

Appendix A – Location Maps



Figure 1. Looking east along south edge of the proposed Eagle 34 G Federal 88 well pad, existing caliche road and north edge of the existing Eagle 34 G Federal 13 well pad.



Figure 2. Looking south-southwest across proposed Eagle 34 G Federal 88 well pad, from northwest corner stake

Lime Rock Resources II-A, L.P.
Eagle 34 G Federal 88
SHL: 1495' FNL & 2275' FEL
BHL: 1665' FNL & 2225' FEL
Sec. 34, T. 17 S., R. 27 E., Eddy County, NM

SURFACE PLAN PAGE 1

Surface Use Plan

1. ROAD DIRECTIONS & DESCRIPTIONS (See MAPS 1 - 4)

From the center of Artesia...

Go East 9.3 miles on US 82 to the equivalent of Mile Post 116.8

Then turn right and go South 1/4 mile on paved County Road 204

Then turn right and go Southwest 2.1 miles on paved County Road 225

Then bear right and go Southwest 1/2 mile on County Road 227

Then turn right and go North 0.1 mile on a caliche road

Then bear left and go Northwest 0.7 mile on a caliche road

Then bear right and go Northeast 0.1 mile on a caliche road south of a battery

Then turn left and go North 0.4 mile on a caliche road

Then turn right and go East 465' to the existing 13 pad and proposed 88 pad

Non-county roads will be maintained as needed to Gold Book standards. This includes pulling ditches, preserving the crown, and cleaning culverts. This will occur at least once a year, and more often as needed. Caliche will be hauled from Lime Rock's approved (HA-0258-0000) caliche pit on State land in NESE 36-17s-27e. Access to the lease will be via existing NMNM-096616.

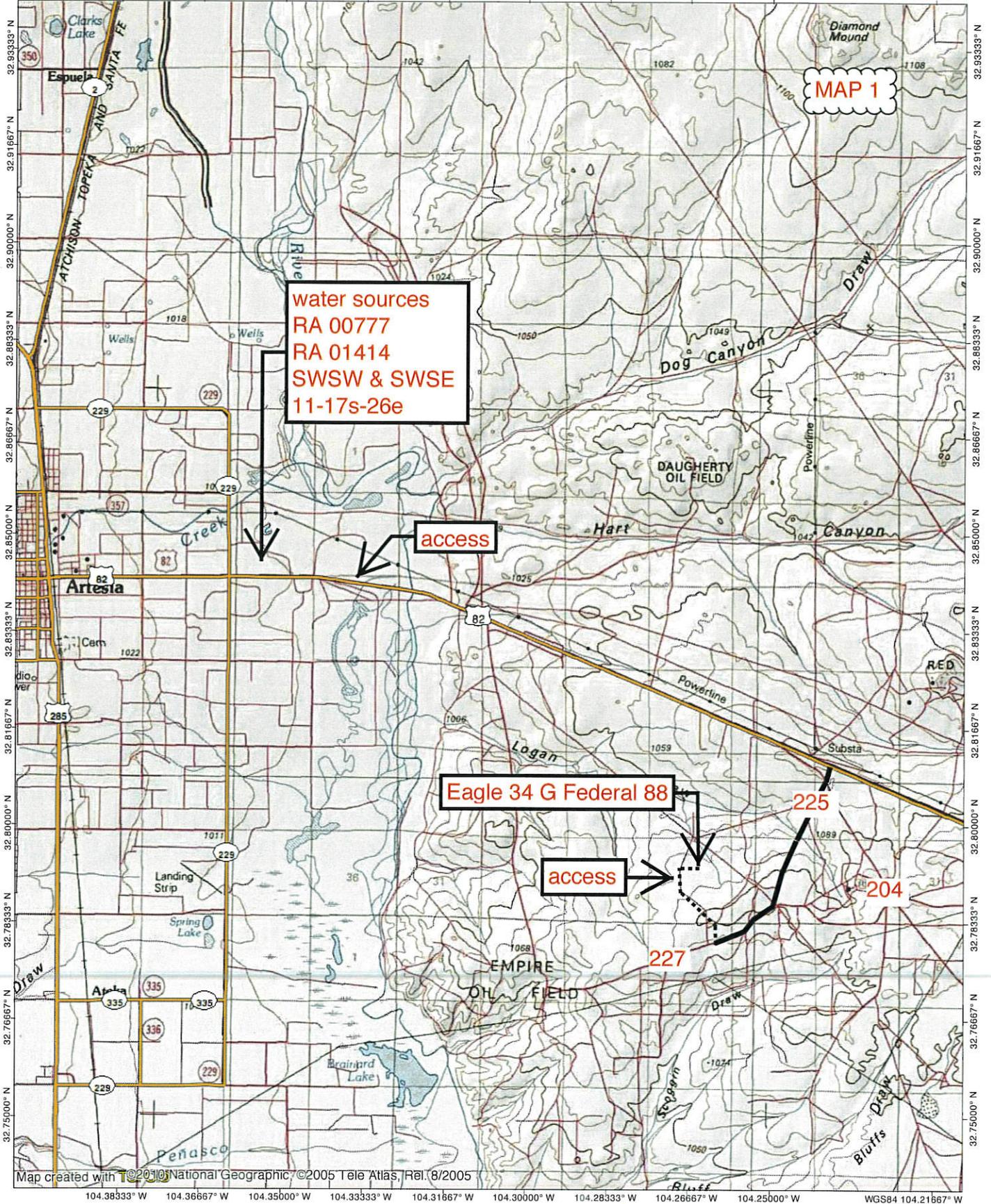
2. ROAD TO BE BUILT OR UPGRADED (See MAPS 3 & 4)

No new road is needed. (The proposed 88 pad overlaps the producing 13 pad.)
No upgrade is needed.

3. EXISTING WELLS (See MAP 2)

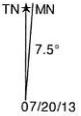
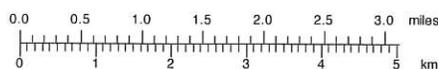
Existing oil, gas, water, and P & A wells are within a mile. No disposal or injection wells are within a mile radius.

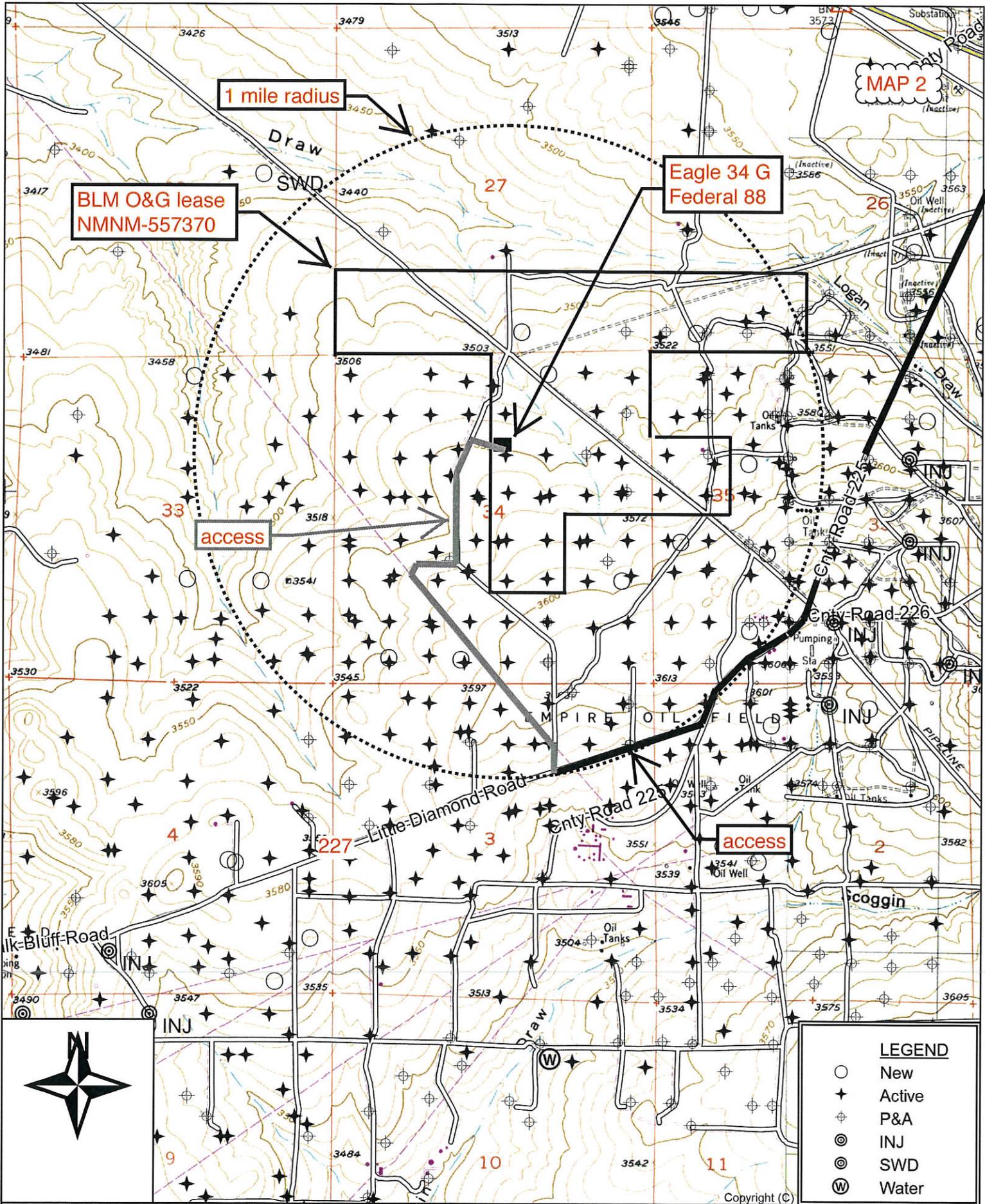
104.38333° W 104.36667° W 104.35000° W 104.33333° W 104.31667° W 104.30000° W 104.28333° W 104.26667° W 104.25000° W WGS84 104.21667° W



