

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

Form 3160-3  
(March 2012)

MAR 12 2018

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR **RECEIVED**  
BUREAU OF LAND MANAGEMENT

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM22080
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator DEVON ENERGY PRODUCTION COMPANY LP		7. If Unit or CA Agreement, Name and No. <b>320150</b>
3a. Address 333 West Sheridan Avenue Oklahoma City OK	3b. Phone No. (include area code) (405)552-6571	8. Lease Name and Well No. TOMB RAIDER 1-12 FED COM 718H
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface LOT 1 / 360 FNL / 1040 FEL / LAT 32.339724 / LONG -103.7263223 At proposed prod. zone LOT P / 360 FNL / 1040 FEL / LAT 32.3124909 / LONG -103.7242538		9. API Well No. <b>30-015-44811</b>
14. Distance in miles and direction from nearest town or post office*		10. Field and Pool, or Exploratory WOLFCAMP / WOLFCAMP <b>98123</b>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 290 feet	16. No. of acres in lease 1280	11. Sec., T. R. M. or Blk. and Survey or Area SEC 1 / T23S / R31E / NMP
18. Distance from proposed location* to nearest well, drilling, completed, 495 feet applied for, on this lease, ft.	19. Proposed Depth 11948 feet / 21962 feet	12. County or Parish EDDY
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3480 feet	22. Approximate date work will start* 04/05/2018	13. State NM
17. Spacing Unit dedicated to this well 320		
20. BLM/BIA Bond No. on file FED: CO1104		
23. Estimated duration 45 days		

24. Attachments

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

- |   |   |
|---|---|
| 1. Well plat certified by a registered surveyor.<br>2. A Drilling Plan.<br>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). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).<br>5. Operator certification<br>6. Such other site specific information and/or plans as may be required by the BLM. |
|---|---|

25. Signature (Electronic Submission)	Name (Printed/Typed) Chance Bland / Ph: (405)228-8593	Date 08/14/2017
Title Regulatory Compliance Professional		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 03/05/2018
Title Supervisor Multiple Resources		

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)

**APPROVED WITH CONDITIONS**  
Approval Date: 03/05/2018

*RUP 3-20-2018*

*Received 3-19-18  
Requested Revised*

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM 1:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use **this form** with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from **the land** or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, **the well**, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications.

Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

## **Additional Operator Remarks**

### **Location of Well**

1. SHL: LOT 1 / 360 FNL / 1040 FEL / TWSP: 23S / RANGE: 31E / SECTION: 1 / LAT: 32.339724 / LONG: -103.7263223 ( TVD: 11435 feet, MD: 11435 feet )  
PPP: LOT 1 / 330 FNL / 400 FEL / TWSP: 23S / RANGE: 31E / SECTION: 1 / LAT: 32.339724 / LONG: -103.7263223 ( TVD: 11913 feet, MD: 12224 feet )  
BHL: LOT P / 360 FNL / 1040 FEL / TWSP: 23S / RANGE: 31E / SECTION: 12 / LAT: 32.3124909 / LONG: -103.7242538 ( TVD: 11948 feet, MD: 21962 feet )

## **BLM Point of Contact**

Name: Sipra Dahal

Title: Legal Instruments Examiner

Phone: 5752345983

Email: sdahal@blm.gov

## **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working **days** of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to **the** Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). **Contact** the above **listed** Bureau of Land Management office for further information.

MAR 12 2018

**PECOS DISTRICT  
DRILLING CONDITIONS OF APPROVAL**

RECEIVED

OPERATOR'S NAME:	Devon Energy Production
LEASE NO.:	NMNM22080
WELL NAME & NO.:	718H-Tomb Raider 1-12 Fed Com
SURFACE HOLE FOOTAGE:	360'/N & 980'/E
BOTTOM HOLE FOOTAGE:	290'/S & 400'/E
LOCATION:	Section 1, R. 31 E, T. 23S, NMPM
COUNTY:	Eddy County, New Mexico

Potash	<input type="radio"/> None	<input checked="" type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input checked="" type="radio"/> Multibowl	
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP

**A. Hydrogen Sulfide**

1. Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

**B. CASING**

1. The 13 3/8 inch surface casing shall be set at approximately 771 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours

after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the **7 5/8** inch intermediate casing is:
    - Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to potash.**
  3. The minimum required fill of cement behind the **5 1/2** inch production casing is:
    - Cement should tie-back at least **500** feet into previous casing string. Operator shall provide method of verification.

## C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2.

### Option 1:

- i. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.
- ii. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7 5/8** intermediate casing shoe shall be **5000 (5M)** psi.

### Option 2:

- i. **Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 5000 (5M) psi.**
  - a. **Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.**

- b. **If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.**
- c. **Manufacturer representative shall install the test plug for the initial BOP test.**
- d. **If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.**
- e. **Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.**

#### **D. SPECIAL REQUIREMENT(S)**

##### **Communitization Agreement**

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

**MHH 02232018**

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

Chaves and Roosevelt Counties  
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.  
During office hours call (575) 627-0272.  
After office hours call (575)

Eddy County  
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

Lea County  
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)  
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after

installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

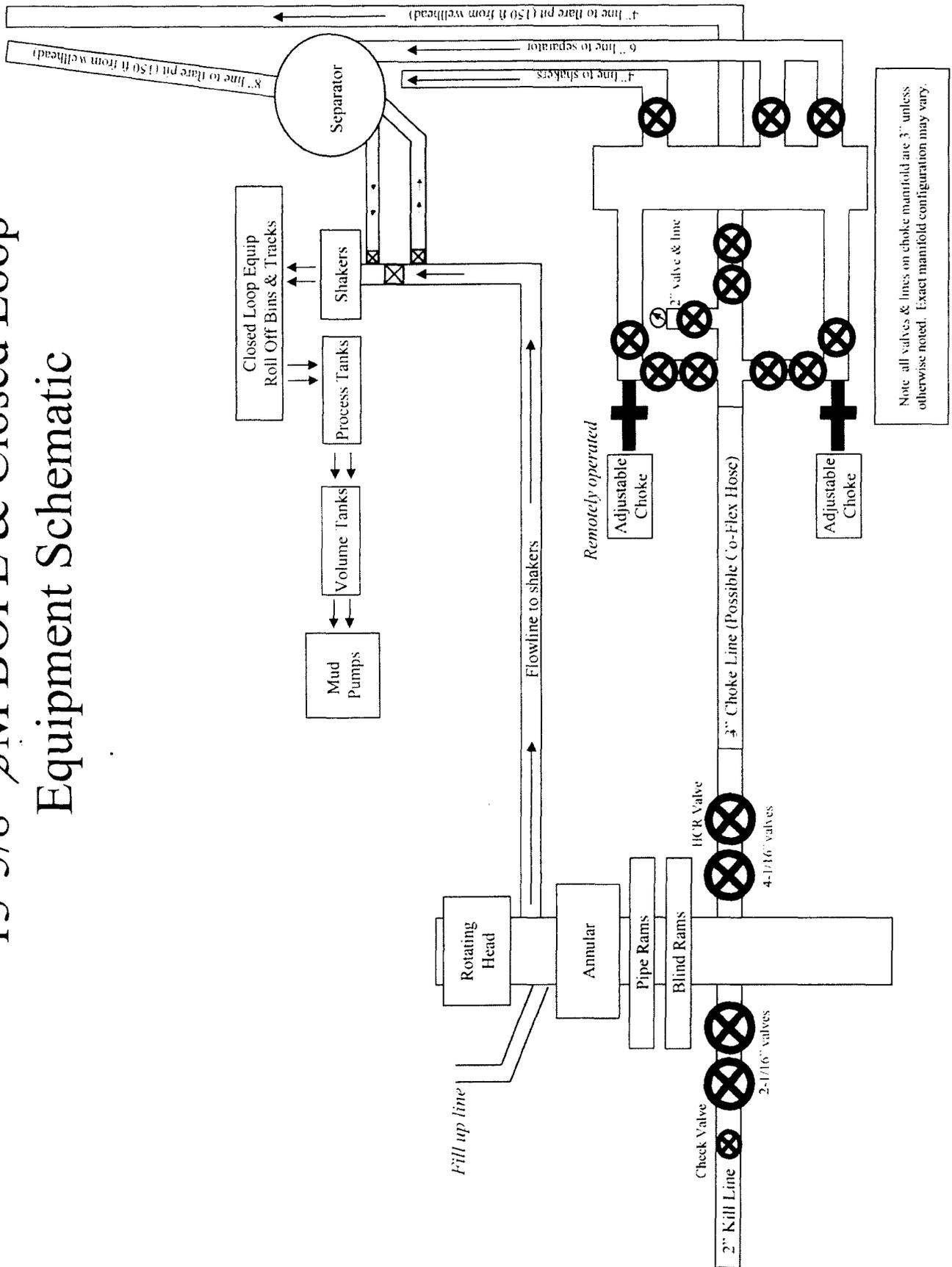
Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

# 13-5/8" 3M BOPE & Closed Loop Equipment Schematic



A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be ~~3000 (3M)~~ <sup>5000 (5M)</sup> psi.

- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of ~~3M~~ <sup>5M</sup> will already be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at ~~3,000~~ <sup>5,000</sup> psi WP.

Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production
LEASE NO.:	NMNM22080
WELL NAME & NO.:	718H-Tomb Raider 1-12 Fed Com
SURFACE HOLE FOOTAGE:	360'N & 980'E
BOTTOM HOLE FOOTAGE:	290'S & 400'E
LOCATION:	Section 1, R. 31 E, T. 23S, NMPM
COUNTY:	Eddy County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
  - Lesser Prairie-Chicken Timing Stipulations
  - Ground-level Abandoned Well Marker
  - Potash
  - Range
  - Watershed
  - Cultural
- Construction**
  - Notification
  - Topsoil
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  - Federal Mineral Material Pits
  - Well Pads
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- Road Section Diagram**
- Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- Interim Reclamation**
- Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- *Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken*, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

The proposed action occurs within one-half mile of the WIPP and Mills lesser prairie-chicken Habitat Evaluation Areas (HEA) as described in the 2008 Special Status Species Resource Management Plan Amendment. Therefore, according to the prescriptions set forth in the RMPA for management of HEAs, non-emergency exceptions to the Timing Limitation Condition-of-Approval will not be granted to afford the species protection during its breeding season.

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

### Raptor Nest Mitigation

- A BLM Wildlife Biologist must be contacted by the operator prior to construction activities to determine if the raptor nests/burrows are active.
- Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest.
- Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

### Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

### Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Livestock Watering Requirement

The operator must contact the allotment holder prior to construction to identify the location of the pipelines. The operator must take measures to protect the pipelines from compression or other damages. If the pipelines are damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipelines immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

Interim reclamation will be conducted on all disturbed areas not needed for active support of production operations, and if caliche is used as a surfacing material it will be removed at time of reclamation to enhance re-establishment of vegetation.

Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Devon would need to avoid the two identified archaeology sites by ensuring that infrastructure and vehicles maintain a minimum distance of 100 feet from these sites.

- Any water erosion that may occur due to the construction of the well pad and CTB pad during the life of the well and CTB will be corrected within two weeks and proper measures will be taken to prevent future erosion.

***Permitted Exceptions for Drilling in the Designated Potash Area***

1. It is the intent of the Department of the Interior to administer oil and gas operations throughout the Designated Potash Area in a manner which promotes safe, orderly co-development of oil, gas, and potash resources. It is the policy of the Department of the Interior to deny approval of most applications for permits to drill oil and gas wells from surface locations within the Designated Potash Area. Three exceptions to this policy will be permitted if the drilling will occur under the following conditions from:
  - a. A Drilling Island associated with a Development Area established under this Order or a Drilling Island established under a prior Order;
  - b. A Barren Area and the Authorized Officer determines that such operations will not adversely affect active or planned potash mining operations in the immediate vicinity of the proposed drill-site; or
  - c. A Drilling Island, not covered by (a) above or single well site established under this Order by the approval and in the sole discretion of the Authorized Officer, provided that such site was jointly recommended to the Authorized Officer by the oil and gas lessee(s) and the nearest potash lessee(s).

***Development Areas***

2. When processing an application for permit to drill (APD) an oil or gas well in the Designated Potash Area that complies with regulatory requirements, the Authorized Officer will determine whether to establish a Development Area in connection with the application, and if so, will determine the boundaries of the Development Area and the location within the Development Area of one or more Drilling Islands from which drilling will be permitted. The BLM may also designate a Development Area outside of the APD process based on information in its possession, and may modify the boundaries of a Development Area. Existing wells may be included within the boundaries of a Development Area. A Development Area may include Federal oil and gas leases and other Federal and non-Federal lands.
  - a. After designating or modifying a Development Area, the BLM will issue a Notice to Lessees, consistent with its authorities under 43 CFR Subpart 3105 and part 3180, information lessees that future drilling on lands under an oil and gas lease within that Development Area will:
    - i. occur, under most circumstances, from a Barren Area or A Drilling Island within the Development Area; and
    - ii. be managed under a unit or communitization agreement, generally by a single operator, consistent with BLM regulations and this Order. Unit and communitization agreements will be negotiated among lessees. The BLM will consider whether a specific plan of development is necessary or advisable for a particular Drilling Island.
  - b. The Authorized Officer reserves the right to approve an operator or successor operator of a Development Area and/or a Drilling Island, if applicable, to ensure that the operator has the resources to operate and extract the oil and gas resources consistent with the requirements of this Order and all applicable laws and regulations, and has provided financial assurance in the amount required by the Authorized Officer.

- c. The Authorized Officer will determine the appropriate designation of a Development Area in terms of location, shape and size. In most cases, a single Drilling Island will be established for each Development Area. In establishing the location, shape and size of a Development Area and an associated Drilling Island, the Authorized Officer will consider:
  - i. the appropriate location, shape, and size of a Development Area and associated Drillings Island to allow effective extraction of oil and gas resources while managing the impact on potash resources;
  - ii. the application of available oil and gas drilling and production technology in the Permian Basin;
  - iii. the applicable geology of the Designated Potash Area and optimal locations to minimize loss of potash ore while considering co-development of both resources;
  - iv. any long term exploration and/or mining plans provided by the potash industry;
  - v. whether a Barren Area may be the most appropriate area for a Drilling Island;
  - vi. the requirements of this Order; and
  - vii. any other relevant factors
- d. As the Authorized Officer establishes a Development Area, the Authorized Officer will more strictly apply the factors listed in Section 6.e.(2)(d), especially the appropriate application of the available oil and gas drilling and production technology in the Permian Basin, when closer to current traditional (non-solution) potash mining operations. Greater flexibility in the application of the factors listed in Section 6.e(2)(d) will be applied further from current and near-term traditional (non-solution) potash mining operations. No Drilling Islands will be established within one mile of any area where approved potash mining operations will be conducted within 3 years consistent with the 3-year mine plan referenced above (Section 6.d.(8)) without the consent of the affected potash lessee(s).
- e. The Authorized Officer may establish a Development Area associated with a well or wells drilled from a Barren Area as appropriate and necessary.
- f. As part of the consideration for establishing Development Areas and Drilling Islands, the BLM will consider input from the potash lessees and the oil and gas lessees or mineral right owner who would be potentially subject to a unitization agreement supporting the Development Are, provided that the input is given timely.

### **Buffer Zones**

3. Buffer Zones of ¼ mile for oil wells and ½ mile for gas wells are hereby established. These Buffer Zones will stay in effect until such time as revised distances are adopted by the BLM Director or other BLM official, as delegated. However, the Authorized Officer may adjust the Buffer Zones in an individual case, when the facts and circumstances demonstrate that such adjustment would enhance conservation and would not compromise safety. The Director will base revised Buffer Zones on science, engineering, and new technology and will consider comments and reports from the Joint Industry Technical Committee and other interested parties in adopting any revisions.

### ***Unitization and Communitization***

4. To more properly conserve the potash, oil, and gas resources in the Designated Potash Area, and to adequately protect the rights of all parties in interest, including the United States, it is the policy of the Department of the Interior that all Federal oil and gas leases within a Development Area should be unitized or subject to an approved communitization agreement unless there is a compelling reason for another operating system. The Authorized Officer will make full use of his/her authorities wherever necessary or advisable to require unitization and/or communitization pursuant to the regulations in 43 CFR Subparts 3105 and 3180. The Authorized Officer will use his/her discretion to the fullest extent possible to assure that any communitization agreement and any unit plan of operations hereafter approved or prescribed within the Designated Potash Area will adhere to the provisions of this Order. The Authorized Officer will work with Federal lessees, and with the State Of New Mexico as provided below, to include non-Federal mineral rights owners in unit or communitization agreements to the extent possible.
5. Coordination with the State of New Mexico.
  - a. If the effective operation of any Development Area requires that the New Mexico Oil Conservation Division (NMOCD) revise the State's mandatory well spacing requirements, the BLM will participate as needed in such a process. The BLM may adopt the NMOCD spacing requirements and require lessees to enter into communitization agreements based on those requirements.
  - b. The BLM will cooperate with the NMOCD in the implementation of that agency's rules and regulations.
  - c. In taking any action under Section 6.e. of this Order, the Authorized Officer will take into consideration the applicable rules and regulations of the NMOCD.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Tomb Raider Drill Island (See Potash Memo and Map in attached file for Drill Island description).

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

**G. ON LEASE ACCESS ROADS****Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**

Ditching shall be required on both sides of the road.

**Turnouts**

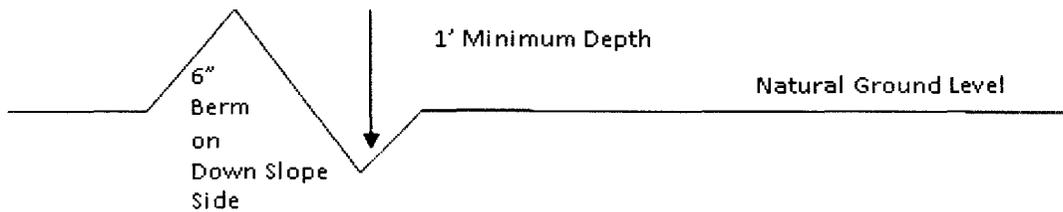
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

### Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

### Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

### Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

**Construction Steps**

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

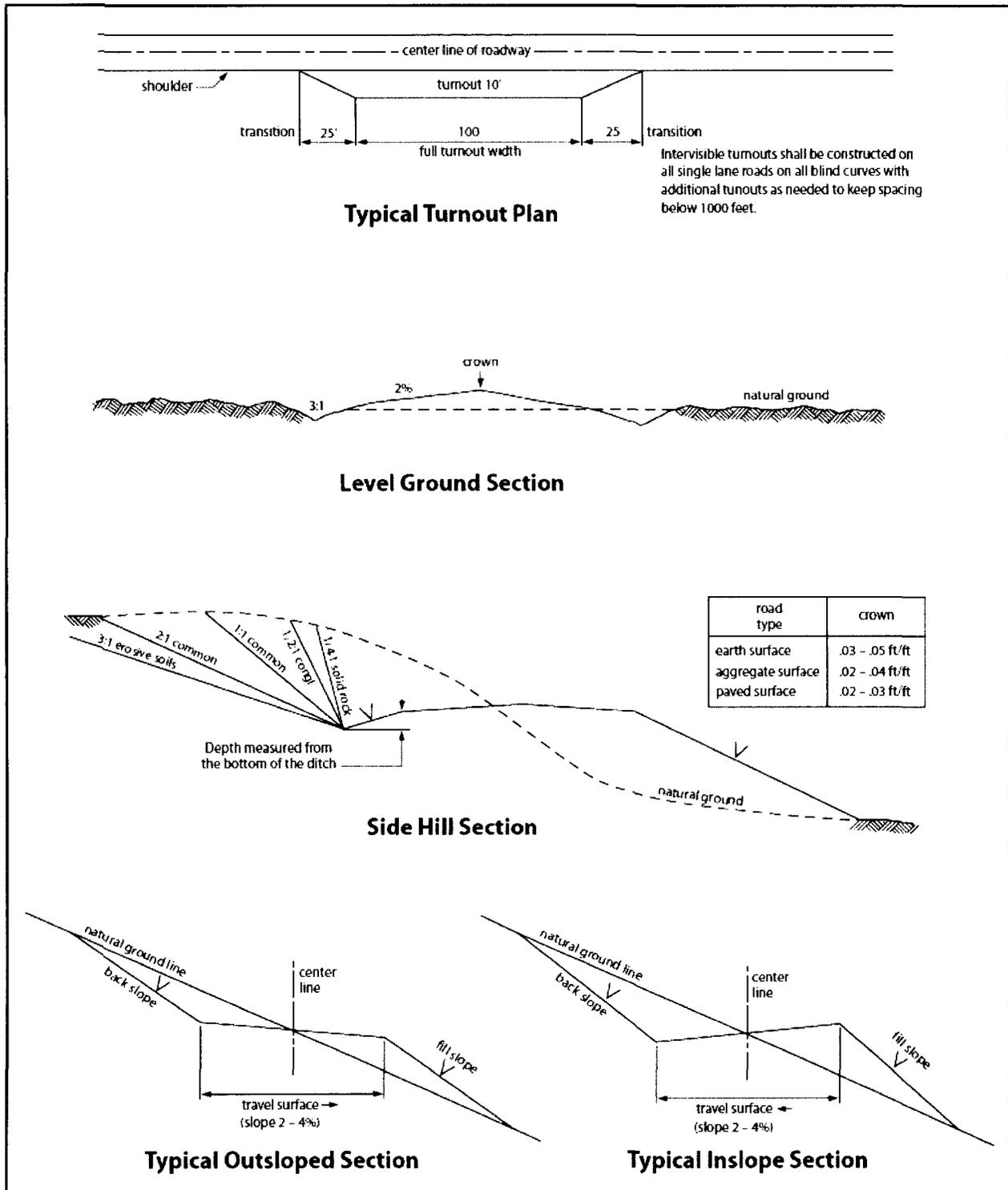


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## VII. PRODUCTION (POST DRILLING)

### A. WELL STRUCTURES & FACILITIES

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## **B. PIPELINES**

### **BURIED PIPELINE STIPULATIONS**

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:
  - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
  - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
  - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |  |  |
|--|--|
| <input type="checkbox"/> seed mixture 1                | <input type="checkbox"/> seed mixture 3          |
| <input type="checkbox"/> seed mixture 2                | <input type="checkbox"/> seed mixture 4          |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates “Standard Environmental Colors” – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder’s name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

#### 19. Special Stipulations:

##### **Lesser Prairie-Chicken**

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

#### STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

**A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 *et seq.* (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on

facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up

of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**,

Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

- a. **Lesser Prairie-Chicken:** Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.
- b. This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your

Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

**C. ELECTRIC LINES**

**STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES**

**A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The

holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrent shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.

- Fill in any holes from the poles removed.

**Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:**

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

## **VIII. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

## Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Devon Energy Production
LEASE NO.:	NMNM22080
WELL NAME & NO.:	718H-Tomb Raider 1-12 Fed Com
SURFACE HOLE FOOTAGE:	360'N & 980'E
BOTTOM HOLE FOOTAGE:	290'S & 400'E
LOCATION:	Section 1, R. 31 E, T. 23S, NMPM
COUNTY:	Eddy County , New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
  - Lesser Prairie-Chicken Timing Stipulations
  - Ground-level Abandoned Well Marker
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- Construction**
  - Notification
  - Topsoil
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  - Federal Mineral Material Pits
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- Road Section Diagram**
- Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- Interim Reclamation**
- Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

In May 2008, the Pecos District Special Status Species Resource Management Plan Amendment (RMPA) was approved and is being implemented. In addition to the standard practices that minimize impacts, as listed above, the following COA will apply:

- Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken, to minimize noise associated impacts which could disrupt breeding and nesting activities.
- Upon abandonment, a low profile abandoned well marker will be installed to prevent raptor perching.

The proposed action occurs within one-half mile of the WIPP and Mills lesser prairie-chicken Habitat Evaluation Areas (HEA) as described in the 2008 Special Status Species Resource Management Plan Amendment. Therefore, according to the prescriptions set forth in the RMPA for management of HEAs, non-emergency exceptions to the Timing Limitation Condition-of-Approval will not be granted to afford the species protection during its breeding season.

Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006. The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all power line structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. The holder without liability or expense shall make such modifications and/or additions to the United States.

### Raptor Nest Mitigation

- A BLM Wildlife Biologist must be contacted by the operator prior to construction activities to determine if the raptor nests/burrows are active.
- Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest.
- Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

### Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

### Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Temporary Fence Crossing Requirement

Where entry is granted across a fence line, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Cattle Guard Requirement

Where entry is granted across a fence line for an access road, the fence must be braced and tied off on both sides of the passageway with H-braces prior to cutting. Once the work is completed, the fence will be restored to its prior condition with an appropriately sized cattle guard sufficient to carry out the project. Any new or existing cattle guards on the access route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations. Once the road is abandoned, the fence would be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Livestock Watering Requirement

The operator must contact the allotment holder prior to construction to identify the location of the pipelines. The operator must take measures to protect the pipelines from compression or other damages. If the pipelines are damaged or compromised in any way near the proposed project as a result of oil and gas activity, the operator is responsible for repairing the pipelines immediately. The operator must notify the BLM office (575-234-5972) and the private surface landowner or the grazing allotment holder if any damage occurs to structures that provide water to livestock.

During construction, the proponent shall minimize disturbance to existing fences, water lines, troughs, windmills, and other improvements on public lands. The proponent is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the grazing permittee/allottee prior to disturbing any range improvement projects. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

Interim reclamation will be conducted on all disturbed areas not needed for active support of production operations, and if caliche is used as a surfacing material it will be removed at time of reclamation to enhance re-establishment of vegetation.

Temporary Fencing Requirement

For the following proposed locations, the BLM would require temporary fencing be installed before construction begins. This fencing would remain in place and be maintained throughout the life of the well pads and CTB pads to protect nearby dune land habitat from harm.

- Todd Apache 6-6 Pad 2
- Todd Apache 6-6 CTB 2
- Todd Apache 8-5 CTB 2

Devon would need to avoid the two identified archaeology sites by ensuring that infrastructure and vehicles maintain a minimum distance of 100 feet from these sites.

- Any water erosion that may occur due to the construction of the well pad and CTB pad during the life of the well and CTB will be corrected within two weeks and proper measures will be taken to prevent future erosion.

***Permitted Exceptions for Drilling in the Designated Potash Area***

1. It is the intent of the Department of the Interior to administer oil and gas operations throughout the Designated Potash Area in a manner which promotes safe, orderly co-development of oil, gas, and potash resources. It is the policy of the Department of the Interior to deny approval of most applications for permits to drill oil and gas wells from surface locations within the Designated Potash Area. Three exceptions to this policy will be permitted if the drilling will occur under the following conditions from:
  - a. A Drilling Island associated with a Development Area established under this Order or a Drilling Island established under a prior Order;
  - b. A Barren Area and the Authorized Officer determines that such operations will not adversely affect active or planned potash mining operations in the immediate vicinity of the proposed drill-site; or
  - c. A Drilling Island, not covered by (a) above or single well site established under this Order by the approval and in the sole discretion of the Authorized Officer, provided that such site was jointly recommended to the Authorized Officer by the oil and gas lessee(s) and the nearest potash lessee(s).

***Development Areas***

2. When processing an application for permit to drill (APD) an oil or gas well in the Designated Potash Area that complies with regulatory requirements, the Authorized Officer will determine whether to establish a Development Area in connection with the application, and if so, will determine the boundaries of the Development Area and the location within the Development Area of one or more Drilling Islands from which drilling will be permitted. The BLM may also designate a Development Area outside of the APD process based on information in its possession, and may modify the boundaries of a Development Area. Existing wells may be included within the boundaries of a Development Area. A Development Area may include Federal oil and gas leases and other Federal and non-Federal lands.
  - a. After designating or modifying a Development Area, the BLM will issue a Notice to Lessees, consistent with its authorities under 43 CFR Subpart 3105 and part 3180, information lessees that future drilling on lands under an oil and gas lease within that Development Area will:
    - i. occur, under most circumstances, from a Barren Area or A Drilling Island within the Development Area; and
    - ii. be managed under a unit or communitization agreement, generally by a single operator, consistent with BLM regulations and this Order. Unit and communitization agreements will be negotiated among lessees. The BLM will consider whether a specific plan of development is necessary or advisable for a particular Drilling Island.
  - b. The Authorized Officer reserves the right to approve an operator or successor operator of a Development Area and/or a Drilling Island, if applicable, to ensure that the operator has the resources to operate and extract the oil and gas resources consistent with the requirements of this Order and all applicable laws and regulations, and has provided financial assurance in the amount required by the Authorized Officer.

- c. The Authorized Officer will determine the appropriate designation of a Development Area in terms of location, shape and size. In most cases, a single Drilling Island will be established for each Development Area. In establishing the location, shape and size of a Development Area and an associated Drilling Island, the Authorized Officer will consider:
  - i. the appropriate location, shape, and size of a Development Area and associated Drilling Island to allow effective extraction of oil and gas resources while managing the impact on potash resources;
  - ii. the application of available oil and gas drilling and production technology in the Permian Basin;
  - iii. the applicable geology of the Designated Potash Area and optimal locations to minimize loss of potash ore while considering co-development of both resources;
  - iv. any long term exploration and/or mining plans provided by the potash industry;
  - v. whether a Barren Area may be the most appropriate area for a Drilling Island;
  - vi. the requirements of this Order; and
  - vii. any other relevant factors
- d. As the Authorized Officer establishes a Development Area, the Authorized Officer will more strictly apply the factors listed in Section 6.e.(2)(d), especially the appropriate application of the available oil and gas drilling and production technology in the Permian Basin, when closer to current traditional (non-solution) potash mining operations. Greater flexibility in the application of the factors listed in Section 6.e(2)(d) will be applied further from current and near-term traditional (non-solution) potash mining operations. No Drilling Islands will be established within one mile of any area where approved potash mining operations will be conducted within 3 years consistent with the 3-year mine plan referenced above (Section 6.d.(8)) without the consent of the affected potash lessee(s).
- e. The Authorized Officer may establish a Development Area associated with a well or wells drilled from a Barren Area as appropriate and necessary.
- f. As part of the consideration for establishing Development Areas and Drilling Islands, the BLM will consider input from the potash lessees and the oil and gas lessees or mineral right owner who would be potentially subject to a unitization agreement supporting the Development Area, provided that the input is given timely.

### **Buffer Zones**

- 3. Buffer Zones of  $\frac{1}{4}$  mile for oil wells and  $\frac{1}{2}$  mile for gas wells are hereby established. These Buffer Zones will stay in effect until such time as revised distances are adopted by the BLM Director or other BLM official, as delegated. However, the Authorized Officer may adjust the Buffer Zones in an individual case, when the facts and circumstances demonstrate that such adjustment would enhance conservation and would not compromise safety. The Director will base revised Buffer Zones on science, engineering, and new technology and will consider comments and reports from the Joint Industry Technical Committee and other interested parties in adopting any revisions.

### ***Unitization and Communitization***

4. To more properly conserve the potash, oil, and gas resources in the Designated Potash Area, and to adequately protect the rights of all parties in interest, including the United States, it is the policy of the Department of the Interior that all Federal oil and gas leases within a Development Area should be unitized or subject to an approved communitization agreement unless there is a compelling reason for another operating system. The Authorized Officer will make full use of his/her authorities wherever necessary or advisable to require unitization and/or communitization pursuant to the regulations in 43 CFR Subparts 3105 and 3180. The Authorized Officer will use his/her discretion to the fullest extent possible to assure that any communitization agreement and any unit plan of operations hereafter approved or prescribed within the Designated Potash Area will adhere to the provisions of this Order. The Authorized Officer will work with Federal lessees, and with the State Of New Mexico as provided below, to include non-Federal mineral rights owners in unit or communitization agreements to the extent possible.
5. Coordination with the State of New Mexico.
  - a. If the effective operation of any Development Area requires that the New Mexico Oil Conservation Division (NMOCD) revise the State's mandatory well spacing requirements, the BLM will participate as needed in such a process. The BLM may adopt the NMOCD spacing requirements and require lessees to enter into communitization agreements based on those requirements.
  - b. The BLM will cooperate with the NMOCD in the implementation of that agency's rules and regulations.
  - c. In taking any action under Section 6.e. of this Order, the Authorized Officer will take into consideration the applicable rules and regulations of the NMOCD.

To minimize impacts to potash resources, the proposed well is confined within the boundaries of the established Tomb Raider Drill Island (See Potash Memo and Map in attached file for Drill Island description).

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

**G. ON LEASE ACCESS ROADS****Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**

Ditching shall be required on both sides of the road.

**Turnouts**

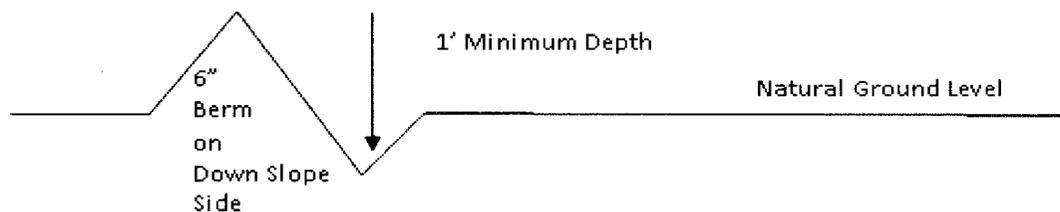
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

### Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

### Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

### Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

**Construction Steps**

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

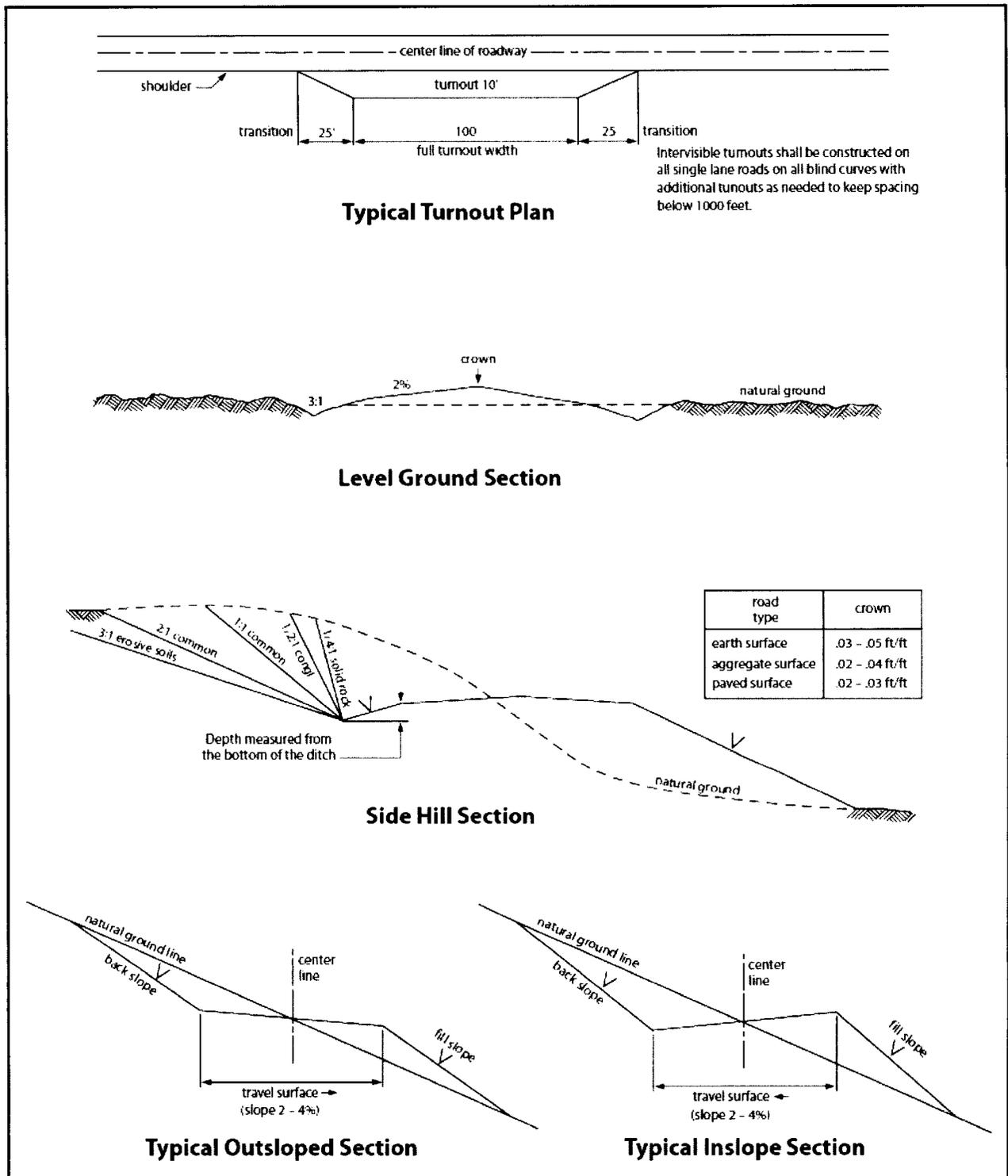


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## **VII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

### **B. PIPELINES**

#### BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.
6. The pipeline will be buried with a minimum cover of 36 inches between the top of the pipe and ground level.
7. The maximum allowable disturbance for construction in this right-of-way will be 30 feet:
  - Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed 20 feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)
  - Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed 30 feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)
  - The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)
8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.
9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

- |  |  |
|--|--|
| <input type="checkbox"/> seed mixture 1                | <input type="checkbox"/> seed mixture 3          |
| <input type="checkbox"/> seed mixture 2                | <input type="checkbox"/> seed mixture 4          |
| <input checked="" type="checkbox"/> seed mixture 2/LPC | <input type="checkbox"/> Aplomado Falcon Mixture |

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates “Standard Environmental Colors” – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder’s name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches that are not otherwise fenced, screened, or netted to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or

other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

- a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
- b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

**Lesser Prairie-Chicken**

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

**A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 *et seq.* (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on

facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
  - (1) Land clearing.
  - (2) Earth-disturbing and earth-moving work.
  - (3) Blasting.
  - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up

of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**,

Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

- a. **Lesser Prairie-Chicken:** Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.
- b. This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your

Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

### **C. ELECTRIC LINES**

#### **STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES**

**A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.**

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.
5. Power lines shall be constructed and designed in accordance to standards outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The

holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrent shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:

- For reclamation remove poles, lines, transformer, etc. and dispose of properly.

- Fill in any holes from the poles removed.

**Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:**

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

## **VIII. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

## Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Operator Certification Data Report

03/05/2018

### Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Chance Bland

**Signed on:** 08/07/2017

**Title:** Regulatory Compliance Professional

**Street Address:** 333 West Sheridan Avenue

**City:** Oklahoma City

**State:** OK

**Zip:** 73102

**Phone:** (405)228-8593

**Email address:** Chance.Bland@dvn.com

### Field Representative

**Representative Name:** Ray Vaz

**Street Address:** 6488 Seven Rivers Hwy

**City:** Artesia

**State:** NM

**Zip:** 88210

**Phone:** (575)748-1871

**Email address:** ray.vaz@dvn.com



APD ID: 10400018841

Submission Date: 08/14/2017

Highlighted data reflects the most recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED COM

Well Number: 718H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - General

APD ID: 10400018841

Tie to previous NOS?

Submission Date: 08/14/2017

BLM Office: CARLSBAD

User: Chance Bland

Title: Regulatory Compliance

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Professional

Lease number: NMNM22080

Lease Acres: 1280

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: DEVON ENERGY PRODUCTION COMPANY LP

Operator letter of designation:

### Operator Info

Operator Organization Name: DEVON ENERGY PRODUCTION COMPANY LP

Operator Address: 333 West Sheridan Avenue

Zip: 73102

Operator PO Box:

Operator City: Oklahoma City State: OK

Operator Phone: (405)552-6571

Operator Internet Address: aletha.dewbre@dvn.com

### Section 2 - Well Information

Well in Master Development Plan? EXISTING

Mater Development Plan name: Todd-Apache MDP 1

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: TOMB RAIDER 1-12 FED COM

Well Number: 718H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: WOLFCAMP

Pool Name: WOLFCAMP

Is the proposed well in an area containing other mineral resources? POTASH

^

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N    **Use Existing Well Pad?** NO    **New surface disturbance?**

**Type of Well Pad:** MULTIPLE WELL

**Multiple Well Pad Name:** TODD-**Number:** 3

APACHE 1-1 PAD

**Well Class:** HORIZONTAL

**Number of Legs:**

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** INFILL

**Describe sub-type:**

**Distance to town:**

**Distance to nearest well:** 495 FT

**Distance to lease line:** 290 FT

**Reservoir well spacing assigned acres Measurement:** 320 Acres

**Well plat:** Tomb\_Raider\_1\_12\_Fed\_Com\_5284H\_C\_102\_08-07-2017.pdf

**Well work start Date:** 04/05/2018

**Duration:** 45 DAYS

### Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83

**Vertical Datum:** NAVD88

**Survey number:** 5195B

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	360	FNL	1040	FEL	23S	31E	1	Lot 1	32.339724	-103.7263223	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 22080	3480	11435	11435
KOP Leg #1	50	FNL	400	FEL	23S	31E	1	Lot 1	32.339724	-103.7263223	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 22080	3480	11476	11435
PPP Leg #1	330	FNL	400	FEL	23S	31E	1	Lot 1	32.339724	-103.7263223	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 22080	-8433	12224	11913

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

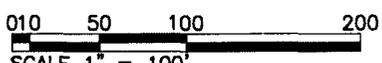
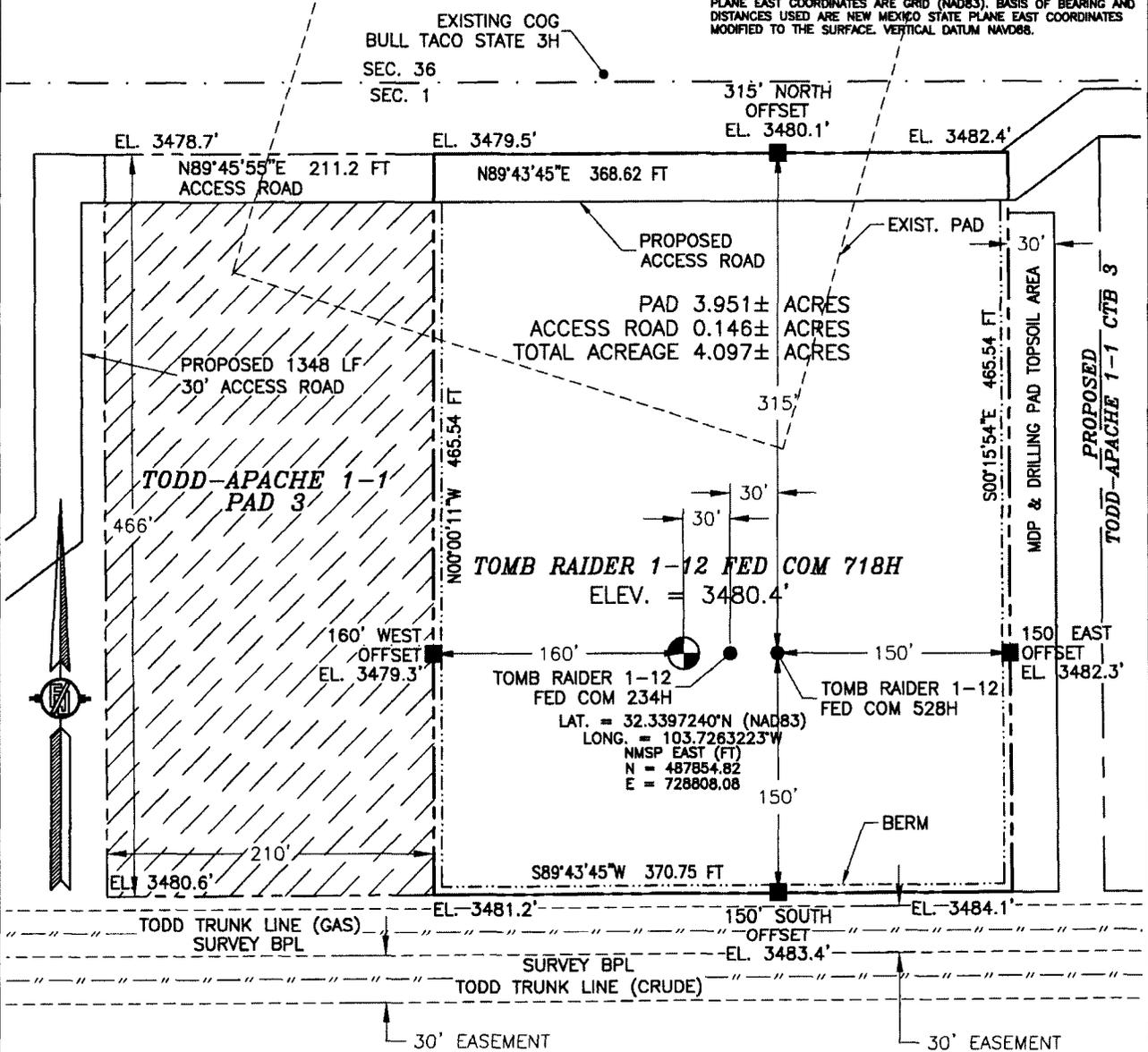
**Well Number:** 718H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	360	FNL	104 0	FEL	23S	31E	12	Lot P	32.31249 09	- 103.7242 538	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 22080	- 846 8	219 62	119 48
BHL Leg #1	360	FNL	104 0	FEL	23S	31E	12	Lot P	32.31249 09	- 103.7242 538	EDD Y	NEW MEXI CO	NEW MEXI CO	F	NMNM 22080	- 846 8	219 62	119 48

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 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. VERTICAL DATUM NAVD88.



DIRECTIONS TO LOCATION  
 FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 6.4 MILES TO CALICHE LEASE ROAD ON RIGHT, GO EAST ON CALICHE ROAD 0.3 OF A MILE, TURN RIGHT GO SOUTH 0.1 OF A MILE, TURN LEFT GO EAST 0.15 OF A MILE, GO SOUTH 602', THEN SOUTHWEST 311', TURN RIGHT GO SOUTH 355', TURN LEFT GO EAST 528', GO NORTHEAST 215', THEN NORTH 220', TURN RIGHT GO EAST 30' TO THE NORTHWEST PAD CORNER FOR TODD-APACHE 1-1 PAD 3.

