGS.

B. Paint shall be non-corrosive and weather resistant.

END OF SECTION 33 47 13.14

SECTION 33 47 13.15 - GEOTEXTILES

PART 1 - GENERAL

1.01 SUMMARY

A. The WORK described in this SPECIFICATION section includes the manufacture and installation of geotextile fabrics as stand-alone items only and not included as part of a geocomposite.

1.02 SUBMITTALS

A. Product Data

1. The CONTRACTOR shall provide to the ENGINEER or the OWNER'S CQA ADMINISTRATOR a certificate stating the name of the manufacturer, product name, style number, chemical composition of the filaments or yarns, and other pertinent information to fully describe the geotextile. The certification shall state that the furnished geotextile meets Minimum Average Roll Value (MARV) requirements of the SPECIFICATION as evaluated under the manufacturer's quality control program. The certification shall be attested to by a person having legal authority to bind the manufacturer.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. ASTM D4354 – Practice for Sampling of Geosynthetics for Testing
2. ASTM D4355 – Test Method for Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
3. ASTM D4533 – Test Method for Index Trapezoid Tearing Strength of Geotextiles
4. ASTM D4632 – Test Method for Grab Breaking Load and Elongation of Geotextiles
5. ASTM D4751 – Test Method for Determining Apparent Opening Size of a Geotextile
6. ASTM D4833 – Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
7. ASTM D4873 – Guide for Identification, Storage, and Handling of Geotextiles
8. ASTM D4491 - Standard Test Methods for Water Permeability of Geotextiles by Permittivity
9. ASTM D5261 - Standard Test Method for Measuring Mass per Unit Area of Geotextiles

B. American Association for Laboratory Accreditation (A2LA)

C. Geosynthetic Accreditation Institute (GAI) – Laboratory Accreditation Program (LAP)

D. National Transportation Product Evaluation Program (NTPEP)

1.04 DEFINITIONS

A. Minimum Average Roll Value (MARV): Property value calculated as typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will exceed value reported.

1.05 QUALIFICATIONS

MANUFACTURER shall have manufactured a minimum of 20,000,000 square feet (460 acres) of geotextile material during the last year.

1.06 MATERIAL LABELING, DELIVERY, STORAGE, AND HANDLING

A. Geotextiles labeling, shipment, and storage shall follow ASTM D4873. Product labels shall clearly show the manufacturer or supplier name, style name, and roll number.

B. Each geotextile roll shall be wrapped with a material that will protect the geotextile from damage due to shipment, water, sunlight, and contaminants.

C. During storage, geotextile rolls shall be elevated off the ground and adequately covered to protect them from the following: site construction damage, precipitation, extended ultraviolet radiation including sunlight, chemicals that are strong acids or strong bases, flames (including welding sparks), excess temperatures, and any other environmental conditions that may damage the physical properties of the geotextile.

PART 2 - PRODUCTS

2.01 GEOTEXTILE

A. The geotextile shall be manufactured with fibers consisting of long-chain synthetic polymers composed of at least 95% by weight of polyfins or polyesters. They shall form a stable network such that the filaments or yarns retain their dimensional stability relative to each other, including selvages.

B. Woven slit film geotextiles (i.e., geotextiles made from yarns of a flat, tape-like character) shall not be allowed.

C. The geotextile shall meet the requirements of Table 2.1. All numeric values in Table 2.1 except Apparent Opening Size (AOS) represent MARV in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 2.1: 10 OZ GEOTEXTILE REQUIREMENTS

Property	Test Method	Units	Value
Mass per unit Area	ASTM D5261	oz/yd^2	10
Grab Tensile Strength	ASTM D4632	lbs	270
Grab Tensile Elongation	ASTM D4632	%	50
Trapezoid Tear Strength	ASTM D4533	lbs	105
CBR Puncture Strength	ASTM D4833	lbs	725
Permittivity	ASTM D4491	sec^{-1}	1.0
Apparent Opening Size	ASTM D4751	U.S. Sieve	100
Water Flow Rate	ASTM D4491	gpm/ft^2	75
UV Resistance[1]	ASTM D4355	%	70

[1]After 500 hrs.

2.02 QUALITY CONTROL

A. Manufacturing Quality Control: Testing shall be performed at a laboratory accredited by GAI-LAP and A2LA for tests required for the geotextile, at a frequency meeting or exceeding ASTM D4354.

B. Geotextile properties, other than sewn seam strength, burst strength, and ultraviolet stability shall be tested by NTPEP to verify conformance with this SPECIFICATION.

C. Sewn seam strength shall be verified based on testing of either conformance samples obtained using Procedure A of ASTM D4354 or based on manufacturer's certifications and testing of quality assurance samples obtained using Procedure B of ASTM D4354. A lot size for conformance or quality assurance sampling shall be considered to be the shipment quantity of the given product or a truckload of the given product, whichever is smaller.

D. Ultraviolet stability shall be verified by an independent laboratory on the geotextile or a geotextile of similar construction and yarn type.

PART 3 - EXECUTION

3.01 PREPARATION

A. Grading shall be done in such a way so as to prevent large voids from occurring along the geotextile contact. The graded surface shall be smooth and free of debris.

3.02 INSTALLATION

A. The geotextile installation shall meet the manufacturer's recommendations for preparation, storage and placement or installation.

B. The geotextile shall be placed loosely with no wrinkles or folds, and with no void spaces between the geotextile and the ground surface and heat bonded, sewn, or otherwise secured to

avoid damage and maintenance of the overlap. Successive sheets of geotextiles shall be overlapped a minimum of 12 inches, with the upstream sheet overlapping the downstream sheet.

C. Should the geotextile be damaged during installation or drainage aggregate placement, a geotextile patch shall be placed over the damaged area extending beyond the damaged area a distance of 12 inches, or the specified seam overlap, whichever is greater.

END OF SECTION 33 47 13.15

SECTION 33 47 13.16 – GEONET DRAINAGE LAYERS

PART 1 - GENERAL

1.01 SUMMARY

A. This section covers the technical requirements for the manufacturing and installation of the geonet drainage layers. All materials must meet or exceed the requirements of this SPECIFICATION, and all work will be performed in accordance with the procedures provided in these project SPECIFICATIONS unless approved by the ENGINEER.

1.02 REFERENCES

A. American Society for Testing and Materials (ASTM)
1. ASTM D1505 - Standard Test Method for Density of Plastics by the Density-Gradient Technique
2. ASTM D1603 - Standard Test Method for Carbon Black in Olefin Plastics
3. ASTM D4218 - Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique
4. ASTM D4354 - Practice for Sampling of Geosynthetics for Testing
5. ASTM D4716 - Standard Test Method for Determining the (In-Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head
6. ASTM D4833 - Standard Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products
7. ASTM D5199 - Standard Test Method for Measuring the Nominal Thickness of Geosynthetics
8. ASTM D7179 - 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.

1.03 DEFINITIONS

A. Geonet Manufacturer (MANUFACTURER) - The party responsible for manufacturing the geocomposite rolls.

B. Geosynthetic Quality Assurance Laboratory (TESTING LABORATORY) - Party, independent from the MANUFACTURER and CONTRACTOR, responsible for conducting laboratory tests on samples of geosynthetics obtained at the site or during manufacturing, usually under the direction of the OWNER.

C. Lot - A quantity of resin (usually the capacity of one rail car) used to manufacture polyethylene geonet rolls. The finished rolls will be identified by a roll number traceable to the resin lot.

1.04 QUALIFICATIONS

A. MANUFACTURER

MANUFACTURER shall have manufactured a minimum of 20,000,000 square feet (460 acres) of polyethylene geonet material during the last year.

B. CONTRACTOR

a. CONTRACTOR shall have installed a minimum of 10,000,000 square feet (230 acres) of geosynthetics in the last 3 years.
b. CONTRACTOR 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 a total of at least 5,000,000 square feet (115 acres) of geonet or geocomposite installation on each project.
c. The Installation Supervisor shall have worked in a similar capacity on at least 5 projects similar in size and complexity to the project described in the Contract Documents in the last 5 years.

1.05 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

B. Delivery - Rolls 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 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

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

1.06 WARRANTY

A. Geonet portion of the material shall be warranted against defects for a period of 5-years from the date of the installation completion.

B. Installation shall be warranted against defects in workmanship for a period of 1-year from the date of geonet installation completion.

PART 2 - PRODUCTS

2.01 GEONET PROPERTIES

A. A geonet shall be manufactured by extruding two crossing strands to form a bi-planar drainage net structure.

B. The geonet shall be Solmax HyperNet Series Geonet or equal. Geonet materials shall be used as shown on the DRAWINGS. Each type of geonet specified shall have properties that meet or exceed the values listed in the following tables below.

TABLE 2.1: 200-MIL HYPERNET GEONET PROPERTIES

Property	Test Method	Frequency	Value
Geonet (prior to lamination)			
Geonet Core Thickness (min. avg.), mil	ASTM D 5199	1/50,000 ft^2	200
Transmissivity[1], gal/min/ft	ASTM D 4716	1/540,000 ft^2	9.6
Density, g/cm^3	ASTM D 1505	1/50,000 ft^2	0.94
Creep Reduction Factor	ASTM D 7406/7361	Per formulation	Maximum of 1.2 at 15,000 lb/ft^2
Tensile Strength (MD), lb/in	ASTM D 5035/7179	1/50,000 ft^2	45
Carbon Black Content, %	ASTM D 1603[2]/4218	1/50,000 ft^2	2.0

[1]Gradient of 0.1, normal load of 10,000 lb/ft^2, water at 70° F, between steel plates for 15 minutes.
[2]Modified.

C. Resin
1. Resin shall be new first quality, compounded polyethylene resin.
2. Resin testing values and testing frequencies requirements are presented in Table 2.2 below. Natural resin (without carbon black) shall meet the following additional minimum requirements:

TABLE 2.2: 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]Manufacturer may utilize 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.

2.02 MANUFACTURING QUALITY CONTROL

1. The geonet shall be manufactured in accordance with the Manufacturer's Quality Control Plan submitted to and approved by the ENGINEER.

2. The geonet shall be tested according to the test methods and frequencies listed on Tables 2.1 which has been prepared based on product data sheets.

PART 3 - EXECUTION

3.01 FAMILIARIZATION

A. Inspection
   1. Prior to implementing any of the work in the Section to be lined, the CONTRACTOR 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 CONTRACTOR has any concerns regarding the installed work of other Sections, the CONTRACTOR shall notify the ENGINEER.

3.02 MATERIAL PLACEMENT AND INSTALLATION

A. The geonet installation shall meet the manufacturer's recommendations for preparation, storage and placement or installation.

B. The geonet roll should be installed in the direction of the slope and in the intended direction of flow unless otherwise specified by the ENGINEER.

C. Use full length rolls or those with a significant length remaining at the top of the slope so that no roll end occurs on side slopes.

D. In the presence of wind, all geosynthetics, including the geonets, shall be weighted down with ballast (i.e. sandbags or approved equal)

E. Ballast shall be used during placement and remain until replaced with cover material or liquids.

F. The geonet shall be properly anchored to resist sliding. Anchor trench compacting equipment shall not come into direct contact with the geonet.

G. The drainage rock material shall be placed on the geosynthetics in a manner that does not permit vehicular traffic directly on the geosynthetics and prevents damage to the geosynthetics and geonet. No equipment shall be driven upon the geonet layer or geosynthetics.

3.03 SEAMS AND OVERLAPS

A. Each component of the geonet will be secured or seamed to the like component at overlaps.

B. Geonet Components
   1. Butt seams should be shingled down in the direction of the slope, with the geonet portion of the top overlapping the geonet portion of the bottom geonet a minimum of 24 inches across the roll width and as recommended by the manufacturer. The overlaps shall be joined by tying the geonet structure with cable ties. These ties shall be spaced every 12 inches along the roll width.

2. Adjacent edge seams across the roll length should be shingled down in the direction of the slope, with the geonet portion of the top overlapping the geonet portion of the bottom geonet a minimum of 6 inches across the roll length. The overlaps shall be joined by tying the geonet structure with cable ties. These ties shall be spaced every 5 feet minimum along the roll width.

3.04 REPAIR

A. Prior to covering the deployed geonet, each roll shall be inspected for damage resulting from construction.

B. Any rips, tears or damaged areas on the deployed geonet shall be removed and patched. The patch shall be secured to the original geonet by tying every 6 inches 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 of this part.

END OF SECTION 33 47 13.16

END OF SECTION 33 47 13

SECTION 40 23 00 - POLYETHYLENE PIPE

PART 4 - GENERAL

4.01 SUMMARY

A. The WORK of this SPECIFICATION section shall consist of furnishing and installing the conveyance piping and appurtenances associated with the sump and collection trench as shown on the DRAWINGS. Piping materials for the intake and discharge piping into the pond collection sump, as shown, is supplied by others.

B. The CONTRACTOR shall furnish all labor, materials, tools, equipment, and services for construction of the polyethylene piping and appurtenances.

C. Although such WORK may not be specifically indicated, CONTRACTOR shall furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a fully functional installation.

4.02 PIPEWORK AND APPURTENANCES

A. All drainage, collection and conveyance pipework shall be carefully fabricated and placed as shown on the DRAWINGS and approved by the OWNER.

B. All pipe invert elevations and gradients shall be accurately set. CONTRACTOR shall adequately anchor or ballast the pipe to prevent movement during construction.

4.03 REFERENCES

A. Provide IPS size HDPE pipe in accordance with the following standards and all other mandatory ASTM requirements detailed therein.

1. American Society for Testing and Materials (ASTM) most current versions and other applicable standards.
   a. ASTM D3350 – Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
   b. ASTM F714 – Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

4.04 SUBMITTALS

A. The CONTRACTOR shall submit the following:

1. Shop drawings of HDPE pipe, fittings, and manner of securing; a list of materials to be furnished; and the name of the pipe manufacturer;

2. Product data sheets showing compliance with the product requirements of this Section; and
3. Certifications of welder's qualifications for HDPE pipe fusion required for the project.

B. Submit manufacturer's installation instructions and maintain a copy on-site for reference during construction.

4.05 PIPE WELDERS' QUALIFICATIONS

A. All operators conducting fusion welding activities must be certified by the manufacturer as technically qualified and properly experienced for fusion welding of HDPE pipe.

B. Submit names of certified operators in accordance with this Section.

PART 5 - PRODUCTS

5.01 HDPE PIPE

A. HDPE pipe and fittings shall be high-density, high molecular weight polyethylene pipe PE 4710.

B. High density polyethylene (HDPE) resin: compounded and manufactured specifically for producing HDPE pipe.

C. Pipe: Manufactured in accordance with ASTM D3350 and ASTM F 714.

D. Dimension Ratio (DR): As required by the DRAWINGS.

E. HDPE pipes shall be supplied in standard laying lengths not exceeding 40 feet.

F. HDPE pipes and fittings shall be homogeneous throughout and free of visible cracks, holes (other than manufactured perforations per design), foreign inclusions, or other deleterious effects, and shall be uniform in color, density, melt index, and other physical properties.

G. Fitting at the toe of the slope for the LDS pipe shall consist of a fabricated bend constructed of the same material as the pipe. The deflection angle of the bend shall match the slope.

H. At the LCS sump the annular space between the inner and outer pipes shall be completely and permanently sealed against leakage.

PART 6 - EXECUTION

6.01 GENERAL

A. Coordinate details of the prefabricated pipe penetration through the primary liner with the liner manufacturer and CONTRACTOR.

6.02 HANDLING AND PLACEMENT

A. HDPE pipe and fittings shall be installed as indicated on the DRAWINGS.

B. The CONTRACTOR shall exercise care when transporting, handling and placing pipe and fittings, such that they will not be cut, kinked, twisted, or otherwise damaged.

C. The CONTRACTOR shall comply with the pipe manufacturer's recommendations for handling, storage, and installation of all polyethylene pipe and fittings.

D. Ropes, fabric, or rubber-protected slings and/or straps shall be used when handling pipe. Chains, cables or hooks shall not be used as a means of handling pipe.

E. Pipe or fittings shall not be dropped or dragged over sharp objects.

F. The maximum allowable depth of cuts, gouges, or scratches on the exterior surface of pipe or fittings is 5% of the wall thickness. The interior of the pipe and fittings shall be free of cuts, gouges, and scratches. CONTRACTOR shall be required to remove and replace damaged pipe, at no additional cost to the OWNER.

G. Whenever pipe laying is not actively in progress, the open ends of pipes that have been placed shall be closed using watertight plugs.

6.03 INSTALLATION

A. Pipe shall be laid on geocomposite within pond leak collection system (future) and on granular bedding material as shown on the DRAWINGS outside of the cell.

B. All polyethylene pipe and fittings shall be installed in accordance with this SPECIFICATION and in conformance with the pipe manufacturer's written instructions.

C. The CONTRACTOR shall carefully examine all pipe and fittings for cracks, damage, or defects before installation.

D. The interiors of all pipes and fittings shall be inspected, and foreign materials shall be completely removed from the pipe and fitting interiors before they are moved into their final positions.

E. Do not damage underlying WORK, soil layers or geosynthetic installations during pipe installation operations. Repair all damaged WORK.

6.04 JOINTS AND CONNECTIONS

A. Fusion joining equipment shall be as supplied by, leased from, or approved by the pipe manufacturer.

B. Joining techniques and operating procedures shall carefully follow written instructions provided by the pipe manufacturer and the joint equipment supplier. A copy of such instructions, including heating time, cooling time, fusion temperature, and fusion pressure for each size of pipe shall be present at any location in which butt-fusion is being carried out.

C. Fusion Joining Requirements:

1. All HDPE pipe shall be joined to itself by the heat fusion process which produces homogeneous, seal, leak tight joints. Tie-ins between sections of HDPE pipe shall be made by butt fusion whenever possible.

2. Butt Fusion: The pipe shall be joined by the butt fusion procedure outlined in ASTM F 2620 or PPI TR-33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42. A record or certificate of training for the fusion operator must be provided that documents training to the fundamentals of ASTM F 2620. Considerations should be given to and provisions made for adverse weather conditions, such as temperatures below freezing, precipitation, or wind, which is accepted by the owner/engineer.

6.05 PERFORATIONS

A. Perforations as shown on the DRAWINGS may be manufactured or field constructed with approval from the ENGINEER or OWNER.

END OF SECTION 40 23 00

Appendix E

HDPE Liner Specifications

TECHNICAL DATA SHEET

GSE HD 60mil/1.50mm A Black Smooth 1101438

The GSE® HD Standard Geomembrane series are produced from high-quality, high-density polyethylene (HDPE) formulations produced to meet or exceed the industry standard GRI GM 13 for HDPE geomembrane barriers.

PROPERTY(1)	TEST METHOD	FREQUENCY	UNIT Imperial	Value
Thickness (min. avg.)	ASTM D5199	Every roll	mils	60.0
Thickness (min.)	ASTM D5199	Every roll	mils	54
Resin Density	ASTM D1505	One per batch	g/cc	> 0.932
Melt Index - 190°C/2.16 kg (max.)	ASTM D1238	One per batch	g/10 min	1.0
Density	ASTM D792	Every 10 rolls	g/cm^3	≥ 0.940
Carbon Black Content	ASTM D4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D5596	Every 10 rolls	Category	Cat. 1 & Cat. 2
OIT - Standard (min. avg.)	ASTM D8117	One per batch	min	100
Tensile Properties (min. avg) (2)	ASTM D6693	Every 2 rolls		
Strength at Yield			lbs/in	132
Elongation at Yield			%	13
Strength at Break			ppi	243
Elongation at Break			%	700
Tear Resistance (min. avg.)	ASTM D1004	Every 5 rolls	lbf	42
Puncture Resistance (min. avg.)	ASTM D4833	Every 5 rolls	lbf	120
Dimensional Stability	ASTM D1204	Certified	%	± 2
Stress Crack Resistance (SP-NCTL)	ASTM D5397	One per batch	hr	500
Oven Aging - % retained after 90 days	ASTM D5721	Per formulation		
HP-OIT (min. avg.)	ASTM D5885		%	80
UV Resistance - % retained after 1,600 hr	ASTM D7238	Per formulation		
HP-OIT (min. avg.)	ASTM D5885		%	50
Low Temperature Brittleness	ASTM D746	Certified	°F	- 106

SUPPLY SPECIFICATIONS(Roll dimensions may vary ±1%)

Roll Dimension - Width	-	ft	22.5
Roll Dimension - Length	-	ft	560
Area (Surface/Roll)	-	ft^2	12600

1. Testing frequency based on standard roll dimensions and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty or guarantee. Final determination of suitability for use contemplated is the sole responsibility of the user. SOLMAX assumes no liability in connection with the use of this information.

SOLMAX

Revision date: 03-Nov-2023

PERMEABILITY FOR SOLMAX GEOMEMBRANES

Due to its chemical structure, polyethylene is an (essentially) impermeable substance. The material is made up of very long molecules. There does exist, however, molecular voids (sometimes referred to as "free space") among the individual polyethylene chains. The existence of these spaces is recognized when we say polyethylene is essentially impermeable. Permeation may exist when, for instance, the pressure behind the permeant is very high or the permeant's molecular size is very small. However, the degree of permeation exhibited is difficult to determine using currently available test procedures. As a result, test results frequently reflect the inaccuracy of the procedure rather than the permeation of the material. Testing of Solmax HDPE performed by an independent laboratory produced the following results.

Test	ASTM Method	Results
Methane Permeability	D 1434	2×10^{-8} cm^2/s @ 1 atm
Water Vapor Permeability	E96	1.5×10^{-13} cm/s (note 1)

Table 1

It must be emphasized that different chemicals will permeate at different rates due to differences in molecular shape, polarity and phase (gas or liquid).

For example, the relatively small water molecule (atomic weight 18) will more easily permeate the polyethylene matrix as compared to a large molecule such as cyclohexanol (atomic weight 94).

The molecules' polarity must also be considered (recall the adage "like dissolves like").

Polyethylene is a non-polar molecule, therefore other non-polar molecules will permeate the matrix better. Examples of these molecules are hydrocarbons — especially those such as octane, pentane and hexene. The permeation of these are therefore greater than for polar molecules such as water.

REFERENCES

[1] Calculation based on the density of liquid water.

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Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Thursday, April 9, 2026 11:28 AM
To: AKenney@chevron.com
Subject: FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT
Attachments: C-147 FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT.pdf

FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT

Good morning Ms. Kenney.

The NMOCD has reviewed the recycling containment permit application and related documents, submitted by [4323] CHEVRON USA INC on 04/08/2026, Application ID **573114**, for FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT in I-02-24S-32E, Lea County, New Mexico. [4323] CHEVRON USA INC requested variances from 19.15.34 NMAC for FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT.

The following variances have been approved:

- The variance from 19.15.34.13.E NMAC for the installation of an audible Bird Gard Super Pro AMP bird deterrence system is approved.
- The variance to NMAC 19.15.34.12.D to install a game fence, eight (8) feet in height is approved.
- The variance to 19.15.34.12.A.(4) NMAC for the installation of a 60-mil HDPE secondary liner is approved.

The form C-147 and related documents for the FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT 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.
- FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT is approved for five years of operation from the date of the permit application of 04/08/2026. FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT permit expires on 04/08/2031.
- The FVV2609933317 MCCLOY RANCH SECTION 2 Recycling Facility & Containment consists of two earthen containments, each with a capacity of 287,950 bbls.
- The total closure cost estimated of permit FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT in the amount of $915,550.00, 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**.
- [4323] CHEVRON USA INC shall construct, operate, maintain, close, and reclaim the FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT in compliance with 19.15.34 NMAC.
- [4323] CHEVRON USA INC shall notify NMOCD when construction of the FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT commences.
- [4323] CHEVRON USA INC shall notify NMOCD when recycling operations commence and cease at FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT.

- A minimum of 3-feet freeboard must be maintained FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT 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.
- [4323] CHEVRON USA INC shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste to OCD Permitting even if there is zero activity.
- [4323] CHEVRON USA INC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field wastes at FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT.
- According to Table 1 of NMAC 19.15.34.14, the closure criteria for FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT is for groundwater depth of 51 to 100 feet.

Please reference number FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT in all future communications.
Best regards,

Victoria Venegas • Senior Environmental Scientist
EMNRD - Oil Conservation Division
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: CHEVRON U S A INC 6301 Deauville Blvd Midland, TX 79706	OGRID: 4323
	Action Number: 573114
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	• FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT is approved for five years of operation from the date of the permit application of 04/08/2026. FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT permit expires on 04/08/2031. • [4323] CHEVRON USA INC shall construct, operate, maintain, close, and reclaim the FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT in compliance with 19.15.34 NMAC. • [4323] CHEVRON USA INC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field wastes at FVV2609933317 MCCLOY RANCH SECTION 2 RECYCLING FACILITY & CONTAINMENT.	4/9/2026