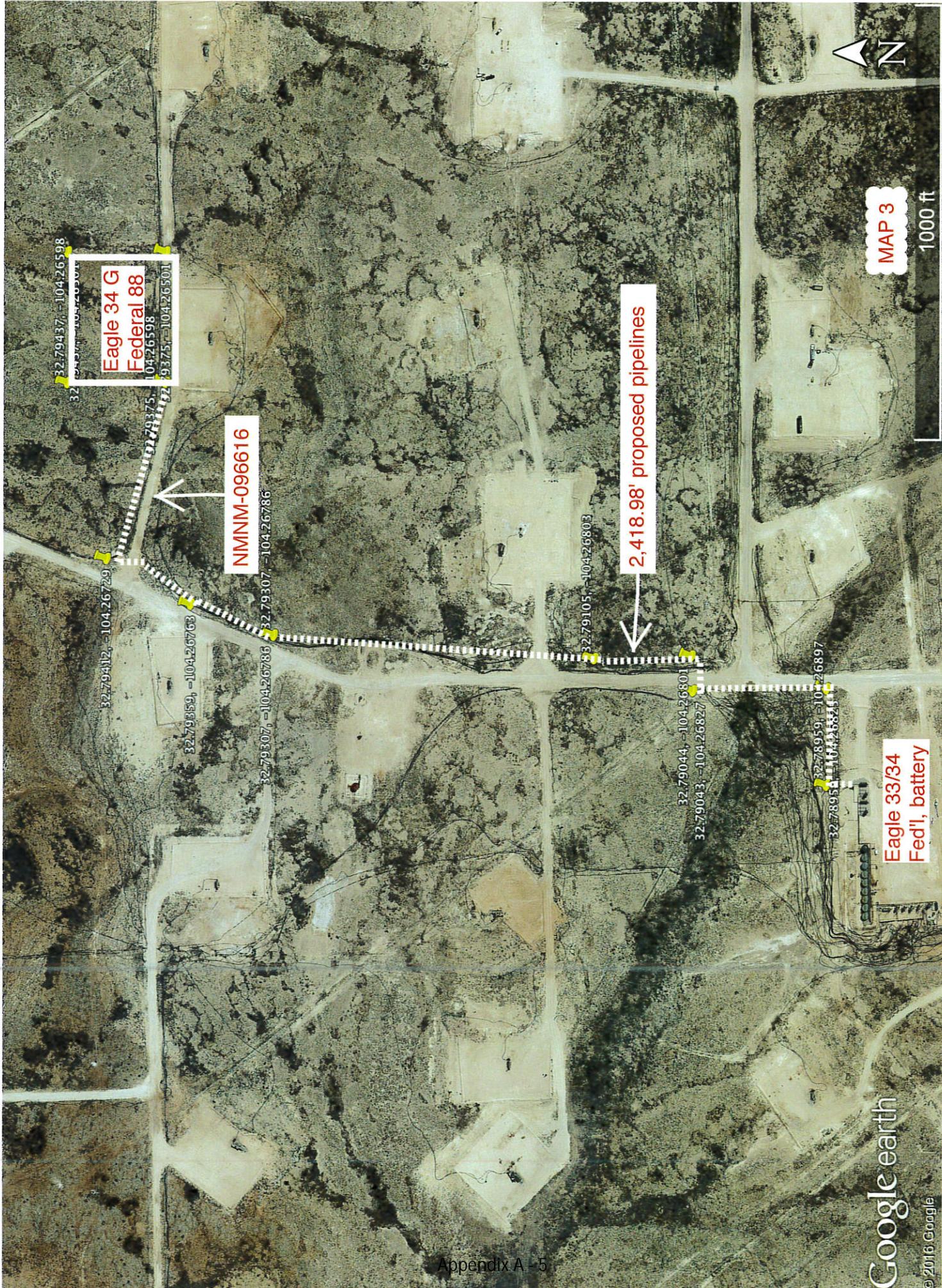
Map created with T@2010 National Geographic, ©2005 Tele Atlas, Rel. 8/2005

104.38333° W 104.36667° W 104.35000° W 104.33333° W 104.31667° W 104.30000° W 104.28333° W 104.26667° W 104.25000° W WGS84 104.21667° W





Quad: SPRING LAKE
 Scale: 1 inch = 2,000 ft.



MAP 3
1000 ft

Eagle 34 G
Federal 88

NMNM-096616

2,418.98' proposed pipelines

Eagle 33/34
Fed'l, battery

32.79437, -104.26598
32.79437, -104.26598

32.79412, -104.26729

32.79359, -104.26763

32.79307, -104.26786

32.79375, -104.26501

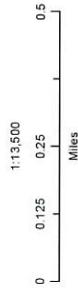
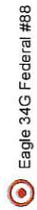
32.79105, -104.26503

32.79044, -104.26801
32.79043, -104.26827

32.78959, -104.26897
32.78959, -104.26827



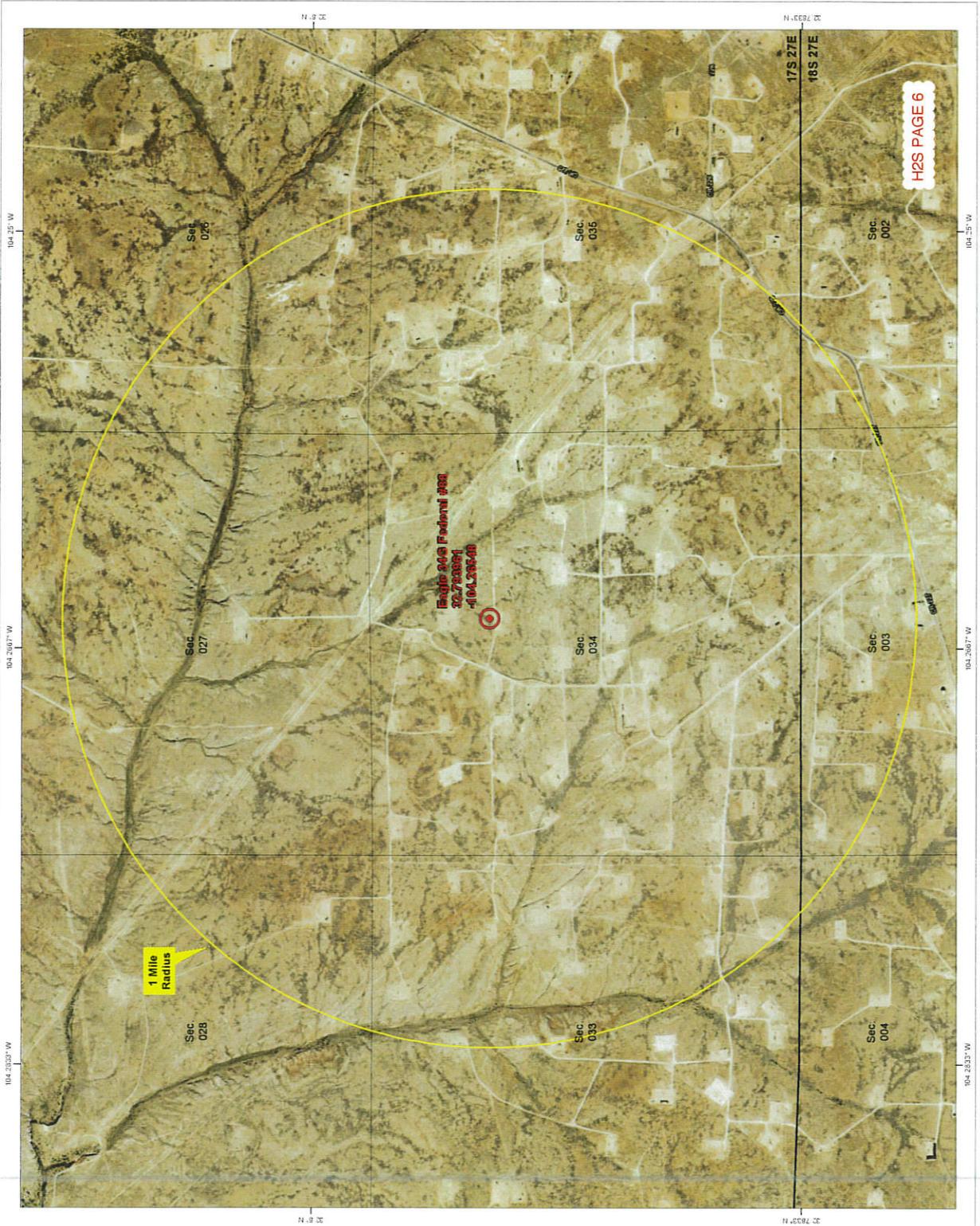
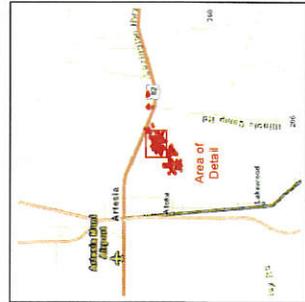
Eagle 34G Federal #88
H2S Contingency Plan:
1 Mile Radius Map
Section 34, Township 17S, Range 27E
Eddy County, New Mexico



NAD 1927 New Mexico State Plane East
FIPS 3001 Feet



Prepared by Permits West, Inc., February 26, 2016
for Lime Rock Resources (LRA), L.P.



H2S PAGE 6

Appendix B – Plats

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM-557370

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA Agreement, Name and No.
N/A

8. Lease Name and Well No.
EAGLE 34 G FEDERAL 88

9. API Well No.
30-015-

10. Field and Pool, or Exploratory
RED LAKE; GLORIETA-YESO, NE

11. Sec., T. R. M. or Blk. and Survey or Area
SWNE 34-17S-27E

12. County or Parish
EDDY

13. State
NM

1a. Type of work: DRILL REENTER

1b. Type of Well: Oil Well Gas Well Other Single Zone Multiple Zone

2. Name of Operator LIME ROCK RESOURCES II-A, L. P.

3a. Address 1111 BAGBY ST., SUITE 4600
HOUSTON, TX 77002

3b. Phone No. (include area code)
713 292-9528

4. Location of Well (Report location clearly and in accordance with any State requirements.)*
At surface 1495' FNL & 2275' FEL
At proposed prod. zone 1665' FNL & 2225' FEL

14. Distance in miles and direction from nearest town or post office*
8 AIR MILES SE OF ARTESIA, NM

15. Distance from proposed*
location to nearest SHL: 365
property or lease line, ft. BHL: 415'
(Also to nearest drig. unit line, if any)

16. No. of acres in lease
720

17. Spacing Unit dedicated to this well
SWNE

18. Distance from proposed location*
to nearest well, drilling, completed, SHL: 158' (Eagle 34G13)
applied for, on this lease, ft. BHL: 86' (ditto)

19. Proposed Depth
TVD = 5100' & MD = 5120'

20. BLM/BIA Bond No. on file
NMB-000797 & NMB-000817

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3546' UNGRADED

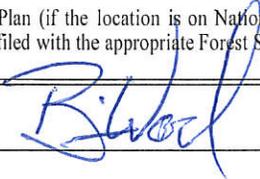
22. Approximate date work will start*
06/01/2016

23. Estimated duration
1 MONTH

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Well plat certified by a registered surveyor. 2. A Drilling Plan. 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | <ul style="list-style-type: none"> 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). 5. Operator certification 6. Such other site specific information and/or plans as may be required by the BLM. |
|---|---|

25. Signature 	Name (Printed/Typed) BRIAN WOOD (PHONE: 505 466-8120)	Date 03/05/2016
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Title CONSULTANT	(FAX: 505 466-9682)	
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Approved by (Signature)	Name (Printed/Typed)	Date
-------------------------	----------------------	------

Title	Office	
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Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

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 Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
 AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-		² Pool Code 96836		³ Pool Name Red Lake; Glorieta-Yeso Northeast	
⁴ Property Code 308953		⁵ Property Name EAGLE 34G FEDERAL			⁶ Well Number 88
⁷ OGRID No. 277558		⁸ Operator Name LIME ROCK RESOURCES II-A, L.P.			⁹ Elevation 3546.0

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	34	17 S	27 E		1495	NORTH	2275	EAST	EDDY

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	34	17 S	27 E		1665	NORTH	2225	EAST	EDDY

¹² Dedicated Acres 40	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

NOTE:
LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE.

¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Brian Wood **3-5-16**

Signature _____ Date _____

Printed Name **Brian Wood**

E-mail Address **brian@permitswest.com**

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

FEBRUARY 10, 2016

Date of Survey _____

FILIMON F. JARAMILLO

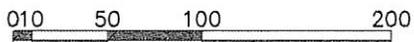
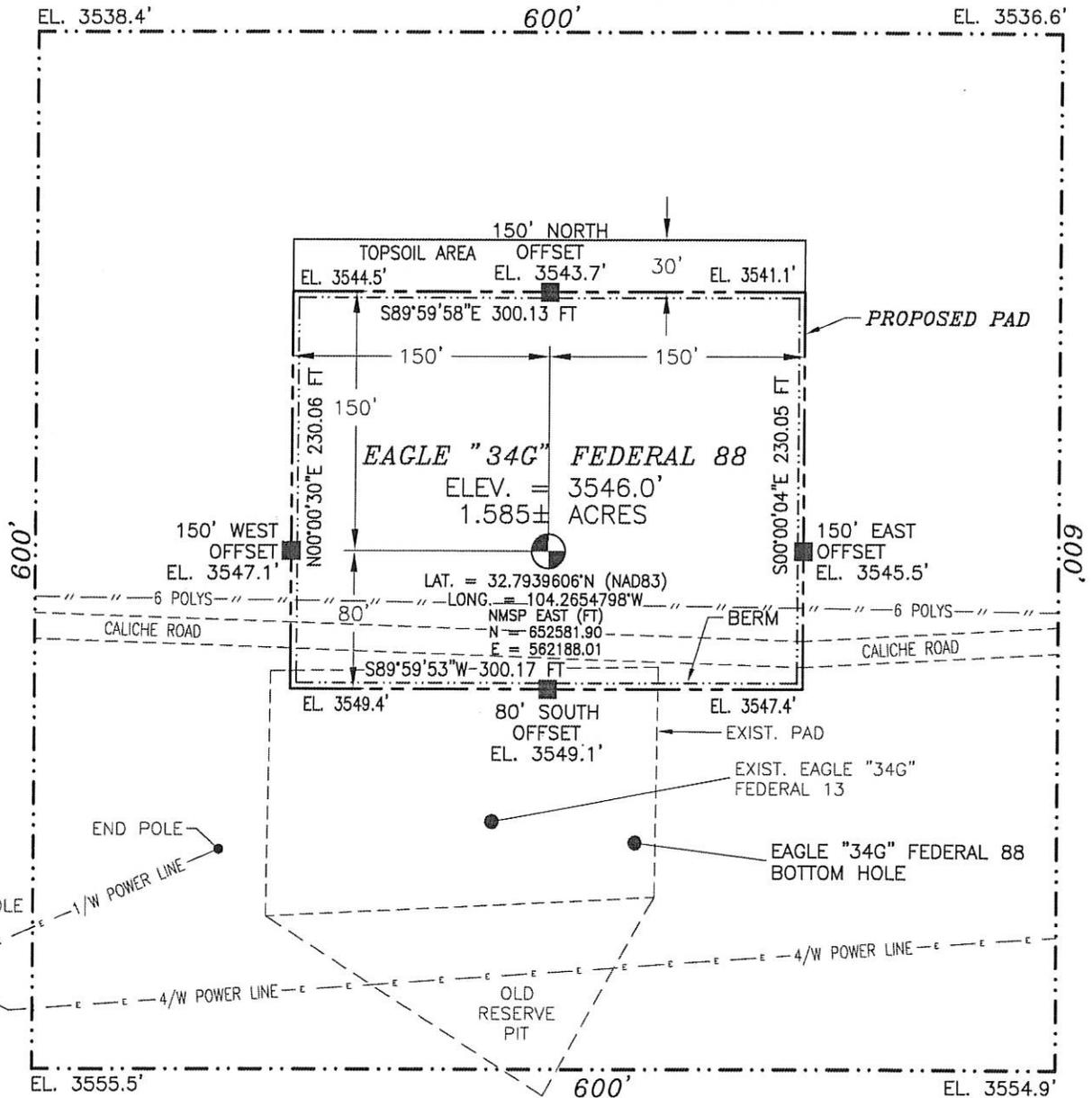
Signature and Seal of Professional Surveyor _____

Certificate Number: **FILIMON F. JARAMILLO, PLS 12797**
SURVEY NO. 4415A

SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

MAP 4

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



SCALE 1" = 100'
DIRECTIONS TO LOCATION
 FROM CR 225 (EMPIRE) AND CR 227 (LITTLE DIAMOND) GO
 SOUTHWEST ON CR 227 0.5 OF A MILE, TURN RIGHT ON CALICHE
 ROAD AND GO NORTH 0.1 OF A MILE, BEND LEFT AND GO
 NORTHWEST 0.7 OF A MILE, TURN RIGHT AND GO NORTHEAST 0.15
 OF A MILE, BEND LEFT AND GO NORTH 0.4 OF A MILE, TURN RIGHT
 AND GO SOUTHEAST 465' TO THE PROPOSED SOUTHWEST PAD
 CORNER FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.
EAGLE "34G" FEDERAL 88
 LOCATED 1495 FT. FROM THE NORTH LINE
 AND 2275 FT. FROM THE EAST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

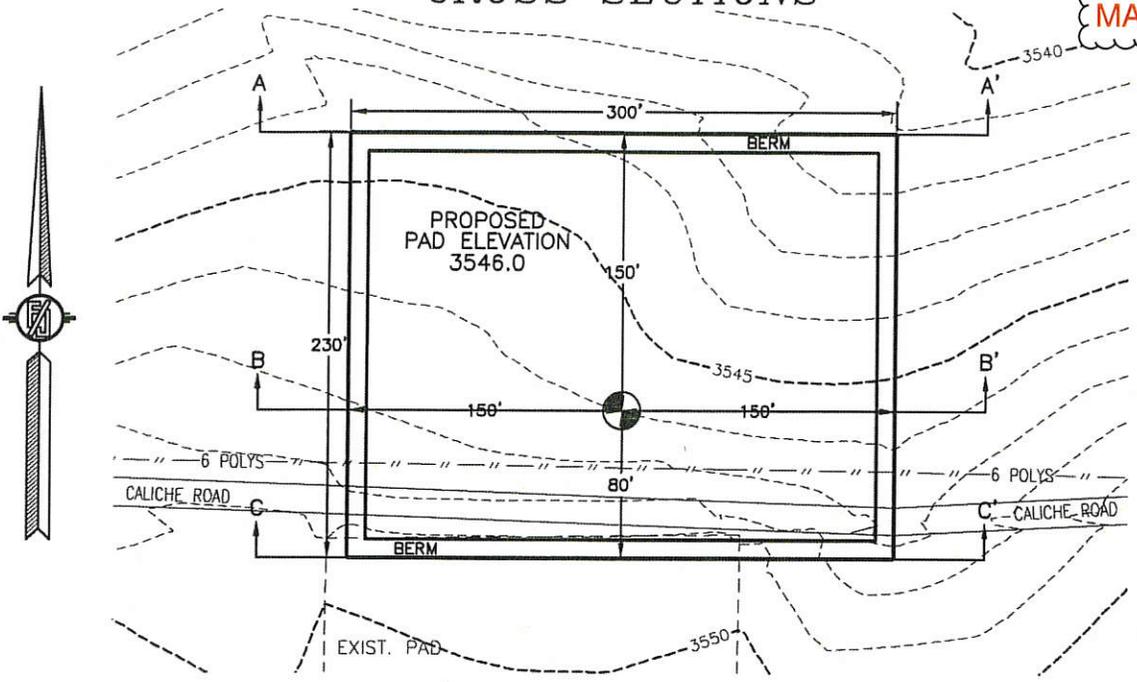
FEBRUARY 10, 2016

SURVEY NO. 4415A

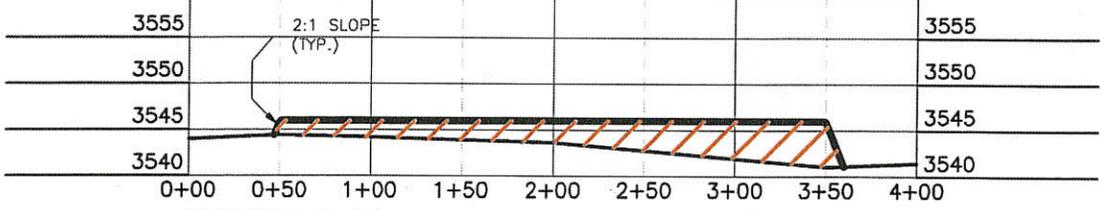
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO
 (575) 234-3341

EAGLE "34G" FEDERAL 88 CROSS SECTIONS

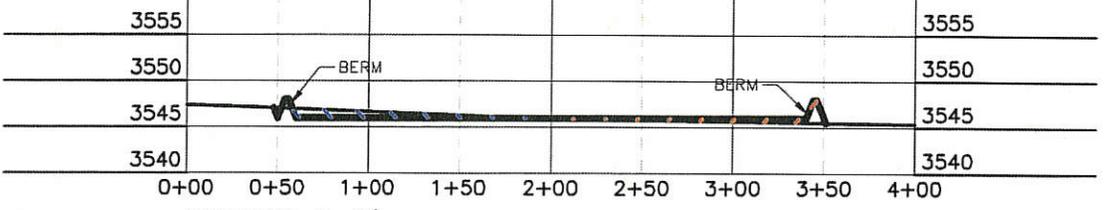
MAP 4.1



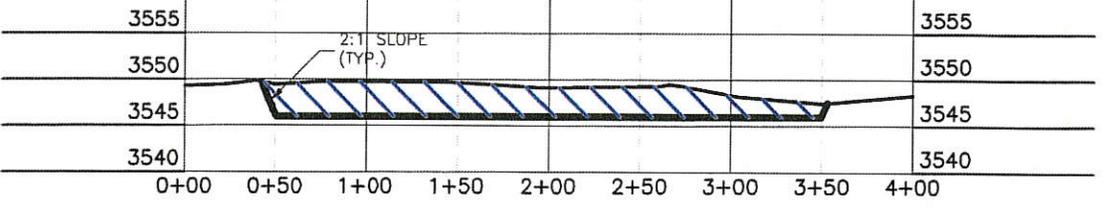
SECTION A-A'



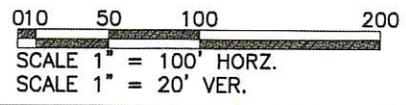
SECTION B-B'



SECTION C-C'



LIME ROCK RESOURCES II-A, L.P.
EAGLE "34G" FEDERAL 88
 LOCATED 1495 FT. FROM THE NORTH LINE
 AND 2275 FT. FROM THE EAST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO



CUT	FILL	NET
1462 CU. YD	2834 CU. YD	1372 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