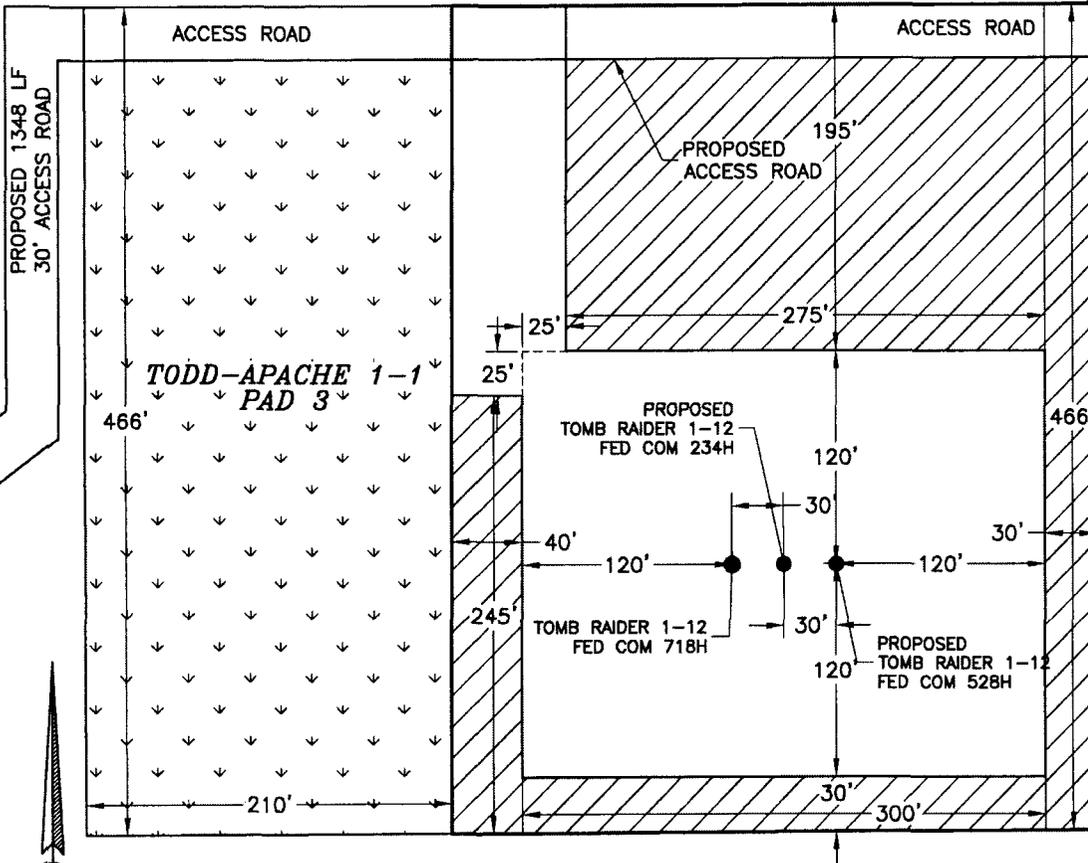
DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
 AND 1040 FT. FROM THE EAST LINE OF  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

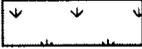
JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 INTERIM SITE BUILD PLAN



 DENOTES INTERIM PAD RECLAMATION AREA  
 DENOTES GRADING SITE RECLAMATION AREA

0 10 50 100 200  
 SCALE 1" = 100'

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
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 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

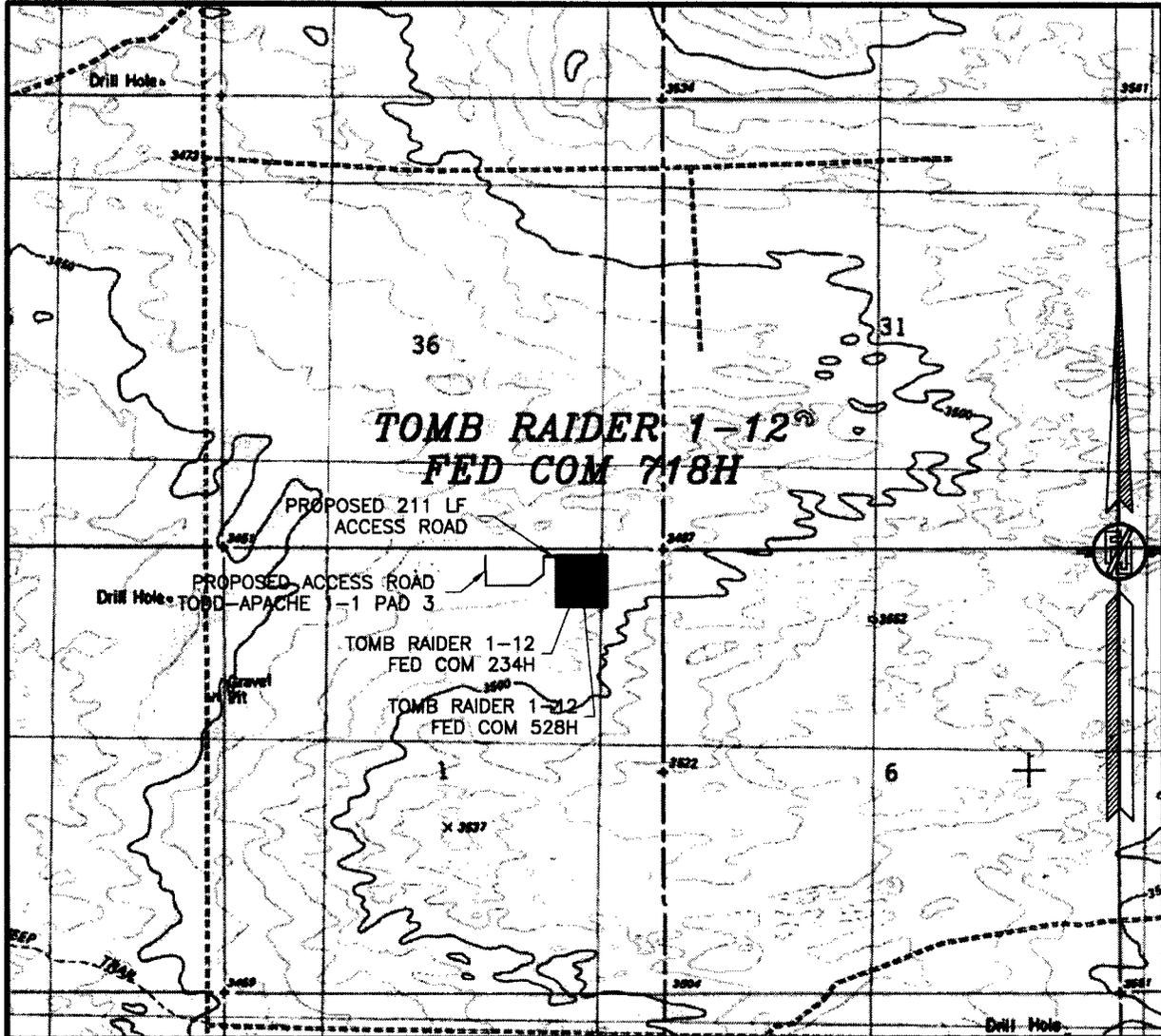
1.775± ACRES INTERIM PAD RECLAMATION AREA  
 2.103± ACRES GRADING SITE RECLAMATION AREA  
 2.321± ACRES NON-RECLAIMED AREA  
 6.199± ACRES TODD-APACHE 1-1 PAD 3

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LOCATION VERIFICATION MAP



USGS QUAD MAP:  
 BOOTLEG RIDGE

NOT TO SCALE

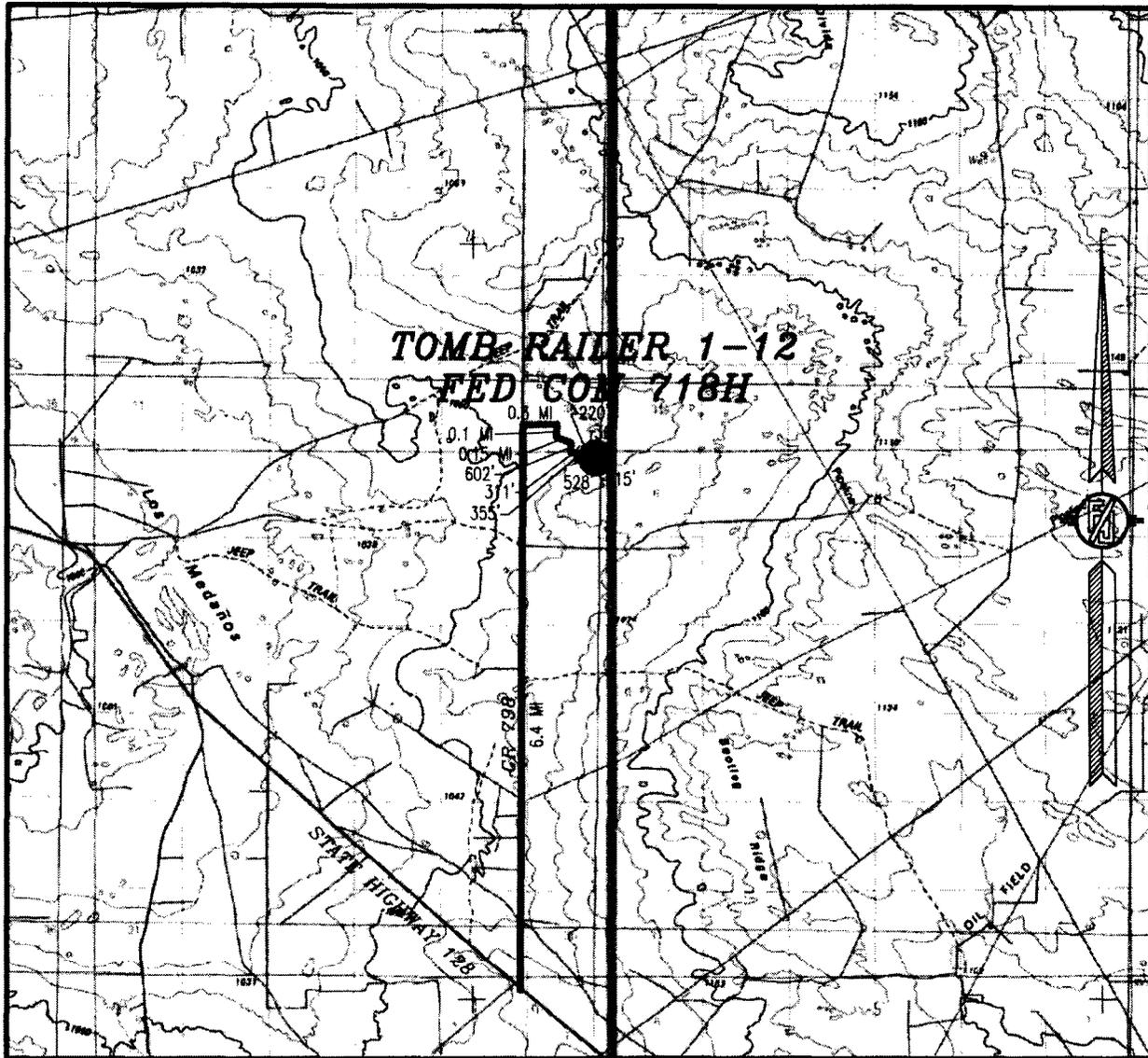
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 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
 AND 1040 FT. FROM THE EAST LINE OF  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

**DIRECTIONS TO LOCATION**

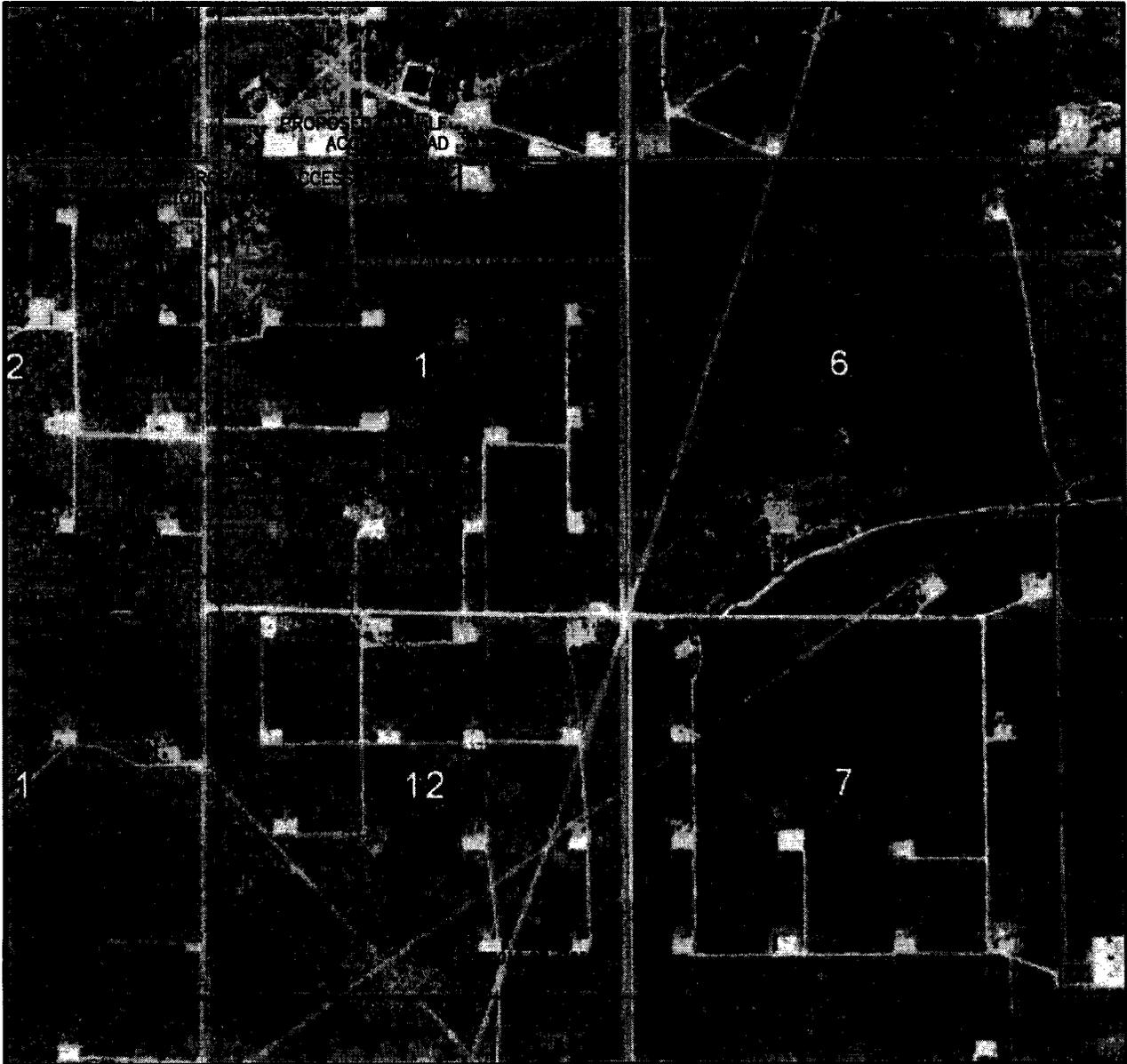
FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 6.4 MILES TO CALICHE LEASE ROAD ON RIGHT, GO EAST ON CALICHE ROAD 0.3 OF A MILE, TURN RIGHT GO SOUTH 0.1 OF A MILE, TURN LEFT GO EAST 0.15 OF A MILE, GO SOUTH 602', THEN SOUTHWEST 311', TURN RIGHT GO SOUTH 355', TURN LEFT GO EAST 528', GO NORTHEAST 215', THEN NORTH 220', TURN RIGHT GO EAST 30' TO THE NORTHWEST PAD CORNER FOR TODD-APACHE 1-1 PAD 3.

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AERIAL PHOTO



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
FEBRUARY 2017

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 1-12 FED COM 718H**  
LOCATED 360 FT. FROM THE NORTH LINE  
AND 1040 FT. FROM THE EAST LINE OF  
SECTION 1, TOWNSHIP 23 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
ACCESS AERIAL ROUTE MAP



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
FEBRUARY 2017

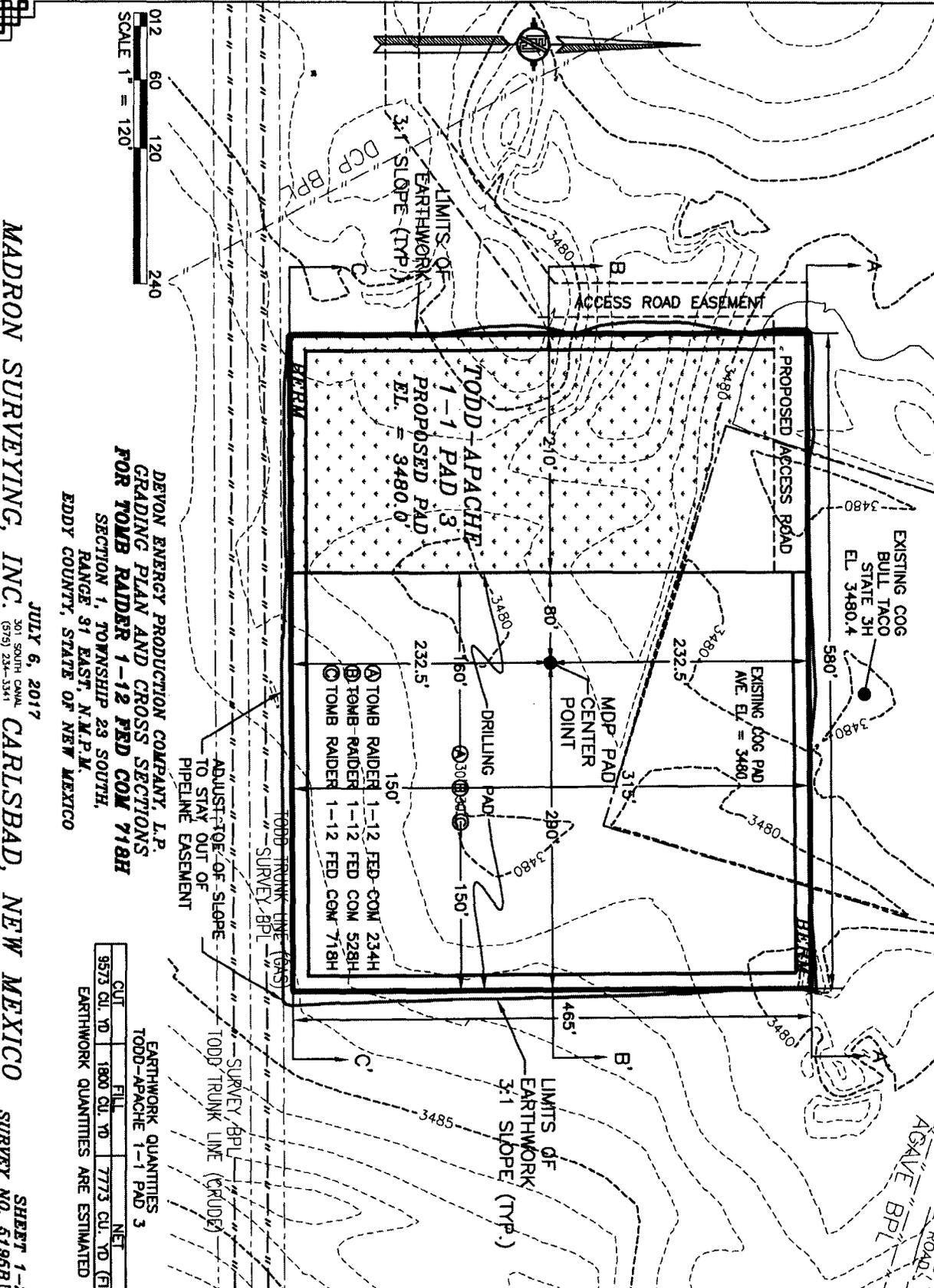
DEVON ENERGY PRODUCTION COMPANY, L.P.  
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LOCATED 360 FT. FROM THE NORTH LINE  
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SECTION 1, TOWNSHIP 23 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

# PLAN VIEW



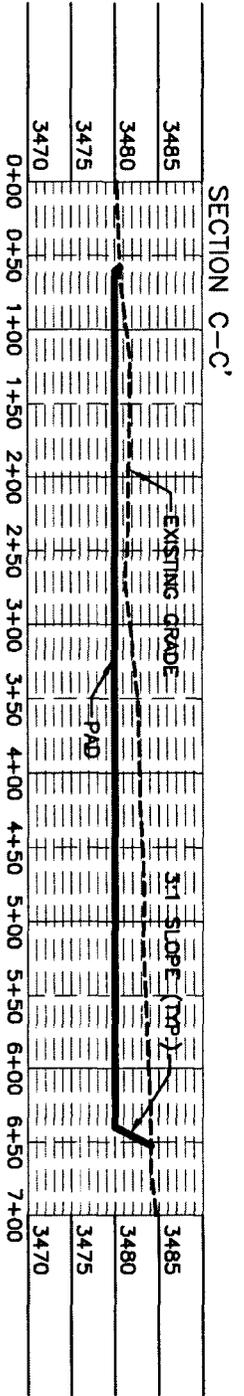
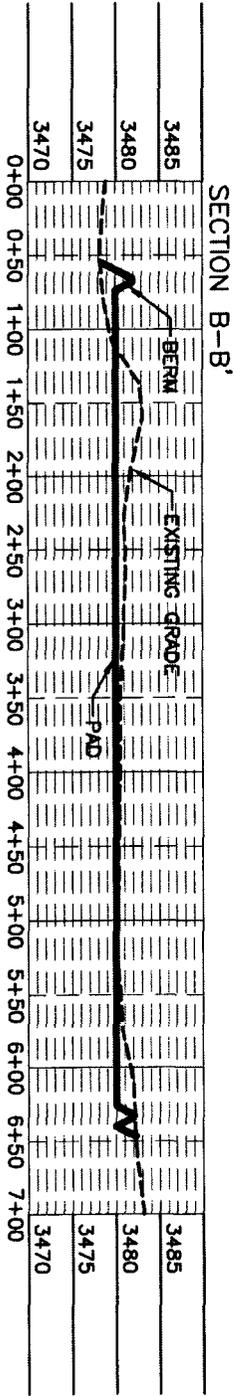
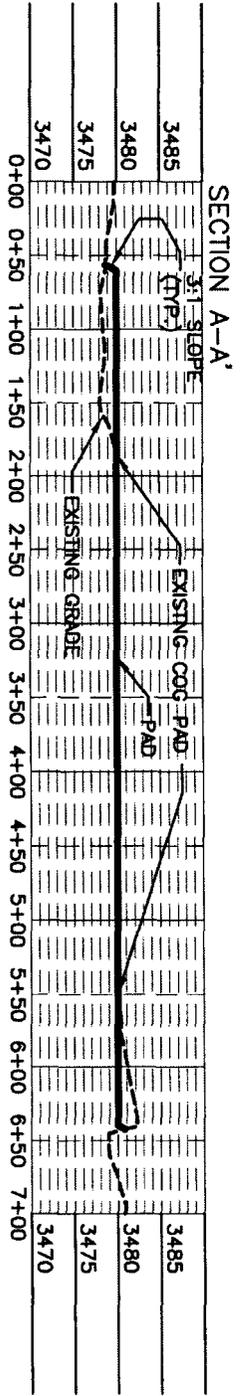
DEVON ENERGY PRODUCTION COMPANY, L.P.  
GRADING PLAN AND CROSS SECTIONS  
FOR TOMB RAIDER 1-12 FED COM 718H  
SECTION 1, TOWNSHIP 23 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017  
MADRON SURVEYING, INC. 301 SOUTH CAVIL CARLSBAD, NEW MEXICO  
(505) 234-3341

EARTHWORK QUANTITIES  
TODD-APACHE 1-1 PAD 3  
EARTHWORK QUANTITIES ARE ESTIMATED

CUT	FILL	NET
9573 CU. YD.	1800 CU. YD.	7773 CU. YD. (FILL)

# CROSS-SECTIONS



012 60 120 240  
 SCALE 1" = 120' - 1" = 20' VER

DEVON ENERGY PRODUCTION COMPANY, L.P.  
 GRADING PLAN AND CROSS SECTIONS  
 FOR TOMB RAIDER 1-12 FED COM 718H  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

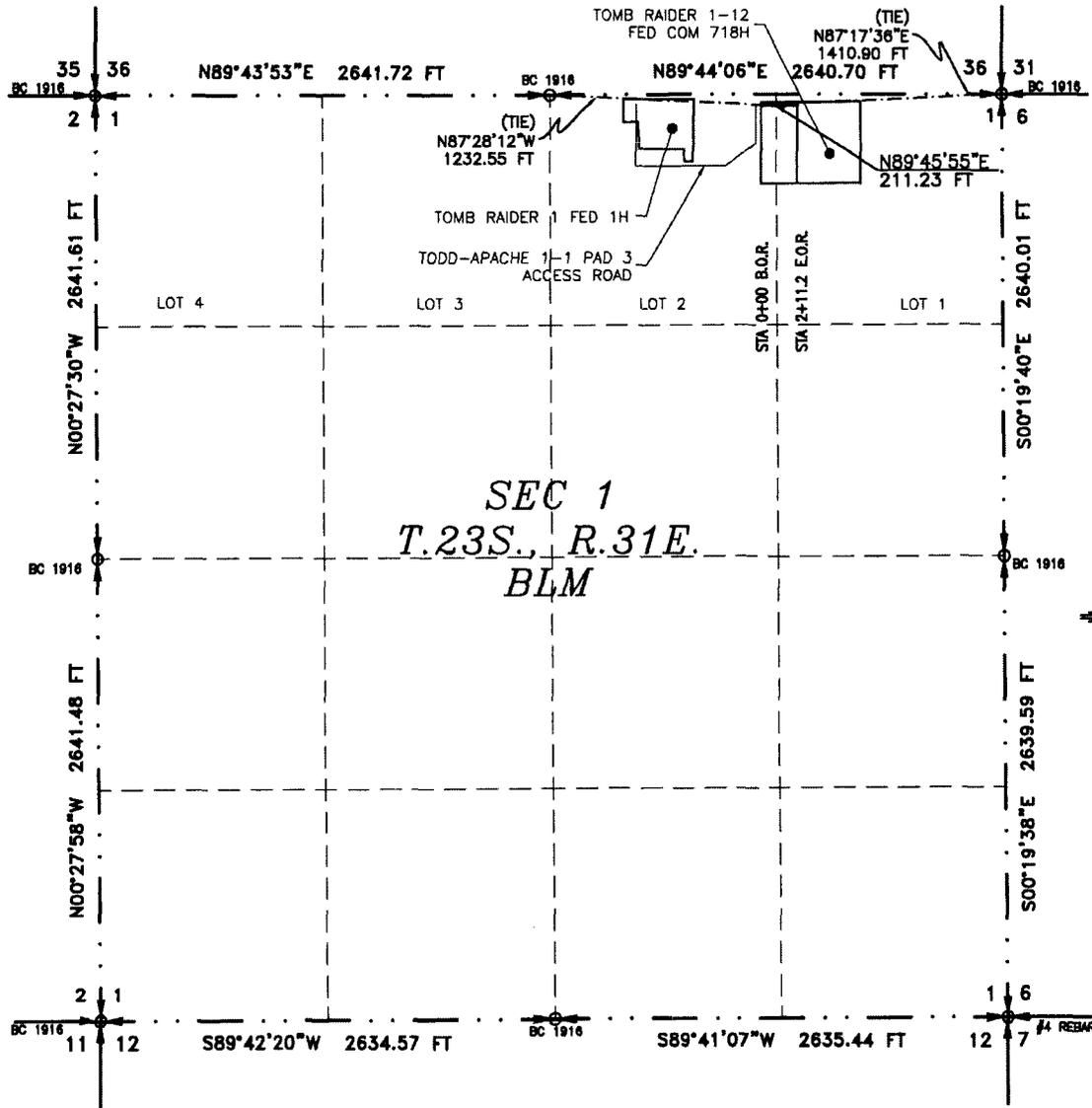
EARTHWORK QUANTITIES  
 TODD-APACHE 1-1 PAD 3

CUT	FILL	NET
9573 CU. YD	1800 CU. YD	7773 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO  
 JULY 6, 2017  
 301 SOUTH CANAL (S79) 234-5341  
 SHEET 2-2 SURVEY NO. 61965B

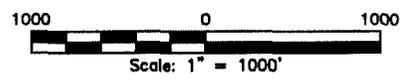
**ACCESS ROAD PLAT**  
**ACCESS ROAD TO THE TOMB RAIDER 1-12 FED COM 718H**  
**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING**  
**SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**JULY 6, 2017**



SEC 1  
T.23S., R.31E.  
BLM



SEE NEXT SHEET (2-2) FOR DESCRIPTION



**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**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 6 DAY OF JULY 2017

*Filimon F. Jaramillo*  
**FILIMON F. JARAMILLO, P.E.S. 12797**

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

**SHEET: 1-2**

**MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO**

**SURVEY NO. 5195B**

**ACCESS ROAD PLAT**  
ACCESS ROAD TO THE TOMB RAIDER 1-12 FED COM 718H

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING**  
**SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**JULY 6, 2017**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 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 LOT 2 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N87°28'12"W, A DISTANCE OF 1232.55 FEET;  
THENCE N89°45'55"E A DISTANCE OF 211.23 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N87°17'36"E, A DISTANCE OF 1410.80 FEET;

SAID STRIP OF LAND BEING 211.23 FEET OR 12.81 RODS IN LENGTH, CONTAINING 0.146 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 2 89.36 L.F. 5.42 RODS 0.062 ACRES  
LOT 1 121.87 L.F. 7.39 RODS 0.084 ACRES

**GENERAL NOTES**

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

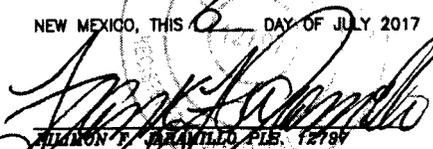
2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**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 6 DAY OF JULY 2017

  
FILIMON F. JARAMILLO PLS. 12797

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

SHEET: 2-2

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

SURVEY NO. 5195B

**ACCESS ROAD PLAT**  
ACCESS ROAD TO THE TOMB RAIDER 1-12 FED COM 528H

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
JULY 6, 2017

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 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 LOT 2 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N87°28'12"W, A DISTANCE OF 1232.55 FEET;

THENCE N89°45'55"E A DISTANCE OF 211.23 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N87°17'36"E, A DISTANCE OF 1410.90 FEET;

SAID STRIP OF LAND BEING 211.23 FEET OR 12.81 RODS IN LENGTH, CONTAINING 0.146 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 2 89.36 L.F. 5.42 RODS 0.062 ACRES  
LOT 1 121.87 L.F. 7.39 RODS 0.084 ACRES

**GENERAL NOTES**

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

SHEET: 2-2

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

**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 6 DAY OF JULY 2017

*Filimon F. Jaramillo*  
FILIMON F. JARAMILLO PLS. 12797

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

SURVEY NO. 5196B

APD ID: 10400018841

Submission Date: 08/14/2017

Highlighted data reflects the most recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED COM

Well Number: 718H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

## Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	UNKNOWN	3480	0	0	ALLUVIUM	NONE	No
2	RUSTLER	2759	721	721	SALT	NONE	No
3	DELAWARE	-1041	4521	4521	SANDSTONE	NATURAL GAS,OIL	No
4	BASE OF SALT	-1041	4521	4521	SALT	NONE	No
5	BONE SPRING	-4900	8380	8380	SANDSTONE	NATURAL GAS,OIL	Yes
6	BONE SPRING 2ND	-6570	10050	10050	SANDSTONE	NATURAL GAS,OIL	No
7	BONE SPRING 3RD	-7788	11268	11268	SANDSTONE	NATURAL GAS,OIL	No
8	WOLFCAMP	-8227	11707	11707	SANDSTONE	NATURAL GAS,OIL	Yes

## Section 2 - Blowout Prevention

Pressure Rating (PSI): 3M

Rating Depth: 10327

**Equipment:** BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested. The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

**Requesting Variance?** YES

**Variance request:** A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

**Testing Procedure:** A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

**Choke Diagram Attachment:**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

Tomb\_Raider\_1\_12\_Fed\_Com\_528H\_Todd\_Apache\_1\_MDP\_Ref\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_3M\_BOPE\_CK\_20171027112510.pdf

**BOP Diagram Attachment:**

Tomb\_Raider\_1\_12\_Fed\_Com\_528H\_Todd\_Apache\_1\_MDP\_Ref\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_3M\_BOPE\_CK\_20171027112532.pdf

**Pressure Rating (PSI):** 3M

**Rating Depth:** 6000

**Equipment:** BOP/BOPE will be installed per Onshore Oil & Gas Order #2 requirements prior to drilling below 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system. BOP/BOPE will be tested by an independent service company per Onshore Oil & Gas Order #2 requirements and MASP (Maximum Anticipated Surface Pressure) calculations. If the system is upgraded, all the components installed will be functional and tested.

**Requesting Variance?** YES

**Variance request:** A variance is requested for the use of a flexible choke line from the BOP stack to the choke manifold. See attached for specs for hydrostatic test chart.

**Testing Procedure:** A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested

**Choke Diagram Attachment:**

Tomb\_Raider\_1\_12\_Fed\_Com\_528H\_Todd\_Apache\_1\_MDP\_Ref\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_3M\_BOPE\_CK\_20171027112557.pdf

**BOP Diagram Attachment:**

Tomb\_Raider\_1\_12\_Fed\_Com\_528H\_Todd\_Apache\_1\_MDP\_Ref\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_3M\_BOPE\_CK\_20171027112619.pdf

### Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	771	0	771	-8468	-9239	771	H-40	48	STC	1.125	1	BUOY	1.8	BUOY	1.8
2	INTERMEDIATE	8.75	7.625	NEW	API	N	0	8500	0	8500	-8468	-14468	8500	P-110	29.7	OTHER - Flushmax	1.125	1	BUOY	1.8	BUOY	1.8
3	PRODUCTION	6.75	5.5	NEW	API	N	0	21962	0	11948	-8468	-19018	21962	P-110	20	OTHER - SF/Flush	1.125	1	BUOY	1.8	BUOY	1.8

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

#### Casing Attachments

---

**Casing ID:** 1      **String Type:** SURFACE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Tomb\_Raider\_1\_12\_Fed\_Com718H\_Surf\_Csg\_Ass\_08-08-2017.pdf

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**Casing ID:** 2      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Tomb\_Raider\_1\_12\_Fed\_Com718H\_Int\_Csg\_Ass\_08-08-2017.pdf

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**Casing ID:** 3      **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Tomb\_Raider\_1\_12\_Fed\_Com718H\_Prod\_Csg\_Ass\_08-08-2017.pdf

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## Section 4 - Cement

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	771	604	1.33	14.8	803	50	c	1% Calcium Chloride

INTERMEDIATE	Lead		0	7500	437	3.27	9	1431	30	Tuned	na
INTERMEDIATE	Tail		7500	8500	110	1.2	14.5	130	30	h	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite
PRODUCTION	Lead		7500	1147 6	319	3.27	9	104	25	tuned	(65:35) Class C Cement: Poz (Fly Ash): 6% BWOC Bentonite + 5% BWOW Sodium Chloride + 0.125 lbs/sks Poly-E-Flake
PRODUCTION	Tail		1147 6	2196 2	927	1.2	14.5	1094	25	h	Poz (Fly Ash) + 0.5% bwoc HALAD-344 + 0.4% bwoc CFR-3 + 0.2% BWOC HR-601 + 2% bwoc Bentonite

### Section 5 - Circulating Medium

**Mud System Type:** Closed

**Will an air or gas system be Used?** NO

**Description of the equipment for the circulating system in accordance with Onshore Order #2:**

**Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

**Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring

### Circulating Medium Table

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
8500	2196 2	WATER-BASED MUD	9.5	11							
0	771	WATER-BASED MUD	8.5	9				2			
771	8500	SALT SATURATED	8.6	9.8							

### Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.

**List of open and cased hole logs run in the well:**

CALIPER,CBL,DS,GR,MUDLOG

**Coring operation description for the well:**

na

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 6834

**Anticipated Surface Pressure:** 4205.44

**Anticipated Bottom Hole Temperature(F):** 174

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_H2S\_Pln\_08-08-2017.pdf

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

## **Section 8 - Other Information**

### **Proposed horizontal/directional/multi-lateral plan submission:**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Dir\_Pln\_08-08-2017.pdf

### **Other proposed operations facets description:**

Multi-Bowl Verbiage  
Multi-Bowl Wellhead  
Closed Loop Design

### **Other proposed operations facets attachment:**

Tomb\_Raider\_1\_12\_Fed\_Com718H\_Todd\_Apache\_1\_MDP\_Ref\_08-08-2017.pdf

Clsd\_Loop\_20171027112656.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_MB\_Verb\_20171027112731.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_MB\_Wellhd\_20171027112741.pdf

### **Other Variance attachment:**

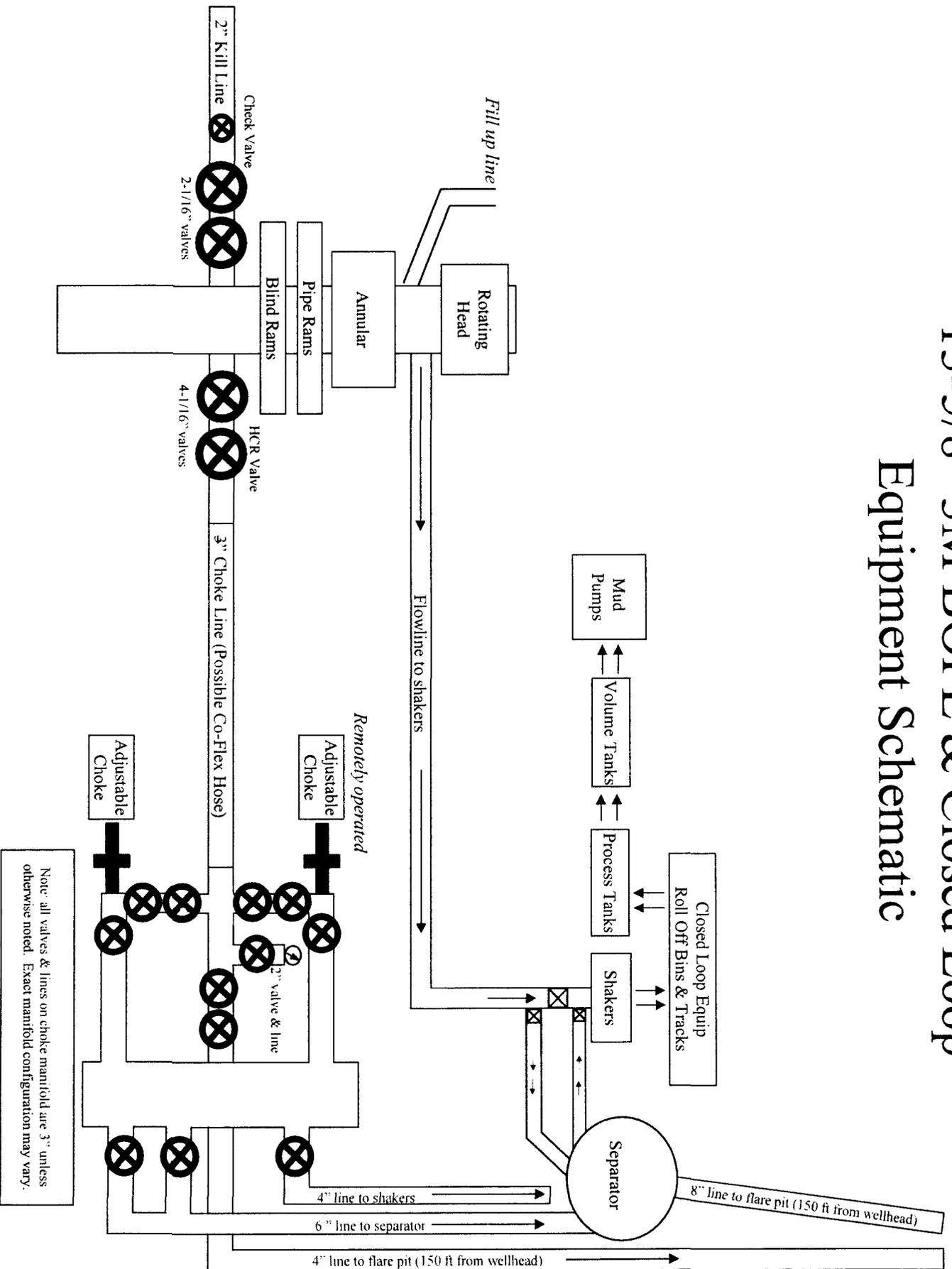
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Co\_flex\_20171027112639.pdf

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Gas\_Capture\_20171027112754.pdf

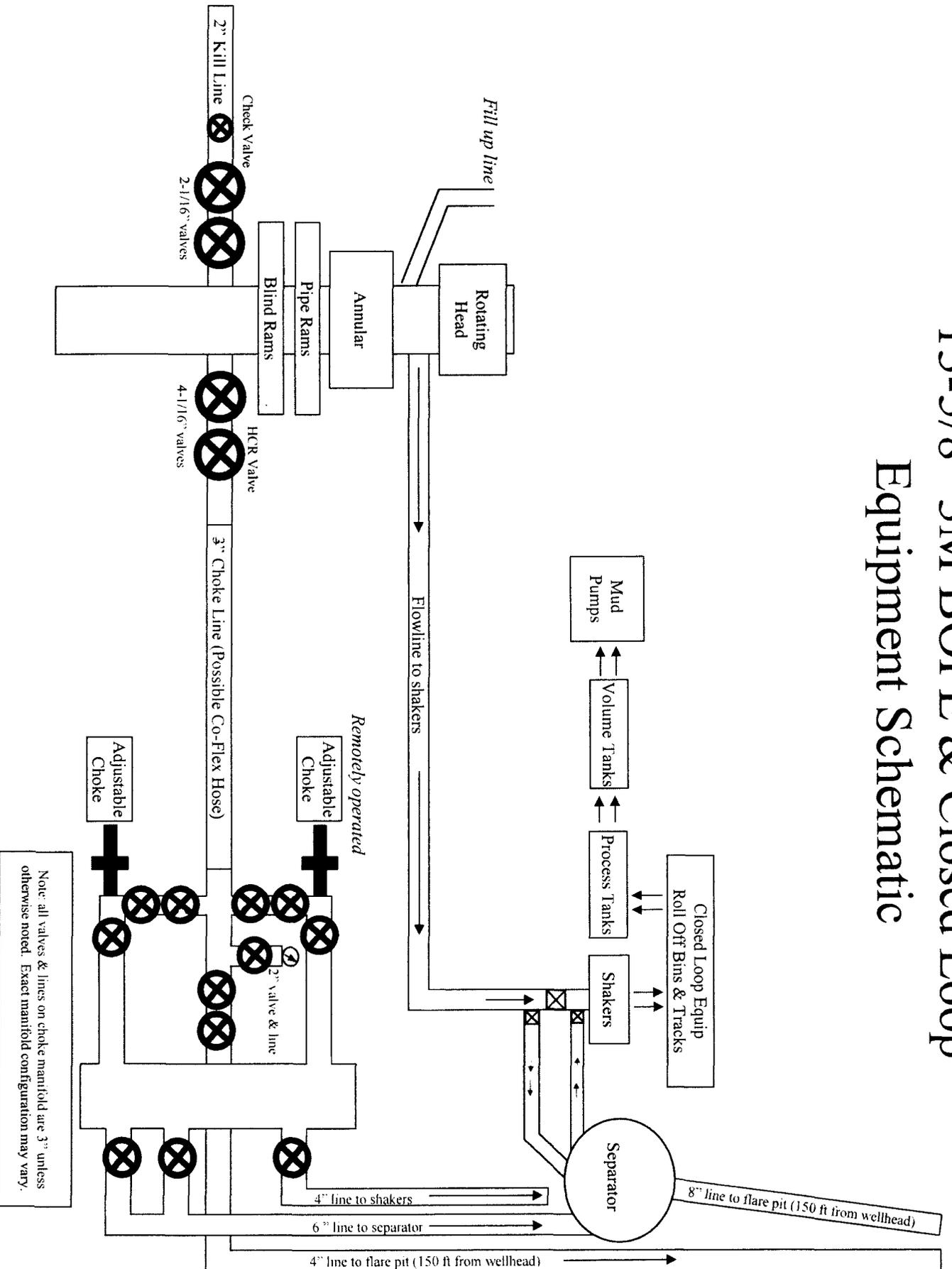
**This item is addressed in the Todd Apache 1 Master Development Plan (MDP). This page is used only to satisfy the AFMSSII attachment requirements.**

# 13-5/8" 3M BOPE & Closed Loop Equipment Schematic



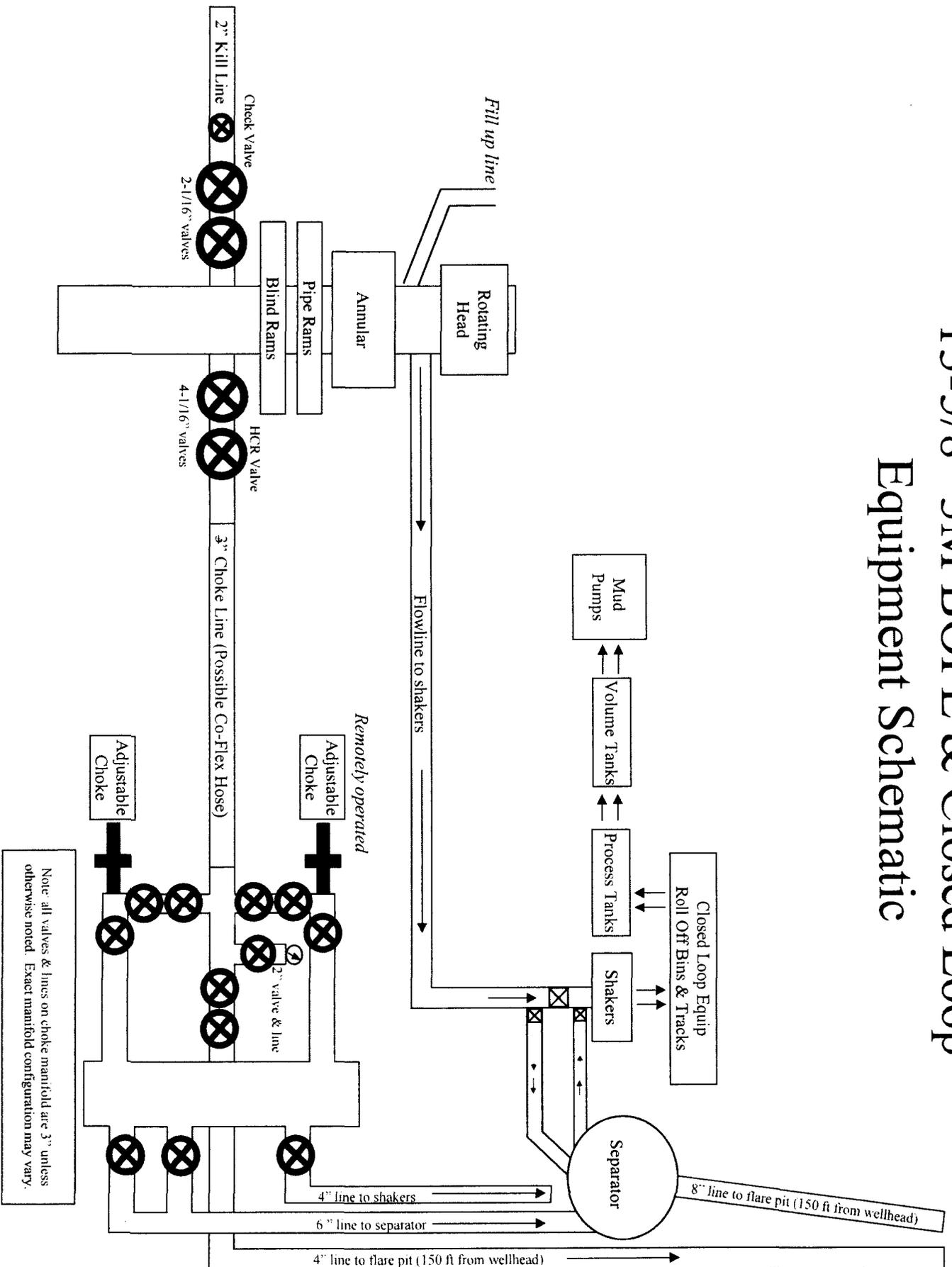
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# 13-5/8" 3M BOPE & Closed Loop Equipment Schematic



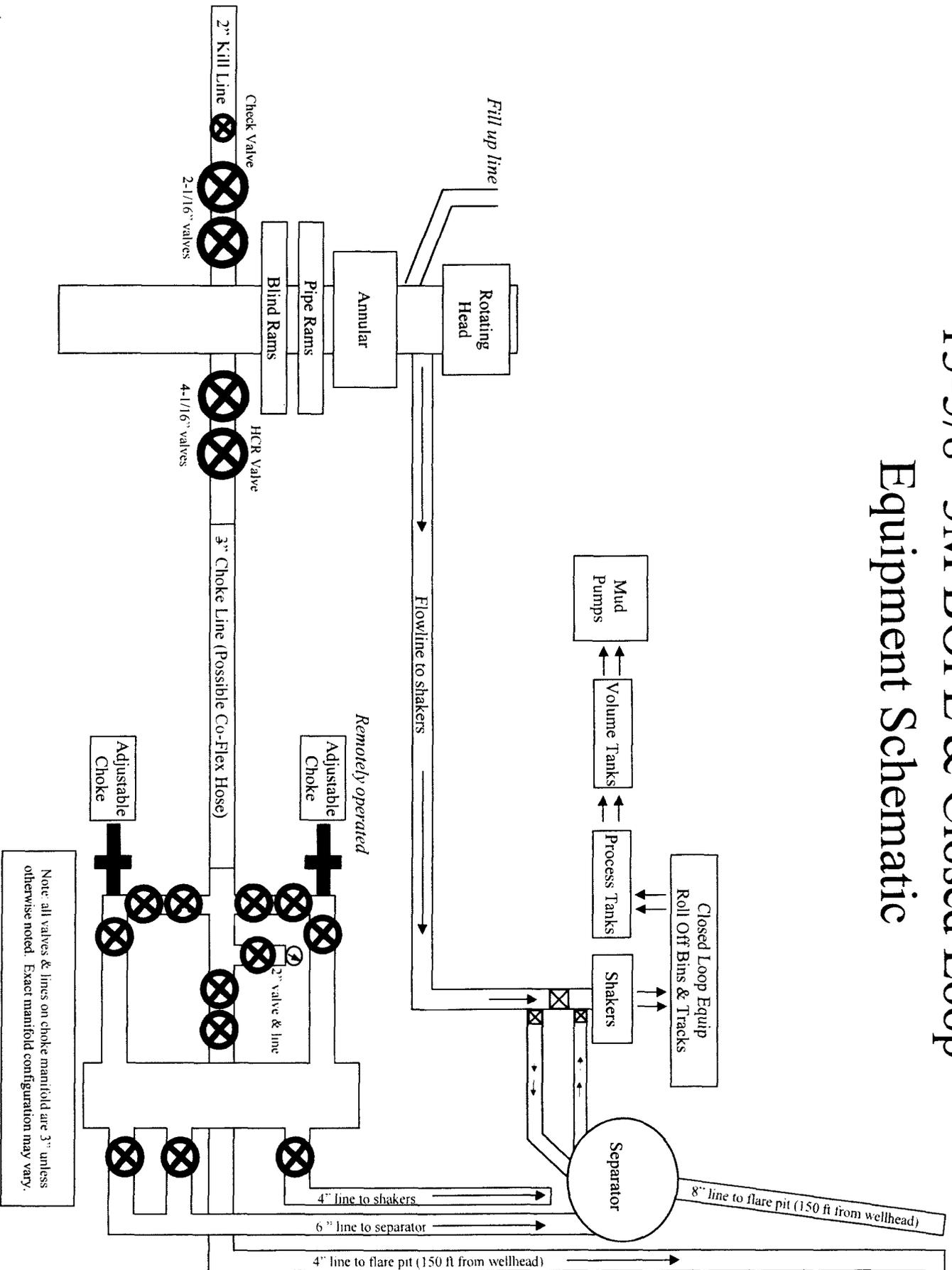
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# 13-5/8" 3M BOPE & Closed Loop Equipment Schematic



**This item is addressed in the Todd Apache 1 Master Development Plan (MDP). This page is used only to satisfy the AFMSSII attachment requirements.**

# 13-5/8" 3M BOPE & Closed Loop Equipment Schematic



## Casing Assumptions and Load Cases

### Surface

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

<b>Surface Casing Burst Design</b>		
<b>Load Case</b>	<b>External Pressure</b>	<b>Internal Pressure</b>
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Displace to Gas	Formation Pore Pressure	Dry gas from next casing point

<b>Surface Casing Collapse Design</b>		
<b>Load Case</b>	<b>External Pressure</b>	<b>Internal Pressure</b>
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

<b>Surface Casing Tension Design</b>	
<b>Load Case</b>	<b>Assumptions</b>
Overpull	100kips
Runing in hole	3 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Intermediate

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

<b>Intermediate Casing Burst Design</b>		
<b>Load Case</b>	<b>External Pressure</b>	<b>Internal Pressure</b>
Pressure Test	Formation Pore Pressure	Max mud weight of next hole-section plus Test psi
Drill Ahead	Formation Pore Pressure	Max mud weight of next hole section
Fracture @ Shoe	Formation Pore Pressure	Dry gas

<b>Intermediate Casing Collapse Design</b>		
<b>Load Case</b>	<b>External Pressure</b>	<b>Internal Pressure</b>
Full Evacuation	Water gradient in cement, mud above TOC	None
Cementing	Wet cement weight	Water (8.33ppg)

<b>Intermediate Casing Tension Design</b>	
<b>Load Case</b>	<b>Assumptions</b>
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A

Casing Assumptions and Load Cases

Production

All casing design assumptions were ran in Stress Check to determine safety factor which meet or exceed both Devon Energy and BLM minimum requirements. All casing strings will be filled while running in hole in order to not exceed collapse rating of the pipe.

<b>Production Casing Burst Design</b>		
<b>Load Case</b>	<b>External Pressure</b>	<b>Internal Pressure</b>
Pressure Test	Formation Pore Pressure	Fluid in hole (water or produced water) + test psi
Tubing Leak	Formation Pore Pressure	Packer @ KOP, leak below surface 8.6 ppg packer fluid
Stimulation	Formation Pore Pressure	Max frac pressure with heaviest frac fluid

<b>Production Casing Collapse Design</b>		
<b>Load Case</b>	<b>External Pressure</b>	<b>Internal Pressure</b>
Full Evacuation	Water gradient in cement, mud above TOC.	None
Cementing	Wet cement weight	Water (8.33ppg)

<b>Production Casing Tension Design</b>	
<b>Load Case</b>	<b>Assumptions</b>
Overpull	100kips
Runing in hole	2 ft/s
Service Loads	N/A



**Devon Energy Center  
333 West Sheridan Avenue  
Oklahoma City, Oklahoma 73102-5015**

# **Hydrogen Sulfide (H<sub>2</sub>S) Contingency Plan**

**For**

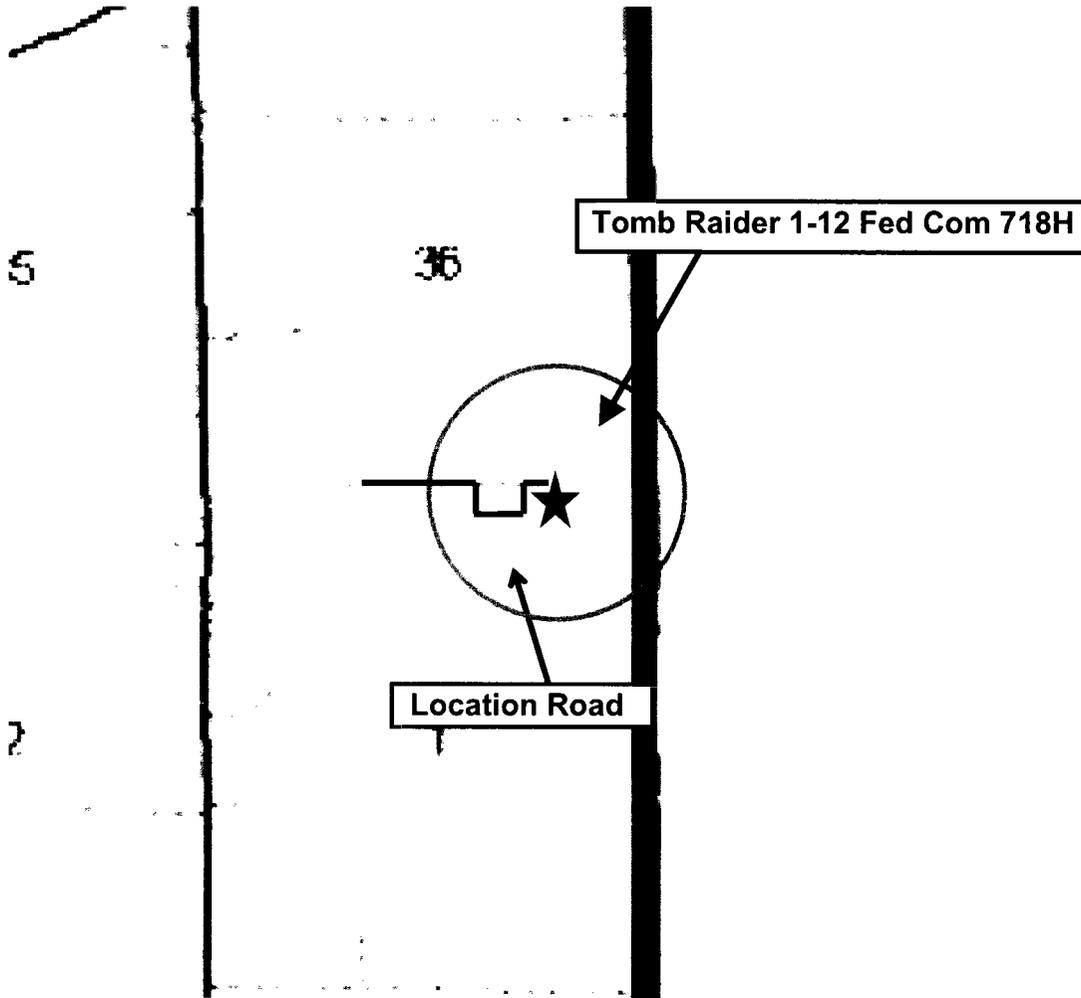
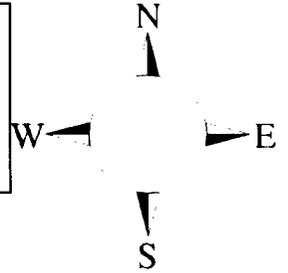
**Tomb Raider 1-12 Fed Com 718H**

**Sec-1 T-23S R-31E  
360' FNL & 1040 FEL  
LAT. = 32.3397240' N (NAD83)  
LONG = 103.7263223 W**

**Eddy County NM**

## Tomb Raider 1-12 Fed Com 718H

This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be used within 500' of zones known to contain H<sub>2</sub>S, including warning signs, wind indicators and H<sub>2</sub>S monitor.



ROE = Radius of Exposure

### Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crews should then block the entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are no homes or buildings in or near the ROE.

