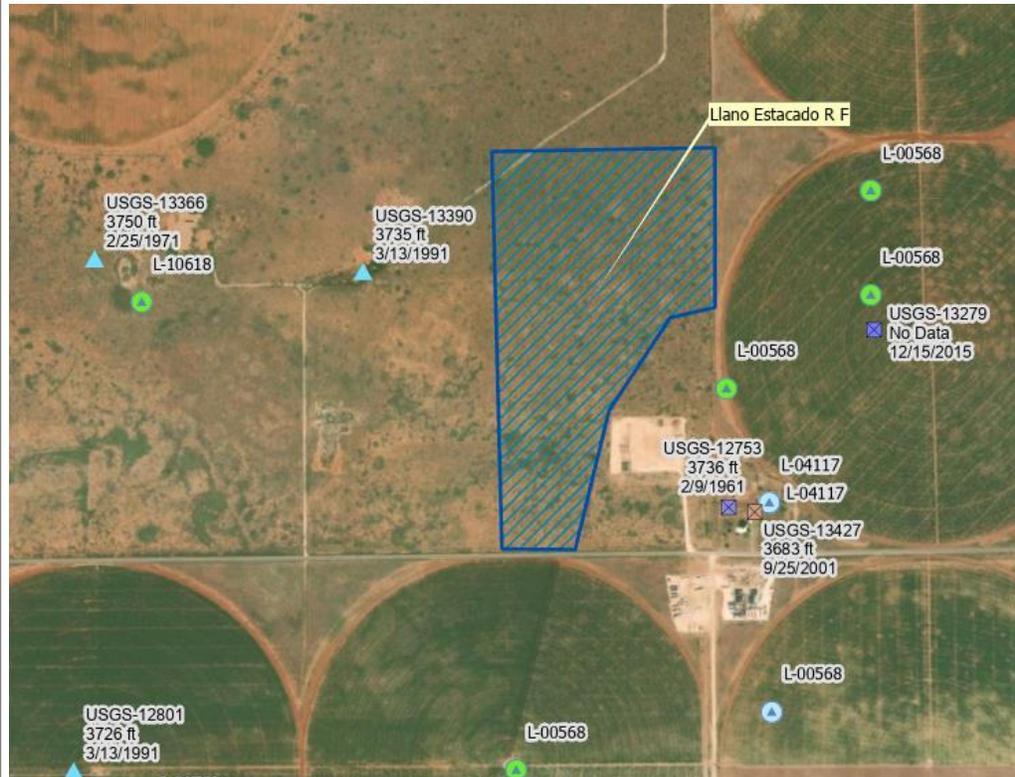


July 2023
(Revised)

Rule 34 Registration: Volume 1 Llano Estacado Recycling Facility & Containments

Section 15 T13S, R38E, Lea County

- *Transmittal Letter*
- *Siting Criteria Demonstration with Plates & Appendices*



Prepared for:
Steward Energy II
Frisco, Texas

Prepared by:
R.T. Hicks Consultants, Ltd.
901 Rio Grande NW F-142
Albuquerque, New Mexico

Cascade Services, LLC
4400 N Big Spring Street #114
Midland, TX 79705

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996

July 10, 2023

Ms. Victoria Venegas
NMOCD - District 2
811 S. First St.
Artesia, NM 88210
Via E-Mail

RE: Steward Energy II, Llano Estacado Recycling Facility and Containments
Section 15 T13S, R38E, Eddy County

Dear Ms. Venegas:

On behalf Steward Energy II, R.T. Hicks Consultants is pleased to submit the C-147 registration for the above-referenced project. Steward Energy II anticipates that construction will commence soon with produced water flowing into the containment in early to mid July.

Volume 1 of this submission contains the Siting Criteria Demonstration and appendices

Volume 2 contains:

- Signed C-147
- Final engineering plans and specifications for construction of the in-ground containment that includes a Game Fence to comply with 19.15.34.13.D
- Demonstrations of equivalency of the secondary liner system
- The Design/Construction Plan, Operations & Maintenance Plan, and Closure Plan

Steward will upload the registration package to OCD via the OCD.Online portal. In compliance with 19.15.34.10 of the Rule, this submission is copied to Steward Energy II, LLC, the surface owner.

Steward is not including an AST at this location. Should Steward find it necessary later to include an AST, Volume 3, concerning an AST, will be submitted. The drawings do indicate a location for an AST as a courtesy should an AST be necessary at a later date.

No variances from the Rule are necessary for the Llano Estacado in-ground containment as Volumes 1 and 2 demonstrate compliance with all mandates of the Rule. Since the adjacent recycling facility will supply treated water to the Llano Estacado in-ground Containment, it meets the criteria of 19.15.34.9.B.7, the recycling facility also requires registration. Thus, the Rule does not require approval by OCD in advance of using the in-ground containment.

This submission refers to the following elements that some OCD reviewers have considered variances:

June 16, 2023

Page 2

1. An equivalency demonstration written by experts for the proposed 40-mil HDPE secondary liner has been previously approved by OCD. We maintain that the language of the Rule is clear, and a variance is not required. The previously submitted equivalency demonstration is lengthy and we can submit it under separate cover if requested by OCD.
2. OCD has approved the proposed Avian Protection Plan (Bird-X Mega Blaster Pro) for other containments. Thus, the plan meets the requirement of the rule that the “otherwise protective of wildlife, including migratory birds” and a variance is not required.
3. Using the proposed deer fence in lieu of a 4-strand barbed wire fence is not a variance. Because feral pigs, javelina and deer are present in the area, a fence is required to comply with Section 19.15.34.12 D.1 of the Rule. The specification for fencing provided in 19.15.34.12 D.2 contradicts D.1 because pigs will move beneath the lower strand of a 4-foot high barbed wire fence and deer will jump over. Thus, compliance with D.2 results in a violation of D.1. We maintain that compliance with D.1 is the critical component of the Rule and operators need not be required to submit a variance request to follow Best Management Practices and comply with the Rule. Nevertheless, Steward will attach 4 strands of barbed wire to the game fence if required by OCD.

If you have any questions or concerns regarding this permit or the attached C-147, please contact me. As always, we appreciate your work ethic and diligence.

Sincerely,
R.T. Hicks Consultants



Randall T. Hicks PG
Principal

Copy: Steward Energy II, LLC

GENERAL SITING CRITERIA DEMONSTRATION AND SITE-SPECIFIC GROUNDWATER DATA

SITING CRITERIA (19.15.34.11 NMAC)
STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY**Distance to Groundwater**

Plate 1, Plate 2, and the discussion below demonstrates that groundwater (fresh water as defined by NMOCD Rules) at the locations is greater than 100 feet beneath the area of interest that will include the location of the Llano Estacado Reuse Facility.

Plate 1 is a geologic/ topographic map that shows:

1. The area of the Llano Estacado Reuse Facility identified by the blue stippled polygon.
2. Water wells from the OSE database as a blue triangle inside a colored circle. OSE wells are often mislocated in the WATERS database as older wells are plotted in the center of the quarter, quarter, quarter, of the Section Township and Range. Additionally, the OSE database can include locations of proposed wells (i.e., permit applications). In this case, the permit data generally show “no date” and “DTW=0”. On Plate 1, the OSE data has been screened with permit data being eliminated. We provide no depth to water data for the OSE wells as these data do not represent static water levels and are often misleading.
3. Water wells from the USGS database as large triangles color-coded to the formation from which the well draws water. Depth to water and the date of measurement are presented in the Plate.
4. Water wells, which are not documented in the public databases but were identified by field inspection or other published reports as colored squares (Misc. well database). No wells from the Misc. database are within the area of Plate 1 at the time of writing.

Plate 2 is an area topographic and geologic map that shows:

1. The Llano Estacado Reuse Facility is identified by the blue stippled polygon. The 3805-foot ASL contour line passes through the site location from the southwest to the northeast corner with higher elevations to the northwest.
2. Water wells measured by the USGS, the year of the measurement and the calculated elevation of the groundwater surface.
3. The geologic unit beneath the AST Containments is Quaternary Older Alluvium overlying the Tertiary Ogallala Formation (Qoa/To).

Hydrogeology

A relatively thin veneer of unsaturated Older Alluvium overlies the Ogallala Formation at the Containments. The Ogallala is the principal water bearing unit and all wells shown in Plates 1 and 2 draw water from the Ogallala Aquifer (aka High Plains Aquifer in some USGS reports).

We examined three drillers log from the NM OSE database. These are described briefly below and presented in Appendix Well logs. These are:

- L-00568-S-13 is a well drilled in November 2000. It is located about 500 feet southeast of the site’s southeast corner. The well was drilled to a total depth of 220 feet. The top of the Dockum Formation (the redbeds) was encountered at 218 feet. Groundwater was reported at a depth of 120 feet at the completion of drilling. The reported lithology is composed of caliche, rock, brown sand, rock, and a light brown sand from the depths of 105 feet to 180 feet. It is within this unit that groundwater was encountered. Beneath this

SITING CRITERIA (19.15.34.11 NMAC)
 STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

water -bearing sand unit are a lime and a blue clay deposited on top of the Dockum redbeds.

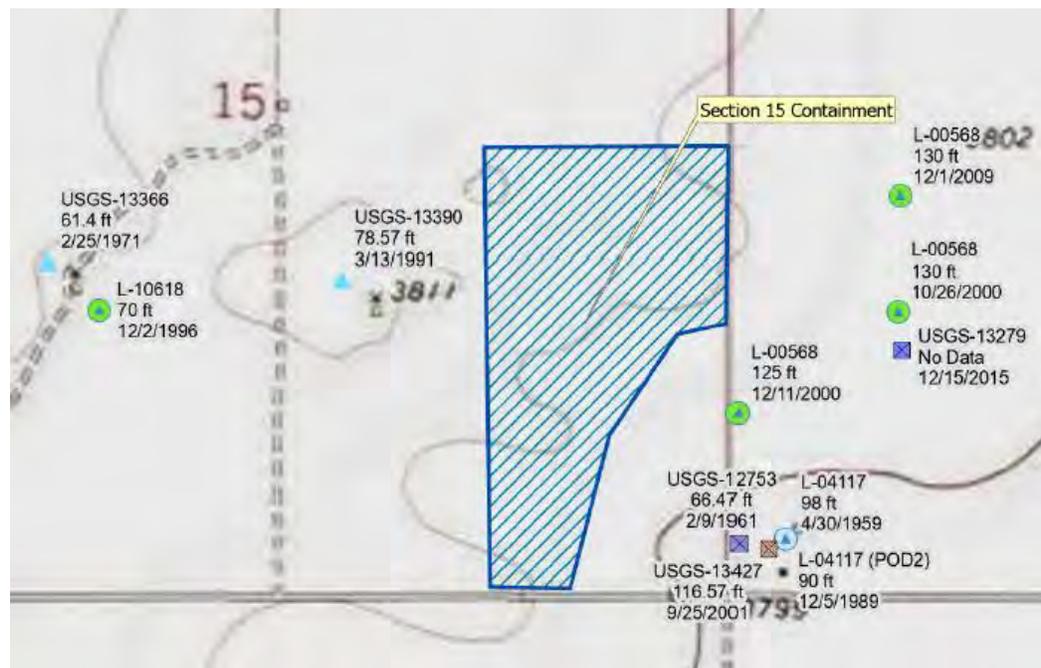
- L-568-1 is about 1,800 feet east of the proposed containment and was drilled in September 2000. The well was drilled to a total depth of 240 feet, encountering the redbeds at a depth of 236 feet. Upon completion, groundwater was reported at a depth of 125 feet. The reported lithology is composed of caliche, sand with rock ledges. Sand was reported below these units between the depths of 100 and 175 with groundwater being present. Below this sand and above the redbeds were yellow and blue clays, a lime, and a final sand with gravel unit.
- L-11915 is about 0.83 miles southeast of the site. It was drilled in June 2006 to a total depth of 191 feet. Units encountered during drilling were caliche, a dry brown sand, and a fine brown water sand. This last unit was encountered from the depths of 125 to 191 feet with groundwater being present at the depth of 125 feet. The Dockum Formation was entered at 191 feet.

While we identified other driller’s logs in the general area, these four provide the best data, closest to the site.

Groundwater Data

We relied upon the most recent data measured by the USGS to create Plate 2. Water level data from the OSE database rely upon observed water levels by drillers during the completion of the water well. The OSE dataset provides some useful data in certain areas but were not used to generate groundwater elevations for these Plates. Based upon our examination of Google Earth images, we are confident that the wells shown on Plate 2 are relatively close to the plotted points.

Figure 1 - Location and data of USGS Wells relative to the site location.



Information from the USGS database is discussed below.

SITING CRITERIA (19.15.34.11 NMAC)
STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

USGS-13390 is about 700 feet west-northwest of the site. The USGS topographic map (Plate 2) shows a windmill about 310 feet southeast of this well. Examination of historic aerial photographs shows the remains of a former water tank at the windmill location. At the plotted USGS well site, a windmill can be identified from as early as 2003 to after 2014. By 2018, the windmill was replaced with a solar powered pump.

Four measurements from 1976 to 1991 show a decline in water table elevation from 3742 feet to 3735 feet. The elevation of the USGS location is about 3811 implying a depth to water of 76 feet in 1991.

USGS-13366 is about 1200 feet west of USGS-13390. Three measurements taken in 1961, 1966, and 1971 show the groundwater elevation at 3748.5 feet to 3750 feet. We consider this a near steady state condition for this time interval. The total depth of the well is not listed. Photos dating back to 1996 show no evidence of an active well.

USGS-13427 is southeast of the site and is associated with the residence at this location. Two measurements obtained in June and September of 2001 document a 12-foot decline to a water table elevation of 3684 feet. Such a decline in three months is likely due to irrigation pumping for the nearby fields.

USGS-13279 is about 1,100 feet east of the site and near the center of Section 14. Ten measurements were taken between 1966 and 2010. They demonstrate a decline from an elevation of 3730 to an elevation of about 3670 over this time period. Depth to water has increased from about 73 feet to 135 feet.

Tillery (2008) maps this area as having an interpolated groundwater elevation of 3690 feet (Plate 2b). Using 3805 feet ASL as the ground surface elevation gives a depth to water of:

$$DTW = 3805 - 3690 = 115 \text{ feet}$$

Also shown on this same map is the saturated thickness with the site being mapped as having a remaining saturated thickness of from 20.1 feet to 60.0 feet. Tillery's data shows that the reduction in saturated thickness since predevelopment time (1954) is about 70 feet in the site area.

Plate 2c provides a detail of Tillery's map showing the elevation of the top of the Dockum Formation (the redbeds), which is the base of the Ogallala aquifer. The interpolation of this surface at the site location provides an elevation of 3625 feet. Adding the 2008 saturated thickness to this base elevation yields water table elevations of from 3645 feet to 3685 feet. The data from the four USGS wells described above is in agreement with the Tillery map.

SITING CRITERIA (19.15.34.11 NMAC)
 STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

Figure 2: - Location and data of USGS Wells relative to the site location.

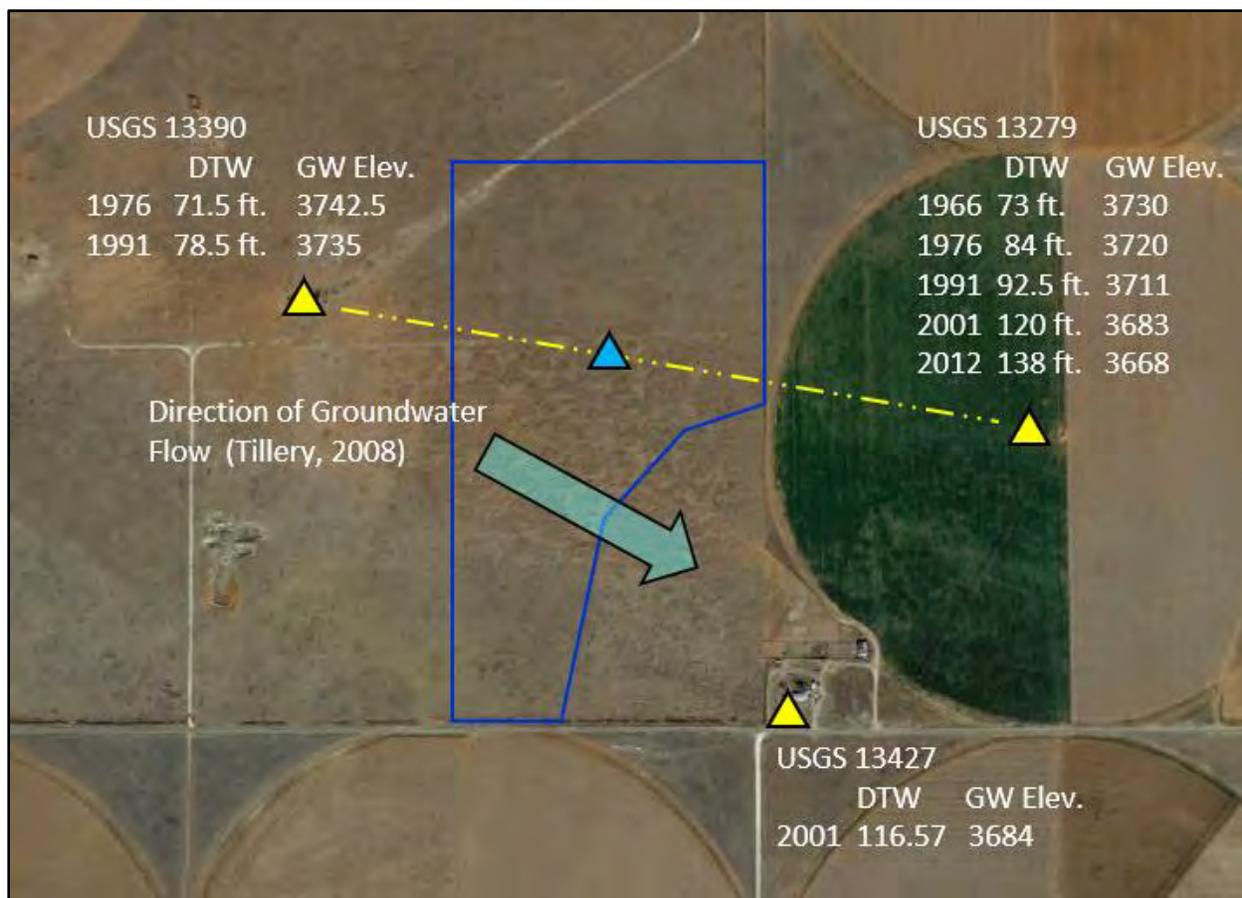


Plate 2 honors all data that we know are accurate to the best of our knowledge. We employed the most recent data available, and we conclude that due to the relatively rapid decline of the water table, only recent data in the area can be used to determine current groundwater elevations. Figure 2, above, provides the most recent data near the facility.

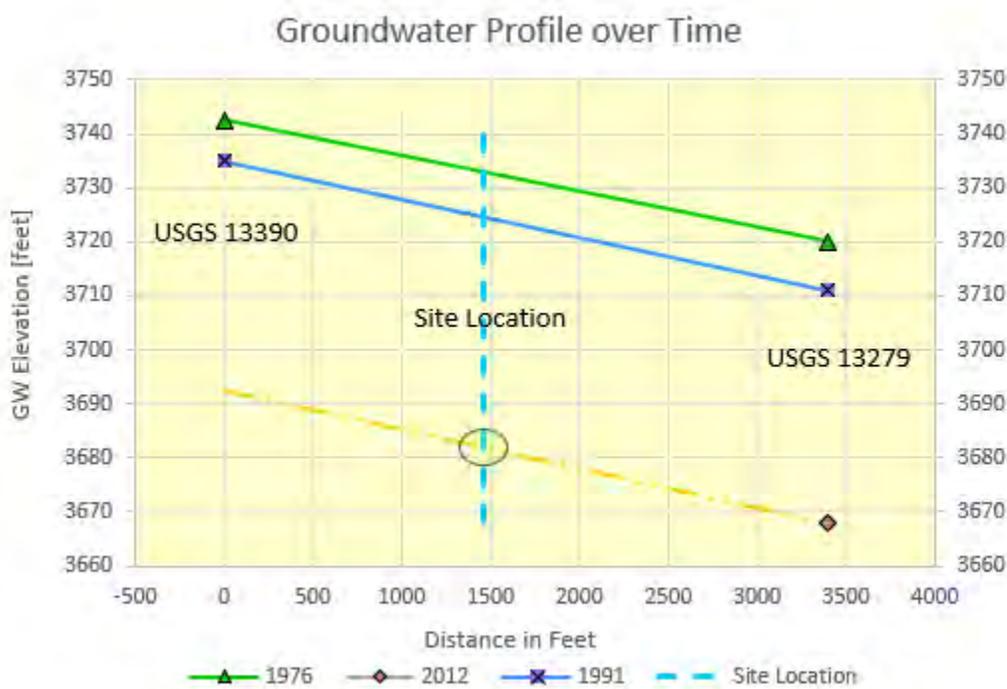
- USGS-134279 is located near the center pivot in Section 14, east of the Llano Estacado Reuse Facility.
- USGS-13390 is located about 700 west of the Llano Estacado Reuse Facility.
- The two wells are 3,420 feet apart with the center of the site being about 1,360 feet from the western well (USGS-13390) and 2,060 feet from the eastern well (USGS-13427).
- Based upon Plate 2b (Tillery, A., 2008¹) groundwater flow at the Llano Estacado Reuse Facility flows to the southeast as shown by the blue arrow in Figure 2.
- Groundwater elevations exist for USGS-13390 from 1976 and 1991. Groundwater elevations exist for USGS-13427 from 1966 through 2012 including 1976 and 1991.

¹ <https://pubs.usgs.gov/sim/3044/>

SITING CRITERIA (19.15.34.11 NMAC)
STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

- Figure 3 below shows the groundwater elevation between the two wells in 1976 and 1991. In 1976, there was a 22.5-foot difference in elevation between the two wells. In 1991, there was a 24-foot difference in elevation.
- A 2012 depth to water measurement exists at the eastern well, but not at the western well.
- Assuming that the groundwater profile has retained a similar gradient through time, we have conservatively projected the steeper of the two gradients from the data point at the eastern well (USGS-13427) to the western well location. The intersection of this projected profile with the vertical line marking the site location on the graph yields a 2012 estimate of a 3,683-foot groundwater elevation at the Llano Estacado Reuse Facility.
- Depth to water in 2012 is given by (surface elevation - groundwater elevation =) $3805 - 3683 = 122$ feet
- As this construction is based upon well data from 2012 and that groundwater levels have most probably declined further, we conclude that groundwater is more than 100 feet below the ground surface at the Llano Estacado Reuse Facility.

Figure 3: Graph of USGS Well data and projection used to determine groundwater elevation beneath the site.



Distance to Municipal Boundaries and Fresh Water Fields

Plate 3 demonstrates that the Llano Estacado Reuse Facility is not within incorporated municipal boundaries or within defined municipal fresh water well fields covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- The closest municipality is Tatum, approximately 14 miles to the northwest.
- The closest mapped public wells are in Tatum.
- Plains, Texas probably has municipal supply wells located about 14 miles to the east.

SITING CRITERIA (19.15.34.11 NMAC)
STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

Distance to Subsurface Mines

Plate 4 and our reconnaissance of the site demonstrate that the nearest mines are caliche pits. This site is not within an area overlying a subsurface mine.

- Caliche pits are located 1.0 miles to the north and 1.24 miles to the northeast.
- There are no subsurface mines in the area shown in Plate 4.

Distance to High or Critical Karst Areas

Plate 5 shows the Llano Estacado Reuse Facility is not within mapped zone of high or critical Karst with respect to BLM mapped areas.