MARCH 31, 2016

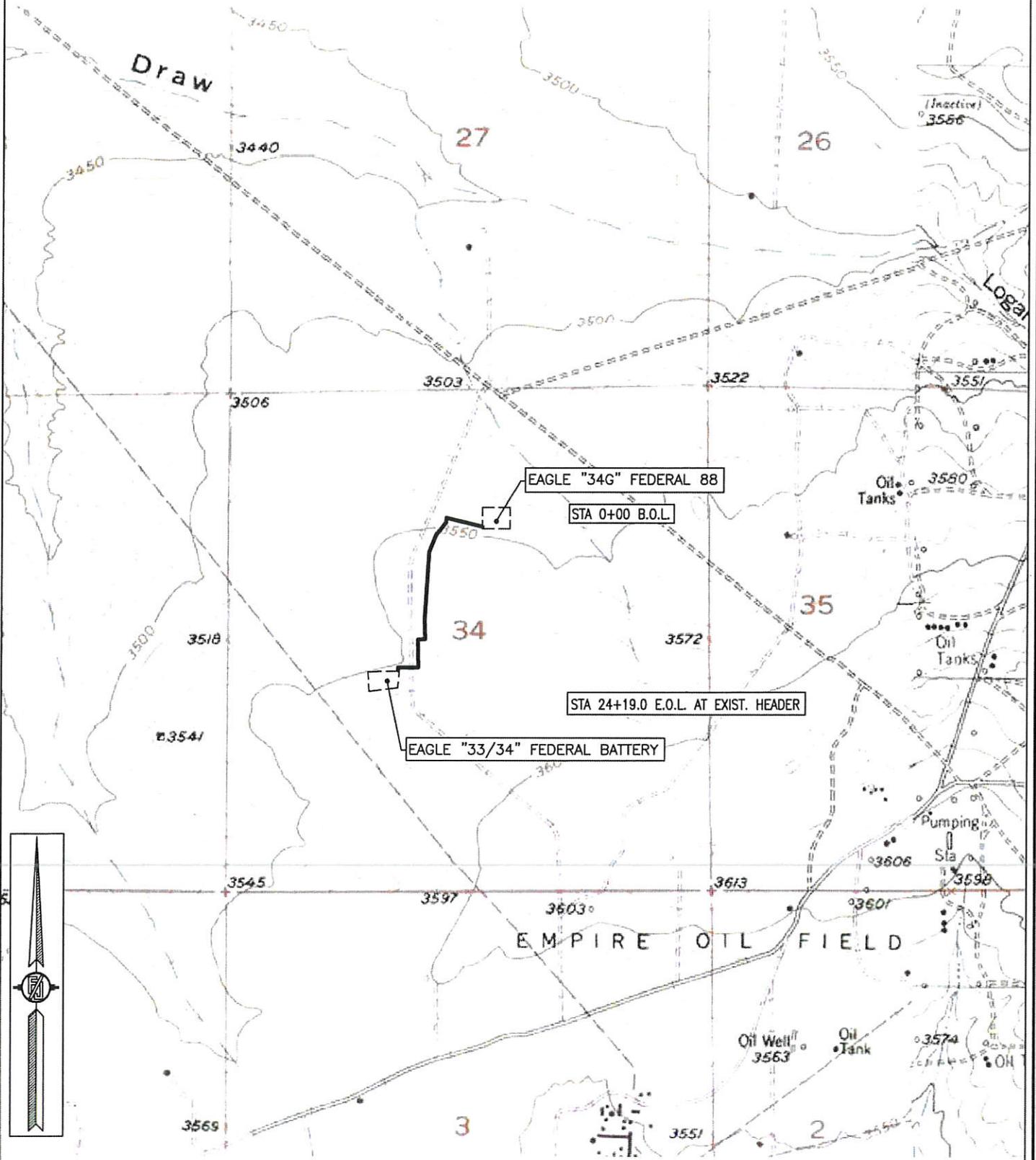
MADRON SURVEYING, INC. 301 SOUTH CANAL CARLSBAD, NEW MEXICO SURVEY NO. 4415A
 (575) 234-3341

FLOWLINE PLAT

TWO 3" SDR 7 SURFACE POLYS (1-GAS & 1-PRODUCTION) FROM THE EAGLE "34G" FEDERAL 88 TO THE EAGLE "33/34" FEDERAL BATTERY

MAP 5

LIME ROCK RESOURCES II-A, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 5, 2016

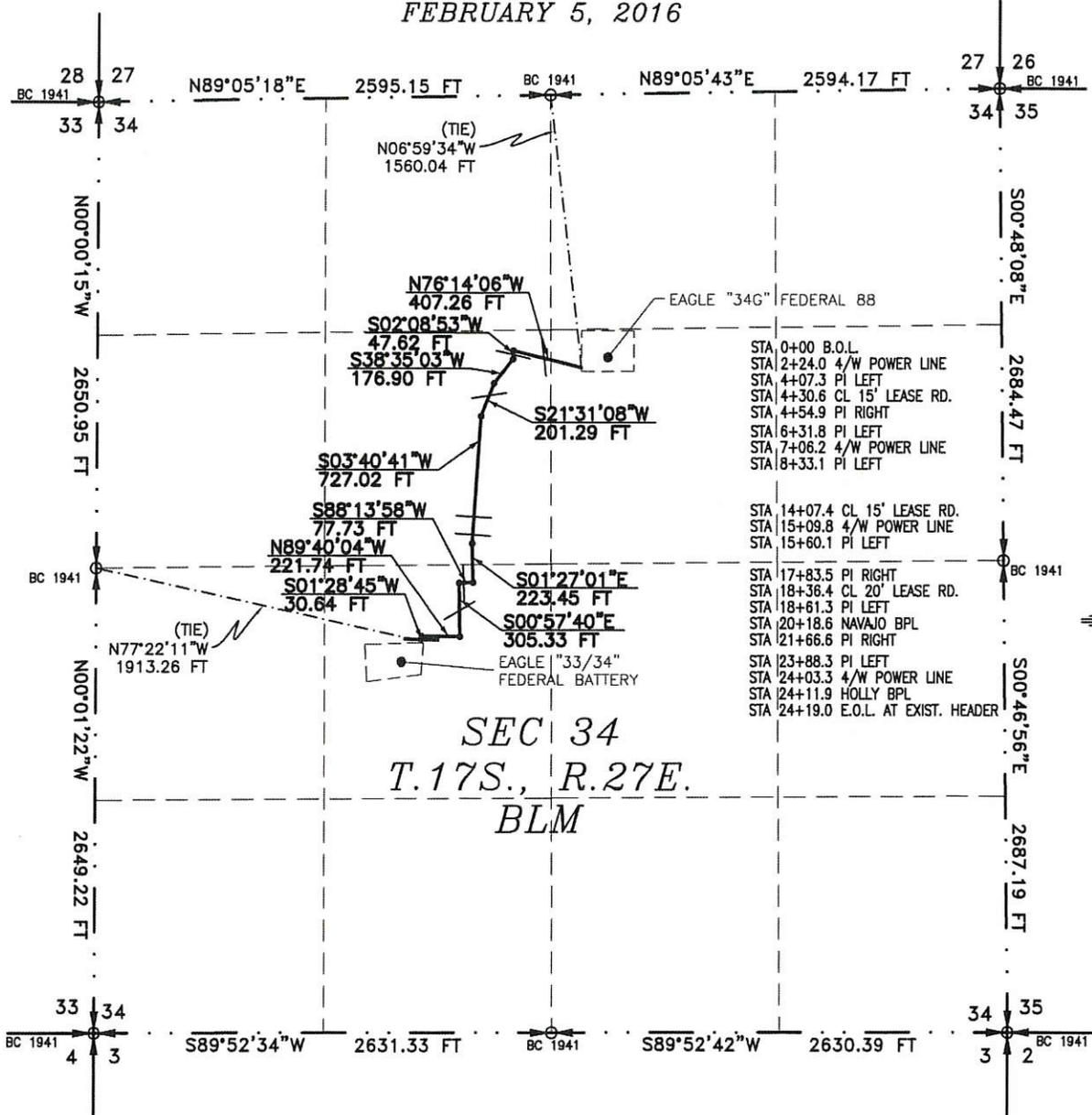


FLOWLINE PLAT

TWO 3" SDR 7 SURFACE POLYS (1-GAS & 1-PRODUCTION) FROM THE EAGLE "34G" FEDERAL 88 TO THE EAGLE "33/34" FEDERAL BATTERY

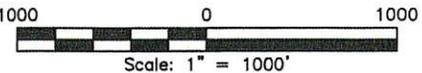
MAP 6

LIME ROCK RESOURCES II-A, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 5, 2016



SEC 34
T.17S., R.27E.
BLM

- STA 0+00 B.O.L.
- STA 2+24.0 4/W POWER LINE
- STA 4+07.3 PI LEFT
- STA 4+30.6 CL 15' LEASE RD.
- STA 4+54.9 PI RIGHT
- STA 6+31.8 PI LEFT
- STA 7+06.2 4/W POWER LINE
- STA 8+33.1 PI LEFT
- STA 14+07.4 CL 15' LEASE RD.
- STA 15+09.8 4/W POWER LINE
- STA 15+60.1 PI LEFT
- STA 17+83.5 PI RIGHT
- STA 18+36.4 CL 20' LEASE RD.
- STA 18+61.3 PI LEFT
- STA 20+18.6 NAVAJO BPL
- STA 21+66.6 PI RIGHT
- STA 23+88.3 PI LEFT
- STA 24+03.3 4/W POWER LINE
- STA 24+11.9 HOLLY BPL
- STA 24+19.0 E.O.L. AT EXIST. HEADER



GENERAL NOTES

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

SURVEYOR CERTIFICATE

I, FILMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 5th DAY OF FEBRUARY 2016

FILMON F. JARAMILLO, PLS. 12797
 MADRON SURVEYING, INC.
 301 SOUTH CANAL
 CARLSBAD, NEW MEXICO 88220
 Phone (575) 234-3341

SURVEY NO. 4415

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

FLOWLINE PLAT

TWO 3" SDR 7 SURFACE POLYS (1-GAS & 1-PRODUCTION) FROM THE EAGLE "34C" FEDERAL 88 TO THE EAGLE "33/34" FEDERAL BATTERY

MAP 7

LIME ROCK RESOURCES II-A, L.P.
CENTERLINE SURVEY OF A PIPELINE CROSSING
SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
EDDY COUNTY, STATE OF NEW MEXICO
FEBRUARY 5, 2016

DESCRIPTION

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 15 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

BEGINNING AT A POINT WITHIN THE SW/4 NE/4 OF SAID SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N06°59'34"W, A DISTANCE OF 1560.04 FEET;

THENCE N76°14'06"W A DISTANCE OF 407.26 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S02°08'53"W A DISTANCE OF 47.62 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S38°35'03"W A DISTANCE OF 176.90 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S21°31'08"W A DISTANCE OF 201.29 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S03°40'41"W A DISTANCE OF 727.02 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S01°27'01"E A DISTANCE OF 223.45 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S88°13'58"W A DISTANCE OF 77.73 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S00°57'40"E A DISTANCE OF 305.33 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE N89°40'04"W A DISTANCE OF 221.74 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;
THENCE S01°28'45"W A DISTANCE OF 30.64 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE WEST QUARTER CORNER OF SAID SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M. BEARS N77°22'11"W, A DISTANCE OF 1913.26 FEET;

SAID STRIP OF LAND BEING 2418.98 FEET OR 146.61 RODS IN LENGTH, CONTAINING 1.666 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 NE/4	184.58 L.F.	11.19 RODS	0.127 ACRES
SE/4 NW/4	1497.36 L.F.	90.75 RODS	1.031 ACRES
NE/4 SW/4	737.04 L.F.	44.67 RODS	0.508 ACRES

SURVEYOR CERTIFICATE

I, FILIMON F. JARAMILLO, A NEW MEXICO PROFESSIONAL SURVEYOR NO. 12797, HEREBY CERTIFY THAT I HAVE CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR LAND SURVEYING IN THE STATE OF NEW MEXICO.

IN WITNESS WHEREOF, THIS CERTIFICATE IS EXECUTED AT CARLSBAD, NEW MEXICO, THIS 9 DAY OF FEBRUARY 2016

Filimon F. Jaramillo
FILIMON F. JARAMILLO PLS. 12797

MADRON SURVEYING, INC.
301 SOUTH CANAL
CARLSBAD, NEW MEXICO 88220
Phone (575) 234-3341

SURVEY NO. 4415

GENERAL NOTES

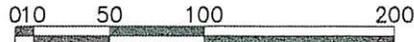
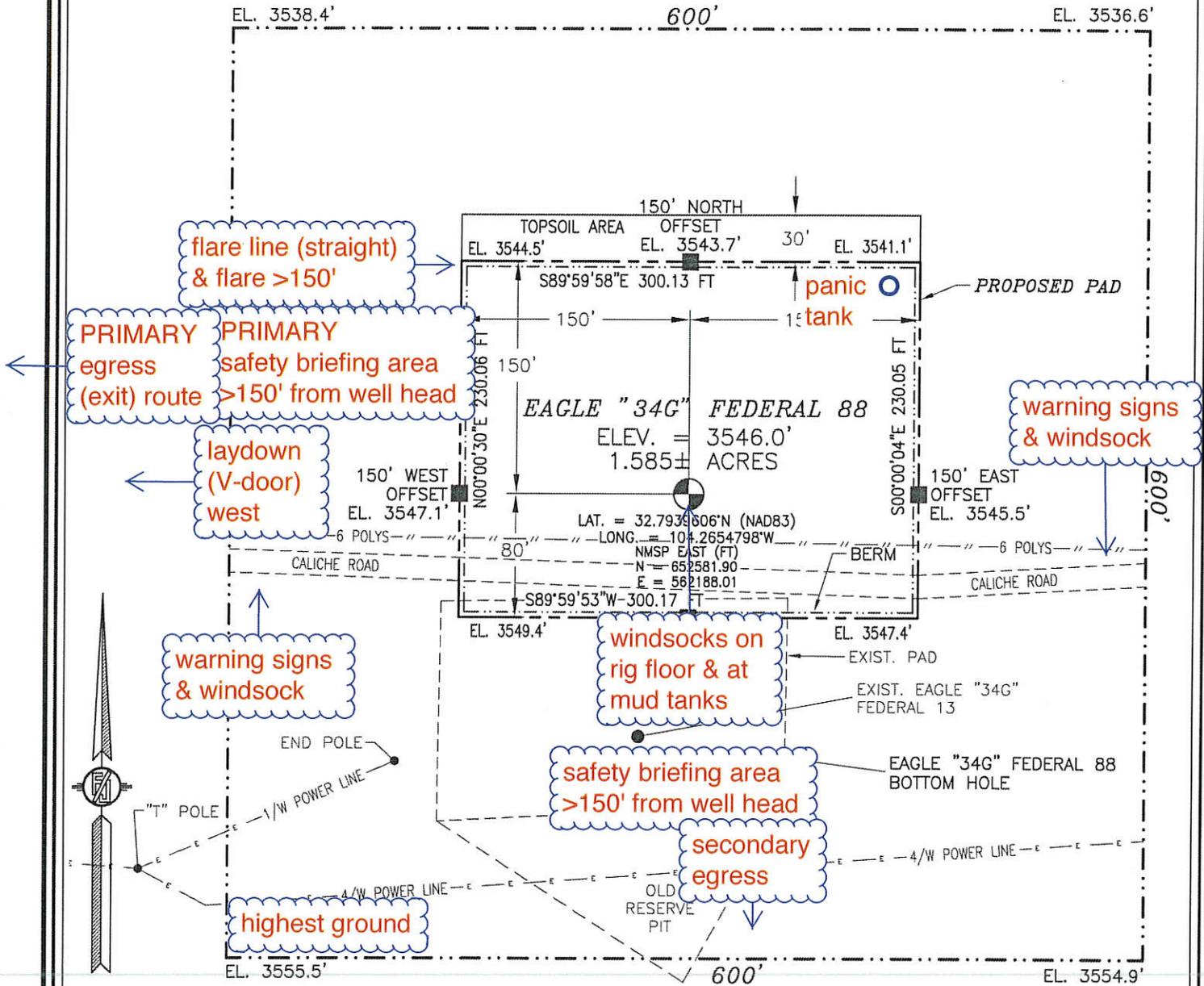
- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST MODIFIED TO SURFACE COORDINATES.

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
SITE MAP

H2S PAGE 5

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



SCALE 1" = 100'
DIRECTIONS TO LOCATION
 FROM CR 225 (EMPIRE) AND CR 227 (LITTLE DIAMOND) GO SOUTHWEST ON CR 227 0.5 OF A MILE, TURN RIGHT ON CALICHE ROAD AND GO NORTH 0.1 OF A MILE, BEND LEFT AND GO NORTHWEST 0.7 OF A MILE, TURN RIGHT AND GO NORTHEAST 0.15 OF A MILE, BEND LEFT AND GO NORTH 0.4 OF A MILE, TURN RIGHT AND GO SOUTHEAST 465' TO THE PROPOSED SOUTHWEST PAD CORNER FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.
EAGLE "34G" FEDERAL 88
 LOCATED 1495 FT. FROM THE NORTH LINE
 AND 2275 FT. FROM THE EAST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

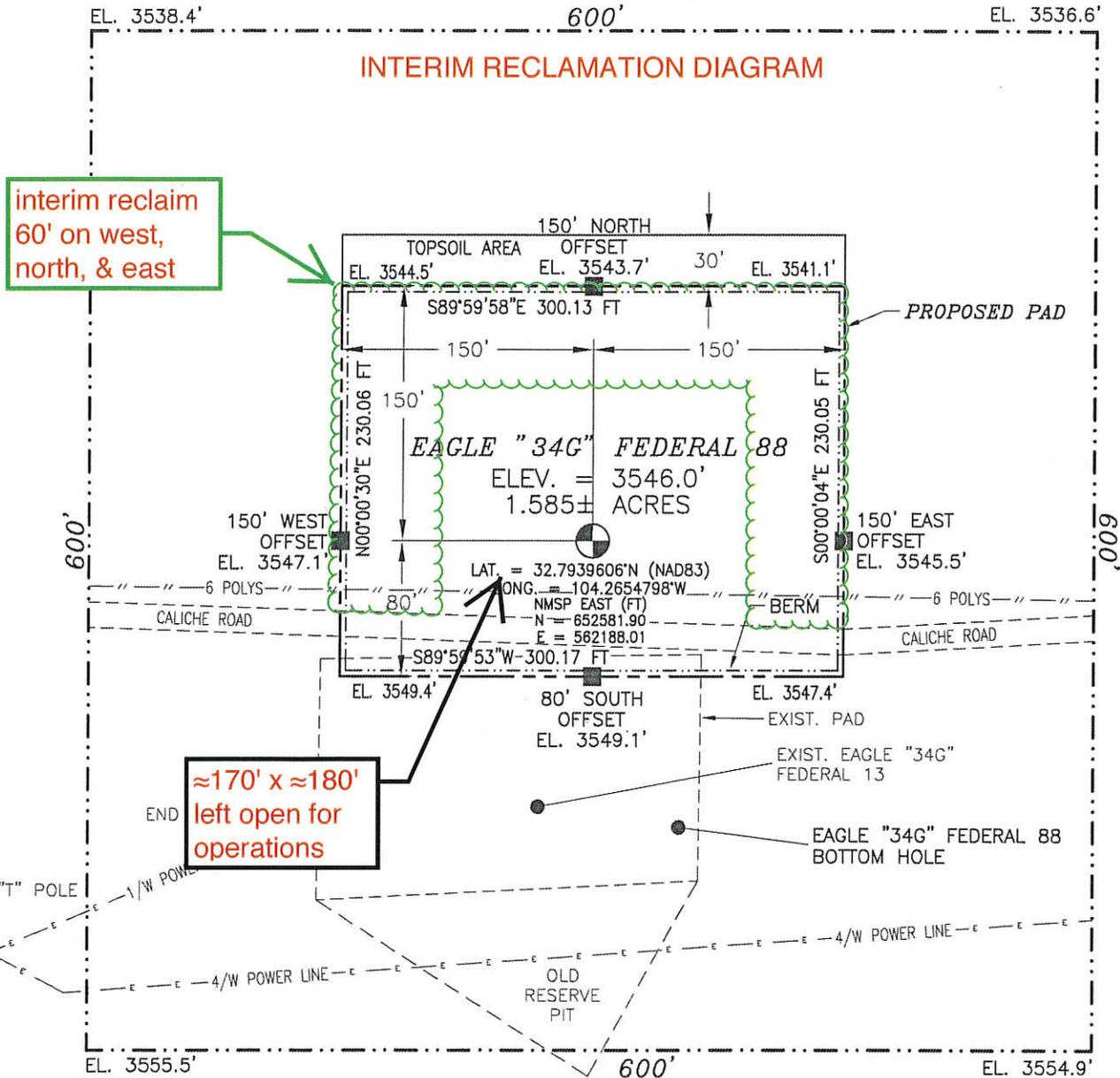
**prevailing wind
 blows from SSW**

FEBRUARY 10, 2016

SURVEY NO. 4415A

SECTION 34, TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO
 SITE MAP

NOTE: LATITUDE AND LONGITUDE COORDINATES ARE SHOWN USING THE NORTH AMERICAN DATUM OF 1983 (NAD83). LISTED NEW MEXICO STATE PLANE EAST COORDINATES ARE GRID (NAD83). BASIS OF BEARING AND DISTANCES USED ARE NEW MEXICO STATE PLANE EAST COORDINATES MODIFIED TO THE SURFACE



≈170' x ≈180'
 left open for
 operations

interim reclaim
 60' on west,
 north, & east

010 50 100 200

SCALE 1" = 100'

DIRECTIONS TO LOCATION
 FROM CR 225 (EMPIRE) AND CR 227 (LITTLE DIAMOND) GO
 SOUTHWEST ON CR 227 0.5 OF A MILE, TURN RIGHT ON CALICHE
 ROAD AND GO NORTH 0.1 OF A MILE, BEND LEFT AND GO
 NORTHWEST 0.7 OF A MILE, TURN RIGHT AND GO NORTHEAST 0.15
 OF A MILE, BEND LEFT AND GO NORTH 0.4 OF A MILE, TURN RIGHT
 AND GO SOUTHEAST 465' TO THE PROPOSED SOUTHWEST PAD
 CORNER FOR THIS LOCATION.

LIME ROCK RESOURCES II-A, L.P.
EAGLE "34G" FEDERAL 88
 LOCATED 1495 FT. FROM THE NORTH LINE
 AND 2275 FT. FROM THE EAST LINE OF
 SECTION 34, TOWNSHIP 17 SOUTH,
 RANGE 27 EAST, N.M.P.M.
 EDDY COUNTY, STATE OF NEW MEXICO

FEBRUARY 10, 2016

SURVEY NO. 4415A

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3341 CARLSBAD, NEW MEXICO

Appendix C – Plant Survey Report



Lime Rock Resources II-A, L.P.

Proposed Eagle 34 G Federal 88 Well and Surface Flow Lines

SW/NE, Section 34, Township 17 South, Range 27 East, Eddy County, New Mexico

Plant Survey Report

Prepared by Robyn W. Tierney, Permits West, Inc., Santa Fe, New Mexico

April 22, 2016

INTRODUCTION

Lime Rock Resources II-A, L.P. (Lime Rock) has filed an Application to Drill (APD) one vertical well (Eagle 34 G Federal 88). Lime Rock also proposes to construct 2,418.98 feet of new surface three-inch O.D. SDR 7 poly flow lines (1 gas and 1 production) in a 30-foot wide corridor from the proposed Eagle 34 G Federal 88 well to the existing Eagle 33/34 Federal Tank Battery.

The proposed project is located on BLM lands (Lease No. NMNM-557370) in the SW/4 NE/4, Section 34, Township 17 South, Range 27 East, Eddy County, New Mexico (Spring Lake, NM, 7.5 minute USGS quadrangle), approximately nine miles southeast of Artesia, New Mexico.

Project Description

The well pad containing the proposed Eagle 34 G Federal 88 well will be 230-feet N/S by 300-feet E/W in size, for a total area of 1.585 acres. The south edge of the proposed well pad will overlap an existing caliche road and the existing pad of the producing Eagle 34 G Federal 13 well. A topsoil stockpile measuring 150 feet by 30 feet (0.103 acres) will be located along the north side of the well pad.

Two three-inch O.D. poly surface pipelines (one gas and one production) will be laid 2,418.98-feet west, south, west, south, and west from the southwestern corner of the proposed well pad to the northeast corner of Lime Rock's existing Eagle 33/34 Federal battery. The total length of the proposed flow line corridor is 2,418.98 feet in a 30-foot ROW for a total disturbance area of 1.666 acres.

Following interim reclamation, the well area will be reduced in size by reclaiming a 60 foot-wide swath on the west, north, and east sides of the proposed pad. This will reduce the size of the proposed pad by approximately 56% to a 170-foot x 180-foot or 0.702 acre area around the pump jack.

Purpose of Survey and Report

This botanical survey report discusses the potential effects of approving the Application to Drill and the installation of 2,418.98 feet of surface flow lines (1 gas and 1 production) in a 30-foot corridor on federal and state listed plant species and designated critical habitats that may occur within Eddy County and are protected under the Endangered Species Act (ESA, 16 USC 1531 et seq.) and the corresponding New Mexico State Endangered Plant Species List (EMNRD 2015).

An endangered plant species is one that is considered to be in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. The federal Endangered Species Act (ESA) protects all listed species from harm or “take” which is broadly defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” Any such activity includes destruction of habitat and can be defined as a “take” even if it is unintentional or accidental. The U.S. Fish and Wildlife Service (USFWS) has jurisdiction over federally listed threatened and endangered plant species.

In addition to federally listed endangered and threatened species, which are legally protected under the ESA, the USFWS has developed a list of proposed and candidate species, species of concern, and experimental populations. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Register; a designation that offers limited protection under the ESA. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities. A species of concern refers to a species that may be in decline or may require specific conservation actions. An experimental population is a reintroduced population established outside of its current range, but within its historical range and is treated as a proposed species. Candidate species, species of concern, and experimental populations are not afforded legal protection under the federal ESA or under Section 75-6-1 of the New Mexico Statutes Annotated (NMSA 1978).

The proposed project area was also surveyed in accordance with BLM Manual 6840, for the potential presence of sensitive species identified from the New Mexico State Endangered Plant Species List (Section 75-6-1 NMSA 1978) and the New Mexico Bureau of Land Management State Office’s (NMSO BLM) list of sensitive species. Again, these species are not protected under the ESA, but are part of an overall effort by the BLM to focus management efforts toward maintaining habitats under a multiple use mandate.

Project Area

The proposed project is located in an area containing porous reef masses of dolostones interspersed among shallow eolian dunal deposits (Broadhead and Speer 1993). The elevation of the project area is 3,546 feet at the proposed Eagle 34 J Federal 89 well head. Disturbances in and around the project area are extensive and include: an existing caliche road and the well pad for the producing Eagle 34 G Federal 13 well on the south edge of the proposed pad; and a power line that extends from the north

towards the northwest corner of the proposed well pad. Most of the ground surface in the project area has been disturbed by grazing and the vegetation is sparsely distributed across the landscape.

The project area is located in the Pecos Valley subsection of the Southern Great Plains physiographic province. The Pecos River alluvial valley and alluvial terraces runs north to south, approximately three miles west of the project area. The geology of the project area is dominated by hills comprised of interbedded dolomites, redbeds, mudstones, and gypsum-dominated evaporites of the Tansill and the upper Permian Salado formations (NMBGR, McCraw, Land, and Williams 2011). Karstic depressions and features also are evident in the vicinity of the project area and many of the larger drainages in the area appear to contain subsurface karst features.

The project area is located between Logan Draw and Scoggin Draw at an elevation of 3546 feet, and is approximately three miles east of the Pecos River floodplain. The terrain at the site is moderately sloped with slopes trending from east to southwest and sharply breaking above the Logan and Scoggin Draw drainages. No effect to the Pecos River floodplain is anticipated from the proposed project.

Soils throughout the project area are derived from residuum weathered from gypsum and are mostly composed of the Reeves-Gypsum land complex, 0 to 3 percent slopes (NRCS 2016). The Reeves map unit is found on the backslopes and footslopes of ridges and hills. A typical soil profile of the Reeves map unit is comprised of loam (H1, 0 to 8 inches), clay loam (H2, 8 to 32 inches), and gypsiferous material (H3, 32 to 60 inches). These are well drained soils with very low to moderately low capacity to transmit water or to store water – making them prone to sheet erosion and dissolution.

Vegetation in the project area is classified as the Gypsum-Bedrock (Dick-Peddie 1993) and the Chihuahuan desert scrub communities (Brown et al. 1998, 2007). Dominant species observed throughout the project area included coldenia (*Tiquilia hispidissima*), cresote (*Larrea tridentata*), soap tree yucca (*Yucca elata*), tobosa (*Pleuraphis mutica*), black grama (*Bouteloua eriopoda*), and three-awn (*Aristida* sp.). Forb and cactus species included purple phacelia (*Phacelia integrifolia*), beavertail cactus (*Opuntia basilaris*), Christmas pencil cactus (*Cylindropuntia leptocaulis*), Texas rainbow cactus (*Echinocereus dasyacanthus*), desert madwort (*Alyssum* sp.), Hartweg's sundrops (*Oenothera hartwegii*), broom rape (*Orobanche* sp.), purple nama (*Nama hispidum*), and Plains flax (*Linum puberulum*).

METHODOLOGY

The proposed project area was surveyed on April 21, 2016 by botanist Robyn Tierney. Weather during the survey was clear and sunny with temperatures in the mid- to upper 70s°F and light winds from 3 to 5 miles per hour. Prior to conducting the survey, databases identifying the Threatened and Endangered plant species and species of concern listed by the U.S. Fish and Wildlife Service's Information, Planning, and Conservation System (IPaC 2016), the State of New Mexico's Endangered Plant Species Program (EMNRD 2016), the New Mexico Rare Plant Technical Committee (NMRPTC 1999, revised 2015), and the New Mexico State Office, Bureau of Land Management (NMSO-BLM) were examined.

The pedestrian survey was conducted by walking a series of parallel belt transects spaced at 50 to 100-foot intervals across the proposed well pad, a 50-foot wide area marking the limits of disturbance around the well pad, and a 50-foot wide corridor along the proposed surface pipeline corridor. The purpose of the survey was to inspect for and to identify federally listed species and other species of concern that may occur within the project area. All plants observed in the project area were identified in order to provide a more complete description of the project area’s environment. A list of the plants observed in the project area is included at the end of this report in Table 2.

SURVEY RESULTS

Species of Interest to the U.S. Fish and Wildlife Service (USFWS) and the State of New Mexico: This report discusses the potential for disturbance to the plant species of concern that may occur in Eddy County and the project area as identified by the U.S. Fish and Wildlife Service’s Information, Planning, and Conservation System (IPaC 2016), the BLM, and the State of New Mexico Endangered Plant Species Program (EMNRD 2015, NMRPTC 1999, revised 2015)

Details of the status, habitat, and the potential to occur in the project area for each of these species are presented in Table 1.

Table 1. Species of interest, status, habitat, and potential to occur in Eddy County and in the proposed Eagle 34 G Federal 88 project area (IPaC 2016, EMNRD 2015, NMRPTC 1999, revised 2015)

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Amsonia tharpii</i> Tharp’s blue-star</p> <p>USFWS: SoC</p> <p>State of New Mexico: E</p> <p>BLM: S</p>	<p>Occupies limestone and gypsum hills composed of sedimentary outcrops or alluvium derived from Upper Permian beds of the Rustler, Gatuña, and Castille Formations containing gypsum or Ogallala-like caliche fragments in Chihuahuan desert scrub communities; 3,100-3,500 ft. (NMRPTC 1999, Howard 2007, cited in Roth 2013).</p>	<p>Three known populations of this plant are located north, southwest, and southeast of the project area. The highly disturbed substrates in the project area consist of shallow gypsic soils derived from Tanil and Salado formations rather than outcrops and alluvium and are not suitable for this species. No appropriate habitat</p>
<p><i>Anulocaulis leiosolenus</i> var. <i>gypsogenus</i> Pecos gyp ringstem</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Species is confined to open gypsum outcrops and gypsum rich soils; 3,300 – 4,600 ft. (NMRPTC 1999).</p>	<p>Project area is located in highly disturbed desert scrub and is located in shallow gypsic soils derived from Tanil and Salado formations. No plants observed, though species has been previously observed in the area. Appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Aquilegia chaplinei</i> Chaplins columbine</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: S</p>	<p>Found near limestone seeps and springs in the montane scrub or riparian canyon bottoms of remote canyons; 4,700 – 5,500 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Astragalus gypsodes</i> Gypsum milkvetch</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: S</p>	<p>Endemic to the gypsum flats and low gullied gypsic hills of the Castile Formation in Chihuahuan desert scrub; 3,500 – 4,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in highly disturbed desert scrub and is located in shallow gypsic soils derived from Tanil and Salado formations. No plants observed. Appropriate habitat</p>
<p><i>Chaetopappa hersheyi</i> Hershey's cliff daisy</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Endemic to steep canyons of the Guadalupe Mountains. Habitat consists of steep limestone cliffs in pinon-juniper woodland and Rocky Mountain montane coniferous forest communities; 5,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 2,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Cirsium wrightii</i> Wright's marsh thistle</p> <p>USFWS: C</p> <p>State of New Mexico: E</p> <p>BLM: --</p>	<p>Obligate wetland species found in wet, alkaline soils of spring seeps and along the marshy edges of streams and ponds; (3,450 - 8,500 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub with no springs, seeps, or marshes. No appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Coryphantha robustispina</i> ssp. <i>scheeri</i> Scheer pincushion</p> <p>USFWS: C</p> <p>State of New Mexico: E</p> <p>BLM: S</p>	<p>Favors nearly level areas in desert grassland Chihuahuan desert scrub, usually found on gravelly or silty soils and occasionally on rocky limestone or gypseous benches or bajadas, 3,300 – 3,600 ft. (NMRPTC 1999).</p>	<p>Project area is located in highly disturbed desert scrub and shallow gypsic soils derived from Tanil and Salado formations. No appropriate habitat</p>
<p><i>Dermatophyllum guadalupense</i> Guadalupe mesquite</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: S</p>	<p>Found in outcrops of pink, limy, fine-grained sandstone that is 1-2 percent gypsum by analysis with a surface pavement of limestone gravel and cobble, in Chihuahuan desert scrub and juniper savanna; 5,260 – 6,650 ft. (NMRPTC 1999).</p>	<p>Project area is nearly 2,000 feet lower than species elevational range. Only known Eddy County location straddles the Otero/Eddy county line and is limited to the Brokeoff Mountains and Upper Dog Canyon area of the Guadalupe Mountains in New Mexico and adjacent Culberson County, Texas (NMRPTC 1999) No appropriate habitat</p>
<p><i>Echinocereus fendleri</i> var. <i>kuenzleri</i> Kuenzler's hedgehog cactus</p> <p>USFWS: E</p> <p>State of New Mexico: E</p> <p>BLM: E</p>	<p>Found on gentle, gravelly to rocky slopes and benches on limestone or limy sandstone in Great Plains grassland, oak woodland, or pinon-juniper woodland at the north end of the Guadalupe Mountains; 5,200 – 6,600 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 3,000 feet lower than species elevational range. No appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Ericameria nauseosa</i> var. <i>texensis</i> Guadalupe rabbitbrush</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Endemic to the Guadalupe-Brokeoff range of mountains, plant is found in crevices on faces of limestone cliffs and adjacent to boulders of canyon woodlands; less frequently in open gravel alluvium of stream beds in pinon-juniper woodland and Chihuahuan desert scrub; 4,900 – 7,000 ft. (NMRPTC 1999).</p>	<p>Project area is located nearly 3,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Eriogonum gypsophilum</i> Gypsum wild buckwheat</p> <p>USFWS: T</p> <p>State of New Mexico: E</p> <p>BLM: T</p>	<p>Plant is restricted to almost pure gypsum that is sparsely vegetated with other gypsophilous plants; 3,280 – 3,600 ft. (NMRPTC 1999).</p>	<p>Project area is located in highly disturbed desert scrub and is located in shallow gypsic soils derived from Tanil and Salado formations which are not strictly defined as pure gypsum. No appropriate habitat</p>
<p><i>Escobaria guadalupensis</i> Guadalupe pincushion cactus</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Plant is found in cracks in limestone and rocky soils of broken terrain in open oak and pinon-juniper woodland, also in lower montane coniferous forest and Chihuahuan desert scrub; 5,200 – 7,200 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 2,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Escobaria sneedii</i> var. <i>leei</i> Lee's pincushion cactus</p> <p>USFWS: T</p> <p>State of New Mexico: E</p> <p>BLM: T</p>	<p>Plant is found in cracks in limestone in areas of broken terrain and steep slopes of Chihuahuan desert scrub of the Guadalupe Mountains; 4,000 – 5,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,000 feet lower than species elevational range. No appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Hedeoma apiculate</i> McKittrick pennyroyal</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Endemic to the Guadalupe Mountains, plant is found in limestone crevices of steep canyon walls; usually on north-facing slopes or in areas that sheltered and relatively moist in the Guadalupe Mounains; 5,400 – 8,400 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 3,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Hexalectris nitida</i> Shining crested coralroot</p> <p>USFWS: SoC</p> <p>State of New Mexico: E</p> <p>BLM: --</p>	<p>Plant is found in leaf litter under oaks in the deep canyons of the Guadalupe Mountains; 4,300 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Hexalectris revoluta</i> Curly crested coralroot</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: S</p>	<p>Plant is found in heavy leaf litter under oaks or in thin humic soils among rock outcrops; 6,400 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Justicia wrightii</i> Wright’s justicia</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Found in dry, gravelly clay soils over limestone on flats or on limestone benches on low hills in Chihuahuan desert scruband and shortgrass grasslands; 3,900 ft. (NMRPTC 1999, Poole et al. 2007).</p>	<p>Project area is located in desert scrub and is not located on flats or on limestone benches. No appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Linum allredii</i> Allred's flax</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: S</p>	<p>Plant is found on scarps and hillsides on exposed pale sandy gypsum of the Castile Formation in Chihuahuan Desert scrub; 3,900 ft. (NMRPTC 1999).</p>	<p>Project area is located in highly disturbed desert scrub and is located in shallow gypsic soils derived from Tanil and Salado formations. No appropriate habitat</p>
<p><i>Muhlenbergia villiflora</i> var. <i>villosa</i> Hairy muhly</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Found in open desert grassland and desert savanna on alkaline and calcareous soils; 4,800 – 5,200 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Nama xylopodium</i> Cliff nama</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM:</p>	<p>Found in partly shaded limestone cliffs and outcrops in montane scrub to pinon-juniper oak woodlands of the Guadalupe Mountains; 4,500 – 6,500 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,500 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Penstemon cardinalis</i> ssp. <i>regalis</i> Guadalupe penstemon</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: S</p>	<p>Plant is found on limestone slopes and canyon bottoms in montane scrub, pinon-juniper woodlands, and lower montane coniferous forests; 4,500 – 6,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,500 feet lower than species elevational range. No appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<p><i>Perityle quinqueflora</i> Five-flowered rock daisy</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Plant is found in crevices of limestone bluffs, cliffs in high canyons and caprock; 5,000 – 6,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 2,000 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Polygala rimulicola</i> var. <i>rimulicola</i> Guadalupe milkwort</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Plant is found in cool crevices of limestone cliffs in montane coniferous forests; 5,000 – 8,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 2,500 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Salvia summa</i> Supreme sage</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Restricted to partly shaded limestone cliffs in the Guadalupe mountains; 5,000 – 7,000 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 2,500 feet lower than species elevational range. No appropriate habitat</p>
<p><i>Solidago wrightii</i> var. <i>guadalupensis</i> Guadalupe Mountains goldenrod</p> <p>USFWS: SoC</p> <p>State of New Mexico: SoC</p> <p>BLM: --</p>	<p>Plant is found on limestone outcrops and substrates and is most commonly associated with acacia-juniperus-dasyliirion-lechuguilla, oak, oak-maple, and yellow pine-maple-hophornbeam-madrone vegetation types of the Guadalupe Mountains; 4,300 – 7,100 ft. (NMRPTC 1999).</p>	<p>Project area is located in desert scrub and is nearly 1,500 feet lower than species elevational range. No appropriate habitat</p>

SPECIES STATUS	HABITAT	POTENTIAL TO OCCUR IN THE PROJECT AREA*
<i>Streptanthus sparsiflorus</i> Guadalupe jewelflower USFWS: SoC State of New Mexico: SoC BLM: S	Found in rugged limestone canyon bottoms and montane scrub; 5,000 – 7,000 ft. (NMRPTC 1999).	Project area is located in desert scrub and is nearly 2,500 feet lower than species elevational range. No appropriate habitat
<i>Valeriana texana</i> Texas tobacco-root USFWS: SoC State of New Mexico: SoC BLM: --	Plant is found in shaded, moist limestone or igneous cliffs, occasionally in canyon bottoms and in boulder fields in creek bottoms, within pinon-juniper woodland and montane coniferous forest; 5,200 – 8,000 ft. (NMRPTC 1999).	Project area is located in desert scrub and is nearly 2,500 feet lower than species elevational range. No appropriate habitat

Status USFWS – U.S Fish and Wildlife Service (federal) and New Mexico (state) listed species: Endangered (E) – An animal or plant species in danger of extinction throughout all or a significant portion of its range. Threatened (T) – An animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Candidate (C) - Candidate species are plants and animals for which the U.S. Fish and Wildlife Service (FWS) has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act (ESA), but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Sensitive (S) and Species of Concern (SoC)

The project area has been disturbed and contains marginally suitable habitat consisting of “open gypsum outcrops and gypsum rich soils” for Pecos gyp ringstem (*Anulocaulis leiosolenus* var. *gypsogenus*), a federal and state species of concern. No plants were observed during the botanical survey, though the species has been observed near other wells in this area. Thus, the proposed project would not likely contribute to a trend towards federal listing or cause a loss of viability to the Pecos gyp ringstem population or species as a whole.

The project area has been disturbed and contains marginally suitable habitat consisting of “low gullied gypsic hills” for the gypsum milkvetch (*Astragalus gypsoides*), a federal and state species of concern. No plants were observed during the botanical survey. Thus, the proposed project would not likely contribute to a trend towards federal listing or cause a loss of viability to the gypsum milkvetch population or species as a whole.

No federal or state listed plant species were observed in the project area (IPaC 2016, EMNRD 2015, NMRPTC 1999, revised 2015).

No BLM plant species of concern were observed in the project area.

Plant species that were observed during the survey are listed in Table 2 below. Plant identifications are from a variety of sources including: *Rare Plants of Texas* (Poole et al. 2007) and the herbarium database from the Centennial Museum, University of Texas, El Paso (Centennial Museum, UTEP 2016). Scientific names are from these sources and the USDA Plants Database (2016).

Table 2. Plants observed in the vicinity of the proposed Eagle 34 G Federal 88 project area

Scientific Name	Common Name
Shrubs and Subshrubs	
<i>Larrea tridentata</i>	Creosote
<i>Tiquilia hispidissima</i>	Coldenia
Grasses and Grass-like Plants	
<i>Aristida spp.</i>	Three-awn species
<i>Bouteloua eriopoda</i>	Black grama
<i>Bouteloua breviseta</i>	Gyp grama
<i>Pleuraphis mutica</i>	Tobosa
Forbs and Cacti	
<i>Alyssum desertorum</i>	Desert madwort
<i>Cylindropuntia leptocaulis</i>	Christmas pencil cactus
<i>Dimorphocarpa wislizenii</i>	Spectacle pod
<i>Echinocereus dasyacanthus</i>	Texas rainbow cactus
<i>Erigeron sp.</i>	Spiny aster species
<i>Linum puberulum</i>	Plains flax
<i>Nama hispidum</i>	Purple nama
<i>Oenothera hartwegii</i>	Hartweg's sundrops
<i>Opuntia basilaris</i>	Beavertail cactus
<i>Orobanche sp.</i>	Broomrape species
<i>Phacelia integrifolia</i>	Purple scorpionweed
<i>Yucca elata</i>	Soaptree yucca

No perennial streams, alkali seeps or wetlands were recorded in the immediate area of the project line (USFWS 2016, National Wetlands Inventory) and none were observed within the boundaries of the well pad, surface pipeline corridor, existing road corridors, or buffer zones around these features.

No noxious weed species listed by the New Mexico Department of Agriculture (NMDA, Gonzales 2009), were observed in the proposed project area.

DISCUSSION

The U.S. Fish and Wildlife Service's Information, Planning, and Conservation System (IPaC 2016) the State of New Mexico (EMNRD 2015), and the New Mexico Rare Plant Technical Committee (NMRPTC 1999, revised 2015) list 27 Threatened, Endangered or species of concern in the project area and in Eddy County, New Mexico. No federal or state listed plant species or suitable habitats for these species were observed in the project area (IPaC 2016, EMNRD 2015, NMRPTC 1999, revised 2015).

No BLM plant species of concern were observed in the project area.

The proposed Eagle 34 G Federal 88 project would have no effect on any federally listed threatened or endangered plant species. In addition, no critical habitat occurs within or near the proposed project and the proposed project would not modify existing or proposed critical habitat. Therefore no USFWS consultation is necessary for this project.

RECOMMENDATIONS

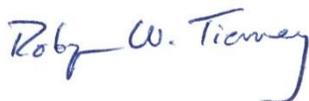
- Earth-moving equipment should be washed prior to being brought onto the well site to help prevent the introduction of noxious weeds to the project area.
- To limit any impacts to vegetation and to protect any threatened or endangered species that were not observed during the April 2016 field survey, workers would be instructed not to park off of existing roads or in undisturbed areas.
- The project area will be subject to erosion while soils remain bare. Interim reclamation of the well pad must be completed within 6 months of well completion. Surface disturbance will exceed one acre and the project will require a Storm Water Pollution Prevention Plan (SWPPP).
- Upon completion of the project, successful reclamation of the project area should include clean-up of all materials and equipment. Revegetation of the project area should include use of certified weed-free native seed mixes approved by the BLM Carlsbad Field Office that are compatible with wildlife habitat requirements and the project area's current land use of rangeland.

CONCLUSIONS

The proposed Eagle 34 J Federal 88 project would have no effect on federal or state listed threatened or endangered plant species. In addition, no critical habitat occurs within or near the proposed project and the proposed project would not modify existing or proposed critical habitat. Therefore, no USFWS consultation is necessary for this project.

Report Preparer and Certification

The results and conclusions contained in this report represent my best professional judgment and are based on actual field examination, information provided by the project proponent, applicable agencies, and other sources.



Signature of Author:

Robyn W. Tierney

April 22, 2016

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Appendix D – Wildlife Survey Report



Lime Rock Resources II-A, L.P.

Proposed Eagle 34 G Federal 88 Well and Surface Flow Lines

SW/NE, Section 34, Township 17 South, Range 27 East, Eddy County, New Mexico

Threatened, Endangered, and Special Status Wildlife Species Report

Prepared by Charles Black, Permits West, Inc., Santa Fe, New Mexico

May 5, 2016

INTRODUCTION

Lime Rock Resources II-A, L.P. (Lime Rock) has filed an Application to Drill (APD) one vertical well (Eagle 34 G Federal 88). Lime Rock also proposes to construct 2,418.98 feet of new surface three-inch O.D. SDR 7 poly flow lines (1 gas and 1 production) in a 30-foot wide corridor from the proposed Eagle 34 G Federal 88 well to the existing Eagle 33/34 Federal Tank Battery.

The proposed project is located on BLM lands (Lease No. NMNM-557370) in the SW/4 NE/4, Section 34, Township 17 South, Range 27 East, Eddy County, New Mexico (Spring Lake, NM, 7.5 minute USGS quadrangle), approximately nine miles southeast of Artesia, New Mexico.

This wildlife survey report discusses the potential effects of approving the Application for Permit to Drill and right-of-way application for the surface pipeline to federal listed wildlife species and designated critical habitats that may occur within Eddy County and are protected under the Endangered Species Act (ESA, 16 USC 1531 et seq.), the Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act of 1940 (BGEPA; 16 U.S.C. 668-668c).

METHODS

Prior to the field surveys, the following databases were reviewed:

- U.S. Fish and Wildlife Service (USFWS IPaC 2016) *Listed and Sensitive Species in Eddy County* (downloaded and reviewed April 20, 2016)
- New Mexico Department of Game and Fish *Biota Information System of New Mexico* (BISON-M), 2016. *Threatened, Endangered, and Sensitive Wildlife Species for Eddy County, New Mexico* (downloaded and reviewed April 20, 2016)

On April 21, 2016, Wildlife Biologist Charles Black conducted a pedestrian survey of the project area to inspect for the potential presence of threatened, endangered, or special status species. Weather during the survey was clear and breezy, with daytime highs around 75 °F.

The surveyed area consisted of evaluating the well pad and a 50-foot buffer around the proposed pad, existing access road, and proposed pipeline corridor. A 0.5-mile radius around the project area also was surveyed for raptor nests by the surveyor using 10 X 40 binoculars.

Description of Existing Habitat

The project area is located between Logan Draw to the northeast and Scoggin Draw to the south. The terrain at the site is moderately sloped with slopes trending from east to west and sharply breaking above the Logan and Scoggin Draw tributaries. Most of the ground surface in the project area has been bladed or disturbed. The area to the south of the proposed well site has been disturbed by the development of the Eagle 34 G Federal 13 well and by grazing and vegetation is sparse. The project area is located approximately three miles east of the Pecos River floodplain at an elevation of 3,546 feet. No effect to the Pecos River floodplain is anticipated from the proposed project.

Vegetation is dominated by degraded Chihuahuan desert shrubland and gypsum-badlands. Some small shrubs are present. Dominant shrubs included creosote bush (*Larrea tridentata*) and coldenia (*Tiquilia hispidissima*). The site is sparsely vegetated. Grass cover is approximately 15%. Wildlife occurring in the area is typical of degraded, brush encroached grasslands and scrublands of the Chihuahuan Desert. This includes passerines such as Black-throated sparrows (*Amphispiza bileanata*), Brewer’s sparrows (*Spizella breweri*), as well as jackrabbits (*Lepus spp.*), and whiptail lizards (*Cnemidophorus spp.*).

Threatened, Endangered, and Special Status Wildlife Species Federal Endangered, Threatened and Special Status Species

The following table (Table 1) discusses Federal and State of New Mexico Endangered, Threatened species of Eddy County with the potential to occur at or near the project area.

Species	Status	Habitat	Potential to Occur in Project Area*
Northern Aplomado Falcon (<i>Falco femoralis septentrionalis</i>)	Federal Endangered /Experimental Population	Formerly a resident in Chihuahuan Desert grasslands, now rare. An experimental reintroduction program is being conducted in Sierra County, New Mexico	NP-see discussion
Lesser Prairie- Chicken (<i>Thympanuchus pallidicinctus</i>)	USFWS Threatened	This species is obligate to shinnery oak (<i>Quercus harvardii</i>) stands in sand dunes	NP-see discussion
Sprague’s pipit (<i>Anthus spragueii</i>)	Federal Candidate	Migrates and occasionally overwinters in grassland areas of southeastern New Mexico.	NS-See discussion

***Potential to Occur in Project Area**

- K - Known, documented observation within project area
- S - Habitat suitable and species suspected to occur within the project area
- NS - Habitat suitable but species is not suspected to occur within the project area
- NP - Habitat not present and species unlikely to occur within the project area

State of New Mexico, Threatened and Special Status Species

Table 2, below, discusses State Threatened and special status species of Eddy County with the potential to occur at or near the project area.

Species	Status	Habitat	Potential to Occur in Project Area*
Baird’s sparrow (<i>Ammodrammus bairdi</i>)	NM State Threatened	Migrates and occasionally overwinters in grassland areas of southeastern New Mexico	NS-See discussion
Loggerhead shrike (<i>Lanius ludovicianus</i>)	NM State Sensitive taxa	Widespread; occurs within Chihuahuan Desert shrublands	S-See discussion
Dune Sagebrush Lizard (<i>Sceloporus arenicolus</i>)	NM State Threatened	Occurs only the shinnery /sand dune habitats, generally requires deep dune fields	NP-See discussion
Swift fox (<i>Vulpes velox</i>)	NM State Sensitive taxa	Occurs in mesa country and grasslands of NE New Mexico	S-See discussion

***Potential to Occur in Project Area**

- K - Known, documented observation within project area
- S - Habitat suitable and species suspected to occur within the project area
- NS - Habitat suitable but species is not suspected to occur within the project area
- NP - Habitat not present and species unlikely to occur within the project area

DISCUSSION

Northern Aplomado Falcon

This raptor was formerly a resident in Chihuahuan Desert grasslands of southern New Mexico. It is currently very rare in terms of its natural occurrence. A reintroduction of this species occurred in 2005 at the Armendariz Ranch in Sierra County, New Mexico. The release site is approximately 150 miles to the west of the proposed well site. Historic populations of this species required large expanses of continuous desert grasslands with large stands of fire-resistant yucca for nest sites. Grassland habitat at the proposed site is far too degraded to provide suitable falcon habitat and sufficiently sized yucca stands are entirely lacking.

Lesser Prairie Chicken

This species requires monotypic stands of shinnery oak in sand dune habitat. In recent decades, this vegetation type has receded in southern Lea and Eddy counties due to widespread fragmentation and desertification. Based on this wildlife survey, the habitat at the site is not suitable for Prairie chickens.

Sprague's Pipit

This grassland passerine migrates through grassland areas of eastern New Mexico where it occasionally overwinters. Pipits typically migrate through southeastern New Mexico in March and April (spring), and August-early September (fall). It could potentially occur in the project area, although the habitat in the area is marginal. On April 5, 2016, the USFWS issued a proposed rule to remove the Sprague's pipit from candidate status (Federal Register, April 5, 2016). Given the rarity of the species, and the small size of the proposed disturbance, this species should not be adversely impacted by the proposed project.

Baird's Sparrow

This grassland sparrow migrates through grassland areas in eastern New Mexico. It could potentially occur in the project area, although the habitat within the project area is marginal. Baird's sparrows are rare, but scarcity of credible reports may be due to the furtive nature of the species. Baird's Sparrows migrate through southeastern New Mexico in March and April (spring), and August-early September (fall). Given the rarity of the species, and the small size of the proposed disturbance, this species should not be adversely impacted by the proposed project.

Loggerhead Shrike

This species is widespread and common throughout Chihuahuan desert shrublands of southeastern New Mexico. Given the common occurrence of the species, and the small size of the proposed disturbance, this species should not be adversely impacted by the proposed project.

Dune Sagebrush Lizard

This species generally requires deep sand dunes within the shinnery oak community. Based on this wildlife survey, the habitat present at the site is not suitable for lizards, as there are no dunes or stands of shinnery oak in the project area. Given the unsuitable habitat and the small size of the proposed disturbance, this species should not be adversely impacted by the proposed project.

Swift Fox

This species could potentially occur in the project area. No potential fox burrows were observed in the project area. Given the small size of the proposed disturbance, this species should not be adversely impacted by the proposed project.

Wildlife Species Observed on April 21, 2016

Avian Species

Scaled quail (*Callipepla squamata*)
Chihuahuan raven (*Corvus cryptoleucus*)
Northern mockingbird (*Mimus polyglottus*)
Western kingbird (*Tyrannus verticalus*)

Mammalian species

Coyote (*Canis latrans*)
Desert cottontail (*Sylvilagus audubonii*)
Black-tailed jackrabbit (*Lepus californicus*)
Kangaroo rat (*Dipodomys* sp.)
Ground squirrel (*Spermophilus* sp.)

Mammalian observations were generally made from tracks, scat, burrows, and other sign.

Reptilian species

Whiptail lizard (*Cnemidophorus* spp.)

RECOMMENDATIONS

There are no recommendations regarding wildlife in association with the proposed project.

REFERENCES

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