**Assumed 100 ppm ROE = 3000'**

**100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan.**

### **Emergency Procedures**

**In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must**

- **Isolate the area and prevent entry by other persons into the 100 ppm ROE.**
- **Evacuate any public places encompassed by the 100 ppm ROE.**
- **Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.**
- **Use the “buddy system” to ensure no injuries occur during the response**
- **Take precautions to avoid personal injury during this operation.**
- **Contact operator and/or local officials to aid in operation. See list of phone numbers attached.**
- **Have received training in the**
  - **Detection of H<sub>2</sub>S, and**
  - **Measures for protection against the gas,**
  - **Equipment used for protection and emergency response.**

### **Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas

### **Characteristics of H<sub>2</sub>S and SO<sub>2</sub>**

<b>Common Name</b>	<b>Chemical Formula</b>	<b>Specific Gravity</b>	<b>Threshold Limit</b>	<b>Hazardous Limit</b>	<b>Lethal Concentration</b>
<b>Hydrogen Sulfide</b>	<b>H<sub>2</sub>S</b>	<b>1.189 Air = 1</b>	<b>10 ppm</b>	<b>100 ppm/hr</b>	<b>600 ppm</b>
<b>Sulfur Dioxide</b>	<b>SO<sub>2</sub></b>	<b>2.21 Air = 1</b>	<b>2 ppm</b>	<b>N/A</b>	<b>1000 ppm</b>

### **Contacting Authorities**

Devon Energy Corp. personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. Devon Energy Corp. Company response must be in coordination with the State of New Mexico’s ‘Hazardous Materials Emergency Response Plan’ (HMER)

## **Hydrogen Sulfide Drilling Operation Plan**

### **I. HYDROGEN SULFIDE (H<sub>2</sub>S) TRAINING**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H<sub>2</sub>S metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

### **II. HYDROGEN SULFIDE TRAINING**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S.

## 1. Well Control Equipment

- A. Flare line
- B. Choke manifold – Remotely Operated
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit
- D. Auxiliary equipment may include if applicable: annular preventer and rotating head.
- E. Mud/Gas Separator

## 2. Protective equipment for essential personnel:

30-minute SCBA units located at briefing areas, as indicated on well site diagram, with one escape unit available in the top doghouse. As it may be difficult to communicate audibly while wearing these units, hand signals shall be utilized.

## 3. H<sub>2</sub>S detection and monitoring equipment:

Portable H<sub>2</sub>S monitors positioned on location for best coverage and response. These units have warning lights which activate when H<sub>2</sub>S levels reach 10 ppm and audible sirens which activate at 10 ppm. Sensor locations:

- Bell nipple
- Shale shaker
- Trip tank
- Suction pit
- Rig floor
- Cellar
- Choke manifold
- Living Quarters (usually the company man's trailer stairs.)

### Visual warning systems:

- A. Wind direction indicators as shown on well site diagram
- B. Caution/ Danger signs shall be posted on roads providing direct access to locations. Signs will be painted a high visibility yellow with black lettering of sufficient size to be reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

**4. Mud program:**

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to surface. Proper mud weight, safe drilling practices and the use of H<sub>2</sub>S scavengers will minimize hazards when penetrating H<sub>2</sub>S bearing zones.

**5. Metallurgy:**

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold lines, and valves shall be H<sub>2</sub>S trim.
- B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

**6. Communication:**

- A. Company personnel have/use cellular telephones in the field.
- B. Land line (telephone) communications at Office

**7. Well testing:**

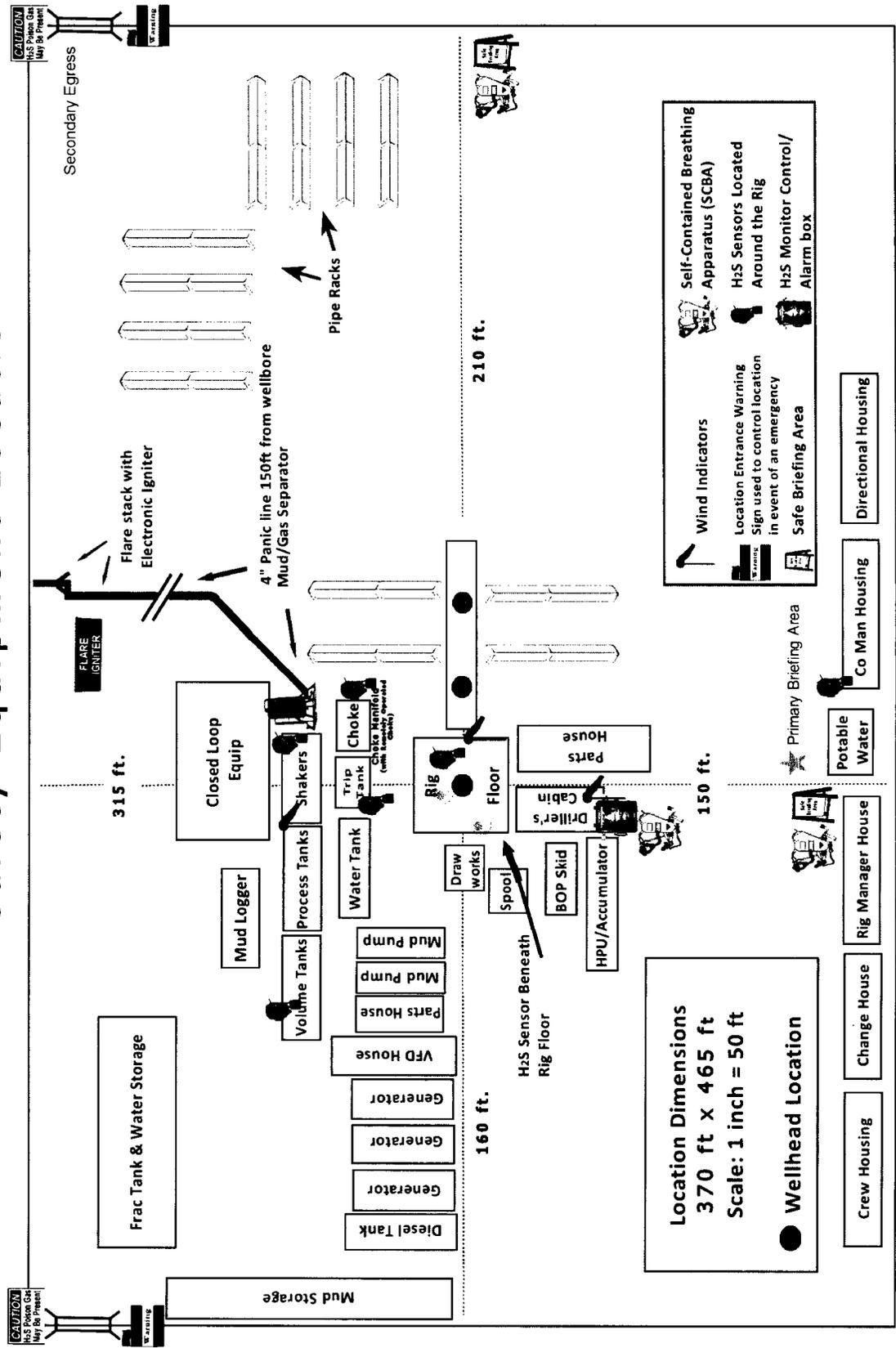
- A. There will be no drill stem testing.

<b><u>Devon Energy Corp. Company Call List</u></b>		
Drilling Supervisor – Basin – Mark Kramer		405-823-4796
Jerry Matthews – Day: 575-748-0161 Cell: 575-748-5234		
EHS Professional – Jason Robison		405-541-2841
<b><u>Agency Call List</u></b>		
<b><u>Lea County (575)</u></b>	<b>Hobbs</b>	
	Lea County Communication Authority	393-3981
	State Police	392-5588
	City Police	397-9265
	Sheriff's Office	393-2515
	<b>Ambulance</b>	<b>911</b>
	Fire Department	397-9308
	LEPC (Local Emergency Planning Committee)	393-2870
	NMOCD	393-6161
	US Bureau of Land Management	393-3612
<b><u>Eddy County (575)</u></b>	<b>Carlsbad</b>	
	State Police	885-3137
	City Police	885-2111
	Sheriff's Office	887-7551
	<b>Ambulance</b>	<b>911</b>
	Fire Department	885-3125
	LEPC (Local Emergency Planning Committee)	887-3798
	US Bureau of Land Management	887-6544
	NM Emergency Response Commission (Santa Fe)	(505) 476-9600
	24 HR	(505) 827-9126
	National Emergency Response Center	(800) 424-8802
	National Pollution Control Center: Direct	(703) 872-6000
	For Oil Spills	(800) 280-7118
	<b>Emergency Services</b>	
	Wild Well Control	(281) 784-4700
	Cudd Pressure Control	(915) 699-0139 (915) 563-3356
	Halliburton	(575) 746-2757
	B. J. Services	(575) 746-3569
<b><u>Give GPS position:</u></b>	Native Air – Emergency Helicopter – Hobbs	(575) 392-6429
	Flight For Life - Lubbock, TX	(806) 743-9911
	Aerocare - Lubbock, TX	(806) 747-8923
	Med Flight Air Amb - Albuquerque, NM	(575) 842-4433
	Lifeguard Air Med Svc. Albuquerque, NM	(800) 222-1222
	Poison Control (24/7)	(575) 272-3115
	Oil & Gas Pipeline 24 Hour Service	(800) 364-4366
	NOAA – Website - <a href="http://www.nhc.noaa.gov">www.nhc.noaa.gov</a>	

Prepared in conjunction with  
Dave Small



# Devon Energy - Well Pad Rig Location Layout Safety Equipment Location

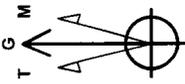




**Devon Energy**

Project: Eddy County, NM (NAD-83)  
 Site: Tomb Raider  
 Well: 718H  
 Wellbore: OH  
 Design: Plan #1

3480.4' GE + 23.5' KB @ 3503.90usft  
 Ground Level: 3480.40



Azimuths to Grid North  
 True North: -0.33°  
 Magnetic North: 6.67°  
 Magnetic Field  
 Strength: 48224.25nT  
 Dip Angle: 60.18°  
 Date: 6/28/2017  
 Model: HDGM

PROJECT DETAILS: Eddy County, NM (NAD-83)  
 Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico Eastern Zone



SHL (Tomb Raider 718H)

Design: Plan #1

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	0.00	0.00	Start 6198.56 hold at 4139.07 MD
4139.07	6.39	65.97	4137.75	14.50	32.52	1.00	65.97	-14.50	Start Drop -1.00
10337.63	0.00	0.00	10297.79	295.50	662.65	0.00	0.00	-295.50	Start 500.00 hold at 10976.71 MD
10976.71	0.00	0.00	10935.54	310.00	695.17	1.00	180.00	-310.00	Start DLS 12.00 TFO 180.00
11476.71	0.00	0.00	11435.54	310.00	695.17	0.00	0.00	-310.00	Start 9737.96 hold at 12224.99 MD
12224.99	89.79	180.00	11913.00	-165.75	695.17	12.00	180.00	165.75	TD at 21962.95
21962.95	89.79	180.00	11948.00	-9903.65	695.17	0.00	0.00	9903.65	

Start Build 1.00

True Vertical Depth (2000 usft/in)

Start 6198.56 hold at 4139.07 MD

Name  
 PBHL (Tomb Raider 718H)  
 SHL (Tomb Raider 718H)

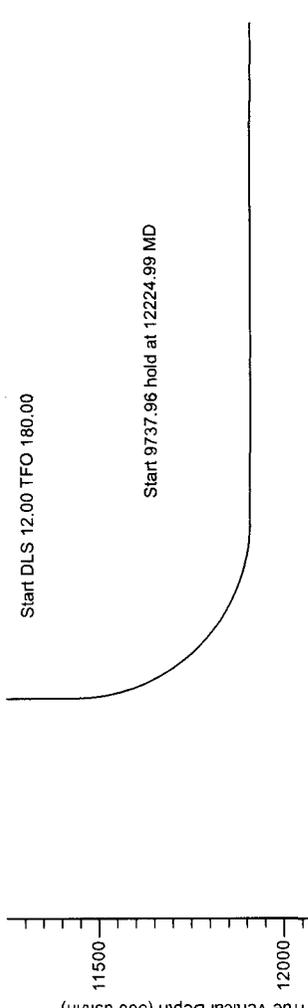
TVD  
 11948.00  
 0.00

+N/-S  
 -9903.65  
 0.00

+E/-W  
 695.17  
 0.00

Latitude  
 32° 18' 44.967" N  
 103° 43' 27.314" W  
 32° 20' 23.006" N  
 103° 43' 34.760" W

DESIGN TARGET DETAILS



718H Plan #1

718H Plan #1

Vertical Section at 180.00° (500 usft/in)

True Vertical Depth (2000 usft/in)

Start Drop -1.00  
 Start 500.00 hold at 10976.71 MD  
 Start DLS 12.00 TFO 180.00  
 Start 9737.96 hold at 12224.99 MD

718H OH Plan #1

PBHL (Tomb Raider 718H)

Vertical Section at 180.00° (2000 usft/in)

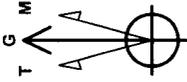
LEAM DRILLING SYSTEMS LLC  
 2010 East Davis, Conroe, Texas 77301  
 Phone: 936/756-7577, Fax: 936/756-7595



Plan: Plan #1 (718H)OH  
 Tomb Raider  
 Created By: Dustin Ault  
 Date: 11-10-2017  
 Approved: \_\_\_\_\_  
 Date: \_\_\_\_\_

**Devon Energy**

Project: Eddy County, NM (NAD-83)  
 Site: Tomb Raider  
 Well: 718H  
 Wellbore: OH  
 Design: Plan #1



Azimuths to Grid North  
 True North: -0.33°  
 Magnetic North: 6.67°  
 Magnetic Field  
 Strength: 48224.2snT  
 Dip Angle: 60.18°  
 Date: 6/28/2017  
 Model: HDGM



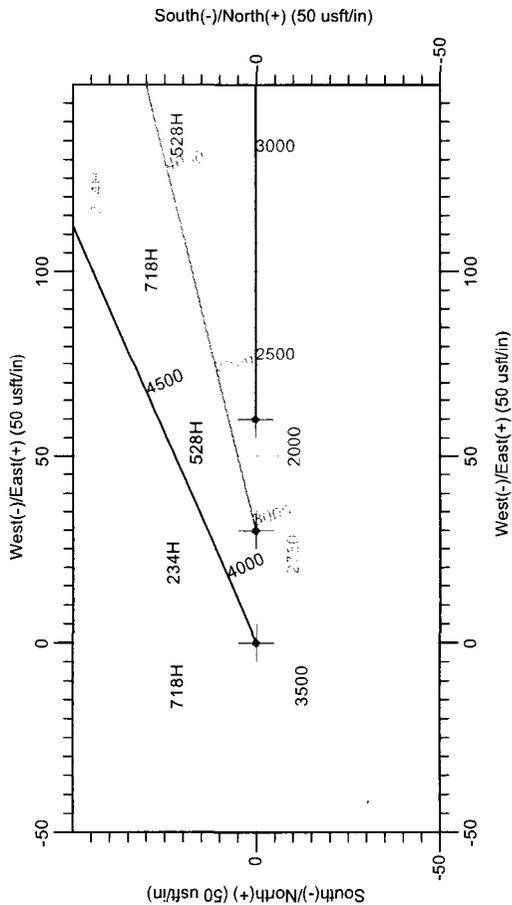
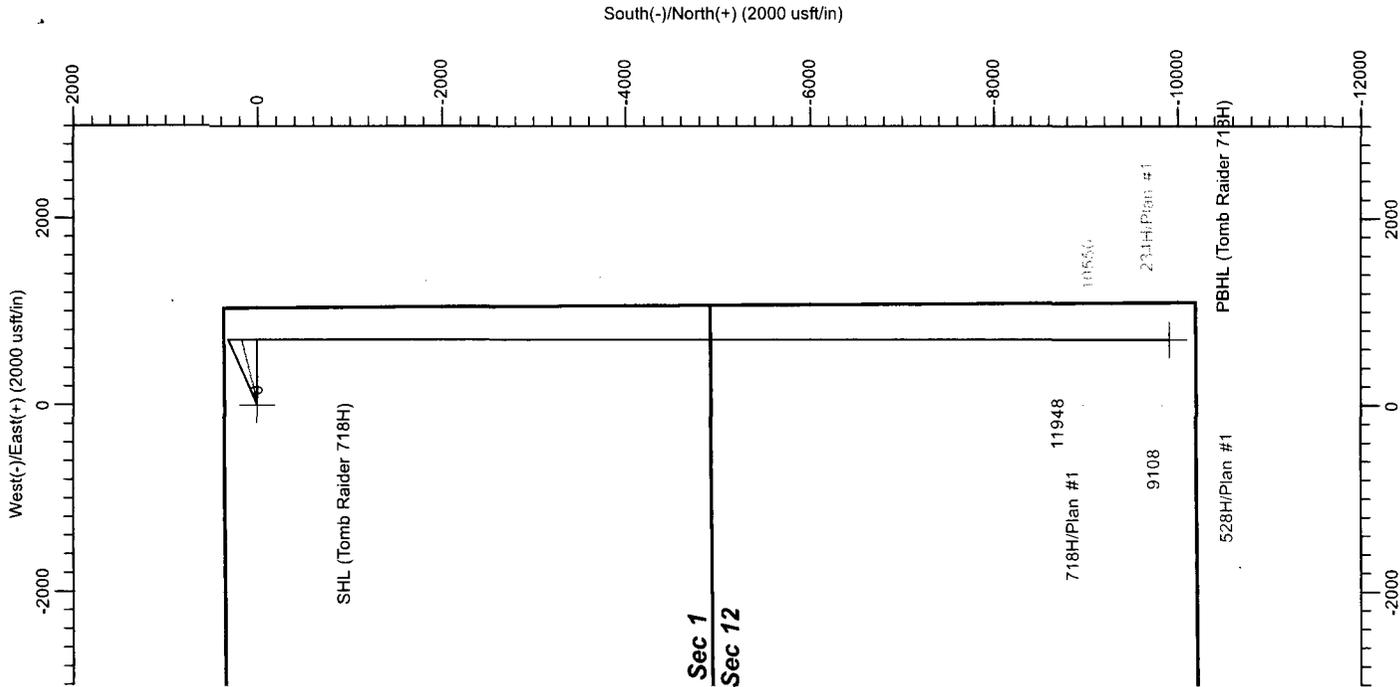
PROJECT DETAILS: Eddy County, NM (NAD-83)  
 Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico Eastern Zone

**DESIGN TARGET DETAILS**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL (Tomb Raider 718H)	11948.00	-9903.65	695.17	477951.17	729503.25	32° 18' 44.967 N	103° 43' 27.314 W
SHL (Tomb Raider 718H)	0.00	0.00	0.00	487854.82	728808.08	32° 20' 23.006 N	103° 43' 34.760 W

**SECTION DETAILS**

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 1.00
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	0.00	0.00	Start 6198.56 hold at 4139.07 MD
4139.07	6.39	65.97	4137.75	14.50	32.52	1.00	65.97	-14.50	Start Drop -1.00
10337.63	6.39	65.97	10297.79	295.50	662.65	0.00	0.00	-295.50	Start 500.00 hold at 10976.71 MD
10976.71	0.00	0.00	10935.54	310.00	695.17	1.00	180.00	-310.00	Start DLS 12.00 TFO 180.00
11476.71	0.00	0.00	11435.54	310.00	695.17	0.00	0.00	-310.00	Start 9737.96 hold at 12224.99 MD
12224.99	89.79	180.00	11913.00	-165.75	695.17	12.00	180.00	165.75	TD at 21962.95
21962.95	89.79	180.00	11948.00	-9903.65	695.17	0.00	0.00	9903.65	



Plan: Plan #1 (718H/OH)  
 Tomb Raider  
 Created By: Dustin Ault  
 Date: 11/13, June 29 2017  
 Approved: \_\_\_\_\_  
 Date: \_\_\_\_\_

**LEAM DRILLING SYSTEMS LLC**  
 2010 East Davis, Conroe, Texas 77301  
 Phone: 936/756-7577, Fax: 936/756-7595



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NM OIL CONSERVATION

# **Devon Energy**

**Eddy County, NM (NAD-83)**

**Tomb Raider**

**718H**

**OH**

**Plan: Plan #1**

## **Standard Planning Report**

**29 June, 2017**

# LEAM Drilling Systems LLC

## Planning Report

<b>Database:</b> EDM 5000.1 Multi User Db	<b>Local Co-ordinate Reference:</b> Well 718H
<b>Company:</b> Devon Energy	<b>TVD Reference:</b> 3480.4' GE + 23.5' KB @ 3503.90usft
<b>Project:</b> Eddy County, NM (NAD-83)	<b>MD Reference:</b> 3480.4' GE + 23.5' KB @ 3503.90usft
<b>Site:</b> Tomb Raider	<b>North Reference:</b> Grid
<b>Well:</b> 718H	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> OH	
<b>Design:</b> Plan #1	

<b>Project</b>	Eddy County, NM (NAD-83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	New Mexico Eastern Zone		

**Site** Tomb Raider

<b>Site Position:</b>	<b>Northing:</b> 487,854.82 usft	<b>Latitude:</b> 32° 20' 23.006 N
<b>From:</b> Map	<b>Easting:</b> 728,808.08 usft	<b>Longitude:</b> 103° 43' 34.760 W
<b>Position Uncertainty:</b> 0.00 usft	<b>Slot Radius:</b> 13-3/16 "	<b>Grid Convergence:</b> 0.32 °

**Well** 718H

<b>Well Position</b>	+N/-S	0.00 usft	<b>Northing:</b> 487,854.82 usft	<b>Latitude:</b> 32° 20' 23.006 N
	+E/-W	0.00 usft	<b>Easting:</b> 728,808.08 usft	<b>Longitude:</b> 103° 43' 34.760 W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b> 0.00 usft	<b>Ground Level:</b> 3,480.40 usft

**Wellbore** OH

<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
	HDGM	6/28/2017	(°) 7.00	(°) 60.18	(nT) 48,224

**Design** Plan #1

**Audit Notes:**

<b>Version:</b>	<b>Phase:</b> PLAN	<b>Tie On Depth:</b> 0.00
-----------------	--------------------	---------------------------

<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	180.00

**Plan Sections**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,139.07	6.39	65.97	4,137.75	14.50	32.52	1.00	1.00	0.00	65.97	
10,337.63	6.39	65.97	10,297.79	295.50	662.65	0.00	0.00	0.00	0.00	
10,976.71	0.00	0.00	10,935.54	310.00	695.17	1.00	-1.00	0.00	180.00	
11,476.71	0.00	0.00	11,435.54	310.00	695.17	0.00	0.00	0.00	0.00	
12,224.99	89.79	180.00	11,913.00	-165.75	695.17	12.00	12.00	24.06	180.00	
21,962.96	89.79	180.00	11,948.00	-9,903.65	695.17	0.00	0.00	0.00	0.00	PBHL (Tomb Raider 7)

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Tomb Raider  
**Well:** 718H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	BuILD Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>SHL (Tomb Raider 718H)</b>									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 1.00</b>									
3,600.00	1.00	65.97	3,600.00	0.36	0.80	-0.36	1.00	1.00	0.00
3,700.00	2.00	65.97	3,699.96	1.42	3.19	-1.42	1.00	1.00	0.00
3,800.00	3.00	65.97	3,799.86	3.20	7.17	-3.20	1.00	1.00	0.00
3,900.00	4.00	65.97	3,899.68	5.68	12.75	-5.68	1.00	1.00	0.00
4,000.00	5.00	65.97	3,999.37	8.88	19.91	-8.88	1.00	1.00	0.00
4,100.00	6.00	65.97	4,098.90	12.78	28.67	-12.78	1.00	1.00	0.00
4,139.07	6.39	65.97	4,137.75	14.50	32.52	-14.50	1.00	1.00	0.00
<b>Start 6198.56 hold at 4139.07 MD</b>									
4,200.00	6.39	65.97	4,198.30	17.26	38.71	-17.26	0.00	0.00	0.00
4,300.00	6.39	65.97	4,297.68	21.80	48.88	-21.80	0.00	0.00	0.00
4,400.00	6.39	65.97	4,397.05	26.33	59.04	-26.33	0.00	0.00	0.00
4,500.00	6.39	65.97	4,496.43	30.86	69.21	-30.86	0.00	0.00	0.00
4,600.00	6.39	65.97	4,595.81	35.40	79.37	-35.40	0.00	0.00	0.00
4,700.00	6.39	65.97	4,695.19	39.93	89.54	-39.93	0.00	0.00	0.00
4,800.00	6.39	65.97	4,794.57	44.46	99.71	-44.46	0.00	0.00	0.00

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Tomb Raider  
**Well:** 718H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,900.00	6.39	65.97	4,893.95	49.00	109.87	-49.00	0.00	0.00	0.00
5,000.00	6.39	65.97	4,993.33	53.53	120.04	-53.53	0.00	0.00	0.00
5,100.00	6.39	65.97	5,092.70	58.06	130.20	-58.06	0.00	0.00	0.00
5,200.00	6.39	65.97	5,192.08	62.60	140.37	-62.60	0.00	0.00	0.00
5,300.00	6.39	65.97	5,291.46	67.13	150.54	-67.13	0.00	0.00	0.00
5,400.00	6.39	65.97	5,390.84	71.66	160.70	-71.66	0.00	0.00	0.00
5,500.00	6.39	65.97	5,490.22	76.20	170.87	-76.20	0.00	0.00	0.00
5,600.00	6.39	65.97	5,589.60	80.73	181.03	-80.73	0.00	0.00	0.00
5,700.00	6.39	65.97	5,688.98	85.26	191.20	-85.26	0.00	0.00	0.00
5,800.00	6.39	65.97	5,788.35	89.80	201.36	-89.80	0.00	0.00	0.00
5,900.00	6.39	65.97	5,887.73	94.33	211.53	-94.33	0.00	0.00	0.00
6,000.00	6.39	65.97	5,987.11	98.86	221.70	-98.86	0.00	0.00	0.00
6,100.00	6.39	65.97	6,086.49	103.40	231.86	-103.40	0.00	0.00	0.00
6,200.00	6.39	65.97	6,185.87	107.93	242.03	-107.93	0.00	0.00	0.00
6,300.00	6.39	65.97	6,285.25	112.46	252.19	-112.46	0.00	0.00	0.00
6,400.00	6.39	65.97	6,384.63	116.99	262.36	-116.99	0.00	0.00	0.00
6,500.00	6.39	65.97	6,484.00	121.53	272.53	-121.53	0.00	0.00	0.00
6,600.00	6.39	65.97	6,583.38	126.06	282.69	-126.06	0.00	0.00	0.00
6,700.00	6.39	65.97	6,682.76	130.59	292.86	-130.59	0.00	0.00	0.00
6,800.00	6.39	65.97	6,782.14	135.13	303.02	-135.13	0.00	0.00	0.00
6,900.00	6.39	65.97	6,881.52	139.66	313.19	-139.66	0.00	0.00	0.00
7,000.00	6.39	65.97	6,980.90	144.19	323.35	-144.19	0.00	0.00	0.00
7,100.00	6.39	65.97	7,080.28	148.73	333.52	-148.73	0.00	0.00	0.00
7,200.00	6.39	65.97	7,179.66	153.26	343.69	-153.26	0.00	0.00	0.00
7,300.00	6.39	65.97	7,279.03	157.79	353.85	-157.79	0.00	0.00	0.00
7,400.00	6.39	65.97	7,378.41	162.33	364.02	-162.33	0.00	0.00	0.00
7,500.00	6.39	65.97	7,477.79	166.86	374.18	-166.86	0.00	0.00	0.00
7,600.00	6.39	65.97	7,577.17	171.39	384.35	-171.39	0.00	0.00	0.00
7,700.00	6.39	65.97	7,676.55	175.93	394.52	-175.93	0.00	0.00	0.00
7,800.00	6.39	65.97	7,775.93	180.46	404.68	-180.46	0.00	0.00	0.00
7,900.00	6.39	65.97	7,875.31	184.99	414.85	-184.99	0.00	0.00	0.00
8,000.00	6.39	65.97	7,974.68	189.53	425.01	-189.53	0.00	0.00	0.00
8,100.00	6.39	65.97	8,074.06	194.06	435.18	-194.06	0.00	0.00	0.00
8,200.00	6.39	65.97	8,173.44	198.59	445.34	-198.59	0.00	0.00	0.00
8,300.00	6.39	65.97	8,272.82	203.13	455.51	-203.13	0.00	0.00	0.00
8,400.00	6.39	65.97	8,372.20	207.66	465.68	-207.66	0.00	0.00	0.00
8,500.00	6.39	65.97	8,471.58	212.19	475.84	-212.19	0.00	0.00	0.00
8,600.00	6.39	65.97	8,570.96	216.73	486.01	-216.73	0.00	0.00	0.00
8,700.00	6.39	65.97	8,670.33	221.26	496.17	-221.26	0.00	0.00	0.00
8,800.00	6.39	65.97	8,769.71	225.79	506.34	-225.79	0.00	0.00	0.00
8,900.00	6.39	65.97	8,869.09	230.33	516.51	-230.33	0.00	0.00	0.00
9,000.00	6.39	65.97	8,968.47	234.86	526.67	-234.86	0.00	0.00	0.00
9,100.00	6.39	65.97	9,067.85	239.39	536.84	-239.39	0.00	0.00	0.00
9,200.00	6.39	65.97	9,167.23	243.93	547.00	-243.93	0.00	0.00	0.00
9,300.00	6.39	65.97	9,266.61	248.46	557.17	-248.46	0.00	0.00	0.00
9,400.00	6.39	65.97	9,365.98	252.99	567.33	-252.99	0.00	0.00	0.00
9,500.00	6.39	65.97	9,465.36	257.53	577.50	-257.53	0.00	0.00	0.00
9,600.00	6.39	65.97	9,564.74	262.06	587.67	-262.06	0.00	0.00	0.00
9,700.00	6.39	65.97	9,664.12	266.59	597.83	-266.59	0.00	0.00	0.00
9,800.00	6.39	65.97	9,763.50	271.13	608.00	-271.13	0.00	0.00	0.00
9,900.00	6.39	65.97	9,862.88	275.66	618.16	-275.66	0.00	0.00	0.00
10,000.00	6.39	65.97	9,962.26	280.19	628.33	-280.19	0.00	0.00	0.00
10,100.00	6.39	65.97	10,061.63	284.73	638.50	-284.73	0.00	0.00	0.00
10,200.00	6.39	65.97	10,161.01	289.26	648.66	-289.26	0.00	0.00	0.00

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Tomb Raider  
**Well:** 718H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,300.00	6.39	65.97	10,260.39	293.79	658.83	-293.79	0.00	0.00	0.00
10,337.63	6.39	65.97	10,297.79	295.50	662.65	-295.50	0.00	0.00	0.00
<b>Start Drop -1.00</b>									
10,400.00	5.77	65.97	10,359.81	298.19	668.68	-298.19	1.00	-1.00	0.00
10,500.00	4.77	65.97	10,459.38	301.93	677.07	-301.93	1.00	-1.00	0.00
10,600.00	3.77	65.97	10,559.10	304.96	683.86	-304.96	1.00	-1.00	0.00
10,700.00	2.77	65.97	10,658.94	307.28	689.07	-307.28	1.00	-1.00	0.00
10,800.00	1.77	65.97	10,758.86	308.89	692.68	-308.89	1.00	-1.00	0.00
10,900.00	0.77	65.97	10,858.84	309.79	694.70	-309.79	1.00	-1.00	0.00
10,976.71	0.00	0.00	10,935.54	310.00	695.17	-310.00	1.00	-1.00	0.00
<b>Start 500.00 hold at 10976.71 MD</b>									
11,000.00	0.00	0.00	10,958.83	310.00	695.17	-310.00	0.00	0.00	0.00
11,100.00	0.00	0.00	11,058.83	310.00	695.17	-310.00	0.00	0.00	0.00
11,200.00	0.00	0.00	11,158.83	310.00	695.17	-310.00	0.00	0.00	0.00
11,300.00	0.00	0.00	11,258.83	310.00	695.17	-310.00	0.00	0.00	0.00
11,400.00	0.00	0.00	11,358.83	310.00	695.17	-310.00	0.00	0.00	0.00
11,476.71	0.00	0.00	11,435.54	310.00	695.17	-310.00	0.00	0.00	0.00
<b>Start DLS 12.00 TFO 180.00</b>									
11,500.00	2.80	180.00	11,458.82	309.43	695.17	-309.43	12.00	12.00	0.00
11,525.00	5.80	180.00	11,483.75	307.56	695.17	-307.56	12.00	12.00	0.00
11,550.00	8.80	180.00	11,508.55	304.39	695.17	-304.39	12.00	12.00	0.00
11,575.00	11.80	180.00	11,533.14	299.92	695.17	-299.92	12.00	12.00	0.00
11,600.00	14.80	180.00	11,557.47	294.17	695.17	-294.17	12.00	12.00	0.00
11,625.00	17.80	180.00	11,581.46	287.16	695.17	-287.16	12.00	12.00	0.00
11,650.00	20.80	180.00	11,605.05	278.90	695.17	-278.90	12.00	12.00	0.00
11,675.00	23.80	180.00	11,628.18	269.41	695.17	-269.41	12.00	12.00	0.00
11,700.00	26.80	180.00	11,650.78	258.73	695.17	-258.73	12.00	12.00	0.00
11,725.00	29.80	180.00	11,672.79	246.88	695.17	-246.88	12.00	12.00	0.00
11,750.00	32.80	180.00	11,694.15	233.90	695.17	-233.90	12.00	12.00	0.00
11,775.00	35.80	180.00	11,714.80	219.81	695.17	-219.81	12.00	12.00	0.00
11,800.00	38.80	180.00	11,734.69	204.67	695.17	-204.67	12.00	12.00	0.00
11,825.00	41.80	180.00	11,753.76	188.50	695.17	-188.50	12.00	12.00	0.00
11,850.00	44.80	180.00	11,771.95	171.36	695.17	-171.36	12.00	12.00	0.00
11,875.00	47.80	180.00	11,789.22	153.29	695.17	-153.29	12.00	12.00	0.00
11,900.00	50.80	180.00	11,805.52	134.34	695.17	-134.34	12.00	12.00	0.00
11,925.00	53.80	180.00	11,820.81	114.56	695.17	-114.56	12.00	12.00	0.00
11,950.00	56.80	180.00	11,835.04	94.01	695.17	-94.01	12.00	12.00	0.00
11,975.00	59.80	180.00	11,848.18	72.74	695.17	-72.74	12.00	12.00	0.00
12,000.00	62.80	180.00	11,860.19	50.82	695.17	-50.82	12.00	12.00	0.00
12,025.00	65.80	180.00	11,871.03	28.30	695.17	-28.30	12.00	12.00	0.00
12,050.00	68.80	180.00	11,880.68	5.24	695.17	-5.24	12.00	12.00	0.00
12,075.00	71.80	180.00	11,889.11	-18.30	695.17	18.30	12.00	12.00	0.00
12,100.00	74.80	180.00	11,896.29	-42.24	695.17	42.24	12.00	12.00	0.00
12,125.00	77.80	180.00	11,902.21	-66.53	695.17	66.53	12.00	12.00	0.00
12,150.00	80.80	180.00	11,906.86	-91.09	695.17	91.09	12.00	12.00	0.00
12,175.00	83.80	180.00	11,910.21	-115.86	695.17	115.86	12.00	12.00	0.00
12,200.00	86.80	180.00	11,912.26	-140.77	695.17	140.77	12.00	12.00	0.00
12,224.99	89.79	180.00	11,913.00	-165.75	695.17	165.75	12.00	12.00	0.00
<b>Start 9737.96 hold at 12224.99 MD</b>									
12,300.00	89.79	180.00	11,913.27	-240.76	695.17	240.76	0.00	0.00	0.00
12,400.00	89.79	180.00	11,913.63	-340.76	695.17	340.76	0.00	0.00	0.00
12,500.00	89.79	180.00	11,913.99	-440.76	695.17	440.76	0.00	0.00	0.00
12,600.00	89.79	180.00	11,914.35	-540.76	695.17	540.76	0.00	0.00	0.00

# LEAM Drilling Systems LLC

## Planning Report

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**Site:** Tomb Raider  
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**Wellbore:** OH  
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### Planned Survey

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12,700.00	89.79	180.00	11,914.71	-640.75	695.17	640.75	0.00	0.00	0.00
12,800.00	89.79	180.00	11,915.07	-740.75	695.17	740.75	0.00	0.00	0.00
12,900.00	89.79	180.00	11,915.43	-840.75	695.17	840.75	0.00	0.00	0.00
13,000.00	89.79	180.00	11,915.79	-940.75	695.17	940.75	0.00	0.00	0.00
13,100.00	89.79	180.00	11,916.15	-1,040.75	695.17	1,040.75	0.00	0.00	0.00
13,200.00	89.79	180.00	11,916.51	-1,140.75	695.17	1,140.75	0.00	0.00	0.00
13,300.00	89.79	180.00	11,916.87	-1,240.75	695.17	1,240.75	0.00	0.00	0.00
13,400.00	89.79	180.00	11,917.22	-1,340.75	695.17	1,340.75	0.00	0.00	0.00
13,500.00	89.79	180.00	11,917.58	-1,440.75	695.17	1,440.75	0.00	0.00	0.00
13,600.00	89.79	180.00	11,917.94	-1,540.75	695.17	1,540.75	0.00	0.00	0.00
13,700.00	89.79	180.00	11,918.30	-1,640.75	695.17	1,640.75	0.00	0.00	0.00
13,800.00	89.79	180.00	11,918.66	-1,740.75	695.17	1,740.75	0.00	0.00	0.00
13,900.00	89.79	180.00	11,919.02	-1,840.75	695.17	1,840.75	0.00	0.00	0.00
14,000.00	89.79	180.00	11,919.38	-1,940.75	695.17	1,940.75	0.00	0.00	0.00
14,100.00	89.79	180.00	11,919.74	-2,040.75	695.17	2,040.75	0.00	0.00	0.00
14,200.00	89.79	180.00	11,920.10	-2,140.75	695.17	2,140.75	0.00	0.00	0.00
14,300.00	89.79	180.00	11,920.46	-2,240.74	695.17	2,240.74	0.00	0.00	0.00
14,400.00	89.79	180.00	11,920.82	-2,340.74	695.17	2,340.74	0.00	0.00	0.00
14,500.00	89.79	180.00	11,921.18	-2,440.74	695.17	2,440.74	0.00	0.00	0.00
14,600.00	89.79	180.00	11,921.54	-2,540.74	695.17	2,540.74	0.00	0.00	0.00
14,700.00	89.79	180.00	11,921.90	-2,640.74	695.17	2,640.74	0.00	0.00	0.00
14,800.00	89.79	180.00	11,922.26	-2,740.74	695.17	2,740.74	0.00	0.00	0.00
14,900.00	89.79	180.00	11,922.62	-2,840.74	695.17	2,840.74	0.00	0.00	0.00
15,000.00	89.79	180.00	11,922.98	-2,940.74	695.17	2,940.74	0.00	0.00	0.00
15,100.00	89.79	180.00	11,923.33	-3,040.74	695.17	3,040.74	0.00	0.00	0.00
15,200.00	89.79	180.00	11,923.69	-3,140.74	695.17	3,140.74	0.00	0.00	0.00
15,300.00	89.79	180.00	11,924.05	-3,240.74	695.17	3,240.74	0.00	0.00	0.00
15,400.00	89.79	180.00	11,924.41	-3,340.74	695.17	3,340.74	0.00	0.00	0.00
15,500.00	89.79	180.00	11,924.77	-3,440.74	695.17	3,440.74	0.00	0.00	0.00
15,600.00	89.79	180.00	11,925.13	-3,540.74	695.17	3,540.74	0.00	0.00	0.00
15,700.00	89.79	180.00	11,925.49	-3,640.74	695.17	3,640.74	0.00	0.00	0.00
15,800.00	89.79	180.00	11,925.85	-3,740.74	695.17	3,740.74	0.00	0.00	0.00
15,900.00	89.79	180.00	11,926.21	-3,840.73	695.17	3,840.73	0.00	0.00	0.00
16,000.00	89.79	180.00	11,926.57	-3,940.73	695.17	3,940.73	0.00	0.00	0.00
16,100.00	89.79	180.00	11,926.93	-4,040.73	695.17	4,040.73	0.00	0.00	0.00
16,200.00	89.79	180.00	11,927.29	-4,140.73	695.17	4,140.73	0.00	0.00	0.00
16,300.00	89.79	180.00	11,927.65	-4,240.73	695.17	4,240.73	0.00	0.00	0.00
16,400.00	89.79	180.00	11,928.01	-4,340.73	695.17	4,340.73	0.00	0.00	0.00
16,500.00	89.79	180.00	11,928.37	-4,440.73	695.17	4,440.73	0.00	0.00	0.00
16,600.00	89.79	180.00	11,928.73	-4,540.73	695.17	4,540.73	0.00	0.00	0.00
16,700.00	89.79	180.00	11,929.09	-4,640.73	695.17	4,640.73	0.00	0.00	0.00
16,800.00	89.79	180.00	11,929.44	-4,740.73	695.17	4,740.73	0.00	0.00	0.00
16,900.00	89.79	180.00	11,929.80	-4,840.73	695.17	4,840.73	0.00	0.00	0.00
17,000.00	89.79	180.00	11,930.16	-4,940.73	695.17	4,940.73	0.00	0.00	0.00
17,100.00	89.79	180.00	11,930.52	-5,040.73	695.17	5,040.73	0.00	0.00	0.00
17,200.00	89.79	180.00	11,930.88	-5,140.73	695.17	5,140.73	0.00	0.00	0.00
17,300.00	89.79	180.00	11,931.24	-5,240.73	695.17	5,240.73	0.00	0.00	0.00
17,400.00	89.79	180.00	11,931.60	-5,340.72	695.17	5,340.72	0.00	0.00	0.00
17,500.00	89.79	180.00	11,931.96	-5,440.72	695.17	5,440.72	0.00	0.00	0.00
17,600.00	89.79	180.00	11,932.32	-5,540.72	695.17	5,540.72	0.00	0.00	0.00
17,700.00	89.79	180.00	11,932.68	-5,640.72	695.17	5,640.72	0.00	0.00	0.00
17,800.00	89.79	180.00	11,933.04	-5,740.72	695.17	5,740.72	0.00	0.00	0.00
17,900.00	89.79	180.00	11,933.40	-5,840.72	695.17	5,840.72	0.00	0.00	0.00
18,000.00	89.79	180.00	11,933.76	-5,940.72	695.17	5,940.72	0.00	0.00	0.00

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Tomb Raider  
**Well:** 718H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,100.00	89.79	180.00	11,934.12	-6,040.72	695.17	6,040.72	0.00	0.00	0.00
18,200.00	89.79	180.00	11,934.48	-6,140.72	695.17	6,140.72	0.00	0.00	0.00
18,300.00	89.79	180.00	11,934.84	-6,240.72	695.17	6,240.72	0.00	0.00	0.00
18,400.00	89.79	180.00	11,935.20	-6,340.72	695.17	6,340.72	0.00	0.00	0.00
18,500.00	89.79	180.00	11,935.55	-6,440.72	695.17	6,440.72	0.00	0.00	0.00
18,600.00	89.79	180.00	11,935.91	-6,540.72	695.17	6,540.72	0.00	0.00	0.00
18,700.00	89.79	180.00	11,936.27	-6,640.72	695.17	6,640.72	0.00	0.00	0.00
18,800.00	89.79	180.00	11,936.63	-6,740.72	695.17	6,740.72	0.00	0.00	0.00
18,900.00	89.79	180.00	11,936.99	-6,840.72	695.17	6,840.72	0.00	0.00	0.00
19,000.00	89.79	180.00	11,937.35	-6,940.71	695.17	6,940.71	0.00	0.00	0.00
19,100.00	89.79	180.00	11,937.71	-7,040.71	695.17	7,040.71	0.00	0.00	0.00
19,200.00	89.79	180.00	11,938.07	-7,140.71	695.17	7,140.71	0.00	0.00	0.00
19,300.00	89.79	180.00	11,938.43	-7,240.71	695.17	7,240.71	0.00	0.00	0.00
19,400.00	89.79	180.00	11,938.79	-7,340.71	695.17	7,340.71	0.00	0.00	0.00
19,500.00	89.79	180.00	11,939.15	-7,440.71	695.17	7,440.71	0.00	0.00	0.00
19,600.00	89.79	180.00	11,939.51	-7,540.71	695.17	7,540.71	0.00	0.00	0.00
19,700.00	89.79	180.00	11,939.87	-7,640.71	695.17	7,640.71	0.00	0.00	0.00
19,800.00	89.79	180.00	11,940.23	-7,740.71	695.17	7,740.71	0.00	0.00	0.00
19,900.00	89.79	180.00	11,940.59	-7,840.71	695.17	7,840.71	0.00	0.00	0.00
20,000.00	89.79	180.00	11,940.95	-7,940.71	695.17	7,940.71	0.00	0.00	0.00
20,100.00	89.79	180.00	11,941.30	-8,040.71	695.17	8,040.71	0.00	0.00	0.00
20,200.00	89.79	180.00	11,941.66	-8,140.71	695.17	8,140.71	0.00	0.00	0.00
20,300.00	89.79	180.00	11,942.02	-8,240.71	695.17	8,240.71	0.00	0.00	0.00
20,400.00	89.79	180.00	11,942.38	-8,340.71	695.17	8,340.71	0.00	0.00	0.00
20,500.00	89.79	180.00	11,942.74	-8,440.70	695.17	8,440.70	0.00	0.00	0.00
20,600.00	89.79	180.00	11,943.10	-8,540.70	695.17	8,540.70	0.00	0.00	0.00
20,700.00	89.79	180.00	11,943.46	-8,640.70	695.17	8,640.70	0.00	0.00	0.00
20,800.00	89.79	180.00	11,943.82	-8,740.70	695.17	8,740.70	0.00	0.00	0.00
20,900.00	89.79	180.00	11,944.18	-8,840.70	695.17	8,840.70	0.00	0.00	0.00
21,000.00	89.79	180.00	11,944.54	-8,940.70	695.17	8,940.70	0.00	0.00	0.00
21,100.00	89.79	180.00	11,944.90	-9,040.70	695.17	9,040.70	0.00	0.00	0.00
21,200.00	89.79	180.00	11,945.26	-9,140.70	695.17	9,140.70	0.00	0.00	0.00
21,300.00	89.79	180.00	11,945.62	-9,240.70	695.17	9,240.70	0.00	0.00	0.00
21,400.00	89.79	180.00	11,945.98	-9,340.70	695.17	9,340.70	0.00	0.00	0.00
21,500.00	89.79	180.00	11,946.34	-9,440.70	695.17	9,440.70	0.00	0.00	0.00
21,600.00	89.79	180.00	11,946.70	-9,540.70	695.17	9,540.70	0.00	0.00	0.00
21,700.00	89.79	180.00	11,947.06	-9,640.70	695.17	9,640.70	0.00	0.00	0.00
21,800.00	89.79	180.00	11,947.41	-9,740.70	695.17	9,740.70	0.00	0.00	0.00
21,900.00	89.79	180.00	11,947.77	-9,840.70	695.17	9,840.70	0.00	0.00	0.00
21,962.96	89.79	180.00	11,948.00	-9,903.65	695.17	9,903.65	0.00	0.00	0.00

**TD at 21962.95 - PBHL (Tomb Raider 718H)**

# LEAM Drilling Systems LLC

## Planning Report

**Database:** EDM 5000.1 Multi User Db  
**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Site:** Tomb Raider  
**Well:** 718H  
**Wellbore:** OH  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

### Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
SHL (Tomb Raider 718H - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	487,854.82	728,808.08	32° 20' 23.006 N	103° 43' 34.760 W
PBHL (Tomb Raider 718 - plan hits target center - Point	0.00	0.00	11,948.00	-9,903.65	695.17	477,951.17	729,503.25	32° 18' 44.967 N	103° 43' 27.314 W

### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,500.00	3,500.00	0.00	0.00	Start Build 1.00
4,139.07	4,137.75	14.50	32.52	Start 6198.56 hold at 4139.07 MD
10,337.63	10,297.79	295.50	662.65	Start Drop -1.00
10,976.71	10,935.54	310.00	695.17	Start 500.00 hold at 10976.71 MD
11,476.71	11,435.54	310.00	695.17	Start DLS 12.00 TFO 180.00
12,224.99	11,913.00	-165.75	695.17	Start 9737.96 hold at 12224.99 MD
21,962.96	11,948.00	-9,903.65	695.17	TD at 21962.95

# LEAM Drilling Systems LLC

## Anticollision Report

<b>Company:</b>	Devon Energy	<b>Local Co-ordinate Reference:</b>	Well 718H
<b>Project:</b>	Eddy County, NM (NAD-83)	<b>TVD Reference:</b>	3480.4' GE + 23.5' KB @ 3503.90usft
<b>Reference Site:</b>	Tomb Raider	<b>MD Reference:</b>	3480.4' GE + 23.5' KB @ 3503.90usft
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	718H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	EDM 5000.1 Multi User Db
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #1		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 9,999.98 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

**Survey Tool Program**                      **Date** 6/29/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	21,962.40	Plan #1 (OH)	LEAM MWD+HDGM	MWD+HDGM

**Summary**

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Tomb Raider						
234H - OH - Plan #1	2,703.87	2,703.47	29.96	18.08	2.523	CC
234H - OH - Plan #1	2,800.00	2,799.35	30.17	17.87	2.452	ES, SF
528H - OH - Plan #1	2,000.00	1,999.50	59.96	51.25	6.883	CC, ES
528H - OH - Plan #1	2,200.00	2,197.36	63.40	53.84	6.631	SF