- The proposed facility is located within a “low” potential karst area.
- The nearest “high” or “critical” potential karst area are further than 15 miles southwest of the proposed containments.

Distance to 100-Year Floodplain

Plate 6 demonstrates that the Llano Estacado Reuse Facility are within Zone D as designated by the Federal Emergency Management Agency with respect to the Flood Insurance Rate 100-Year Floodplain.

- FEMA describes the location as an area with possible but undetermined flood hazards. No flood hazard analysis has been conducted.
- The nearest mapped flood hazard is in Tatum, NM, about 14 miles to the northwest.

Distance to Surface Water

Plate 7 shows the closest surface water bodies are:

- a Lake/Pond more than 1 mile west of the site.
- About 1.4 miles to the south-southwest, there is also a Lake/Pond.
- About 1.8 to 1.6 miles to the east and northeast are several Lake/Ponds. These are in Texas.
- A reservoir is 0.5 miles to the south-southwest.

Distance to Permanent Residence or Structures

Plate 8 and the site visit demonstrates that the location is not within 1000 feet of an occupied permanent residence, school, hospital, institution, church, or other structure in existence at the time of initial application.

- The nearest structure is a residence more than 1000 feet southeast of the site.
- At greater distances are roads, fences, and irrigation equipment in use for agricultural purposes. No other structures are in the area.

Distance to Non-Public Water Supply

Plates 1, 7 and 8 demonstrate that the Llano Estacado Reuse Facility is not within 500 horizontal feet of a spring or fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.

- Plate 1 shows the locations of all area water wells, active or plugged.
- The nearest well in the OSE database is more than 500 feet to the southeast.
- The nearest stock watering well is more than 700 feet to the west.
- No springs were identified within the mapping area (see Plate 7)

SITING CRITERIA (19.15.34.11 NMAC)
STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

Distance to Wetlands

Plate 9 demonstrates the site is not within 500 feet of mapped wetlands using the New Mexico database.

- The nearest designated wetland are irrigation reservoirs in Texas.
- The USA wetlands database, which relies upon aerial imagery rather than more detailed investigations, identified all the surface water bodies of Plate 7 as wetlands.

References

Tillery, A., 2008, Current (2004-07) conditions and changes in ground-water levels from predevelopment to 2007, Southern High Plains aquifer, southeast New Mexico—Lea County Underground Water Basin: U.S. Geological Survey Scientific Investigations Map 3044²

² <https://pubs.usgs.gov/sim/3044/>

PLATES

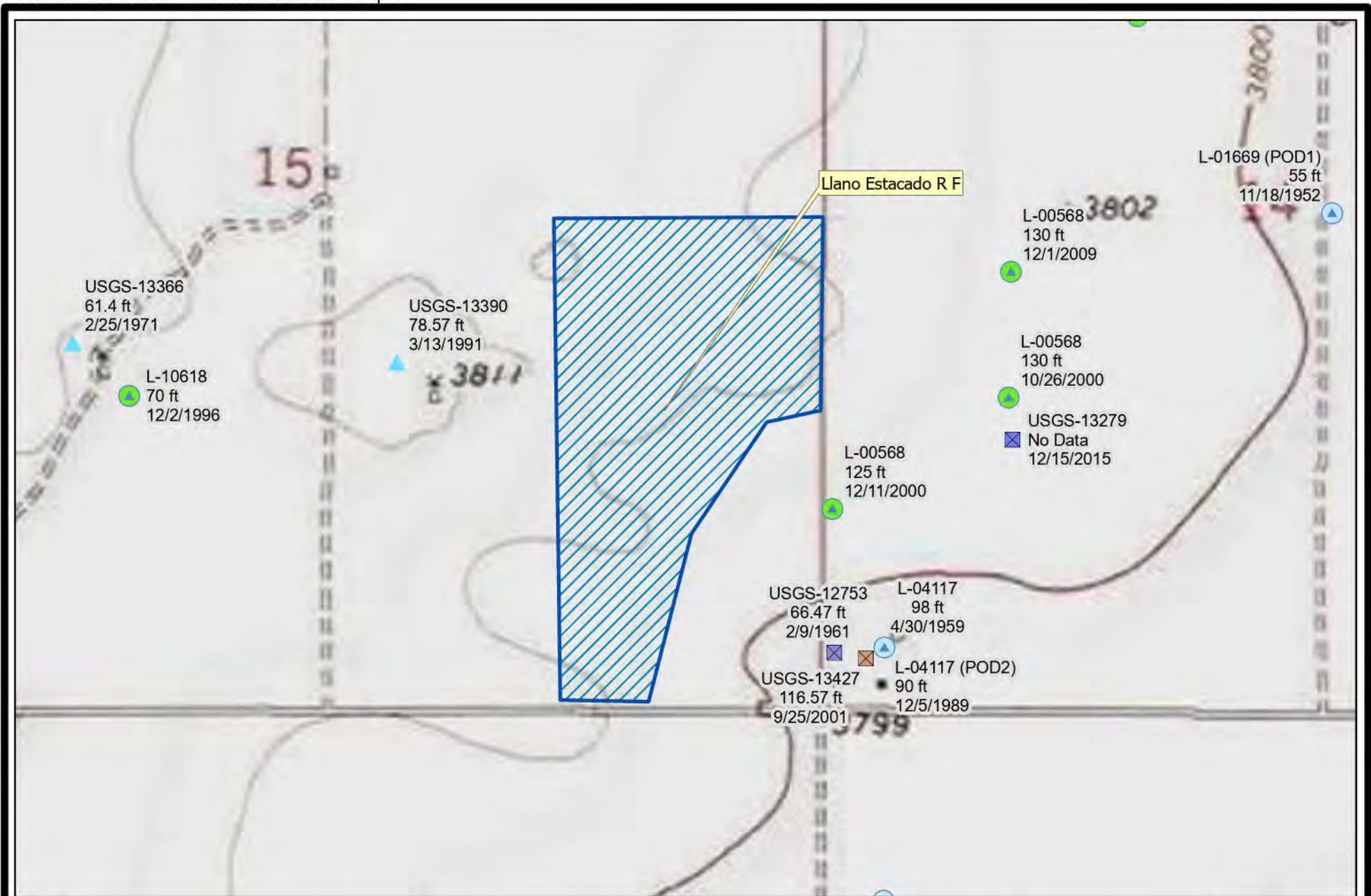
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polygon_spe

-  Recycling Containment Area
- USGS Gauging Station (GW Elev, Date)
- Aquifer Code, Well Status
-  Ogallala
-  Ogallala, Nearby site that taps the same aquifer was being pumped.
-  Ogallala, Obstruction was encountered in the well (no water level was recorded).
-  Ogallala, Site had been pumped recently.
-  Ogallala, Site was being pumped.
- OSE Water Wells (DTW/Date)
- Well Depth (ft)
-  <=150
-  151-350
- NM_Geology
- Map Unit,Description
-  Qoa/To, Quaternary-Older Alluvial Deposits/Ogallala
-  To, Tertiary-Ogallala Formation,To, Tertiary-Ogallala Formation

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Plates 1 & 2 Legend		
	Steward Energy II	Llano Estacado Reuse Facility	April 2023

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0 500 1,000
 US Feet

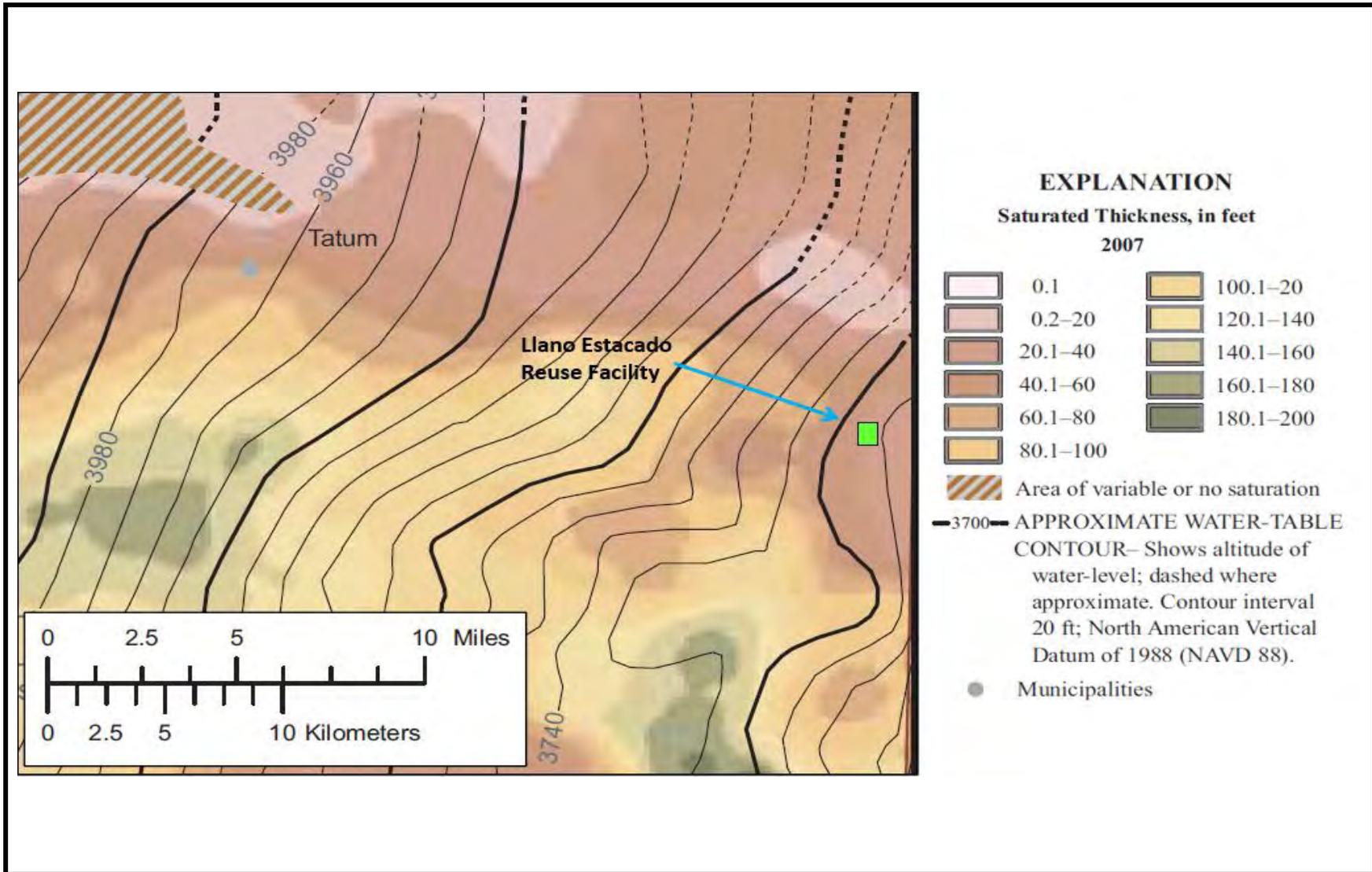
R.T. Hicks Consultants, Ltd
 901 Rio Grande Blvd NW Suite F-142
 Albuquerque, NM 87104
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Nearby Wells and Borings with Depth to Water

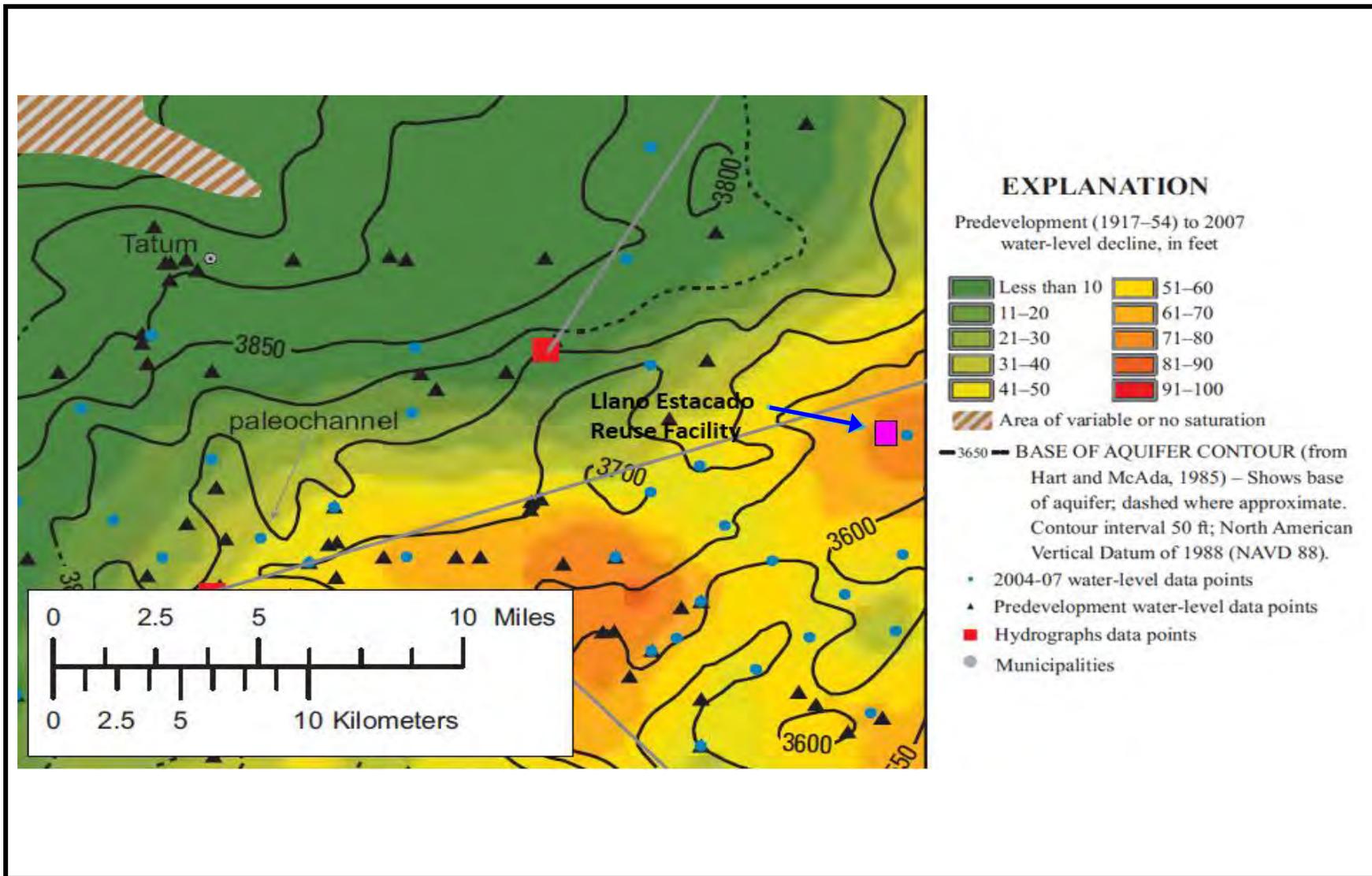
Steward Energy II
 Llano Estacado Reuse Facility

Plate 1

April 2023

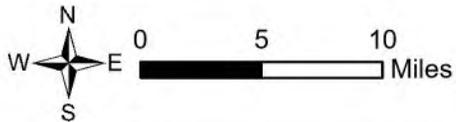
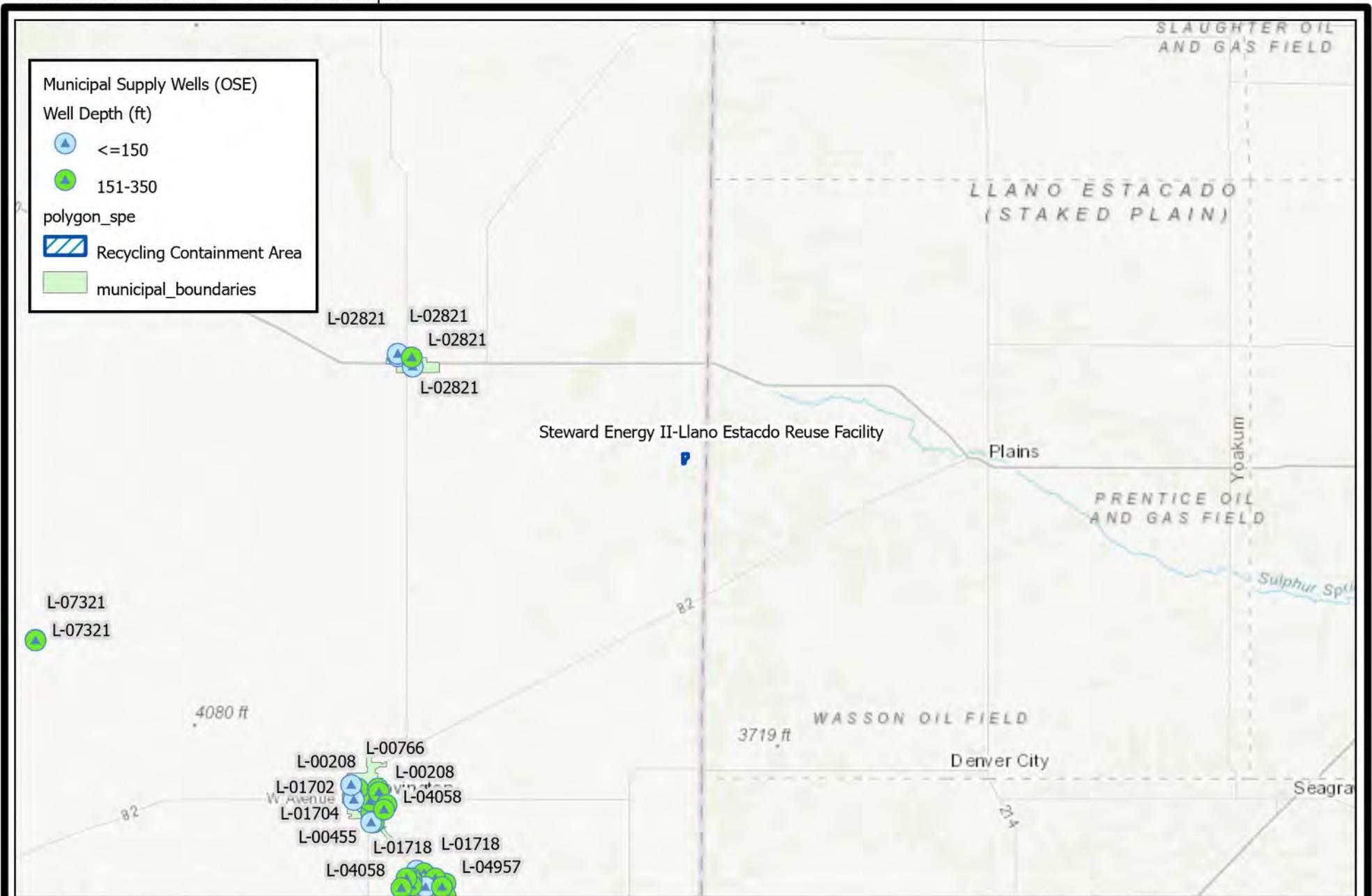


R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004	Water Level Decline and Water Table Contours in Southern High Plains Aquifer (Tillery, 2008)	Plate 2b
	Steward Energy II	April, 2023



<p>R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 505-266-5004</p>	<p>Base of Aquifer Contours and Water Level Decline in Southern High Plains Aquifer (Tillery, 2008)</p>	<p>Plate 2c</p>
	<p>Steward Energy II</p>	<p>April, 2023</p>

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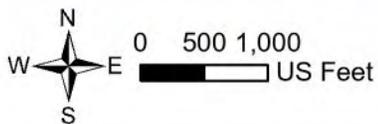
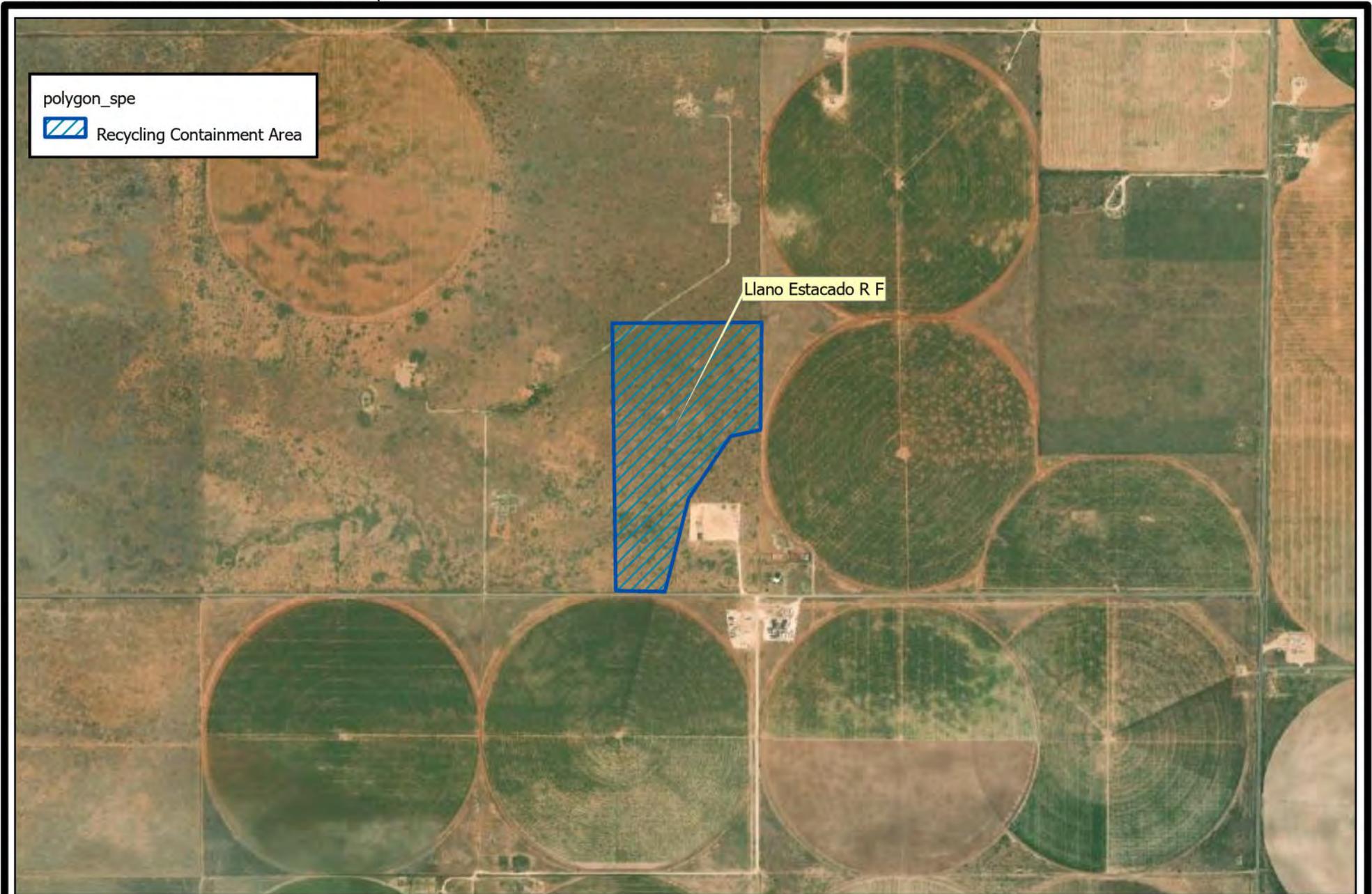


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 Albuquerque, NM 87104
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Nearest Municipalities & Public Water Supplies
Steward Energy II Llano Estacado Reuse Facility

Plate 3
April 2023

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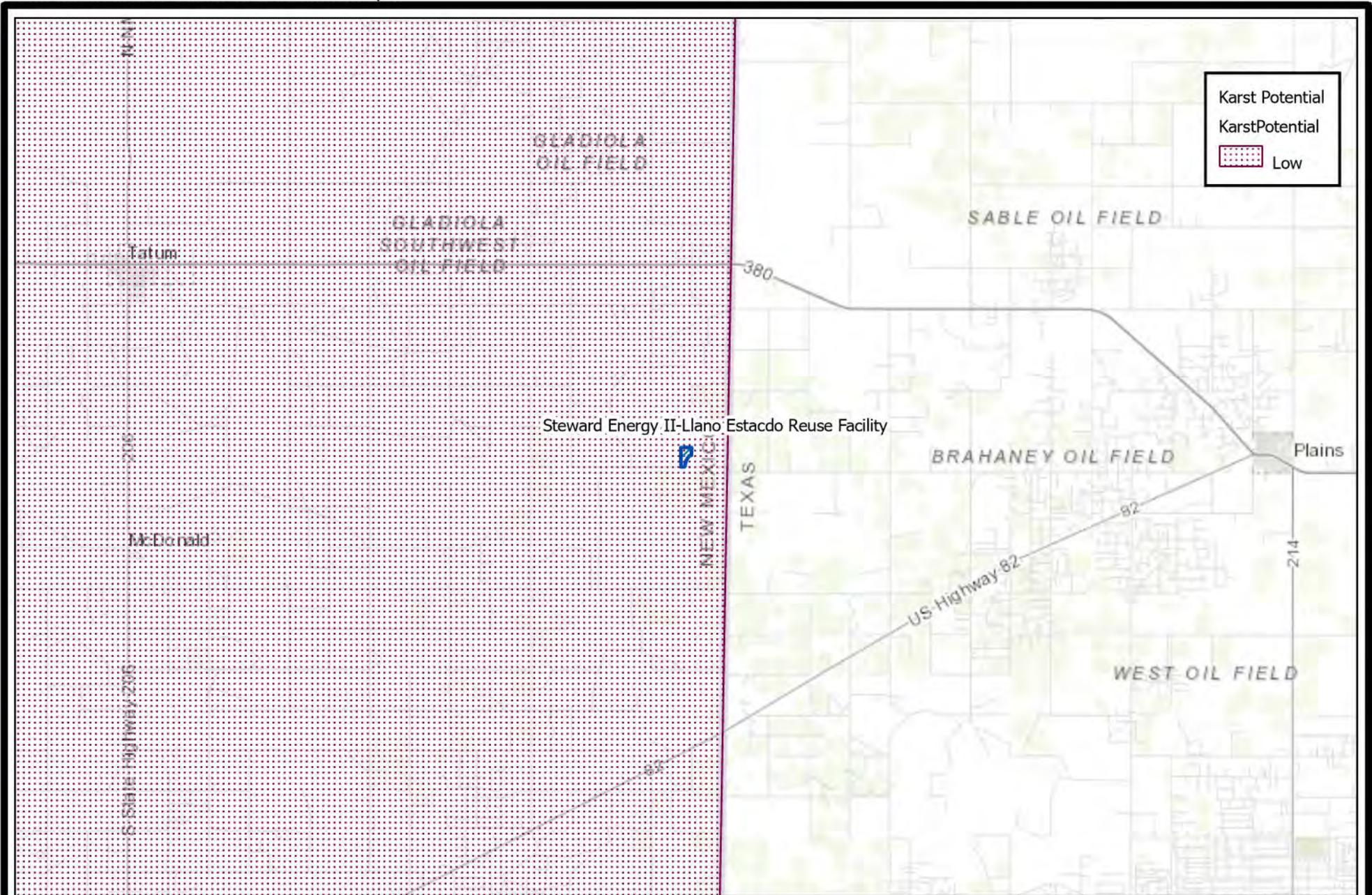


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Ph: 505.266.5004

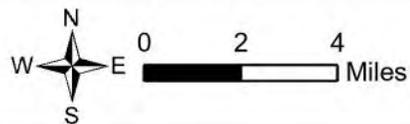
Nearby Mines - Caliche Pits	
Steward Energy II	Llano Estacado Reuse Facility

Plate 4
April 2023

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Karst Potential
 KarstPotential
 [Red Dotted Box] Low

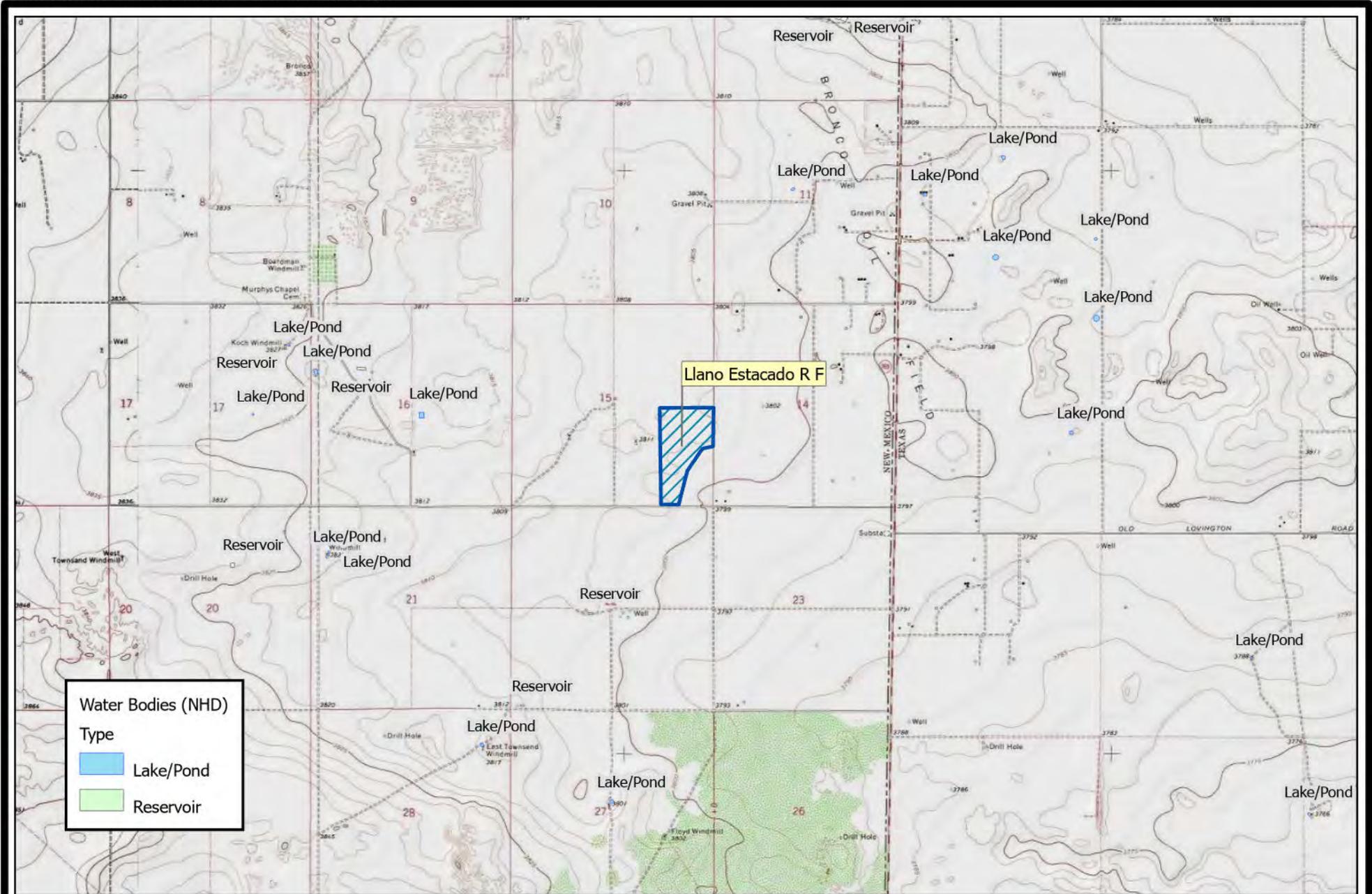


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Nearest Municipalities & Public Water Supplies	
Steward Energy II	Llano Estacado Reuse Facility

Plate 5
April 2023

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Water Bodies (NHD)
Type

- Lake/Pond
- Reservoir

N
W E
S

0 2,000 4,000
US Feet

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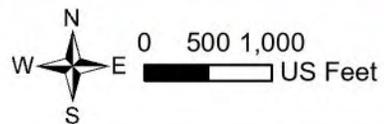
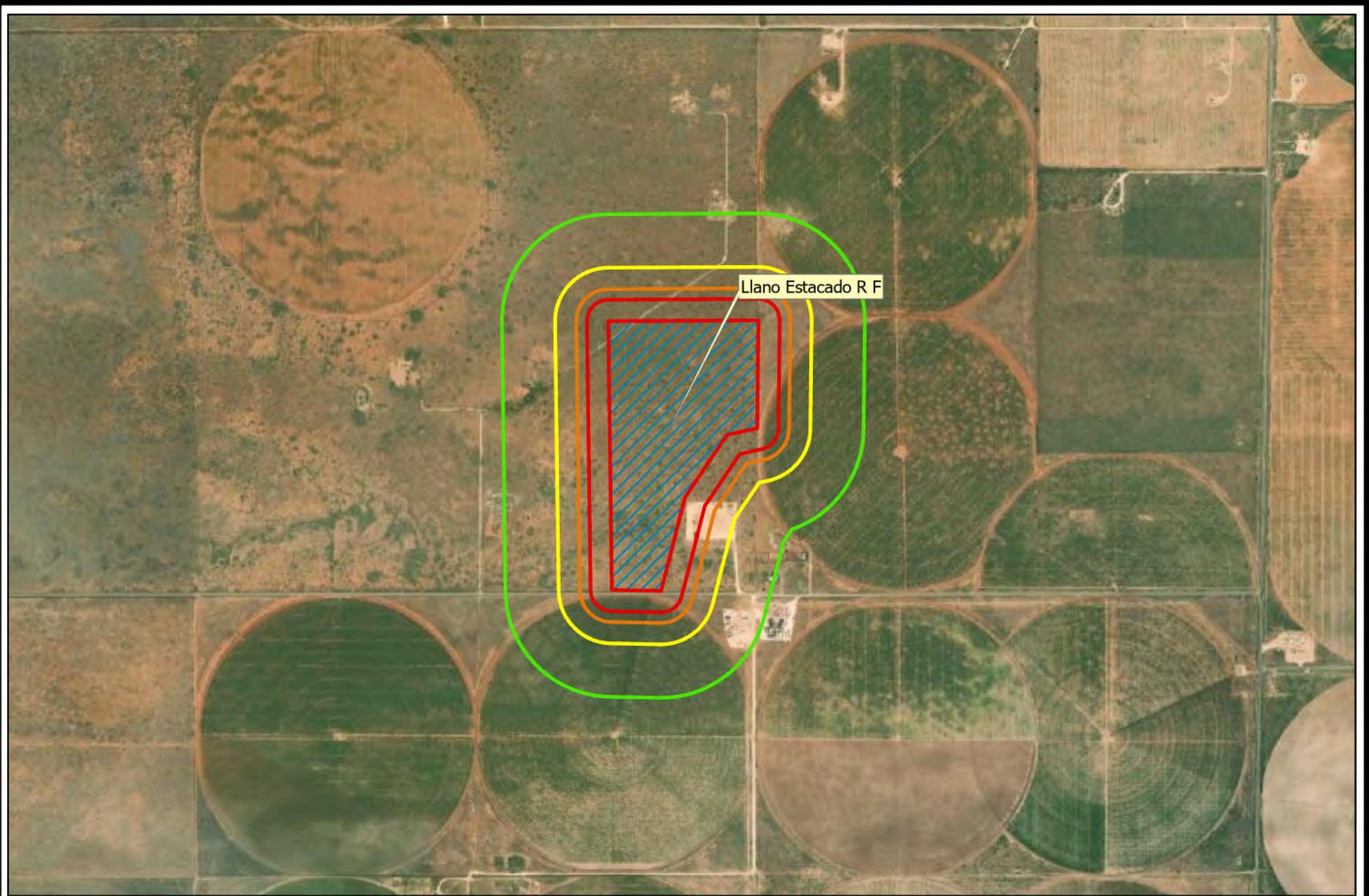
Mapped Surface Water

Steward Energy II Llanos Estacado Reuse Facility

Plate 7

April 2023

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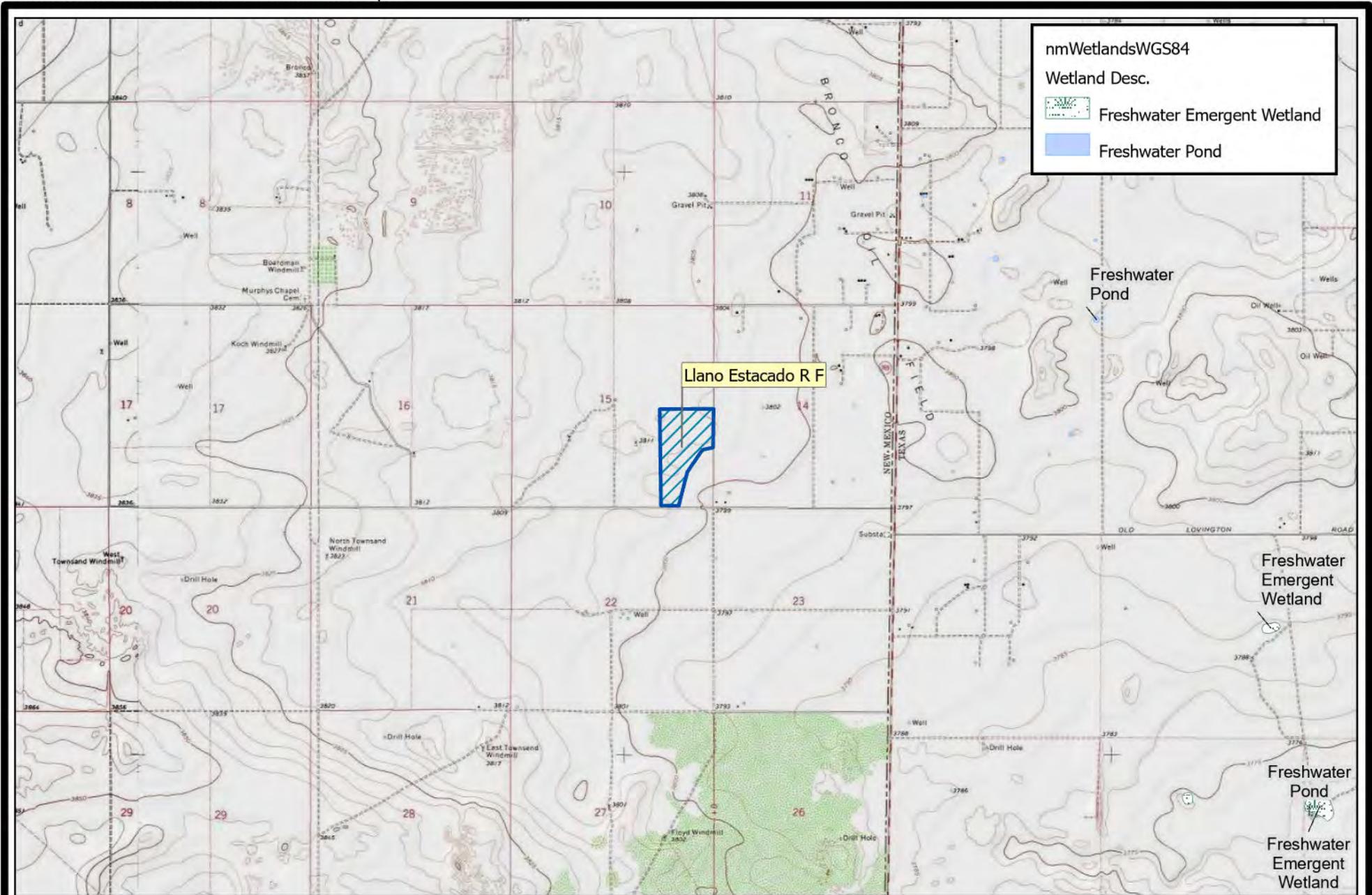


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Nearest Structures	
Steward Energy II	Llano Estacado Reuse Facility

Plate 8
April 2023

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nmWetlandsWGS84

Wetland Desc.

- Freshwater Emergent Wetland
- Freshwater Pond

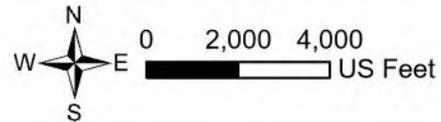
Llano Estacado R F

Freshwater Pond

Freshwater Emergent Wetland

Freshwater Pond

Freshwater Emergent Wetland



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Mapped NM Wetlands

Steward Energy II Llano Estacado Reuse Facility

Plate 9

April 2023

APPENDIX WELL LOGS

APPENDIX WELL LOG
 STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

Groundwater Data

We relied upon the most recent data measured by the USGS to create Plate 2. Water level data from the OSE database rely upon observed water levels by drillers during the completion of the water well. The OSE dataset provides some useful data in certain areas but were not used to generate groundwater elevations for these Plates. OSE well logs are attached to provide information regarding the lithology of the area.

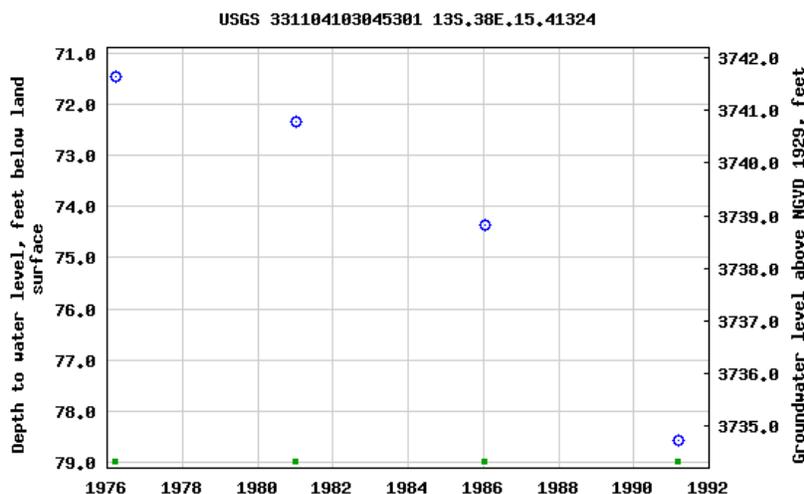
Information from the USGS database is provided below. The five-number USGS identifier used on the plates is provided first in bold, black type. The full USGS identifier is shown in large blue type. Text is reproduced verbatim from the USGS data, as is the graph of the data.

USGS-13390 (located about 700 feet west of the site)

USGS 331104103045301 13S.38E.15.41324

DESCRIPTION:

Lea County, New Mexico
 Hydrologic Unit Code 12080004
 Latitude 33°11'21", Longitude 103°04'57" NAD27
 Land-surface elevation 3,813.20 feet above NGVD29
 This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.
 This well is completed in the Ogallala Formation (121OGLL) local aquifer.



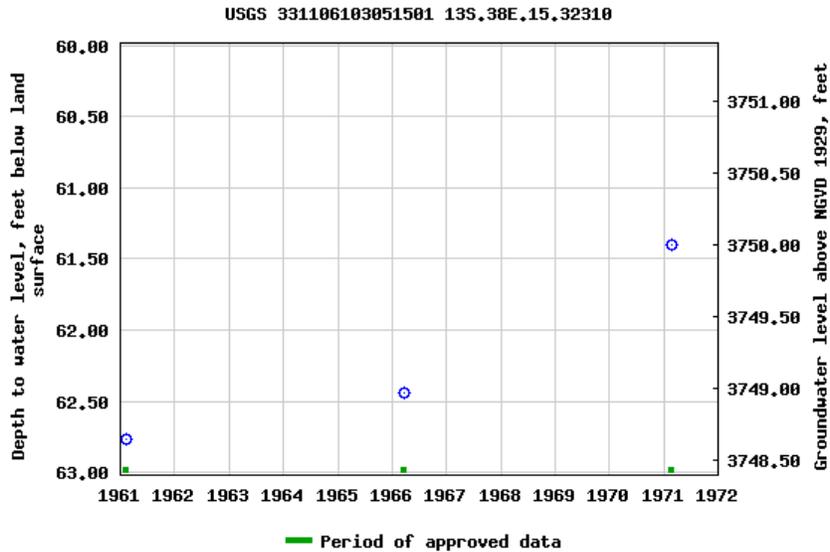
USGS-13366 (located about 1800 feet west of the site)

USGS 331106103051501 13S.38E.15.32310

DESCRIPTION:

Latitude 33°11'22", Longitude 103°05'17" NAD27
 Lea County, New Mexico, Hydrologic Unit 12080004
 Well depth: not determined.
 Land surface altitude: 3,811.40 feet above NGVD29.
 Well completed in "High Plains aquifer" (N100HGHPLN) national aquifer.
 Well completed in "Ogallala Formation" (121OGLL) local aquifer

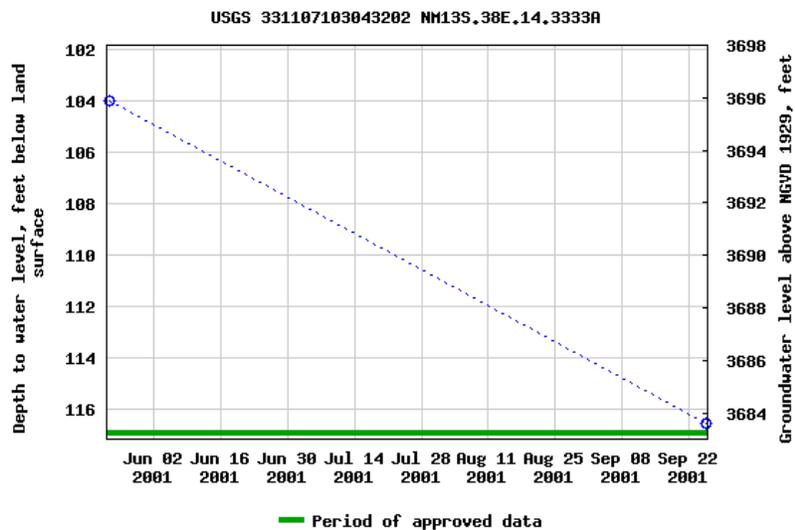
APPENDIX WELL LOG
 STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY



USGS-13427 (located near the house southeast of the site)
USGS 331107103043202 NM13S.38E.14.3333A

DESCRIPTION:

Latitude 33°11'06.47", Longitude 103°04'31.64" NAD83
 Lea County, New Mexico , Hydrologic Unit 12080004
 Well depth: 170 feet
 Hole depth: 171 feet
 Land surface altitude: 3,800 feet above NGVD29.
 Well completed in "High Plains aquifer" (N100HGHLN) national aquifer.
 Well completed in "Ogallala Formation" (121OGLL) local aquifer



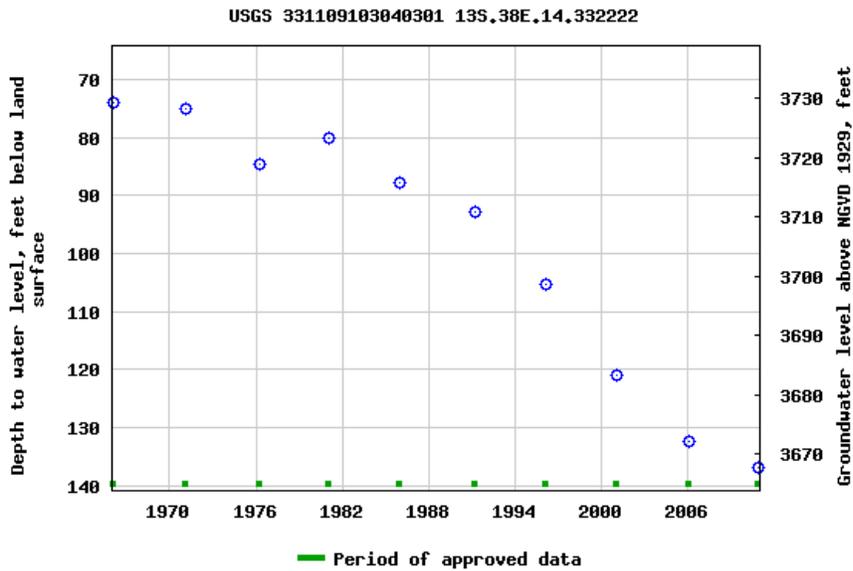
APPENDIX WELL LOG
 STEWARD ENERGY II – LLANO ESTACADO REUSE FACILITY

USGS-13279 (about 1300 feet east of the site)

USGS 331109103040301 13S.38E.14.332222

DESCRIPTION:

Latitude 33°11'17", Longitude 103°04'19" NAD27
 Lea County, New Mexico , Hydrologic Unit 12080004
 Well depth: 160 feet
 Land surface altitude: 3,803.90 feet above NGVD29.
 Well completed in "High Plains aquifer" (N100HGHPLN) national aquifer.
 Well completed in "Ogallala Formation" (121OGLL) local aquifer



STATE ENGINEER OFFICE
WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well B.G. Craft Owner's Well No. L-568-13
Street or Post Office Address Rt. 1 Box 95
City and State Plains, TX. 79355

Well was drilled under Permit No. L-568-13 and is located in the:

- a. 1/4 NW 1/4 NW 1/4 NW of Section 14 Township 13 S Range 38 E N.M.P.M.
- b. Tract No. _____ of Map No. _____ of the _____
- c. Lot No. 4 of Block No. _____ of the _____
Subdivision, recorded in Lea County.
- d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Robinson Drilling License No. WD-1498

Address PO Box 1495 Seminole, TX. 79360

Drilling Began 11-15-00 Completed 11-30-00 Type tools cable tool rig Size of hole 14 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 220 ft.

Completed well is shallow artesian. Depth to water upon completion of well ~~220~~ 120 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
105	180	75	Light brown sand	-----UNK-----

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
10 3/4	----	welded	+1	220	221	-----NA-----	110	220

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				
0	10	14	8	15	Positive Displacement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received _____ Quad _____ FWL _____ FSL _____
File No. L-568-5-13 Use irr Location No. 13, 38, 14, 111-1/1

STATE ENGINEER OFFICE
WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well BG Craft Owner's Well No. L-568-1
Street or Post Office Address Rt. 1 Box 95
City and State Plains, TX. 79355

Well was drilled under Permit No. L-568-1 and is located in the:

- a. NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 14 Township 13-S Range 38-E N.M.P.M.
- b. Tract No. _____ of Map No. _____ of the _____
- c. Lot No. 4 of Block No. _____ of the _____
Subdivision, recorded in Lea County.
- d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Robinson Drilling License No. WD-1498

Address PO Box 1495 Seminole, TX 79360

Drilling Began 12-13-00 Completed 12-21-00 Type tools cable tool rig Size of hole 14 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 240 ft.

Completed well is shallow artesian. Depth to water upon completion of well 125 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
100	175	75	SAND	-----UNK-----
215	236	41	SAND W/GRAVEL	-----UNK-----

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
10 ³ / ₄	-----	welded	+1	240	241	-----	130	240

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				
0	10	14	6	10	positive displacement

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____
State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received 1/5/2001 Quad _____ FWL _____ FSL _____
File No. L-568-5-9 Use IRV Location No. 13.38, 14, 43242

STATE ENGINEER OFFICE
WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well PARTIN & PARTIN Owner's Well No. L 11915
Street or Post Office Address PO Box 1089
City and State Plains Texas 79355

Well was drilled under Permit No. L-11915 Explore and is located in the:

- a. $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE ~~NE~~ of Section 22²³ Township 13¹³ ~~18~~S Range 38E N.M.P.M.
- b. Tract No. _____ of Map No. _____ of the _____
- c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in _____ County.
- d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor GARY KIDD License No. WD 854

Address 1207 W. Ave. H. Lovington NM 88260

Drilling Began 6/20/6 Completed 6/23/6 Type tools Cable Size of hole 14 in.

Elevation of land surface or 0 at well is 0 ft. Total depth of well 191 ft.

Completed well is shallow artesian. Depth to water upon completion of well 125 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			
125	191	66	Fine brown water sand	100

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To
10 3/4	15	0	2	101	193	0	131	191

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____
Address _____
Plugging Method _____
Date Well Plugged _____
Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received _____ Quad _____ FWL _____ FSL _____

File No. L-11915 Explore Use _____ Location No. 13S.38E.23.41323

ROUTING SLIP

TO: Field Supervisor

(Basin) or (County)

LEA

From: _____

Applicant DARTIN & PARTIZ

Land Location _____

Field Check Requested For the Following Reasons

Date: 8/15/06

- Proof of Completion of Works()
- Proof of Beneficial Use()
- Declaration()
- Extension of Time()
- Illegal Irrigation()
- Supplemental Well()
- Leakage Test()
- Cementing (water-oil)()
- Reduction from Irr. or Dom.()
- Pressure Test()
- Inspect Casing()
- Others(X)

Move-From

Move-To

Sec. T. R.

Sec. T. R.

Old Well (plugged-retained or new?)

REMARKS- WELL FOUND FULLY EQUIPPED
WAS NOT DUMANG.

Date: _____ By: _____

File No. _____ Location No. 13S.38E.23.413

Locator Tool Report

General Information:

Application ID:3 Date: 08-30-2006 Time: 15:28:26

WR File Number: L-11915
Purpose: POINT OF DIVERSION

Applicant First Name: PARTIN &
Applicant Last Name: PARTIN

GW Basin: LEA COUNTY
County: LEA

Critical Management Area Name(s): NONE
Special Condition Area Name(s): NONE
Land Grant Name: NON GRANT

PLSS Description (New Mexico Principal Meridian):

NW 1/4 of SW 1/4 of NW 1/4 of SE 1/4 of Section 23, Township 13S, Range 38E.

Coordinate System Details:

Geographic Coordinates:

Latitude: 33 Degrees 10 Minutes 28.9 Seconds N
Longitude: 103 Degrees 4 Minutes 2.9 Seconds W

Universal Transverse Mercator Zone: 13N

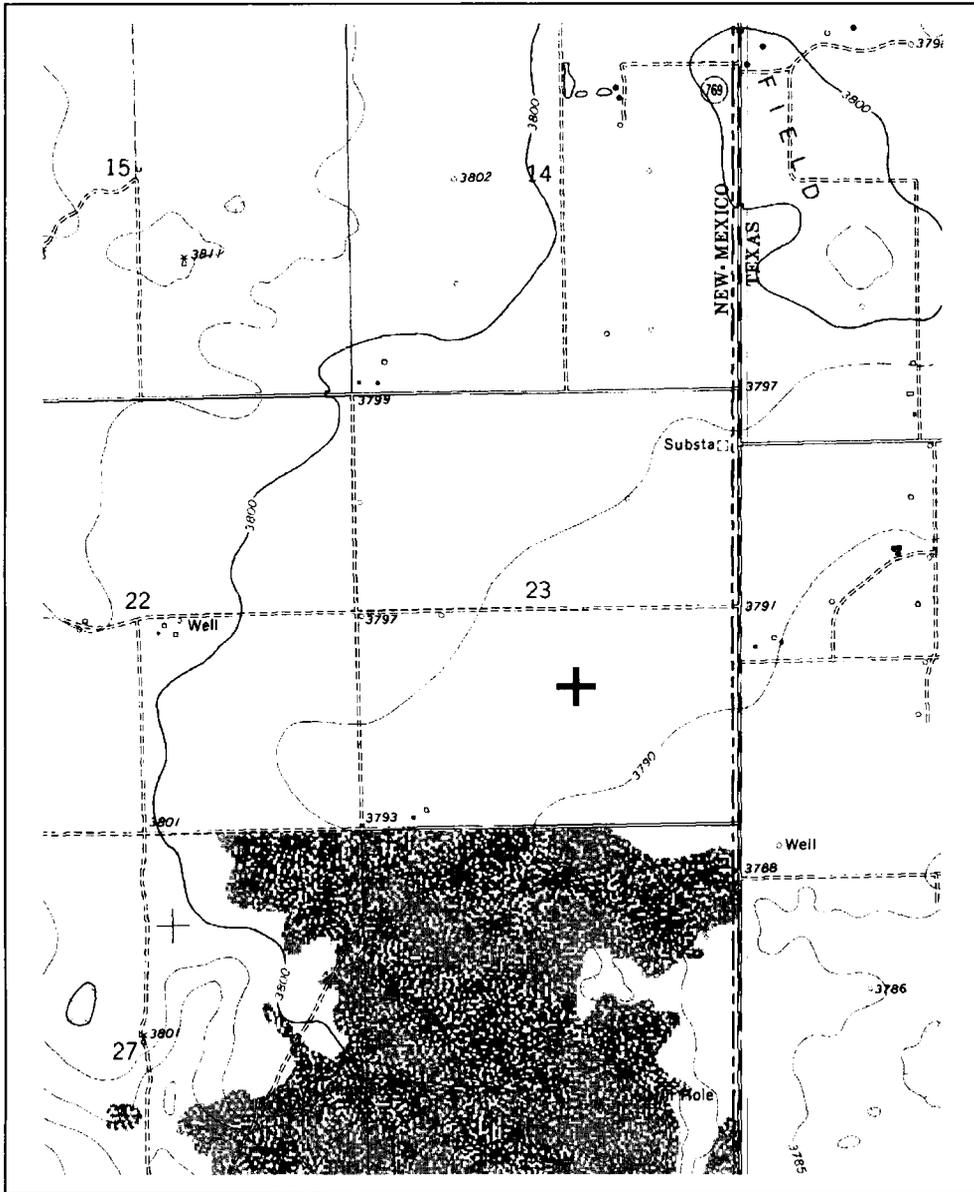
NAD 1983(92) (Meters)	N: 3,672,317	E: 680,187
NAD 1983(92) (Survey Feet)	N: 12,048,260	E: 2,231,581
NAD 1927 (Meters)	N: 3,672,114	E: 680,238
NAD 1927 (Survey Feet)	N: 12,047,595	E: 2,231,747

State Plane Coordinate System Zone: New Mexico East

NAD 1983(92) (Meters)	N: 241,840	E: 283,060
NAD 1983(92) (Survey Feet)	N: 793,437	E: 928,671
NAD 1927 (Meters)	N: 241,821	E: 270,509
NAD 1927 (Survey Feet)	N: 793,375	E: 887,495

NEW MEXICO OFFICE OF STATE ENGINEER

Locator Tool Report



WR File Number: L-11915

Scale: 1:28,052

Northing/Easting: UTM83(92) (Meter): N: 3,672,317

E: 680,187

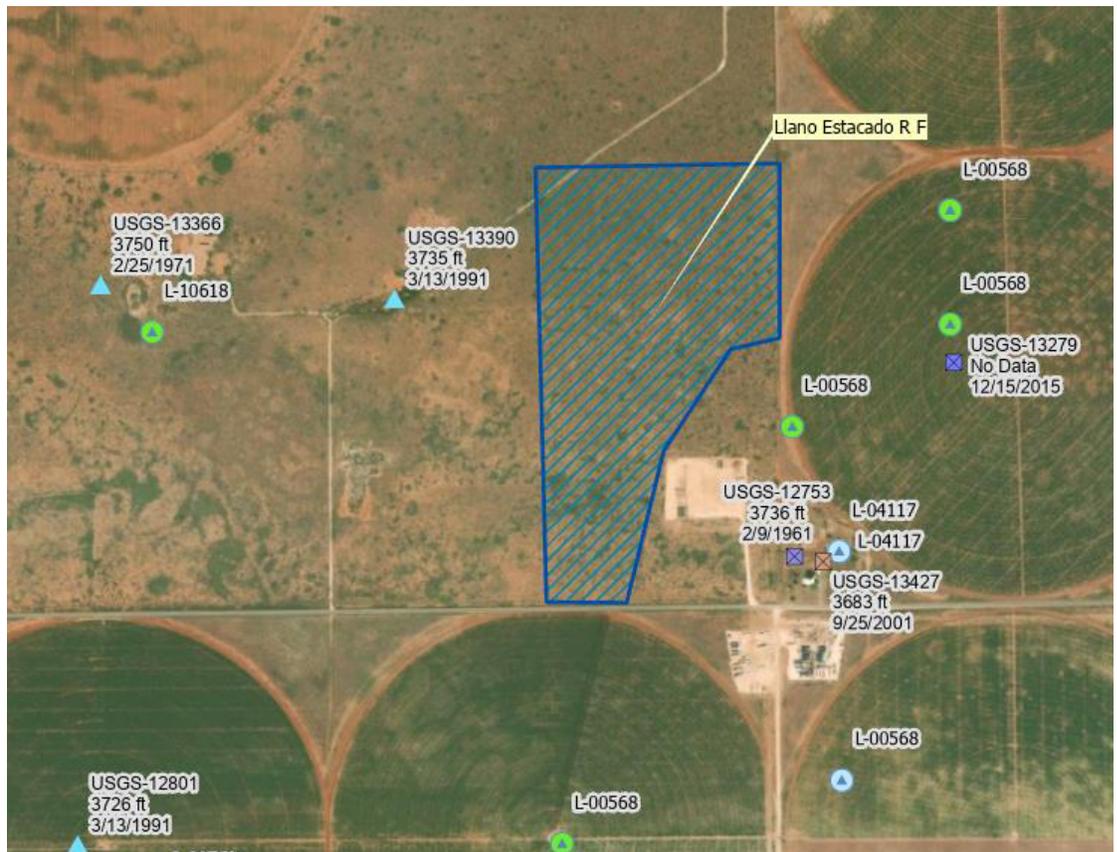
Northing/Easting: SPCS83(92) (Feet): N: 793,437

E: 928,671

GW Basin: Lea County

Llano Estacado Reuse Facility & Containments: Volume 2 Section 15 T13S, R38E, Lea County

***C-147 Form
Stamped Design Drawings
Recently Approved Plans
for: Design/Construction
Operations & Maintenance
Closure Plans***



Prepared for:

**Steward Energy II
Frisco, Texas**

Prepared by:

***R.T. Hicks Consultants, Ltd.
901 Rio Grande NW F-142
Albuquerque, New Mexico***

***Cascade Services, LLC
4400 N Big Spring Street
#114 Midland, TX 79705***

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/

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: Steward Energy II LLC (For multiple operators attach page with information) OGRID #: 371682
Address: 2600 North Dallas Parkway, Frisco, Texas 75034
Facility or well name (include API# if associated with a well): Llano Estacado RF & Containments
OCD Permit Number: 1RF-506 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr H & I Section 15 Township 13S Range 38E County: Lea
Surface Owner: [] Federal [] State [X] Private [] Tribal Trust or Indian Allotment

2. [X] Recycling Facility:
Location of recycling facility (if applicable): Latitude 33.18998 Longitude -103.07910 NAD83
Proposed Use: [X] Drilling* [X] Completion* [X] Production* [X] Plugging *
*The re-use of produced water may NOT be used until fresh water zones are cased and cemented
[] Other, requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.
[X] Fluid Storage
[] Above ground tanks [X] Recycling containment [] Activity permitted under 19.15.17 NMAC explain type
[] Activity permitted under 19.15.36 NMAC explain type: [] Other explain
[] For multiple or additional recycling containments, attach design and location information of each containment
[] Closure Report (required within 60 days of closure completion): [] Recycling Facility Closure Completion Date:

3. [X] Recycling Containment:
[] Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)
Center of Recycling Containment (if applicable): Latitude 33.18998 Longitude -103.07910 NAD83
[] For multiple or additional recycling containments, attach design and location information of each containment
[X] Lined [] Liner type: Thickness 60 & 40 mil [] LLDPE [X] HDPE [] PVC [] Other See attached design documents
[] String-Reinforced
Liner Seams: [X] Welded [] Factory [] Other Volume: 360K & 44 K bbl Dimensions: L 600' x W 385' x D 17'
[] Recycling Containment Closure Completion Date: 44K Cont. - 385' by 225' by 10'

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 \$ _____ (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 See Variance

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. See attached variances

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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

- Design Plan - based upon the appropriate requirements.
- Operating and Maintenance Plan - based upon the appropriate requirements.
- Closure Plan - based upon the appropriate requirements.
- Site Specific Groundwater Data -
- Siting Criteria Compliance Demonstrations -
- 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): Tim Hilton Title: Vice President Operations
 Signature:  Date: 6/20/23
 e-mail address: tim.hilton@stewardenergy.net Telephone: 214297 0506

11. OCD Representative Signature: Victoria Venegas Approval Date: 07/25/2023

Title: Environmental Specialist OCD Permit Number: 1RF-506

- OCD Conditions _____
- Additional OCD Conditions on Attachment _____

RECYCLING CONTAINMENT DESIGN DRAWINGS

AVIAN DETERRENT SYSTEM

LLANO ESTACADO REUSE FACILITY STEWARD ENERGY

Section 15, Township 13 South, Range 38 East

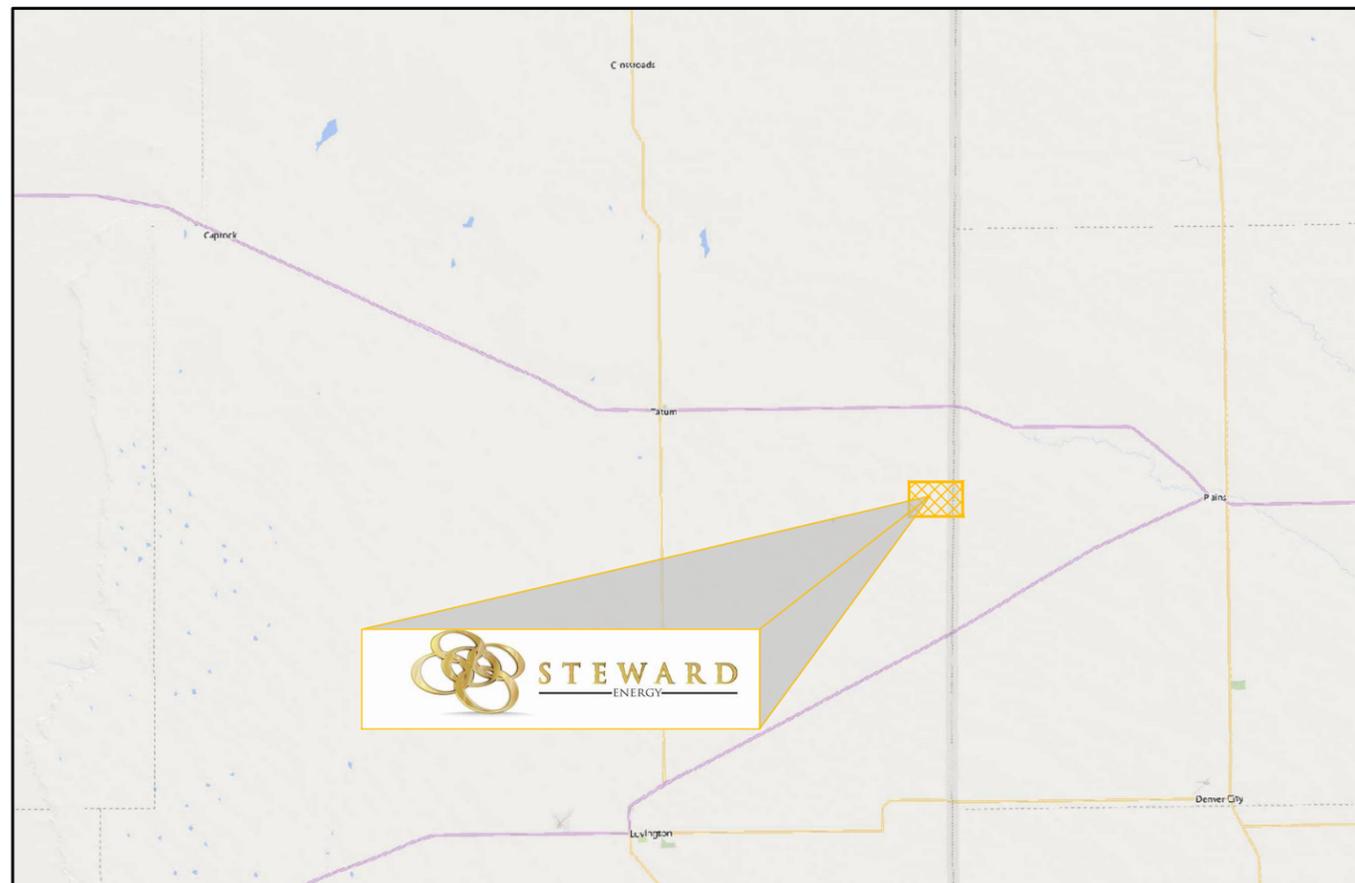
33° 11' 23.6004", -103° 4' 43.374"

33.189889°, -103.078715°



Index to Drawings 11X17

Sheet No.	Description
1.	Cover Sheet
2.	Project Location
3.	Existing Site Features
4.	Site Plan
5.	Pit Capacity
6.	Staking Plan
7.	Cut/Fill Plan
8.	Cross Sections
9.	Cross Sections
10.	Sump Details
11.	Liner Details
12.	Fence Details



Contacts

Tim Hilton - Steward Energy - (214) 297-0506

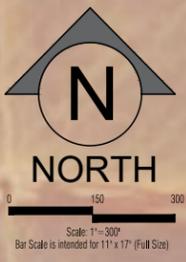
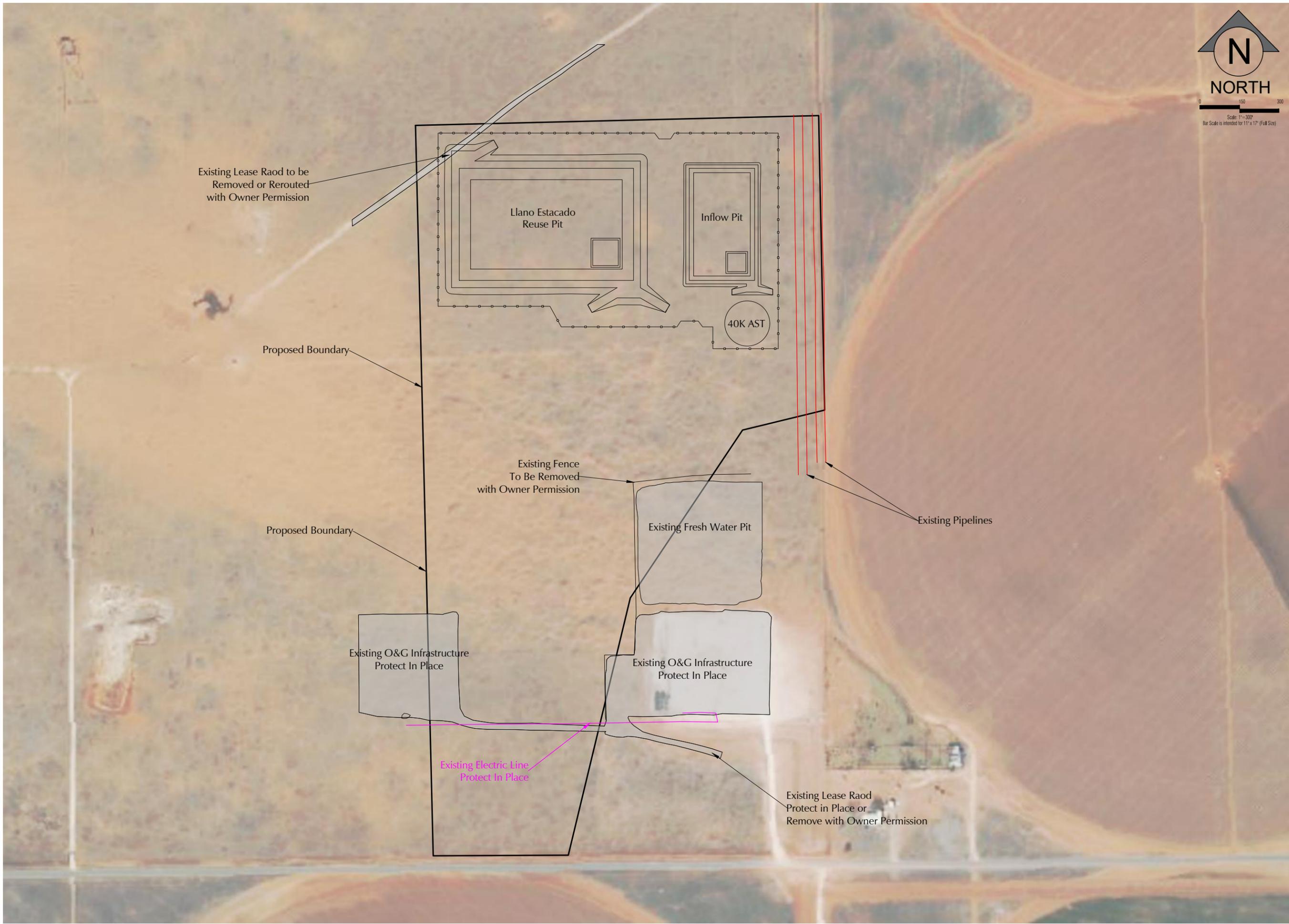
Bobbi Jo Crain - Cascade Services - (210) 632-8670

Envirotech Engineering Consulting - Mitchell Ratke, EIT (580)-234-8780
(Design Engineer)

Envirotech Engineering Consulting - Tyler Williams, PE (580)-234-8780
(Supervising Engineer)



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NO.	DATE	DESCRIPTION

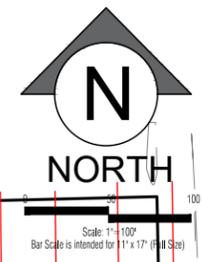
EXISTING SITE FEATURES
 Llano Estacado Reuse Facility
 Steward Energy
 Lea County, New Mexico

DATE:	May 2024
SCALE:	1" = 300'
DESIGNED BY:	M. Ratke
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.:	023122-00
SHEET NO.:	3 of 12

On Site Earthwork Quantities								
	Stratum	Surface 1	Surface 2	Fill Factor	Cut cubic yard	Fill cubic yard	NET cubic yard	Method
Llano Estacado	Facility EARTHWORK	Existing	Reuse Pit	20%	35,251	39,473	4,221 Fill	AutoCAD
Llano Estacado	Facility EARTHWORK	Existing	Inflow Pit	20%	10,236	3,381	6,855 Cut	AutoCAD

Liner Bid Quantities		
Type	Location	Square ft.
60 Mil HDPE	Storage Pits	342,400
200 Mil Geonet	Storage Pits	342,400
40 Mil HDPE	Storage Pits	342,400
Underlayment	Storage Pits	342,400

NOTE
Liner estimates account for both pits AND anchor trenches. Liner estimates do not account for waste or seam overlap

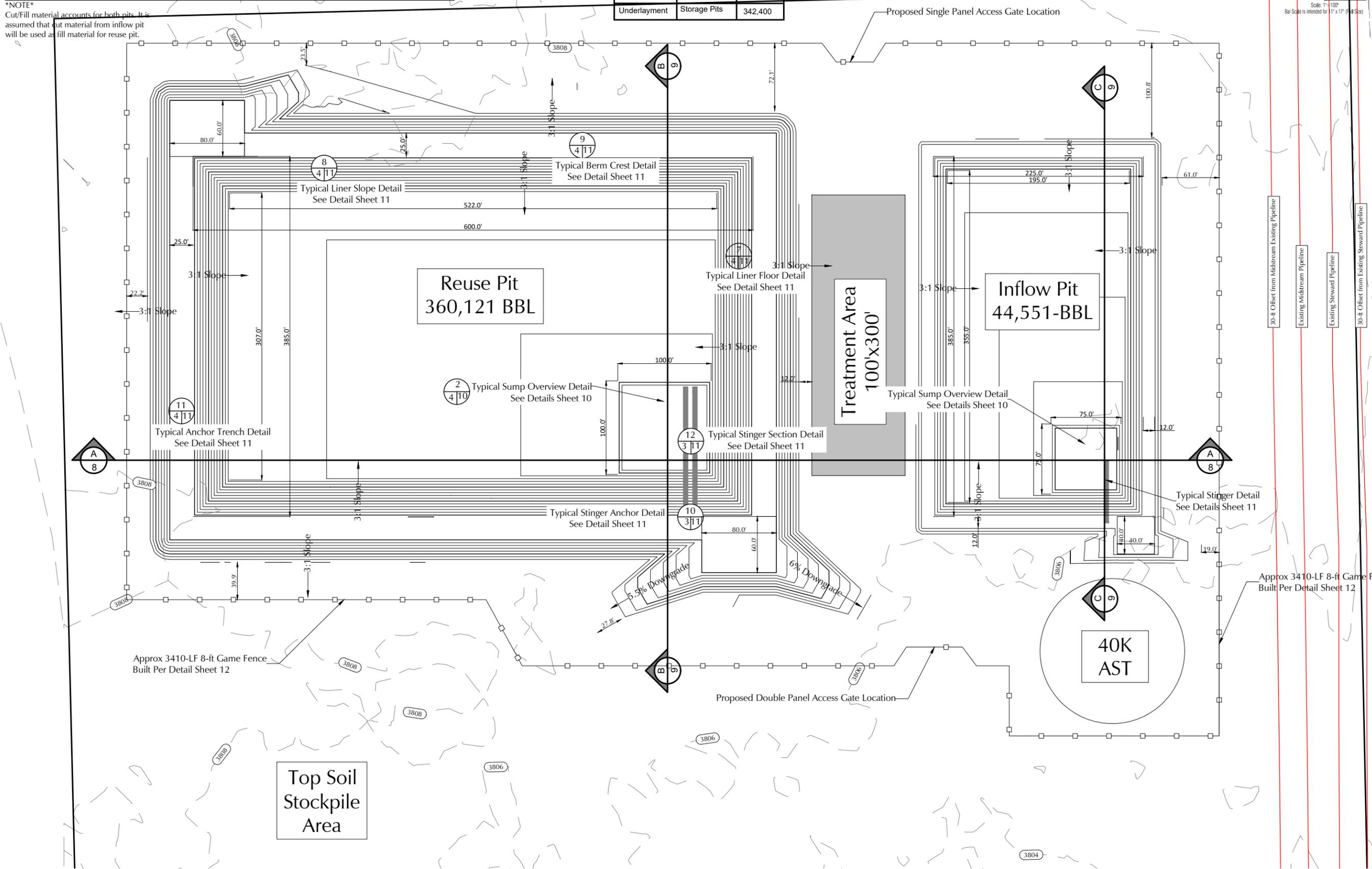


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NO.	DATE	DESCRIPTION

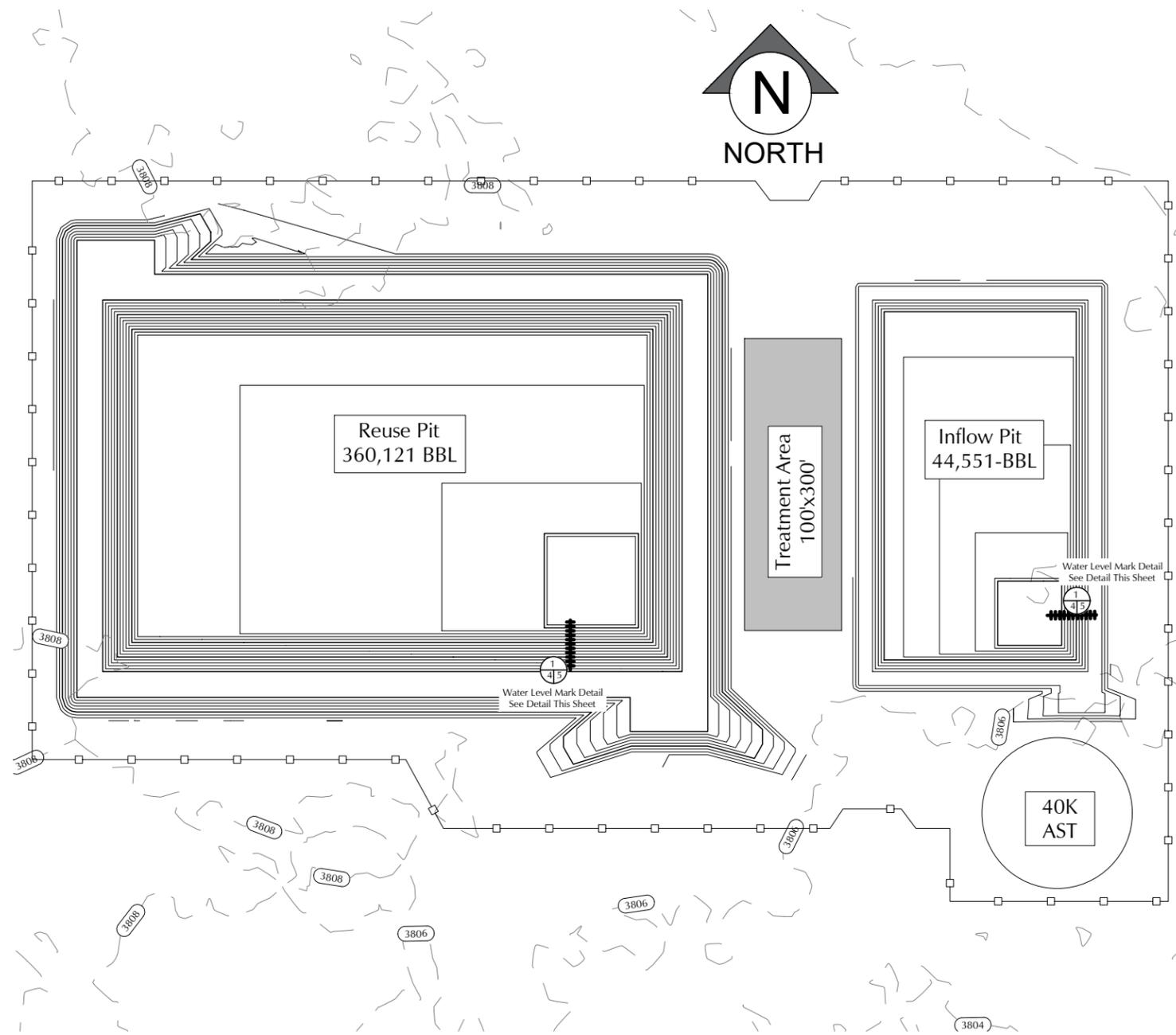
STEWART ENERGY



SITE PLAN
Llano Estacado Reuse Facility
Steward Energy
Lea County, New Mexico

DATE: May 2024
SCALE: 1" = 100'
DESIGNED BY: M. Ratke
DRAWN BY: M. Ratke
CHECKED BY: T. Williams
PROJECT NO. 023122-00
SHEET NO. 4 of 12

NO.	DATE	DESCRIPTION



Owner: **Steward Energy**
Site Name: **Llano Estacado Inflow Pit**

Lagoon Features	Top FB	Bottom	Max Liq. Level
Side slope Ratio	3		3
Maximum Depth (ft)	10.0		7.0
Lagoon Top Width (ft)	225	511	207
Lagoon Top Length (ft)	385	515	367
Maximum Total Vol (ft ³)	493,818		327,817
Maximum Total Vol (bbls)	87,958		58,390

Freeboard
Maximum Capacity
Storage Volumes
Floor Slope
Sump

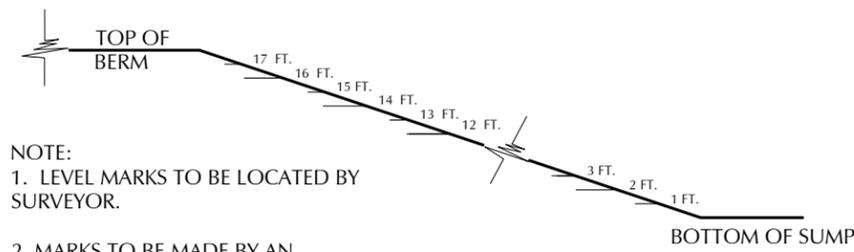
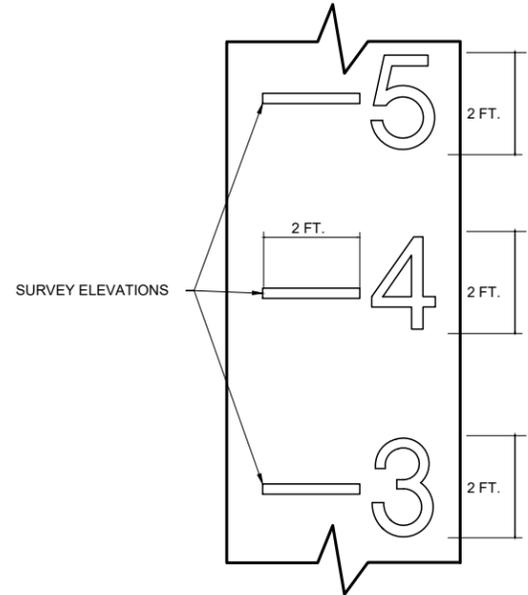
Elevation ft	Lagoon Lid Depth ft	Remaining Storage ft	Remaining Stor Vol ft ³	Remaining Storage gal	Remaining Storage bbls	Percent of Total Vol %	Vol in lagoon ft ³	Vol in Lagoon gal	Vol in Lagoon bbls	Vol in Lagoon ac-ft	Percent Total Vol %
3809.5	10.0	0.0	-	-	-	0%	493,818	3,694,252	87,958	11.34	100%
3808.5	9.0	1.0	131,883	634,356	15,104	17%	409,022	3,059,896	72,855	9.39	83%
3807.5	8.0	2.0	258,181	1,241,852	29,568	34%	327,817	2,452,400	58,390	7.53	66%
3806.5	7.0	3.0	379,021	1,823,093	43,407	49%	250,122	1,871,159	44,551	5.74	51%
3805.5	6.0	4.0	494,487	2,378,483	56,631	64%	175,881	1,315,769	31,328	4.04	36%
3804.5	5.0	5.0	604,746	2,908,830	69,258	79%	104,989	785,422	18,701	2.41	21%
3803.5	4.0	6.0	689,141	3,314,769	78,923	90%	50,726	379,483	9,035	1.16	10%
3802.5	3.0	7.0	734,740	3,534,098	84,145	96%	21,408	160,154	3,813	0.49	4%
3801.5	2.0	8.0	753,214	3,622,960	86,261	98%	9,530	71,292	1,697	0.22	2%
3800.5	1.0	9.0	761,276	3,661,737	87,184	99%	4,346	32,516	774	0.10	1%
3799.5	0.0	10.0	768,036	3,694,252	87,958	100%	-	-	-	-	0%

Owner: **Steward Energy**
Site Name: **Llano Estacado Reuse Pit**

Lagoon Features	Top FB	Bottom	Max Liq. Level
Side slope Ratio	3		2
Maximum Depth (ft)	17.0		15.0
Lagoon Top Width (ft)	600	522	588
Lagoon Top Length (ft)	385	307	373
Maximum Total Vol (ft ³)	2,688,442		2,238,226
Maximum Total Vol (bbls)	478,799		398,671

Freeboard
Maximum Capacity
Storage Volumes
Floor Slope
Sump

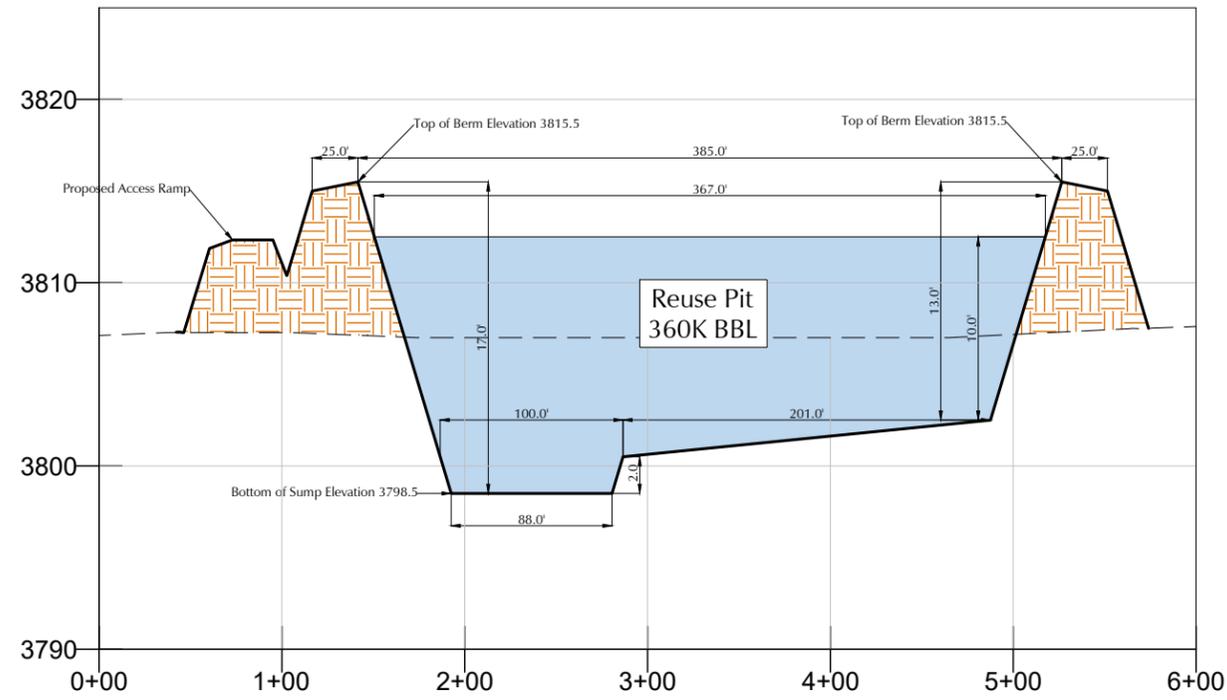
Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft ³	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol in lagoon ft ³	Gallons Storage gal	Vol in Lagoon bbls	Vol in Lagoon ac-ft	Percent Total Vol %
17.0	0.0	-	-	-	0.0%	2,688,442	20,112,231	478,863	61.72	100%
16.0	1.0	12,882	61,963	1,475	0.5%	2,460,415	18,406,366	438,247	56.48	92%
15.0	2.0	27,519	132,367	3,152	1.0%	2,238,226	16,744,166	398,671	51.38	83%
14.0	3.0	78,844	379,240	9,030	2.9%	2,021,802	15,125,099	360,121	46.41	75%
13.0	4.0	246,999	1,188,064	28,287	9.2%	1,811,071	13,548,622	322,586	41.58	67%
12.0	5.0	500,095	2,405,457	57,273	18.6%	1,605,961	12,014,196	286,052	36.87	60%
11.0	6.0	761,038	3,660,592	87,157	28.3%	1,406,401	10,521,286	250,507	32.29	52%
10.0	7.0	1,029,940	4,954,012	117,953	38.3%	1,212,318	9,069,351	215,937	27.83	45%
9.0	8.0	1,306,913	6,286,251	149,673	48.6%	1,023,640	7,657,853	182,330	23.50	38%
8.0	9.0	1,592,069	7,657,853	182,330	59.2%	840,296	6,286,251	149,673	19.29	31%
7.0	10.0	1,885,520	9,069,351	215,937	70.1%	662,213	4,954,012	117,953	15.20	25%
6.0	11.0	2,187,378	10,521,286	250,507	81.4%	489,318	3,660,592	87,157	11.23	18%
5.0	12.0	2,497,754	12,014,196	286,052	92.9%	321,542	2,405,457	57,273	7.38	12%
4.0	13.0	2,816,761	13,548,622	322,586	104.8%	158,811	1,188,064	28,287	3.65	6%
3.0	14.0	3,144,511	15,125,099	369,121	117.0%	50,694	379,240	9,030	1.16	2%
2.0	15.0	3,481,116	16,744,166	398,671	129.5%	17,694	132,367	3,152	0.41	1%
1.0	16.0	3,826,687	18,406,366	438,247	142.3%	8,283	61,963	1,475	0.19	0%
0.0	17.0	4,181,337	20,112,231	478,863	155.5%	-	-	-	-	0%



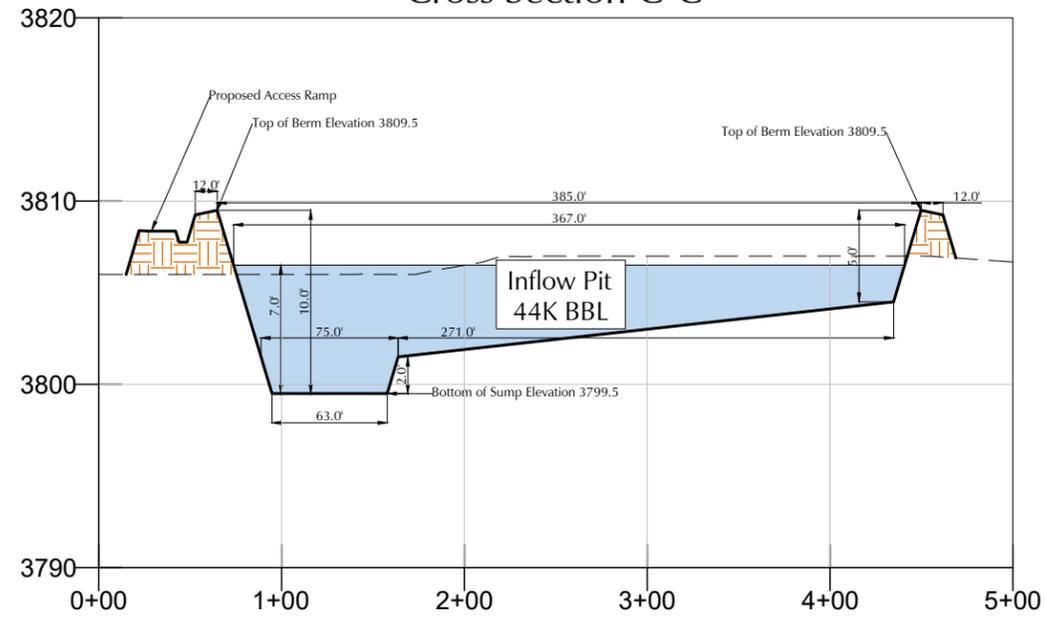
- NOTE:**
- LEVEL MARKS TO BE LOCATED BY SURVEYOR.
 - MARKS TO BE MADE BY AN EXTRUSION WELDER USING BLACK FILAMENT (OR WHITE FILAMENT ON BLACK LINER).
 - MARKS SHOULD BEGIN AT THE TOP OF BERM AND CONTINUE TO THE BOTTOM OF THE SUMP. (TOP OF BERM SHOULD READ 17-FT, BOTTOM OF SUMP +1-FT SHOULD READ 1-FT)
 - REFERENCE PIT CAPACITY TABLES FOR ACCURATE ELEVATIONS

WATER LEVEL MARKS
Not to Scale

Cross Section B-B



Cross Section C-C



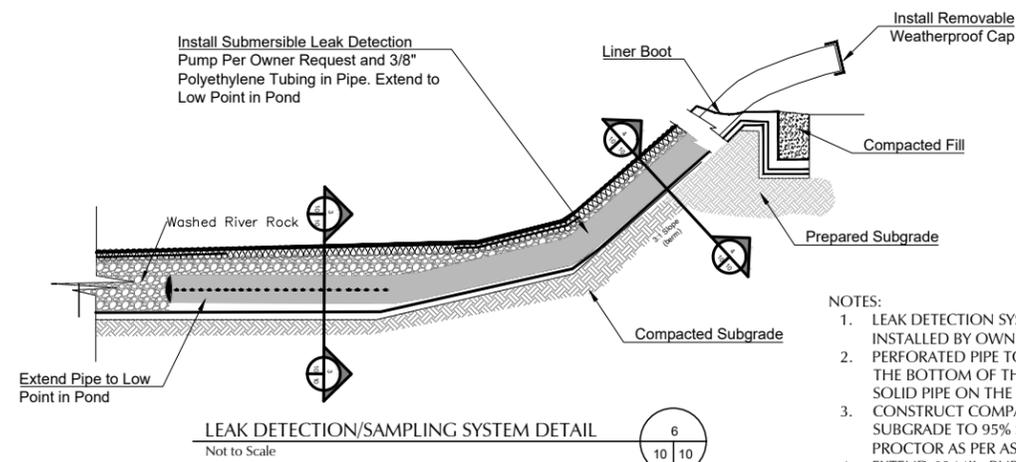
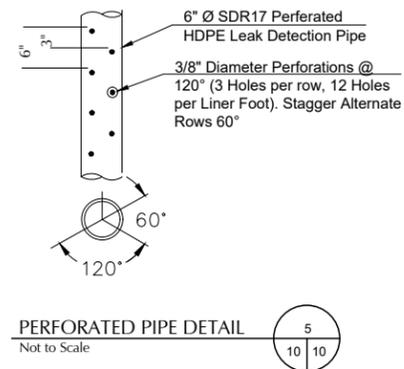
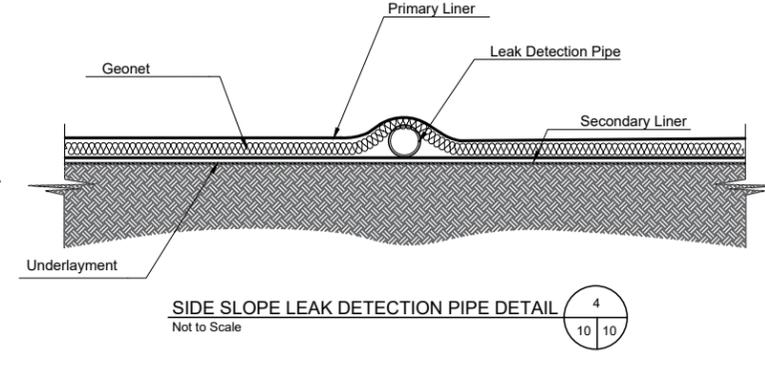
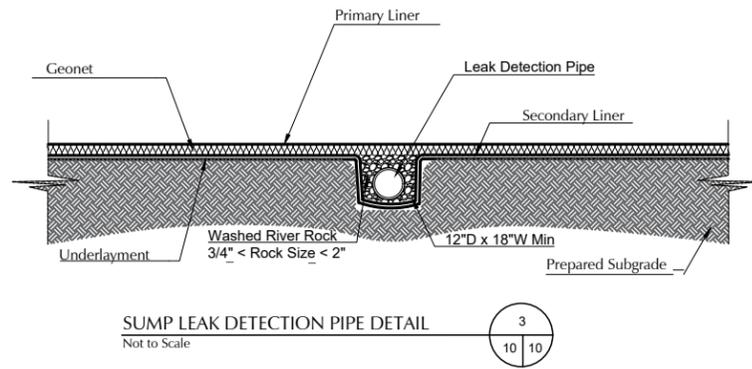
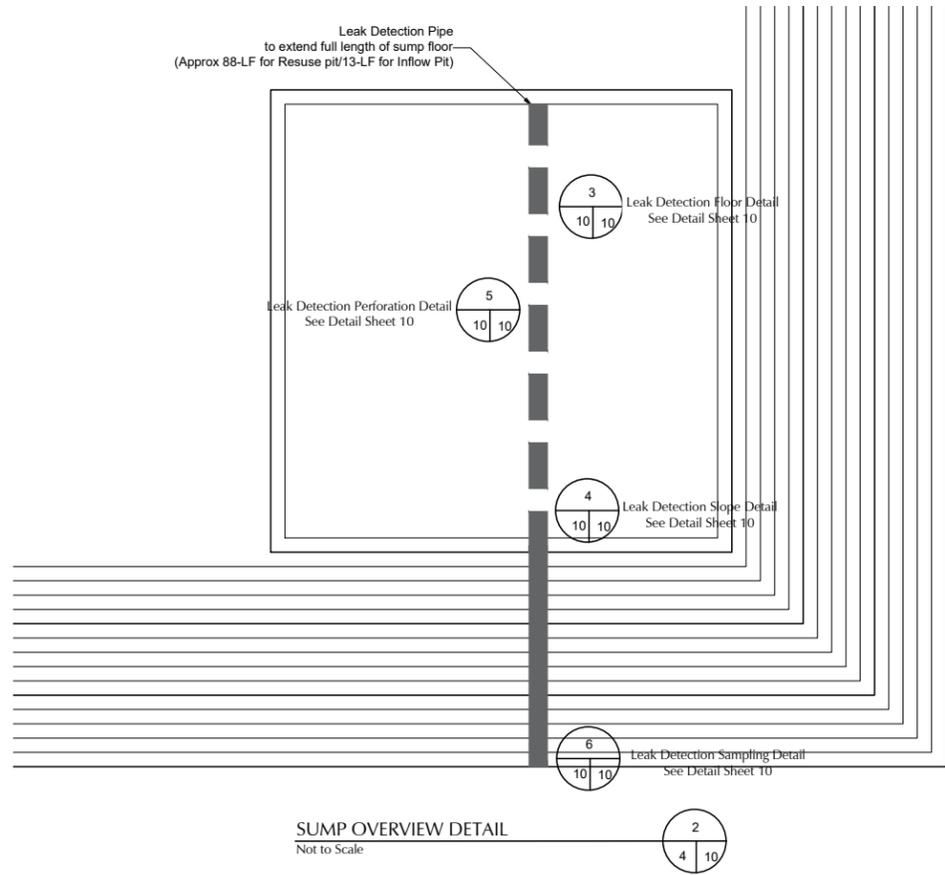
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NO.	DATE	DESCRIPTION



CROSS SECTIONS
 Llano Estacado Reuse Facility
 Steward Energy
 Lea County, New Mexico

DATE:	May 2024
SCALE:	NTS
DESIGNED BY:	M. Ratke
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023122-00
SHEET NO.	9 of 12



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



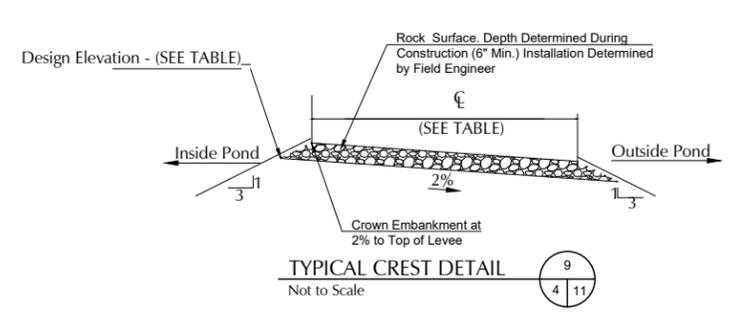
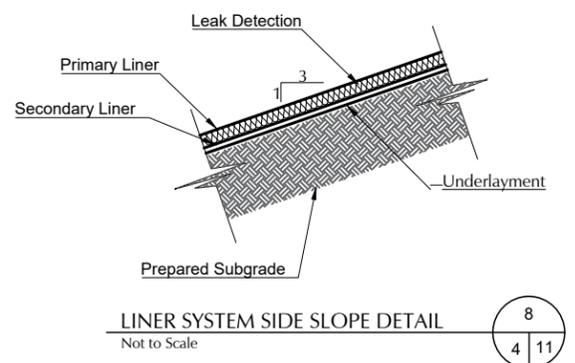
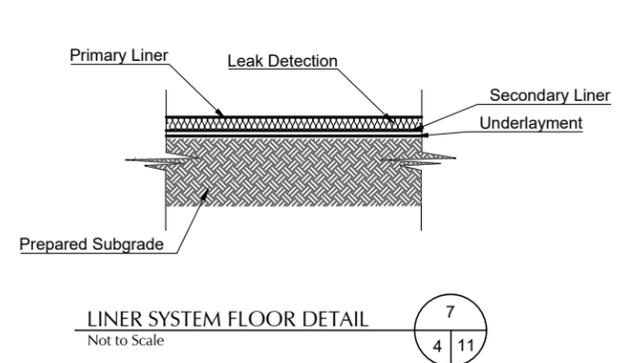
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NO.	DATE	DESCRIPTION

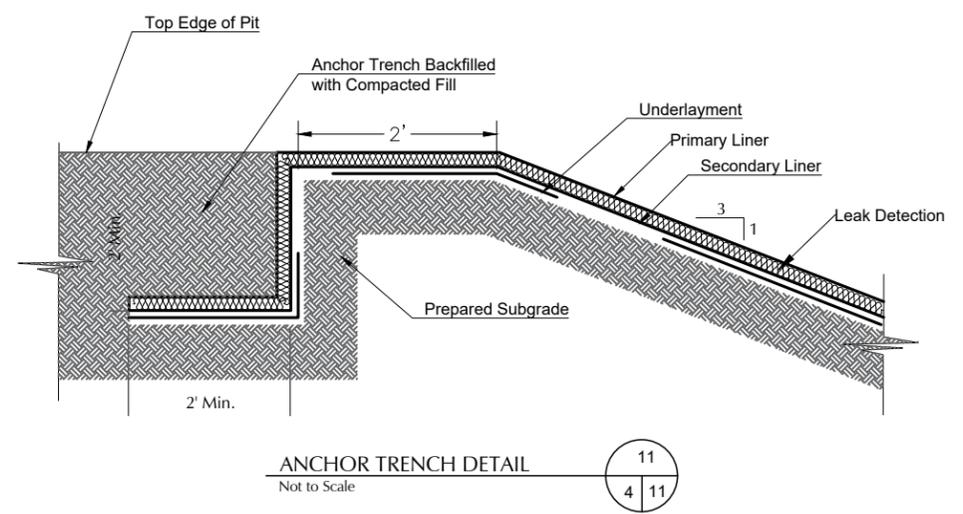
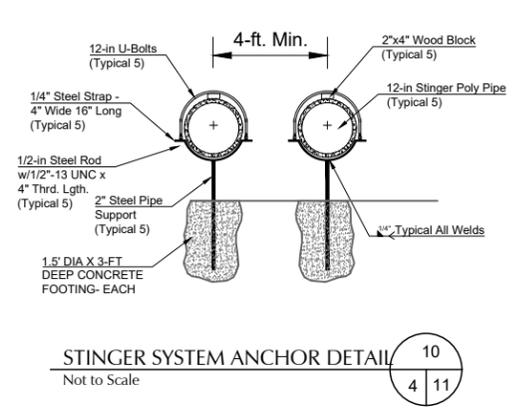


SUMP DETAILS
Llano Estacado Reuse Facility
Steward Energy
Lea County, New Mexico

DATE:	May 2024
SCALE:	NTS
DESIGNED BY:	M. Ratke
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023122-00
SHEET NO.	10 of 12

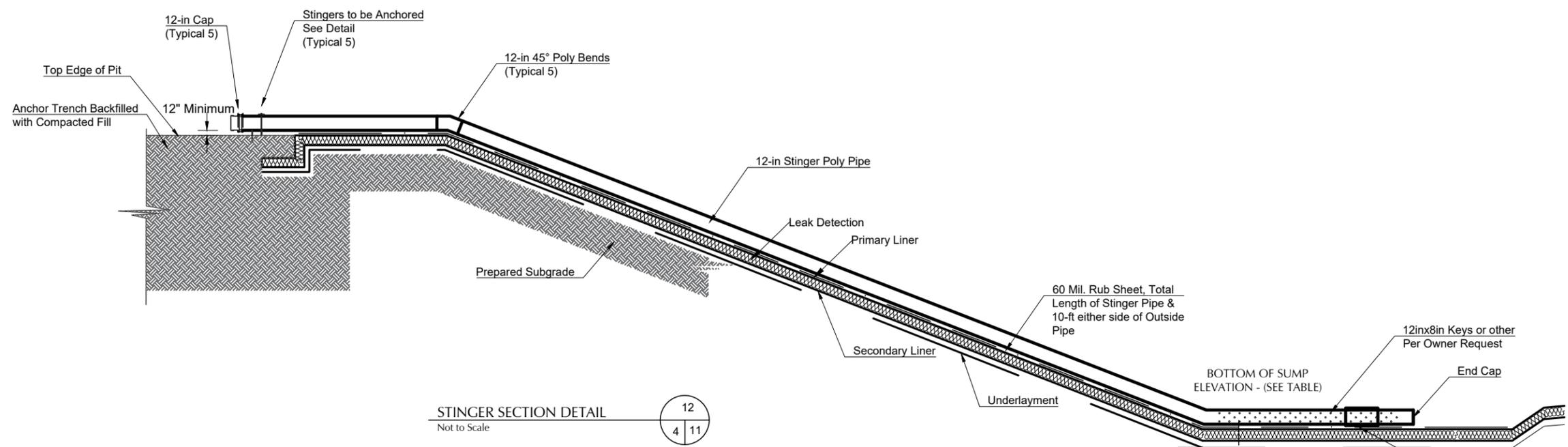


- GENERAL NOTES:
1. PREPARED SUBGRADE MEANS COMPACTED SMOOTH SUBGRADE FREE OF ROCK, ROOTS, WOOD DEBRIS, CONCRETE RUBBLE AND ANY SHARP OBJECTS THAT MIGHT PUNCTURE THE HDPE LINER.
 2. ALL INTERIOR SLOPES AND TOP OF BERMS TO BE SMOOTH DRUM ROLLED.
 3. ALL EMBANKMENT SLOPES SHALL HAVE A RATIO OF 3:1, COMPACTED EARTH EMBANKMENTS TO BE CONSTRUCTED WITH 12 INCH (MAXIMUM LOOSE LIFTS, COMPACTED TO 95% STANDARD PROCTOR DENSITY.
 4. TOPSOIL MUST BE STRIPPED AND STORED IN THE TOPSOIL STORAGE AREA UNTIL CONSTRUCTION IS COMPLETE. TOPSOIL WILL THEN BE PLACED ON EXTERIOR SLOPES TO REACH FINAL GRADE
 5. PERFORM GEOTECHNICAL ANALYSIS ON EXISTING SOIL TO CONFIRM SOIL IS SUITABLE FOR USE IN THE LEVEE.

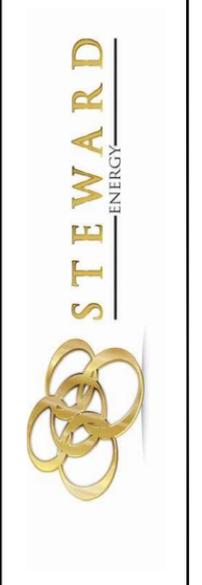


PROPOSED PIT REFERENCE TABLE

DETAIL	DESCRIPTION
PRIMARY LINER	60-Mil HDPE Smooth Liner/Textured Rub Sheets
LEAK DETECTION	200-Mil Geonet
SECONDARY LINER	40-Mil HDPE Smooth Liner
UNDERLAYMENT	8oz Geotextile
SUMP	100'x100'x2', Bottom Elevation 3798.5/75'x75'x2' Bottom Elevation 3799.5
BERM (ROAD CREST)	25' Wide, Top Of Berm Elevation 3815.5/12' Wide, Top of Berm Elevation 3809.5
LEAK DETECTION PIPING	6-in DR11. Pipe Perforated on Floor, Solid on Slopes



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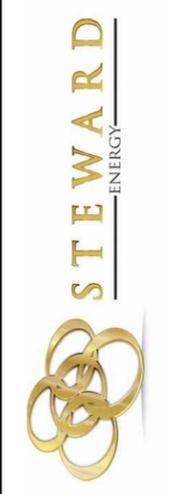


LINER DETAILS
Llano Estacado Reuse Facility
Steward Energy
Lea County, New Mexico

DATE: May 2024
SCALE: NTS
DESIGNED BY: M. Ratke
DRAWN BY: M. Ratke
CHECKED BY: T. Williams
PROJECT NO. 023122-00
SHEET NO. 11 of 12

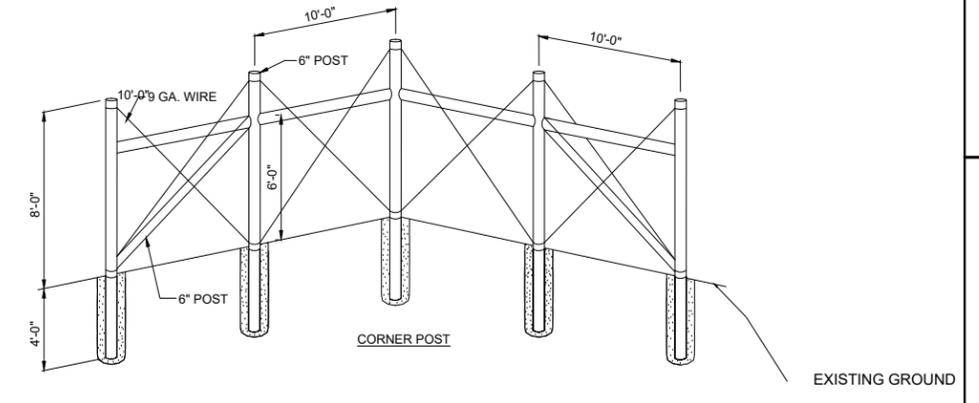
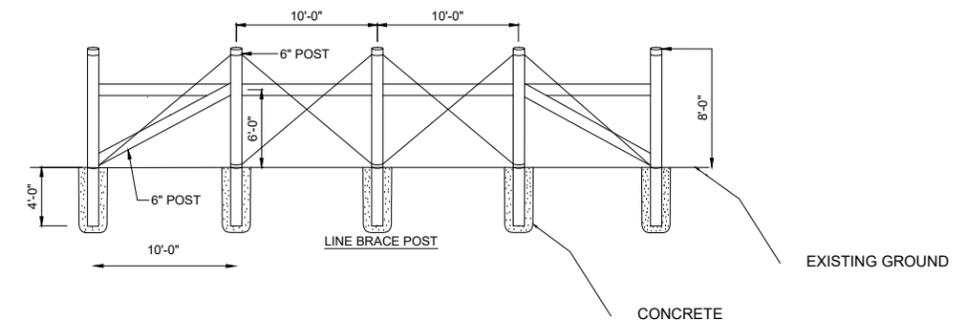
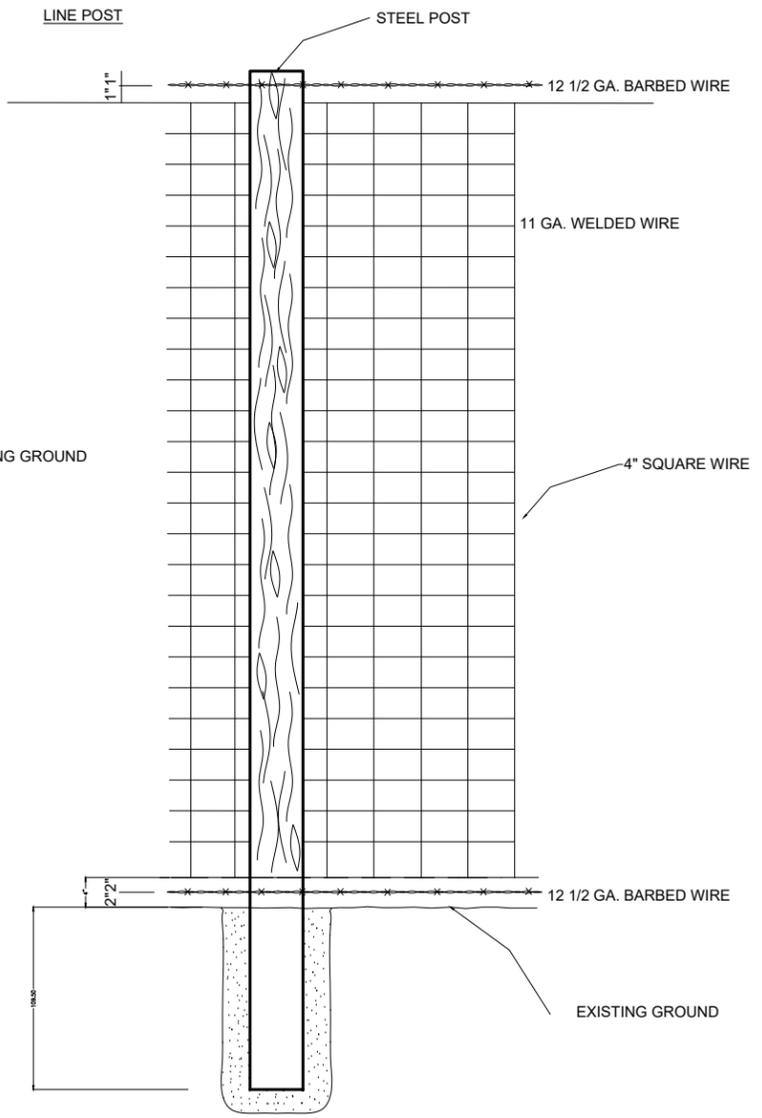
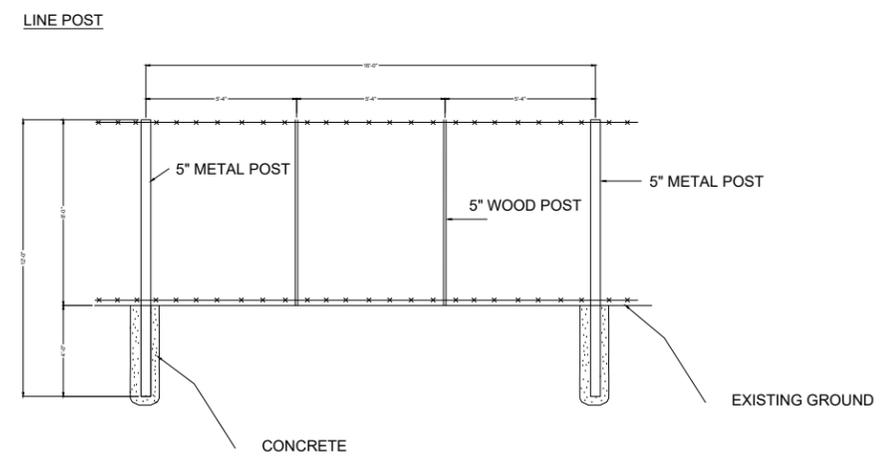
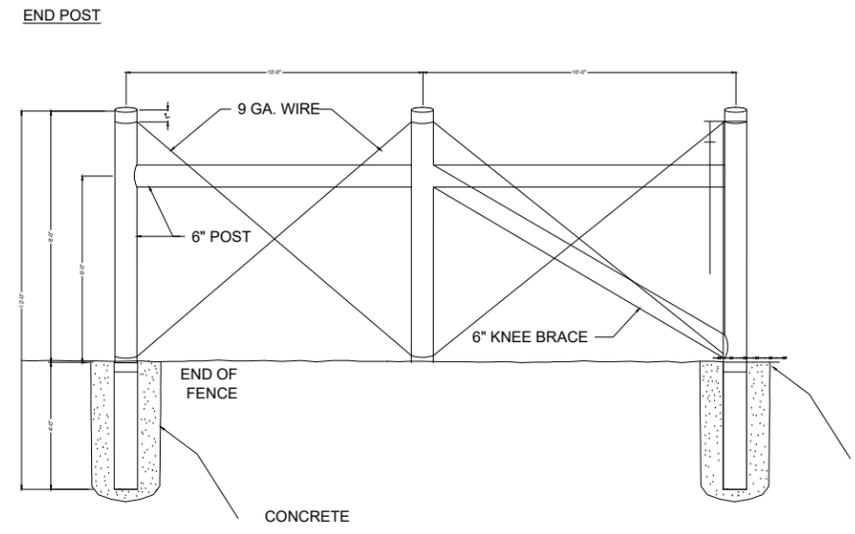
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NO.	DATE	DESCRIPTION



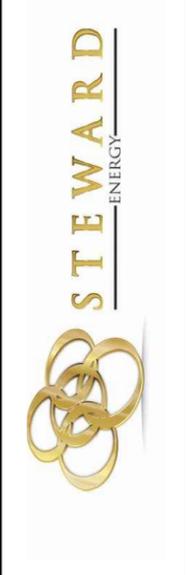
FENCE DETAILS
Llano Estacado Reuse Facility
Steward Energy
Lea County, New Mexico

DATE:	May 2024
SCALE:	NTS
DESIGNED BY:	M. Ratke
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023122-00
SHEET NO.	12 of 12



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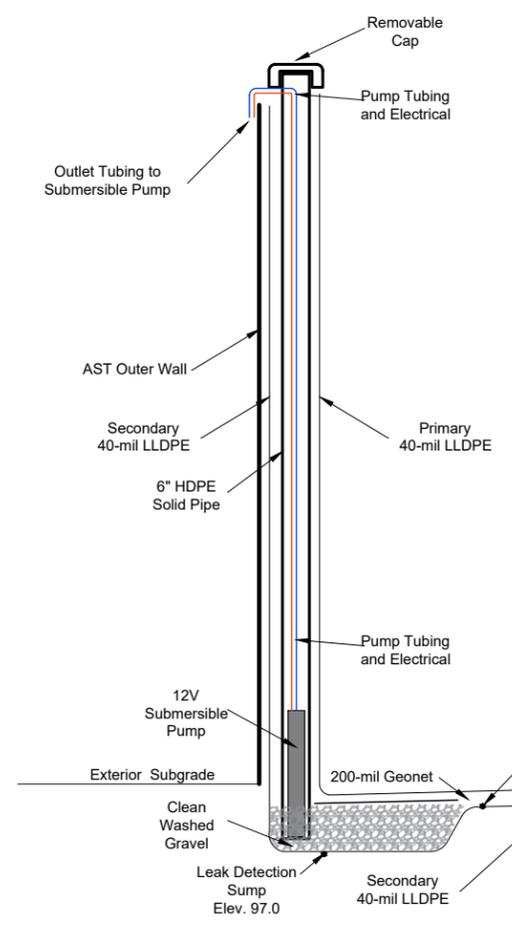
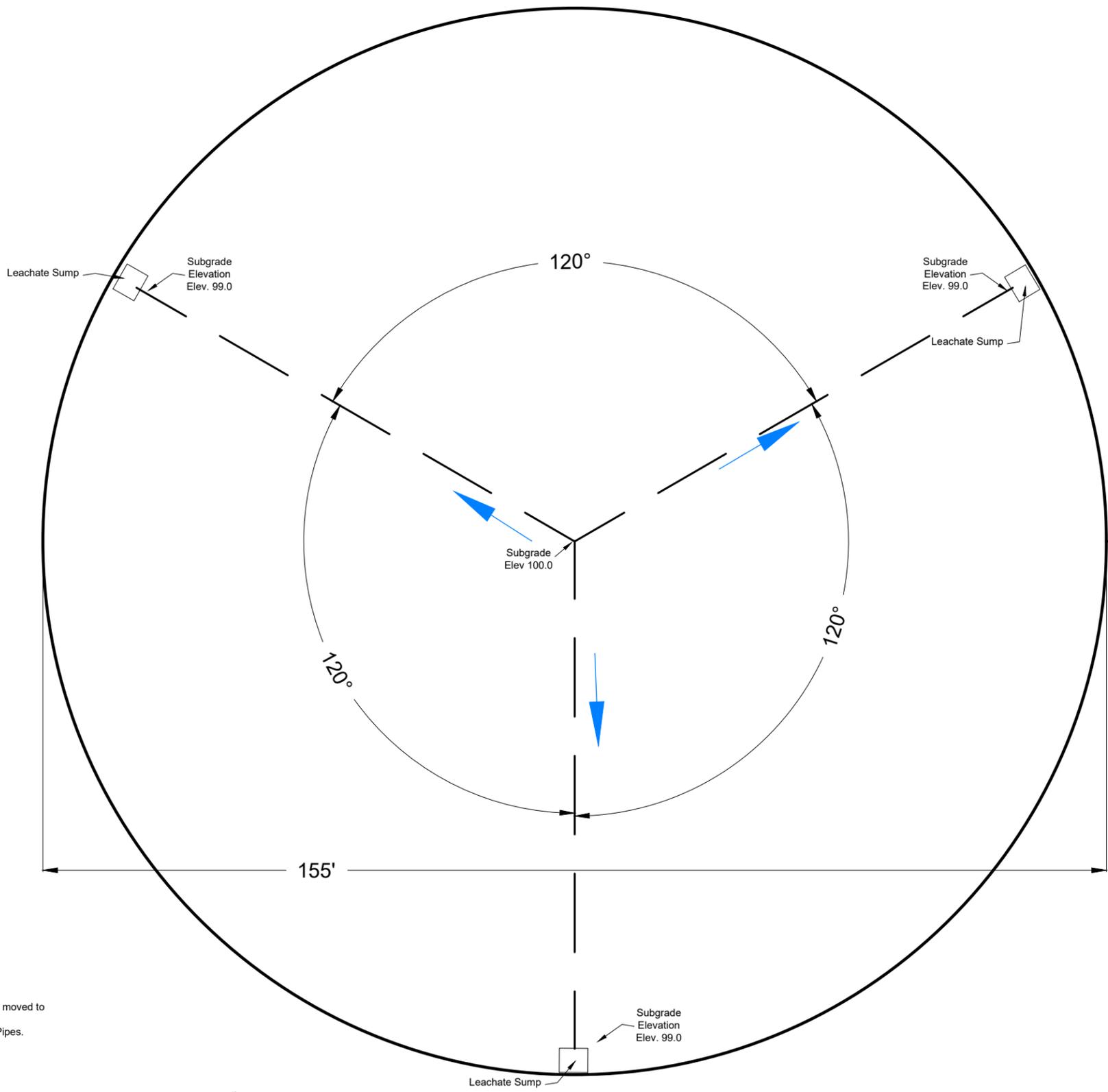
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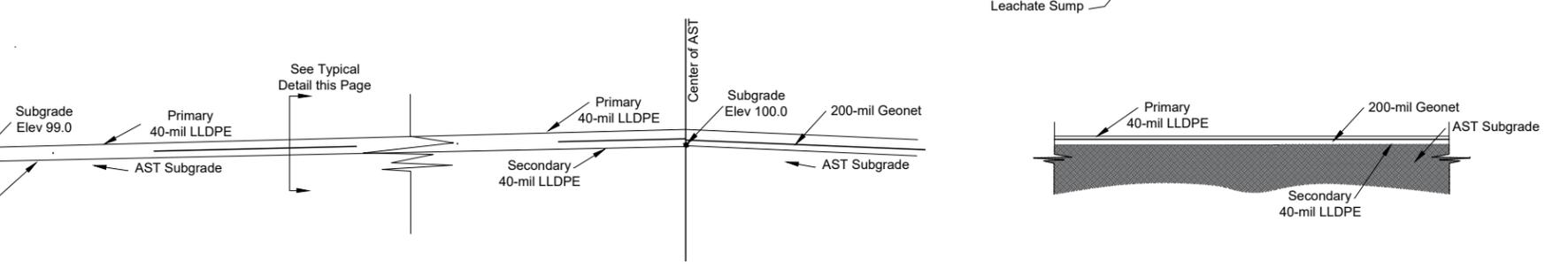
AST LEAK DETECTION
 Llano Estacado Reuse Facility
 Steward Energy
 Lea County, New Mexico

DATE:	May 2024
SCALE:	NTS
DESIGNED BY:	M. Ratke
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.:	023122-00
SHEET NO.:	Figure 1

Utilize Leak Detection System below for Influent AST
 Leachate Flow Direction



- General Notes:**
- 12V Submersible Pump shall be mobile to be moved to each of the 3 standpipes as needed.
 - Level Sensor Probe in 1 of 3 Leak Detection Pipes.
 - All HDPE Piping to be SDR 17



EFFECTIVE WIDE-AREA BIRD CONTROL!

Mega Blaster PRO sonic bird repeller covers 30 acres!



Mega Blaster PRO uses intermittent distress calls to create a "danger zone" that frightens infesting birds away for good. PREDATOR cries help scare all the birds.



- NEMA Rated Case
- Crystal-Clear Digital Sounds

- Laughing Gull
- Ring-Billed Gull
- Herring Gull
- California Gull
- Black-Headed Gull
- Glaucous-Winged Gull
- Double Crested Cormorant
- Marsh Hawk

Perfect for Landfills, Airfields, Fish Farms, Farm Fields or any multi-acre facility.

Our most powerful system features two high-output amplifiers that drive our specially-designed 20 speaker tower. The intense sound output covers up to 30 acres (12 hectares).

It features solid-state electronics mounted inside a NEMA-type control box, suitable for most any application.

The generating unit mounts easily to a post or pole using the included hardware. The unit comes pre-recorded in four different configurations for the most common bird infestations.

Choose any or all of the 8 sounds, including predators to give the birds even more of a sense of danger. Customize by choosing volume and silent time between sounds.

Mega Blaster PRO

Complete system includes the generating unit with two built-in high-output amplifiers, 20-speaker tower with audio cables, 40 watt solar panel, battery clips and all mounting hardware.

CONFIGURATIONS AVAILABLE:

- Agricultural # MEGA-AG
- Crow / Raven # MEGA-CROW
- Woodpecker # MEGA-WP
- Marine / Gull # MEGA-MAR



The Bird Control 'X'-Perts

NOTE: This unit is capable of sound output up to 125 decibels. **HEARING PROTECTION IS RECOMMENDED.**

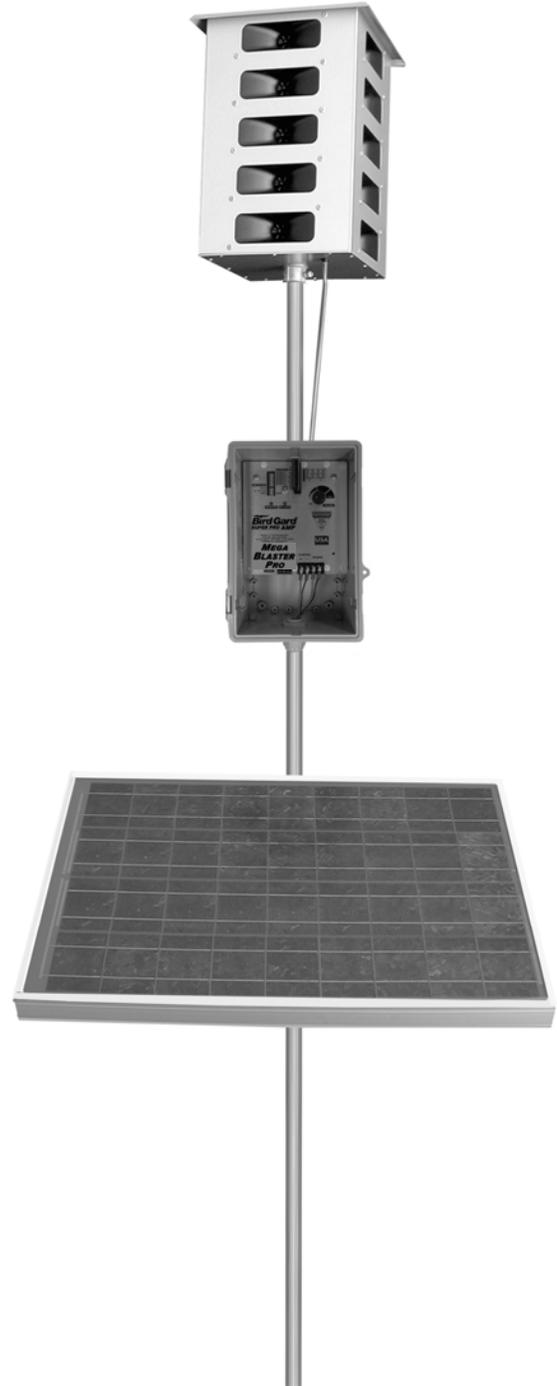


MEGA BLASTER PRO



User's Manual

Overview	2
Bird Control Management Guidelines	3
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Assembly	5
Control Unit	5
Solar Panel	5
Placement	6
Building a Mounting Pole or Mast	7
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Recordings	10
Mode Settings	10
Warranty	12



Overview

The Bird-X Mega Blaster Pro utilizes the innate power of the natural survival instincts of birds to effectively repel them. Digital recordings of distressed and alarmed birds, along with the sounds made by their natural predators are broadcast through high fidelity weather-resistant speakers over the top of areas. This action triggers a primal fear and flee response. Pest birds soon relocate to where they can feed without feeling threatened.

Your Bird-X Mega Blaster Pro system consists of:

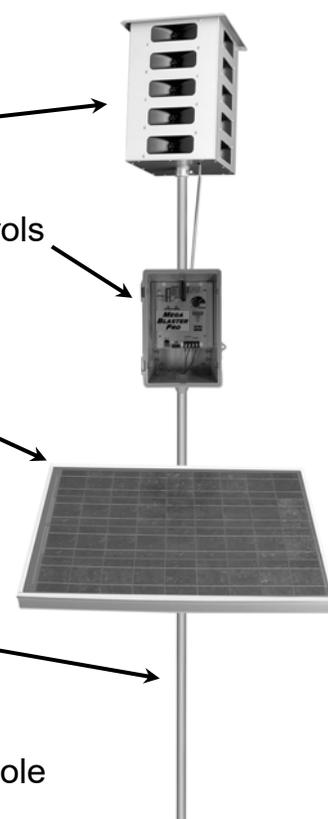
20-Speaker Tower broadcasts the bird sounds

Control Unit produces the bird sounds and contains all operational controls

Solar Panel recharges the 12-volt deep cycle battery

Items needed but not included:

- (1) **Mounting Pole** or **Mast** tall enough to raise the 20-Speaker Tower at least 5 feet above the top of the areas, trees or other obstructions
- (1) **12-volt Deep Cycle Battery** (RV/Marine) Group 27 or larger wet cell
- (1) **T-Post** or similar (Optional) may be needed to support the mounting pole
- (1) **Bailing Wire** or **zip-tie** (Optional) to secure the Mounting Pole to the T-Post



CAUTION: THE MEGA BLASTER PRO IS CAPABLE OF PRODUCING SOUNDS UP TO 125 DECIBELS. PROPER HEARING PROTECTION MUST BE WORN ANYTIME THE UNIT IS TURNED ON.



Bird Control Management Guidelines

An active bird control management program is a key to successfully repelling pest birds. Bird feeding patterns may take several days or weeks to break. Follow all suggestions for maximum effectiveness. Read all instructions prior to installation.

For best results:

- **It is extremely important to fully protect your entire area from birds.** Any areas not fully protected will allow birds to begin feeding at the fringes of the sound coverage. They will soon become bolder and learn the sounds are nothing to fear. This will cause the effectiveness to diminish. Complete Bird-X product coverage forces birds to leave the area entirely.
- Install the Mega Blaster Pro unit at least two weeks before birds are attracted to your area. It is much easier to keep birds away before they have found a food source than it is to repel them once they have developed a feeding pattern.
- Most birds begin feeding from the perimeter of an area. Place Mega Blaster Pro units so the sound protection covers past the edges of the area.
- Birds will often use tall trees for roosting and observation. If birds are in bordering trees it is necessary to position the units so the sound protection covers the trees as well.
- Mount the 20-Speaker Tower at least five feet above trees, areas and structures for maximum coverage. The higher the better. Sound will disperse or reflect off structures or foliage. Mount control unit out of direct sun, if possible.
- When first installed, run Mega Blaster Pro units at FULL volume and on SHORT time off periods. This ensures maximum "bird stress" and creates a hostile environment.
- Watch for changes in bird activity and adjust the location of your Mega Blaster Pro unit if needed.
- **Check the battery and unit settings often to insure continuous bird control. Be certain that the system is not turned down or has a dead battery. Field hands or harvesters may turn down the volume.**
- Changing settings and switches often helps to prevent bird habituation. Periodically change the switch settings of the eight sounds (turning them ON or OFF). NEVER turn OFF the distress calls of the target birds you are trying to repel and always keep at least one predator bird sound turned ON.
- If different bird species enter the protected area and begin causing damage contact us immediately for an updated Sound Recording Card designed to repel the new invading birds.
- Remember that the Mega Blaster Pro system is a management tool, and should be used as part of your overall bird control strategy, sometimes in conjunction with other bird control techniques and devices.

Be aware that under extreme drought or other adverse conditions, birds will disregard all deterrents and risks in order to survive

R.K. FROBEL & ASSOCIATES
Consulting Engineers

Technical Memorandum: 40-mil HDPE as Alternative Secondary Liner System for In Ground Recycling Containment Facilities
NMAC 19.15.34.12 A

I have investigated the suitability of application for 40 mil HDPE geomembrane as an equivalent secondary liner to 30 mil scrim reinforced LLDPE (LLDPEr) in the application for In Ground Recycling Containment facilities. *In summary, it is my professional opinion that the specified 40 mil HDPE geomembrane will provide a secondary liner system that is equal to or better than 30 mil scrim reinforced LLDPEr and will provide the requisite protection of fresh water, public health and the environment for many years when engineering design provides requisite site/soil/slope preparation and when used in concert with requisite primary liners and drainage layers.*

It is understood that the lining system under discussion is composed of a 60 mil HDPE Primary liner, geonet drainage layer and a 40 mil HDPE Secondary liner. *In consideration of the secondary lining system application, size of impoundment and depth, design details as well as the chemical nature of typical processed water, it is my professional opinion that the 40 mil HDPE geomembrane will provide the requisite barrier against processed water loss and will function effectively as a secondary liner.*

The following are discussion points that hopefully will exhibit the equivalency of a 40 mil HDPE secondary liner to that of a 30 mil LLDPEr.

The nature and formulation of the 40 mil HDPE resin is the same as the Primary 60 mil HDPE. The major difference is that the 40 mil HDPE is lower in thickness (more flexible and less puncture resistant). However, in covered conditions, HDPE will resist aging and degradation and remain intact for many decades. In fact, a secondary liner of 40 mil HDPE will outlast an exposed 60 mil HDPE liner. According to the Geosynthetic Research Institute (GRI) study on lifetime prediction (GRI Paper No. 6), the half life of HDPE (GRI GM 13) exposed is > 36 years and the half-life of HDPE covered or buried is greater than 100 years. It is understood that in order to ensure compliance of materials, the primary 60 mil HDPE to be used must meet or exceed GRI GM 13 Standards. Likewise, the secondary liner that is not exposed to the same environmental and chemical conditions must meet or exceed GRI GM 13 for non-reinforced HDPE. Adhering to the minimum requirements of the GRI Specifications, 40 mil HDPE when used as a secondary liner will be equally as protective as the primary 60 mil HDPE liner (reference: www.geosynthetic-institute.org/grispecs) and equally as protective as a 30 mil scrim reinforced LLDPEr liner.

Durability of Geomembranes is directly affected by exposure conditions. Buried or covered geomembranes are not affected by the same degradation mechanisms (UV, Ozone, Chemical, Stress, Temperature, etc) as are fully exposed geomembranes. In this regard, the secondary liner material and thickness can be much less robust than the fully exposed primary liner which in this case is 60 mil HDPE. This is also the case for

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landfill lining systems where the secondary geomembrane in a bottom landfill cell may be 40 mil HDPE.

Thermal Fusion Seaming Requirements. Thermal seaming and QC seam test requirements for geomembranes are product specific and usually prescribed by the sheet manufacturer. Dual wedge thermal fusion welding is commonly used on HDPE and QC testing by air channel (ASTM D 5820) is fully acceptable and recognized as an industry standard. In this regard, there should be no exception requirement for seaming and QC testing as both the Primary and Secondary geomembranes are HDPE. This is fully covered in comprehensive specifications for both the Primary and Secondary geomembranes (Reference: www.ASTM.org/Standards).

Potential for Leakage through the Primary and Secondary Liners. Leakage through geomembrane liners is directly a function of the height of liquid head above any hole or imperfection. The geonet drainage media provides immediate drainage to a low point or sump and thus no hydrostatic head or driving gradient is available to push leakage water through a hole in the secondary liner. In this regard, secondary geomembrane materials can be (and usually are) much less in thickness and also polymer type. Hydraulic Conductivity through the 40 mil HDPE liner material is extremely low due to the polymer type, structure and crystallinity and exceeds requirements of EPA SW-846 Method 9090A.

Chemical Attack. Chemical attack to polymeric geomembranes is directly a function of type of chemical, temperature and exposure time. Again, the HDPE Primary provides the chemically resistant liner and is QC tested to reduce potential defects or holes. If there is a small hole, the geonet drain takes any leakage water immediately to the sump for extraction. Thus, exposure time is very limited on a secondary liner in addition to low temperature, little volume and virtually no head pressure. In this regard, a chemically resistant geomembrane material such as 40 mil HDPE can be specified for the secondary and is a fully acceptable alternate to 30 mil scrim reinforced LLDPEr.

Mechanical Properties Characteristics. Geomembranes of different polymer and/or structure (i.e., reinforced vs non-reinforced) cannot be readily compared using such characteristics as tensile stress/strain, tear, puncture and polymer requirements. For a 40 mil HDPE liner material to function as a Secondary liner it should meet or exceed the manufacturers minimum requirements for Density, Tensile Properties, Tear, Puncture as well as other properties such as UV resistance. The sheet material must also meet or exceed GRI GM 13 minimum requirements. *In this regard, a 40 mil HDPE will be equivalent to a 30 mil LLDPEr as a secondary liner for the conditions listed below:*

- *The subgrade or compacted earth foundation will be smooth, free of debris or loose rocks, dry, unyielding and will support the lining system.*
- *The side slopes for the containment shall be equal to or less than 3H:1V.*
- *The physical properties and condition of the subgrade or liner foundation*

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Consulting Engineers

(i.e., density, slope, moisture) will be inspected and certified by a Professional Engineer that it meets or exceeds specification requirements.

- Immediately prior to installation, the installation contractor shall inspect and sign off on the subgrade conditions that they meet or exceed the HDPE manufacturer and installers requirements.
- A protective geotextile will be placed on the finished and accepted subgrade between subgrade and the 40 mil HDPE Secondary liner.
- A 200 mil geonet will be placed over the 40 mil HDPE Secondary Liner.
- A 60 mil HDPE Primary liner will be placed over the 200 mil geonet drainage layer.

If you have any questions on the above technical memorandum or require further information, give me a call at 720-289-0300 or email geosynthetics@msn.com

Sincerely Yours,

RK Frobel

Ronald K. Frobel, MSCE, PE



References:

NMAC 19.15.34.12 A DESIGN AND CONSTRUCTION SPECIFICATIONS FOR A RECYCLING CONTAINMENT

Geosynthetic Research Institute (GRI) Published Standards and Papers 2017
www.geosynthetic-institute.org

ASTM Geosynthetics Standards 2017
www.ASTM.org/Standards

DESIGN/CONSTRUCTION PLAN

Design and Construction Plan In Ground Containments

This plan addresses construction of the earthen containments.

Magrym Engineers is providing the design of the containment and their plans are presented in this submission.

Dike Protection and Structural Integrity

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

Stockpile Topsoil

Where topsoil is present, prior to constructing containment, the operator will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.

Signage

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

- the operator's name,
- the location of the site by quarter-quarter or unit letter, section, township and range, and
- emergency telephone numbers

Fencing

The operator will provide for a fence to enclose the recycling containment in a manner that deters unauthorized wildlife and human access. As specified in the design drawings, the operator will employ a chain-link or game fence. If required by the District Office, the operator will add four-strands of barbed wire to comply with the text of the Rule. Because feral pigs, javelina and deer are present in the area, a chain link or game fence is required in order to comply with Section 19.15.34.12 D.1 of the Rule because pigs will move beneath the lower strand of a 4-strand, 4-foot high barbed wire fence and deer will jump over. However, 19.15.34.12 D.2 requires "a four-foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level". Therefore, a barbed wire specification will be added to the game fence to avoid a variance if required by the OCD District Office.

19.15.34.12 A Design and Construction Specifications

(1). The operator shall design and construct a recycling containment to ensure the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall.
(8). The operator of a recycling containment shall design the containment to prevent run-on of surface water. The containment shall be surrounded by a berm, ditch or other diversion to prevent run-on of surface water

19.15.34.12 B. Prior to constructing containment, the operator shall strip and stockpile the topsoil for use as the final cover or fill at the time of closure

19.15.34.12 C. Signs.

The operator shall post an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The operator shall post the sign in a manner and location such that a person can easily read the legend. The sign shall provide the following information: the operator's name, the location of the site by quarter-quarter or unit letter, section, township and range, and emergency telephone numbers

19.15.34.12 D. Fencing

(1) The operator shall fence or enclose a recycling containment in a manner that deters unauthorized wildlife and human access and shall maintain the fences in good repair. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

(2) Recycling containments shall be fenced with a four-foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level.

Design and Construction Plan In Ground Containments

As stated in the O&M plan, the operator will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Netting and Protection of Wildlife

The perimeter game/chain-link fence will be effective in excluding stock and most terrestrial wildlife. If requested by the surface owner, the game fence can include a fine mesh from the base to 1 foot above the ground to exclude the small reptiles (e.g. dune sagebrush lizard).

The recycling containment will be protective of wildlife, including migratory birds through the implementation of an Avian Protection Plan, routine inspections and the perimeter fence.

The avian protection plan includes the use of a Bird-X Mega Blaster Pro¹ as a primary hazing program for avian species. The device will be equipped with sounds suitable for the Permian Basin environment. In addition to this sonic device, staff will routinely inspect the containment for the presence of avian species and, if detected, will use a blank cartridge or shell in a handgun, starter pistol or shotgun as additional hazing. Decoys of birds of prey may be placed on the game fence and other roosts around the open water to provide additional hazing.

The O&M plan calls for the operator to inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

Earthwork

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

This volume provides the stamped drawings for the containment with the following design/construction specifications:

- a) levee has inside grade no steeper than two horizontal feet to one vertical foot (2H: 1V).

19.15.34.12 E Netting.

The operator shall ensure that a recycling containment is screened, netted or otherwise protective of wildlife, including migratory birds. The operator shall on a monthly basis inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

19.15.34.12 A

(2) A recycling containment shall have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile is required under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity...

Design and Construction Plan In Ground Containments

- b) levee outside grade is no steeper than three horizontal feet to one vertical foot (3H: 1V)
- c) top of the levee is wide enough to install an anchor trench and provide adequate room for inspection and maintenance.
- d) The containment floor design calls for a slope toward the sump in the corner(s).

Liner and Drainage Geotextile Installation

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

The primary (upper) liner is a geomembrane liner composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. It is 60-mil HDPE. The secondary liner is specified in the design drawings and is 40-mil HDPE or thicker and is equivalent to 30-mil LLDPEr (in accordance with a previously approved variance) Liner compatibility meets or exceeds a subsequent relevant publication to EPA SW-846 method 9090A.

The recycling containment design has a leak detection system between the upper and lower geomembrane liners of 200-mil geonet to facilitate drainage. The leak detection system consists of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection. The containment floor design calls for a slope toward the sump in the corner(s) of the containment, as shown in the design drawings. This slope combined with the highly transmissive geonet drainage layer provide for rapid leak detection.

The liners and drainage material will be installed consistent with the Manufacturer's specifications. In addition to any specifications of the Manufacturer, protocols for liner installation include measures to:

- i. minimizing liner seams and orient them up and down, not across, a slope of the levee.
- ii. use factory-welded seams where possible.
- iii. use field seams in geosynthetic material that are thermally seamed and prior to field seaming, overlap liners four to six inches.
- iv. minimize the number of field seams and comers and irregularly shaped areas.
- v. provide for no horizontal seams within five feet of the

19.15.34.12 A

(2) ...The operator shall construct the containment in a levee with an inside grade no steeper than two horizontal feet to one vertical foot (2H:1V). The levee shall have an outside grade no steeper than three horizontal feet to one vertical foot (3H:1V). The top of the levee shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance.

19.15.34.12 A

(3) Each recycling containment shall incorporate, at a minimum, a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

19.15.34.12 A

(4) All primary (upper) liners in a recycling containment shall be geomembrane liners composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. All primary liners shall be 30-mil flexible PVC, 45-mil LLDPE string reinforced or 60-mil HDPE liners. Secondary liners shall be 30-mil LLDPE string reinforced or equivalent with a hydraulic conductivity no greater than 1 x 10-9 cm/sec. Liner compatibility shall meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications.

19.15.34.12 A

(7) The operator of a recycling containment shall place a leak detection system between the upper and lower geomembrane liners that shall consist of 200-mil geonet or two feet of compacted soil with a saturated hydraulic conductivity of 1 x 10-5 cm/sec or greater to facilitate drainage. The leak detection system shall consist of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection.

19.15.34.12 A

(5) The operator of a recycling containment shall minimize liner seams and orient them up and down, not across, a slope of the levee. Factory welded seams shall be used where possible. The operator shall ensure field seams in geosynthetic material are thermally seamed. Prior to field seaming, the operator shall overlap liners four to six inches...

Design and Construction Plan In Ground Containments

- slope's toe.
- vi. use qualified personnel to perform field welding and testing.
 - vii. avoid excessive stress-strain on the liner
 - viii. The edges of all liners are anchored in the bottom of a compacted earth-filled trench that is at least 18 inches deep

At points of discharge into the lined earthen containment the pipe configuration effectively protects the liner from excessive hydrostatic force or mechanical damage during filling.

The design shows that at any point of discharge into or suction from the recycling containment, the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines do not penetrate the liner.

Pumping from the containment to hydraulic fracturing operations is the responsibility of stimulation contractors. Typically, lines are permanently placed in the containment with floats attached to prevent damage to the liner system. The containment may be equipped with permanent HDPE stinger (supported by a sacrificial liner or geotextile) for withdrawal of fluid if the owner deems necessary during operations.

Leak Detection and Fluid Removal System Installation

The leak detection system, contains the following design elements

- a. The 200-mil HyperNet Geonet drainage material between the primary and secondary liner that is sufficiently permeable to allow the transport of fluids to the observation ports (Appendix A).
- b. The containment floor is sloped towards the monitoring riser pipe to facilitate the earliest possible leak detection of the containment bottom. A pump may be placed in the observation port to provide for fluid removal.
- c. Piping will withstand chemical attack from any seepage, structural loading from stresses and disturbances from overlying water, cover materials, equipment operation or expansion or contraction (see Appendix A).

19.15.34.12 A

(5) ...The operator shall minimize the number of field seams and corners and irregularly shaped areas. There shall be no horizontal seams within five feet of the slope's toe. Qualified personnel shall perform field welding and testing.

19.15.34.12 A

(3) The edges of all liners shall be anchored in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.

19.15.34.12 A

(6) At a point of discharge into or suction from the recycling containment, the operator shall insure that the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines shall not penetrate the liner.

OPERATIONS AND MAINTENANCE PLAN

CLOSURE PLAN

Operation and Maintenance Plan In Ground Containments

Overview

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

The operation of the containment is summarized below.

- A. Produced water generated from nearby oil and gas wells is delivered to a treatment system located as indicated in the C-147.
- B. Unless specified in the transmittal letter, after treatment, the produced water discharges into the containment.
- C. When required, produced water is removed from the containment for E&P operations. At this time, produced water will be used for drilling beneath the freshwater zones (beneath surface casing), for well stimulation (e.g. hydraulic fracturing) and other E&P uses as approved by OCD.
- D. Whenever the maximum fluid capacity of the containment is reached, treatment and discharge to the containment ceases (see Freeboard and Overtopping Plan, below).
- E. The operator will keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148 (see attached example).
- F. The operator will maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.

19.15.34.10 D

Recycling containments may not be used for the disposal of produced water or other oilfield wastes.

19.15.34.9 E

The operator of a recycling facility shall keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.

19.15.34.9 F

The operator of a recycling facility shall maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.

Operation and Maintenance Plan In Ground Containments

- G. The containment shall be deemed to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator will report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

19.15.34.13 C

A recycling containment shall be deemed to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator must report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

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

1. The operator will not discharge into or store any hazardous waste (as defined by 40 CFR 261 and NMAC 19.15.2.7.H.3) in the containments.
2. If the containment's primary liner is compromised above the fluid's surface, the operator will repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the division district office.
3. If the primary liner is compromised below the fluid's surface, the operator will remove all fluid above the damage or leak within 48 hours of discovery, notify the division district office and repair the damage or replace the primary liner.
4. If any penetration of the containment liner is confirmed by sampling of fluid in the leak detection system (see Monitoring, Inspection, and Reporting Plan; below), the operator will:
 - a. Begin and maintain fluid removal from the leak detection/pump-back system,
 - b. Notify the district office within 48 hours (phone or email) of the discovery,
 - c. Identify the location of the leak, and
 - d. Repair the damage or, if necessary, replace the containment liner.
5. The operator will install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release and the operator will remove any visible layer of oil from the surface of the recycling containment.
6. The operator will report releases of fluid in a manner consistent with NMAC 19.15.29
7. The containment will be operated to prevent the collection of surface water run-on.

19.15.34.13 B

(4) If the containment's primary liner is compromised above the fluid's surface, the operator shall repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the division district office.

(5) If the primary liner is compromised below the fluid's surface, the operator shall remove all fluid above the damage or leak within 48 hours of discovery, notify the division district office and repair the damage or replace the primary liner.

19.15.34.13 B

(7) The operator shall install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release.

(1) The operator shall remove any visible layer of oil from the surface of the recycling containment.

19.15.34.8 A

(6) All releases from the recycling and re-use of produced water shall be handled in accordance with 19.15.29 NMAC.

Operation and Maintenance Plan In Ground Containments

8. The operator will maintain the containment free of miscellaneous solid waste or debris.
9. The operator will maintain at least three feet of freeboard for the containment and will use a free-standing staff gauge to allow easy determination of the required 3-foot of freeboard.
10. As described in the design/construction plan, the injection or withdrawal of fluids from the containment is accomplished through hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
11. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
12. The operator will maintain the fences in good repair.

Monitoring, Inspection, and Reporting Plan

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

Weekly inspections consist of:

- reading and recording the fluid height of staff gauges,
- recording any evidence that the pond surface shows visible oil,
- visually inspecting the containment's exposed liners
- checking the leak detection system for any evidence of a loss of integrity of the primary liner.
- inspect diversion ditches and berms around the containment to check for erosion and collection of surface water run-on.
- inspect the leak detection system for evidence of damage or malfunction and monitor for leakage.

As stated above, if a liner's integrity is compromised, or if any penetration of the liner occurs, then the operator will take appropriate action within 48 hours, based on if above or below water surface, as noted above.

19.15.34.13

(6) The containment shall be operated to prevent the collection of surface water run-on.

19.15.34.13 B

(2) The operator shall maintain at least three feet of freeboard at each containment.

19.15.34.13 B

(3) The injection or withdrawal of fluids from the containment shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.

19.15.34.12 D

(1) The operator shall fence or enclose a recycling containment in a manner that deters unauthorized wildlife and human access and shall maintain the fences in good repair. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

19.15.34.13 A

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

Operation and Maintenance Plan In Ground Containments

Monthly, the operator will:

- A. Inspect the containment for dead migratory birds and other wildlife. Within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.
- B. Report to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.
- C. Record sources and disposition of all recycled water.

The operator will maintain a log of all inspections and make the log available for the appropriate Division district office's review upon request. An example of the log is attached to this section of the permit application.

Freeboard and Overtopping Prevention Plan

The method of operation of the containment allows for maintaining freeboard with very few potential problems. When the capacity of the containment is reached (3-feet of freeboard), the discharge of produced water ceases and the produced water generated by nearby oil and gas wells is managed by an injection well(s).

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

- I. Cease discharging produced water to the containment.
- II. Accelerate re-use of the produced water for purposes approved by the Division.
- III. Transfer produced water from the containment to injection wells.

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

19.15.34.12 E
The operator shall on a monthly basis inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

19.15.34.9 E
The operator of a recycling facility shall keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.

19.15.34.9 F
The operator of a recycling facility shall maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.

Operation and Maintenance Plan In Ground Containments

Protocol for Leak Detection Monitoring, Fluid Removal and Reporting

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

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

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

1. Re-measure fluid levels in the monitoring riser pipe on a daily basis for one week to determine the rate of seepage.
2. Collect a water sample from the monitoring riser pipe to confirm the seepage is produced water from the containment via electrical conductivity and chloride measurements.
3. Notify NMOCD of a confirmed positive detection in the system within 48 hours of sampling (initial notification).
4. Install a pump into the monitoring riser pipe sump to continually (manually on a daily basis or via automatic timers) remove fluids from the leak detection system into the containment until the liner is repaired or replaced.
5. Dispatch a liner professional to inspect the portion of the containment suspected of leakage during a "low water" monitoring event.
6. Provide NMOCD a second report describing the inspection and/or repair within 20 days of the initial notification.

Operation and Maintenance Plan In Ground Containments

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

Closure Plan In Ground Containments

Overview

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

The operator shall substantially restore the impacted surface area to

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

The surface owner will impose a closure design that conforms to their needs for the site. The operator understands that a variance will be submitted to OCD to allow for any alternative closure protocol.

Excavation and Removal Closure Plan – Protocols and Procedures

The containment is expected to hold a small volume of solids, the majority of which will be windblown sand and dust with some mineral precipitates from the water

1. The operator will remove all liquids from the containment and either:
 - a. Dispose of the liquids in a division-approved facility, or
 - b. Recycle, reuse or reclaim the water for reuse in drilling and stimulation.
2. The operator will close the recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility.
3. After the removal of the containment contents and liners, soils beneath the containment will be tested by collection of a five-point (minimum) composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed in Table I of 19.15.34.14.
4. After review of the laboratory results:
 - a. If any contaminant concentration is higher than the parameters listed in Table I, additional delineation may be required, and the operator must receive approval before proceeding with closure.

19.15.34.14 A

Once the operator has ceased operations, the operator shall remove all fluids within 60 days and close the containment within six months from the date the operator ceases operations from the containment for use.

19.15.34.14 E

The operator shall substantially restore the impacted surface area to the condition that existed prior to the construction of the recycling containment.

19.15.34.14 G

The re-vegetation and reclamation obligations imposed by federal, state trust land or tribal agencies on lands managed by those agencies shall supersede these provisions and govern the obligations of any operator subject to those provisions, provided that the other requirements provide equal or better protection of fresh water, human health and the environment.

19.15.34.14 B

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

19.15.34.14 C

The operator shall test the soils beneath the containment for contamination with a five-point composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed in Table I below.

19.15.34.14 C

(1) If any contaminant concentration is higher than the parameters listed in Table I, the division may require additional delineation upon review of the results and the operator must receive approval before proceeding with closure.

Closure Plan In Ground Containments

- b. If all contaminant concentrations are less than or equal to the parameters listed in Table I, then the operator will proceed to
- i. backfill with non-waste containing, uncontaminated, earthen material - Or
 - ii. undertake an alternative closure process pursuant to a variance request after approval by OCD.

19.15.34.14 C

(2) If all contaminant concentrations are less than or equal to the parameters listed in Table I, then the operator can proceed to backfill with non-waste containing, uncontaminated, earthen material.

Reclamation and Re-vegetation

- a. The operator will reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.
- b. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
- c. The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

19.15.34.14 E

Once the operator has closed the recycling containment, the operator shall reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

19.15.34.14 D

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

Closure Documentation

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

19.15.34.14 H

The operator shall notify the division when reclamation and re-vegetation are complete.

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

19.15.34.14 F

Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Tuesday, July 25, 2023 2:40 PM
To: vanessa.delossantos@stewardenergy.net; 'Tim Hilton'; 'BobbiJo Crain'
Cc: 'David Hamilton'
Subject: 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198]
Attachments: C-147 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198].pdf

1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198]

Ms. De Los Santos,

NMOCD has reviewed the recycling containment permit application and related documents, submitted by [371682] STEWARD ENERGY II, LLC on July 17, 2023, for 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] in Unit Letter I, Section 15, Township 13S, Range 38E, Lea County, New Mexico. The form C-147 and related documents for 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is approved with the following conditions of approval:

- The purpose of this permit is for oil and gas activities regulated under the NMAC 19.15.34.3 STATUTORY AUTHORITY: 19.15.34 NMAC is adopted pursuant to the Oil and Gas Act, Paragraph (15) of Section 70-2-12(B) NMSA 1978, which authorizes the division to regulate the disposition of water produced or used in connection with the drilling for or producing of oil and gas or both and Paragraph (21) of Section 70-2-12(B) NMSA 1978 which authorizes the regulation of the disposition of nondomestic wastes from the exploration, development, production or storage of crude oil or natural gas.
- 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is approved for five years of operation from the date of permit application.
- 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] permit expires on July 17, 2028. If [371682] STEWARD ENERGY II, LLC wishes to extend operations past five years, an annual permit extension request must be submitted using an OCD form C-147 through [OCD Permitting](#) by June 17, 2028.
- 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is bonded pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC.
- Water reuse and recycling from 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is limited to wells owned or operated by [371682] STEWARD ENERGY II, LLC.
- 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] consists of two (2) inground containments; one inground containment of 360,121.00 BBL and a second inground containment of 44,551.00 BBL. The total fluid capacity of 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is 404,672.00 BBL.
- [371682] STEWARD ENERGY II, LLC shall construct, operate, maintain, close, and reclaim 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] in compliance with NMAC 19.15.34 NMAC.
- [371682] STEWARD ENERGY II, LLC shall notify OCD, through [OCD Permitting](#), when construction of 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] commences.
- [371682] STEWARD ENERGY II, LLC shall notify NMOCD through [OCD Permitting](#) when recycling operations commence and cease at 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198].
- A minimum of 3-feet freeboard must be maintained at 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] at all times during operations.
- If less than 20% of the total fluid capacity is utilized every six months, beginning from the first withdrawal, operations of the 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is considered ceased and a notification of cessation of operations should be sent electronically to [OCD Permitting](#). A request to

extend the cessation of operation, not to exceed six months, may be submitted using a C-147 form through [OCD Permitting](#). If after that 6-month extension period, the 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] is not utilized at a minimum of 20% fluid capacity, no additional extensions would be granted, and the operator would be directed to remove all fluids and proceed with the closure requirements.

- [371682] STEWARD ENERGY II, LLC shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste on OCD form C-148 via [OCD Permitting](#) even if there is zero activity.
- [371682] STEWARD ENERGY II, LLC shall inspect the recycling containment and associated leak detection systems weekly while it contains fluids. The operator shall maintain a current log of such inspections and make the log available for review by the division upon request as per 19.15.34.13.A.
- [371682] STEWARD ENERGY II, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198].

Please reference number 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [fVV2320555198] in all future communications.

Regards,

Victoria Venegas • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

506 W. Texas Ave. Artesia, NM 88210

(575) 909-0269 | Victoria.Venegas@emnrd.nm.gov

<https://www.emnrd.nm.gov/ocd/>



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/

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: Steward Energy II LLC (For multiple operators attach page with information) OGRID #: 371682
Address: 2600 North Dallas Parkway, Frisco, Texas 75034
Facility or well name (include API# if associated with a well): Llano Estacado RF & Containments
OCD Permit Number: 1RF-506 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr H & I Section 15 Township 13S Range 38E County: Lea
Surface Owner: [] Federal [] State [X] Private [] Tribal Trust or Indian Allotment

2. [X] Recycling Facility:
Location of recycling facility (if applicable): Latitude 33.18998 Longitude -103.07910 NAD83
Proposed Use: [X] Drilling* [X] Completion* [X] Production* [X] Plugging *
*The re-use of produced water may NOT be used until fresh water zones are cased and cemented
[] Other, requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.
[X] Fluid Storage
[] Above ground tanks [X] Recycling containment [] Activity permitted under 19.15.17 NMAC explain type
[] Activity permitted under 19.15.36 NMAC explain type: [] Other explain
[] For multiple or additional recycling containments, attach design and location information of each containment
[] Closure Report (required within 60 days of closure completion): [] Recycling Facility Closure Completion Date:

3. [X] Recycling Containment:
[] Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)
Center of Recycling Containment (if applicable): Latitude 33.18998 Longitude -103.07910 NAD83
[] For multiple or additional recycling containments, attach design and location information of each containment
[X] Lined [] Liner type: Thickness 60 & 40 mil [] LLDPE [X] HDPE [] PVC [] Other See attached design documents
[] String-Reinforced
Liner Seams: [X] Welded [] Factory [] Other Volume: 360K & 44 K bbl Dimensions: L 600' x W 385' x D 17'
[] Recycling Containment Closure Completion Date: 44K Cont. - 385' by 225' by 10'

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 \$ _____ (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 See Variance

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. See attached variances

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.

<u>General siting</u>	
<u>Ground water is less than 50 feet below the bottom of the Recycling Containment.</u> NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

- Design Plan - based upon the appropriate requirements.
- Operating and Maintenance Plan - based upon the appropriate requirements.
- Closure Plan - based upon the appropriate requirements.
- Site Specific Groundwater Data -
- Siting Criteria Compliance Demonstrations -
- 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): Tim Hilton Title: Vice President Operations
 Signature:  Date: 6/20/23
 e-mail address: tim.hilton@stewardenergy.net Telephone: 214297 0506

11. OCD Representative Signature: Victoria Venegas Approval Date: 07/25/2023

Title: Environmental Specialist OCD Permit Number: 1RF-506

- OCD Conditions _____
- Additional OCD Conditions on Attachment _____

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720
District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720
District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 240969

CONDITIONS

Operator: STEWARD ENERGY II, LLC 2600 Dallas Parkway Frisco, TX 75034	OGRID: 371682
	Action Number: 240969
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	<ul style="list-style-type: none"> • 1RF-506 - LLANO ESTANCADO RF & CONTAINMENTS FACILITY ID [FV/2320555198] permit expires on July 17, 2028. If [371682] STEWARD ENERGY II, LLC wishes to extend operations past five years, an annual permit extension request must be submitted using an OCD form C-147 through OCD Permitting by June 17, 2028. • 	7/25/2023