Offset Design                      Tomb Raider - 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	89.54	0.24	29.96	29.96					
100.00	100.00	99.60	99.60	0.09	0.09	89.54	0.24	29.96	29.96	29.79	0.17	174.595		
200.00	200.00	199.60	199.60	0.31	0.31	89.54	0.24	29.96	29.96	29.34	0.62	48.279		
300.00	300.00	299.60	299.60	0.54	0.53	89.54	0.24	29.96	29.96	28.89	1.07	27.998		
400.00	400.00	399.60	399.60	0.76	0.76	89.54	0.24	29.96	29.96	28.44	1.52	19.716		
500.00	500.00	499.60	499.60	0.99	0.98	89.54	0.24	29.96	29.96	27.99	1.97	15.215		
600.00	600.00	599.60	599.60	1.21	1.21	89.54	0.24	29.96	29.96	27.54	2.42	12.387		
700.00	700.00	699.60	699.60	1.43	1.43	89.54	0.24	29.96	29.96	27.09	2.87	10.446		
800.00	800.00	799.60	799.60	1.66	1.66	89.54	0.24	29.96	29.96	26.64	3.32	9.030		
900.00	900.00	899.60	899.60	1.88	1.88	89.54	0.24	29.96	29.96	26.19	3.77	7.953		
1,000.00	1,000.00	999.60	999.60	2.11	2.11	89.54	0.24	29.96	29.96	25.74	4.22	7.105		
1,100.00	1,100.00	1,099.60	1,099.60	2.33	2.33	89.54	0.24	29.96	29.96	25.29	4.67	6.421		
1,200.00	1,200.00	1,199.60	1,199.60	2.56	2.56	89.54	0.24	29.96	29.96	24.85	5.12	5.856		
1,300.00	1,300.00	1,299.60	1,299.60	2.78	2.78	89.54	0.24	29.96	29.96	24.40	5.57	5.383		
1,400.00	1,400.00	1,399.60	1,399.60	3.01	3.01	89.54	0.24	29.96	29.96	23.95	6.01	4.981		
1,500.00	1,500.00	1,499.60	1,499.60	3.23	3.23	89.54	0.24	29.96	29.96	23.50	6.46	4.635		
1,600.00	1,600.00	1,599.60	1,599.60	3.46	3.46	89.54	0.24	29.96	29.96	23.05	6.91	4.333		
1,700.00	1,700.00	1,699.60	1,699.60	3.68	3.68	89.54	0.24	29.96	29.96	22.60	7.36	4.069		
1,800.00	1,800.00	1,799.60	1,799.60	3.91	3.91	89.54	0.24	29.96	29.96	22.15	7.81	3.835		
1,900.00	1,900.00	1,899.60	1,899.60	4.13	4.13	89.54	0.24	29.96	29.96	21.70	8.26	3.626		
2,000.00	2,000.00	1,999.60	1,999.60	4.36	4.36	89.54	0.24	29.96	29.96	21.25	8.71	3.439		
2,100.00	2,100.00	2,099.60	2,099.60	4.58	4.58	89.54	0.24	29.96	29.96	20.80	9.16	3.270		
2,200.00	2,200.00	2,199.60	2,199.60	4.81	4.81	89.54	0.24	29.96	29.96	20.35	9.61	3.117		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
2,300.00	2,300.00	2,299.60	2,299.60	5.03	5.03	89.54	0.24	29.96	29.96	19.90	10.06	2.978		
2,400.00	2,400.00	2,399.60	2,399.60	5.26	5.25	89.54	0.24	29.96	29.96	19.45	10.51	2.851		
2,500.00	2,500.00	2,499.60	2,499.60	5.48	5.48	89.54	0.24	29.96	29.96	19.00	10.96	2.734		
2,600.00	2,600.00	2,599.60	2,599.60	5.71	5.70	89.54	0.24	29.96	29.96	18.55	11.41	2.626		
2,700.00	2,700.00	2,699.60	2,699.60	5.93	5.93	89.54	0.24	29.96	29.96	18.10	11.86	2.526		
2,703.87	2,703.87	2,703.47	2,703.47	5.94	5.94	89.54	0.24	29.96	29.96	18.08	11.88	2.523 CC		
2,800.00	2,800.00	2,799.35	2,799.35	6.15	6.15	89.45	0.29	30.17	30.17	17.87	12.30	2.452 ES, SF		
2,900.00	2,900.00	2,898.81	2,898.79	6.38	6.35	88.73	0.71	31.84	31.85	19.13	12.73	2.503		
3,000.00	3,000.00	2,998.18	2,998.10	6.60	6.56	87.50	1.53	35.18	35.24	22.09	13.15	2.681		
3,100.00	3,100.00	3,097.40	3,097.19	6.83	6.76	86.05	2.77	40.18	40.35	26.78	13.57	2.974		
3,200.00	3,200.00	3,196.42	3,195.97	7.05	6.97	84.60	4.42	46.83	47.18	33.20	13.98	3.375		
3,300.00	3,300.00	3,295.17	3,294.35	7.28	7.19	83.29	6.48	55.11	55.74	41.35	14.39	3.874		
3,400.00	3,400.00	3,393.67	3,392.31	7.50	7.41	82.18	8.93	65.01	66.03	51.23	14.80	4.461		
3,500.00	3,500.00	3,493.05	3,491.08	7.73	7.63	81.30	11.59	75.72	77.07	61.84	15.23	5.060		
3,600.00	3,600.00	3,592.52	3,589.94	7.94	7.86	80.43	14.25	86.43	87.29	71.63	15.66	5.574		
3,700.00	3,699.96	3,692.15	3,688.96	8.15	8.10	80.00	16.91	97.16	95.83	79.75	16.08	5.960		
3,800.00	3,799.86	3,791.92	3,788.10	8.36	8.34	80.00	19.57	107.91	102.69	86.19	16.50	6.223		
3,900.00	3,899.68	3,891.78	3,887.35	8.58	8.58	80.00	22.24	118.66	107.86	90.94	16.93	6.372		
4,000.00	3,999.37	3,991.71	3,986.67	8.79	8.82	80.00	24.91	129.43	111.36	94.01	17.36	6.417		
4,100.00	4,098.90	4,091.68	4,086.02	9.01	9.07	80.00	27.58	140.20	113.20	95.41	17.79	6.364		
4,139.07	4,137.75	4,130.75	4,124.84	9.10	9.16	80.00	28.63	144.40	113.47	95.51	17.95	6.320		
4,200.00	4,198.30	4,191.66	4,185.38	9.24	9.31	80.00	30.25	150.96	113.69	95.47	18.22	6.240		
4,300.00	4,297.68	4,291.64	4,284.75	9.47	9.56	80.00	32.93	161.73	114.09	95.44	18.65	6.116		
4,400.00	4,397.05	4,391.63	4,384.11	9.70	9.82	80.00	35.60	172.50	114.53	95.43	19.09	5.998		
4,500.00	4,496.43	4,491.61	4,483.47	9.93	10.07	80.00	38.27	183.27	114.99	95.46	19.53	5.887		
4,600.00	4,595.81	4,591.59	4,582.84	10.17	10.33	80.00	40.94	194.04	115.49	95.51	19.98	5.781		
4,700.00	4,695.19	4,691.57	4,682.20	10.41	10.58	80.00	43.61	204.81	116.01	95.59	20.43	5.680		
4,800.00	4,794.57	4,791.55	4,781.56	10.65	10.84	80.00	46.28	215.58	116.57	95.70	20.87	5.584		
4,900.00	4,893.95	4,891.53	4,880.92	10.89	11.10	80.00	48.95	226.35	117.16	95.83	21.33	5.494		
5,000.00	4,993.33	4,991.51	4,980.29	11.14	11.37	80.00	51.62	237.12	117.77	95.99	21.78	5.407		
5,100.00	5,092.70	5,091.49	5,079.65	11.38	11.63	80.00	54.29	247.89	118.42	96.18	22.24	5.325		
5,200.00	5,192.08	5,191.47	5,179.01	11.63	11.89	80.00	56.97	258.65	119.09	96.40	22.70	5.247		
5,300.00	5,291.46	5,291.45	5,278.38	11.88	12.16	80.00	59.64	269.42	119.80	96.64	23.16	5.172		
5,400.00	5,390.84	5,391.43	5,377.74	12.14	12.42	80.00	62.31	280.19	120.53	96.90	23.63	5.101		
5,500.00	5,490.22	5,491.41	5,477.10	12.39	12.69	80.00	64.98	290.96	121.29	97.19	24.10	5.033		
5,600.00	5,589.60	5,591.40	5,576.47	12.64	12.96	80.00	67.65	301.73	122.07	97.50	24.57	4.969		
5,700.00	5,688.98	5,691.38	5,675.83	12.90	13.23	80.00	70.32	312.50	122.88	97.84	25.04	4.907		
5,800.00	5,788.35	5,791.36	5,775.19	13.16	13.50	80.00	72.99	323.27	123.72	98.20	25.52	4.848		
5,900.00	5,887.73	5,891.34	5,874.56	13.42	13.77	80.00	75.66	334.04	124.58	98.58	26.00	4.792		
6,000.00	5,987.11	5,991.32	5,973.92	13.68	14.04	80.00	78.34	344.81	125.46	98.98	26.48	4.738		
6,100.00	6,086.49	6,091.30	6,073.28	13.94	14.31	80.00	81.01	355.58	126.37	99.41	26.97	4.686		
6,200.00	6,185.87	6,191.28	6,172.65	14.20	14.58	80.00	83.68	366.35	127.31	99.85	27.45	4.637		
6,300.00	6,285.25	6,291.26	6,272.01	14.46	14.85	80.00	86.35	377.11	128.26	100.32	27.94	4.590		
6,400.00	6,384.63	6,391.24	6,371.37	14.73	15.12	80.00	89.02	387.88	129.24	100.81	28.44	4.545		
6,500.00	6,484.00	6,491.22	6,470.74	14.99	15.40	80.00	91.69	398.65	130.25	101.31	28.93	4.502		
6,600.00	6,583.38	6,591.20	6,570.10	15.26	15.67	80.00	94.36	409.42	131.27	101.84	29.43	4.460		
6,700.00	6,682.76	6,691.18	6,669.46	15.52	15.95	80.00	97.03	420.19	132.31	102.38	29.93	4.420		
6,800.00	6,782.14	6,791.17	6,768.83	15.79	16.22	80.00	99.70	430.96	133.38	102.94	30.44	4.382		
6,900.00	6,881.52	6,891.15	6,868.19	16.06	16.50	80.00	102.38	441.73	134.46	103.52	30.94	4.346		
7,000.00	6,980.90	6,991.13	6,967.55	16.33	16.77	80.00	105.05	452.50	135.57	104.12	31.45	4.310		
7,100.00	7,080.28	7,091.11	7,066.92	16.60	17.05	80.00	107.72	463.27	136.69	104.73	31.96	4.277		
7,200.00	7,179.66	7,191.09	7,166.28	16.86	17.32	80.00	110.39	474.04	137.83	105.36	32.47	4.244		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
7,300.00	7,279.03	7,291.07	7,265.64	17.13	17.60	42.67	113.06	484.80	138.99	106.00	32.99	4.213		
7,400.00	7,378.41	7,391.05	7,365.01	17.40	17.88	43.31	115.73	495.57	140.17	106.66	33.51	4.183		
7,500.00	7,477.79	7,491.03	7,464.37	17.68	18.15	43.94	118.40	506.34	141.36	107.34	34.03	4.155		
7,600.00	7,577.17	7,591.01	7,563.73	17.95	18.43	44.56	121.07	517.11	142.58	108.03	34.55	4.127		
7,700.00	7,676.55	7,690.99	7,663.10	18.22	18.71	45.17	123.75	527.88	143.80	108.73	35.07	4.100		
7,800.00	7,775.93	7,790.97	7,762.46	18.49	18.99	45.77	126.42	538.65	145.05	109.45	35.60	4.075		
7,900.00	7,875.31	7,890.95	7,861.82	18.76	19.26	46.36	129.09	549.42	146.31	110.18	36.12	4.050		
8,000.00	7,974.68	7,990.94	7,961.19	19.04	19.54	46.94	131.76	560.19	147.58	110.93	36.65	4.026		
8,100.00	8,074.06	8,090.92	8,060.55	19.31	19.82	47.50	134.43	570.96	148.87	111.69	37.18	4.004		
8,200.00	8,173.44	8,190.90	8,159.91	19.58	20.10	48.06	137.10	581.73	150.18	112.46	37.72	3.982		
8,300.00	8,272.82	8,290.88	8,259.28	19.86	20.38	48.61	139.77	592.49	151.50	113.25	38.25	3.961		
8,400.00	8,372.20	8,390.86	8,358.64	20.13	20.66	49.15	142.44	603.26	152.83	114.04	38.79	3.940		
8,500.00	8,471.58	8,490.84	8,458.00	20.41	20.94	49.68	145.11	614.03	154.18	114.85	39.32	3.921		
8,600.00	8,570.96	8,590.82	8,557.37	20.68	21.22	50.21	147.79	624.80	155.53	115.67	39.86	3.902		
8,700.00	8,670.33	8,690.80	8,656.73	20.96	21.50	50.72	150.46	635.57	156.90	116.50	40.40	3.883		
8,800.00	8,769.71	8,790.78	8,756.09	21.24	21.78	51.22	153.13	646.34	158.29	117.34	40.95	3.866		
8,900.00	8,869.09	8,890.76	8,855.46	21.51	22.06	51.72	155.80	657.11	159.68	118.19	41.49	3.849		
9,000.00	8,968.47	8,992.14	8,956.24	21.79	22.32	52.30	158.41	667.65	160.81	118.77	42.04	3.825		
9,100.00	9,067.85	9,094.20	9,057.89	22.06	22.53	53.30	160.64	676.62	160.72	118.14	42.58	3.774		
9,200.00	9,167.23	9,196.17	9,159.58	22.34	22.74	54.75	162.42	683.82	159.41	116.27	43.15	3.695		
9,300.00	9,266.61	9,297.97	9,261.23	22.62	22.93	56.70	163.77	689.25	156.98	113.24	43.74	3.589		
9,400.00	9,365.98	9,399.53	9,362.72	22.90	23.11	59.20	164.68	692.92	153.56	109.20	44.36	3.462		
9,500.00	9,465.36	9,500.81	9,463.98	23.17	23.29	62.35	165.16	694.85	149.34	104.33	45.01	3.318		
9,600.00	9,564.74	9,601.17	9,564.34	23.45	23.46	66.17	165.24	695.17	144.68	98.97	45.70	3.166		
9,700.00	9,664.12	9,700.55	9,663.72	23.73	23.65	70.31	165.24	695.17	140.52	94.10	46.43	3.027		
9,800.00	9,763.50	9,799.93	9,763.10	24.01	23.84	74.66	165.24	695.17	137.15	90.01	47.14	2.909		
9,900.00	9,862.88	9,899.31	9,862.48	24.29	24.03	79.21	165.24	695.17	134.62	86.78	47.84	2.814		
10,000.00	9,962.26	9,998.69	9,961.86	24.56	24.22	83.90	165.24	695.17	132.97	84.47	48.50	2.742		
10,067.88	10,029.71	10,065.39	10,028.56	24.75	24.35	87.09	165.23	695.17	132.39	83.47	48.92	2.706		
10,100.00	10,061.63	10,090.89	10,054.04	24.84	24.39	88.48	164.39	695.17	133.21	84.17	49.04	2.716		
10,200.00	10,161.01	10,167.85	10,130.16	25.12	24.51	93.72	153.64	695.17	146.57	97.81	48.76	3.006		
10,300.00	10,260.39	10,238.62	10,197.82	25.40	24.60	98.84	133.08	695.17	176.11	128.59	47.53	3.706		
10,337.63	10,297.79	10,263.21	10,220.51	25.51	24.63	100.48	123.62	695.17	191.08	144.18	46.90	4.075		
10,400.00	10,359.81	10,300.00	10,253.48	25.66	24.67	102.97	107.32	695.17	219.90	174.27	45.63	4.819		
10,500.00	10,459.38	10,355.81	10,300.85	25.87	24.73	106.13	77.87	695.17	274.83	231.06	43.78	6.278		
10,600.00	10,559.10	10,400.00	10,335.73	26.07	24.77	108.31	50.76	695.17	338.33	296.55	41.77	8.099		
10,700.00	10,658.94	10,442.52	10,366.78	26.26	24.81	110.13	21.74	695.17	408.29	367.98	40.31	10.129		
10,800.00	10,758.86	10,475.00	10,388.69	26.44	24.84	111.61	-2.23	695.17	483.25	444.42	38.84	12.443		
10,900.00	10,858.84	10,500.00	10,404.42	26.61	24.87	112.98	-21.66	695.17	562.14	524.63	37.51	14.986		
10,976.71	10,935.54	10,525.00	10,419.10	26.74	24.89	180.00	-41.89	695.17	624.60	587.61	36.99	16.887		
11,000.00	10,958.83	10,525.00	10,419.10	26.78	24.89	180.00	-41.89	695.17	643.97	607.39	36.59	17.601		
11,100.00	11,058.83	10,550.00	10,432.71	26.97	24.92	180.00	-62.86	695.17	728.39	692.42	35.97	20.248		
11,200.00	11,158.83	10,575.00	10,445.21	27.17	24.95	180.00	-84.51	695.17	815.07	779.49	35.57	22.913		
11,300.00	11,258.83	10,589.21	10,451.80	27.37	24.97	180.00	-97.10	695.17	903.55	868.48	35.07	25.765		
11,400.00	11,358.83	10,600.00	10,456.55	27.56	24.98	180.00	-106.79	695.17	993.53	958.86	34.67	28.658		
11,476.71	11,435.54	10,613.89	10,462.34	27.71	25.00	180.00	-119.41	695.17	1,063.36	1,028.79	34.57	30.761		
11,500.00	11,458.82	10,625.00	10,466.71	27.75	25.02	0.00	-129.62	695.17	1,084.56	1,049.90	34.66	31.288		
11,525.00	11,483.75	10,625.00	10,466.71	27.79	25.02	0.00	-129.62	695.17	1,106.66	1,072.13	34.53	32.052		
11,550.00	11,508.55	10,625.00	10,466.71	27.83	25.02	0.00	-129.62	695.17	1,128.25	1,093.87	34.38	32.815		
11,575.00	11,533.14	10,625.00	10,466.71	27.86	25.02	0.00	-129.62	695.17	1,149.32	1,115.09	34.23	33.575		
11,600.00	11,557.47	10,625.00	10,466.71	27.88	25.02	0.00	-129.62	695.17	1,169.82	1,135.75	34.08	34.331		
11,625.00	11,581.46	10,636.77	10,471.07	27.91	25.04	0.00	-140.55	695.17	1,189.54	1,155.44	34.10	34.886		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
11,650.00	11,605.05	10,650.00	10,475.66	27.93	25.06	0.00	-152.96	695.17	1,208.77	1,174.64	34.13	35.418		
11,675.00	11,628.18	10,650.00	10,475.66	27.95	25.06	0.00	-152.96	695.17	1,227.10	1,193.15	33.95	36.144		
11,700.00	11,650.78	10,650.00	10,475.66	27.97	25.06	0.00	-152.96	695.17	1,244.77	1,211.00	33.77	36.858		
11,725.00	11,672.79	10,650.00	10,475.66	27.98	25.06	0.00	-152.96	695.17	1,261.76	1,228.17	33.60	37.558		
11,750.00	11,694.15	10,661.32	10,479.31	27.99	25.08	0.00	-163.67	695.17	1,277.87	1,244.30	33.57	38.069		
11,775.00	11,714.80	10,675.00	10,483.38	28.00	25.10	0.00	-176.74	695.17	1,293.32	1,259.76	33.56	38.535		
11,800.00	11,734.69	10,675.00	10,483.38	28.01	25.10	0.00	-176.74	695.17	1,307.77	1,274.38	33.38	39.177		
11,825.00	11,753.76	10,675.00	10,483.38	28.02	25.10	0.00	-176.74	695.17	1,321.45	1,288.25	33.21	39.797		
11,850.00	11,771.95	10,675.00	10,483.38	28.02	25.10	0.00	-176.74	695.17	1,334.37	1,301.34	33.04	40.391		
11,875.00	11,789.22	10,689.13	10,487.19	28.02	25.13	0.00	-190.35	695.17	1,346.23	1,313.21	33.02	40.766		
11,900.00	11,805.52	10,700.00	10,489.84	28.03	25.15	0.00	-200.89	695.17	1,357.33	1,324.36	32.97	41.165		
11,925.00	11,820.81	10,700.00	10,489.84	28.03	25.15	0.00	-200.89	695.17	1,367.45	1,334.63	32.82	41.670		
11,950.00	11,835.04	10,700.00	10,489.84	28.03	25.15	0.00	-200.89	695.17	1,376.76	1,344.08	32.67	42.141		
11,975.00	11,848.18	10,712.96	10,492.69	28.03	25.18	0.00	-213.53	695.17	1,385.00	1,352.35	32.65	42.425		
12,000.00	11,860.19	10,725.00	10,495.03	28.03	25.20	0.00	-225.34	695.17	1,392.41	1,359.80	32.61	42.693		
12,025.00	11,871.03	10,725.00	10,495.03	28.04	25.20	0.00	-225.34	695.17	1,398.78	1,366.29	32.49	43.051		
12,050.00	11,880.68	10,725.00	10,495.03	28.04	25.20	0.00	-225.34	695.17	1,404.30	1,371.92	32.38	43.365		
12,075.00	11,889.11	10,737.67	10,497.17	28.05	25.23	0.00	-237.82	695.17	1,408.74	1,376.37	32.37	43.518		
12,100.00	11,896.29	10,750.00	10,498.94	28.06	25.26	0.00	-250.03	695.17	1,412.32	1,379.96	32.36	43.644		
12,125.00	11,902.21	10,750.00	10,498.94	28.07	25.26	0.00	-250.03	695.17	1,414.83	1,382.54	32.28	43.825		
12,150.00	11,906.86	10,750.00	10,498.94	28.09	25.26	0.00	-250.03	695.17	1,416.47	1,384.24	32.22	43.956		
12,175.00	11,910.21	10,762.79	10,500.43	28.11	25.29	0.00	-262.73	695.17	1,417.01	1,384.77	32.24	43.955		
12,200.00	11,912.26	10,775.00	10,501.54	28.14	25.33	0.00	-274.89	695.17	1,416.68	1,384.43	32.25	43.924		
12,224.99	11,913.00	10,775.00	10,501.54	28.17	25.33	0.00	-274.89	695.17	1,415.27	1,383.04	32.23	43.912		
12,300.00	11,913.27	10,800.00	10,502.84	28.30	25.40	0.00	-299.85	695.17	1,411.26	1,378.94	32.32	43.665		
12,400.00	11,913.63	10,847.81	10,503.18	28.56	25.55	0.00	-347.66	695.17	1,410.06	1,377.46	32.60	43.250		
12,500.00	11,913.99	10,947.81	10,503.67	28.92	25.95	0.00	-447.66	695.17	1,409.93	1,376.93	33.00	42.722		
12,600.00	11,914.35	11,047.81	10,504.16	29.38	26.45	0.00	-547.66	695.17	1,409.80	1,376.34	33.46	42.132		
12,700.00	11,914.71	11,147.81	10,504.65	29.92	27.05	0.00	-647.66	695.17	1,409.67	1,375.69	33.98	41.487		
12,800.00	11,915.07	11,247.81	10,505.14	30.56	27.74	0.00	-747.66	695.17	1,409.54	1,374.99	34.55	40.796		
12,900.00	11,915.43	11,347.81	10,505.63	31.27	28.50	0.00	-847.66	695.17	1,409.41	1,374.23	35.18	40.067		
13,000.00	11,915.79	11,447.81	10,506.12	32.05	29.34	0.00	-947.66	695.17	1,409.28	1,373.43	35.85	39.309		
13,100.00	11,916.15	11,547.81	10,506.61	32.89	30.25	0.00	-1,047.66	695.17	1,409.15	1,372.58	36.57	38.530		
13,200.00	11,916.51	11,647.81	10,507.10	33.80	31.21	0.00	-1,147.65	695.17	1,409.02	1,371.68	37.34	37.736		
13,300.00	11,916.87	11,747.81	10,507.59	34.76	32.24	0.00	-1,247.65	695.17	1,408.89	1,370.74	38.15	36.935		
13,400.00	11,917.22	11,847.81	10,508.08	35.77	33.31	0.00	-1,347.65	695.17	1,408.76	1,369.77	38.99	36.130		
13,500.00	11,917.58	11,947.81	10,508.57	36.82	34.42	0.00	-1,447.65	695.17	1,408.63	1,368.76	39.87	35.328		
13,600.00	11,917.94	12,047.81	10,509.06	37.92	35.58	0.00	-1,547.65	695.17	1,408.50	1,367.71	40.79	34.532		
13,700.00	11,918.30	12,147.81	10,509.55	39.06	36.77	0.00	-1,647.65	695.17	1,408.37	1,366.63	41.74	33.745		
13,800.00	11,918.66	12,247.81	10,510.04	40.23	38.00	0.00	-1,747.65	695.17	1,408.24	1,365.52	42.71	32.971		
13,900.00	11,919.02	12,347.81	10,510.53	41.43	39.26	0.00	-1,847.65	695.17	1,408.11	1,364.39	43.72	32.211		
14,000.00	11,919.38	12,447.81	10,511.02	42.66	40.54	0.00	-1,947.64	695.17	1,407.98	1,363.23	44.74	31.467		
14,100.00	11,919.74	12,547.81	10,511.51	43.92	41.85	0.00	-2,047.64	695.17	1,407.84	1,362.05	45.80	30.741		
14,200.00	11,920.10	12,647.81	10,512.00	45.20	43.18	0.00	-2,147.64	695.17	1,407.71	1,360.84	46.87	30.033		
14,300.00	11,920.46	12,747.81	10,512.49	46.50	44.54	0.00	-2,247.64	695.17	1,407.58	1,359.62	47.97	29.344		
14,400.00	11,920.82	12,847.81	10,512.98	47.83	45.91	0.00	-2,347.64	695.17	1,407.45	1,358.37	49.08	28.675		
14,500.00	11,921.18	12,947.81	10,513.47	49.17	47.29	0.00	-2,447.64	695.17	1,407.32	1,357.11	50.22	28.025		
14,600.00	11,921.54	13,047.81	10,513.96	50.53	48.70	0.00	-2,547.64	695.17	1,407.19	1,355.83	51.37	27.395		
14,700.00	11,921.90	13,147.81	10,514.45	51.91	50.12	0.00	-2,647.64	695.17	1,407.06	1,354.53	52.53	26.785		
14,800.00	11,922.26	13,247.81	10,514.94	53.30	51.55	0.00	-2,747.63	695.17	1,406.93	1,353.22	53.71	26.194		
14,900.00	11,922.62	13,347.81	10,515.43	54.71	52.99	0.00	-2,847.63	695.17	1,406.80	1,351.89	54.91	25.622		
15,000.00	11,922.98	13,447.81	10,515.92	56.12	54.44	0.00	-2,947.63	695.17	1,406.67	1,350.56	56.11	25.069		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
15,100.00	11,923.33	13,547.81	10,516.41	57.55	55.91	0.00	-3,047.63	695.17	1,406.54	1,349.21	57.33	24.533		
15,200.00	11,923.69	13,647.81	10,516.90	58.99	57.38	0.00	-3,147.63	695.17	1,406.41	1,347.85	58.56	24.016		
15,300.00	11,924.05	13,747.81	10,517.39	60.44	58.86	0.00	-3,247.63	695.17	1,406.28	1,346.48	59.80	23.516		
15,400.00	11,924.41	13,847.81	10,517.88	61.91	60.35	0.00	-3,347.63	695.17	1,406.15	1,345.10	61.05	23.032		
15,500.00	11,924.77	13,947.81	10,518.37	63.37	61.85	0.00	-3,447.63	695.17	1,406.02	1,343.71	62.31	22.564		
15,600.00	11,925.13	14,047.81	10,518.86	64.85	63.36	0.00	-3,547.62	695.17	1,405.89	1,342.31	63.58	22.112		
15,700.00	11,925.49	14,147.81	10,519.35	66.34	64.87	0.00	-3,647.62	695.17	1,405.76	1,340.90	64.86	21.674		
15,800.00	11,925.85	14,247.81	10,519.84	67.83	66.39	0.00	-3,747.62	695.17	1,405.63	1,339.48	66.14	21.251		
15,900.00	11,926.21	14,347.81	10,520.33	69.33	67.91	0.00	-3,847.62	695.17	1,405.50	1,338.06	67.44	20.842		
16,000.00	11,926.57	14,447.81	10,520.82	70.83	69.44	0.00	-3,947.62	695.17	1,405.37	1,336.63	68.73	20.446		
16,100.00	11,926.93	14,547.81	10,521.31	72.34	70.97	0.00	-4,047.62	695.17	1,405.23	1,335.19	70.04	20.063		
16,200.00	11,927.29	14,647.81	10,521.80	73.86	72.51	0.00	-4,147.62	695.17	1,405.10	1,333.75	71.35	19.692		
16,300.00	11,927.65	14,747.81	10,522.29	75.38	74.05	0.00	-4,247.61	695.17	1,404.97	1,332.30	72.67	19.334		
16,400.00	11,928.01	14,847.81	10,522.78	76.90	75.60	0.00	-4,347.61	695.17	1,404.84	1,330.85	73.99	18.986		
16,500.00	11,928.37	14,947.81	10,523.27	78.43	77.15	0.00	-4,447.61	695.17	1,404.71	1,329.39	75.32	18.649		
16,600.00	11,928.73	15,047.81	10,523.76	79.97	78.70	0.00	-4,547.61	695.17	1,404.58	1,327.93	76.66	18.323		
16,700.00	11,929.09	15,147.81	10,524.25	81.50	80.26	0.00	-4,647.61	695.17	1,404.45	1,326.46	77.99	18.007		
16,800.00	11,929.44	15,247.81	10,524.74	83.05	81.82	0.00	-4,747.61	695.17	1,404.32	1,324.98	79.34	17.701		
16,900.00	11,929.80	15,347.81	10,525.23	84.59	83.38	0.00	-4,847.61	695.17	1,404.19	1,323.51	80.68	17.403		
17,000.00	11,930.16	15,447.81	10,525.72	86.14	84.95	0.00	-4,947.61	695.17	1,404.06	1,322.02	82.04	17.115		
17,100.00	11,930.52	15,547.81	10,526.21	87.70	86.51	0.00	-5,047.60	695.17	1,403.93	1,320.54	83.39	16.835		
17,200.00	11,930.88	15,647.81	10,526.70	89.25	88.08	0.00	-5,147.60	695.17	1,403.80	1,319.05	84.75	16.564		
17,300.00	11,931.24	15,747.81	10,527.19	90.81	89.66	0.00	-5,247.60	695.17	1,403.67	1,317.56	86.11	16.300		
17,400.00	11,931.60	15,847.81	10,527.68	92.37	91.23	0.00	-5,347.60	695.17	1,403.54	1,316.06	87.48	16.044		
17,500.00	11,931.96	15,947.81	10,528.17	93.93	92.81	0.00	-5,447.60	695.17	1,403.41	1,314.56	88.85	15.796		
17,600.00	11,932.32	16,047.81	10,528.66	95.50	94.39	0.00	-5,547.60	695.17	1,403.28	1,313.06	90.22	15.554		
17,700.00	11,932.68	16,147.81	10,529.15	97.07	95.97	0.00	-5,647.60	695.17	1,403.15	1,311.55	91.59	15.319		
17,800.00	11,933.04	16,247.81	10,529.64	98.64	97.56	0.00	-5,747.60	695.17	1,403.02	1,310.04	92.97	15.091		
17,900.00	11,933.40	16,347.81	10,530.13	100.21	99.14	0.00	-5,847.59	695.17	1,402.89	1,308.53	94.35	14.869		
18,000.00	11,933.76	16,447.81	10,530.62	101.79	100.73	0.00	-5,947.59	695.17	1,402.76	1,307.02	95.73	14.652		
18,100.00	11,934.12	16,547.81	10,531.11	103.37	102.32	0.00	-6,047.59	695.17	1,402.62	1,305.50	97.12	14.442		
18,200.00	11,934.48	16,647.81	10,531.60	104.95	103.91	0.00	-6,147.59	695.17	1,402.49	1,303.99	98.51	14.237		
18,300.00	11,934.84	16,747.81	10,532.09	106.53	105.50	0.00	-6,247.59	695.17	1,402.36	1,302.47	99.90	14.038		
18,400.00	11,935.20	16,847.81	10,532.58	108.11	107.10	0.00	-6,347.59	695.17	1,402.23	1,300.94	101.29	13.844		
18,500.00	11,935.55	16,947.81	10,533.07	109.69	108.69	0.00	-6,447.59	695.17	1,402.10	1,299.42	102.68	13.654		
18,600.00	11,935.91	17,047.81	10,533.56	111.28	110.29	0.00	-6,547.59	695.17	1,401.97	1,297.89	104.08	13.470		
18,700.00	11,936.27	17,147.81	10,534.05	112.87	111.88	0.00	-6,647.58	695.17	1,401.84	1,296.36	105.48	13.290		
18,800.00	11,936.63	17,247.81	10,534.54	114.46	113.48	0.00	-6,747.58	695.17	1,401.71	1,294.83	106.88	13.115		
18,900.00	11,936.99	17,347.81	10,535.03	116.05	115.08	0.00	-6,847.58	695.17	1,401.58	1,293.30	108.28	12.944		
19,000.00	11,937.35	17,447.81	10,535.52	117.64	116.68	0.00	-6,947.58	695.17	1,401.45	1,291.77	109.68	12.777		
19,100.00	11,937.71	17,547.81	10,536.01	119.23	118.28	0.00	-7,047.58	695.17	1,401.32	1,290.23	111.09	12.614		
19,200.00	11,938.07	17,647.81	10,536.50	120.82	119.89	0.00	-7,147.58	695.17	1,401.19	1,288.69	112.50	12.456		
19,300.00	11,938.43	17,747.81	10,536.99	122.42	121.49	0.00	-7,247.58	695.17	1,401.06	1,287.16	113.90	12.300		
19,400.00	11,938.79	17,847.81	10,537.48	124.02	123.09	0.00	-7,347.58	695.17	1,400.93	1,285.62	115.31	12.149		
19,500.00	11,939.15	17,947.81	10,537.97	125.61	124.70	0.00	-7,447.57	695.17	1,400.80	1,284.07	116.72	12.001		
19,600.00	11,939.51	18,047.81	10,538.46	127.21	126.31	0.00	-7,547.57	695.17	1,400.67	1,282.53	118.14	11.856		
19,700.00	11,939.87	18,147.81	10,538.95	128.81	127.91	0.00	-7,647.57	695.17	1,400.54	1,280.99	119.55	11.715		
19,800.00	11,940.23	18,247.81	10,539.44	130.41	129.52	0.00	-7,747.57	695.17	1,400.41	1,279.44	120.96	11.577		
19,900.00	11,940.59	18,347.81	10,539.93	132.01	131.13	0.00	-7,847.57	695.17	1,400.28	1,277.89	122.38	11.442		
20,000.00	11,940.95	18,447.81	10,540.42	133.61	132.74	0.00	-7,947.57	695.17	1,400.15	1,276.35	123.80	11.310		
20,100.00	11,941.30	18,547.81	10,540.91	135.22	134.35	0.00	-8,047.57	695.17	1,400.01	1,274.80	125.22	11.181		
20,200.00	11,941.66	18,647.81	10,541.40	136.82	135.96	0.00	-8,147.56	695.17	1,399.88	1,273.25	126.64	11.054		

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 234H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
20,300.00	11,942.02	18,747.81	10,541.89	138.43	137.57	0.00	-8,247.56	695.17	1,399.75	1,271.70	128.06	10.931		
20,400.00	11,942.38	18,847.81	10,542.38	140.03	139.18	0.00	-8,347.56	695.17	1,399.62	1,270.15	129.48	10.810		
20,500.00	11,942.74	18,947.81	10,542.87	141.64	140.80	0.00	-8,447.56	695.17	1,399.49	1,268.59	130.90	10.691		
20,600.00	11,943.10	19,047.81	10,543.36	143.24	142.41	0.00	-8,547.56	695.17	1,399.36	1,267.04	132.32	10.575		
20,700.00	11,943.46	19,147.81	10,543.85	144.85	144.02	0.00	-8,647.56	695.17	1,399.23	1,265.48	133.75	10.462		
20,800.00	11,943.82	19,247.81	10,544.34	146.46	145.64	0.00	-8,747.56	695.17	1,399.10	1,263.93	135.17	10.350		
20,900.00	11,944.18	19,347.81	10,544.83	148.07	147.25	0.00	-8,847.56	695.17	1,398.97	1,262.37	136.60	10.241		
21,000.00	11,944.54	19,447.81	10,545.32	149.68	148.87	0.00	-8,947.55	695.17	1,398.84	1,260.81	138.03	10.135		
21,100.00	11,944.90	19,547.81	10,545.81	151.29	150.48	0.00	-9,047.55	695.17	1,398.71	1,259.25	139.46	10.030		
21,200.00	11,945.26	19,647.81	10,546.30	152.90	152.10	0.00	-9,147.55	695.17	1,398.58	1,257.70	140.88	9.927		
21,300.00	11,945.62	19,747.81	10,546.79	154.51	153.72	0.00	-9,247.55	695.17	1,398.45	1,256.14	142.31	9.827		
21,400.00	11,945.98	19,847.81	10,547.28	156.12	155.33	0.00	-9,347.55	695.17	1,398.32	1,254.57	143.74	9.728		
21,500.00	11,946.34	19,947.81	10,547.77	157.74	156.95	0.00	-9,447.55	695.17	1,398.19	1,253.01	145.17	9.631		
21,600.00	11,946.70	20,047.81	10,548.26	159.35	158.57	0.00	-9,547.55	695.17	1,398.06	1,251.45	146.61	9.536		
21,700.00	11,947.06	20,147.81	10,548.75	160.96	160.19	0.00	-9,647.55	695.17	1,397.93	1,249.89	148.04	9.443		
21,800.00	11,947.41	20,247.81	10,549.24	162.58	161.81	0.00	-9,747.54	695.17	1,397.80	1,248.32	149.47	9.352		
21,900.00	11,947.77	20,347.81	10,549.73	164.19	163.25	0.00	-9,847.54	695.17	1,397.67	1,246.76	150.90	9.272		
21,959.93	11,947.99	20,403.91	10,550.00	164.95	163.96	0.00	-9,903.65	695.17	1,397.59	1,246.43	151.16	9.245		
21,962.96	11,948.00	20,403.91	10,550.00	164.99	163.96	0.00	-9,903.65	695.17	1,397.60	1,246.42	151.18	9.244		

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: O-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	89.68	0.34	59.96	59.96					
100.00	100.00	99.50	99.50	0.09	0.09	89.68	0.34	59.96	59.96	59.79	0.17	349.593		
200.00	200.00	199.50	199.50	0.31	0.31	89.68	0.34	59.96	59.96	59.34	0.62	96.656		
300.00	300.00	299.50	299.50	0.54	0.53	89.68	0.34	59.96	59.96	58.89	1.07	56.044		
400.00	400.00	399.50	399.50	0.76	0.76	89.68	0.34	59.96	59.96	58.44	1.52	39.463		
500.00	500.00	499.50	499.50	0.99	0.98	89.68	0.34	59.96	59.96	57.99	1.97	30.453		
600.00	600.00	599.50	599.50	1.21	1.21	89.68	0.34	59.96	59.96	57.54	2.42	24.793		
700.00	700.00	699.50	699.50	1.43	1.43	89.68	0.34	59.96	59.96	57.09	2.87	20.907		
800.00	800.00	799.50	799.50	1.66	1.66	89.68	0.34	59.96	59.96	56.64	3.32	18.074		
900.00	900.00	899.50	899.50	1.88	1.88	89.68	0.34	59.96	59.96	56.19	3.77	15.917		
1,000.00	1,000.00	999.50	999.50	2.11	2.11	89.68	0.34	59.96	59.96	55.74	4.22	14.220		
1,100.00	1,100.00	1,099.50	1,099.50	2.33	2.33	89.68	0.34	59.96	59.96	55.29	4.67	12.850		
1,200.00	1,200.00	1,199.50	1,199.50	2.56	2.56	89.68	0.34	59.96	59.96	54.85	5.12	11.721		
1,300.00	1,300.00	1,299.50	1,299.50	2.78	2.78	89.68	0.34	59.96	59.96	54.40	5.57	10.774		
1,400.00	1,400.00	1,399.50	1,399.50	3.01	3.01	89.68	0.34	59.96	59.96	53.95	6.01	9.969		
1,500.00	1,500.00	1,499.50	1,499.50	3.23	3.23	89.68	0.34	59.96	59.96	53.50	6.46	9.276		
1,600.00	1,600.00	1,599.50	1,599.50	3.46	3.46	89.68	0.34	59.96	59.96	53.05	6.91	8.673		
1,700.00	1,700.00	1,699.50	1,699.50	3.68	3.68	89.68	0.34	59.96	59.96	52.60	7.36	8.143		
1,800.00	1,800.00	1,799.50	1,799.50	3.91	3.91	89.68	0.34	59.96	59.96	52.15	7.81	7.675		
1,900.00	1,900.00	1,899.50	1,899.50	4.13	4.13	89.68	0.34	59.96	59.96	51.70	8.26	7.257		
2,000.00	2,000.00	1,999.50	1,999.50	4.36	4.36	89.68	0.34	59.96	59.96	51.25	8.71	6.883	CC, ES	
2,100.00	2,100.00	2,098.46	2,098.46	4.58	4.56	89.68	0.34	60.81	60.82	51.67	9.14	6.651		
2,200.00	2,200.00	2,197.36	2,197.32	4.81	4.76	89.69	0.34	63.36	63.40	53.84	9.56	6.631	SF	
2,300.00	2,300.00	2,296.13	2,296.00	5.03	4.96	89.71	0.34	67.61	67.70	57.72	9.98	6.785		
2,400.00	2,400.00	2,394.74	2,394.42	5.26	5.17	89.74	0.34	73.55	73.73	63.33	10.39	7.094		
2,500.00	2,500.00	2,493.11	2,492.50	5.48	5.38	89.76	0.34	81.17	81.47	70.66	10.81	7.538		
2,600.00	2,600.00	2,591.18	2,590.14	5.71	5.59	89.78	0.34	90.43	90.92	79.70	11.22	8.104		
2,700.00	2,700.00	2,689.42	2,687.76	5.93	5.81	89.81	0.34	101.32	101.99	90.36	11.63	8.766		
2,800.00	2,800.00	2,788.75	2,786.44	6.15	6.04	89.83	0.34	112.75	113.50	101.44	12.07	9.406		
2,900.00	2,900.00	2,888.09	2,885.11	6.38	6.28	89.84	0.34	124.18	125.01	112.51	12.50	9.999		
3,000.00	3,000.00	2,987.42	2,983.79	6.60	6.52	89.86	0.34	135.61	136.52	123.58	12.94	10.551		
3,100.00	3,100.00	3,086.76	3,082.46	6.83	6.77	89.87	0.34	147.04	148.03	134.65	13.38	11.065		
3,200.00	3,200.00	3,186.09	3,181.14	7.05	7.01	89.88	0.34	158.48	159.54	145.72	13.82	11.546		
3,300.00	3,300.00	3,285.43	3,279.82	7.28	7.26	89.89	0.34	169.91	171.04	156.78	14.26	11.996		
3,400.00	3,400.00	3,384.77	3,378.49	7.50	7.52	89.89	0.34	181.34	182.55	167.85	14.70	12.417		
3,500.00	3,500.00	3,484.10	3,477.17	7.73	7.77	89.90	0.34	192.77	194.06	178.91	15.14	12.813		
3,600.00	3,600.00	3,583.52	3,575.93	7.94	8.03	23.99	0.34	204.21	204.78	189.19	15.58	13.143		
3,700.00	3,699.96	3,683.10	3,674.84	8.15	8.29	24.24	0.34	215.67	213.91	197.90	16.01	13.361		
3,800.00	3,799.86	3,782.80	3,773.88	8.36	8.56	24.66	0.34	227.14	221.46	205.02	16.44	13.471		
3,900.00	3,899.68	3,882.59	3,873.01	8.58	8.82	25.25	0.34	238.63	227.46	210.58	16.87	13.480		
4,000.00	3,999.37	3,982.44	3,972.20	8.79	9.09	25.99	0.34	250.12	231.90	214.60	17.31	13.398		
4,100.00	4,098.90	4,082.33	4,071.42	9.01	9.36	26.90	0.34	261.61	234.84	217.09	17.75	13.232		
4,139.07	4,137.75	4,121.35	4,110.19	9.10	9.47	27.31	0.34	266.11	235.58	217.66	17.92	13.147		
4,200.00	4,198.30	4,182.21	4,170.64	9.24	9.63	27.96	0.34	273.11	236.57	218.38	18.19	13.007		
4,300.00	4,297.68	4,282.10	4,269.87	9.47	9.90	29.03	0.34	284.61	238.27	219.64	18.63	12.788		
4,400.00	4,397.05	4,381.99	4,369.09	9.70	10.17	30.08	0.34	296.10	240.05	220.98	19.08	12.582		
4,500.00	4,496.43	4,481.88	4,468.32	9.93	10.45	31.11	0.34	307.60	241.92	222.39	19.53	12.387		
4,600.00	4,595.81	4,581.77	4,567.54	10.17	10.72	32.12	0.34	319.09	243.85	223.87	19.98	12.203		
4,700.00	4,695.19	4,681.66	4,666.76	10.41	11.00	33.12	0.34	330.59	245.87	225.43	20.44	12.029		
4,800.00	4,794.57	4,781.54	4,765.99	10.65	11.27	34.11	0.34	342.08	247.95	227.05	20.90	11.864		
4,900.00	4,893.95	4,881.43	4,865.21	10.89	11.55	35.07	0.34	353.58	250.11	228.75	21.36	11.708		
5,000.00	4,993.33	4,981.32	4,964.44	11.14	11.83	36.02	0.34	365.07	252.34	230.51	21.83	11.560		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
5,100.00	5,092.70	5,081.21	5,063.66	11.38	12.11	36.96	0.34	376.57	254.64	232.34	22.30	11.419		
5,200.00	5,192.08	5,181.10	5,162.89	11.63	12.38	37.87	0.34	388.06	257.00	234.23	22.77	11.286		
5,300.00	5,291.46	5,280.98	5,262.11	11.88	12.66	38.77	0.34	399.56	259.43	236.19	23.25	11.159		
5,400.00	5,390.84	5,380.87	5,361.34	12.14	12.94	39.66	0.34	411.05	261.92	238.20	23.73	11.039		
5,500.00	5,490.22	5,480.76	5,460.56	12.39	13.22	40.52	0.34	422.55	264.48	240.27	24.21	10.925		
5,600.00	5,589.60	5,580.65	5,559.79	12.64	13.51	41.37	0.34	434.04	267.09	242.39	24.69	10.816		
5,700.00	5,688.98	5,680.54	5,659.01	12.90	13.79	42.20	0.34	445.54	269.76	244.58	25.18	10.712		
5,800.00	5,788.35	5,780.43	5,758.23	13.16	14.07	43.02	0.34	457.03	272.48	246.81	25.67	10.613		
5,900.00	5,887.73	5,880.31	5,857.46	13.42	14.35	43.82	0.34	468.53	275.26	249.09	26.17	10.519		
6,000.00	5,987.11	5,980.20	5,956.68	13.68	14.63	44.60	0.34	480.03	278.09	251.43	26.67	10.429		
6,100.00	6,086.49	6,080.09	6,055.91	13.94	14.92	45.37	0.34	491.52	280.98	253.81	27.17	10.343		
6,200.00	6,185.87	6,179.98	6,155.13	14.20	15.20	46.12	0.34	503.02	283.91	256.24	27.67	10.261		
6,300.00	6,285.25	6,279.87	6,254.36	14.46	15.48	46.86	0.34	514.51	286.89	258.72	28.17	10.183		
6,400.00	6,384.63	6,379.75	6,353.58	14.73	15.77	47.58	0.34	526.01	289.92	261.24	28.68	10.108		
6,500.00	6,484.00	6,479.64	6,452.81	14.99	16.05	48.29	0.34	537.50	292.99	263.80	29.19	10.037		
6,600.00	6,583.38	6,579.53	6,552.03	15.26	16.34	48.98	0.34	549.00	296.10	266.40	29.70	9.969		
6,700.00	6,682.76	6,679.42	6,651.26	15.52	16.62	49.65	0.34	560.49	299.26	269.04	30.22	9.903		
6,800.00	6,782.14	6,779.31	6,750.48	15.79	16.90	50.32	0.34	571.99	302.46	271.72	30.74	9.840		
6,900.00	6,881.52	6,879.20	6,849.71	16.06	17.19	50.97	0.34	583.48	305.70	274.44	31.26	9.780		
7,000.00	6,980.90	6,979.08	6,948.93	16.33	17.48	51.60	0.34	594.98	308.97	277.20	31.78	9.723		
7,100.00	7,080.28	7,078.97	7,048.15	16.60	17.76	52.22	0.34	606.47	312.29	279.98	32.30	9.668		
7,200.00	7,179.66	7,178.86	7,147.38	16.86	18.05	52.83	0.34	617.97	315.64	282.81	32.83	9.615		
7,300.00	7,279.03	7,278.75	7,246.60	17.13	18.33	53.43	0.34	629.46	319.02	285.67	33.35	9.564		
7,400.00	7,378.41	7,378.64	7,345.83	17.40	18.62	54.01	0.34	640.96	322.44	288.55	33.88	9.516		
7,500.00	7,477.79	7,478.53	7,445.05	17.68	18.90	54.58	0.34	652.46	325.89	291.47	34.42	9.469		
7,600.00	7,577.17	7,581.49	7,547.37	17.95	19.18	55.19	0.34	663.96	329.09	294.14	34.96	9.414		
7,700.00	7,676.55	7,686.53	7,651.93	18.22	19.40	55.96	0.34	675.45	330.91	295.42	35.49	9.325		
7,800.00	7,775.93	7,791.51	7,756.61	18.49	19.61	56.89	0.34	686.92	331.23	295.23	36.01	9.199		
7,900.00	7,875.31	7,896.37	7,861.28	18.76	19.81	58.01	0.34	698.38	330.12	293.59	36.53	9.037		
8,000.00	7,974.68	8,001.02	7,965.84	19.04	20.00	59.33	0.34	709.83	327.64	290.59	37.05	8.842		
8,100.00	8,074.06	8,105.40	8,070.19	19.31	20.18	60.87	0.34	721.28	323.86	286.28	37.58	8.618		
8,200.00	8,173.44	8,208.15	8,172.94	19.58	20.36	62.61	0.34	732.73	318.93	280.81	38.12	8.366		
8,300.00	8,272.82	8,307.52	8,272.32	19.86	20.54	64.41	0.34	744.18	313.94	275.25	38.69	8.115		
8,400.00	8,372.20	8,406.90	8,371.70	20.13	20.72	66.26	0.34	755.63	309.27	270.01	39.26	7.878		
8,500.00	8,471.58	8,506.28	8,471.08	20.41	20.91	68.16	0.34	767.08	304.94	265.10	39.83	7.655		
8,600.00	8,570.96	8,605.66	8,570.46	20.68	21.10	70.12	0.34	778.53	300.95	260.54	40.41	7.447		
8,700.00	8,670.33	8,700.00	8,664.79	20.96	21.27	72.08	-0.09	790.00	297.69	256.70	40.99	7.263		
8,706.41	8,676.71	8,700.00	8,664.79	20.98	21.27	72.08	-0.09	790.00	297.65	256.64	41.01	7.258		
8,800.00	8,769.71	8,763.56	8,727.92	21.24	21.38	74.23	-7.00	795.17	302.58	261.29	41.29	7.328		
8,900.00	8,869.09	8,825.00	8,787.56	21.51	21.49	77.12	-21.58	795.17	319.29	278.19	41.10	7.768		
9,000.00	8,968.47	8,883.33	8,842.02	21.79	21.60	80.35	-42.41	795.17	348.05	307.57	40.47	8.600		
9,100.00	9,067.85	8,934.28	8,887.19	22.06	21.69	83.32	-65.91	795.17	388.25	348.86	39.39	9.855		
9,200.00	9,167.23	8,975.00	8,921.33	22.34	21.77	85.69	-88.08	795.17	438.63	400.72	37.92	11.568		
9,300.00	9,266.61	9,017.95	8,955.17	22.62	21.86	88.09	-114.52	795.17	497.47	460.78	36.70	13.555		
9,400.00	9,365.98	9,050.00	8,978.79	22.90	21.92	89.78	-136.17	795.17	563.31	528.01	35.31	15.956		
9,500.00	9,465.36	9,075.00	8,996.17	23.17	21.98	91.03	-154.13	795.17	634.80	600.86	33.95	18.700		
9,600.00	9,564.74	9,100.00	9,012.60	23.45	22.04	92.22	-172.97	795.17	710.72	677.84	32.88	21.613		
9,700.00	9,664.12	9,125.00	9,028.01	23.73	22.10	93.34	-192.65	795.17	790.18	758.11	32.07	24.636		
9,800.00	9,763.50	9,150.00	9,042.37	24.01	22.17	94.39	-213.11	795.17	872.58	841.11	31.47	27.731		
9,900.00	9,862.88	9,165.40	9,050.68	24.29	22.21	95.00	-226.08	795.17	957.35	926.58	30.78	31.105		
10,000.00	9,962.26	9,175.00	9,055.64	24.56	22.24	95.37	-234.29	795.17	1,044.13	1,014.01	30.12	34.666		
10,100.00	10,061.63	9,200.00	9,067.79	24.84	22.31	96.28	-256.14	795.17	1,132.47	1,102.52	29.95	37.811		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,200.00	10,161.01	9,200.00	9,067.79	25.12	22.31	96.28	-256.14	695.17	1,222.16	1,192.79	29.36	41.620		
10,300.00	10,260.39	9,225.00	9,078.77	25.40	22.39	97.13	-278.60	695.17	1,313.01	1,283.64	29.37	44.706		
10,337.63	10,297.79	9,225.00	9,078.77	25.51	22.39	97.13	-278.60	695.17	1,347.38	1,318.16	29.22	46.116		
10,400.00	10,359.81	9,225.00	9,078.77	25.66	22.39	98.57	-278.60	695.17	1,404.69	1,375.70	28.99	48.452		
10,500.00	10,459.38	9,236.10	9,083.27	25.87	22.42	101.27	-288.74	695.17	1,497.17	1,468.31	28.87	51.864		
10,600.00	10,559.10	9,250.00	9,088.57	26.07	22.47	104.03	-301.60	695.17	1,590.30	1,561.46	28.84	55.150		
10,700.00	10,658.94	9,250.00	9,088.57	26.26	22.47	106.58	-301.60	695.17	1,683.82	1,655.17	28.66	58.762		
10,800.00	10,758.86	9,250.00	9,088.57	26.44	22.47	109.22	-301.60	695.17	1,777.89	1,749.36	28.53	62.310		
10,900.00	10,858.84	9,275.00	9,097.15	26.61	22.56	112.02	-325.07	695.17	1,872.12	1,843.37	28.75	65.114		
10,976.71	10,935.54	9,275.00	9,097.15	26.74	22.56	180.00	-325.07	695.17	1,944.52	1,915.81	28.71	67.729		
11,000.00	10,958.83	9,275.00	9,097.15	26.78	22.56	180.00	-325.07	695.17	1,966.55	1,937.85	28.70	68.513		
11,100.00	11,058.83	9,275.00	9,097.15	26.97	22.56	180.00	-325.07	695.17	2,061.45	2,032.75	28.70	71.819		
11,200.00	11,158.83	9,275.00	9,097.15	27.17	22.56	180.00	-325.07	695.17	2,156.80	2,128.06	28.74	75.042		
11,300.00	11,258.83	9,300.00	9,104.48	27.37	22.66	180.00	-348.97	695.17	2,252.40	2,223.36	29.04	77.568		
11,400.00	11,358.83	9,300.00	9,104.48	27.56	22.66	180.00	-348.97	695.17	2,348.21	2,319.08	29.12	80.627		
11,476.71	11,435.54	9,300.00	9,104.48	27.71	22.66	180.00	-348.97	695.17	2,421.93	2,392.72	29.21	82.918		
11,500.00	11,458.82	9,300.00	9,104.48	27.75	22.66	0.00	-348.97	695.17	2,444.19	2,414.96	29.23	83.615		
11,525.00	11,483.75	9,300.00	9,104.48	27.79	22.66	0.00	-348.97	695.17	2,467.70	2,438.46	29.25	84.375		
11,550.00	11,508.55	9,300.00	9,104.48	27.83	22.66	0.00	-348.97	695.17	2,490.78	2,461.52	29.26	85.138		
11,575.00	11,533.14	9,300.00	9,104.48	27.86	22.66	0.00	-348.97	695.17	2,513.36	2,484.11	29.26	85.902		
11,600.00	11,557.47	9,300.00	9,104.48	27.88	22.66	0.00	-348.97	695.17	2,535.41	2,506.15	29.26	86.666		
11,625.00	11,581.46	9,300.00	9,104.48	27.91	22.66	0.00	-348.97	695.17	2,556.87	2,527.62	29.25	87.426		
11,650.00	11,605.05	9,300.00	9,104.48	27.93	22.66	0.00	-348.97	695.17	2,577.70	2,548.47	29.23	88.180		
11,675.00	11,628.18	9,312.66	9,107.72	27.95	22.71	0.00	-361.21	695.17	2,597.67	2,568.37	29.30	88.645		
11,700.00	11,650.78	9,325.00	9,110.56	27.97	22.76	0.00	-373.22	695.17	2,617.16	2,587.80	29.37	89.121		
11,725.00	11,672.79	9,325.00	9,110.56	27.98	22.76	0.00	-373.22	695.17	2,635.71	2,606.38	29.34	89.847		
11,750.00	11,694.15	9,325.00	9,110.56	27.99	22.76	0.00	-373.22	695.17	2,653.48	2,624.18	29.30	90.558		
11,775.00	11,714.80	9,325.00	9,110.56	28.00	22.76	0.00	-373.22	695.17	2,670.42	2,641.16	29.26	91.251		
11,800.00	11,734.69	9,325.00	9,110.56	28.01	22.76	0.00	-373.22	695.17	2,686.52	2,657.29	29.23	91.925		
11,825.00	11,753.76	9,325.00	9,110.56	28.02	22.76	0.00	-373.22	695.17	2,701.73	2,672.55	29.18	92.576		
11,850.00	11,771.95	9,325.00	9,110.56	28.02	22.76	0.00	-373.22	695.17	2,716.04	2,686.90	29.14	93.203		
11,875.00	11,789.22	9,325.00	9,110.56	28.02	22.76	0.00	-373.22	695.17	2,729.42	2,700.32	29.10	93.802		
11,900.00	11,805.52	9,338.50	9,113.31	28.03	22.82	0.00	-386.43	695.17	2,741.63	2,712.49	29.13	94.108		
11,925.00	11,820.81	9,350.00	9,115.36	28.03	22.87	0.00	-397.75	695.17	2,753.04	2,723.89	29.15	94.433		
11,950.00	11,835.04	9,350.00	9,115.36	28.03	22.87	0.00	-397.75	695.17	2,763.29	2,734.19	29.11	94.938		
11,975.00	11,848.18	9,350.00	9,115.36	28.03	22.87	0.00	-397.75	695.17	2,772.53	2,743.47	29.06	95.406		
12,000.00	11,860.19	9,350.00	9,115.36	28.03	22.87	0.00	-397.75	695.17	2,780.74	2,751.73	29.02	95.834		
12,025.00	11,871.03	9,350.00	9,115.36	28.04	22.87	0.00	-397.75	695.17	2,787.91	2,758.94	28.97	96.219		
12,050.00	11,880.68	9,350.00	9,115.36	28.04	22.87	0.00	-397.75	695.17	2,794.03	2,765.09	28.94	96.559		
12,075.00	11,889.11	9,362.66	9,117.30	28.05	22.93	0.00	-410.26	695.17	2,798.89	2,769.93	28.96	96.844		
12,100.00	11,896.29	9,375.00	9,118.87	28.06	22.99	0.00	-422.50	695.17	2,802.84	2,773.85	28.98	96.701		
12,125.00	11,902.21	9,375.00	9,118.87	28.07	22.99	0.00	-422.50	695.17	2,805.52	2,776.57	28.95	96.903		
12,150.00	11,906.86	9,375.00	9,118.87	28.09	22.99	0.00	-422.50	695.17	2,807.12	2,778.20	28.92	97.053		
12,175.00	11,910.21	9,375.00	9,118.87	28.11	22.99	0.00	-422.50	695.17	2,807.63	2,778.73	28.90	97.151		
12,200.00	11,912.26	9,375.00	9,118.87	28.14	22.99	0.00	-422.50	695.17	2,807.06	2,778.18	28.88	97.195		
12,224.99	11,913.00	9,375.00	9,118.87	28.17	22.99	0.00	-422.50	695.17	2,805.41	2,776.54	28.87	97.185		
12,300.00	11,913.27	9,400.00	9,121.08	28.30	23.11	0.00	-447.40	695.17	2,799.33	2,770.39	28.94	96.713		
12,400.00	11,913.63	9,400.00	9,121.08	28.56	23.11	0.00	-447.40	695.17	2,794.09	2,765.07	29.02	96.272		
12,500.00	11,913.99	9,425.00	9,121.98	28.92	23.24	0.00	-472.38	695.17	2,791.69	2,762.42	29.27	95.388		
12,524.62	11,914.08	9,428.03	9,122.00	29.02	23.25	0.00	-475.41	695.17	2,791.59	2,762.26	29.34	95.159		
12,600.00	11,914.35	9,488.93	9,121.91	29.38	23.59	0.00	-536.31	695.17	2,791.94	2,762.28	29.66	94.134		
12,700.00	11,914.71	9,588.93	9,121.75	29.92	24.23	0.00	-636.31	695.17	2,792.46	2,762.28	30.18	92.516		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at:** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
12,800.00	11,915.07	9,688.93	9,121.59	30.56	24.97	0.00	-736.31	695.17	2,792.98	2,762.21	30.77	90.763		
12,900.00	11,915.43	9,788.93	9,121.43	31.27	25.78	0.00	-836.31	695.17	2,793.50	2,762.08	31.42	88.902		
13,000.00	11,915.79	9,888.93	9,121.27	32.05	26.68	0.00	-936.31	695.17	2,794.02	2,761.89	32.13	86.963		
13,100.00	11,916.15	9,988.93	9,121.12	32.89	27.64	0.00	-1,036.30	695.17	2,794.53	2,761.65	32.89	84.971		
13,200.00	11,916.51	10,088.92	9,120.96	33.80	28.67	0.00	-1,136.30	695.17	2,795.05	2,761.36	33.70	82.950		
13,300.00	11,916.87	10,188.92	9,120.80	34.76	29.75	0.00	-1,236.30	695.17	2,795.57	2,761.02	34.55	80.919		
13,400.00	11,917.22	10,288.92	9,120.64	35.77	30.88	0.00	-1,336.30	695.17	2,796.09	2,760.65	35.44	78.894		
13,500.00	11,917.58	10,388.92	9,120.48	36.82	32.05	0.00	-1,436.30	695.17	2,796.61	2,760.24	36.37	76.890		
13,600.00	11,917.94	10,488.92	9,120.32	37.92	33.27	0.00	-1,536.30	695.17	2,797.13	2,759.79	37.34	74.915		
13,700.00	11,918.30	10,588.92	9,120.16	39.06	34.52	0.00	-1,636.30	695.17	2,797.65	2,759.31	38.33	72.980		
13,800.00	11,918.66	10,688.92	9,120.00	40.23	35.80	0.00	-1,736.29	695.17	2,798.16	2,758.80	39.36	71.090		
13,900.00	11,919.02	10,788.91	9,119.84	41.43	37.10	0.00	-1,836.29	695.17	2,798.68	2,758.27	40.41	69.250		
14,000.00	11,919.38	10,888.91	9,119.68	42.66	38.44	0.00	-1,936.29	695.17	2,799.20	2,757.71	41.49	67.464		
14,100.00	11,919.74	10,988.91	9,119.52	43.92	39.79	0.00	-2,036.29	695.17	2,799.72	2,757.13	42.59	65.732		
14,200.00	11,920.10	11,088.91	9,119.36	45.20	41.17	0.00	-2,136.29	695.17	2,800.24	2,756.52	43.71	64.057		
14,300.00	11,920.46	11,188.91	9,119.21	46.50	42.57	0.00	-2,236.29	695.17	2,800.76	2,755.90	44.86	62.439		
14,400.00	11,920.82	11,288.91	9,119.05	47.83	43.98	0.00	-2,336.28	695.17	2,801.28	2,755.26	46.01	60.878		
14,500.00	11,921.18	11,388.91	9,118.89	49.17	45.41	0.00	-2,436.28	695.17	2,801.79	2,754.60	47.19	59.372		
14,600.00	11,921.54	11,488.91	9,118.73	50.53	46.85	0.00	-2,536.28	695.17	2,802.31	2,753.93	48.38	57.921		
14,700.00	11,921.90	11,588.90	9,118.57	51.91	48.30	0.00	-2,636.28	695.17	2,802.83	2,753.24	49.59	56.523		
14,800.00	11,922.26	11,688.90	9,118.41	53.30	49.77	0.00	-2,736.28	695.17	2,803.35	2,752.54	50.81	55.177		
14,900.00	11,922.62	11,788.90	9,118.25	54.71	51.24	0.00	-2,836.28	695.17	2,803.87	2,751.83	52.04	53.882		
15,000.00	11,922.98	11,888.90	9,118.09	56.12	52.73	0.00	-2,936.28	695.17	2,804.39	2,751.11	53.28	52.635		
15,100.00	11,923.33	11,988.90	9,117.93	57.55	54.22	0.00	-3,036.27	695.17	2,804.91	2,750.37	54.53	51.434		
15,200.00	11,923.69	12,088.90	9,117.77	58.99	55.72	0.00	-3,136.27	695.17	2,805.43	2,749.63	55.80	50.279		
15,300.00	11,924.05	12,188.90	9,117.61	60.44	57.23	0.00	-3,236.27	695.17	2,805.94	2,748.87	57.07	49.166		
15,400.00	11,924.41	12,288.89	9,117.45	61.91	58.75	0.00	-3,336.27	695.17	2,806.46	2,748.11	58.35	48.095		
15,500.00	11,924.77	12,388.89	9,117.30	63.37	60.27	0.00	-3,436.27	695.17	2,806.98	2,747.34	59.64	47.064		
15,600.00	11,925.13	12,488.89	9,117.14	64.85	61.80	0.00	-3,536.27	695.17	2,807.50	2,746.56	60.94	46.070		
15,700.00	11,925.49	12,588.89	9,116.98	66.34	63.34	0.00	-3,636.27	695.17	2,808.02	2,745.77	62.24	45.112		
15,800.00	11,925.85	12,688.89	9,116.82	67.83	64.88	0.00	-3,736.26	695.17	2,808.54	2,744.98	63.56	44.189		
15,900.00	11,926.21	12,788.89	9,116.66	69.33	66.42	0.00	-3,836.26	695.17	2,809.06	2,744.18	64.87	43.300		
16,000.00	11,926.57	12,888.89	9,116.50	70.83	67.97	0.00	-3,936.26	695.17	2,809.57	2,743.37	66.20	42.441		
16,100.00	11,926.93	12,988.89	9,116.34	72.34	69.52	0.00	-4,036.26	695.17	2,810.09	2,742.56	67.53	41.613		
16,200.00	11,927.29	13,088.88	9,116.18	73.86	71.08	0.00	-4,136.26	695.17	2,810.61	2,741.75	68.86	40.814		
16,300.00	11,927.65	13,188.88	9,116.02	75.38	72.64	0.00	-4,236.26	695.17	2,811.13	2,740.92	70.20	40.042		
16,400.00	11,928.01	13,288.88	9,115.86	76.90	74.20	0.00	-4,336.26	695.17	2,811.65	2,740.10	71.55	39.296		
16,500.00	11,928.37	13,388.88	9,115.70	78.43	75.77	0.00	-4,436.25	695.17	2,812.17	2,739.27	72.90	38.576		
16,600.00	11,928.73	13,488.88	9,115.54	79.97	77.34	0.00	-4,536.25	695.17	2,812.69	2,738.43	74.25	37.879		
16,700.00	11,929.09	13,588.88	9,115.39	81.50	78.91	0.00	-4,636.25	695.17	2,813.20	2,737.59	75.61	37.206		
16,800.00	11,929.44	13,688.88	9,115.23	83.05	80.49	0.00	-4,736.25	695.17	2,813.72	2,736.75	76.97	36.554		
16,900.00	11,929.80	13,788.87	9,115.07	84.59	82.06	0.00	-4,836.25	695.17	2,814.24	2,735.90	78.34	35.923		
17,000.00	11,930.16	13,888.87	9,114.91	86.14	83.64	0.00	-4,936.25	695.17	2,814.76	2,735.05	79.71	35.313		
17,100.00	11,930.52	13,988.87	9,114.75	87.70	85.22	0.00	-5,036.25	695.17	2,815.28	2,734.20	81.08	34.721		
17,200.00	11,930.88	14,088.87	9,114.59	89.25	86.81	0.00	-5,136.24	695.17	2,815.80	2,733.34	82.46	34.149		
17,300.00	11,931.24	14,188.87	9,114.43	90.81	88.40	0.00	-5,236.24	695.17	2,816.32	2,732.48	83.84	33.593		
17,400.00	11,931.60	14,288.87	9,114.27	92.37	89.98	0.00	-5,336.24	695.17	2,816.83	2,731.62	85.22	33.055		
17,500.00	11,931.96	14,388.87	9,114.11	93.93	91.57	0.00	-5,436.24	695.17	2,817.35	2,730.75	86.60	32.532		
17,600.00	11,932.32	14,488.86	9,113.95	95.50	93.16	0.00	-5,536.24	695.17	2,817.87	2,729.88	87.99	32.025		
17,700.00	11,932.68	14,588.86	9,113.79	97.07	94.76	0.00	-5,636.24	695.17	2,818.39	2,729.01	89.38	31.533		
17,800.00	11,933.04	14,688.86	9,113.63	98.64	96.35	0.00	-5,736.23	695.17	2,818.91	2,728.14	90.77	31.056		
17,900.00	11,933.40	14,788.86	9,113.47	100.21	97.95	0.00	-5,836.23	695.17	2,819.43	2,727.26	92.16	30.591		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
18,000.00	11,933.76	14,888.86	9,113.32	101.79	99.55	0.00	-5,936.23	695.17	2,819.95	2,726.39	93.56	30.140		
18,100.00	11,934.12	14,988.86	9,113.16	103.37	101.14	0.00	-6,036.23	695.17	2,820.46	2,725.51	94.96	29.702		
18,200.00	11,934.48	15,088.86	9,113.00	104.95	102.74	0.00	-6,136.23	695.17	2,820.98	2,724.62	96.36	29.276		
18,300.00	11,934.84	15,188.86	9,112.84	106.53	104.35	0.00	-6,236.23	695.17	2,821.50	2,723.74	97.76	28.861		
18,400.00	11,935.20	15,288.85	9,112.68	108.11	105.95	0.00	-6,336.23	695.17	2,822.02	2,722.85	99.16	28.458		
18,500.00	11,935.55	15,388.85	9,112.52	109.69	107.55	0.00	-6,436.22	695.17	2,822.54	2,721.97	100.57	28.065		
18,600.00	11,935.91	15,488.85	9,112.36	111.28	109.16	0.00	-6,536.22	695.17	2,823.06	2,721.08	101.98	27.683		
18,700.00	11,936.27	15,588.85	9,112.20	112.87	110.76	0.00	-6,636.22	695.17	2,823.58	2,720.19	103.39	27.311		
18,800.00	11,936.63	15,688.85	9,112.04	114.46	112.37	0.00	-6,736.22	695.17	2,824.09	2,719.30	104.80	26.948		
18,900.00	11,936.99	15,788.85	9,111.88	116.05	113.97	0.00	-6,836.22	695.17	2,824.61	2,718.40	106.21	26.595		
19,000.00	11,937.35	15,888.85	9,111.72	117.64	115.58	0.00	-6,936.22	695.17	2,825.13	2,717.51	107.62	26.250		
19,100.00	11,937.71	15,988.84	9,111.56	119.23	117.19	0.00	-7,036.22	695.17	2,825.65	2,716.61	109.04	25.914		
19,200.00	11,938.07	16,088.84	9,111.41	120.82	118.80	0.00	-7,136.21	695.17	2,826.17	2,715.71	110.45	25.587		
19,300.00	11,938.43	16,188.84	9,111.25	122.42	120.41	0.00	-7,236.21	695.17	2,826.69	2,714.81	111.87	25.267		
19,400.00	11,938.79	16,288.84	9,111.09	124.02	122.02	0.00	-7,336.21	695.17	2,827.21	2,713.91	113.29	24.955		
19,500.00	11,939.15	16,388.84	9,110.93	125.61	123.64	0.00	-7,436.21	695.17	2,827.72	2,713.01	114.71	24.651		
19,600.00	11,939.51	16,488.84	9,110.77	127.21	125.25	0.00	-7,536.21	695.17	2,828.24	2,712.11	116.13	24.354		
19,700.00	11,939.87	16,588.84	9,110.61	128.81	126.86	0.00	-7,636.21	695.17	2,828.76	2,711.21	117.55	24.064		
19,800.00	11,940.23	16,688.84	9,110.45	130.41	128.48	0.00	-7,736.21	695.17	2,829.28	2,710.30	118.98	23.780		
19,900.00	11,940.59	16,788.83	9,110.29	132.01	130.09	0.00	-7,836.20	695.17	2,829.80	2,709.40	120.40	23.503		
20,000.00	11,940.95	16,888.83	9,110.13	133.61	131.71	0.00	-7,936.20	695.17	2,830.32	2,708.49	121.83	23.232		
20,100.00	11,941.30	16,988.83	9,109.97	135.22	133.32	0.00	-8,036.20	695.17	2,830.84	2,707.58	123.25	22.968		
20,200.00	11,941.66	17,088.83	9,109.81	136.82	134.94	0.00	-8,136.20	695.17	2,831.35	2,706.67	124.68	22.709		
20,300.00	11,942.02	17,188.83	9,109.65	138.43	136.55	0.00	-8,236.20	695.17	2,831.87	2,705.76	126.11	22.456		
20,400.00	11,942.38	17,288.83	9,109.50	140.03	138.17	0.00	-8,336.20	695.17	2,832.39	2,704.85	127.54	22.208		
20,500.00	11,942.74	17,388.83	9,109.34	141.64	139.79	0.00	-8,436.20	695.17	2,832.91	2,703.94	128.97	21.966		
20,600.00	11,943.10	17,488.82	9,109.18	143.24	141.41	0.00	-8,536.19	695.17	2,833.43	2,703.03	130.40	21.729		
20,700.00	11,943.46	17,588.82	9,109.02	144.85	143.03	0.00	-8,636.19	695.17	2,833.95	2,702.12	131.83	21.497		
20,800.00	11,943.82	17,688.82	9,108.86	146.46	144.65	0.00	-8,736.19	695.17	2,834.47	2,701.21	133.26	21.270		
20,900.00	11,944.18	17,788.82	9,108.70	148.07	146.27	0.00	-8,836.19	695.17	2,834.98	2,700.29	134.69	21.048		
21,000.00	11,944.54	17,888.82	9,108.54	149.68	147.89	0.00	-8,936.19	695.17	2,835.50	2,699.38	136.13	20.830		
21,100.00	11,944.90	17,988.82	9,108.38	151.29	149.51	0.00	-9,036.19	695.17	2,836.02	2,698.46	137.56	20.616		
21,200.00	11,945.26	18,088.82	9,108.22	152.90	151.13	0.00	-9,136.18	695.17	2,836.54	2,697.54	139.00	20.407		
21,300.00	11,945.62	18,188.82	9,108.06	154.51	152.75	0.00	-9,236.18	695.17	2,837.06	2,696.63	140.43	20.202		
21,400.00	11,945.98	18,288.81	9,107.90	156.12	154.37	0.00	-9,336.18	695.17	2,837.58	2,695.71	141.87	20.002		
21,500.00	11,946.34	18,388.81	9,107.74	157.74	155.99	0.00	-9,436.18	695.17	2,838.10	2,694.79	143.30	19.805		
21,600.00	11,946.70	18,488.81	9,107.59	159.35	157.61	0.00	-9,536.18	695.17	2,838.61	2,693.87	144.74	19.612		
21,700.00	11,947.06	18,588.81	9,107.43	160.96	159.24	0.00	-9,636.18	695.17	2,839.13	2,692.95	146.18	19.422		
21,800.00	11,947.41	18,688.81	9,107.27	162.58	160.86	0.00	-9,736.18	695.17	2,839.65	2,692.03	147.62	19.236		
21,900.00	11,947.77	18,788.81	9,107.11	164.19	162.48	0.00	-9,836.17	695.17	2,840.17	2,691.11	149.06	19.054		
21,962.96	11,948.00	18,851.76	9,107.01	164.99	163.51	0.00	-9,899.13	695.17	2,840.50	2,690.77	149.73	18.971		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

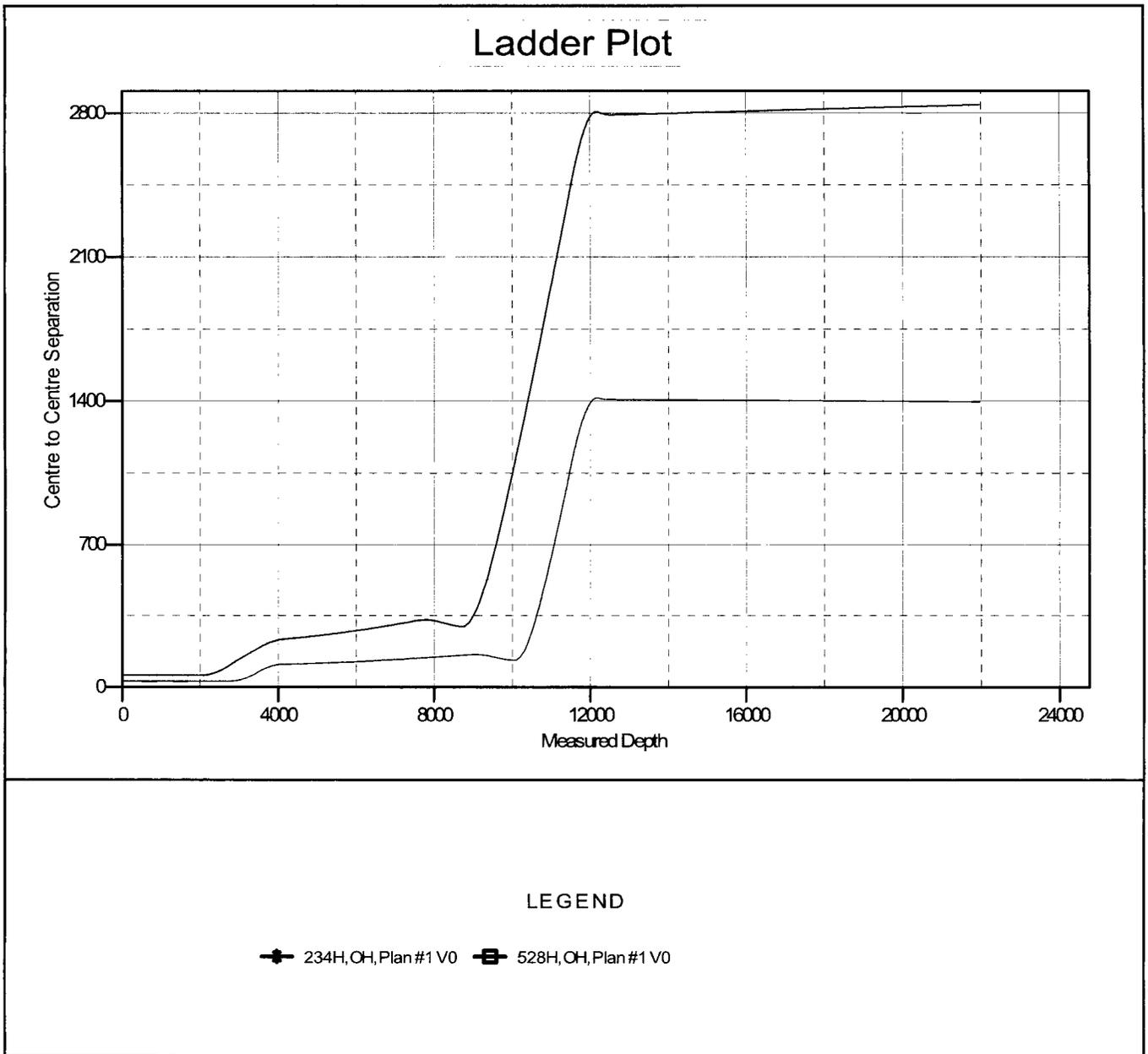
## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at:** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to 3480.4' GE + 23.5' KB @ 3503.90usft  
 Offset Depths are relative to Offset Datum  
 Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: 718H  
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone  
 Grid Convergence at Surface is: 0.32°



# LEAM Drilling Systems LLC

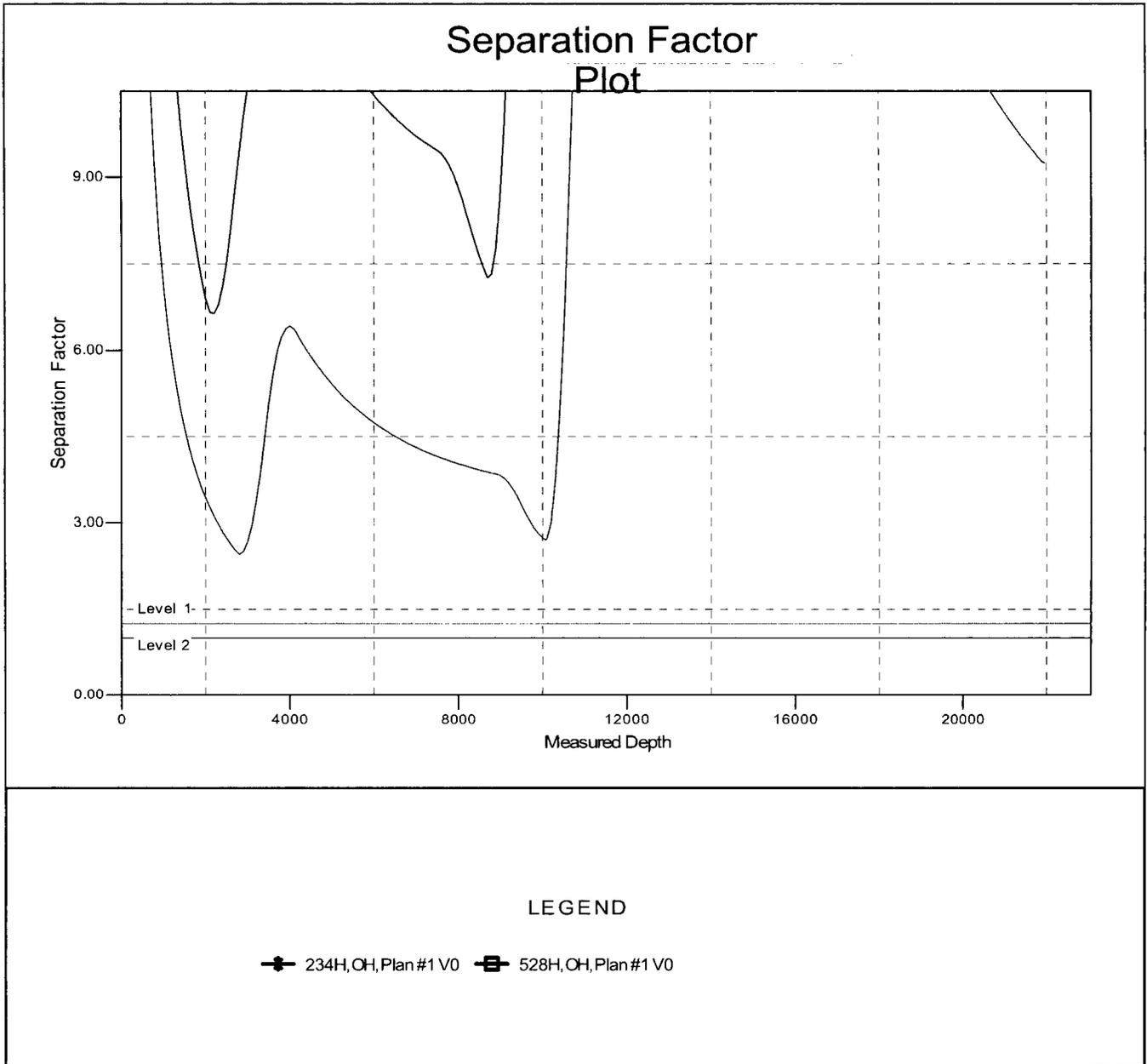
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 Offset Depths are relative to Offset Datum  
 Central Meridian is 104° 20' 0.000 W

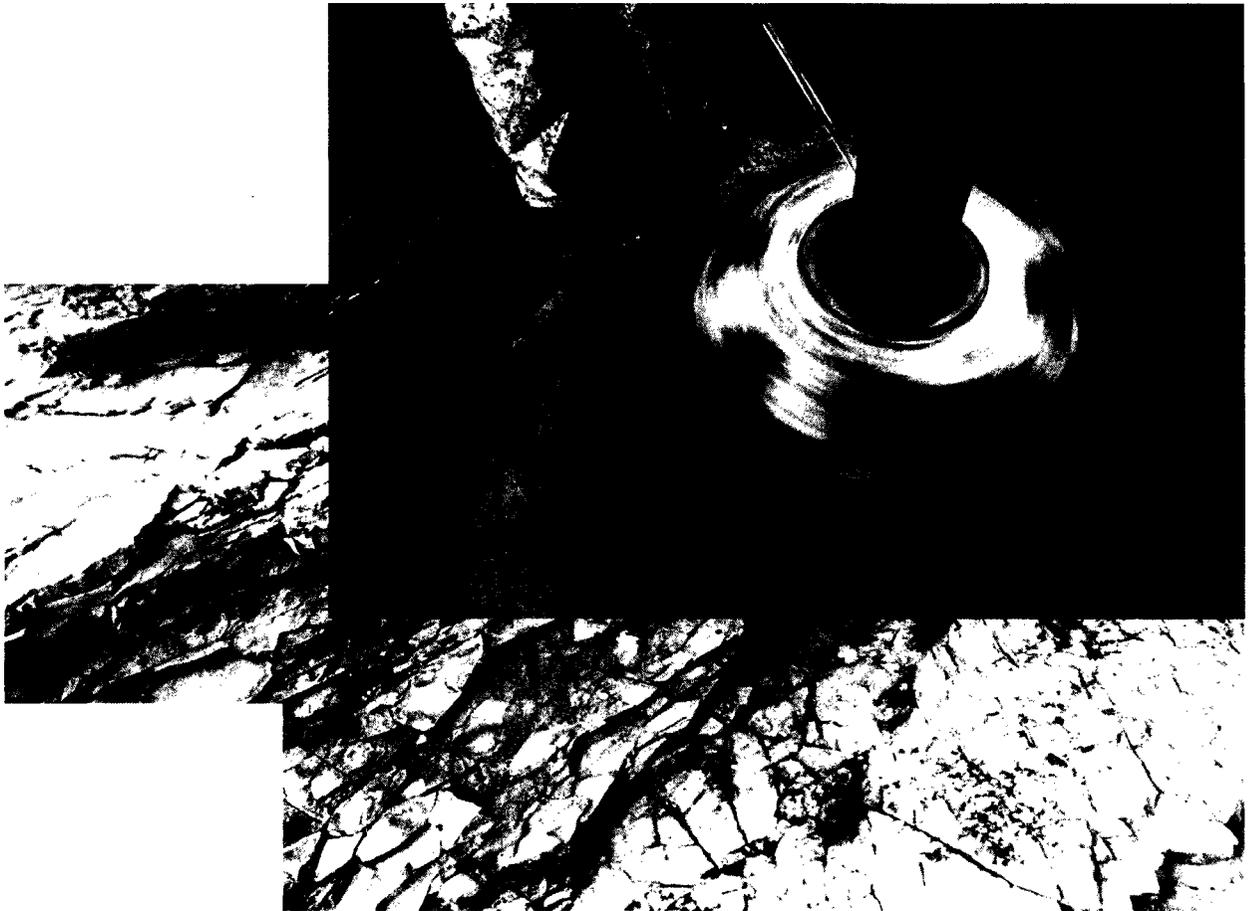
Coordinates are relative to: 718H  
 Coordinate System is US State Plane 1983, New Mexico Eastern Zone  
 Grid Convergence at Surface is: 0.32°



**This item is addressed in the Todd Apache 1 Master Development Plan (MDP). This page is used only to satisfy the AFMSSII attachment requirements.**



Commitment Runs Deep



Design Plan  
Operation and Maintenance Plan  
Closure Plan

SENM Closed Loop Systems  
June 2010

## **I. Design Plan**

Devon uses MI SWACO closed loop system (CLS). The MI SWACO CLS is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This insures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

Prior to installing a closed-loop system on site, the topsoil, if present, will be stripped and stockpiled for use as the final cover or fill at the time of closure.

Signs will be posted on the fence surrounding the closed-loop system unless the closed-loop system is located on a site where there is an existing well, that is operated by Devon.

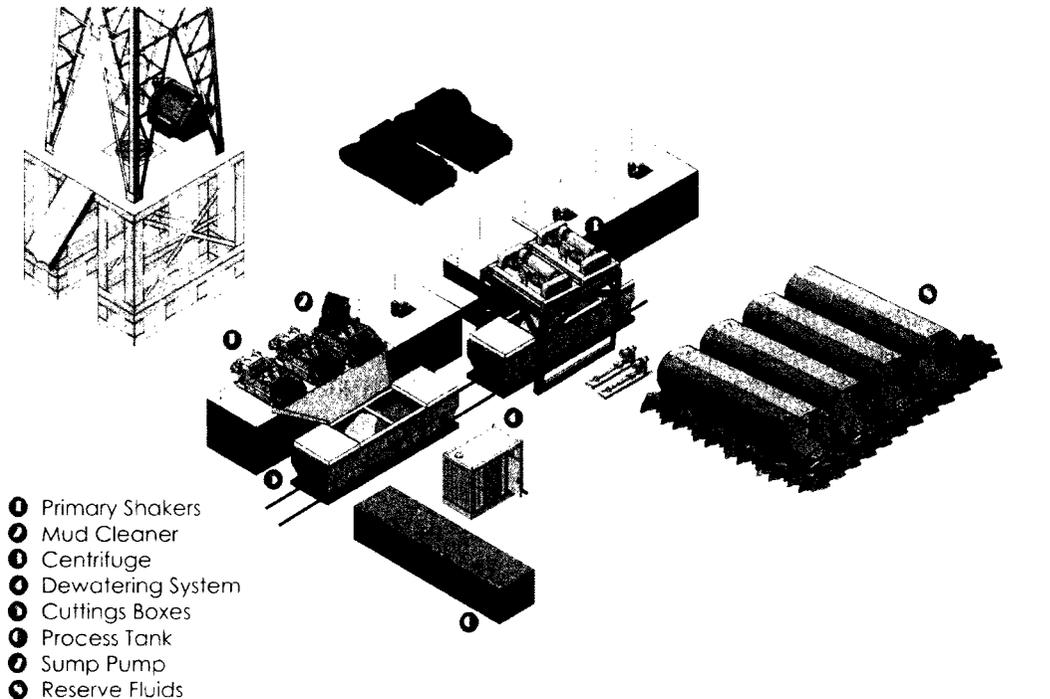
## **II. Operations and Maintenance Plan**

*Primary Shakers:* The primary shakers make the first removal of drill solids from the drilling mud as it leaves the well bore. The shakers are sized to handle maximum drilling rate at optimal screen size. The shakers normally remove solids down to 74 microns.

**Mud Cleaner:** The Mud Cleaner cleans the fluid after it leaves the shakers. A set of hydrocyclones are sized to handle 1.25 to 1.5 times the maximum circulating rate. This ensures all the fluid is being processed to an average cut point of 25 microns. The wet discharged is dewatered on a shaker equipped with ultra fine mesh screens and generally cut at 40 microns.



## Closed Loop Schematic



**Centrifuges:** The centrifuges can be one or two in number depending on the well geometry or depth of well. The centrifuges are sized to maintain low gravity solids at 5% or below. They may or may not need a dewatering system to enhance the removal rates. The centrifuges can make a cut point of 8-10 microns depending on bowl speed, feed rate, solids loading and other factors.

The centrifuge system is designed to work on the active system and be flexible to process incoming fluids from other locations. This set-up is also dependant on well factors.

**Dewatering System:** The dewatering system is a chemical mixing and dosing system designed to enhance the solids removal of the centrifuge. Not commonly used in shallow wells. It may contain pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing. Chemical flocculation binds ultra fine solids into a mass that is within the centrifuge operating design. The

dewatering system improves the centrifuge cut point to infinity or allows for the return of clear water or brine fluid. This ability allows for the ultimate control of low gravity solids.

*Cuttings Boxes:* Cuttings boxes are utilized to capture drill solids that are discarded from the solids control equipment. These boxes are set upon a rail system that allows for the removal and replacement of a full box of cuttings with an empty one. They are equipped with a cover that insures no product is spilled into the environment during the transportation phase.

*Process Tank:* (Optional) The process tank allows for the holding and process of fluids that are being transferred into the mud system. Additionally, during times of lost circulation the process tank may hold active fluids that are removed for additional treatment. It can further be used as a mixing tank during well control conditions.

*Sump and Sump Pump:* The sump is used to collect storm water and the pump is used to transfer this fluid to the active system or to the tank for to hold in reserve. It can also be used to collect fluids that may escape during spills. The location contains drainage ditches that allow the location fluids to drain to the sump.

*Reserve Fluids (Tank Farm):* A series of frac tanks are used to replace the reserve pit. These are steel tanks that are equipped with a manifold system and a transfer pump. These tanks can contain any number of fluids used during the drilling process. These can include fresh water, cut brine, and saturated salt fluid. The fluid can be from the active well or reclaimed fluid from other locations. A 20 ml liner and berm system is employed to ensure the fluids do not migrate to the environment during a spill.

If a leak develops, the appropriate division district office will be notified within 48 hours of the discovery and the leak will be addressed. Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and testing will be performed to determine if a release has occurred.

All trash is kept in a wire mesh enclosure and removed to an approved landfill when full. All spent motor oils are kept in separate containers and they are removed and sent to an approved recycling center. Any spilled lubricants, pipe

dope, or regulated chemicals are removed from soil and sent to landfills approved for these products.

These operations are monitored by Mi Swaco service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

A MI SWACO field supervisor manages from 3-5 wells. They are responsible for training personnel, supervising installations, and inspecting sites for compliance of MI SWACO safety and operational policy.

### **III. Closure Plan**

A maximum 340' X 340' caliche pad is built per well. All of the trucks and steel tanks fit on this pad. All fluid cuttings go to the steel tanks to be hauled by various trucking companies to an agency approved disposal.

A multibowl wellhead may be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

Devon proposes using a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 3000 (3M) psi.

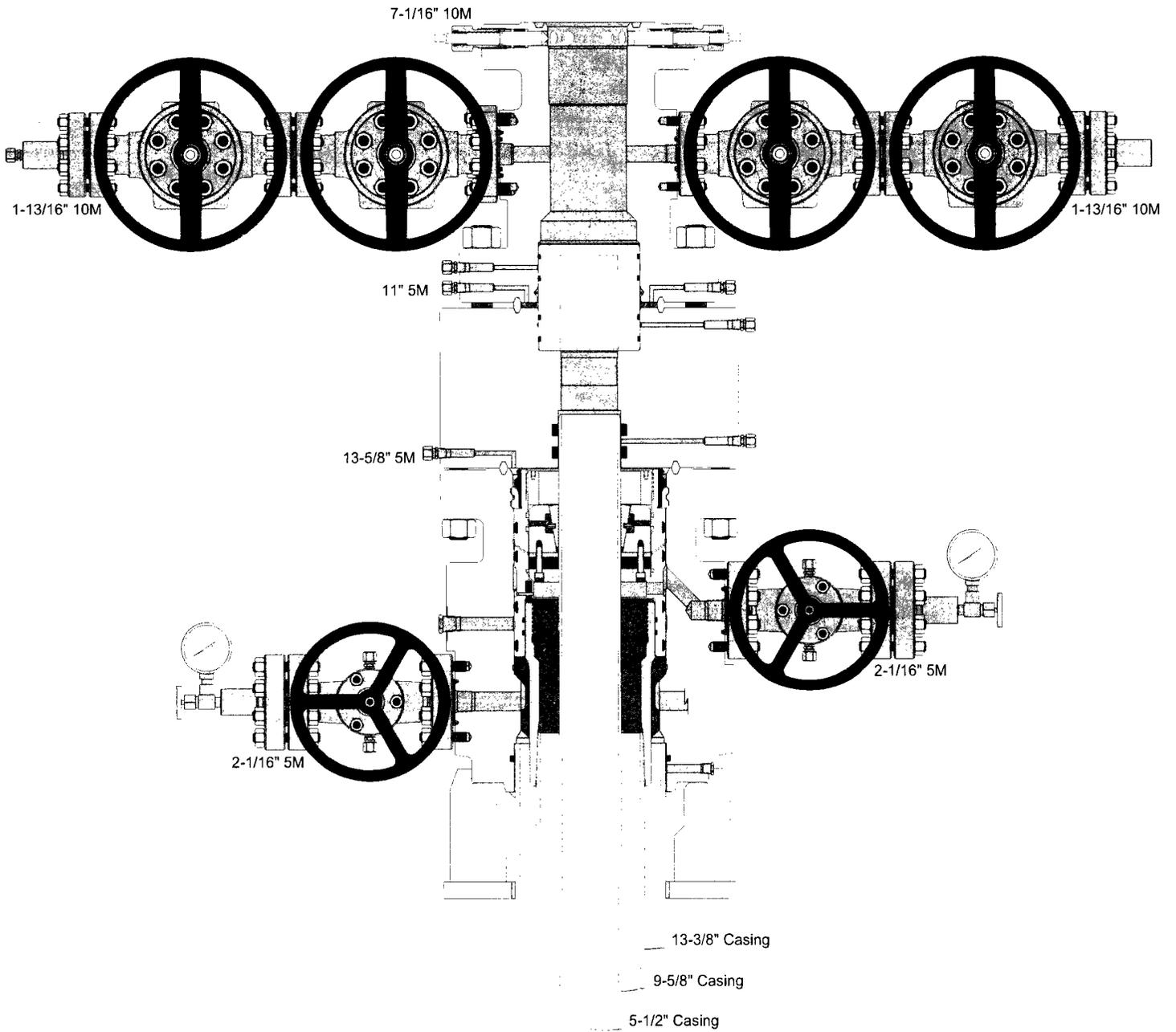
- Wellhead will be installed by wellhead representatives.
- If the welding is performed by a third party, the wellhead representative will monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
- Wellhead representative will install the test plug for the initial BOP test.
- Wellhead company will install a solid steel body pack-off to completely isolate the lower head after cementing intermediate casing. After installation of the pack-off, the pack-off and the lower flange will be tested to 3M, as shown on the attached schematic. Everything above the pack-off will not have been altered whatsoever from the initial nipple up. Therefore the BOP components will not be retested at that time.
- If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head will be cut and top out operations will be conducted.
- Devon will pressure test all seals above and below the mandrel (but still above the casing) to full working pressure rating.
- Devon will test the casing to 0.22 psi/ft or 1500 psi, whichever is greater, as per Onshore Order #2.

After running the 13-3/8" surface casing, a 13-5/8" BOP/BOPE system with a minimum rating of 3M will be installed on the wellhead system and will undergo a 250 psi low pressure test followed by a 3,000 psi high pressure test. The 3,000 psi high and 250 psi low test will cover testing requirements a maximum of 30 days, as per Onshore Order #2. If the well is not complete within 30 days of this BOP test, another full BOP test will be conducted, as per Onshore Order #2.

After running the 9-5/8" intermediate casing with a mandrel hanger, the 13-5/8" BOP/BOPE system with a minimum rating of 3M will already be installed on the wellhead.

The pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These tests will be logged in the daily driller's log. A 2" kill line and 3" choke line will be incorporated into the drilling spool below the ram BOP. In addition to the rams and annular preventer, additional BOP accessories include a kelly cock, floor safety valve, choke lines, and choke manifold rated at 3,000 psi WP.

Devon's proposed wellhead manufactures will be FMC Technologies, Cactus Wellhead, or Cameron.



**This item is addressed in the Todd Apache 1 Master Development Plan (MDP). This page is used only to satisfy the AFMSSII attachment requirements.**



Fluid Technology

ContiTech Beattie Corp.  
Website: [www.contitechbeattie.com](http://www.contitechbeattie.com)

Monday, June 14, 2010

RE: Drilling & Production Hoses  
Lifting & Safety Equipment

To Heimerich & Payne,

A Continental ContiTech hose assembly can perform as intended and suitable for the application regardless of whether the hose is secured or unsecured in its configuration. As a manufacturer of High Pressure Hose Assemblies for use in Drilling & Production, we do offer the corresponding lifting and safety equipment, this has the added benefit of easing the lifting and handling of each hose assembly whilst affording hose longevity by ensuring correct handling methods and procedures as well as securing the hose in the unlikely event of a failure; but in no way does the lifting and safety equipment affect the performance of the hoses providing the hoses have been handled and installed correctly it is good practice to use lifting & safety equipment but not mandatory

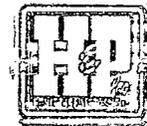
Should you have any questions or require any additional information/clarifications then please do not hesitate to contact us.

ContiTech Beattie is part of the Continental AG Corporation and can offer the full support resources associated with a global organization.

Best regards,

Robin Hodgson  
Sales Manager  
ContiTech Beattie Corp

ContiTech Beattie Corp,  
11535 Brittmoore Park Drive,  
Houston, TX 77041  
Phone: +1 (832) 327-0141  
Fax: +1 (832) 327-0148  
[www.contitechbeattie.com](http://www.contitechbeattie.com)



RIG 212



QUALITY DOCUMENT

PHOENIX RUBBER INDUSTRIAL LTD.

6728 Szeged, Budapesti út 10, Hungary • H-6701 Szeged, P. O. Box 152  
Phone: (3662) 556-737 • Fax: (3662) 556-738

SALES & MARKETING: H-1092 Budapest, Ráday u. 42-44, Hungary • H-1440 Budapest, P. O. Box 26  
Phone: (361) 456-4200 • Fax: (361) 217-2972, 456-4273 • www.tauruserge.hu

<b>QUALITY CONTROL INSPECTION AND TEST CERTIFICATE</b>		CERT. N°: 552	
PURCHASER: Phoenix Beattie Co.		P.O. N°: 1519FA-871	
PHOENIX RUBBER order N°: 170466	HOSE TYPE: 3" ID	Choke and Kill Hose	
HOSE SERIAL N°: 34128	NOMINAL / ACTUAL LENGTH: 11,43 m		
W.P. 68,96 MPa 10000 psi	T.P. 103,4 MPa 15000 psi	Duration: 60 min.	
Pressure test with water at ambient temperature			
See attachment. (1 page)			
↑ 10 mm = 10 Min. → 10 mm = 25 MPa			
COUPLINGS			
Type	Serial N°	Quality	Heat N°
3" coupling with 4 1/16" Flange end	720 719	AISI 4130	C7626
		AISI 4130	47357
API Spec 16 C Temperature rate: "B"			
All metal parts are flawless			
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.			
Date: 29. April. 2002.	Inspector	Quality Control PHOENIX RUBBER Industrial Ltd. Hose Inspection and Witnessed by: <i>[Signature]</i> PHOENIX RUBBER Q.C.	



APD ID: 10400018841

Submission Date: 08/14/2017

Highlighted data  
reflects the most  
recent changes

Operator Name: DEVON ENERGY PRODUCTION COMPANY LP

Well Name: TOMB RAIDER 1-12 FED COM

Well Number: 718H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Ex\_Access\_Rd\_08-07-2017.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? YES

#### ROW ID(s)

ID: NM-131858

Do the existing roads need to be improved? YES

Existing Road Improvement Description: Any upgrades to existing roads prior to drilling will be done where necessary per Todd Apache MDP 1.

Existing Road Improvement Attachment:

### Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Access\_Rd\_3\_08-07-2017.pdf

New road type: LOCAL

Length: 211.2 Feet

Width (ft.): 30

Max slope (%): 6

Max grade (%): 4

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: water drainage ditch

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Access surfacing type:** GRAVEL

**Access topsoil source:** ONSITE

**Access surfacing type description:**

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:**

**Onsite topsoil removal process:** See attached Interim reclamation diagram.

**Access other construction information:**

**Access miscellaneous information:**

**Number of access turnouts:**

**Access turnout map:**

### **Drainage Control**

**New road drainage crossing:** OTHER

**Drainage Control comments:** na

**Road Drainage Control Structures (DCS) description:** na

**Road Drainage Control Structures (DCS) attachment:**

### **Access Additional Attachments**

**Additional Attachment(s):**

### **Section 3 - Location of Existing Wells**

**Existing Wells Map?** YES

**Attach Well map:**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_One\_Mile\_Map\_08-07-2017.pdf

**Existing Wells description:**

### **Section 4 - Location of Existing and/or Proposed Production Facilities**

**Submit or defer a Proposed Production Facilities plan?** DEFER

**Estimated Production Facilities description:** All lines will be buried going to the Todd-Apache 1-1 CTB.

### **Section 5 - Location and Types of Water Supply**

#### **Water Source Table**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Water source use type:** STIMULATION

**Water source type:** RECYCLED

**Describe type:**

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** OTHER

**Source land ownership:** FEDERAL

**Water source transport method:** PIPELINE,TRUCKING

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 170000

**Source volume (acre-feet):** 21.911827

**Source volume (gal):** 7140000

**Water source use type:** STIMULATION

**Water source type:** RECYCLED

**Describe type:**

**Source latitude:**

**Source longitude:**

**Source datum:**

**Water source permit type:** OTHER

**Source land ownership:** FEDERAL

**Water source transport method:** PIPELINE

**Source transportation land ownership:** STATE

**Water source volume (barrels):** 3214.2856

**Source volume (acre-feet):** 0.41429925

**Source volume (gal):** 135000

**Water source and transportation map:**

TOMB\_RAIDER\_1\_12\_FED\_COM\_718\_H\_Water\_X\_Map\_08-07-2017.pdf

**Water source comments:** The attached Water Transfer Map is a proposal only and the final route and documentation will be provided by a Devon contractor prior to installation. When available Devon will always follow existing disturbance.

**New water well?** NO

### New Water Well Info

**Well latitude:**

**Well Longitude:**

**Well datum:**

**Well target aquifer:**

**Est. depth to top of aquifer(ft):**

**Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):**

**Well casing type:**

**Well casing outside diameter (in.):**

**Well casing inside diameter (in.):**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**New water well casing?**

**Used casing source:**

**Drilling method:**

**Drill material:**

**Grout material:**

**Grout depth:**

**Casing length (ft.):**

**Casing top depth (ft.):**

**Well Production type:**

**Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

## Section 6 - Construction Materials

**Construction Materials description:** Dirt fill and caliche will be used to construct well pad.

**Construction Materials source location attachment:**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Caliche\_Map\_08-07-2017.pdf

## Section 7 - Methods for Handling Waste

**Waste type:** FLOWBACK

**Waste content description:** Produced water during flowback operations. This amount is a daily average during flowback (BWPD).

**Amount of waste:** 3000 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** na

**Safe containmant attachment:**

**Waste disposal type:** OTHER

**Disposal location ownership:** COMMERCIAL

**Disposal type description:** Please see MDP

**Disposal location description:** Multiple methods for handling waste water will be utilized. Please reference MDP.

**Waste type:** PRODUCED WATER

**Waste content description:** Produced water during production operations. This amount is a daily average during the first year of production (BWPD).

**Amount of waste:** 1000 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** na

**Safe containmant attachment:**

**Waste disposal type:** OTHER

**Disposal location ownership:** PRIVATE

**Disposal type description:** Please reference MDP

**Disposal location description:** Multiple methods for handling waste water will be utilized. Please reference MDP.

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Waste type:** COMPLETIONS/STIMULATION

**Waste content description:** Flow back water during completion operations.

**Amount of waste:** 3000 barrels

**Waste disposal frequency :** One Time Only

**Safe containment description:** na

**Safe containmant attachment:**

**Waste disposal type:** OFF-LEASE INJECTION **Disposal location ownership:** PRIVATE

**Disposal type description:**

**Disposal location description:** Multiple methods for handling waste water will be utilized. Please reference MDP.

**Waste type:** DRILLING

**Waste content description:** Water based cutting

**Amount of waste:** 1980 barrels

**Waste disposal frequency :** Daily

**Safe containment description:** na

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** All cuttings will disposed of at R360, Sundance, or equivalent.

## Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?**

**Reserve pit length (ft.)** **Reserve pit width (ft.)**

**Reserve pit depth (ft.)** **Reserve pit volume (cu. yd.)**

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

## Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** NO

**Description of cuttings location**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Cuttings area length (ft.)**

**Cuttings area width (ft.)**

**Cuttings area depth (ft.)**

**Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

## Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:**

## Section 9 - Well Site Layout

**Well Site Layout Diagram:**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Rig\_Layout\_08-08-2017.pdf

**Comments:**

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:** TODD- APACHE 1-1 PAD

**Multiple Well Pad Number:** 3

**Recontouring attachment:**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Reclamation\_08-08-2017.pdf

**Drainage/Erosion control construction:** All areas disturbed shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.

**Drainage/Erosion control reclamation:** 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 then shall be reseeded in the first favorable growing season.

**Wellpad long term disturbance (acres):** 1.775

**Wellpad short term disturbance (acres):** 6.199

**Access road long term disturbance (acres):** 0.031

**Access road short term disturbance (acres):** 0.146

**Pipeline long term disturbance (acres):** 5.115705

**Pipeline short term disturbance (acres):** 5.115705

**Other long term disturbance (acres):** 5.1157

**Other short term disturbance (acres):** 5.1157

**Total long term disturbance:** 12.037405

**Total short term disturbance:** 16.576405

**Reconstruction method:** Operator will use Best Management Practices"BMP" to mechanically recontour to obtain the desired outcome.

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Topsoil redistribution:** Topsoils 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.

**Soil treatment:** Topsoils 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.

**Existing Vegetation at the well pad:**

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:**

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:**

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:**

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** NO

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** NO

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?** NO

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed Management

### Seed Table

**Seed type:**

**Seed source:**

**Seed name:**

**Source name:**

**Source address:**

**Source phone:**

**Seed cultivar:**

**Seed use location:**

**PLS pounds per acre:**

**Proposed seeding season:**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Seed Summary**

**Total pounds/Acre:**

**Seed Type      Pounds/Acre**

**Seed reclamation attachment:**

**Operator Contact/Responsible Official Contact Info**

**First Name:** Mark

**Last Name:** Smith

**Phone:** (575)746-5559

**Email:** mark.smith@dvn.com

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** Maintain weeds on an as need basis.

**Weed treatment plan attachment:**

**Monitoring plan description:** Monitor as need.

**Monitoring plan attachment:**

**Success standards:** na

**Pit closure description:** na

**Pit closure attachment:**

**Section 11 - Surface Ownership**

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** EXISTING ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** PIPELINE

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** NEW ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

## Section 12 - Other Information

**Right of Way needed?** NO

**Use APD as ROW?**

**ROW Type(s):**

**Operator Name:** DEVON ENERGY PRODUCTION COMPANY LP

**Well Name:** TOMB RAIDER 1-12 FED COM

**Well Number:** 718H

## **ROW Applications**

**SUPO Additional Information:** Flowline Plat- see attached Todd Apache CTB See attached Grading Plan & X Section See attached Electrical plats

**Use a previously conducted onsite?** NO

**Previous Onsite information:**

## **Other SUPO Attachment**

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Elec\_1\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Flow\_Line\_Plat\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Flow\_Line\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_CTB\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com718H\_Elec\_2\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Grading\_X\_Plan\_08-07-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com\_718H\_Misc\_Plats\_08-08-2017.pdf

Tomb\_Raider\_1\_12\_Fed\_Com\_528H\_Gas\_Capture\_08-14-2017.pdf

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
ACCESS AERIAL ROUTE MAP



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
FEBRUARY 2017

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**TOMB RAIDER 1-12 FED COM 718H**  
LOCATED 360 FT. FROM THE NORTH LINE  
AND 1040 FT. FROM THE EAST LINE OF  
SECTION 1, TOWNSHIP 23 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

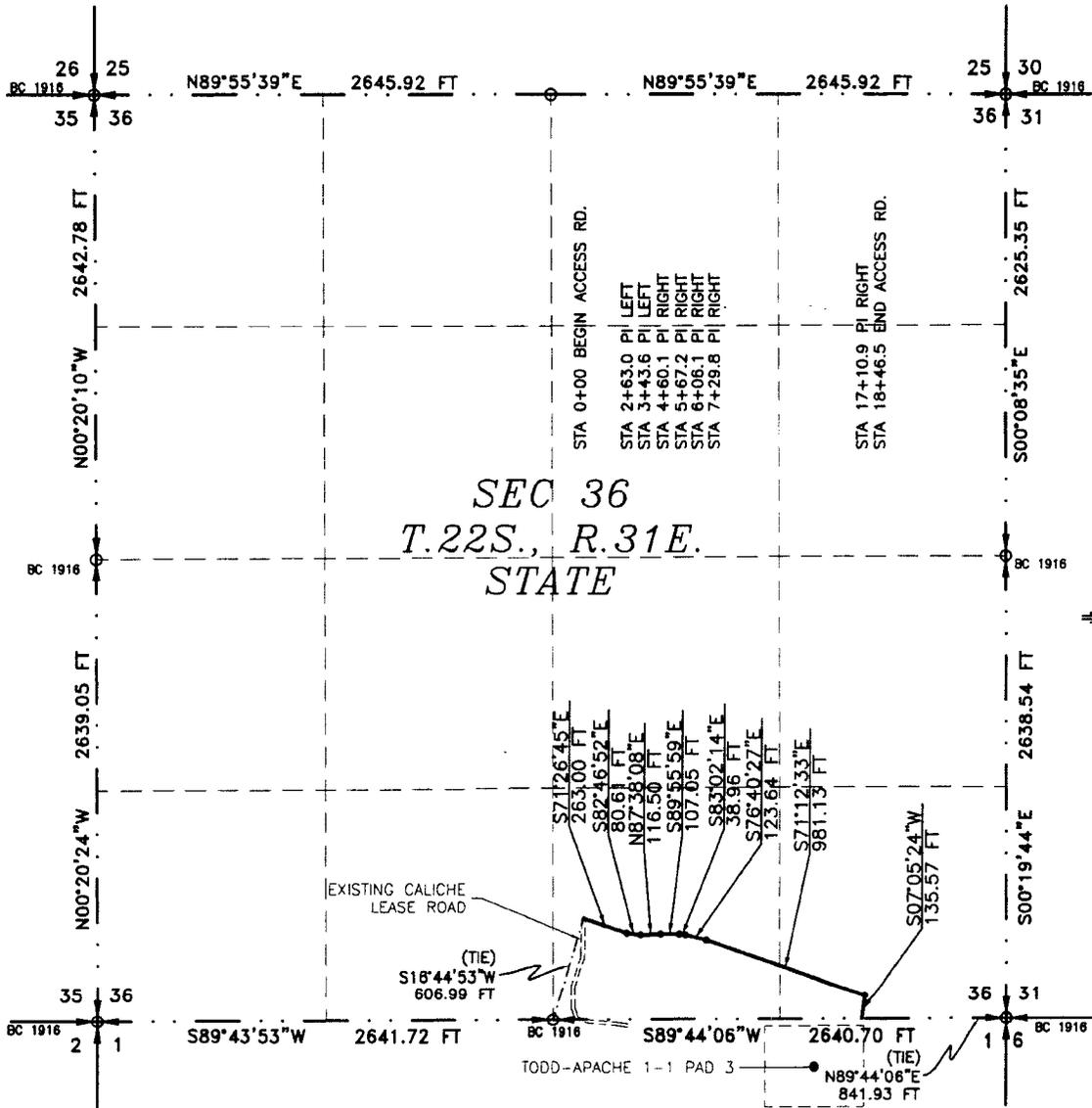
JULY 6, 2017

SURVEY NO. 5195B

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

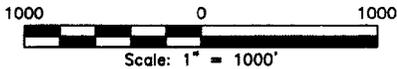
**ACCESS ROAD PLAT (AA000055102)**  
**ACCESS ROAD TO THE TODD-APACHE 1-1 PAD 3**

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING**  
**SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**AUGUST 22, 2016**



**SEC 36**  
**T.22S., R.31E.**  
**STATE**

SEE NEXT SHEET (2-4) FOR DESCRIPTION



**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**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 22 DAY OF AUGUST, 2016.

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

SHEET: 1-4

**MADRON SURVEYING, INC.** CARLSBAD, NEW MEXICO

**SURVEY NO. 4865**

301 SOUTH CANAL  
 (575) 234-3341

**ACCESS ROAD PLAT (AA000055102)**  
**ACCESS ROAD TO THE TODD-APACHE 1-1 PAD 3**

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING**  
**SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**AUGUST 22, 2016**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING STATE OF NEW MEXICO LAND IN SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 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 SE/4 OF SAID SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE SOUTH QUARTER CORNER OF SAID SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS S16°44'53"W, A DISTANCE OF 606.99 FEET;

THENCE S71°26'45"E A DISTANCE OF 263.00 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S82°46'52"E A DISTANCE OF 80.61 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N87°38'08"E A DISTANCE OF 116.50 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S89°55'59"E A DISTANCE OF 107.05 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S83°02'14"E A DISTANCE OF 38.96 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S76°40'27"E A DISTANCE OF 123.84 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S71°12'33"E A DISTANCE OF 981.13 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE S07°05'24"W A DISTANCE OF 135.57 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE SOUTHEAST CORNER OF SAID SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N89°44'06"E, A DISTANCE OF 841.93 FEET;

SAID STRIP OF LAND BEING 1846.46 FEET OR 111.91 RODS IN LENGTH, CONTAINING 1.272 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SE/4 1186.11 L.F. 71.89 RODS 0.817 ACRES  
SE/4 SE/4 660.35 L.F. 40.02 RODS 0.455 ACRES

**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 22 DAY OF AUGUST, 2016.

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

**GENERAL NOTES**

1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.

2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**SHEET: 2-4**

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

**SURVEY NO. 4865**

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1													Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM													Offset Well Error:	0.00 usft
Reference				Offset		Semi Major Axis		Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	89.68	0.34	59.96	59.96					
100.00	100.00	99.50	99.50	0.09	0.09	89.68	0.34	59.96	59.96	59.79	0.17	349.593		
200.00	200.00	199.50	199.50	0.31	0.31	89.68	0.34	59.96	59.96	59.34	0.62	96.656		
300.00	300.00	299.50	299.50	0.54	0.53	89.68	0.34	59.96	59.96	58.89	1.07	56.044		
400.00	400.00	399.50	399.50	0.76	0.76	89.68	0.34	59.96	59.96	58.44	1.52	39.463		
500.00	500.00	499.50	499.50	0.99	0.98	89.68	0.34	59.96	59.96	57.99	1.97	30.453		
600.00	600.00	599.50	599.50	1.21	1.21	89.68	0.34	59.96	59.96	57.54	2.42	24.793		
700.00	700.00	699.50	699.50	1.43	1.43	89.68	0.34	59.96	59.96	57.09	2.87	20.907		
800.00	800.00	799.50	799.50	1.66	1.66	89.68	0.34	59.96	59.96	56.64	3.32	18.074		
900.00	900.00	899.50	899.50	1.88	1.88	89.68	0.34	59.96	59.96	56.19	3.77	15.917		
1,000.00	1,000.00	999.50	999.50	2.11	2.11	89.68	0.34	59.96	59.96	55.74	4.22	14.220		
1,100.00	1,100.00	1,099.50	1,099.50	2.33	2.33	89.68	0.34	59.96	59.96	55.29	4.67	12.850		
1,200.00	1,200.00	1,199.50	1,199.50	2.56	2.56	89.68	0.34	59.96	59.96	54.85	5.12	11.721		
1,300.00	1,300.00	1,299.50	1,299.50	2.78	2.78	89.68	0.34	59.96	59.96	54.40	5.57	10.774		
1,400.00	1,400.00	1,399.50	1,399.50	3.01	3.01	89.68	0.34	59.96	59.96	53.95	6.01	9.969		
1,500.00	1,500.00	1,499.50	1,499.50	3.23	3.23	89.68	0.34	59.96	59.96	53.50	6.46	9.276		
1,600.00	1,600.00	1,599.50	1,599.50	3.46	3.46	89.68	0.34	59.96	59.96	53.05	6.91	8.673		
1,700.00	1,700.00	1,699.50	1,699.50	3.68	3.68	89.68	0.34	59.96	59.96	52.60	7.36	8.143		
1,800.00	1,800.00	1,799.50	1,799.50	3.91	3.91	89.68	0.34	59.96	59.96	52.15	7.81	7.675		
1,900.00	1,900.00	1,899.50	1,899.50	4.13	4.13	89.68	0.34	59.96	59.96	51.70	8.26	7.257		
2,000.00	2,000.00	1,999.50	1,999.50	4.36	4.36	89.68	0.34	59.96	59.96	51.25	8.71	6.883 CC, ES		
2,100.00	2,100.00	2,098.46	2,098.46	4.58	4.56	89.68	0.34	60.81	60.82	51.67	9.14	6.651		
2,200.00	2,200.00	2,197.36	2,197.32	4.81	4.76	89.69	0.34	63.36	63.40	53.84	9.56	6.631 SF		
2,300.00	2,300.00	2,296.13	2,296.00	5.03	4.96	89.71	0.34	67.61	67.70	57.72	9.98	6.785		
2,400.00	2,400.00	2,394.74	2,394.42	5.26	5.17	89.74	0.34	73.55	73.73	63.33	10.39	7.094		
2,500.00	2,500.00	2,493.11	2,492.50	5.48	5.38	89.76	0.34	81.17	81.47	70.66	10.81	7.538		
2,600.00	2,600.00	2,591.18	2,590.14	5.71	5.59	89.78	0.34	90.43	90.92	79.70	11.22	8.104		
2,700.00	2,700.00	2,689.42	2,687.76	5.93	5.81	89.81	0.34	101.32	101.99	90.36	11.63	8.766		
2,800.00	2,800.00	2,788.75	2,786.44	6.15	6.04	89.83	0.34	112.75	113.50	101.44	12.07	9.406		
2,900.00	2,900.00	2,888.09	2,885.11	6.38	6.28	89.84	0.34	124.18	125.01	112.51	12.50	9.999		
3,000.00	3,000.00	2,987.42	2,983.79	6.60	6.52	89.86	0.34	135.61	136.52	123.58	12.94	10.551		
3,100.00	3,100.00	3,086.76	3,082.46	6.83	6.77	89.87	0.34	147.04	148.03	134.65	13.38	11.065		
3,200.00	3,200.00	3,186.09	3,181.14	7.05	7.01	89.88	0.34	158.48	159.54	145.72	13.82	11.546		
3,300.00	3,300.00	3,285.43	3,279.82	7.28	7.26	89.89	0.34	169.91	171.04	156.78	14.26	11.996		
3,400.00	3,400.00	3,384.77	3,378.49	7.50	7.52	89.89	0.34	181.34	182.55	167.85	14.70	12.417		
3,500.00	3,500.00	3,484.10	3,477.17	7.73	7.77	89.90	0.34	192.77	194.06	178.91	15.14	12.813		
3,600.00	3,600.00	3,583.52	3,575.93	7.94	8.03	23.99	0.34	204.21	204.78	189.19	15.58	13.143		
3,700.00	3,699.96	3,683.10	3,674.84	8.15	8.29	24.24	0.34	215.67	213.91	197.90	16.01	13.361		
3,800.00	3,799.86	3,782.80	3,773.88	8.36	8.56	24.66	0.34	227.14	221.46	205.02	16.44	13.471		
3,900.00	3,899.68	3,882.59	3,873.01	8.58	8.82	25.25	0.34	238.63	227.46	210.58	16.87	13.480		
4,000.00	3,999.37	3,982.44	3,972.20	8.79	9.09	25.99	0.34	250.12	231.90	214.60	17.31	13.398		
4,100.00	4,098.90	4,082.33	4,071.42	9.01	9.36	26.90	0.34	261.61	234.84	217.09	17.75	13.232		
4,139.07	4,137.75	4,121.35	4,110.19	9.10	9.47	27.31	0.34	266.11	235.58	217.66	17.92	13.147		
4,200.00	4,198.30	4,182.21	4,170.64	9.24	9.63	27.96	0.34	273.11	236.57	218.38	18.19	13.007		
4,300.00	4,297.68	4,282.10	4,269.87	9.47	9.90	29.03	0.34	284.61	238.27	219.64	18.63	12.788		
4,400.00	4,397.05	4,381.99	4,369.09	9.70	10.17	30.08	0.34	296.10	240.05	220.98	19.08	12.582		
4,500.00	4,496.43	4,481.88	4,468.32	9.93	10.45	31.11	0.34	307.60	241.92	222.39	19.53	12.387		
4,600.00	4,595.81	4,581.77	4,567.54	10.17	10.72	32.12	0.34	319.09	243.85	223.87	19.98	12.203		
4,700.00	4,695.19	4,681.66	4,666.76	10.41	11.00	33.12	0.34	330.59	245.87	225.43	20.44	12.029		
4,800.00	4,794.57	4,781.54	4,765.99	10.65	11.27	34.11	0.34	342.08	247.95	227.05	20.90	11.864		
4,900.00	4,893.95	4,881.43	4,865.21	10.89	11.55	35.07	0.34	353.58	250.11	228.75	21.36	11.708		
5,000.00	4,993.33	4,981.32	4,964.44	11.14	11.83	36.02	0.34	365.07	252.34	230.51	21.83	11.560		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

# LEAM Drilling Systems LLC

## Anticollision Report

**Company:** Devon Energy  
**Project:** Eddy County, NM (NAD-83)  
**Reference Site:** Tomb Raider  
**Site Error:** 0.00 usft  
**Reference Well:** 718H  
**Well Error:** 0.00 usft  
**Reference Wellbore:** OH  
**Reference Design:** Plan #1

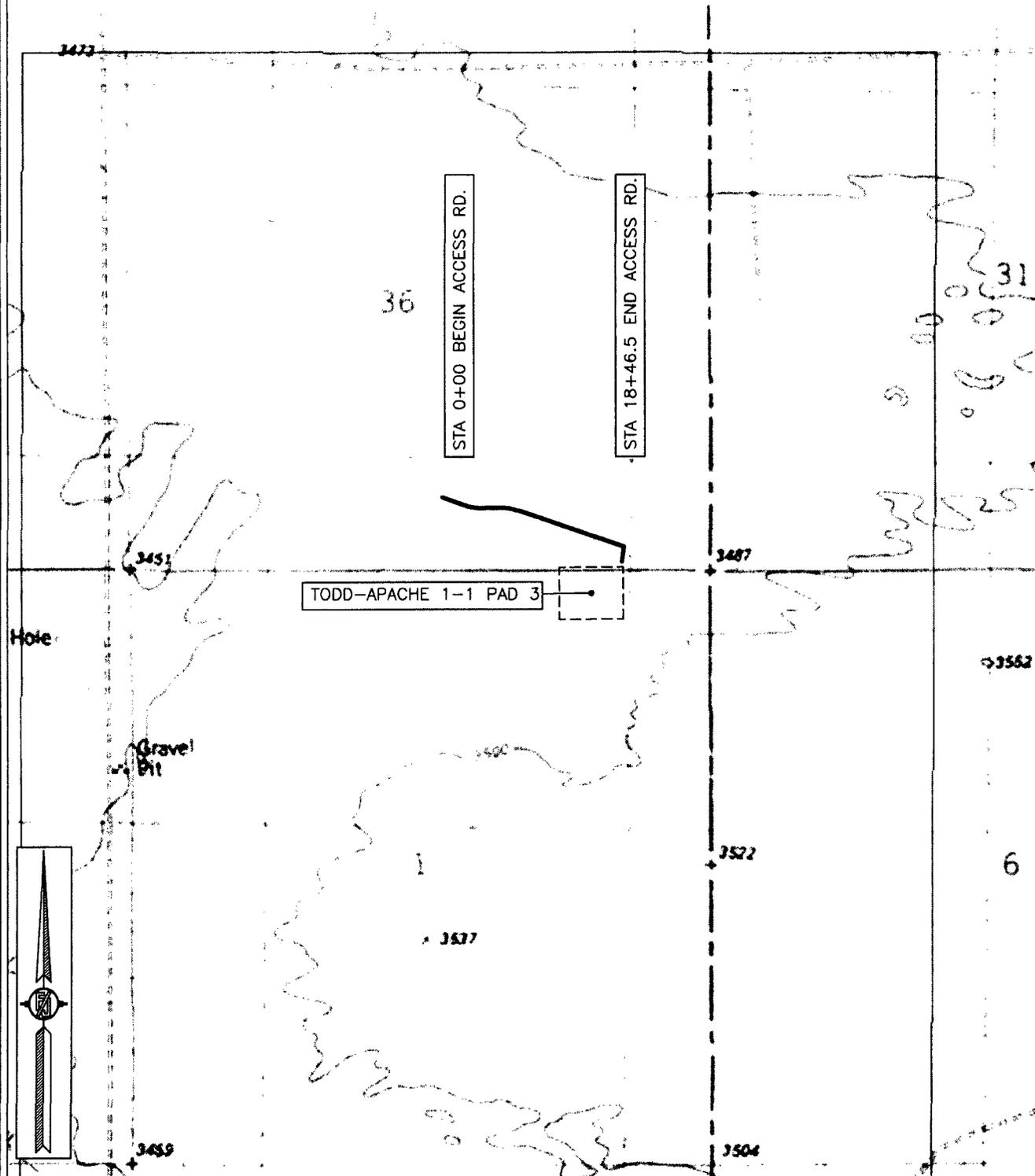
**Local Co-ordinate Reference:** Well 718H  
**TVD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**MD Reference:** 3480.4' GE + 23.5' KB @ 3503.90usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** EDM 5000.1 Multi User Db  
**Offset TVD Reference:** Offset Datum

Offset Design Tomb Raider - 528H - OH - Plan #1														Offset Site Error:	0.00 usft
Survey Program: 0-LEAM MWD+HDGM														Offset Well Error:	0.00 usft
Reference				Offset		Semi Major Axis		Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
5,100.00	5,092.70	5,081.21	5,063.66	11.38	12.11	36.96	0.34	376.57	254.64	232.34	22.30	11.419			
5,200.00	5,192.08	5,181.10	5,162.89	11.63	12.38	37.87	0.34	388.06	257.00	234.23	22.77	11.286			
5,300.00	5,291.46	5,280.98	5,262.11	11.88	12.66	38.77	0.34	399.56	259.43	236.19	23.25	11.159			
5,400.00	5,390.84	5,380.87	5,361.34	12.14	12.94	39.66	0.34	411.05	261.92	238.20	23.73	11.039			
5,500.00	5,490.22	5,480.76	5,460.56	12.39	13.22	40.52	0.34	422.55	264.48	240.27	24.21	10.925			
5,600.00	5,589.60	5,580.65	5,559.79	12.64	13.51	41.37	0.34	434.04	267.09	242.39	24.69	10.816			
5,700.00	5,688.98	5,680.54	5,659.01	12.90	13.79	42.20	0.34	445.54	269.76	244.58	25.18	10.712			
5,800.00	5,788.35	5,780.43	5,758.23	13.16	14.07	43.02	0.34	457.03	272.48	246.81	25.67	10.613			
5,900.00	5,887.73	5,880.31	5,857.46	13.42	14.35	43.82	0.34	468.53	275.26	249.09	26.17	10.519			
6,000.00	5,987.11	5,980.20	5,956.68	13.68	14.63	44.60	0.34	480.03	278.09	251.43	26.67	10.429			
6,100.00	6,086.49	6,080.09	6,055.91	13.94	14.92	45.37	0.34	491.52	280.98	253.81	27.17	10.343			
6,200.00	6,185.87	6,179.98	6,155.13	14.20	15.20	46.12	0.34	503.02	283.91	256.24	27.67	10.261			
6,300.00	6,285.25	6,279.87	6,254.36	14.46	15.48	46.86	0.34	514.51	286.89	258.72	28.17	10.183			
6,400.00	6,384.63	6,379.75	6,353.58	14.73	15.77	47.58	0.34	526.01	289.92	261.24	28.68	10.108			
6,500.00	6,484.00	6,479.64	6,452.81	14.99	16.05	48.29	0.34	537.50	292.99	263.80	29.19	10.037			
6,600.00	6,583.38	6,579.53	6,552.03	15.26	16.34	48.98	0.34	549.00	296.10	266.40	29.70	9.969			
6,700.00	6,682.76	6,679.42	6,651.26	15.52	16.62	49.65	0.34	560.49	299.26	269.04	30.22	9.903			
6,800.00	6,782.14	6,779.31	6,750.48	15.79	16.90	50.32	0.34	571.99	302.46	271.72	30.74	9.840			
6,900.00	6,881.52	6,879.20	6,849.71	16.06	17.19	50.97	0.34	583.48	305.70	274.44	31.26	9.780			
7,000.00	6,980.90	6,979.08	6,948.93	16.33	17.48	51.60	0.34	594.98	308.97	277.20	31.78	9.723			
7,100.00	7,080.28	7,078.97	7,048.15	16.60	17.76	52.22	0.34	606.47	312.29	279.98	32.30	9.668			
7,200.00	7,179.66	7,178.86	7,147.38	16.86	18.05	52.83	0.34	617.97	315.64	282.81	32.83	9.615			
7,300.00	7,279.03	7,278.75	7,246.60	17.13	18.33	53.43	0.34	629.46	319.02	285.67	33.35	9.564			
7,400.00	7,378.41	7,378.64	7,345.83	17.40	18.62	54.01	0.34	640.96	322.44	288.55	33.88	9.516			
7,500.00	7,477.79	7,478.53	7,445.05	17.68	18.90	54.58	0.34	652.46	325.89	291.47	34.42	9.469			
7,600.00	7,577.17	7,581.49	7,547.37	17.95	19.18	55.19	0.34	663.96	329.09	294.14	34.96	9.414			
7,700.00	7,676.55	7,686.53	7,651.93	18.22	19.40	55.96	0.34	673.95	330.91	295.42	35.49	9.325			
7,800.00	7,775.93	7,791.51	7,756.61	18.49	19.61	56.89	0.34	682.02	331.23	295.23	36.01	9.199			
7,900.00	7,875.31	7,896.37	7,861.28	18.76	19.81	58.01	0.34	688.16	330.12	293.59	36.53	9.037			
8,000.00	7,974.68	8,001.02	7,965.84	19.04	20.00	59.33	0.34	692.38	327.64	290.59	37.05	8.842			
8,100.00	8,074.06	8,105.40	8,070.19	19.31	20.18	60.87	0.34	694.69	323.86	286.28	37.58	8.618			
8,200.00	8,173.44	8,208.15	8,172.94	19.58	20.36	62.61	0.34	695.17	318.93	280.81	38.12	8.366			
8,300.00	8,272.82	8,307.52	8,272.32	19.86	20.54	64.41	0.34	695.17	313.94	275.25	38.69	8.115			
8,400.00	8,372.20	8,406.90	8,371.70	20.13	20.72	66.26	0.34	695.17	309.27	270.01	39.26	7.878			
8,500.00	8,471.58	8,506.28	8,471.08	20.41	20.91	68.16	0.34	695.17	304.94	265.10	39.83	7.655			
8,600.00	8,570.96	8,605.66	8,570.46	20.68	21.10	70.12	0.34	695.17	300.95	260.54	40.41	7.447			
8,700.00	8,670.33	8,700.00	8,664.79	20.96	21.27	72.08	-0.09	695.17	297.69	256.70	40.99	7.263			
8,706.41	8,676.71	8,700.00	8,664.79	20.98	21.27	72.08	-0.09	695.17	297.65	256.64	41.01	7.258			
8,800.00	8,769.71	8,763.56	8,727.92	21.24	21.38	74.23	-7.00	695.17	302.58	261.29	41.29	7.328			
8,900.00	8,869.09	8,825.00	8,787.56	21.51	21.49	77.12	-21.58	695.17	319.29	278.19	41.10	7.768			
9,000.00	8,968.47	8,883.33	8,842.02	21.79	21.60	80.35	-42.41	695.17	348.05	307.57	40.47	8.600			
9,100.00	9,067.85	8,934.28	8,887.19	22.06	21.69	83.32	-65.91	695.17	388.25	348.86	39.39	9.855			
9,200.00	9,167.23	8,975.00	8,921.33	22.34	21.77	85.69	-88.08	695.17	438.63	400.72	37.92	11.568			
9,300.00	9,266.61	9,017.95	8,955.17	22.62	21.86	88.09	-114.52	695.17	497.47	460.78	36.70	13.555			
9,400.00	9,365.98	9,050.00	8,978.79	22.90	21.92	89.78	-136.17	695.17	563.31	528.01	35.31	15.956			
9,500.00	9,465.36	9,075.00	8,996.17	23.17	21.98	91.03	-154.13	695.17	634.80	600.86	33.95	18.700			
9,600.00	9,564.74	9,100.00	9,012.60	23.45	22.04	92.22	-172.97	695.17	710.72	677.84	32.88	21.613			
9,700.00	9,664.12	9,125.00	9,028.01	23.73	22.10	93.34	-192.65	695.17	790.18	758.11	32.07	24.636			
9,800.00	9,763.50	9,150.00	9,042.37	24.01	22.17	94.39	-213.11	695.17	872.58	841.11	31.47	27.731			
9,900.00	9,862.88	9,165.40	9,050.68	24.29	22.21	95.00	-226.08	695.17	957.35	926.58	30.78	31.105			
10,000.00	9,962.26	9,175.00	9,055.64	24.56	22.24	95.37	-234.29	695.17	1,044.13	1,014.01	30.12	34.666			
10,100.00	10,061.63	9,200.00	9,067.79	24.84	22.31	96.28	-256.14	695.17	1,132.47	1,102.52	29.95	37.811			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

ACCESS ROAD PLAT (AA000055102)  
ACCESS ROAD TO THE TODD-APACHE 1-1 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING  
SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AUGUST 22, 2016



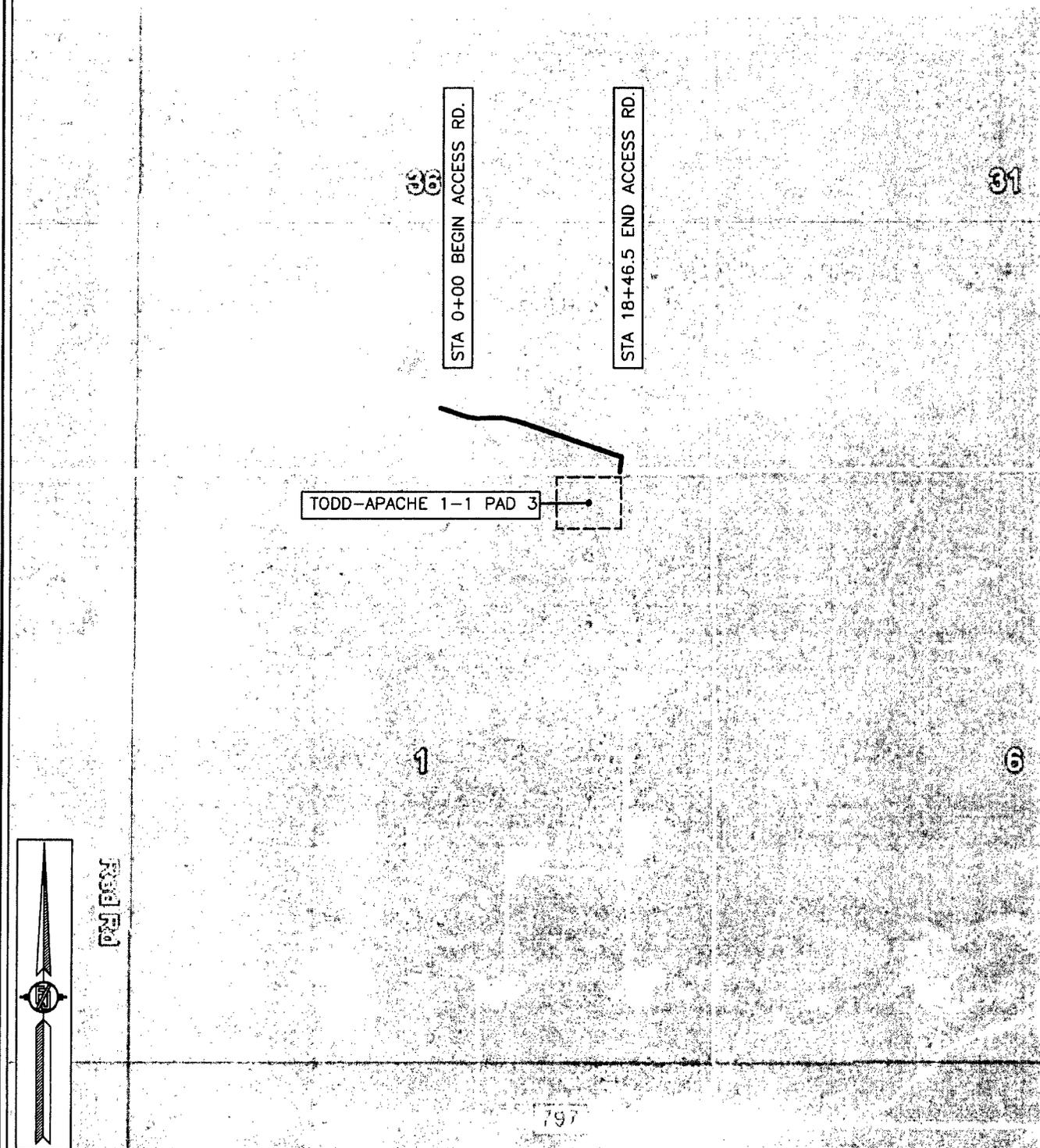
SHEET: 3-4

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

SURVEY NO. 4865

**ACCESS ROAD PLAT (AA000055102)**  
ACCESS ROAD TO THE TODD-APACHE 1-1 PAD 3

DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF AN ACCESS ROAD CROSSING  
SECTION 36, TOWNSHIP 22 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AUGUST 22, 2016



**BLM PLAT**  
One Mile Radius Map

**TOMB RAIDER 1-12 FED 718H**



This map is for illustrative purposes only and is neither a legally recorded map nor a survey and is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

GCS North American 1983  
Datum: North American 1983; Units: Degree  
Created by: Iemois  
Map is current as of 8/4/2017.



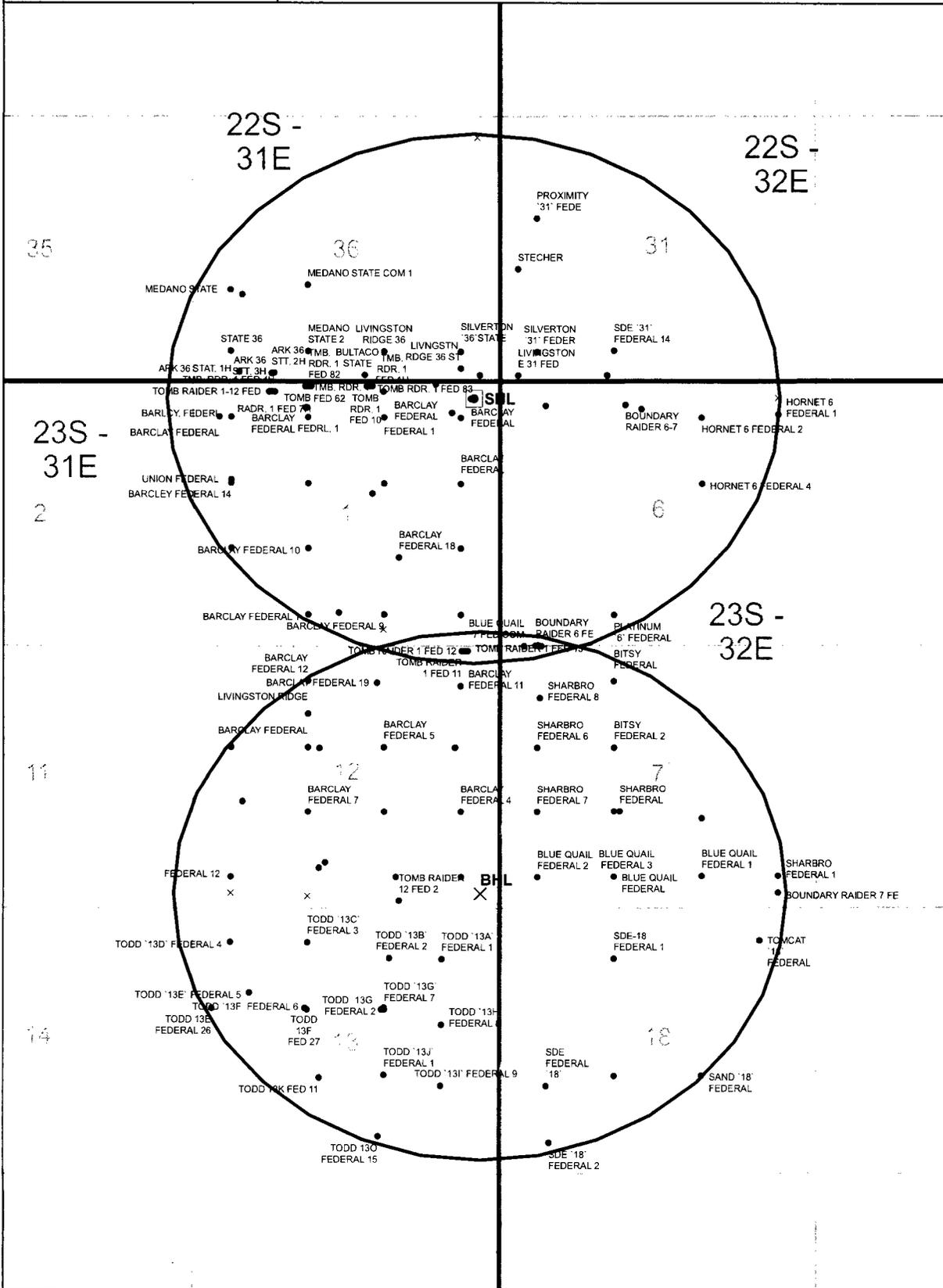
0 0.3 Miles  
1 inch = 0 miles

**BULTACO STATE 1H**

Nearest wellbore to SHL: 453 ft.

**TOMB RAIDER 1-12 FED 62H**

Nearest wellbore to BHL: 2971 ft.



# TOMB RAIDER 1-12 FED COM 718 H

Water route

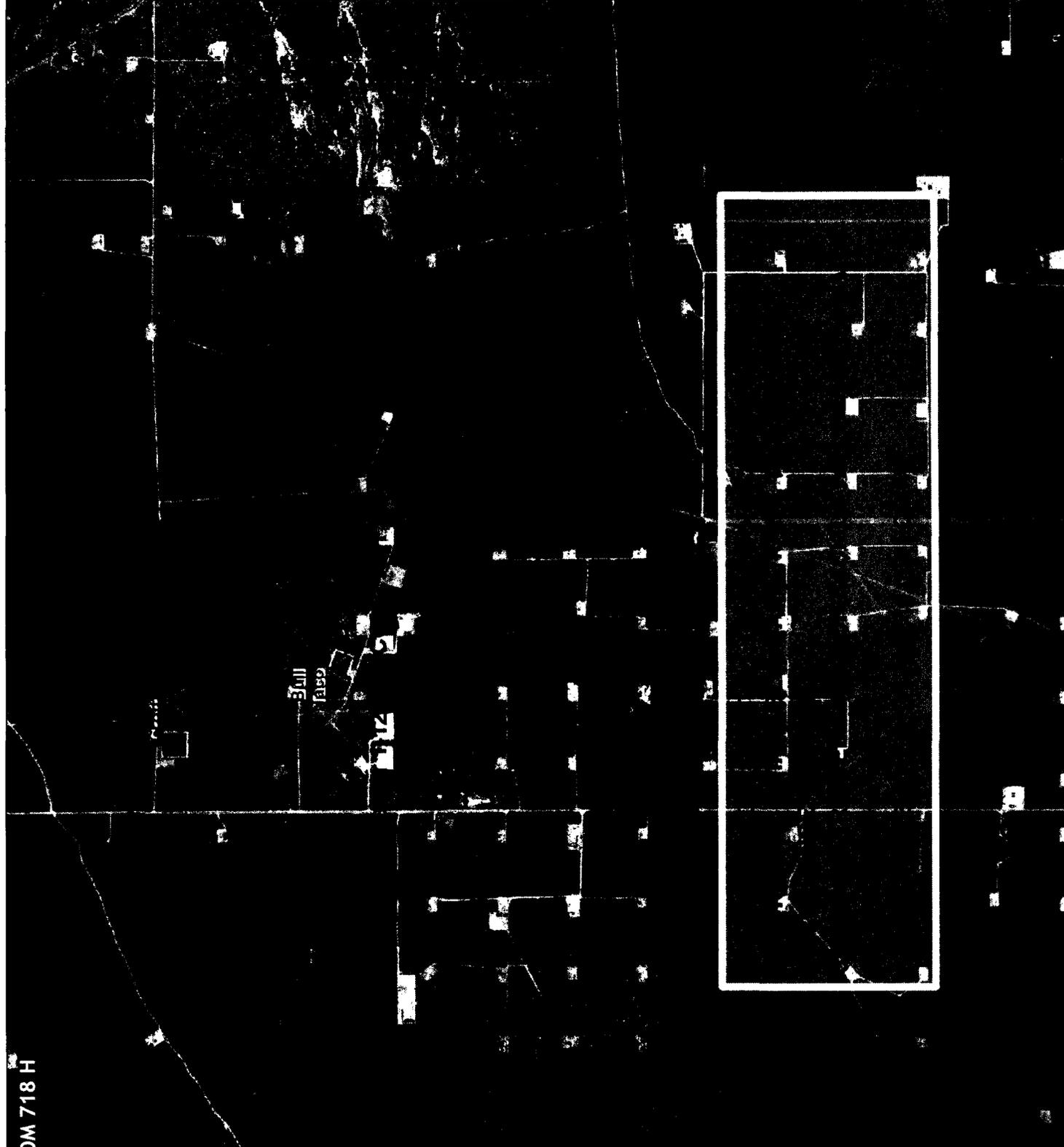


This map is for informational purposes only and is not intended to be used as a legal record. It is not intended to be used as one. Devon makes no warranty, representation, or guarantee of any kind regarding this map.

WGS 1984, Web, Mercator, Auxiliary, Sphere  
Prepared by: Stephen Richards  
Map is current as of: 04-Aug-2017



- ▲ Frac Pond
- Centerpoint (DWN)
- Frac Pond (DWN)
- AS BUILT/AFTER
- BUILT
- CONSTRUCTION
- PROPOSED



2,080.94 ft

864.24 ft

954.39 ft

626.74 ft

3,218.79 ft

488.09 ft  
517.12 ft  
341.30 ft

Todd-Apache 1-1 Well F

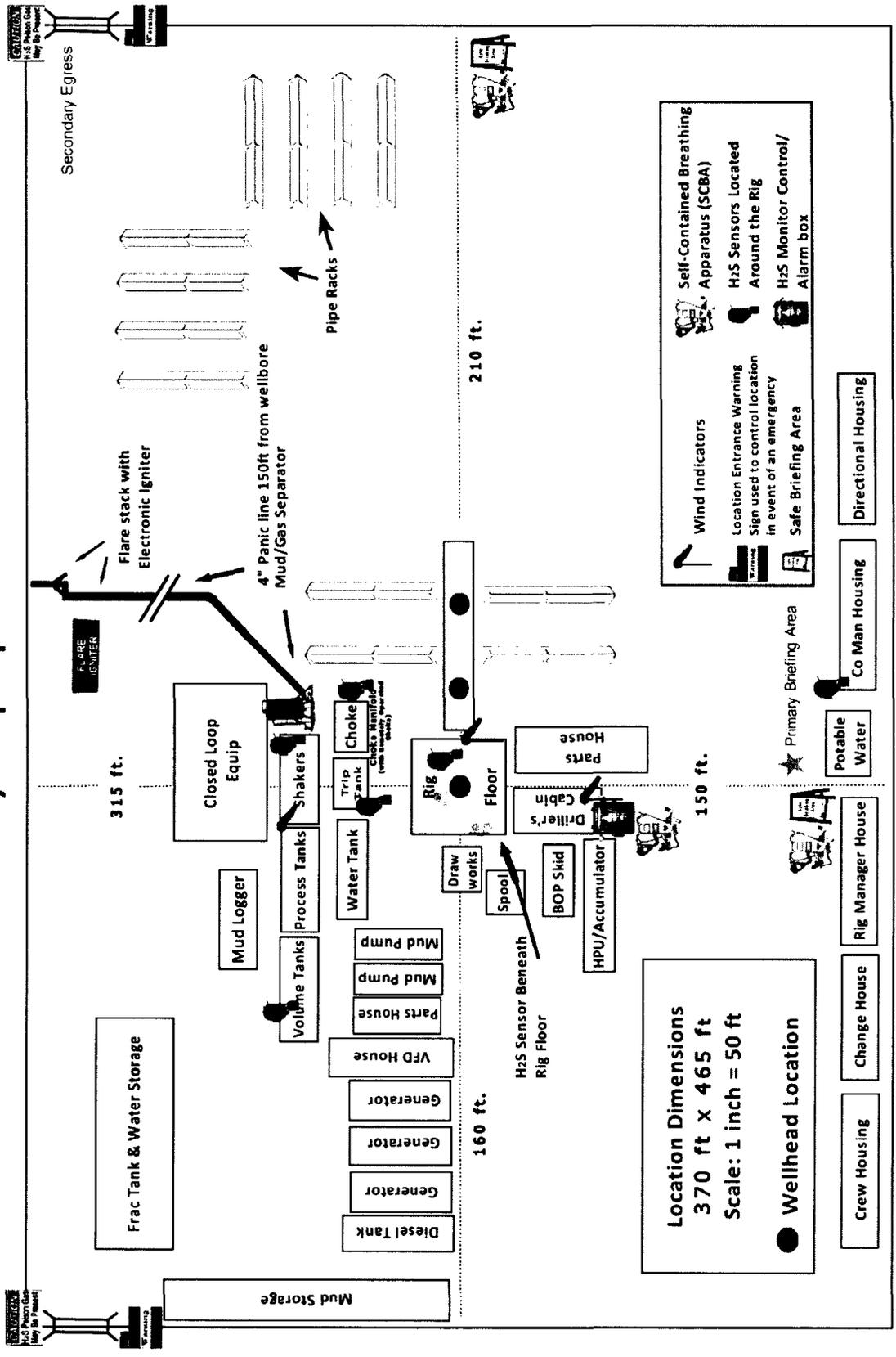
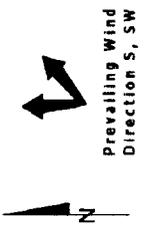
2023100102 Caliche Pit, 23S 31E SWNW of Section 1

417.60 ft

Total: 10,217.11 ft

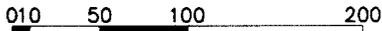
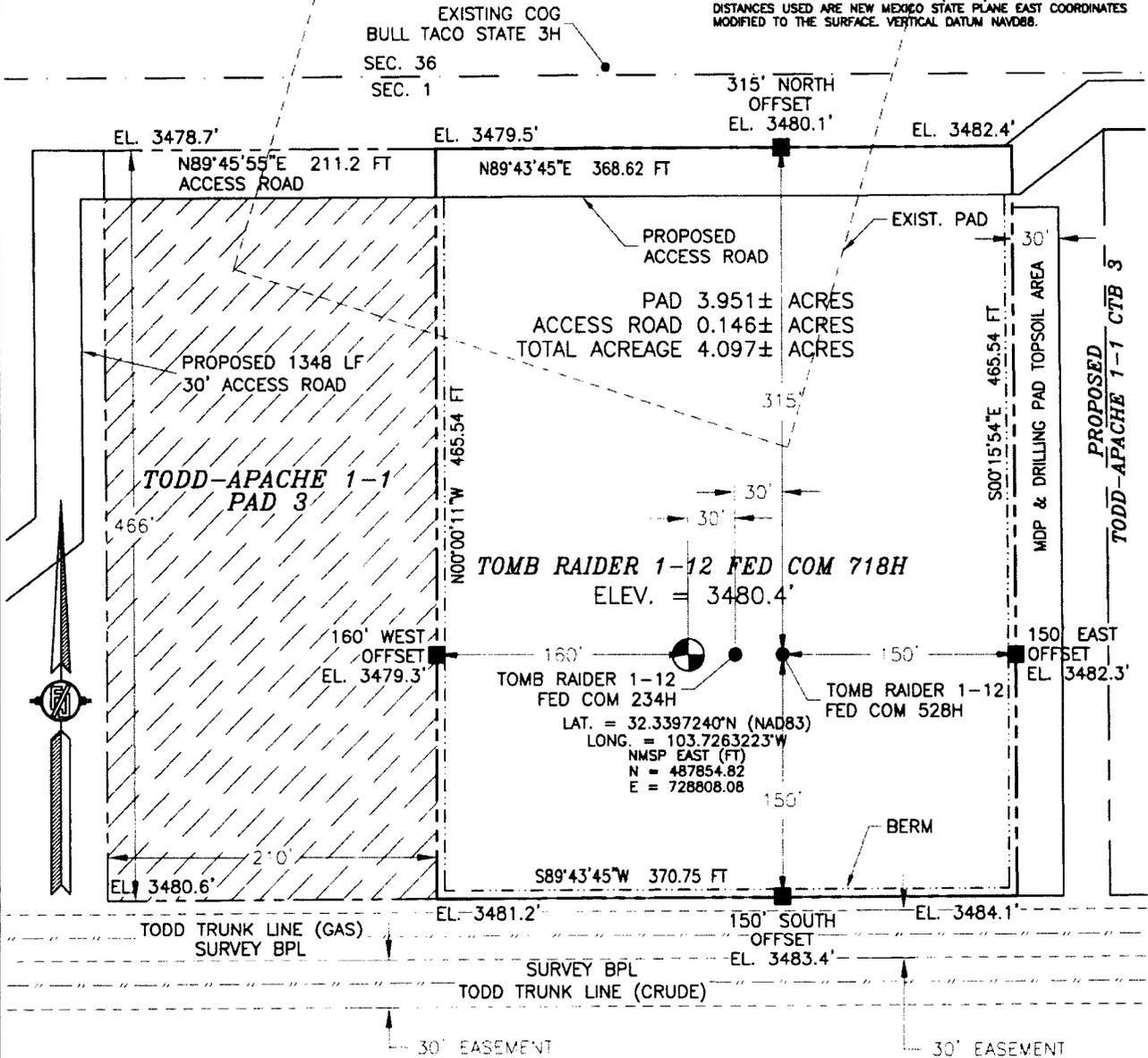
615

# Devon Energy - Well Pad Rig Location Layout Safety Equipment Location



SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 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. VERTICAL DATUM NAVD88.



SCALE 1" = 100'  
 DIRECTIONS TO LOCATION  
 FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 6.4 MILES TO CALICHE LEASE ROAD ON RIGHT, GO EAST ON CALICHE ROAD 0.3 OF A MILE, TURN RIGHT GO SOUTH 0.1 OF A MILE, TURN LEFT GO EAST 0.15 OF A MILE, GO SOUTH 602', THEN SOUTHWEST 311', TURN RIGHT GO SOUTH 355', TURN LEFT GO EAST 528', GO NORTHEAST 215', THEN NORTH 220', TURN RIGHT GO EAST 30' TO THE NORTHWEST PAD CORNER FOR TODD-APACHE 1-1 PAD 3.

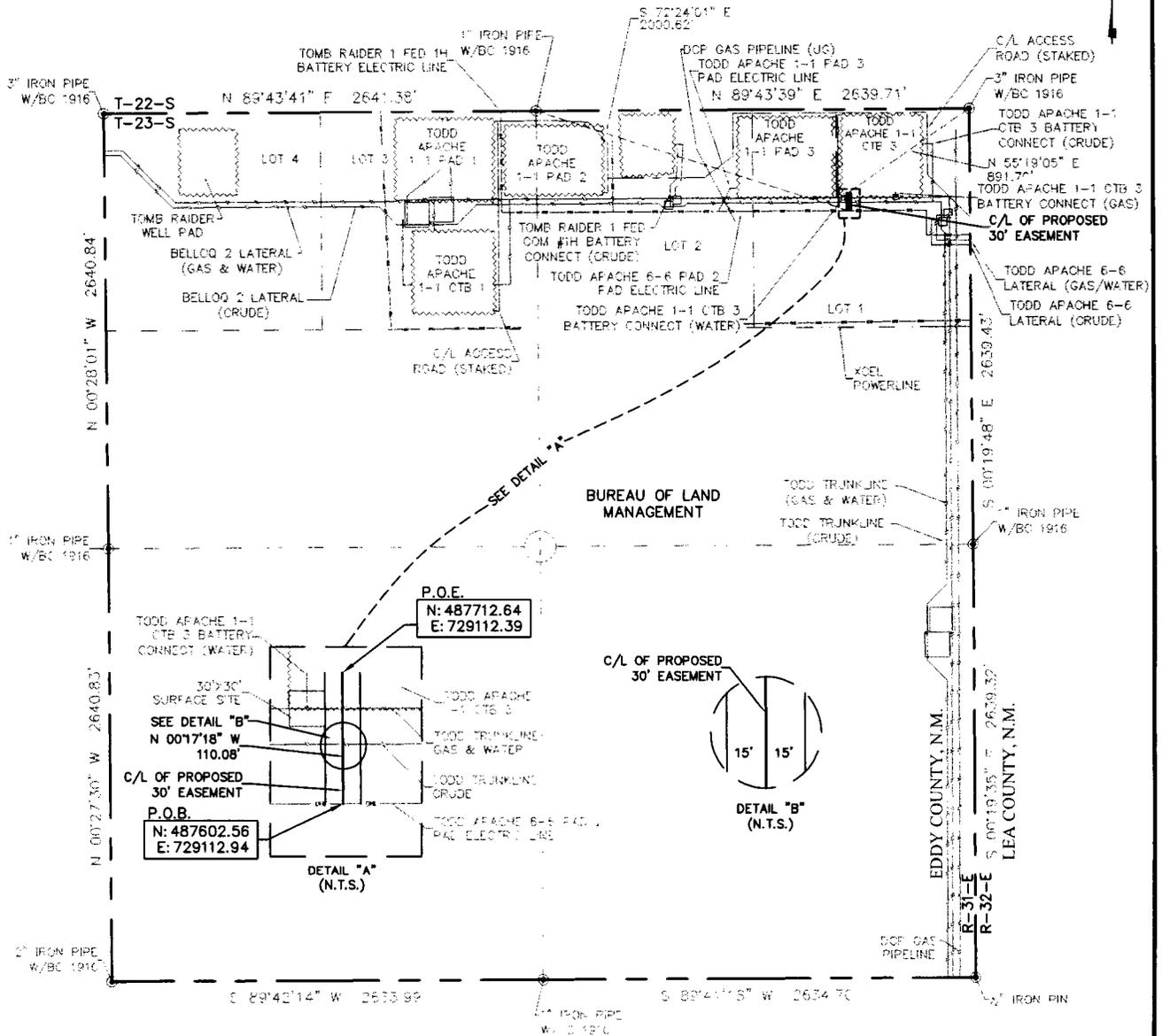
**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
 AND 1040 FT. FROM THE EAST LINE OF  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

**EXHIBIT "A"**  
**PAGE 1 of 4**  
**ELECTRIC LINE PLAT**  
**SECTION 1, T23S-R31E, N.M.P.M.**  
**EDDY COUNTY, NEW MEXICO**

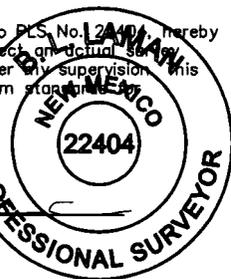


30' EASEMENT AREA = 0.076 ACRE(S)  
 110.08 FEET OR 6.67 RODS

SEE THE ATTACHED LEGAL DESCRIPTION  
 Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

- 0+00.0 P.O.B./TODD APACHE 6-6 PAD 2 PAD ELECTRIC LINE
- 0+50.1 TODD TRUNKLINE CRUDE
- 0+79.6 ENTER TODD APACHE 1-1 CTB 3
- 0+80.1 TODD TRUNKLINE GAS & WATER
- 1+10.1 P.O.E.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS #22404  
 Date Signed: 08-08-2016  
 571 State Street, Jasper, TX  
 (409) 202-5111 75951  
 Employee of Horizonrow, LLC

0 1000 2000



<b>HORIZON ROW LLC</b>		DEVON ENERGY PRODUCTION COMPANY, L.P.	LINE NUMBER: EL7835
Drawn for:		TODD APACHE 1-1 CTB 3 BATTERY ELECTRIC LINE	WBS NUMBER: XX-117680
Drawn by: CHRIS MAAS	Date: 08/05/2016	PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 1, T23S-R31E, N.M.P.M.	SCALE: 1" = 1000'
			REVISIONS:
			SHEET: 1 OF 4

SECTION 1, T23S-R31E, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO

**ELECTRIC LINE PLAT**

**LEGAL DESCRIPTION**

**FOR**

**DEVON ENERGY PRODUCTION COMPANY, L.P.**

**BUREAU OF LAND MANAGEMENT**

**30' EASEMENT DESCRIPTION:**

**BEING** an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of Lot 1 of Section 1, Township 23 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1916 found for the north quarter corner of Section 1, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 72°24'01" E, a distance of 2000.62' to the **Point of Beginning** of this easement, having coordinates of Northing=487602.56 feet, Easting=729112.94 feet, and continuing the following course;

Thence N 00°17'18" W, a distance of 110.08' to the **Point of Ending**, having coordinates of Northing=487712.64 feet, Easting=729112.39 feet, from said point a 3" iron pipe w/ BC1916 found for the northeast corner of Section 1, T23S-R31E, N.M.P.M., Eddy County, New Mexico bears N 55°19'05" E a distance of 891.70', covering a total of **110.08' or 6.67 rods** and having an area of **0.076 acres**.

**NOTES:**

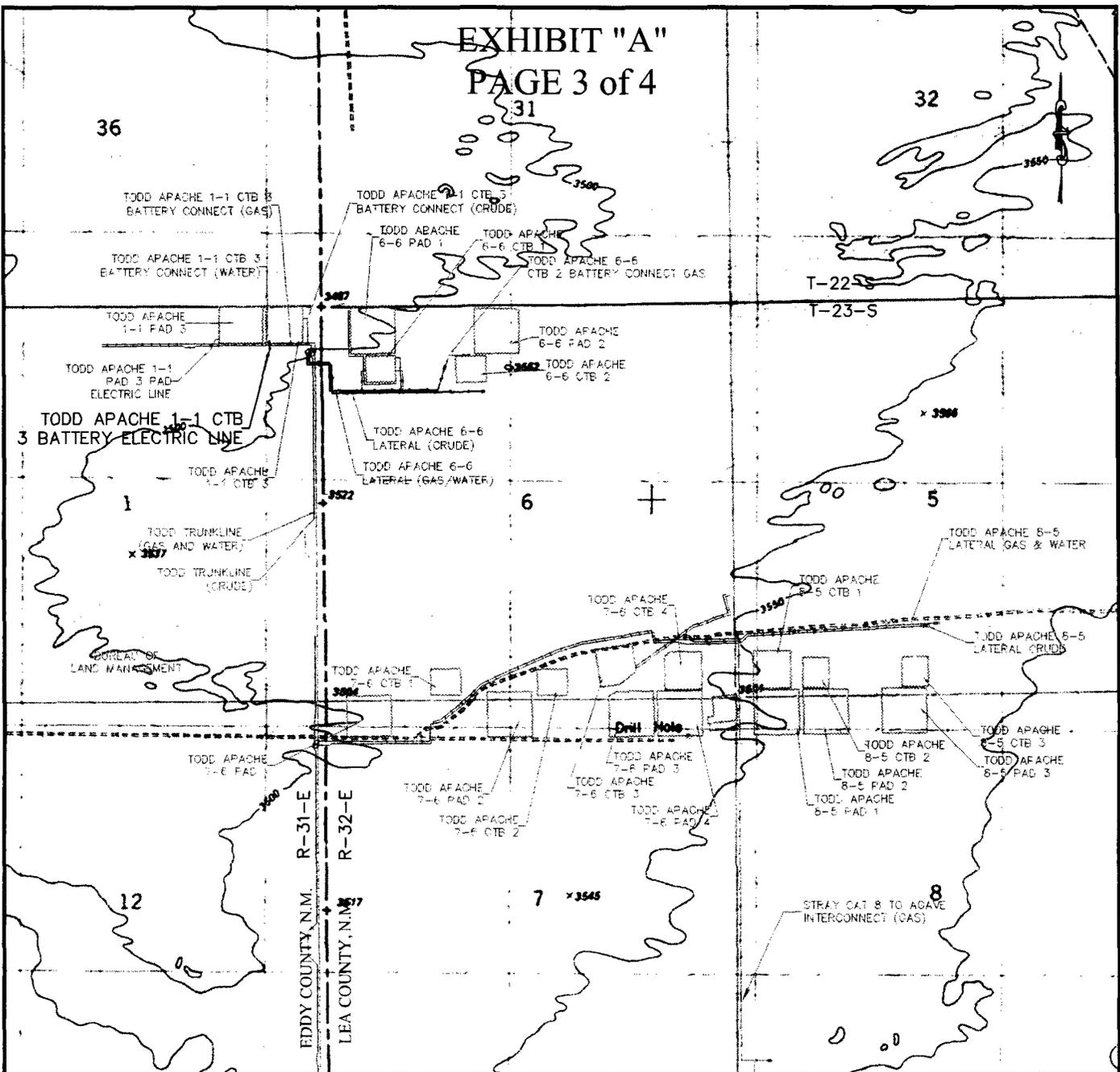
Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

  
B.L. Laman PLS 22404  
Date Signed: 08/08/2016  
Horizon Row, LLC  
571 State Street, Jasper, TX  
(409) 202-5111 75951  
Employee of Horizon Row, LLC



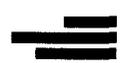
EXHIBIT "A"  
PAGE 3 of 4  
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QUAD MAP

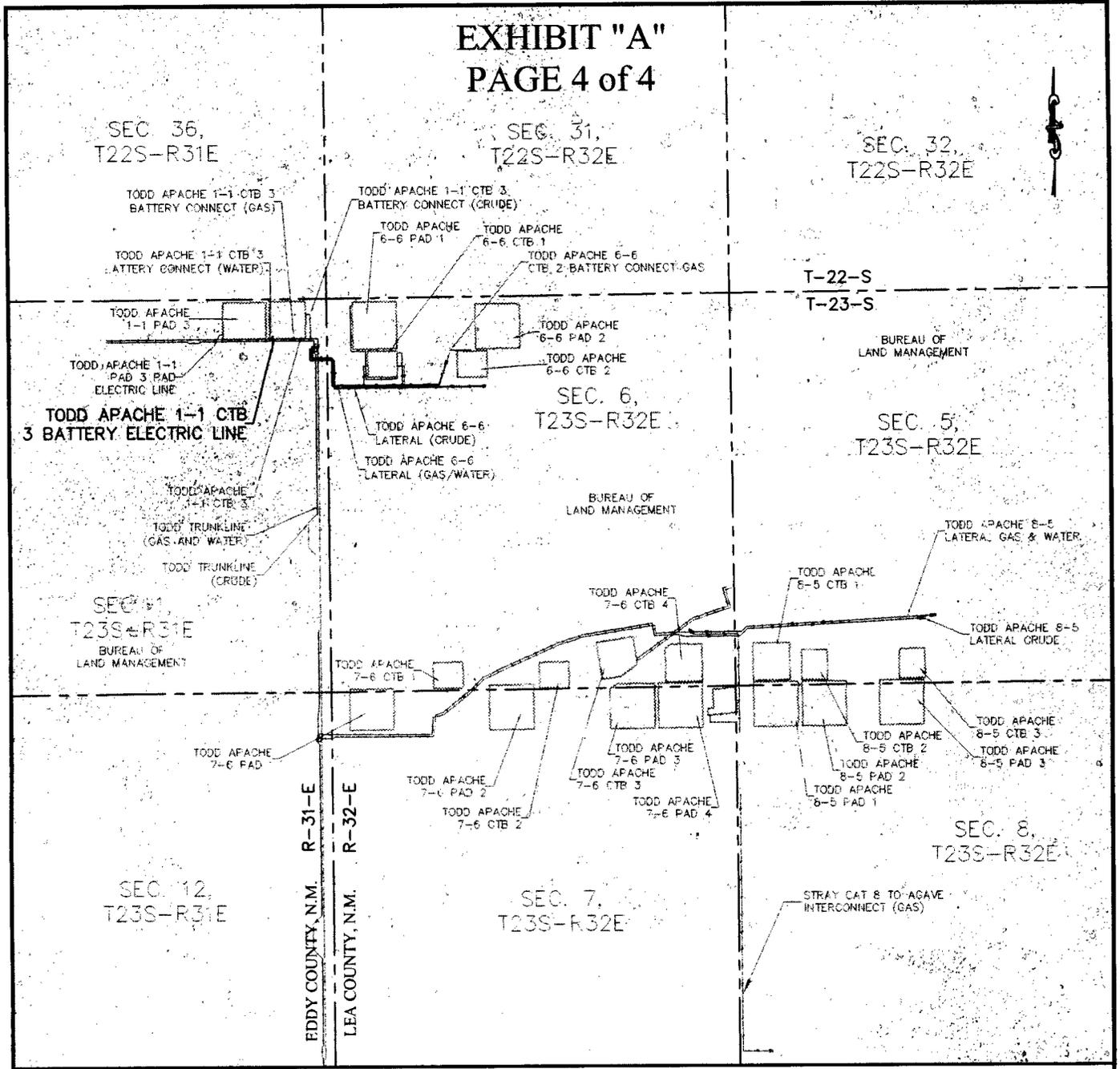
SECTION 1, T23S-R31E, N.M.P.M.;  
EDDY COUNTY, NEW MEXICO

**HORIZON ROW LLC**  
DEVON ENERGY PRODUCTION CO., L.P.  
PROPOSED 30' EASEMENT  
Drawn by: CHRIS MAAS  
Date: 08/05/2016

Drawn for:  
  
**devon**

LINE NUMBER: EL7835
WBS NUMBER: XX-117680
SCALE: 1" = 2000'
REVISIONS:
SHEET: 3 OF 4

EXHIBIT "A"  
PAGE 4 of 4



AERIAL MAP

SECTION 1, T23S-R31E, N.M.P.M.;  
EDDY COUNTY, NEW MEXICO

<b>HORIZON ROW LLC</b>	
DEVON ENERGY PRODUCTION CO., L.P.	
PROPOSED 30' EASEMENT	
Drawn by: CHRIS MAAS	Date: 08/05/2016

Drawn for:

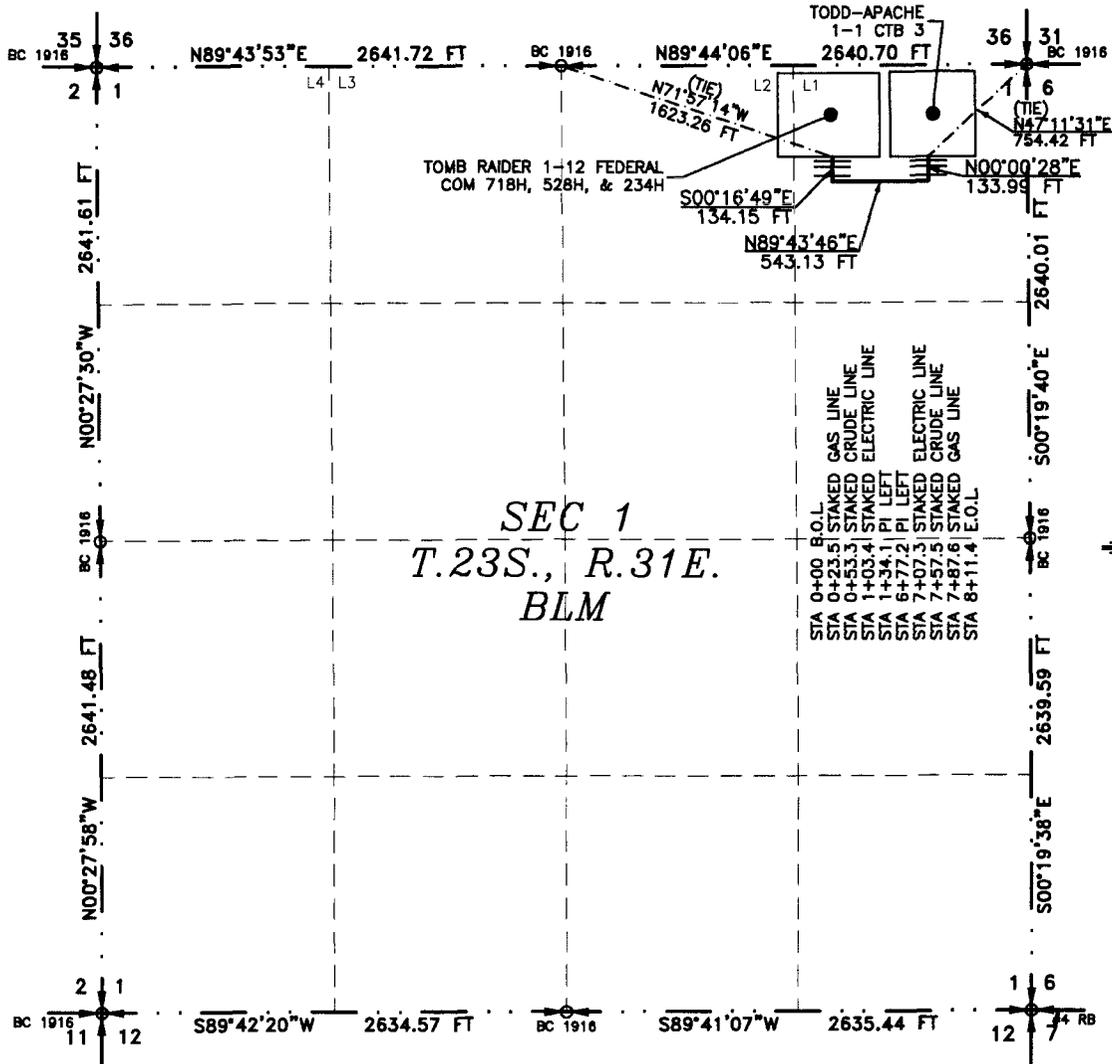


LINE NUMBER: EL7835
WBS NUMBER: XX-117680
SCALE: 1" = 2000'
REVISIONS:
SHEET: 4 OF 4

**FLOWLINE PLAT**

THREE-4" POLY FLOWLINES AND ONE-6" GAS LIFT LINE BURIED IN THE SAME TRENCH FROM  
TOMB RAIDER 1-12 FEDERAL COM 718H, 528H, & 234H TO TODD-APACHE 1-1 CTB 3

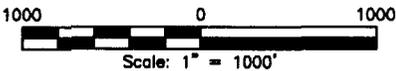
DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF A PIPELINE CROSSING  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
JULY 20, 2017



SEC 1  
T.23S., R.31E.  
BLM

- STA 0+00 B.O.L.
- STA 0+23.5 STAKED GAS LINE
- STA 0+53.3 STAKED CRUDE LINE
- STA 1+03.4 STAKED ELECTRIC LINE
- STA 1+34.1 P.I. LEFT
- STA 6+77.2 P.I. LEFT
- STA 7+07.3 STAKED ELECTRIC LINE
- STA 7+57.3 STAKED CRUDE LINE
- STA 7+87.6 STAKED GAS LINE
- STA 8+11.4 E.O.L.

SEE NEXT SHEET (2-4) FOR DESCRIPTION



**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**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 20th DAY OF JULY 2017

*(Signature)*  
FILIMON F. JARAMILLO, P.E.S. 12797

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

SHEET: 1-4

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO SURVEY NO. 5363

301 SOUTH CANAL  
(575) 234-3341

**FLOWLINE PLAT**

**THREE-4" POLY FLOWLINES AND ONE-6" GAS LIFT LINE BURIED IN THE SAME TRENCH FROM  
TOMB RAIDER 1-12 FEDERAL COM 718H, 528H, & 234H TO TODD-APACHE 1-1 CTB 3**

**DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF A PIPELINE CROSSING  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
JULY 20, 2017**

**DESCRIPTION**

A STRIP OF LAND 30 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 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 LOT 1 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N71° 57'14"W, A DISTANCE OF 1623.26 FEET;  
THENCE S00°16'49"E A DISTANCE OF 134.15 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N89°43'46"E A DISTANCE OF 543.13 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED;  
THENCE N00°00'28"E A DISTANCE OF 133.99 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N47°11'31"E, A DISTANCE OF 754.42 FEET;

SAID STRIP OF LAND BEING 811.27 FEET OR 49.17 RODS IN LENGTH, CONTAINING 0.559 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 1    811.27 L.F.    49.17 RODS    0.559 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 20 DAY OF JULY 2017

*Filimon F. Jaramillo*  
FILIMON F. JARAMILLO PLS. 12797  
301 SOUTH CANAL  
(575) 234-3341

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

**SURVEY NO. 5363**

**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING AND DISTANCE IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

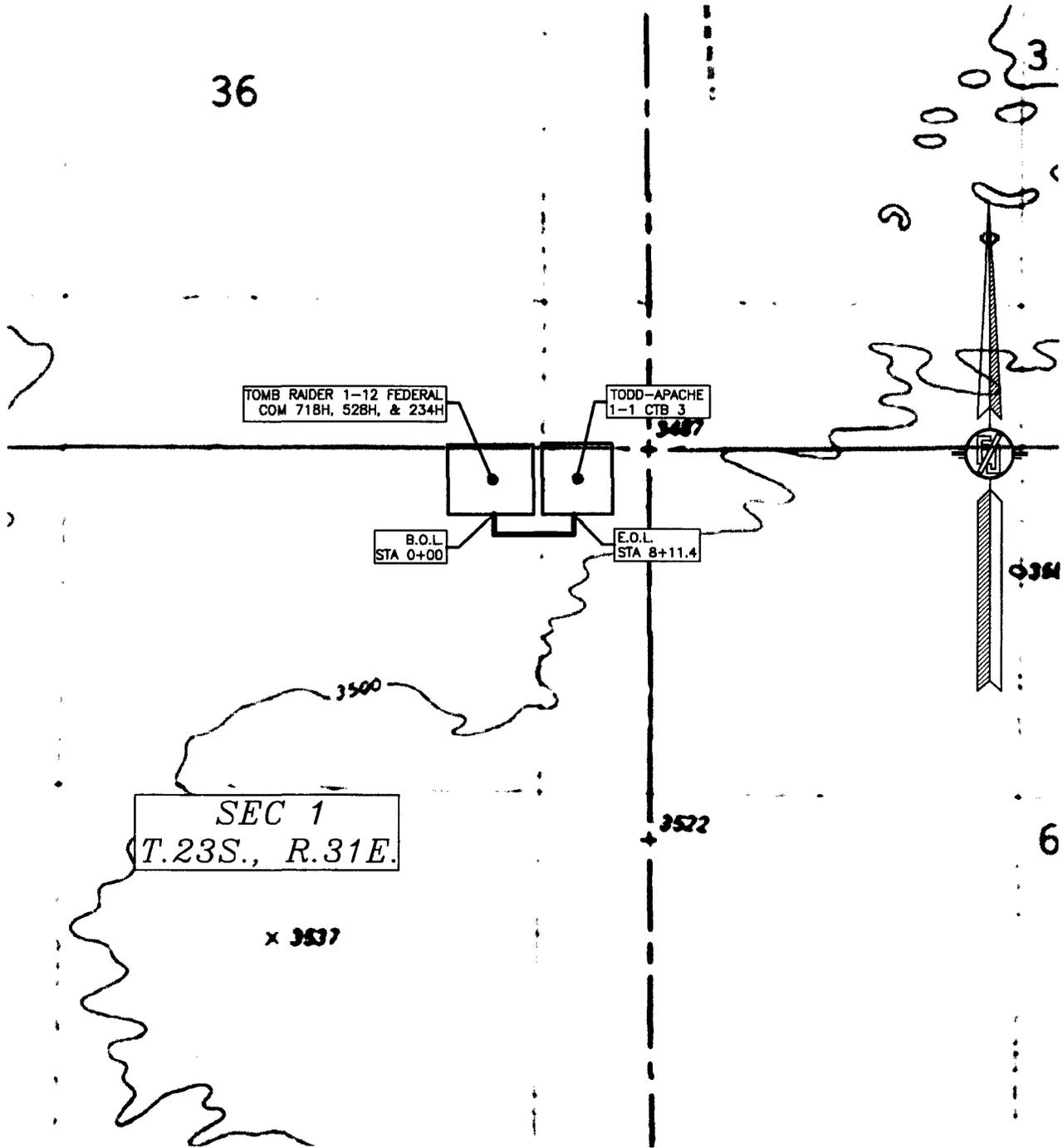
**SHEET: 2-4**

**MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO**

**FLOWLINE PLAT**

THREE-4" POLY FLOWLINES AND ONE-6" GAS LIFT LINE BURIED IN THE SAME TRENCH FROM  
TOMB RAIDER 1-12 FEDERAL COM 718H, 528H, & 234H TO TODD-APACHE 1-1 CTB 3

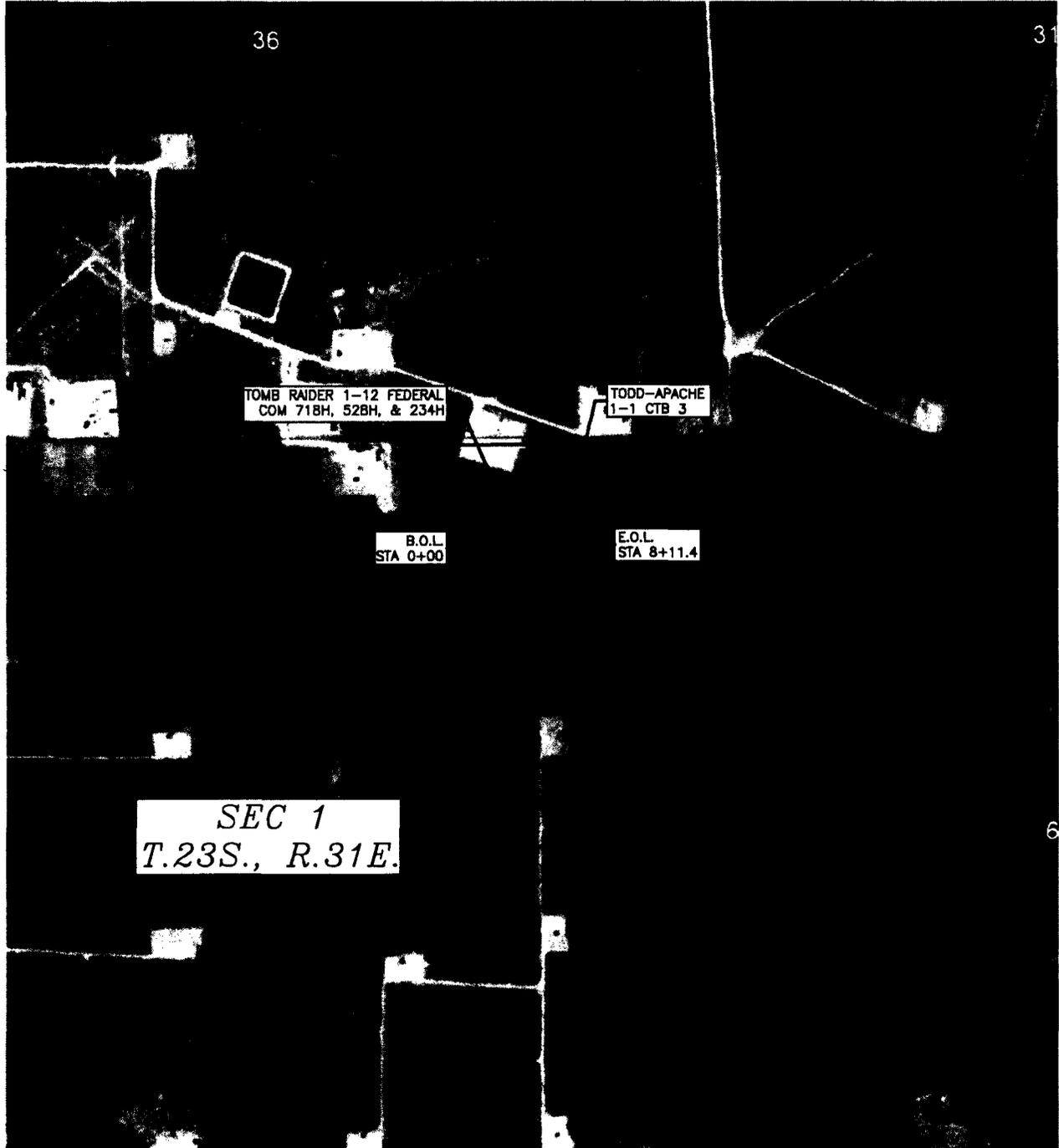
DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF A PIPELINE CROSSING  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
JULY 20, 2017



**FLOWLINE PLAT**

THREE-4" POLY FLOWLINES AND ONE-6" GAS LIFT LINE BURIED IN THE SAME TRENCH FROM  
TOMB RAIDER 1-12 FEDERAL COM 718H, 528H, & 234H TO TODD-APACHE 1-1 CTB 3

DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF A PIPELINE CROSSING  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
JULY 20, 2017



SHEET: 4-4

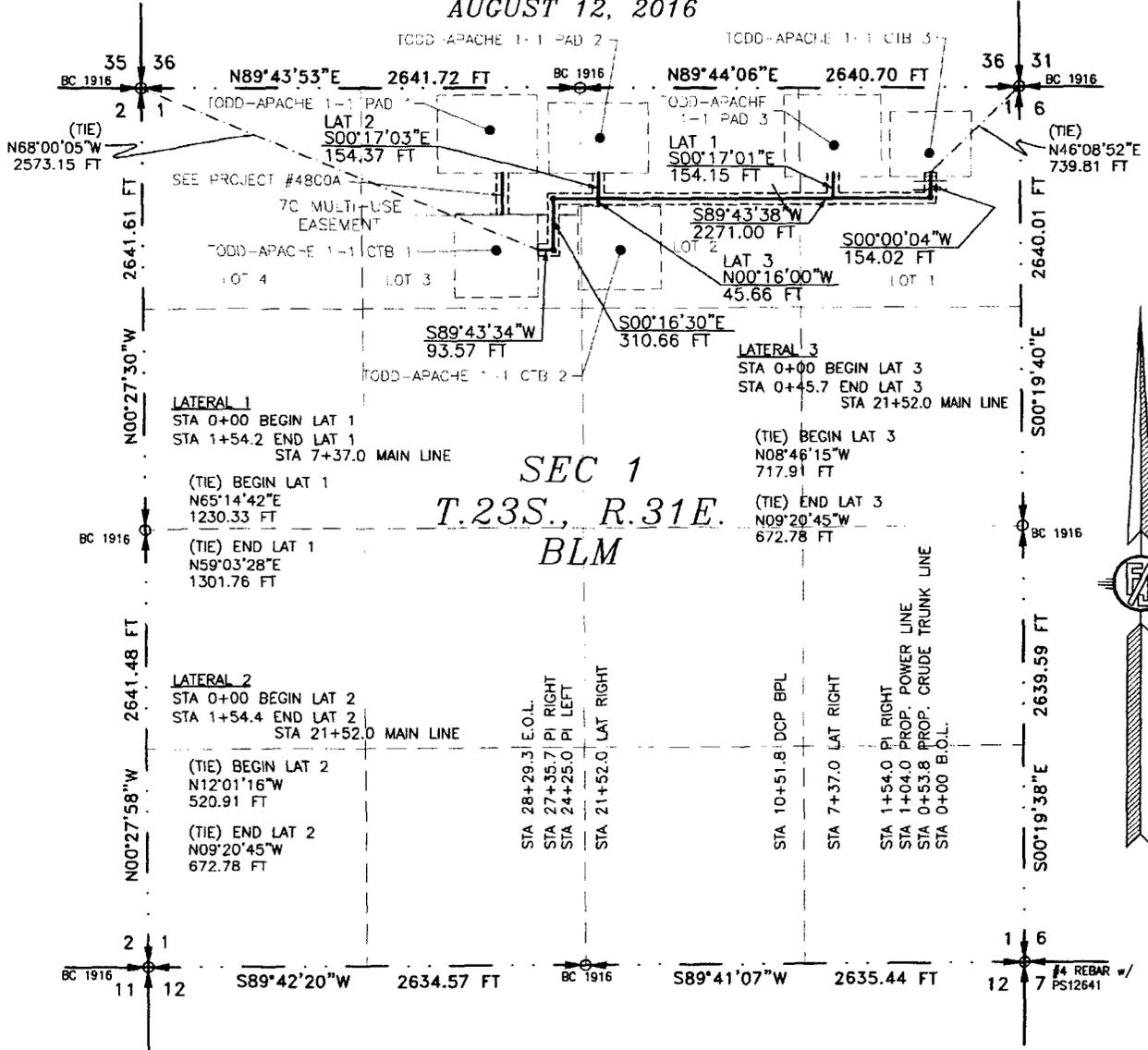
SURVEY NO. 5363

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

**FLOWLINE PLAT (400688XYZ)**

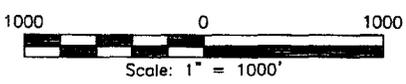
70' MULTI-USE RIGHT-OF-WAY FROM THE TODD-APACHE 1-1 CTB 3 & 2 AND TODD-APACHE 1-1 PAD 3 & 2 TO THE TODD-APACHE 1-1 CTB 1

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**CENTERLINE SURVEY OF A MULTI-USE EASEMENT**  
**SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.**  
**EDDY COUNTY, STATE OF NEW MEXICO**  
**AUGUST 12, 2016**



**SEC 1**  
**T.23S., R.31E.**  
**BLM**

SEE NEXT SHEET (2-4) FOR DESCRIPTION



- GENERAL NOTES**
- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
  - 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**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 12 DAY OF AUGUST 2016

FILIMON F. JARAMILLO, PLS. 12797  
 MADRON SURVEYING, INC.  
 30' SOUTH CANAL  
 CARLSBAD, NEW MEXICO 88220  
 Phone (575) 234-3341  
**SURVEY NO. 4797A**  
**MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO**

SHEET: 1-4

**FLOWLINE PLAT (400688XYZ)**

70' MULTI-USE RIGHT-OF-WAY FROM THE TODD-APACHE 1-1 CTB 3 & 2 AND TODD-APACHE 1-1 PAD 3 & 2 TO THE TODD-APACHE 1-1 CTB 1

**DEVON ENERGY PRODUCTION COMPANY, L.P.  
CENTERLINE SURVEY OF A MULTI-USE EASEMENT  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AUGUST 12, 2016**

**DESCRIPTION**

A STRIP OF LAND 70 FEET WIDE CROSSING BUREAU OF LAND MANAGEMENT LAND IN SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, STATE OF NEW MEXICO AND BEING 35 FEET EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY:

**MAIN LINE**

BEGINNING AT A POINT WITHIN LOT 1 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N46°08'52"E, A DISTANCE OF 739.81 FEET; THENCE S00°00'04"W A DISTANCE OF 154.02 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED; THENCE S89°43'38"W A DISTANCE OF 2271.00 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED; THENCE S00°16'30"E A DISTANCE OF 310.66 FEET TO AN ANGLE POINT OF THE LINE HEREIN DESCRIBED; THENCE S89°43'34"W A DISTANCE OF 93.57 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHWEST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N68°00'05"W, A DISTANCE OF 2573.15 FEET;

SAID STRIP OF LAND BEING 2829.25 FEET OR 171.47 RODS IN LENGTH, CONTAINING 4.546 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 1	936.74 L.F.	56.77 RODS	1.505 ACRES
LOT 2	1320.02 L.F.	80.00 RODS	2.121 ACRES
LOT 3	572.49 L.F.	34.70 RODS	0.920 ACRES

**LATERAL 1**

BEGINNING AT A POINT WITHIN LOT 1 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N65°14'42"E, A DISTANCE OF 1230.33 FEET; THENCE S00°17'01"E A DISTANCE OF 154.15 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTHEAST CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N59°03'28"E, A DISTANCE OF 1301.76 FEET;

SAID STRIP OF LAND BEING 154.15 FEET OR 9.34 RODS IN LENGTH, CONTAINING 0.248 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 1	154.15 L.F.	9.34 RODS	0.248 ACRES
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**LATERAL 2**

BEGINNING AT A POINT WITHIN LOT 2 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N12°01'16"W, A DISTANCE OF 520.91 FEET; THENCE S00°17'03"E A DISTANCE OF 154.37 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N09°20'45"W, A DISTANCE OF 672.78 FEET;

SAID STRIP OF LAND BEING 154.37 FEET OR 9.36 RODS IN LENGTH, CONTAINING 0.248 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 2	154.37 L.F.	9.36 RODS	0.248 ACRES
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**LATERAL 3**

BEGINNING AT A POINT WITHIN LOT 2 OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N08°46'15"W, A DISTANCE OF 717.91 FEET; THENCE N00°16'00"W A DISTANCE OF 45.66 FEET THE TERMINUS OF THIS CENTERLINE SURVEY, WHENCE THE NORTH QUARTER CORNER OF SAID SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N09°20'45"W, A DISTANCE OF 672.78 FEET;

SAID STRIP OF LAND BEING 45.66 FEET OR 2.77 RODS IN LENGTH, CONTAINING 0.073 ACRES MORE OR LESS AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

LOT 2	45.66 L.F.	2.77 RODS	0.073 ACRES
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**GENERAL NOTES**

- 1.) THE INTENT OF THIS ROUTE SURVEY IS TO ACQUIRE AN EASEMENT.
- 2.) BASIS OF BEARING IS NMSP EAST (NAD83) MODIFIED TO SURFACE COORDINATES. NAD 83 (FEET) AND NAVD 88 (FEET) COORDINATE SYSTEMS USED IN THE SURVEY.

**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 12 DAY OF AUGUST 2016

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

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

SHEET: 2-4

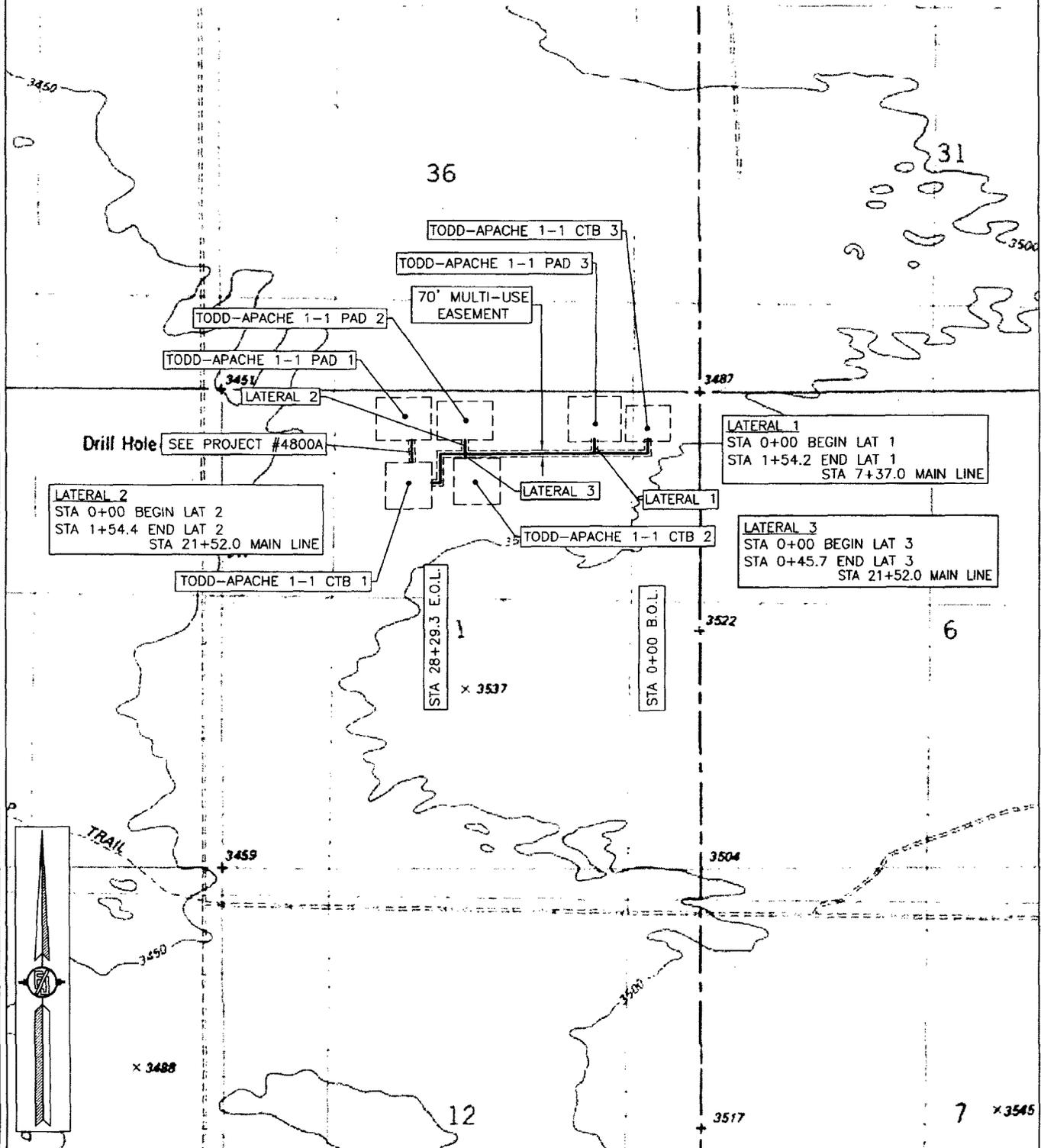
**MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO**

**SURVEY NO. 4797A**

**FLOWLINE PLAT (400688XYZ)**

70' MULTI-USE RIGHT-OF-WAY FROM THE TODD-APACHE 1-1 CTB 3 & 2 AND TODD-APACHE 1-1 PAD 3 & 2 TO THE TODD-APACHE 1-1 CTB 1

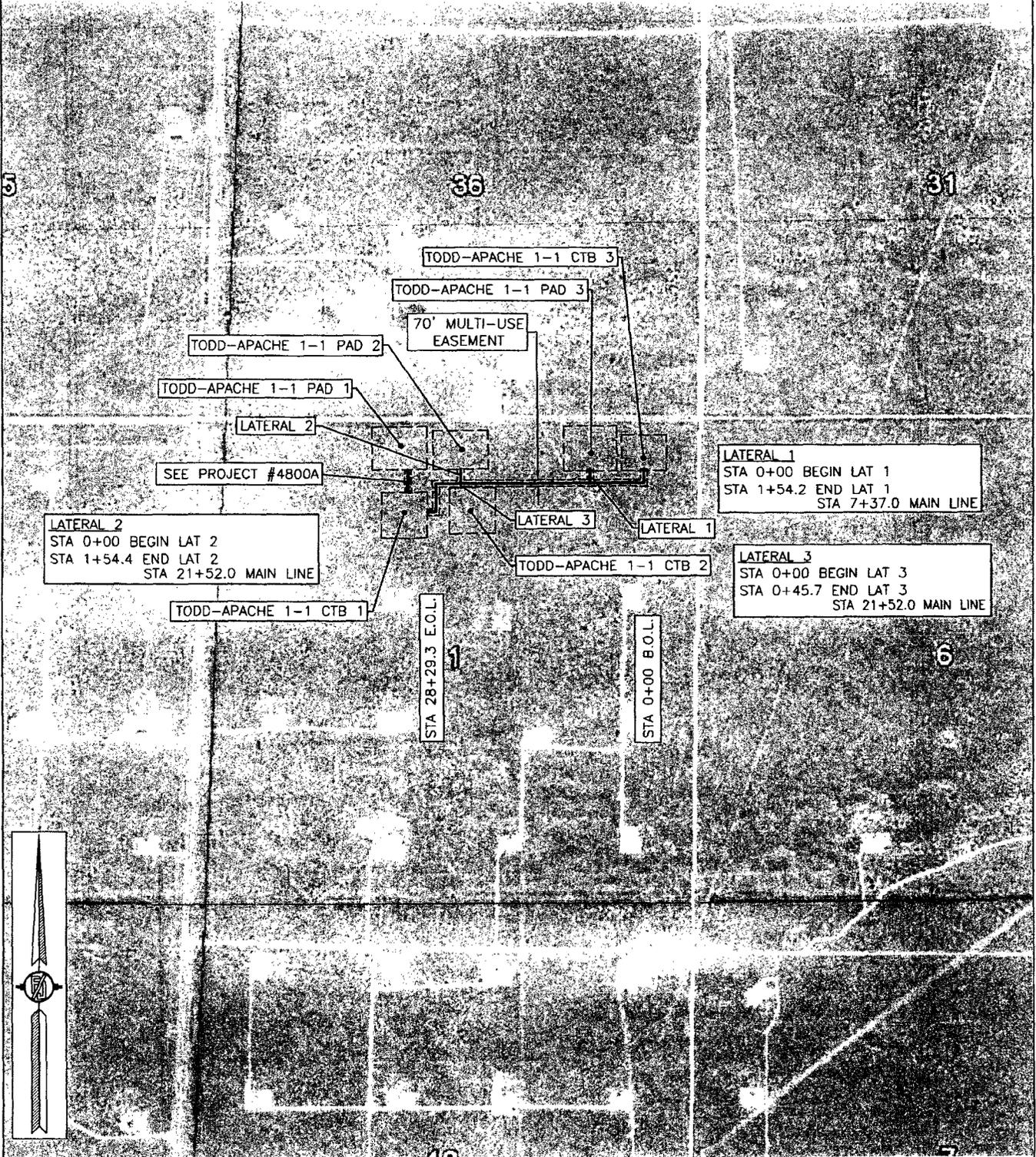
**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
CENTERLINE SURVEY OF A MULTI-USE EASEMENT  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AUGUST 12, 2016



**FLOWLINE PLAT (400688XYZ)**

70' MULTI-USE RIGHT-OF-WAY FROM THE TODD-APACHE 1-1 CTB 3 & 2 AND TODD-APACHE 1-1 PAD 3 & 2 TO THE TODD-APACHE 1-1 CTB 1

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
CENTERLINE SURVEY OF A MULTI-USE EASEMENT  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AUGUST 12, 2016



**LATERAL 2**  
STA 0+00 BEGIN LAT 2  
STA 1+54.4 END LAT 2  
STA 21+52.0 MAIN LINE

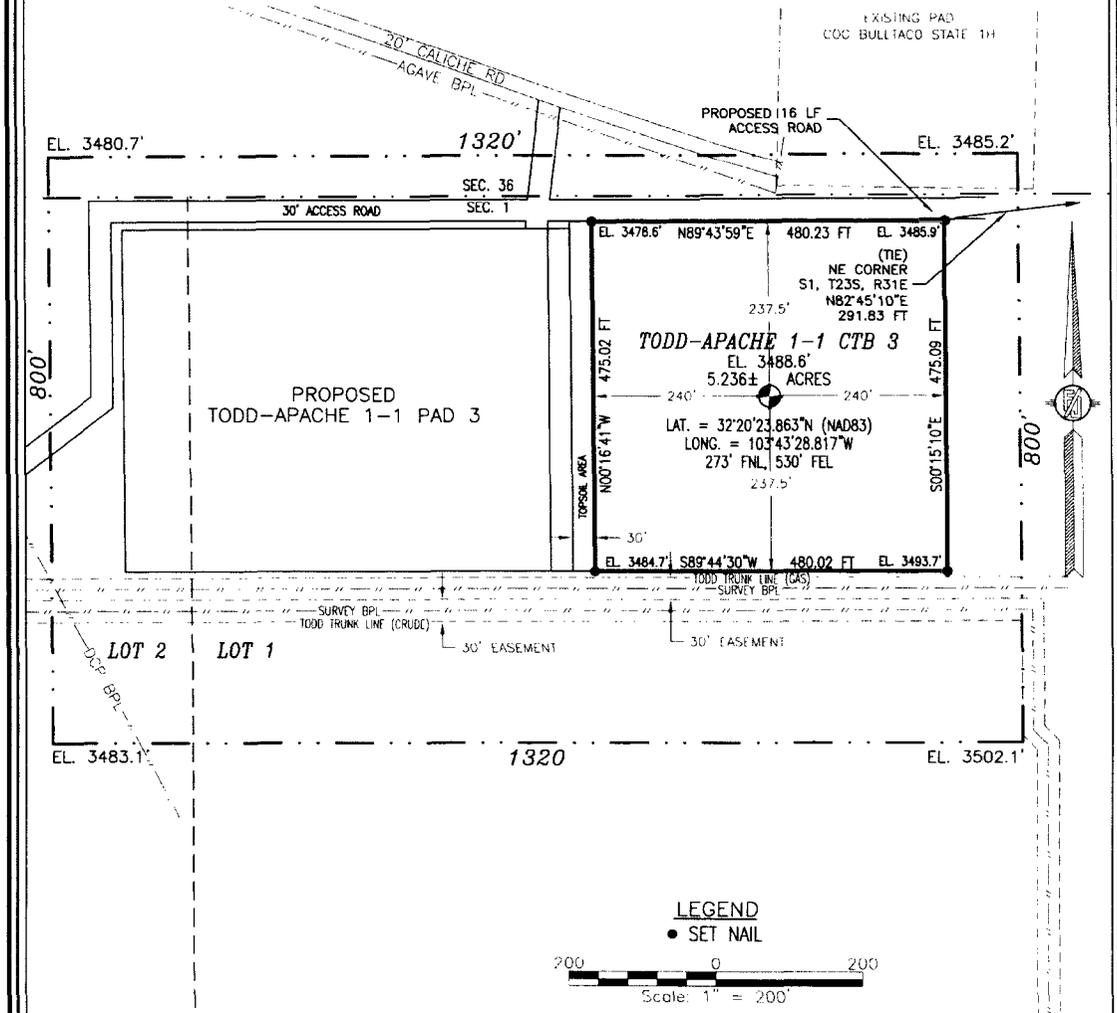
**LATERAL 1**  
STA 0+00 BEGIN LAT 1  
STA 1+54.2 END LAT 1  
STA 7+37.0 MAIN LINE

**LATERAL 3**  
STA 0+00 BEGIN LAT 3  
STA 0+45.7 END LAT 3  
STA 21+52.0 MAIN LINE

TODD-APACHE 1-1 CTB 3 (AA000056005)

DEVON ENERGY PRODUCTION COMPANY, L.P.  
IN LOT 1 OF  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 12, 2016



LEGEND  
● SET NAIL



DESCRIPTION

A CERTAIN PIECE OR PARCEL OF LAND AND REAL ESTATE LYING IN LOT 1 OF SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BEGINNING AT THE NORTHEAST CORNER OF THE PARCEL, WHENCE THE NORTHEAST CORNER OF SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M. BEARS N82°45'10"E, A DISTANCE OF 291.83 FEET;  
THENCE S00°15'10"E A DISTANCE OF 475.09 FEET TO THE SOUTHEAST CORNER OF THE PARCEL;  
THENCE S89°44'30"W A DISTANCE OF 480.02 FEET TO THE SOUTHWEST CORNER OF THE PARCEL;  
THENCE N00°16'41"W A DISTANCE OF 475.02 FEET TO THE NORTHWEST CORNER OF THE PARCEL;  
THENCE N89°43'59"E A DISTANCE OF 480.23 FEET TO THE NORTHEAST CORNER OF THE PARCEL, TO THE POINT OF BEGINNING;  
CONTAINING 5.236 ACRES MORE OR LESS.

GENERAL NOTES

- 1.) THE INTENT OF THIS SURVEY IS TO ACQUIRE A BUSINESS LEASE FOR THE PURPOSE OF BUILDING A CENTRAL TANK BATTERY
  - 2.) BASIS OF BEARING IS NEW MEXICO STATE PLANE EAST ZONE MODIFIED TO THE SURFACE (NAD83)
- DRIVING DIRECTION:** FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 8.2 MILES, TURN RIGHT ON CALICHE ROAD AND GO EAST 0.4 OF A MILE, BEND RIGHT AND GO SOUTH 0.15 OF A MILE, BEND LEFT AND GO SOUTHEAST 0.5 OF A MILE TO A PROPOSED ROAD SURVEY AND FOLLOW FLAGS SOUTH 156', TURN LEFT GO EAST 541', GO SOUTH 16' TO THE NORTHEAST PAD CORNER FOR THIS LOCATION.

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 12th DAY OF JULY 2016.

*Filmon F. Jaramillo*  
 FILMON F. JARAMILLO, PLS. 12797  
 301 SOUTH CANAL  
 CARLSBAD, NEW MEXICO 88220  
 (575) 234-3341

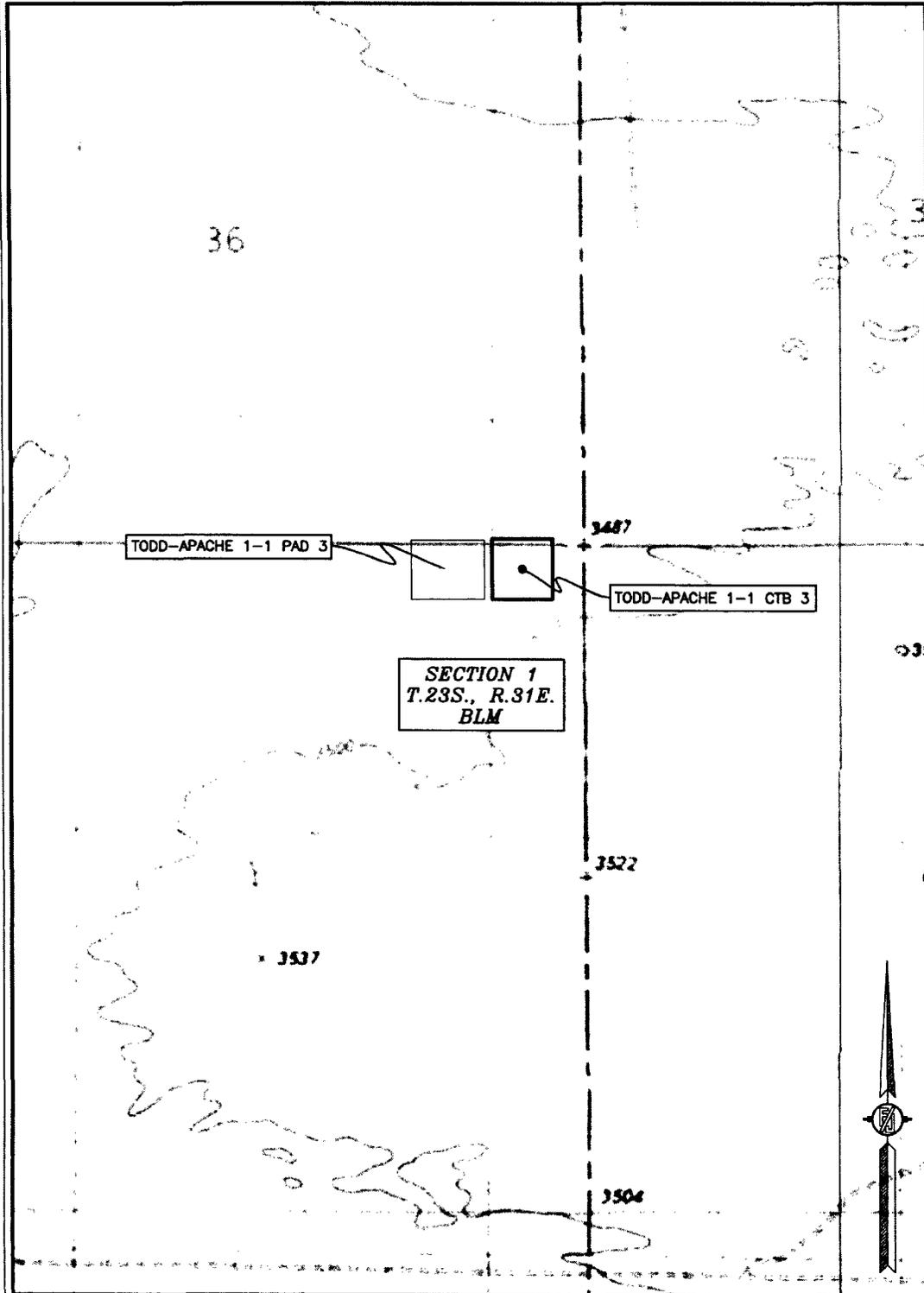
MADRON SURVEYING, INC  
301 SOUTH CANAL  
CARLSBAD, NEW MEXICO 88220  
Phone (575) 234-3341

TODD-APACHE 1-1 CTB 3 (AA000056005)

DEVON ENERGY PRODUCTION COMPANY, L.P.  
IN LOT 1 OF  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 12, 2016

QUAD MAP



SHEET: 2-3

SURVEY NO. 4529B

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

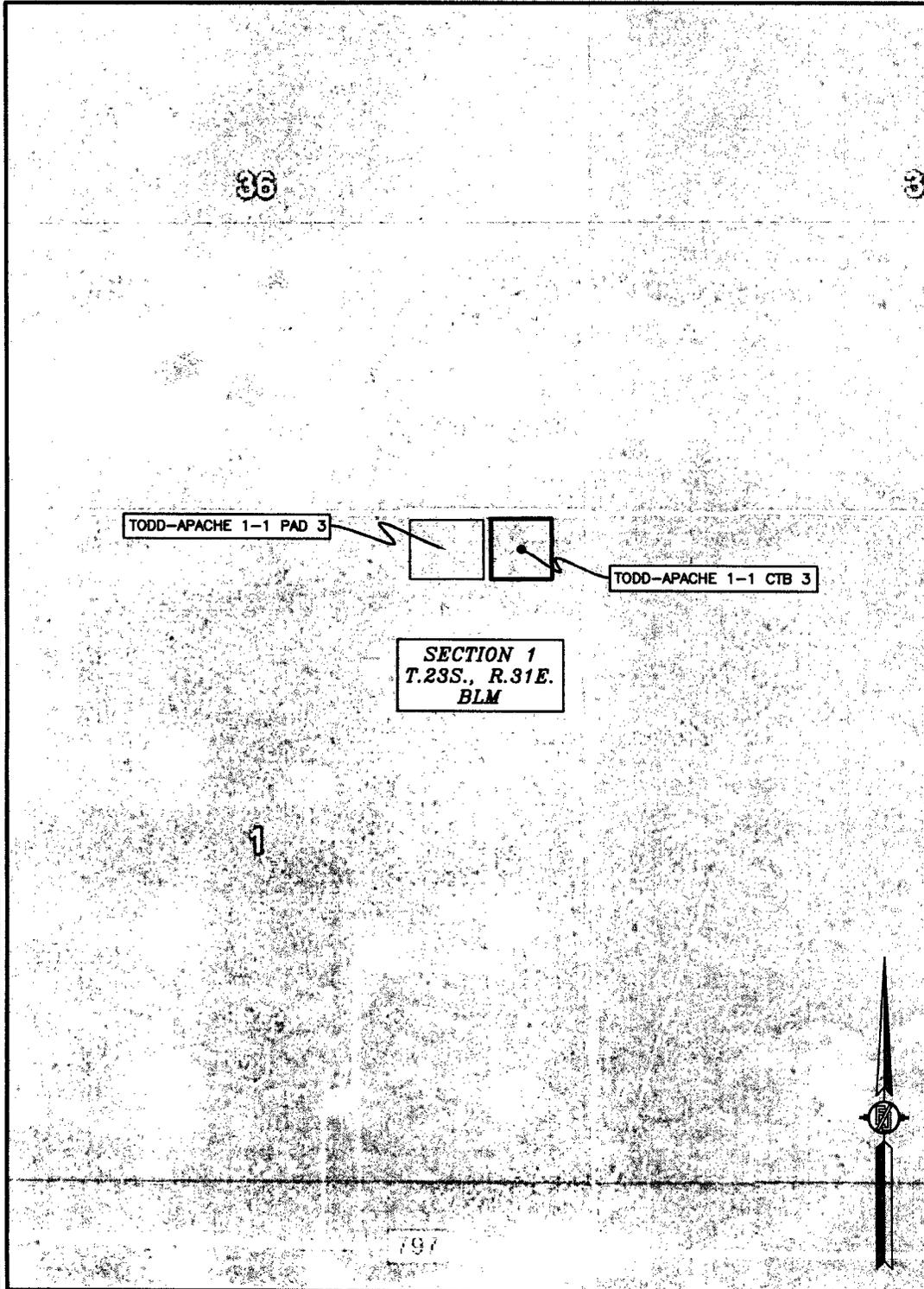
301 SOUTH CANAL  
(575) 234-3341

TODD-APACHE 1-1 CTB 3 (AA000056005)

DEVON ENERGY PRODUCTION COMPANY, L.P.  
IN LOT 1 OF  
SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 12, 2016

AERIAL PHOTO

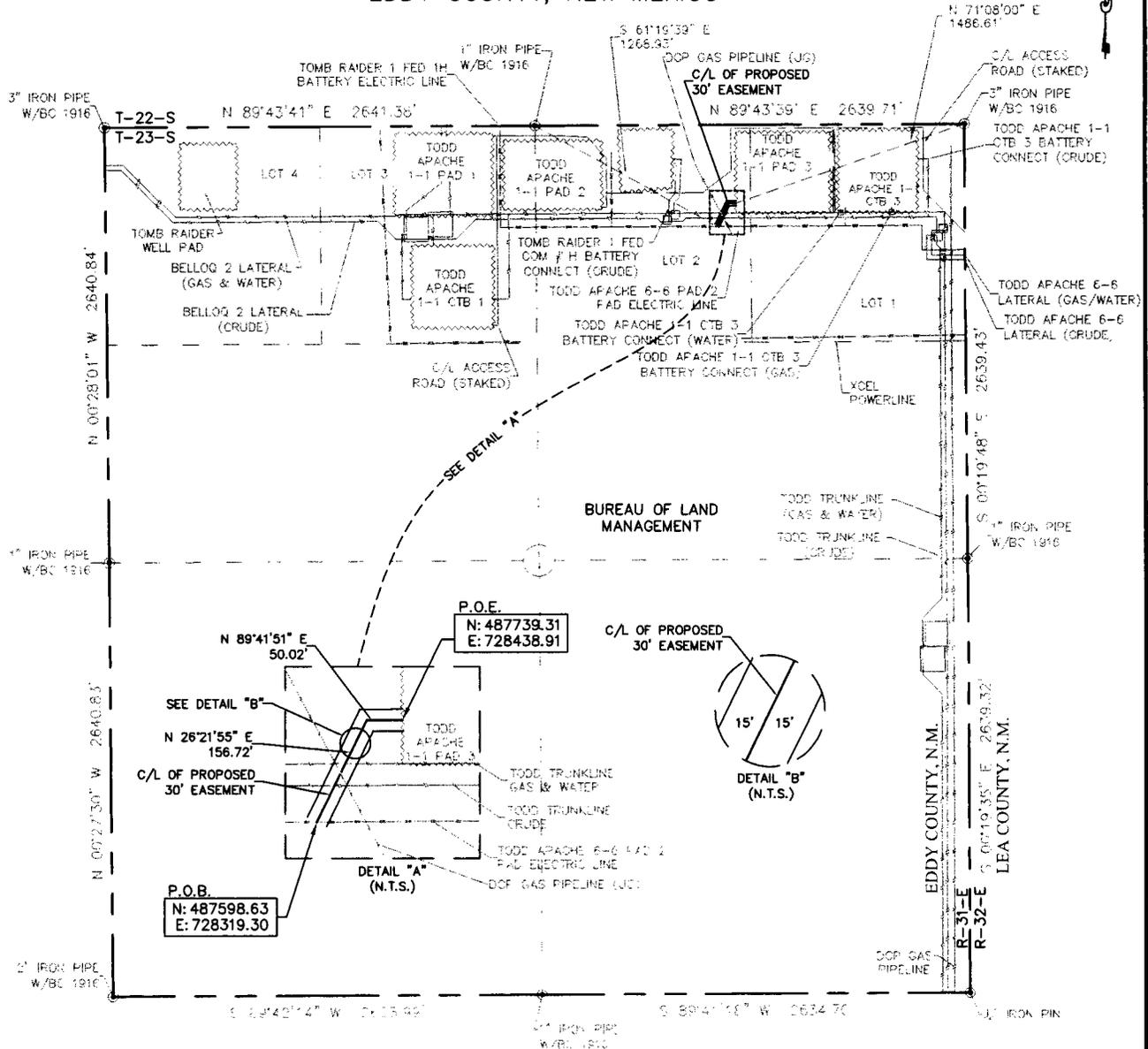


SHEET: 3-3

SURVEY NO. 4529B

MADRON SURVEYING, INC. 301 SOUTH CANAL (575) 234-3541 CARLSBAD, NEW MEXICO

EXHIBIT "A"  
PAGE 1 of 4  
ELECTRIC LINE PLAT  
SECTION 1, T23S-R31E, N.M.P.M.  
EDDY COUNTY, NEW MEXICO

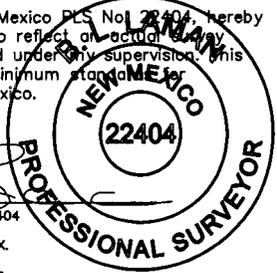


30' EASEMENT AREA = 0.142 ACRE(S)  
206.74 FEET OR 12.53 RODS

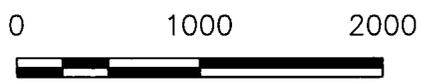
- 0+00.0 P.O.B./TODD APACHE 6-6 PAD 2 PAD ELECTRIC LINE
- 0+56.1 TODD TRUNKLINE CRUDE
- 0+72.4 DCP GAS PIPELINE (UG)
- 0+89.6 TODD TRUNKLINE GAS & WATER
- 1+56.7 STAKED POWER POLE
- 2+06.7 P.O.E./TODD APACHE 1-1 PAD 3

SEE THE ATTACHED LEGAL DESCRIPTION  
Note: All bearings recited herein are based on the New Mexico State Plane Coordinate System, NAD 83, New Mexico East Zone 3001, US Survey Feet, all distances are grid.

I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.



B.L. Laman PLS #22404  
Date Signed: 08-07-2016  
571 State Street, Jasper, TX  
(409) 202-5111 75951  
Employee of Horizonrow, LLC



<b>HORIZON ROW LLC</b>		DEVON ENERGY PRODUCTION COMPANY, L.P.	
Drawn for:		TODD APACHE 1-1 PAD 3 PAD ELECTRIC LINE	
<b>devon</b>		PROPOSED 30' EASEMENT ON THE PROPERTY OF BUREAU OF LAND MANAGEMENT SECTION 1, T23S-R31E, N.M.P.M.	
Drawn by: CHRIS MAAS	Date: 07/29/2016	LINE NUMBER: EL7836	WBS NUMBER: XX-117680
		SCALE: 1" = 1000'	REVISIONS:
		SHEET: 1 OF 4	

SECTION 1, T23S-R31E, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO

**ELECTRIC LINE PLAT**

**LEGAL DESCRIPTION**

**FOR**

**DEVON ENERGY PRODUCTION COMPANY, L.P.**

**BUREAU OF LAND MANAGEMENT**

**30' EASEMENT DESCRIPTION:**

**BEING** an easement thirty (30) feet in width lying fifteen (15) feet on the right side and fifteen (15) feet on the left side of the survey centerline described below, being out of Lot 2 of Section 1, Township 23 South, Range 31 East, N.M.P.M., Eddy County, New Mexico, and being out of a parcel of land owned by the Bureau of Land Management. Said centerline of easement being more particularly described as follows:

Commencing from a 1" iron pipe w/ BC1916 found for the north quarter corner of Section 1, T23S-R31E, N.M.P.M., Eddy County, New Mexico;

Thence S 61°19'39" E, a distance of 1268.93' to the **Point of Beginning** of this easement, having coordinates of Northing=487598.63 feet, Easting=728319.30 feet, and continuing the following courses;

Thence N 26°21'55" E, a distance of 156.72' to an angle point;

Thence N 89°41'51" E, a distance of 50.02' to the **Point of Ending**, having coordinates of Northing=487739.31 feet, Easting=728438.91 feet, from said point a 3" iron pipe w/ BC1916 found for the northeast corner of Section 1, T23S-R31E, N.M.P.M., Eddy County, New Mexico bears N 71°08'00" E a distance of 1486.61', covering a total of **206.74' or 12.53 rods** and having an area of **0.142 acres**.

**NOTES:**

Bearings, distances and coordinates shown herein are based on New Mexico State Plane Coordinate System, NAD 83, East Zone 3001, US Survey Feet, all distances are grid.

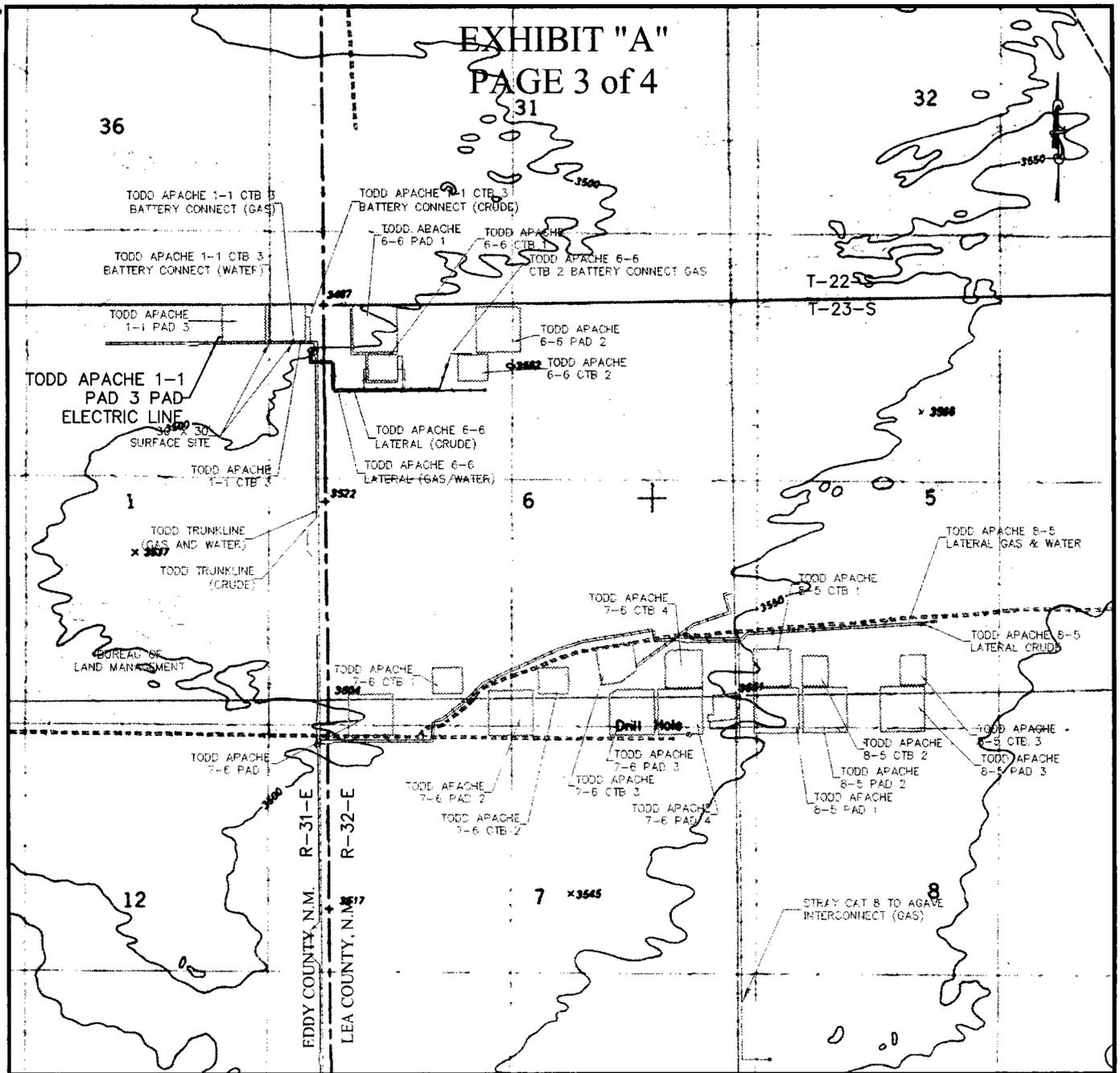
I, B.L. Laman, New Mexico PLS No. 22404, hereby certify this survey to reflect an actual survey made on the ground under my supervision. This survey meets the minimum standards for surveying in New Mexico.

  
B.L. Laman                      PLS 22404  
Date Signed: 08/07/2016  
Horizon Row, LLC  
571 State Street, Jasper, TX  
(409) 202-5111                      75951  
Employee of Horizon Row, LLC



EXHIBIT "A"  
PAGE 3 of 4

31



QUAD MAP

SECTION 1, T23S-R31E, N.M.P.M.;  
EDDY COUNTY, NEW MEXICO

**HORIZON ROW LLC**

DEVON ENERGY PRODUCTION CO., L.P.

PROPOSED 30' EASEMENT

Drawn by:  
CHRIS MAAS

Date: 07/29/2016

Drawn for:



LINE NUMBER:  
EL7836

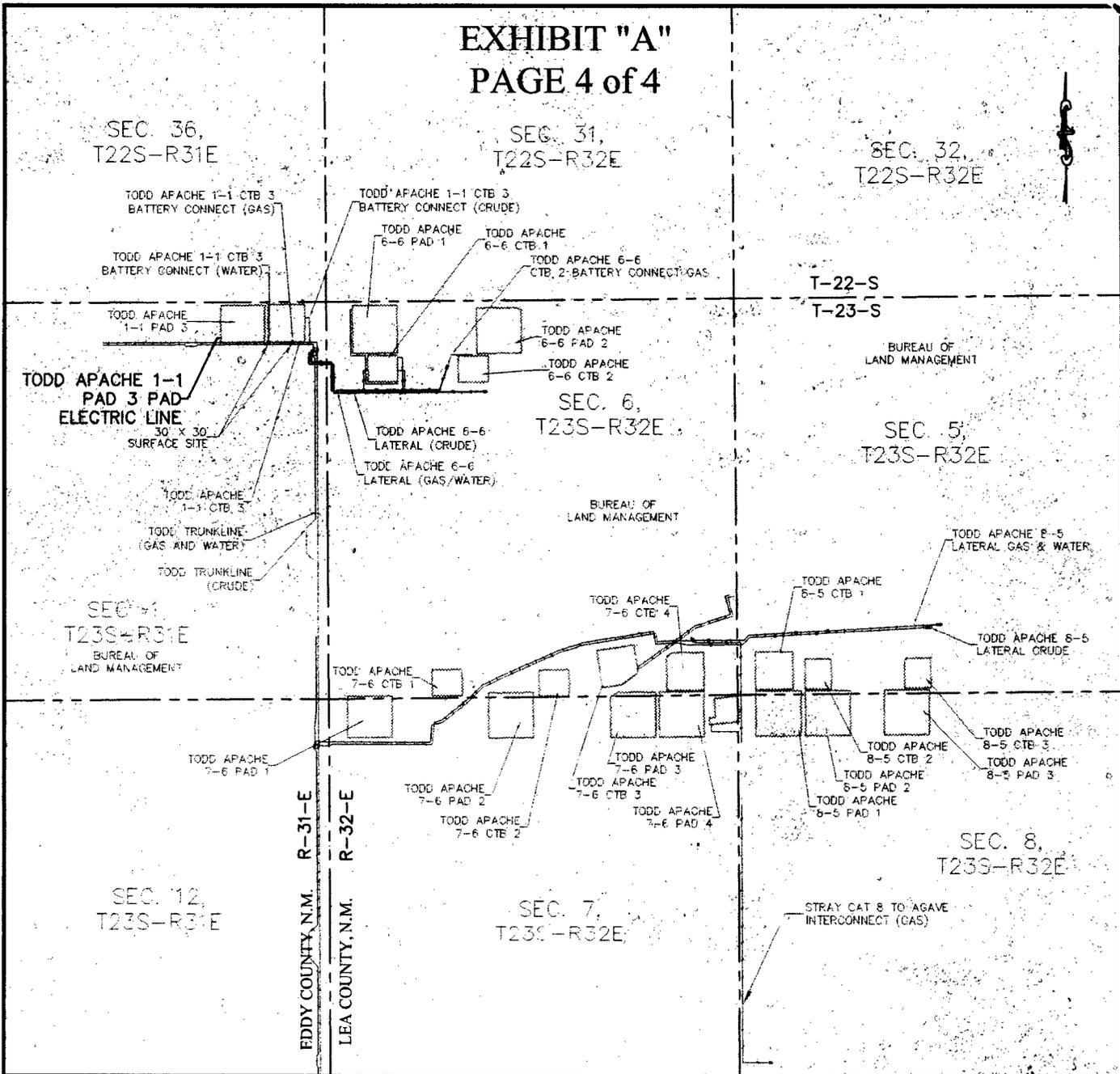
WBS NUMBER:  
XX-117680

SCALE:  
1" = 2000'

REVISIONS:

SHEET:  
3 OF 4

EXHIBIT "A"  
PAGE 4 of 4



AERIAL MAP

SECTION 1, T23S-R31E, N.M.P.M.;  
EDDY COUNTY, NEW MEXICO

**HORIZON ROW LLC**

DEVON ENERGY PRODUCTION CO., L.P.

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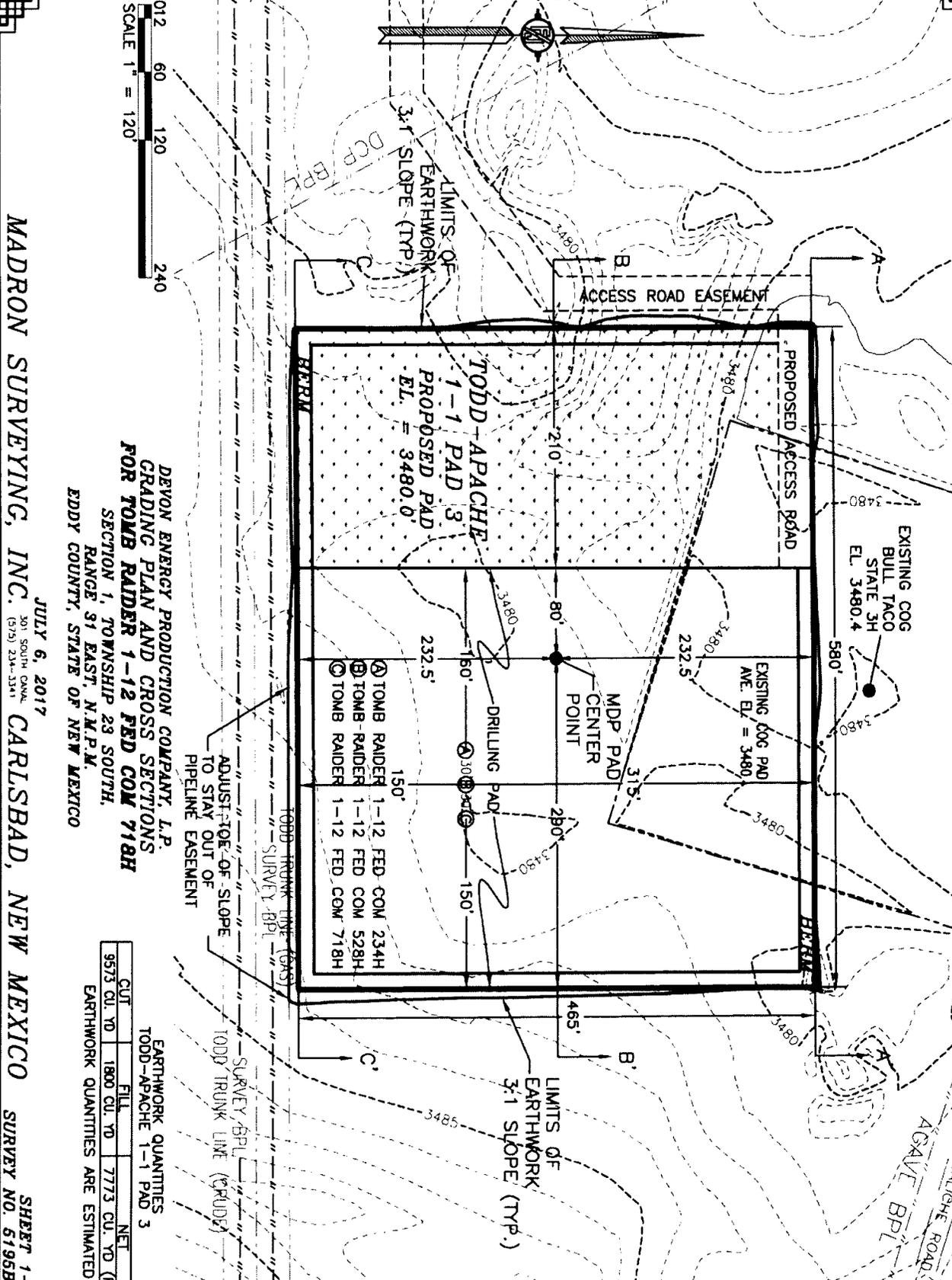
WBS NUMBER:  
XX-117680

SCALE:  
1" = 2000'

REVISIONS:

SHEET:  
4 OF 4

# PLAN VIEW



012 60 120 240  
 SCALE 1" = 120'

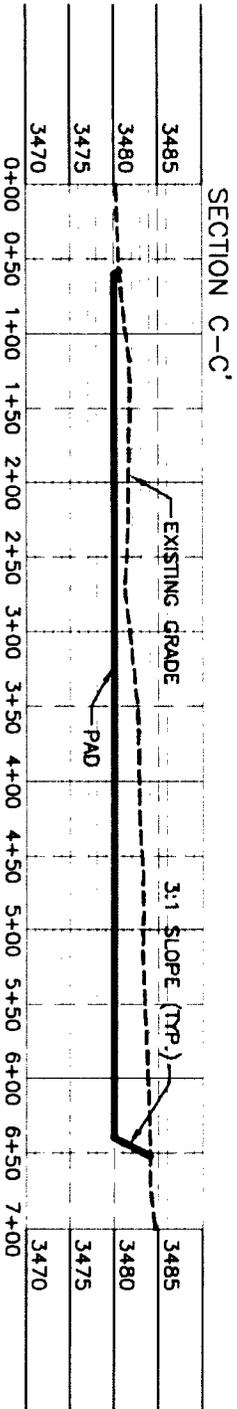
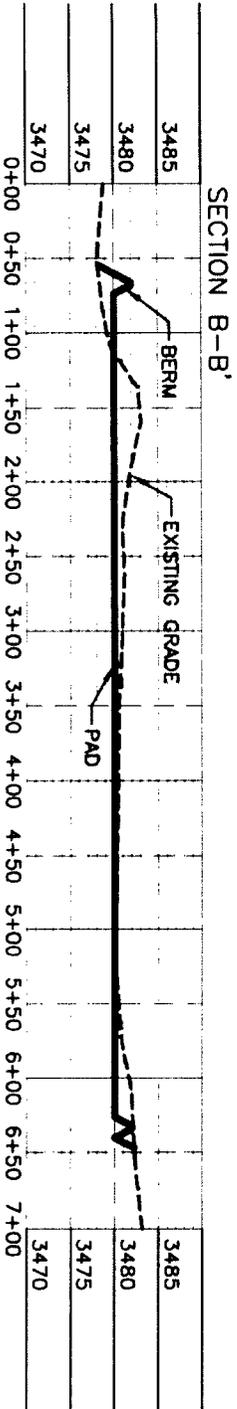
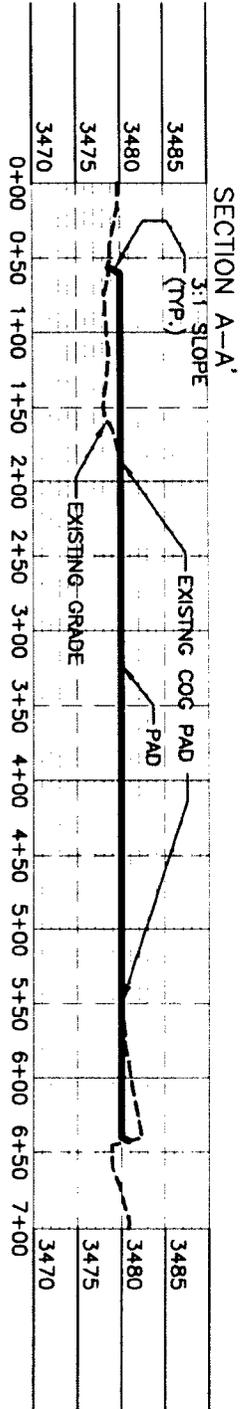
DEVON ENERGY PRODUCTION COMPANY, L.P.  
 GRADING PLAN AND CROSS SECTIONS  
 FOR TOMB RAIDER 1-12 FED COM 718H  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.,  
 EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017  
 MADRON SURVEYING, INC. 301 SOUTH GARDEN (505) 234-3344 CARLSBAD, NEW MEXICO SURVEY NO. 61956B  
 SHEET 1-2

EARTHWORK QUANTITIES  
 TODD-APACHE 1-1 PAD 3  
 EARTHWORK QUANTITIES ARE ESTIMATED

CUT	FILL	NET
9573 CU. YD.	1800 CU. YD.	7773 CU. YD. (FILL)

# CROSS-SECTIONS



012 60 120 240  
 SCALE 1" = 120' - 1" = 20' VER

DEVON ENERGY PRODUCTION COMPANY, L.P.  
 GRADING PLAN AND CROSS SECTIONS  
 FOR TOMB RAIDER 1-12 PED COM 718H  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

MADRON SURVEYING, INC. CARLSBAD, NEW MEXICO

301 SOUTH CANAL  
 (505) 234-5343

SHEET 2-2  
 SURVEY NO. 6196B

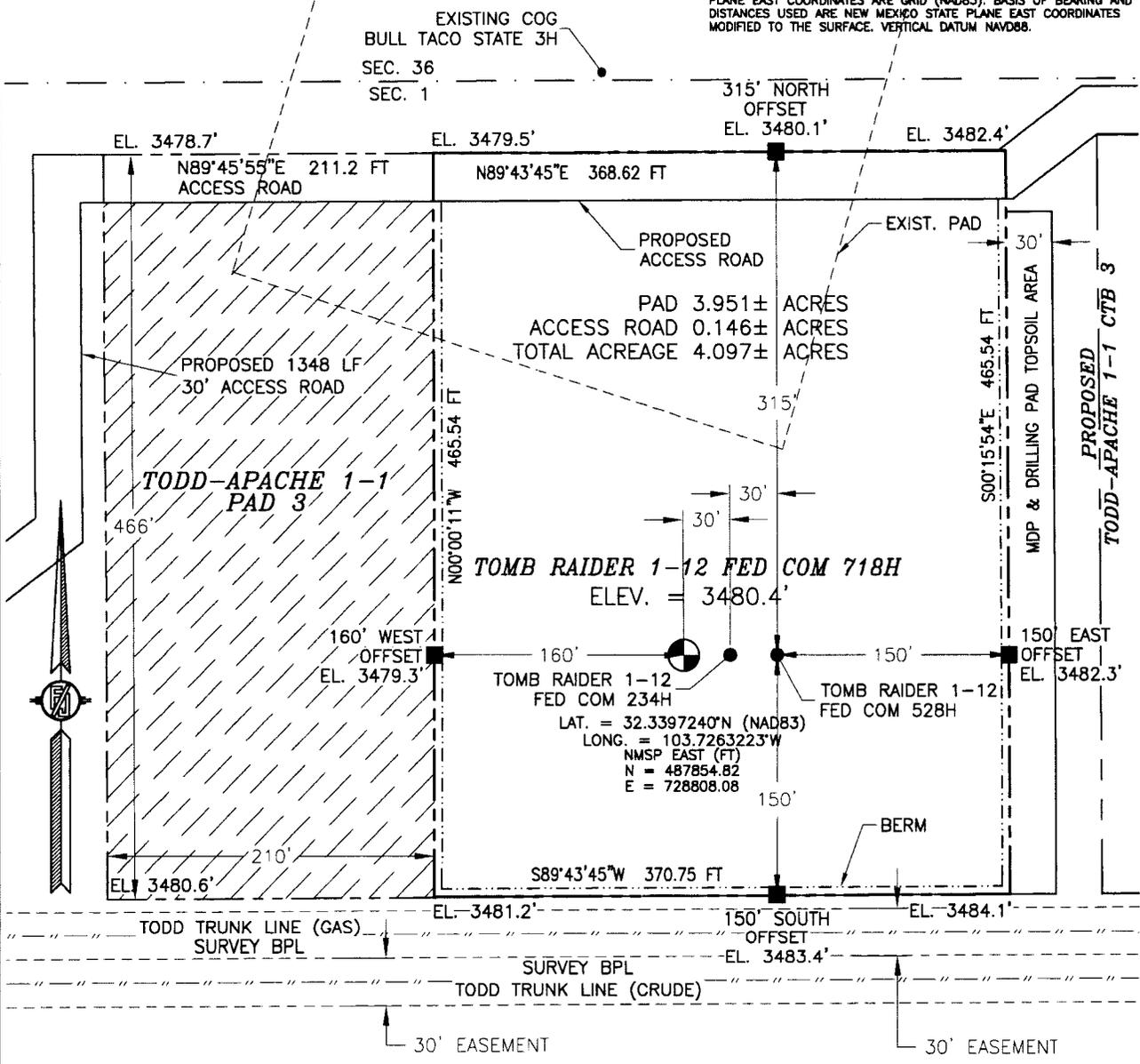
EARTHWORK QUANTITIES  
 TODD-APACHE 1-1 PAD 3

CUT	FILL	NET
9573 CU. YD	1800 CU. YD	7773 CU. YD (FILL)

EARTHWORK QUANTITIES ARE ESTIMATED

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 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. VERTICAL DATUM NAVD88.



SCALE 1" = 100'  
 DIRECTIONS TO LOCATION  
 FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 6.4 MILES TO CALICHE LEASE ROAD ON RIGHT, GO EAST ON CALICHE ROAD 0.3 OF A MILE, TURN RIGHT GO SOUTH 0.1 OF A MILE, TURN LEFT GO EAST 0.15 OF A MILE, GO SOUTH 602', THEN SOUTHWEST 311', TURN RIGHT GO SOUTH 355', TURN LEFT GO EAST 528', GO NORTHEAST 215', THEN NORTH 220', TURN RIGHT GO EAST 30' TO THE NORTHWEST PAD CORNER FOR TODD-APACHE 1-1 PAD 3.

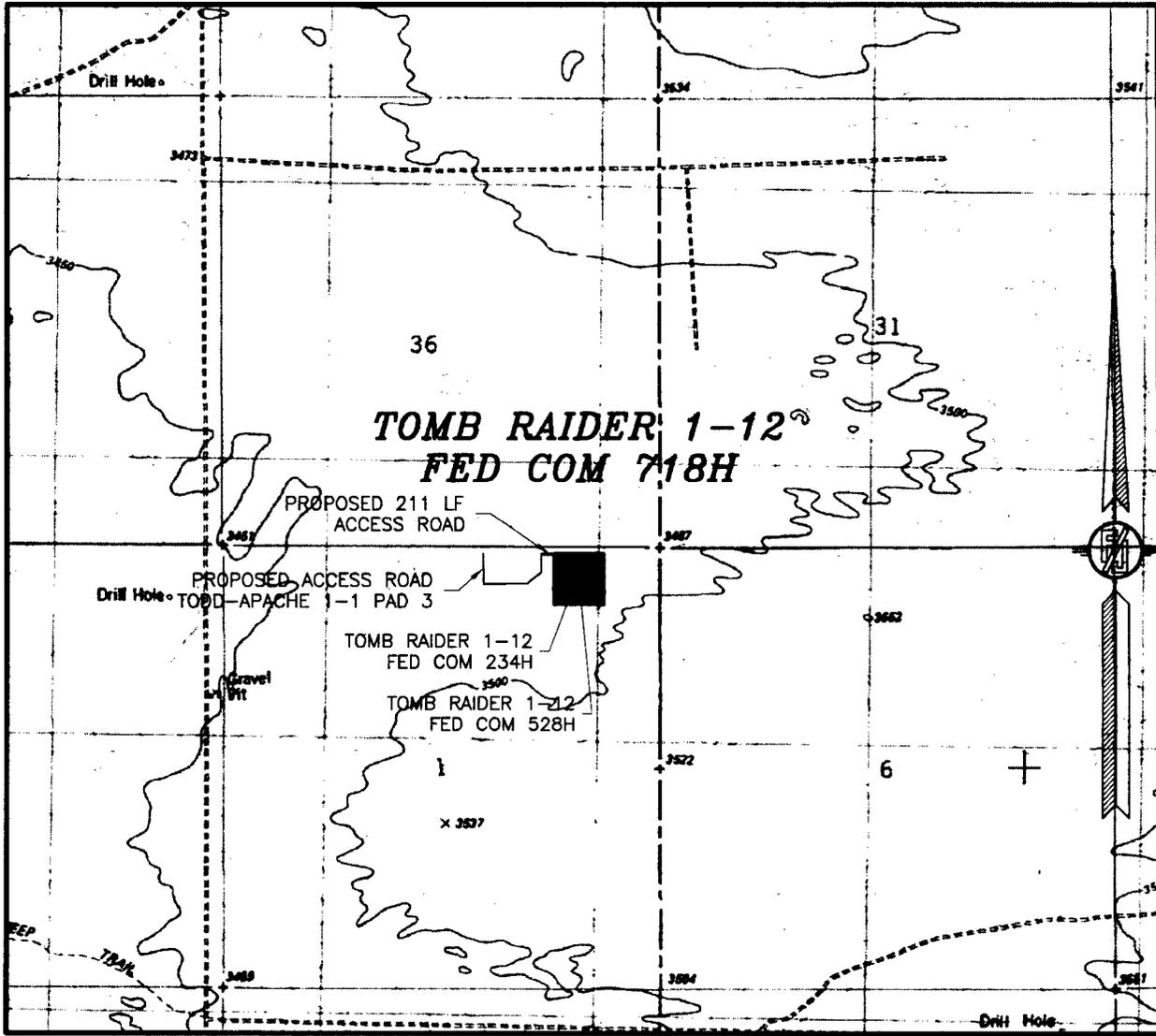
DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
 AND 1040 FT. FROM THE EAST LINE OF  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 LOCATION VERIFICATION MAP



USGS QUAD MAP:  
 BOOTLEG RIDGE

NOT TO SCALE

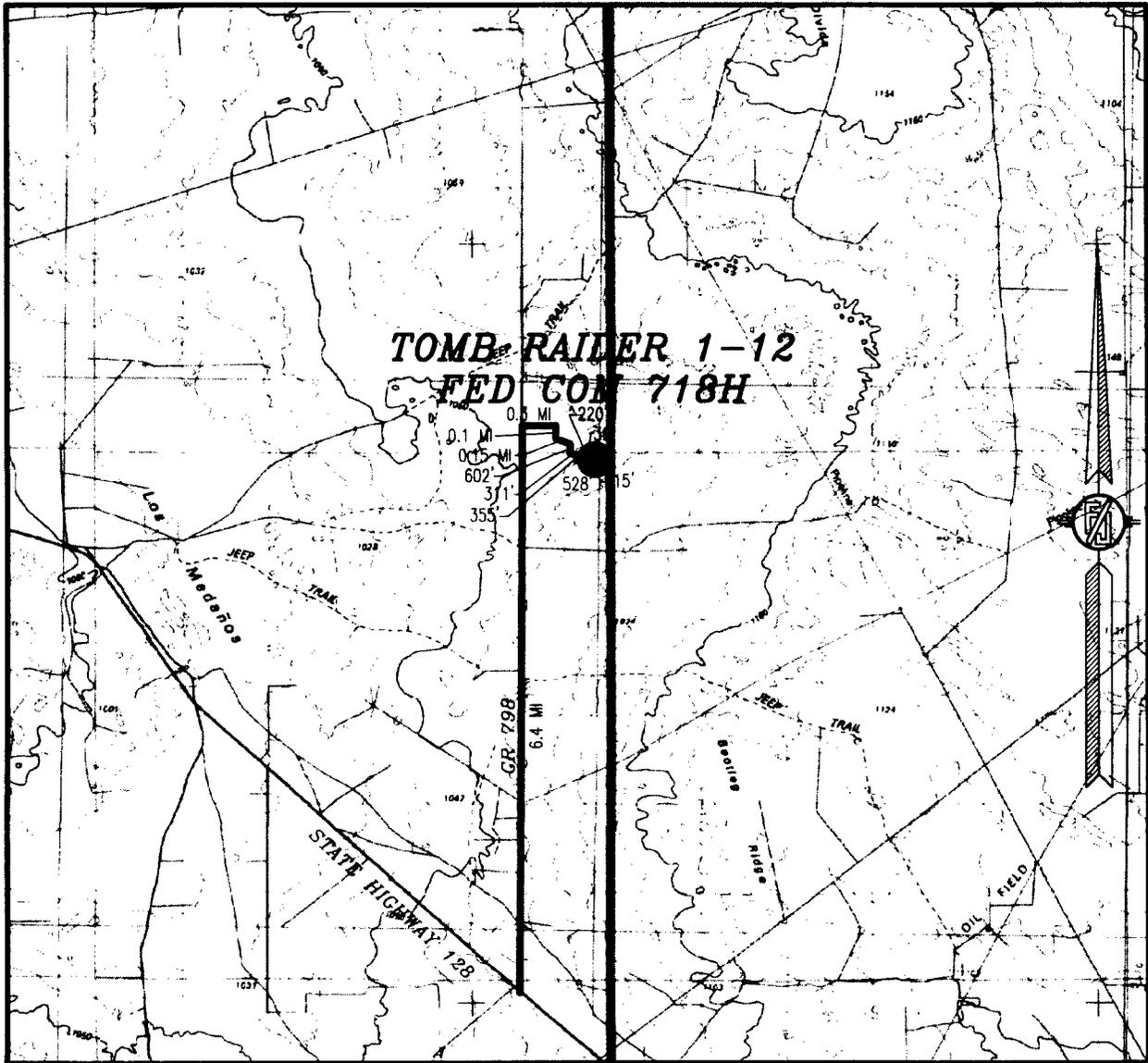
**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
 AND 1040 FT. FROM THE EAST LINE OF  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO  
 VICINITY MAP



DISTANCES IN MILES

NOT TO SCALE

DEVON ENERGY PRODUCTION COMPANY, L.P.  
**TOMB RAIDER 1-12 FED COM 718H**  
 LOCATED 360 FT. FROM THE NORTH LINE  
 AND 1040 FT. FROM THE EAST LINE OF  
 SECTION 1, TOWNSHIP 23 SOUTH,  
 RANGE 31 EAST, N.M.P.M.  
 EDDY COUNTY, STATE OF NEW MEXICO

**DIRECTIONS TO LOCATION**

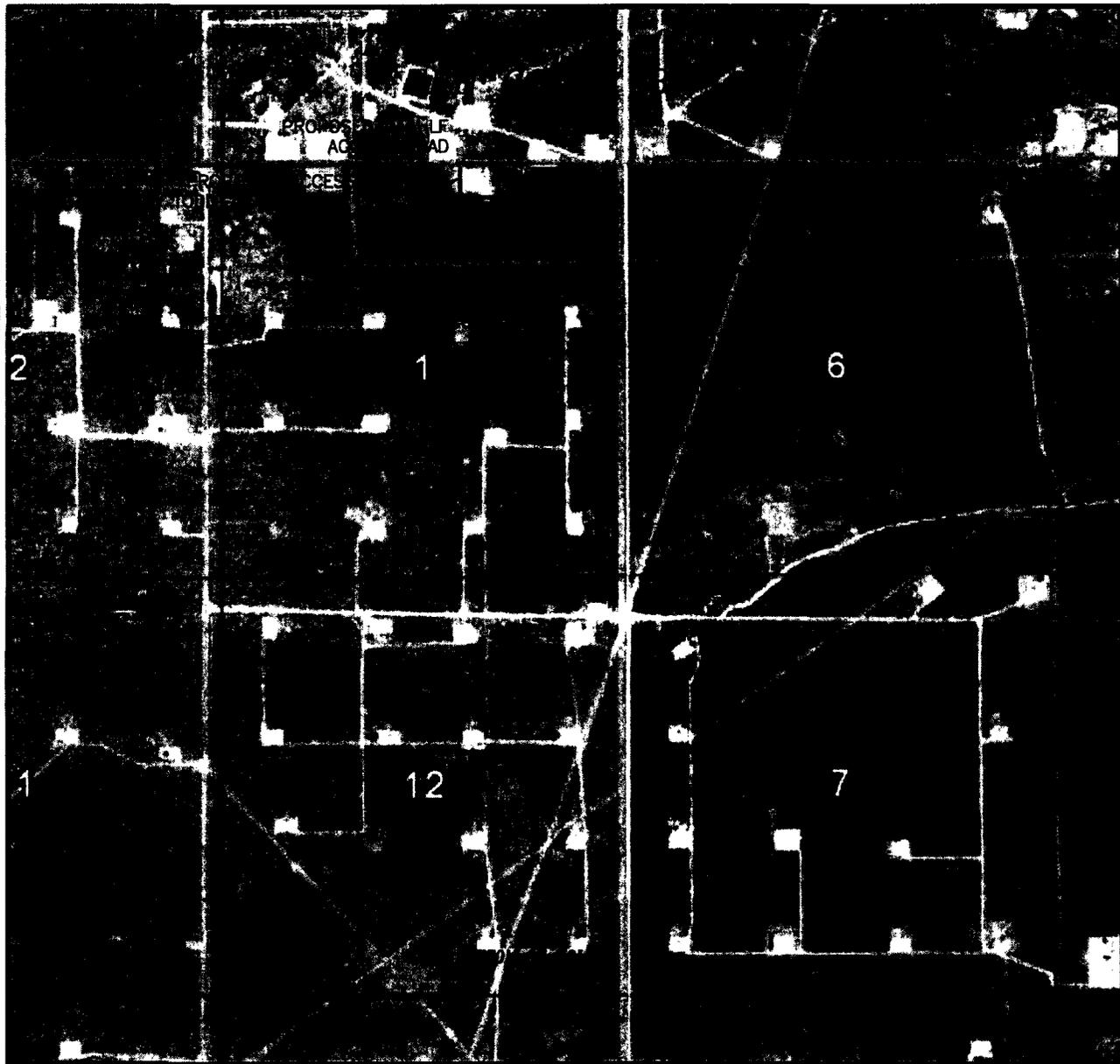
FROM STATE HIGHWAY 128 AND CR 798 (RED ROAD) GO NORTH ON CR 798 6.4 MILES TO CALICHE LEASE ROAD ON RIGHT, GO EAST ON CALICHE ROAD 0.3 OF A MILE, TURN RIGHT GO SOUTH 0.1 OF A MILE, TURN LEFT GO EAST 0.15 OF A MILE, GO SOUTH 602', THEN SOUTHWEST 311', TURN RIGHT GO SOUTH 355', TURN LEFT GO EAST 528', GO NORTHEAST 215', THEN NORTH 220', TURN RIGHT GO EAST 30' TO THE NORTHWEST PAD CORNER FOR TODD-APACHE 1-1 PAD 3.

JULY 6, 2017

SURVEY NO. 5195B

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

SECTION 1, TOWNSHIP 23 SOUTH, RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO  
AERIAL PHOTO



NOT TO SCALE  
AERIAL PHOTO:  
GOOGLE EARTH  
FEBRUARY 2017

**DEVON ENERGY PRODUCTION COMPANY, L.P.**  
**TOMB RAIDER 1-12 FED COM 718H**  
LOCATED 360 FT. FROM THE NORTH LINE  
AND 1040 FT. FROM THE EAST LINE OF  
SECTION 1, TOWNSHIP 23 SOUTH,  
RANGE 31 EAST, N.M.P.M.  
EDDY COUNTY, STATE OF NEW MEXICO

JULY 6, 2017

SURVEY NO. 5195B

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

**NM OIL CONSERVATION**

ARTESIA DISTRICT

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

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

Submit Original  
to Appropriate  
District Office

MAR 12 2018

RECEIVED

**GAS CAPTURE PLAN**Date: 8/8/2017

Original Devon & OGRID No.: Devon Energy Prod Co., LP (6137)  
 Amended - Reason for Amendment: \_\_\_\_\_

This Gas Capture Plan outlines actions to be taken by the Devon to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

**Well(s)/Production Facility – Name of facility**

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Tomb Raider 1-12 Fed Com 528H	N/A	Lot 1, Sec 1, T23S, R 31E	360 FNL 980 FEL			Todd Apache MDPI 1 CTB 3

**Gathering System and Pipeline Notification**

Well(s) will be connected to a production facility after flowback operations are complete, if DCP system is in place. The gas produced from production facility is dedicated to DCP and will be connected to DCP low/high pressure gathering system located in Lea County, New Mexico. It will require 100' of pipeline to connect the facility to low/high pressure gathering system. Devon provides (periodically) to DCP a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Devon and DCP have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at DCP Processing Plant located in Sec.19, Twn. 19S, Rng. 32E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

**Flowback Strategy**

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on DCP system at that time. Based on current information, it is Devon's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

**Alternatives to Reduce Flaring**

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

## Section 1 - General

Would you like to address long-term produced water disposal? NO

## Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

### **Section 3 - Unlined Pits**

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

### **Section 4 - Injection**

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

**Injection well type:**

**Injection well number:**

**Assigned injection well API number?**

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection attachment:**

**Underground Injection Control (UIC) Permit?**

**UIC Permit attachment:**

**Injection well name:**

**Injection well API number:**

## **Section 5 - Surface Discharge**

**Would you like to utilize Surface Discharge PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

## **Section 6 - Other**

**Would you like to utilize Other PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Bond Info Data Report

03/05/2018

### Bond Information

Federal/Indian APD: FED

BLM Bond number: CO1104

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment: