COLORADO OIL AND GAS CONSERVATION COMMISSION
4M PROJECT COAL BED METHANE MONITORING WELL INSTALLATION REPORT
LA PLATA COUNTY, COLORADO
MARCH 2010

SMA

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1.0 EXECUTIVE SUMMARY

On behalf of the Colorado Oil and Gas Conservation Commission (COGCC), Souder, Miller & Associates (SMA) supervised the construction of three Fruitland Formation coal bed methane (CBM) monitoring wells. Oil and gas industry standard well drilling and completion techniques were used. Field work was performed from September 30, 2009 through November 24, 2009. Regional Topographic Map and Aerial Photo 1, Regional Aerial Photo, illustrate the regional orientation of the three sites. The three wells are located in La Plata County at the following three locations:

1. BP Highlands, located in Section 15, Township 35 North, Range 07 West, see Map 2 and Photo 2 illustrate site specific topography.
2. Fiddler Site, located in Section 10, Township 34 North, Range 08 West, see Map 3 and Photo 3 illustrate site specific topography.
3. Palmer Ranch, located in Section 19, Township 35 North, Range 08 West, see Map 4 and Photo 4 illustrate site specific topography.

One CBM monitoring well was installed at each location. The well at the BP Highlands site was drilled to 276 feet below ground surface (bgs). The well at Fiddler site was drilled to 457 feet bgs. The well at the Palmer Ranch site was drilled to 737 feet bgs. The wells are equipped with pressure transducers and telemetry equipment. The pressure monitoring and telemetry equipment provides remote internet based monitoring of pressures both at the surface and below perforations in each borehole. Water levels can be calculated at each location utilizing pressure differences.

SMA recommends ongoing evaluation of data obtained in this study to determine if additional monitoring wells are needed to adequately monitor near outcrop reservoir conditions in the Fruitland Formation.

2.0 INTRODUCTION

This report details the well site preparation activities, monitoring well drilling, casing installation, perforating, swabbing, and pressure sensing and telemetry equipment installation activities associated with the La Plata County Colorado CBM Monitoring well site locations. The wells sites are known as: 1. BP Highlands located in Section 15, Township 35 North, Range 07 West; 2. Fiddler site located in Section 10, Township 34 North, Range 08 West; and the 3. The Palmer Ranch site is located in Section 19, Township 35 North, Range 08 West. See Table 1, Summary of La Plata County Coal Bed Methane Monitoring Well Details, for specifics of each well and each location. All field activities were performed from September 30, 2009 to November 24, 2009. SMA performed the work pursuant to contract PHA-950 between the Colorado Department of Natural Resources and SMA.

3.0 OBJECTIVES

The project objectives are:

1. Drilling and completion of three CBM monitoring wells in the Fruitland Formation within one mile of the outcrop.
2. Conduct lithologic and geophysical logging in each borehole to provide detailed information on subsurface geology including the depth to Fruitland Formation coal seams and the top of the Pictured Cliffs Formation
3. Perforate well bores in specific coal intervals to monitor groundwater and gas pressures from specific coal seams within the Fruitland Formation
4. Installation of pressure transducers and telemetry systems to permit remote access monitoring of methane gas pressures and groundwater.

4.0 BACKGROUND

The Fruitland Formation in the San Juan Basin extends from southwestern Colorado into New Mexico and is one of the most productive CBM reservoirs in the United States. The San Juan Basin of Colorado-New Mexico historically has had methane seeps identified along the Fruitland Coal outcrop in La Plata County. The northern portion of the San Juan Basin is located in La Plata and Archuleta counties, Colorado.

The COGCC funded the 3M project (Mapping, Modeling and Monitoring) in 2000 to install monitoring wells along the Fruitland Coal outcrop north of Bayfield Colorado and south of Vallecito Lake, to respond to the potential risk of CBM seeps. In 2001 and 2002, the COGCC installed seven monitoring wells into the Fruitland Formation at four locations near the outcrop in La Plata County. These wells have served to monitor Fruitland Formation pressures and water levels In La Plata County since their installation.

In 2007, the COGCC received a special appropriation from the Colorado Legislature to expand the monitoring network into the eastern part of the San Juan Basin, as well as installing additional wells in the western part of the Basin and performing pilot scale mitigation testing. The new, expanded study is referred to as the "4M Project", which refers to the original 3M plus the incorporation of a mitigation component, hence "4M".

The eastern area 4M wells were drilled in 2008 in western Archuleta County, Colorado. Three additional sites were added to the monitoring well network: the Wagon Gulch site; the Fosset Gulch site and; the Highway 151 site. Two wells were installed at each site, totaling six wells. These wells measure pressures in the Fruitland Formation coal seams to establish baseline conditions before extensive coal bed methane development occurs in the area. All three sites have operational telemetry systems recording water levels and gas pressures.

The is report documents the expansion of the 4M monitoring well network to the western portion of the San Juan Basin in La Plata County, Colorado.

5.0 REGIONAL GEOLOGY

"The project setting is in the northern portion of the San Juan Basin between Durango and Bayfield in La Plata County, Colorado. The San Juan Basin is a Late Cretaceous-Early Tertiary structural depression that contains Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, Triassic, Jurassic, Cretaceous, Tertiary and Quaternary rocks (Fassett 1625-B, 2009). It is the most prolific coal bed methane producing basin in North America. Project well locations are very near the steeply dipping updip outcrops of Upper Cretaceous Kirtland Formation, Fruitland Formation, and Pictured Cliffs Sandstone in descending order with exposed rock dips ranging from 30 to 51 degrees south and southeast. Wells were placed within the strike valley located between the hogbacks of the Farmington Sandstone (member of Kirtland Formation) and the Pictured Cliffs Sandstone. These strike valleys are marked by outcrops of the more eroded Lower Kirtland Formation and targeted coal bearing Fruitland Formation." Brame GeoScience, LLC. Geologic Narrative, Jeff Brame, 2010, Appendix A)

"The project emphasis is on monitoring reservoir pressures and water levels primarily from coal beds within the Upper Cretaceous Lower Fruitland Formation which crops out along the northern edge of the San Juan Basin. All monitoring wells have the long string casing set near the top of the Pictured Cliffs Sandstone and all were perforated at selected intervals within the Fruitland Formation at coal beds identified from open hole and cased hole geophysical logs." (BrameGeoScience, 2010)

6.0 APPROACH

SMA's approach for the project was to use gas industry standard well designs, material specifications and drilling methods. Standard gas production drilling techniques were chosen for reasons of safety, capability, long term durability and costs.

SMA worked with MoTe, Inc. of Farmington, New Mexico to develop the drilling program. Drilling with fluids (mud) was chosen as the preferred method for drilling the wells based on economics and the ability to use a small pad to minimize surface impacts.

The drilling fluids were contained within a closed loop drilling fluid system and consisted of polymer, bentonite, water and caustic soda with lost circulation material as needed. The closed loop drilling fluid system was chosen to reduce pad size and to minimize surface and potential environmental impacts.

Reconditioned bits were used to drill 12 ¼” conductor holes for the 9 5/8”, 36 pound per foot steel conductor casings, while 8 ¾” bits were used to drill the holes for the 7”, 20 pound per foot steel surface casings. Both the conductor and surface casings were cemented utilizing standard oilfield technologies. A 6 ¼” bit was used to drill the hole for the 4 ½”, 10.5 pounds per foot steel long string casings. The long string casing was set by circulating 15.5 lb/gallon cement to surface, to fully seal the annular space, then displacing the casing volume with water so the long string was not full of cement.

7.0 WELL SITE SURVEYING, PERMITTING AND CONSTRUCTION

From August 12, 2008 to September 22, 2008, SMA had the wellsite locations surveyed and staked for the purpose of creating topographic maps for each well site. The topographic maps were then used to create final well site designs. These final designs included well pad dimensions, construction diagrams, cut and fill diagrams, access road design and the implementation of storm water pollution prevention best management practices. Applications for permits to drill, figures and diagrams are located in Appendix B.

From September 21, 2009 to October 16, 2009, Consolidated Constructors of Farmington, New Mexico, under the supervision of SMA, constructed the BP Highlands site, the Fiddler site and the Palmer Ranch well site locations. Each well pad was constructed within the staked areas of disturbance as approved by the COGCC. Photographs of all locations are located in Appendix G.

8.0 COAL BED METHANE MONITORING WELL DRILLING AND INSTALLATION TECHNIQUES COMMON TO ALL PROJECT MONITORING WELLS

From September 30, 2009 to November 12, 2009, MoTe, Inc. of Farmington, New Mexico, under SMA supervision, drilled three CBM monitoring wells. One monitoring well was installed at each of the three locations utilizing a closed loop mud rotary drilling technique. The following sections discuss methods that were utilized during the drilling and installation of all three monitoring wells.

Generic listing of operations:

1. Stake location and access
2. Build location and access. No drilling pits were required due to modified closed loop system.
3. Move in drilling rig, water storage tanks, and miscellaneous equipment.
4. Haul water from commercial sources.
5. Spud well, drill to conductor casing depth.
6. Set conductor casing, circulate 14.5 lb/gallon cement to surface.

7. Wait on cement 12 hours - allow cement to cure.
8. Drill to surface casing depth.
9. Set surface casing, circulate 14.5 lb/gallon cement to surface.
10. Wait on cement 12 hours - allow cement to cure.
11. Test casing, rig up blow out preventer (BOP).
12. Drill to top of Pictured Cliffs Formation (PC).
13. Run open hole geophysical logs.
14. Run casing to total depth, circulate 15.5 lb/gallon cement to surface.
15. Transport and dispose of drilling fluids to disposal at a permitted facility and bring in additional water.
16. Wait on cement 12 hours - allow cement to cure.
17. Move drilling rig to next site.
18. Move in swabbing rig
19. Run cased hole logs, perforate.
20. Develop well.
21. Rig down swabbing rig and move to next site.
22. Set tubing head.
23. Install transducers and remote terminal unit.
24. Data accessible online.
25. Reclamation.

8.1 WATER HAULING AND DRILLING FLUID DISPOSAL

Water hauling for drilling and cementing activities was performed by various contractors from Farmington, New Mexico. Water was transported from Aztec, New Mexico or Ignacio, Colorado.

Waste drilling fluids from the closed loop drilling system were transported by various Farmington, New Mexico area contractors' vacuum trucks. All drilling fluids were disposed of at properly permitted facilities in Farmington, New Mexico.

8.2 LITHOLOGIC LOGGING

Jeff Brame of Brame GeoScience, LLC. conducted all lithologic logging activities. Lithological sample descriptions consisted of general mineralogy and sample characteristics including color, grain size, grain shape, degree of cementation, and acid response. Lithological descriptions are located on Figures 1-6 of Appendix C: Geophysical, Lithological & Well Construction Diagrams.

8.3 CONDUCTOR CASING BOREHOLE DRILLING, CONDUCTOR CASING INSTALLATION AND CEMENTING

The borehole for the conductor casing for each monitoring well was drilled with a 12 ¼" drilling bit. Each conductor casing was constructed with 9 5/8", 36 pound per foot steel casing. Each conductor casing was installed and cemented by MoTe, Inc. The cement was mixed to 14.5 pound per gallon consistency and then circulated to the surface and allowed to set for 12 hours.

8.4 SURFACE CASING BOREHOLE DRILLING, SURFACE CASING INSTALLATION AND CEMENTING

The borehole for the surface casing for each monitoring well was drilled with an 8 ¾" drilling bit. Each surface casing was constructed with 7" outside diameter, 20 pound per foot steel casing. Each surface casing was installed and cemented by MoTe, Inc. The cement was mixed to 14.5 pound per gallon consistency and then circulated to the surface and allowed to set for 12 hours. As Built Diagrams of each monitoring well are provided in Figures 1-6 of Appendix E.

8.5 SURFACE CASING BLOW OUT PREVENTER (BOP)

After cement was allowed to set for at least 12 hours, the MoTe, Inc. crew installed a double ram 5000 pound per square inch (psi) rated Weatherford BOP. The BOP was installed on the surface casing and then pressure tested to 600 psi. The BOP diagram is provided in Appendix D.

8.6 LONG STRING BOREHOLE DRILLING AND OPEN HOLE GEOPHYSICAL LOGGING

The long string casing borehole for each monitoring well was drilled with a 6 1/4" drill bit. After total depth was reached in each monitoring well, Jet West of Farmington, New Mexico performed open hole geophysical logging on each well. The open hole geophysical logging suite included gamma ray, bulk density, neutron, temperature, electric resistivity, Acoustic Televiewer and borehole deviation logs. Geophysical logs are located in Appendix F. Geophysical, Lithological and Well Construction Diagrams are located in Appendix C.

8.7 LONG STRING CASING INSTALLATION AND CEMENTING

After all the open hole geophysical logging was complete, each long string casing was constructed with 4 ½" diameter, 10.5 pound per foot steel casing. Each long string casing was installed by MoTe, Inc. The long string casing at the BP Highlands site was cemented by MoTe, Inc. and the long strings at the Fiddler and the Palmer Ranch locations were cemented by Superior Well Services of Farmington, New Mexico. The cement for the long strings was mixed at 15.5

pound per gallon consistency and then circulated to the surface. Figures 1-6, As Built Diagrams of each monitoring well, are provided in Appendix D.

8.8 CASED HOLE LOGGING, PERFORATING AND SWABBING

After construction of each monitoring well, cased hole logging was performed to correlate the depth intervals of the well bore chosen for perforation with the open hole logs. The intervals for perforation were chosen by COGCC, Brame GeoScience, LLC. and SMA. The monitoring wells were perforated using directional explosives. Each monitoring well was perforated at different intervals, however all perforations were completed with four shots per vertical foot (spf). All cased hole logging and perforating was performed by Jet West, Inc. of Farmington, New Mexico. Cased hole logs are located in Appendix F. Perforated intervals of each monitoring well are illustrated in Figures 1-6 of Appendix D: As Built Diagrams.

After perforating, each monitoring well was swabbed (developed) to enhance communication with the target interval. A specialized swabbing rig made a varying number of runs for each well bore with 4 ½” swabbing cups to remove water from the casing. See Table 2, Summary of Monitoring Well Swabbing Activities for swabbing details. All swabbing activities were performed by Hurricane Swabbing Service of Farmington, New Mexico. The number of swab runs was determined by the SMA onsite geologist.

8.9 TUBING HEADS, PRESSURE TRANSDUCERS AND TELEMETRY SYSTEM INSTALLATION

After swabbing activities were complete, a 2000 psi rated tubing head was installed on the 4 1/2” well casing. Prior to sealing the tubing head, In-Situ, Inc. of Fort Collins, Colorado, under SMA supervision, installed two pressure transducers in each monitoring well. The lower pressure transducer in the BP Highlands well is a 300 psi In-Situ, Inc. brand and the lower transducers in the Fiddler and Palmer Ranch site are 900 psi In-Situ, Inc. brand. Each lower pressure transducer was installed approximately ten feet below the perforated intervals in individual monitoring wells.

An upper pressure transducer was installed inside each long sting casing below the tubing well head. The upper pressure transducer in the BP Highlands well is a 30 psi In-Situ, Inc. brand and the transducers in the Fiddler and Palmer Ranch sites are 900 psi In-Situ, Inc. brand. All transducers are connected to an In-Situ Remote Terminal Unit (RTU) located at each well site location. The RTU records down hole pressures and surface pressures every twelve hours, or twice daily. The RTUs broadcast the data via satellite uplink to the In-Situ’s Data Center.

9.0 CONSTRUCTION DETAILS FOR MONITORING WELL # 1, API # 05-067-09794, BP HIGHLANDS

From September 30, 2009 to October 6, 2009, BP Highlands # 1 was drilled and completed. The conductor casing 12 1/4” borehole was drilled to a depth of 24 feet bgs and 22 feet of 9 5/8”, 36 pound per foot conductor casing was installed by circulating cement to the surface. The 8 ¾” borehole for the surface casing was drilled to a depth of 185 feet bgs. Coal was encountered at approximately 180 feet bgs. 170 feet of 7”, 20 pound per foot surface casing was installed by circulating cement to the surface. The 6 ¼” borehole for the long string was drilled to 276 feet bgs. Jet West, Inc. ran an open hole log suite to total depth. The 4 ½” 10.5 pound per foot long string was installed to a depth of 241 feet bgs by circulating cement to the surface.

On October 9, 2009, Jet West, Inc. performed cased hole logging to correlate perforation intervals with open hole logs. After completion of the cased hole logs, the monitoring well was perforated 182-194 feet bgs. After perforating activities were complete, Hurricane Swabbing Service swabbed the well and approximately 22 barrels of water was recovered.

On November 19, 2009 In-Situ, Inc. and a Crossfire, Inc. roustabout crew, under the supervision of SMA, installed pressure transducers in the well. The lower pressure transducer was set at 204 feet bgs. The upper transducer was installed approximately one foot below the bottom of the tubing head. All transducers were connected to the RTU. The telemetry system was tested and found to be functioning properly.

10.0 CONSTRUCTION DETAILS FOR MONITORING WELL # 1, API # 05-067-09803, FIDDLER SITE

From October 9, 2009 to November 17, 2009, Fiddler #1 was drilled and completed. The 12 ¼” conductor casing borehole was drilled to a depth of 44 feet bgs and 43 feet of 9 5/8”, 36 pound per foot conductor casing was installed by circulating cement to the surface. The 8 ¾” surface casing borehole was drilled to a depth of 282 feet bgs and 270 feet of 7”, 20 pound per foot surface casing was installed by circulating cement to the surface. The 6 ¼” borehole for the long string was drilled to 457 feet bgs. Jet West, Inc. ran an open hole log suite to total depth. The 4 ½” 10.5 pound per foot long string was installed at a depth of 457 feet bgs by circulating cement to the surface.

On November 3, 2009, Jet West, Inc. ran cased hole logs to correlate proposed perforation intervals with those identified in open hole logs. After completion of the cased hole logging, the monitoring well was perforated from 378-380, 354-363, 276-291, 220-226 and 174-190 feet bgs. After perforating activities were complete, Hurricane Swabbing Service swabbed the well and approximately 31 barrels for water was recovered.

On November 17, 2009, In-Situ, Inc. and a Crossfire, Inc. roustabout crew, under the supervision of SMA, installed pressure transducers in the well. The lower pressure transducer was installed at 390 feet bgs. The upper transducer was installed in the tubing head approximately five feet bgs. All transducers were connected to the RTU. The telemetry system was tested and found to be functioning properly.

11.0 CONSTRUCTION DETAILS FOR MONITORING WELL # 1, API # 05-067-09804, PALMER RANCH SITE

From October 27, 2009 to November 12, 2009, Monitoring Well #1 drilled and completed. The 12 ¼” conductor casing borehole was drilled to a depth of 48 feet bgs and 44 feet of 9 5/8”, 36 pound per foot conductor casing was installed by circulating cement to the surface. The 8 ¾” surface casing borehole was drilled to a depth of 324 feet bgs and 318 feet of 7”, 20 pound per foot surface casing was set by circulating cement to the surface. The 6 ¼” borehole for the long string was drilled to 747 feet bgs. Jet West, Inc. completed the open hole geophysical log suite to total depth. The 4 ½”, 10.5 pound per foot long string was set at a depth of 738 feet bgs by circulating cement to the surface.

On November 17, 2009, Jet West, Inc. ran cased hole logs to correlate perforation intervals with open hole logs. After completion of the cased hole logging, the monitoring well was perforated from 623-628, 634-637, 640-657, 662-671 feet bgs. After perforating activities were complete, Hurricane Swabbing Service swabbed the well and approximately 35 barrels of water was recovered.

On November 18, 2009 In-Situ, Inc. and a Crossfire, Inc. roustabout crew, under SMA supervision, installed pressure transducers in the well. The lower pressure transducer was installed at 690 feet bgs. The upper transducer was installed approximately one foot below the bottom of the tubing head. All transducers were connected to the RTU. The telemetry system was tested and found to be functioning properly.

12.0 GEOLOGIC, GEOPHYSICAL AND HYDROLOGIC INTERPRETATION

“The Kirtland Formation (Farmington Sandstone and Lower Kirtland Members), the Fruitland Formation and the Pictured Cliffs Sandstone were identified during drilling activities at the BP Highlands, Fiddler and Palmer Ranch well sites. The apparent formation thicknesses in each well are greater than true formation thicknesses due to the steep dip of the rock units. Formation contacts in each well were initially estimated from well site examination of drill cutting samples taken at ten foot intervals. After wireline geophysical logging in each well, more precise identification of these formation contacts was achieved through integrated analysis of gamma ray (GR), neutron-density, and electric (resistivity) logs. Water bearing sandstone and siltstone zones are further identified from high milivolt readings on the spontaneous potential (SP) logs and high resistivity readings on the electric logs." (BrameGeoScience, 2010)

"Formation contacts are indicated on the Geophysical, Lithological and Well Construction Diagrams in Appendix C. The Farmington Sandstone Member is primarily sandstone and is characterized by low GR values and higher density values. The Lower Kirtland Member is mostly mudstone and siltstone indicated by generally higher GR values and lower density values. The Fruitland Formation is a lithologically diverse coastal plain deposit whose top is placed at the first thick channel sandstone which is marked by low GR and higher density readings. Additional Fruitland rock types are siltstones, mudstones, coals and rare shales, each of which can be identified by characteristic combinations of geophysical log readings. Finally, the top of the Pictured Cliffs Sandstone, a coarser grained shore zone deposit, is marked by an abrupt low GR, high density zone beneath the basal Fruitland coal or mudstone." (BrameGeoScience, 2010)

12.1 BP HIGHLANDS WELL SITE

"This well pad material was alluvium from ground surface to 11 feet bgs for a thickness of 11 feet. The Fruitland Formation was penetrated from 11-194 feet bgs for a thickness of 183 feet. The Pictured Cliffs Sandstone was encountered from 194-276 feet bgs, the total depth (TD) of the borehole. No potential water bearing zones were identified. Figure 4 Geophysical, Lithological & Well Construction Diagram located in Appendix C illustrates the geologic contacts and formation lithologies."

"Six coal zones were found in the Fruitland Formation ranging in thickness from 1-11 feet. The well casing was perforated over the coal interval from 182-194 feet bgs." (BrameGeoScience, 2010)

12.2 FIDDLER WELL SITE

"The well pad was constructed on alluvium overlaying the Lower Kirtland Member of the Kirtland Formation, and extends from ground surface to approximately 37 feet bgs for a thickness of 37 feet. The Fruitland Formation was penetrated from 37 to approximately 409 feet bgs for a thickness of 372 feet. The Pictured Cliffs Sandstone was encountered from 409 to 457 feet bgs (TD). One potential water bearing zone is indicated by the SP and resistivity logs from 292-306 feet bgs." Figure 5, Geophysical, Lithological & Well Construction Diagram located in Appendix C illustrates the geologic contacts and formation lithologies.

"Eleven coal zones were identified in the Fruitland Formation ranging in thickness from 1-18 feet. The well casing was perforated over the coal intervals from 174-

190 feet bgs, 220-226 feet bgs, 276-291 feet bgs, 354-363 feet bgs, and 378-380 feet bgs."(BrameGeoScience, 2010)

12.3 PALMER RANCH WELL SITE

"The well pad material was alluvium from ground surface to approximately 20 feet bgs for a thickness of 20 feet. The Farmington Sandstone Member of the Kirtland Formation was penetrated from 20 feet to approximately 50 feet bgs for a thickness of 30 feet. The Lower Kirtland Member of the Kirtland Formation was encountered from 50-186 feet bgs for a thickness of 136 feet. The Fruitland Formation encountered from 186-723 feet bgs for a thickness of 537 feet. The Pictured Cliffs Sandstone was encountered from 723-747 feet bgs (TD). No potential water bearing zones were identified." Figure, 6 Geophysical, Lithological & Well Construction Diagram located in Appendix C illustrates the geologic contacts and formation lithologies.

"Fourteen coal zones were identified in the Fruitland Formation ranging in thickness from 0.5-16 feet. The well casing was perforated over the coal intervals from 623-628, 634-637, 640'-657', 662'-671'. "(BrameGeoScience, 2010)

13.0 COAL INFORMATION

The American Society for Testing and Materials (1995) has defined coal as a readily combustible rock containing more than 50% by weight and 70% by volume carbonaceous material, including inherent moisture. Following this definition, Fassett (2009) developed a method of defining coal based on open hole density logs for the Fruitland Formation. Fassett stated any material less than 1.75 grams/cubic centimeter (g/cc) on the density curve can be considered to be coal and material with a density less than 1.30 g/cc is considered to be pure coal.

Utilizing Fasset's parameters on bulk density logs at each of the three well sites yielded the following net coal zones in each of the three wells.

4M Well	Coal Interval (feet bgs)	Thickness (feet)	Best Quality Coal (glcc)
BP Highlands 1	60-70	10	10' ≤ 1.30 g/cc
API: 05-067-09794	73-76	3	1' = 1.15 g/cc
	133-134	1	1' = 1.40 g/cc
	148-150	2	1' = 1.60 g/cc
	177-178.5	1.5	1' = 1.50 g/cc

	183-194	11	7' ≤ 1.50 g/cc
		Total = 28.5	
Fiddler 1	151-154	3	1' = 1.0 g/cc
API: 05-067-09803	173-191	18	13' ≤ 1.0 g/cc
	200.5-204	3.5	2' ≤ 1.10 g/cc
	220-227	7	5' ≤ 1.30 g/cc
	269-270	1	1' = 1.70 g/cc
	277-282	5	2' ≤ 1.50 g/cc
	284-286.5	2.5	1' = 1.50 g/cc
	289.5-291	1.5	1' = 1.70 g/cc
	354-357	3	2' = 1.50 g/cc
	361.5-362.5	1	1' = 1.75 g/cc
	379-380	1	1' = 1.75 g/cc
		Total = 46.5	
Palmer Ranch 1	277-278	1	1' = 1.75 g/cc
API: 05-067-09804	297.5-298.5	1	1' = 1.75 g/cc
	329-329.5	0.5	0.5' = 1.75 g/cc
	392-394	2	1' = 1.60 g/cc
	481-482	1	1' = 1.75 g/cc
	610-611	1	1' = 1.75 g/cc
	614-615	1	1' = 1.75 g/cc
	619-622	3	1' = 1.60 g/cc
	624-628	4	3' ≤ 1.50 g/cc
	635-637	2	1' = 1.40 g/cc
	640-656	16	4' = 1.40 g/cc
	659-660	1	1' = 1.75 g/cc
	662-664	2	1' = 1.55 g/cc
	665-670	5	2' = 1.40 g/cc
		Total = 40.5	

13.0 CONCLUSIONS

SMA has made the following conclusions:

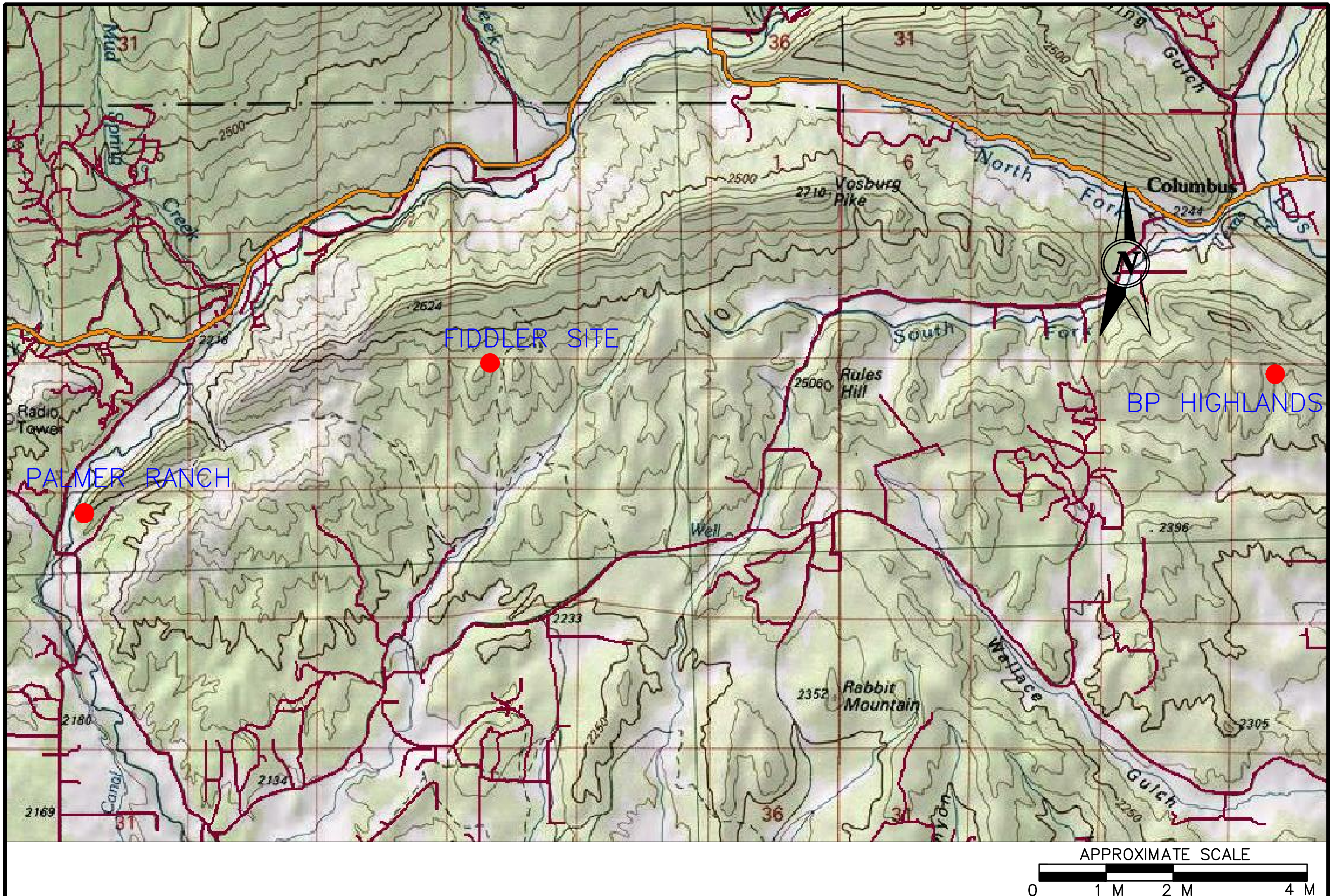
1. Three CBM monitoring wells were successfully drilled and completed with minimal operational problems.
2. Lithologic and geophysical logging was successfully conducted on all boreholes.

3. At each location, remote monitoring equipment was installed, tested and found to be functioning.

14.0 REFERENCES

Fassett, James E., United States Geological Survey Professional Paper 1625-B 2009; Chapter Q, Geology and Coal Resources of the Upper Cretaceous Fruitland Formation, San Juan Basin, New Mexico and Colorado.

Brame GeoScience, LLC., Jeff Brame 2010, 4M Well Geologic Narrative, unpublished narrative prepared for inclusion in this report. Appendix A.



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APPROVED: DGF	DATE: 4/30/10
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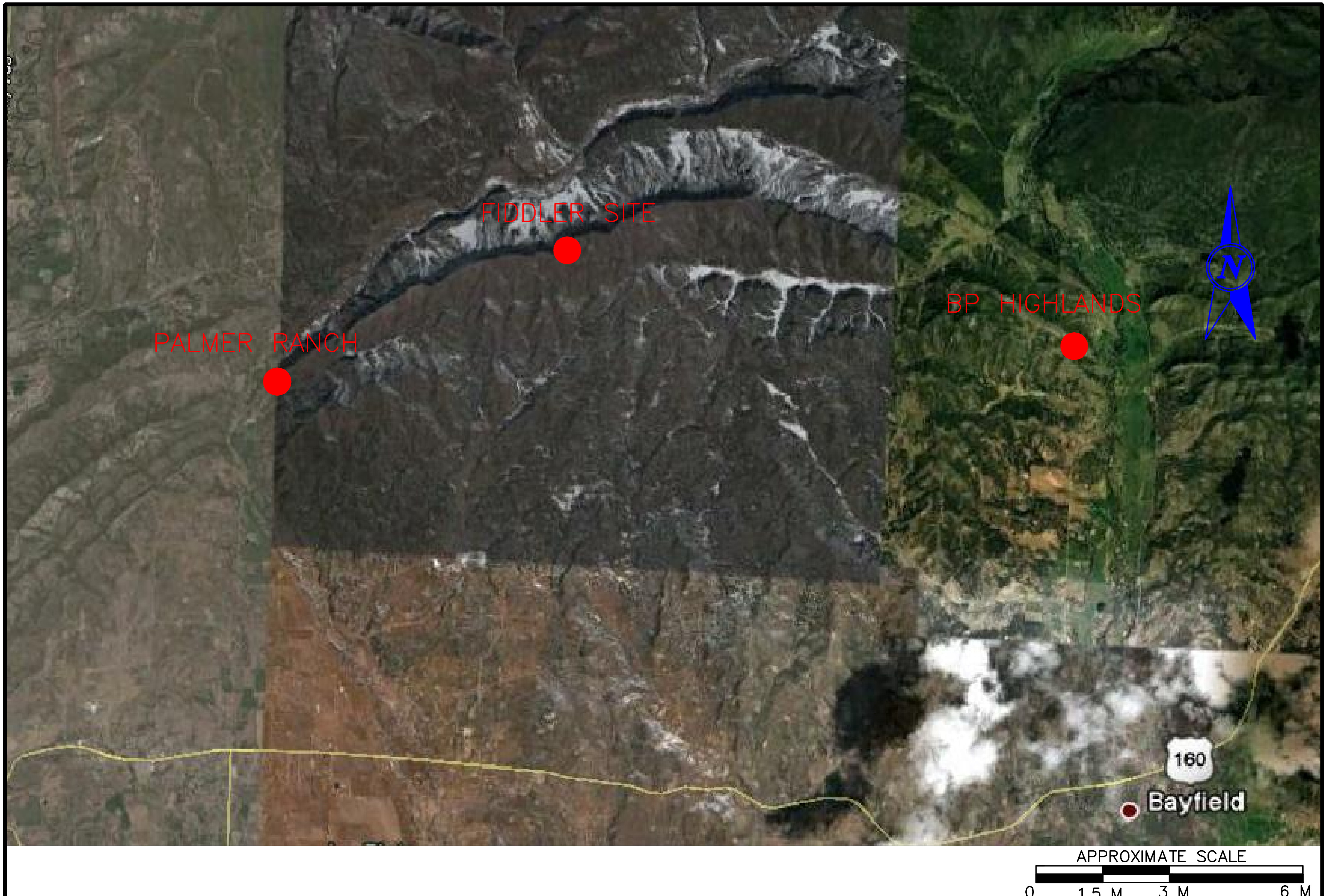
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	MAP: 1

REGIONAL TOPOGRAPHIC MAP
COLORADO OIL AND GAS CONSERVATION COMMISSION
LA PLATA COUNTY SITES

4M MONITORING WELL SITES



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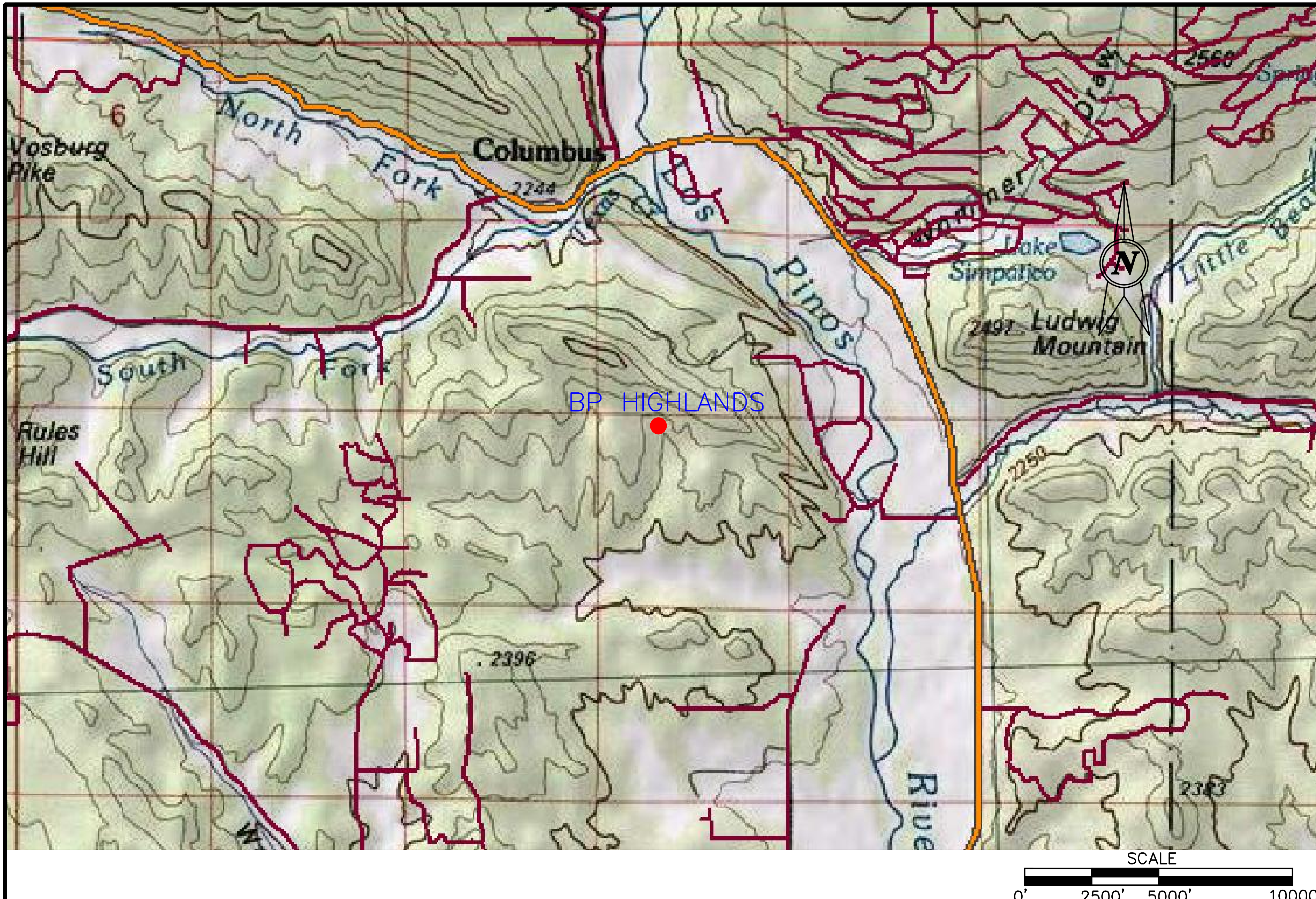
APPROVED: DGF	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 10/20/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	PHOTO: 1

REGIONAL AERIAL PHOTO
COLORADO OIL AND GAS CONSERVATION COMMISSION
LA PLATA COUNTY SITES
4M MONITORING WELL SITES



APPROVED: DGF	DATE: 4/30/10	SITE SPECIFIC TOPOGRAPHIC MAP COLORADO OIL AND GAS CONSERVATION COMMISSION BP HIGHLANDS MONITORING WELL SITE SW1/4 SW1/4 SECTION 15 T35N R7W LA PLATA COUNTY, COLORADO
DRAWN BY: TLONG	DATE: 12/1/09	
REVISIONS BY: TLONG	DATE: 4/30/10	
PROJECT #5119088	MAP: 2	

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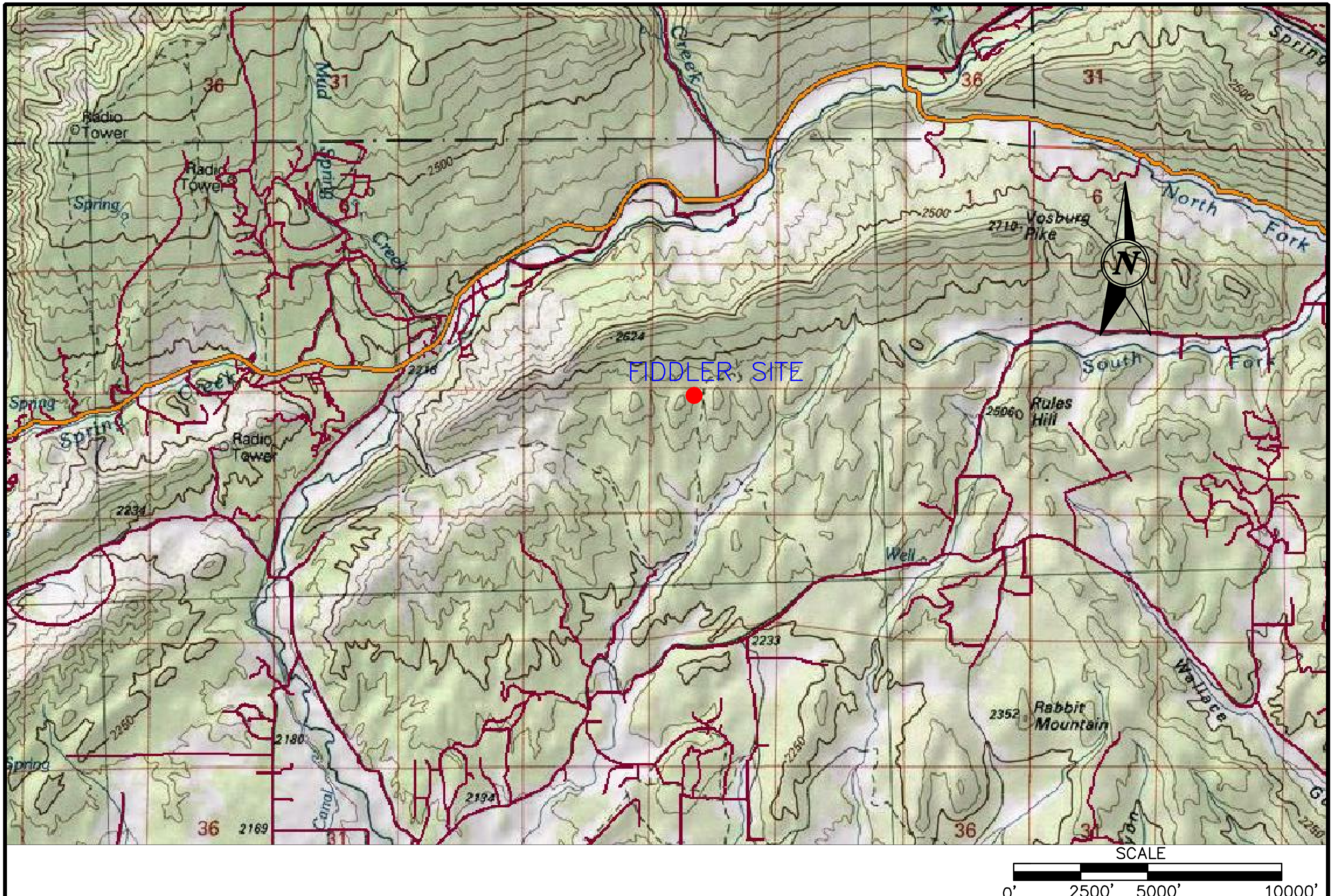
APPROVED: DGF	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 9/17/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	PHOTO: 2

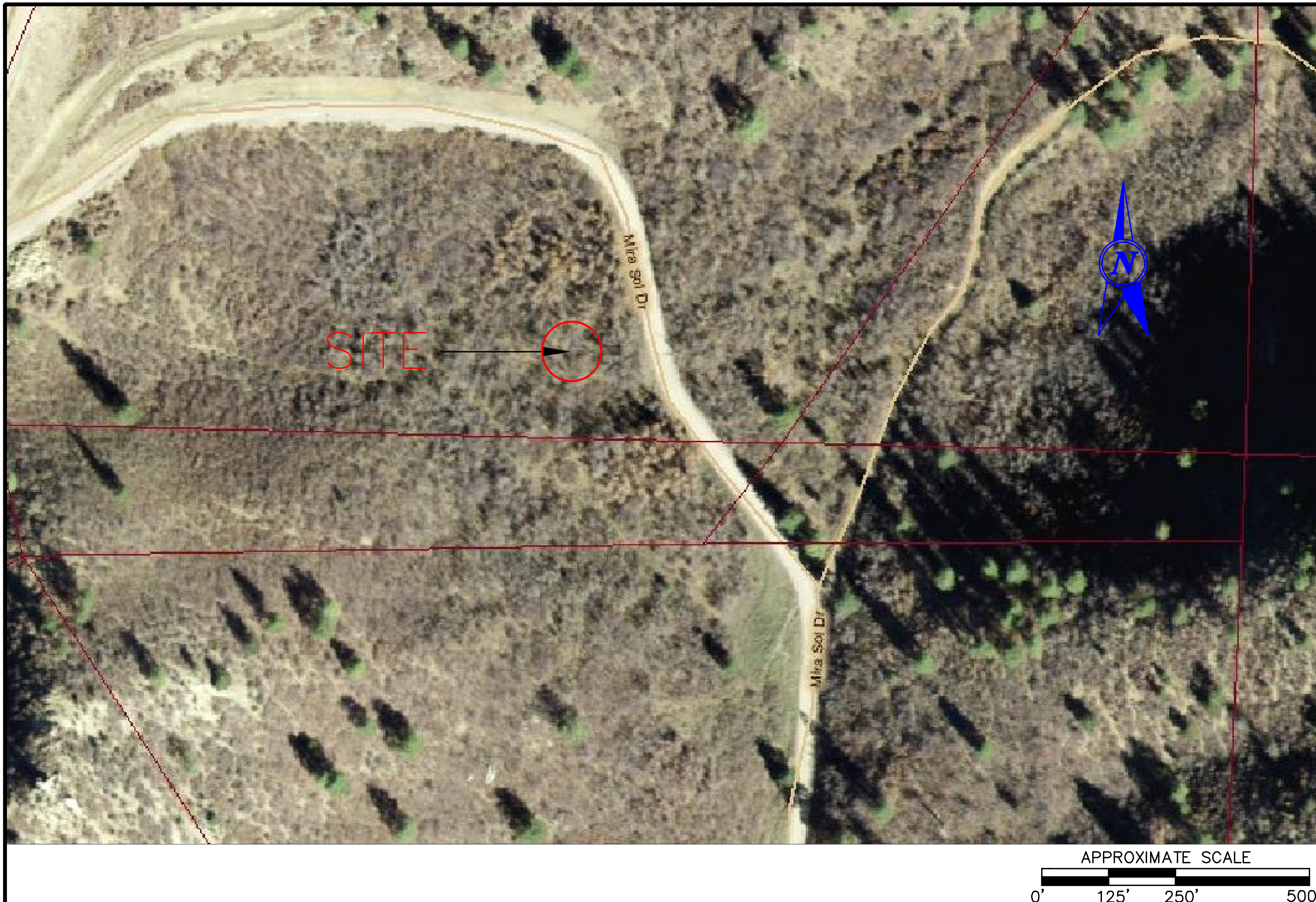
SITE SPECIFIC AERIAL PHOTOGRAPH
COLORADO OIL AND GAS CONSERVATION COMMISSION
BP HIGHLANDS MONITROING WELL SITE
SW1/4 SW1/4 SECTION 15 T35N R7W
LA PLATA COUNTY, COLORADO



SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 12/1/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	MAP: 3

SITE SPECIFIC TOPOGRAPHIC MAP
COLORADO OIL AND GAS CONSERVATION COMMISSION
FIDDLER MONITORING WELL SITE
SECTION 10 T34N R8W
LA PLATA COUNTY, COLORADO



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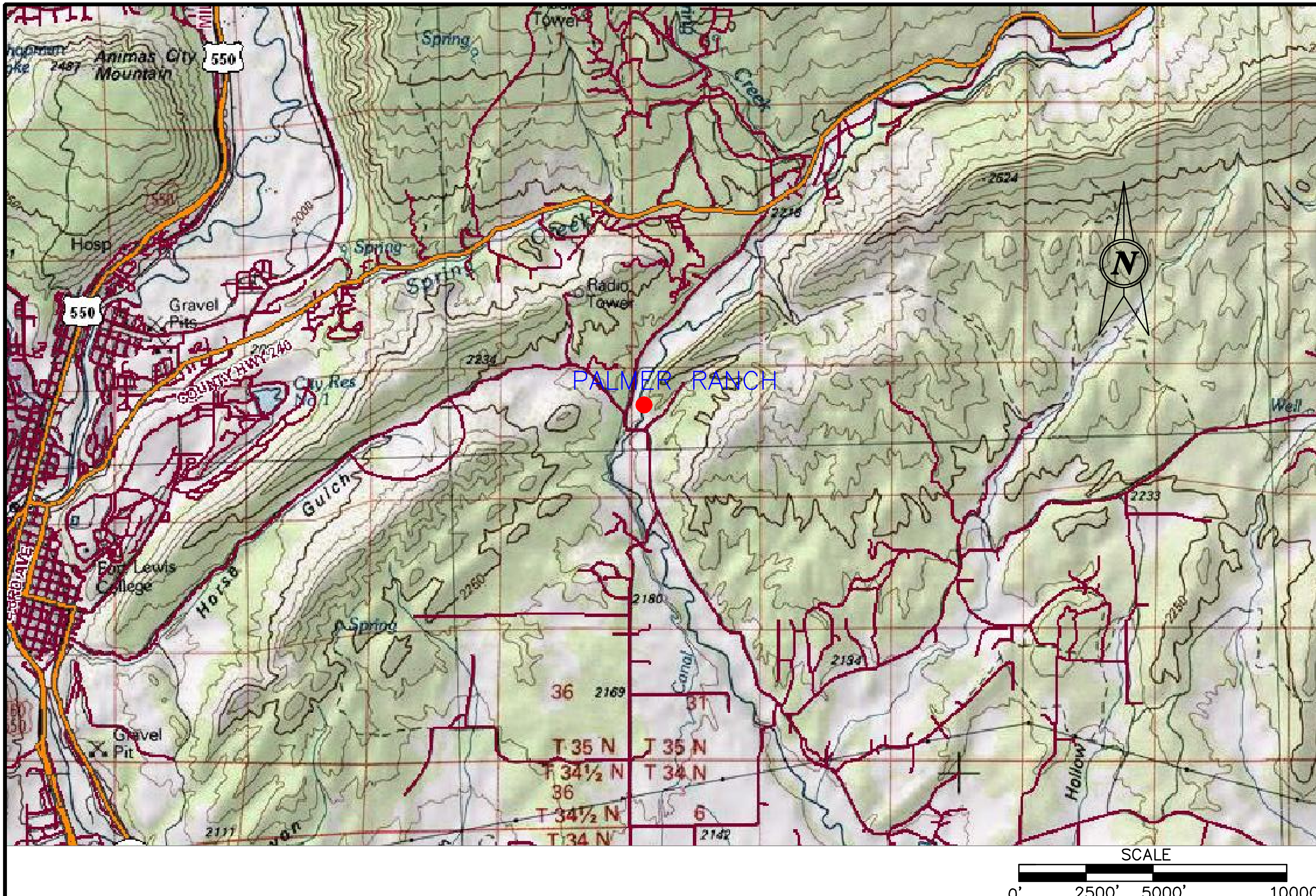
APPROVED: DGF	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 9/17/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	PHOTO: 3

SITE SPECIFIC AERIAL PHOTOGRAPH
COLORADO OIL AND GAS CONSERVATION COMMISSION
FIDDLER MONITORING WELL SITE
SECTION 10 T34N R8W
LA PLATA COUNTY, COLORADO



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612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 12/1/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	MAP: 4

SITE SPECIFIC TOPOGRAPHIC MAP
COLORADO OIL AND GAS CONSERVATION COMMISSION
PALMER RANCH MONITORING WELL SITE
SECTION 19 T35N R8W
LA PLATA COUNTY, COLORADO

SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 12/1/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT #5119088	PHOTO: 4

SITE SPECIFIC AERIAL PHOTOGRAPH
COLORADO OIL AND GAS CONSERVATION COMMISSION
PALMER RANCH MONITROING WELL SITE
SECTION 19 T35N R8W
LA PLATA COUNTY, COLORADO

SMA Project # 5119088

Table 1: Summary of La Plata County Coal Bed Methane Monitoring Well Details
Colorado Oil Gas Conservation Commission
4M Project: Coal Bed Methane Monitoring

La Plata County, Colorado

Location	API Number	Monitoring Well	TRS Location	GPS Coordinates	Perforated Intervals (Feet bgs)	Total Depth (Feet BGS)	Upper Trasducer Depth (feet below tubing head)	Lower Transducer Depth (Feet bgs)
BP Highlands	05-067-09794	1	Section 15, Township 35 North, Range 07 West	37.307842°, 107.62565°	182-194	241	3	204
Fiddler Site	05-067-09803	1	Section 10, Township 35 North, Range 08 West	37.30958°, 107.73513°	174-190;220-226;276-291;354-363;378-380	457	3	390
Palmer Ranch Site	05-067-09804	1	Section 19, Township 35 North, Range 08 West	37.28957°, 107.79375°	623-628;634-637;640-657;662-671	737	3	680

SMA Project # 5119088

Table 2: Summary of Monitoring Well Swabbing Activities
Colorado Oil Gas Conservation Commission
4 M Project: Coal Bed Methane Monitoring

La Plata County, Colorado

Location	Monitoring Well	Date	Swabbing Run	Depth to Water Encountered at each swabbing run (feet bgs)	Produced Water (bbls)	Total Water Produced (bbls)
BP Higlands	1	10/9/2009	1	Surface	4.36	4.36
			2	120	2.46	6.82
			3	150	1.99	8.81
			4	150	1.99	10.80
		10/10/2009	1	Surface	4.36	15.15
			2	160	1.83	16.99
			3	110	2.62	19.61
			4	130	2.30	21.91
Fiddler Site	1	11/3/2009	1	Surface	4.42	4.42
			2	230	2.37	6.79
			3	380	1.22	8.00
			4	200	2.84	10.84
			5	350	2.16	13.01
		11/4/2009	7 Total	NA	17.50	30.51
Palmer Ranch Site	1	11/17/2009	1	Surface	12.00	12.00
			2	NA		
			3	NA		
		11/18/2009	1	Surface	11.79	23.79
			2	300	7.06	30.85
			3	500	3.90	34.75

Appendix A: Brame GeoScience, LLC. Geologic Narrative, Jeff Brame 2010

REGIONAL GEOLOGY

The project setting is in the northern portion of the San Juan Basin between Durango and Bayfield in La Plata County, Colorado. The San Juan Basin is a Late Cretaceous-Early Tertiary structural depression that contains Cambrian, Devonian, Mississippian, Pennsylvanian, Permian, Triassic, Jurassic, Cretaceous, Tertiary and Quaternary rocks (Fasset 1625-B). It is the most prolific coal bed methane producing basin in North America. Project well locations are very near the steeply dipping updip outcrops of Upper Cretaceous Kirtland Formation, Fruitland Formation, and Pictured Cliffs Sandstone in descending order with exposed rock dips ranging from 30 to 51 degrees south and southeast. Wells were placed within the strike valley located between the hogbacks of the Farmington Sandstone (member of Kirtland Formation) and the Pictured Cliffs Sandstone. These strike valleys are marked by outcrops of the more eroded Lower Kirtland Formation and targeted coal bearing Fruitland Formation.

The project emphasis is on monitoring reservoir pressures and water levels primarily from coal beds within the Upper Cretaceous Lower Fruitland Formation which crops out along the northern edge of the San Juan Basin. All monitoring wells have the long string casing set near the top of the Pictured Cliffs Sandstone and all were perforated at selected intervals within the Fruitland Formation at coal beds identified from open hole and cased hole geophysical logs.

GEOLOGIC, GEOPHYSICAL AND HYDROLOGIC INTERPRETATION

The Kirtland Formation (Farmington Sandstone and Lower Kirtland Members), the Fruitland Formation and the Pictured Cliffs Sandstone were identified during drilling activities at the BP Highlands, Fiddler and Palmer Ranch well sites. The drilled formation thicknesses in each well are greater than true formation thicknesses due to the steep dip of the rock units. Formation contacts in each well were initially estimated from well site examination of drill cutting samples taken at ten foot intervals. After wireline geophysical logging in each well, more precise identification of these formation contacts was achieved through integrated analysis of gamma ray (GR), neutron-density, and electric (resistivity) logs. Water bearing sandstone and siltstone zones are further identified from high milivolt readings on the spontaneous potential (SP) logs and high resistivity readings on the electric logs.

Formation contacts are indicated on the geophysical logs located in Appendix B. The Farmington Sandstone Member is primary a sandstone and is characterized by low GR values and higher density values. The Lower Kirtland Member is mostly mudstone and siltstone indicated by generally higher GR values and lower density values. The Fruitland Formation is a lithologically diverse coastal plain deposit whose top is placed at the first thick channel sandstone which is marked by low GR and higher density readings. Additional Fruitland rock types are siltstones, mudstones, coals and rare shales, each of which can be identified by characteristic combinations of geophysical log readings. Finally, the top of the Pictured Cliffs Sandstone, a coarser grained shore zone deposit, is marked by an abrupt low GR, high density zone beneath the basal Fruitland coal or mudstone.

BP Highlands well site: This well drilled pad material and alluvium from ground surface to 11' below ground surface (bgs) for a thickness of 11'.The Fruitland Fm was penetrated from 11'to 194' bgs for a thickness of 183'. The Pictured Cliffs SS was encountered from 194' to

276' (TD). No potential water bearing zones were found. Figure 4 Geophysical, Lithological & Well Construction Diagram located in Appendix C illustrates the geologic contacts and formation lithologies.

Six coal zones were found in the Fruitland Fm ranging in thickness from 1'-11'. Perforations were made in the coal interval from 182-194'.

Fiddler well site: This well drilled pad material, alluvium and the Lower Kirtland Member of the Kirtland Fm from ground surface to approximately 37' bgs for a thickness of 37'. The Fruitland FM was penetrated from 37' to approximately 409' bgs for a thickness of 372'. The Pictured Cliffs SS was encountered from 409' to 457' (TD). One potential water bearing zone from 292' to 306' bgs is indicated by the SP and resistivity logs. Figure 5 Geophysical, Lithological & Well Construction Diagram located in Appendix C illustrates the geologic contacts and formation lithologies.

Eleven coal zones were found in the Fruitland Fm ranging in thickness from 1'-18'. Perforations were made in coal intervals from 174-190', 220-226', 276-291', 354-363', 378-380'.

Palmer Ranch well site: This well drilled pad material and alluvium from ground surface to approximately 20' bgs for a thickness of 20'. The Farmington SS Member of the Kirtland Fm was penetrated from 20' to approximately 50' bgs for a thickness of 30'. The Lower Kirtland Member of the Kirtland Fm was encountered from 50' to 186' bgs for a thickness of 136'. The Fruitland FM was encountered from 186' to 723' bgs for a thickness of 537'. The Pictured Cliffs SS was encountered from 723' to 747' (TD). No potential water bearing zones were found. Figure 6 Geophysical, Lithological & Well Construction Diagram located in Appendix C illustrates the geologic contacts and formation lithologies.

Fourteen coal zones were found in the Fruitland Fm ranging in thickness from 0.5'-16'. Perforations were made in coal intervals from 609-628' and 634-671'.

COAL INFORMATION

The American Society for Testing and Materials (1995) has defined coal as a readily combustible rock containing more than 50% by weight and 70% by volume carbonaceous material including inherent moisture. Following this definition, Fasset 2009 developed a method of defining coal based on open hole density logs for the Fruitland Formation. Fasset stated any material less than
1.75 grams/cubic centimeter (g/cc) on the density curve can be considered to be coal and material with a density less than 1.30 g/cc is considered to be pure coal.

Utilizing Fasset's parameters on bulk density logs at each of the three well sites yielded the following net coal zones in each of the three wells.

4M Well	Coal Interval	Thickness	Best Quality Coal
BP Highlands 1	60-70'	10'	10' = 1.30 g/cc
API: 05-067-09794	73-76'	3'	1' = 1.15 g/cc
	133-134'	1'	1' = 1.40 g/cc
	148-150'	2'	1' = 1.60 g/cc
	177-178.5'	1.5'	1' = 1.50 g/cc
	183-194'	11'	7' = 1.50 g/cc
		Total = 28.5'	
Fiddler 1	151-154'	3'	1' = 1.0 g/cc
API not yet assigned	173-191'	18'	13' = 1.0 g/cc
	200.5-204'	3.5'	2' = 1.10 g/cc
	220-227'	7'	5' = 1.30 g/cc
	269-270'	1'	1' = 1.70 g/cc
	277-282'	5'	2' = 1.50 g/cc
	284-286.5'	2.5'	1' = 1.50 g/cc
	289.5-291'	1.5'	1' = 1.70 g/cc
	354-357'	3'	2' = 1.50 g/cc
	361.5-362.5'	1'	1' = 1.75 g/cc
	379-380'	1'	1' = 1.75 g/cc
		Total = 46.5'	
Palmer Ranch 1	277-278'	1'	1' = 1.75 g/cc
API not yet assigned	297.5-298.5'	1'	1' = 1.75 g/cc
	329-329.5'	0.5'	0.5' = 1.75 g/cc
	392-394'	2'	1' = 1.60 g/cc
	481-482'	1'	1' = 1.75 g/cc
	610-611'	1'	1' = 1.75 g/cc
	614-615'	1'	1' = 1.75 g/cc
	619-622'	3'	1' = 1.60 g/cc
	624-628'	4'	3' = 1.50 g/cc
	635-637'	2'	1' = 1.40 g/cc
	640-656'	16'	4' = 1.40 g/cc
	659-660'	1'	1' = 1.75 g/cc
	662-664'	2'	1' = 1.55 g/cc
	665-670'	5'	2' = 1.40 g/cc
		Total = 40.5'	

Appendix B: Application for Permit to Drill, Figures and Diagrams

FORM 2
Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109

DE	ET	OE	ES

Document Number:

1808419

Plugging Bond Surety

APPLICATION FOR PERMIT TO:

1. [X] **Drill,** [ ] Deepen, [ ] Re-enter, [ ] Recomplete and Operate

[ ] Refiling
[ ] Sidetrack

2. TYPE OF WELL

OIL [ ] GAS [ ] COALBED [ ] OTHER MONITORING WELL

SINGLE ZONE [X] MULTIPLE ZONE [ ] COMMINGLE ZONE [ ]

3. Name of Operator: COLORADO OIL & GAS CONSERVATION COMMISSION

4. COGCC Operator Number: 5

5. Address: 1120 LINCOLN ST SUITE 801

City: DENVER State: CO Zip: 80203

6. Contact Name: STEVENLINDBLOM Phone: (303)894-2100X5 Fax: (303)894-2109

Email: STEVEN.LINDBLOM@STATE.CO.US

7. Well Name: BP HIGHLANDS Well Number: 2

8. Unit Name (if appl): Unit Number:

9. Proposed Total Measured Depth: 425

WELL LOCATION INFORMATION

10. QtrQtr: NENW Sec: 15 Twp: 35N Rng: 7W Meridian: N

Latitude: 37.307908 Longitude: -107.625669

Footage at Surface: 150 FNL (FNL/FSL) 2002 FWL (FEL/FWL)

11. Field Name: Field Number:

12. Ground Elevation: 7589 13. County: LA PLATA

14. GPS Data:

Date of Measurement: 09/01/2009 PDOP Reading: 1.7 Instrument Operator's Name: ROBERT L. POUNDS

15. If well is [ ] Directional [ ] Horizontal (highly deviated) **submit deviated drilling plan.**

Footage at Top of Prod Zone: FNL/FSL FEL/FWL Bottom Hole: FNL/FSL FEL/FWL

Sec: Twp: Rng: Sec: Twp: Rng:

16. Is location in a high density area? (Rule 603b)? [ ] Yes [X] No

17. Distance to the nearest building, public road, above ground utility or railroad: 465

18. Distance to nearest property line: 19. Distance to nearest well permitted/completed in the same formation:

20.

LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
FRUITLAND	FRLDC			

21. Mineral Ownership: [X] Fee [ ] State [ ] Federal [ ] Indian Lease #: COC017209

22. Surface Ownership: [ ] Fee [ ] State [X] Federal [ ] Indian

23. Is the Surface Owner also the Mineral Owner? [ ] Yes [X] No Surface Surety ID#:

23a. If 23 is Yes: Is the Surface Owner(s) signature on the lease? [ ] Yes [X] No

23b. If 23 is No [X] Surface Owners Agreement Attached or [ ] $25,000 Blanket Surface Bon [ ] $2,000 Surface Bond [ ] $5,000 Surface Bond

24. Using standard QtrQtr, Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):

N/A: Monitor well only.

25. Distance to Nearest Mineral Lease Line: ____________ 26. Total Acres in Lease: ____________

DRILLING PLANS AND PROCEDURES

27. Is H2S anticipated? [ ] Yes [X] No If Yes, attach contingency plan.

28. Will salt sections be encountered during drilling? [ ] Yes [X] No

29. Will salt (>15,000 ppm TDS CL) or oil based muds be used during drilling? [ ] Yes [X] No

30. If questions 27 or 28 are yes, is this location in a sensitive area (Rule 903)? [ ] Yes [X] No **If 28, 29, or 30 are "Yes" a pit permit may be required.**

31. Mud disposal: [X] Offsite [ ] Onsite

Method: [ ] Land Farming [ ] Land Spreading [X] Disposal Facility Other: ____________

Note: The use of an earthen pit for Recompletion fluids requires a pit permit (Rule 905b). If air/gas drilling, notify local fire officials.

Casing Type	Size of Hole	Size of Casing	Weight Per Foot	Setting Depth	Sacks Cement	Cement Bottom	Cement Top
CONDUCTOR	12+1/4	9+5/8	36	22	24	25	0
SURF	8+3/4	7	20	175	93	185	0
1ST	6+1/4	4+1/2	10.5	425	102	430	0

32. BOP Equipment Type: [ ] Annular Preventer [X] Double Ram [ ] Rotating Head [ ] None

33. Comments ALL CASING STRING WILL HAVE CEMENT CIRCULATED TO THE SURFACE, THEN CASING WILL BE DISPLACED WITH WATER. THE BOP WILL BE TOWNSEND DOUBLE RAM UNITS, 9' WILL BE UTILIZED ON THE 9 5/8" CONDUCTOR CASING AND 7 1/16" UTILIZED ON THE 7" SURFACE CASING.

34. Location ID: ____________

35. Is this application in a Comprehensive Drilling Plan ? [ ] Yes [ ] No

36. Is this application part of submitted Oil and Gas Location Assessment ? [X] Yes [ ] No

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: ____________ Print Name: STEVEN LINDBLOM

Title: ENVIRONMENTAL Date: 9/22/2009 Email: STEVEN.LINDBLOM@STATE.

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: David S. Neslin **Director of COGCC** Date: 9/30/2009

API NUMBER

05 067 09795 00

Permit Number: ____________ Expiration Date: 9/29/2010

CONDITIONS OF APPROVAL, IF ANY:

Condition of Approval

Comment

Agency

None-Monitor Well

Attachment Check List

Att Doc Num	Name	Doc Description
1808419	APD ORIG & 1 COPY	LF@2148240|1808419
1808429	WAIVERS	LF@2152704|1808429
1857035	SELECTED ITEMS REPORT	LF@2153252|1857035

Total Attach: 3 Files

FORM 2 Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109

DE	ET	OE	ES

Document Number: 1808418

Plugging Bond Surety

APPLICATION FOR PERMIT TO:

1. [X] **Drill,** [ ] Deepen, [ ] Re-enter, [ ] Recomplete and Operate

2. TYPE OF WELL
OIL [ ] GAS [ ] COALBED [ ] OTHER MONITORING WELL
SINGLE ZONE [X] MULTIPLE ZONE [ ] COMMINGLE ZONE [ ]

Refiling [ ]
Sidetrack [ ]

3. Name of Operator: COLORADO OIL & GAS CONSERVATION COMMISSION
4. COGCC Operator Number: 5

5. Address: 1120 LINCOLN ST SUITE 801
City: DENVER State: CO Zip: 80203

6. Contact Name: STEVELINDBLOM Phone: (303)894-2100X5 Fax: (303)894-2109
Email: STEVEN.LINDBLOM@STATE.CO.US

7. Well Name: BP HIGHLANDS Well Number: 1

8. Unit Name (if appl): Unit Number:

9. Proposed Total Measured Depth: 425

WELL LOCATION INFORMATION

10. QtrQtr: NENW Sec: 15 Twp: 35N Rng: 7W Meridian: N
Latitude: 37.307842 Longitude: -107.625650

Footage at Surface: 175 FNL/FSL: FNL 2007 FEL/FWL: FWL

11. Field Name: Field Number:

12. Ground Elevation: 7584 13. County: LA PLATA

14. GPS Data:
Date of Measurement: 09/01/2009 PDOP Reading: 1.5 Instrument Operator's Name: ROBERT L. POUNDS

15. If well is [ ] Directional [ ] Horizontal (highly deviated) **submit deviated drilling plan.**
Footage at Top of Prod Zone: FNL/FSL FEL/FWL Bottom Hole: FNL/FSL FEL/FWL
Sec: Twp: Rng: Sec: Twp: Rng:

16. Is location in a high density area? (Rule 603b)? [ ] Yes [X] No

17. Distance to the nearest building, public road, above ground utility or railroad: 460

18. Distance to nearest property line: 19. Distance to nearest well permitted/completed in the same formation:

20.
LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
FRUITLAND	FRLDC			

21. Mineral Ownership: [X] Fee [ ] State [ ] Federal [ ] Indian Lease #: ______

22. Surface Ownership: [ ] Fee [ ] State [X] Federal [ ] Indian

23. Is the Surface Owner also the Mineral Owner? [ ] Yes [X] No Surface Surety ID#:

23a. If 23 is Yes: Is the Surface Owner(s) signature on the lease? [ ] Yes [X] No

23b. If 23 is No [X] Surface Owners Agreement Attached or [ ] $25,000 Blanket Surface Bon [ ] $2,000 Surface Bond [ ] $5,000 Surface Bond

24. Using standard QtrQtr, Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):

25. Distance to Nearest Mineral Lease Line: ______ 26. Total Acres in Lease: ______

DRILLING PLANS AND PROCEDURES

27. Is H2S anticipated? [ ] Yes [X] No If Yes, attach contingency plan.

28. Will salt sections be encountered during drilling? [ ] Yes [X] No

29. Will salt (>15,000 ppm TDS CL) or oil based muds be used during drilling? [ ] Yes [X] No

30. If questions 27 or 28 are yes, is this location in a sensitive area (Rule 903)? [ ] Yes [X] No **If 28, 29, or 30 are "Yes" a pit permit may be required.**

31. Mud disposal: [X] Offsite [ ] Onsite

Method: [ ] Land Farming [ ] Land Spreading [X] Disposal Facility Other: ______

Note: The use of an earthen pit for Recompletion fluids requires a pit permit (Rule 905b). If air/gas drilling, notify local fire officials.

Casing Type	Size of Hole	Size of Casing	Weight Per Foot	Setting Depth	Sacks Cement	Cement Bottom	Cement Top
CONDUCTOR	12+1/4	9+5/8	36	22	24	25	0
SURF	8+3/4	7	20	175	93	185	0
1ST	6+1/4	4+1/2	10.5	425	102	430	0

32. BOP Equipment Type: [ ] Annular Preventer [X] Double Ram [ ] Rotating Head [ ] None

33. Comments CALCULATED TO THE SURFACE, THEN CASING WILL BE DISPLACED WITH WATER. THE BOP WILL BE TOWNSEND DOUBLE RAM UNITS, 9" WILL BE UTILIZED ON THE 9 5/8" CONDUCTOR CASING AND 7

34. Location ID: ______

35. Is this application in a Comprehensive Drilling Plan ? [ ] Yes [ ] No

36. Is this application part of submitted Oil and Gas Location Assessment ? [X] Yes [ ] No

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: ______ Print Name: STEVEN LINDBLOM

Title: ENVIRONMENTAL Date: 9/22/2009 Email: STEVEN.LINDBLOM@STATE.

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: David S. Neslin **Director of COGCC** Date: 9/30/2009

API NUMBER

05 067 09794 00

Permit Number: ______ Expiration Date: 9/29/2010

CONDITIONS OF APPROVAL, IF ANY:

Condition of Approval

Comment

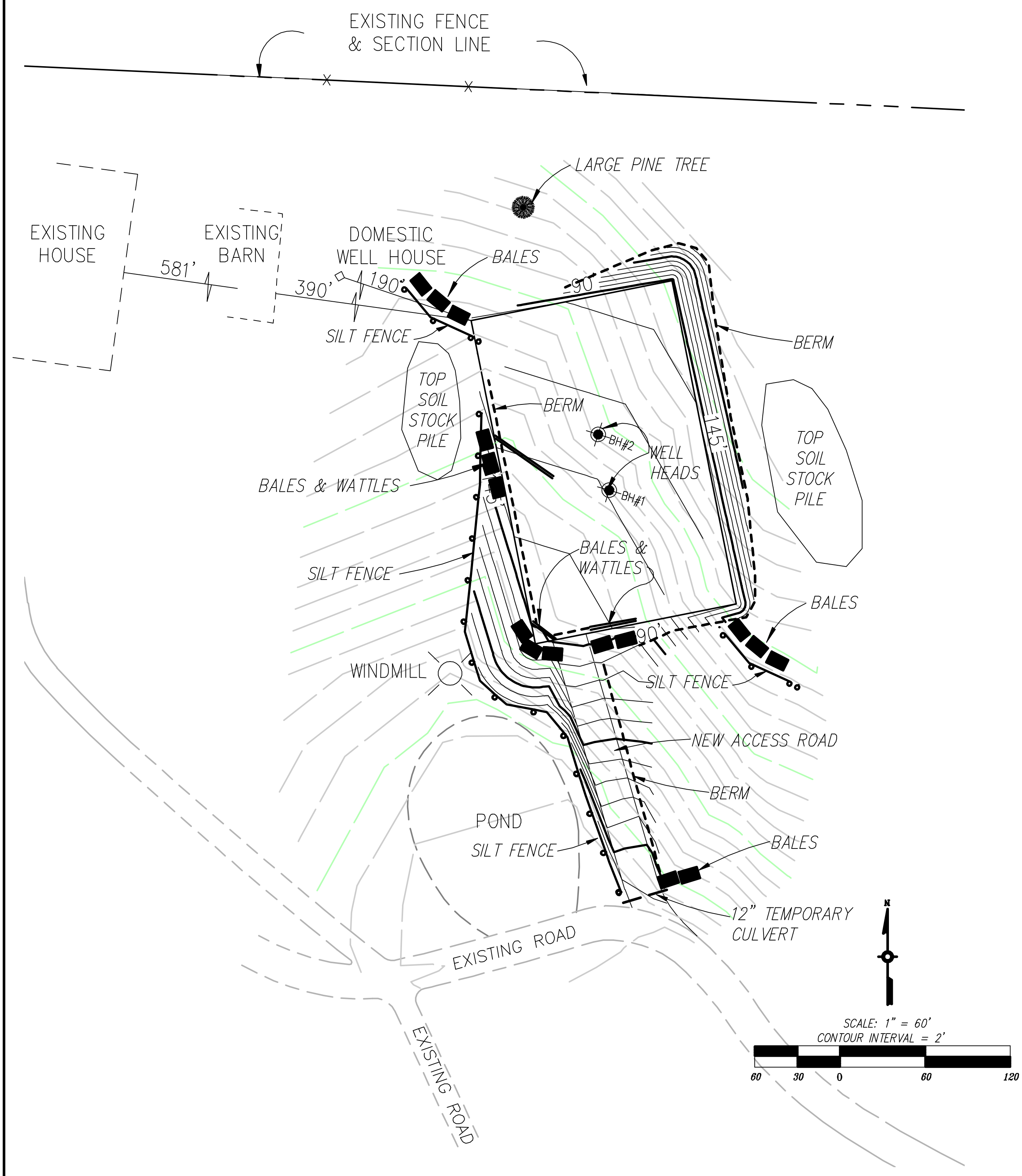
Agency

None-COGCC Monitor Well

Attachment Check List

Att Doc Num	Name	Doc Description
1808418	APD ORIG & 1 COPY	LF@2148238|1808418
1808428	WAIVERS	LF@2152703|1808428

Total Attach: 2 Files



P:\5-COGCC 4M LA PLATA COUNTY (5119088)\CAD\DWG\HOIERSITE\5119088HOIERSITE.DWG

WELL PAD DIAGRAM
COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME BP HIGHLANDS SITE # 1 & 2

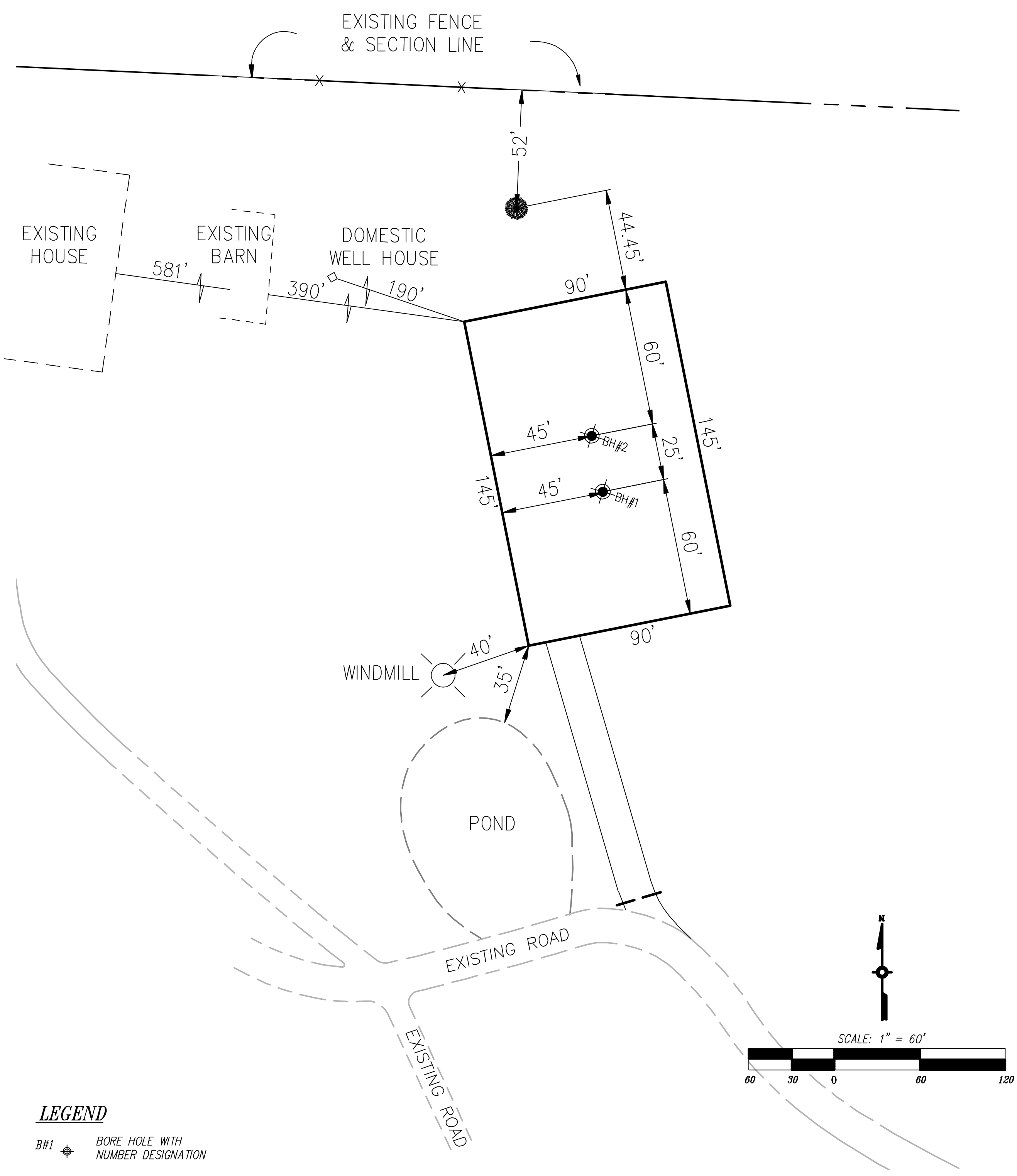
FIGURE 1

REVISIONS
BY ______ DATE ________ DESCR. ____________
BY ______ DATE ________ DESCR. ____________
BY ______ DATE ________ DESCR. ____________

DRAWN blb
CHECKED DF
APPROVED DF
DATE 09-09-09

SMA Civil / Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD,
FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque – Las Cruces – Santa Fe, NM
Grand Junction – Cortez, CO – Monticello, UT



COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME BP HIGHLANDS SITE # 1 & 2
NE/4 NW/4 OF SECTION 15, T35N, R7W

FIGURE 1

REVISIONS		
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______

DRAWN	DJB
CHECKED	RLP
APPROVED	RLP
DATE	09-09-09

SMA
Civil / Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD,
FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque – Las Cruces – Santa Fe, NM
Grand Junction – Cortez, CO – Monticello, UT

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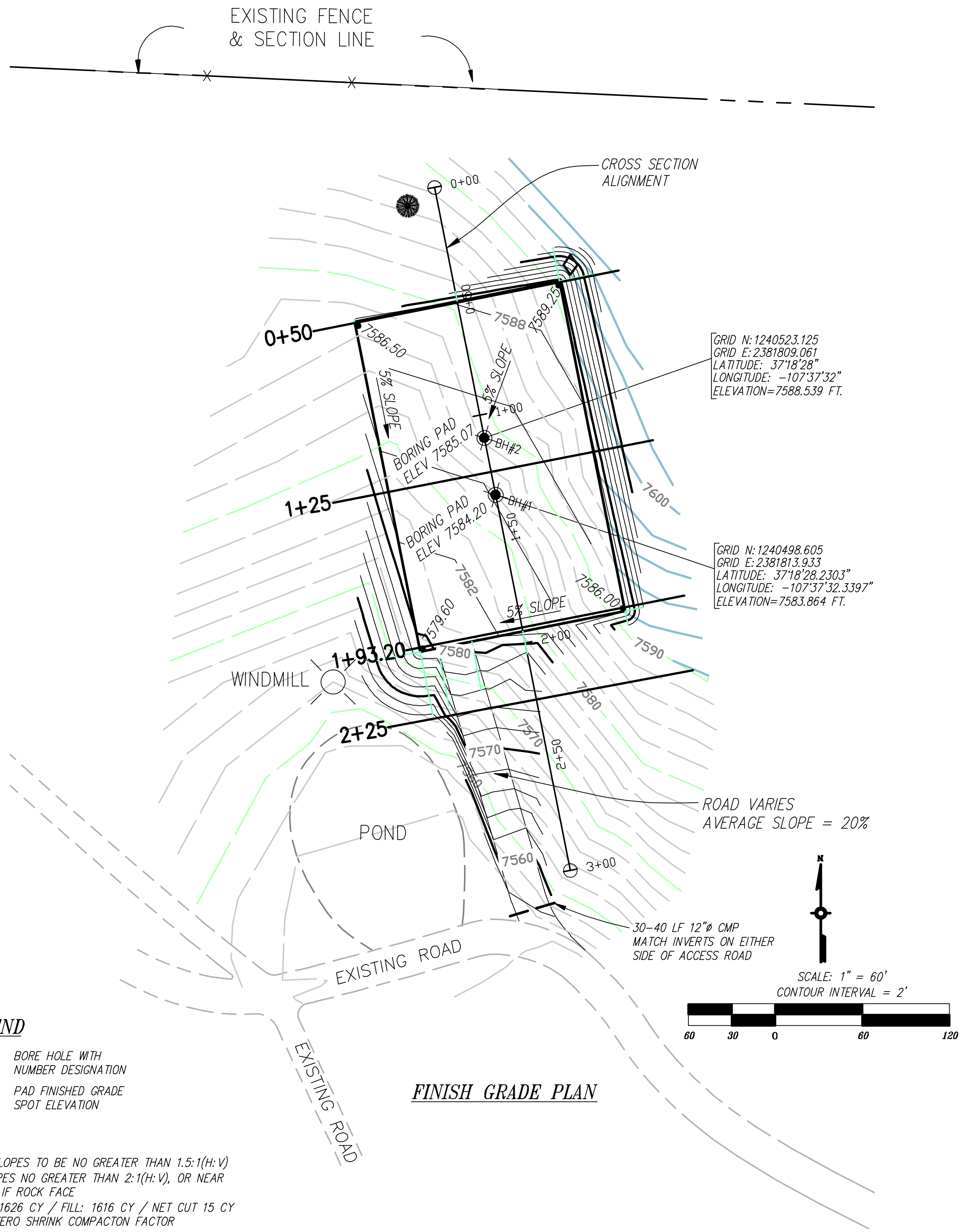

LEGEND

B#1 — BORE HOLE WITH NUMBER DESIGNATION

• — PAD FINISHED GRADE SPOT ELEVATION

FINISH GRADE PLAN

NOTES:
1) CUT SLOPES TO BE NO GREATER THAN 1.5:1(H:V) FILL SLOPES NO GREATER THAN 2:1(H:V), OR NEAR VERTICAL IF ROCK FACE
2) CUT: 1626 CY / FILL: 1616 CY / NET CUT 15 CY USING ZERO SHRINK COMPACTON FACTOR
3) SEE FIGURE 3 FOR CROSS SECTIONS

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COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME HIGHLANDS SITE # 1 & 2
NE/4 NW/4 OF SECTION 15, T35N, R7W

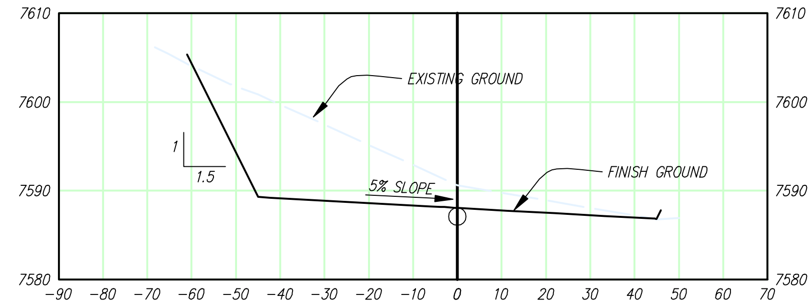
FIGURE 2

REVISIONS		
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______

DRAWN	DJB
CHECKED	RLP
APPROVED	RLP
DATE	9-07-09

SMA Civil / Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD, FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque – Las Cruces – Santa Fe, NM
Grand Junction – Cortez, CO – Monticello, UT



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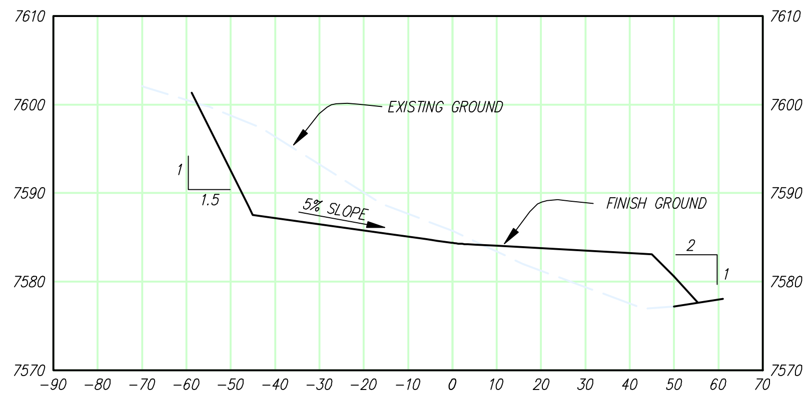

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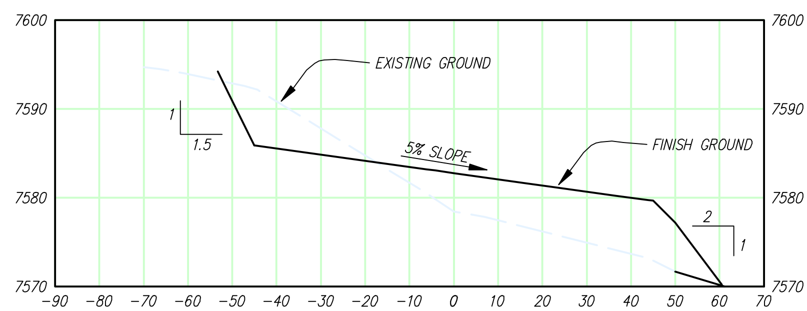
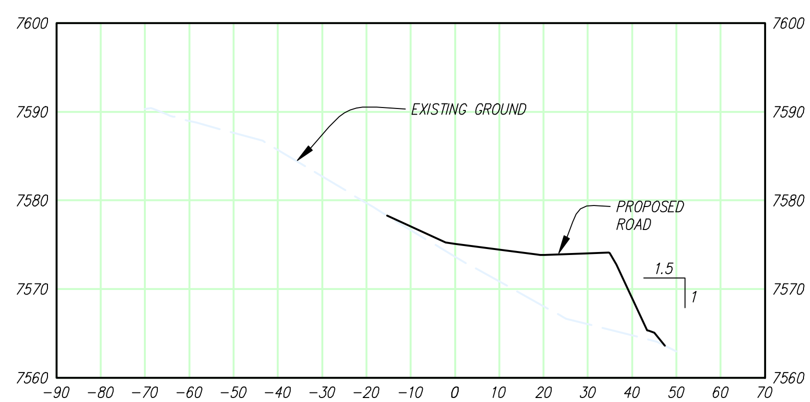


1+93.20



2+25

HORIZ SCALE: 1" = 40'
VERT SCALE: 1" = 4'

COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME HIGHLANDS SITE # 1 & 2
NE/4 NW/4 OF SECTION 15, T35N, R7W

FIGURE
3

REVISIONS

BY ______	DATE ________	DESCR. ____________________
BY ______	DATE ________	DESCR. ____________________
BY ______	DATE ________	DESCR. ____________________

DRAWN	DJB
CHECKED	RLP
APPROVED	RLP
DATE	9/09/09

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FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
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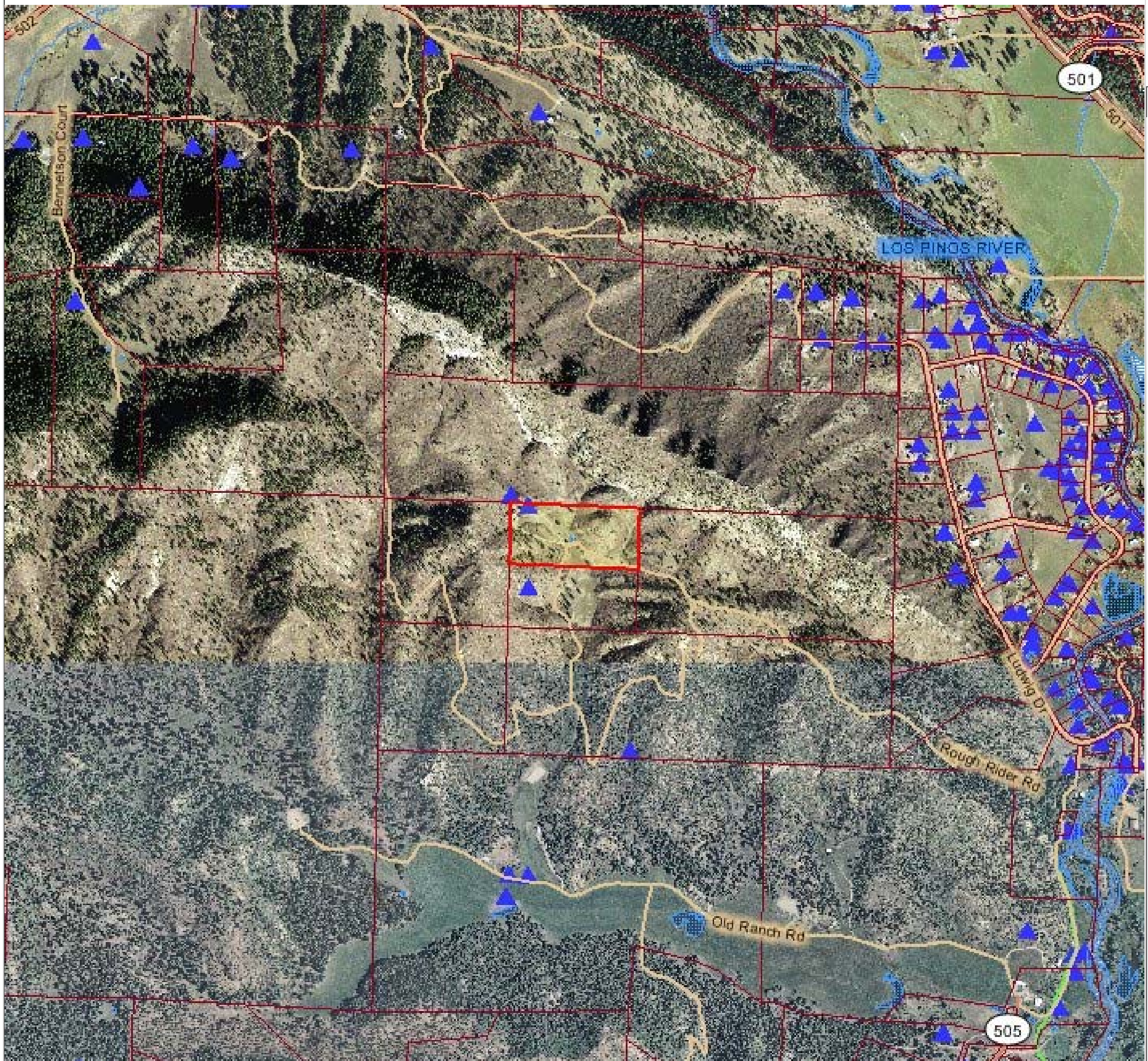


La Plata County, CO

Map Scale
1 inch = 1600 feet

Legend

- Parcel Boundaries
- Minor Roads
- BCITY
- DCITY
- FOREST
- ICITY
- MHP
- PRIVATE
- SUB
- SUBPVT
- City Limits Outline
- Rivers
- Streams
- Ponds
- County Boundary
- Water Wells

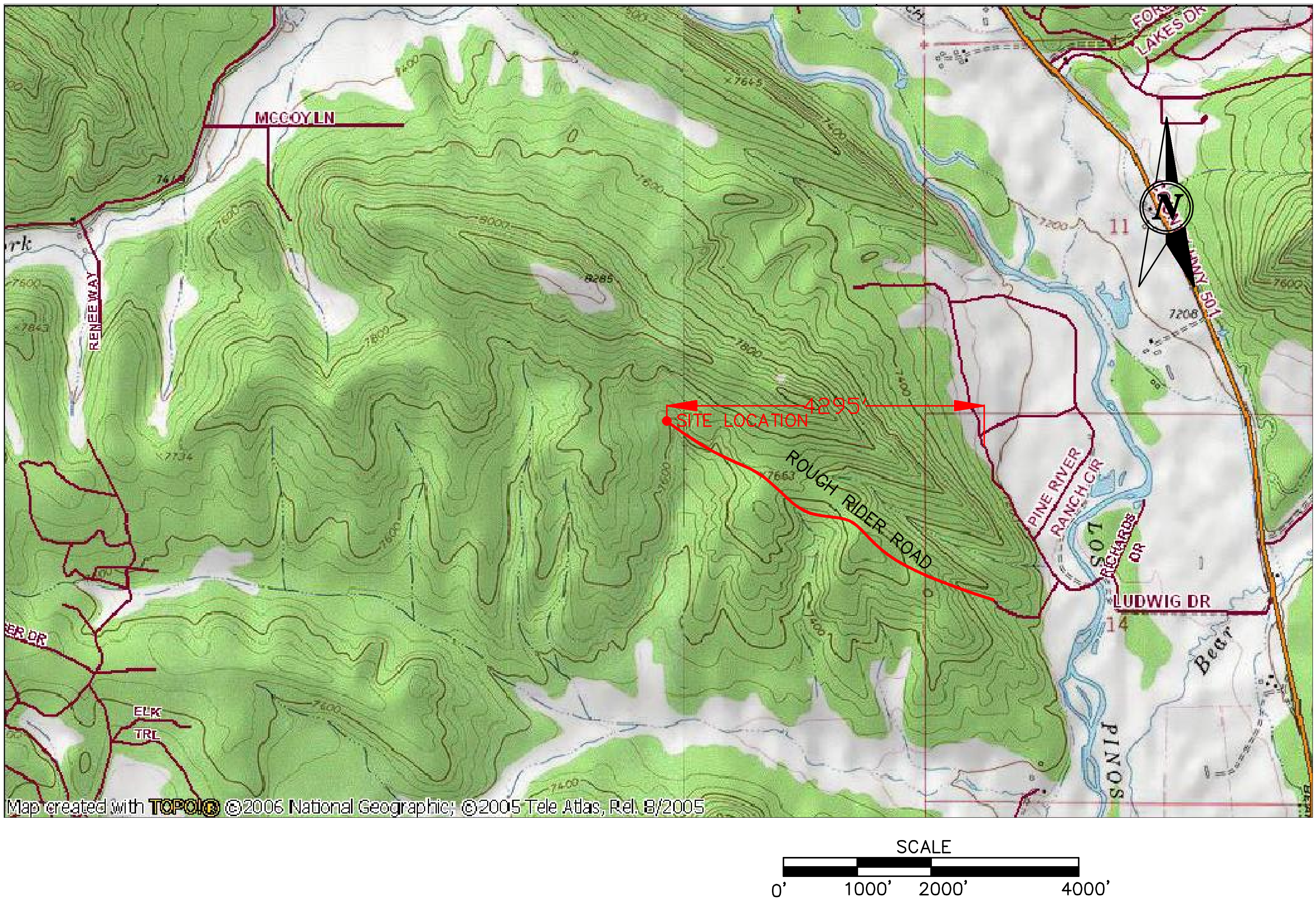
Disclaimer: The information is provided as is without warranty of any kind, either express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. In no event shall La Plata County be liable for any damages whatsoever including direct, indirect, incidental, consequential, loss of business profits or special damages.

Photo 1: View to the north – BP Highlands 9/17/09

Photo 2: View to the south – BP Highlands 9/17/09

Photo 4: View to the east – BP Highlands 9/17/09

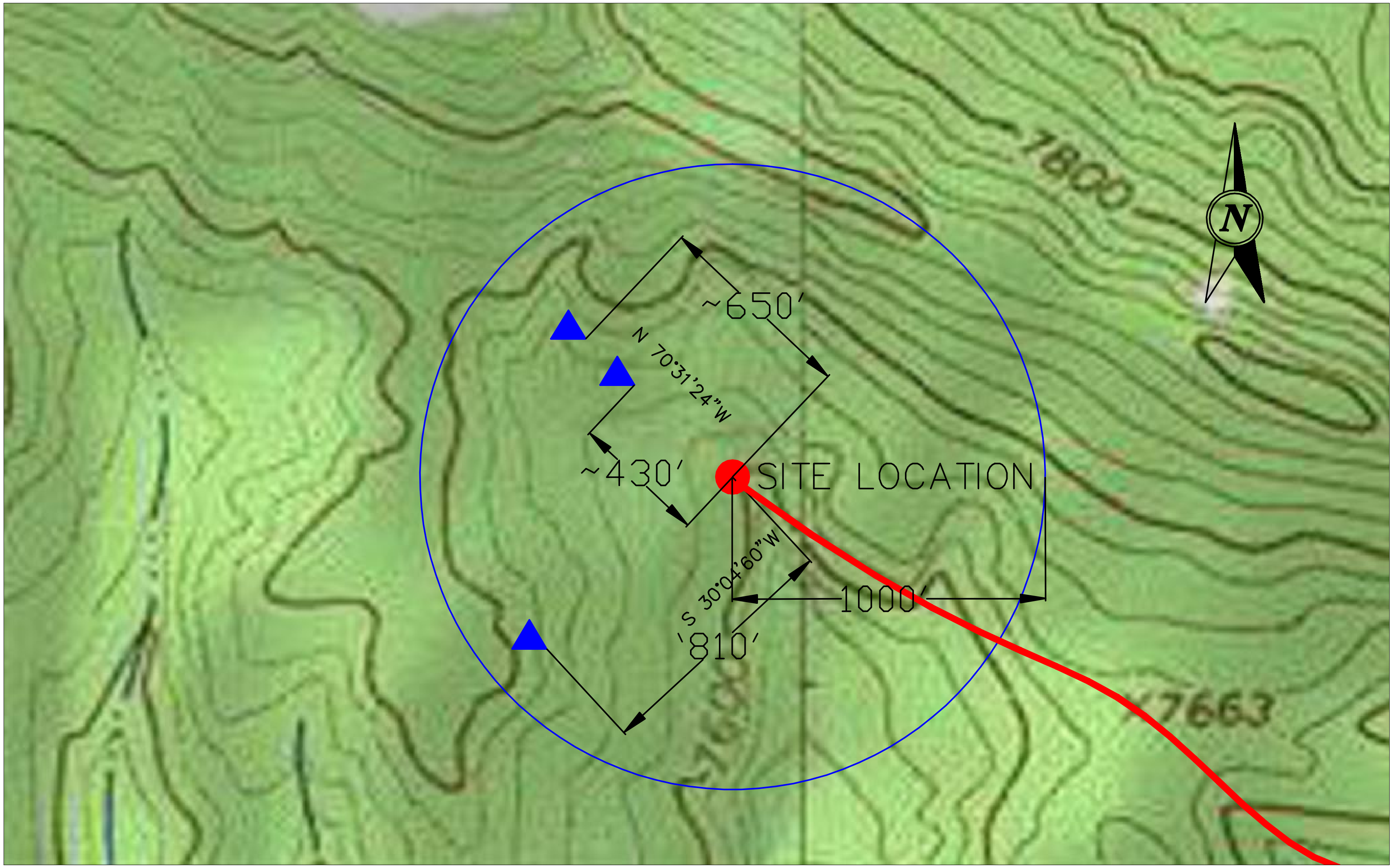
Photo 4: View to the west – BP Highlands 9/17/09



SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR.
FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 9/21/09
DRAWN BY: TLONG	DATE: 9/21/09
REVISIONS BY:	DATE:
PROJECT #5119088	

ACCESS ROAD MAP
COLORADO OIL AND GAS CONSERVATION COMMISSION
BP HIGHLANDS
SECTION 15 TS 35N R7W
LA PLATA COUNTY, COLORADO



– WATER WELL LOCATION

– 1000' RADIUS

SCALE

0' 250' 500' 1000'

APPROVED: DGF	DATE: 9/21/09	HYDROLOGY MAP COLORADO OIL AND GAS CONSERVATION COMMISSION BP HIGHLANDS SECTION 15 TS 35N R7W LA PLATA COUNTY, COLORADO
DRAWN BY: TLONG	DATE: 9/21/09	
REVISIONS BY:	DATE:	
PROJECT #5119088		

SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

FORM 2 Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109

DE	ET	OE	ES

Document Number: 1808624

Plugging Bond Surety

APPLICATION FOR PERMIT TO:

1. [X] **Drill,** [ ] Deepen, [ ] Re-enter, [ ] Recomplete and Operate

2. TYPE OF WELL

OIL [ ] GAS [ ] COALBED [ ] OTHER ____

SINGLE ZONE [X] MULTIPLE ZONE [ ] COMMINGLE ZONE [ ]

Refiling [ ]

Sidetrack [ ]

3. Name of Operator: COLORADO OIL & GAS CONSERVATION COMMISSION

4. COGCC Operator Number: 5

5. Address: 1120 LINCOLN ST SUITE 801

City: DENVER State: CO Zip: 80203

6. Contact Name: STEVE LINDBLOM Phone: (303)894-2100X5 Fax: (303)894-2109

Email: STEVEN.LINDBLOM@STATE.CO.US

7. Well Name: FIDDLER Well Number: 1

8. Unit Name (if appl): ____ Unit Number: ____

9. Proposed Total Measured Depth: 980

WELL LOCATION INFORMATION

10. QtrQtr: NENW Sec: 10 Twp: 35N Rng: 8W Meridian: N

Latitude: 37.309581 Longitude: -107.735134

Footage at Surface: 11 FSL (FNL/FSL) 1798 FWL (FEL/FWL)

11. Field Name: ____ Field Number: ____

12. Ground Elevation: 7824 13. County: LA PLATA

14. GPS Data:

Date of Measurement: 09/14/2009 PDOP Reading: 2.4 Instrument Operator's Name: ALLISON CRAIG

15. If well is [ ] Directional [ ] Horizontal (highly deviated) **submit deviated drilling plan.**

Footage at Top of Prod Zone: FNL/FSL ____ FEL/FWL ____ Bottom Hole: FNL/FSL ____ FEL/FWL ____

Sec: ____ Twp: ____ Rng: ____ Sec: ____ Twp: ____ Rng: ____

16. Is location in a high density area? (Rule 603b)? [ ] Yes [X] No

17. Distance to the nearest building, public road, above ground utility or railroad: 30 ft

18. Distance to nearest property line: 90 ft 19. Distance to nearest well permitted/completed in the same formation: ____

20.

LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
FRUITLAND	FRLDC			

21. Mineral Ownership: [X] Fee [ ] State [ ] Federal [ ] Indian Lease #: ______

22. Surface Ownership: [X] Fee [ ] State [ ] Federal [ ] Indian

23. Is the Surface Owner also the Mineral Owner? [X] Yes [ ] No Surface Surety ID#:

23a. If 23 is Yes: Is the Surface Owner(s) signature on the lease? [X] Yes [ ] No

23b. If 23 is No [X] Surface Owners Agreement Attached or [ ] $25,000 Blanket Surface Bon [ ] $2,000 Surface Bond [ ] $5,000 Surface Bond

24. Using standard QtrQtr, Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):

THIS IS A FRUITLAND COAL MONITOR WELL.

25. Distance to Nearest Mineral Lease Line: ______ 26. Total Acres in Lease: ______

DRILLING PLANS AND PROCEDURES

27. Is H2S anticipated? [ ] Yes [X] No If Yes, attach contingency plan.

28. Will salt sections be encountered during drilling? [ ] Yes [X] No

29. Will salt (>15,000 ppm TDS CL) or oil based muds be used during drilling? [ ] Yes [X] No

30. If questions 27 or 28 are yes, is this location in a sensitive area (Rule 903)? [ ] Yes [X] No **If 28, 29, or 30 are "Yes" a pit permit may be required.**

31. Mud disposal: [X] Offsite [ ] Onsite

Method: [ ] Land Farming [ ] Land Spreading [X] Disposal Facility Other: ______

Note: The use of an earthen pit for Recompletion fluids requires a pit permit (Rule 905b). If air/gas drilling, notify local fire officials.

Casing Type	Size of Hole	Size of Casing	Weight Per Foot	Setting Depth	Sacks Cement	Cement Bottom	Cement Top
CONDUCTOR	12+1/4	9+5/8	36	44	48	50	0
SURF	8+3/4	7	20	730	270	735	0
1ST	6+1/4	4+1/2	10.5	980	230	985	0

32. BOP Equipment Type: [ ] Annular Preventer [X] Double Ram [ ] Rotating Head [ ] None

33. Comments THIS IS A FRUITLAND COAL MONITOR WELL.

34. Location ID: ______

35. Is this application in a Comprehensive Drilling Plan ? [ ] Yes [ ] No

36. Is this application part of submitted Oil and Gas Location Assessment ? [X] Yes [ ] No

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: ______ Print Name: KAREN SPRAY

Title: INSPECTOR Date: 10/21/2009 Email: KAREN.SPRAY@STATE.CO.U

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: David S. Neslin **Director of COGCC** Date: 2/11/2010

API NUMBER

05 067 09803 00

Permit Number: ______ Expiration Date: 2/10/2011

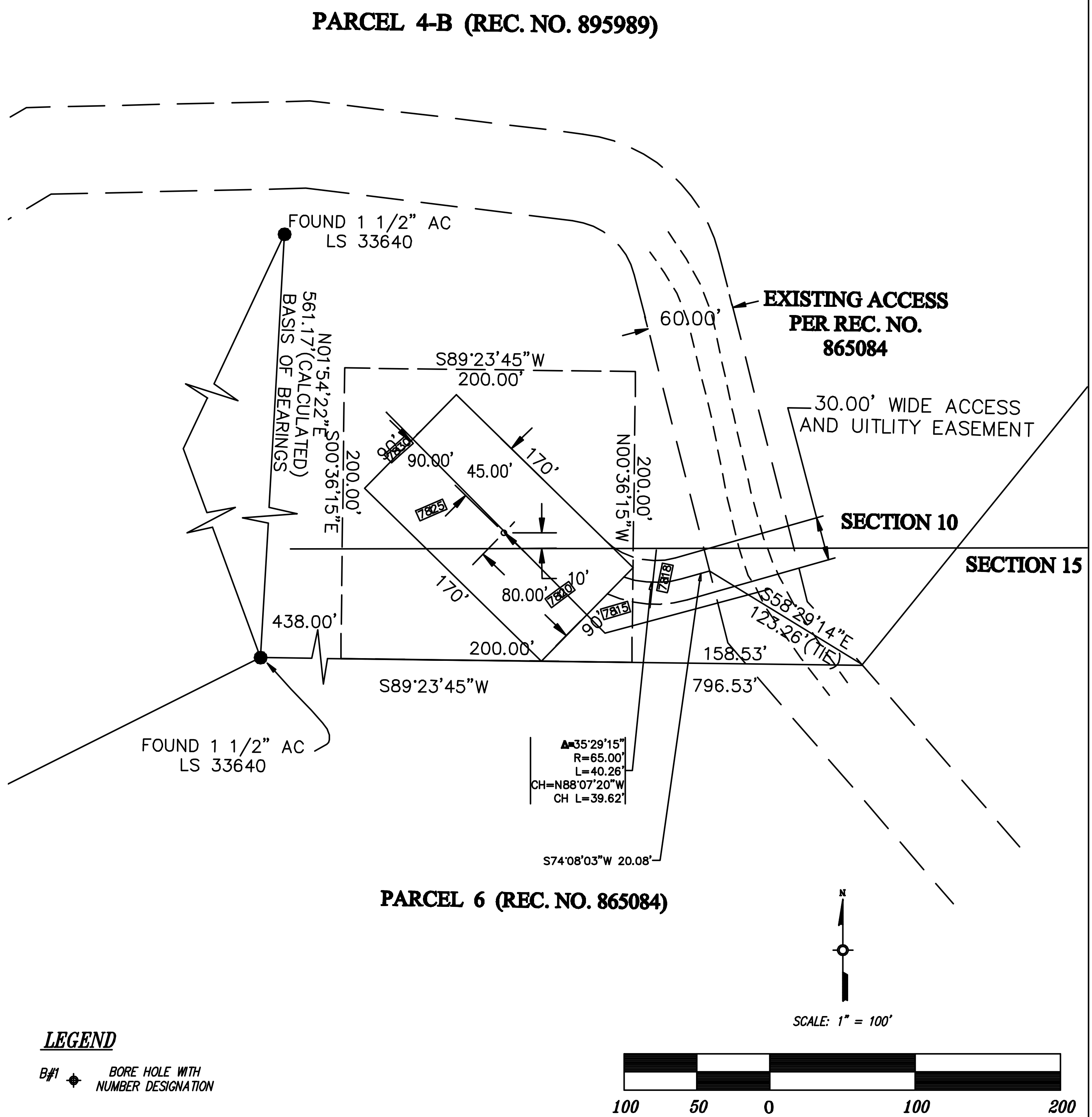
CONDITIONS OF APPROVAL, IF ANY:

All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.

Attachment Check List

Att Doc Num	Name	Doc Description
1808622	ACCESS ROAD MAP	LF@2396652|1808622
1808624	APD ORIGINAL	LF@2164886|1808624
1808625	WELL LOCATION PLAT	LF@2164887|1808625
1808627	30 DAY NOTICE LETTER	LF@2164888|1808627
1940969	WAIVERS	LF@2164889|1940969
2099115	SURFACE AGRMT/SURETY	LF@2396686|2099115
400025136	WAIVERS	LF@2396934|400025136
400025137	WAIVERS	LF@2396936|400025137

Total Attach: 8 Files



LOCATION DRAWING
FIDDLER SITE
SECTIONS 10 & 15, T35N, R8W

FIGURE 1

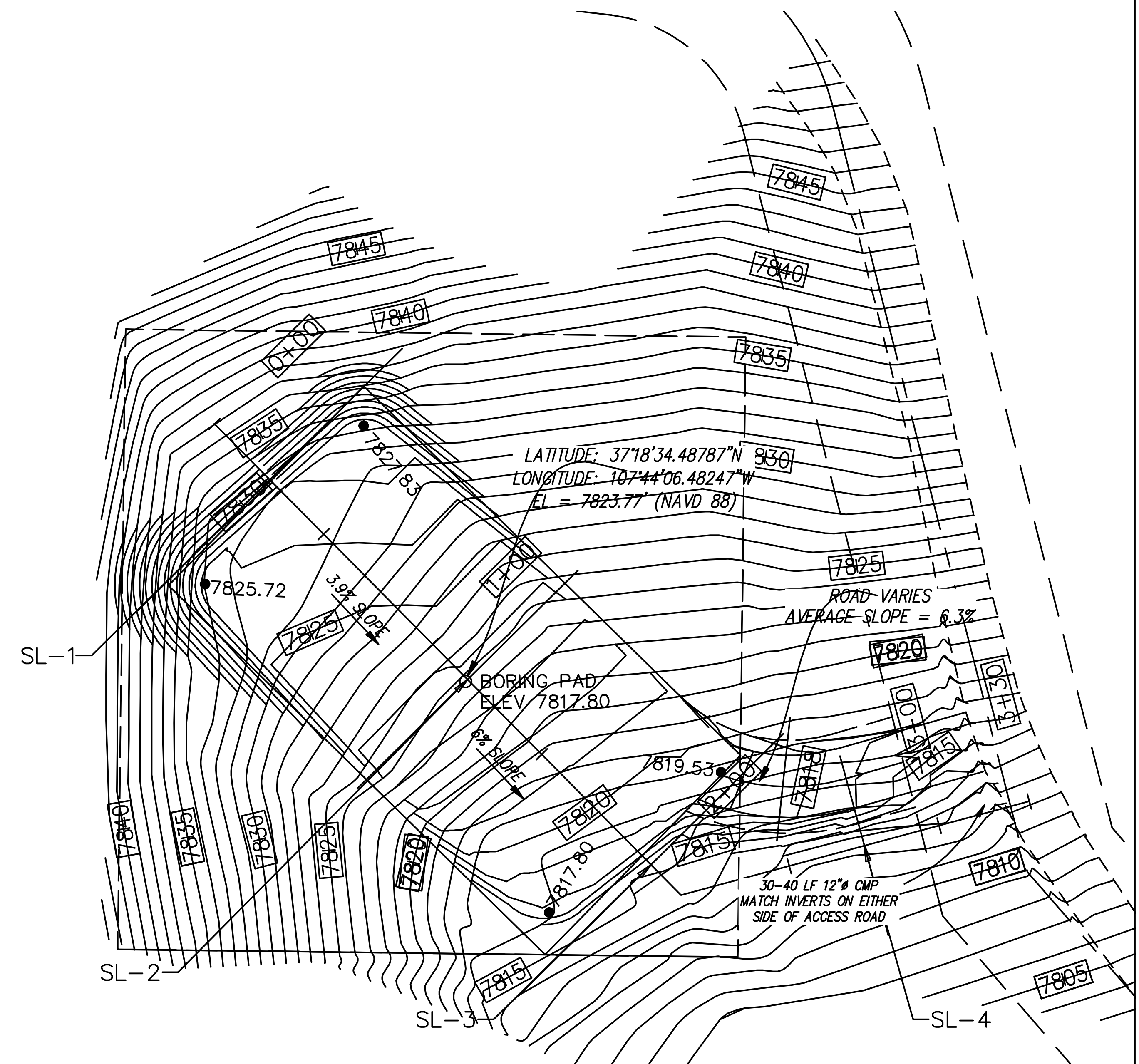
REVISIONS		
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______

DRAWN blb
CHECKED dgf
APPROVED AAC
DATE 09-17-09

SMA Civil/Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD, FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Grand Junction - Cortez, CO - Monticello, UT

P:\5-COGCC LA PLATA COUNTY WELLS 5119088\INDIVIDUAL WELL FOLDERS\FIDDLER\DIAGRAMS AND DWGS\FIDDLER DRAWINGS.DWG



FINISH GRADE PLAN

LEGEND

B#1 ⊕ BORE HOLE WITH NUMBER DESIGNATION

● PAD FINISHED GRADE SPOT ELEVATION

NOTES:

1) CUT SLOPES TO BE NO GREATER THAN 2:1(H:V)
FILL SLOPES NO GREATER THAN 2:1(H:V), OR NEAR VERTICAL IF ROCK FACE
2) CUT: 1230 CY / FILL: 650 CY / NET CUT 580 CY USING ZERO SHRINK COMPACTON FACTOR
3) SEE FIGURE 3 FOR CROSS SECTIONS

N

SCALE: 1" = 50'
CONTOUR INTERVAL = 1'

50 25 0 50 100

COGCC FRUITLAND 4M MONITORING PROJECT
FIDDLER SITE
SECTIONS 10 & 15, T35N, R8W

FIGURE
2

REVISIONS
BY ______ DATE ________ DESCR. ______________________
BY ______ DATE ________ DESCR. ______________________
BY ______ DATE ________ DESCR. ______________________

DRAWN blb
CHECKED dgf
APPROVED AAC
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SMA Civil/Environmental Scientists & Engineers

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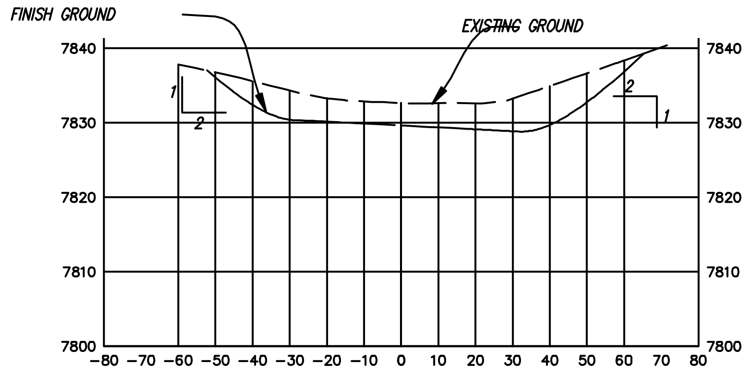

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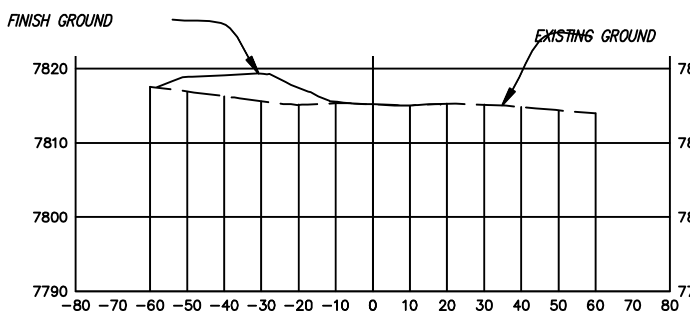
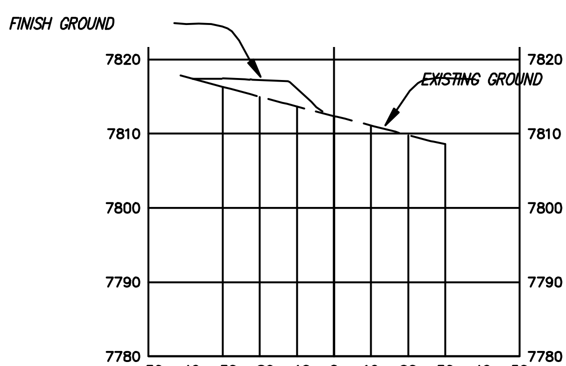
1+15



2+00



2+75

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 25'

COGCC FRUITLAND 4M MONITORING PROJECT
FIDDLER SITE
SECTIONS 10 & 15, T35N, R8W

FIGURE 3

REVISIONS		
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______

DRAWN blb
CHECKED dgf
APPROVED AAC
DATE 9/09/09

SMA Civil/Environmental Scientists & Engineers

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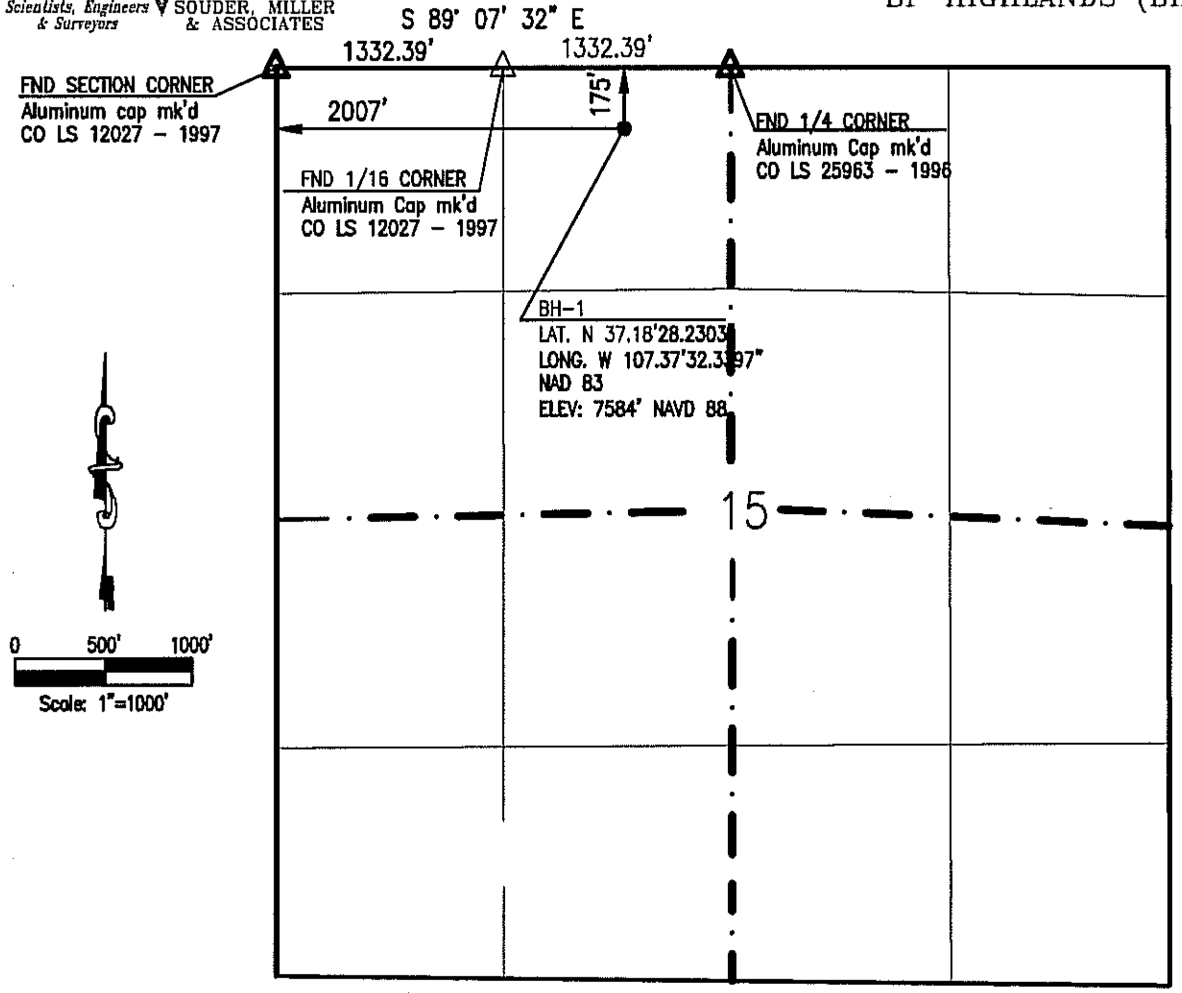
P:\5-COGCC LA PLATA COUNTY WELLS 5119088\INDIVIDUAL WELL FOLDERS\FIDDLER\DIAGRAMS AND DWGS\FIDDLER DRAWINGS.DWG

Scientists, Engineers & Surveyors SOUDER, MILLER & ASSOCIATES

SURVEY PLAT
BP HIGHLANDS (BH-1)



Operator: Colorado Oil and Gas Conservation Commission		Well Name: BP HIGHLANDS (BH-1)	
Section: 15	Township: 35 North	Range: 7 West	Meridian: N.M.P.M.
Footages: 175' FNL & 2007' FWL			County/State: La Plata, CO
Elevation: 7584'		Requested By: Steven R. Lindblom	

I, LYNN D. LANTZ, A REGISTERED PROFESSIONAL SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT ACCURATELY REPRESENTS THIS SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

LYNN DEE LANTZ 12046 PROFESSIONAL LAND SURVEYOR STATE OF COLORADO

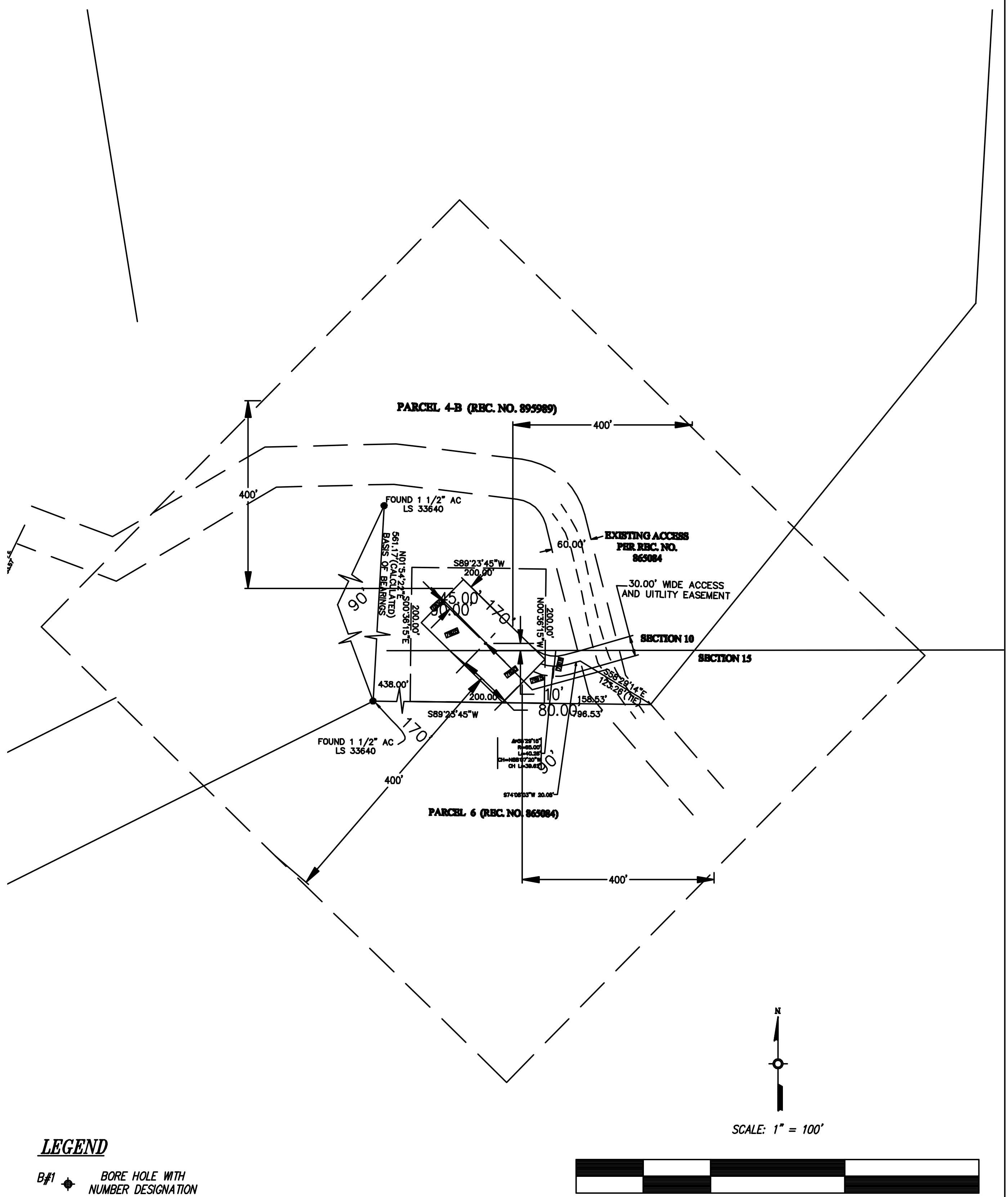
LYNN D. LANTZ
COLORADO P.L.S. #12046

14 Sept 2009
DATE

NOTES:
1. Basis of bearing is Colorado Coordinate System, South Zone.
2. PDOP for this survey is 1.5'.
3. Section corner monument is an Aluminum Cap on a rebar as shown on Survey PLat by Ronald E. Johnson, CO LS 12027 recorded January 14, 1981.
4. Well location distances calculated from GPS observation collected on 9/01/2009.
5. There presently exists no visible improvements within 200' of this location other than those shown hereon or on the attached pit and pad diagram.
6. Surface use for the land surrounding this location is private grazing.
7. Well location distances are measured perpendicular to section lines.

BASIS OF ELEVATION – Topo elevation observed from NAVD 88.

P:\5-COGCC 4M La Plata County (5119088)\CAD\dwg\HaierSite\SurvPlatHighlands BH 1.dwg



LEGEND

B#1 BORE HOLE WITH NUMBER DESIGNATION

LOCATION DRAWING
FIDDLER SITE
SECTIONS 10 & 15, T35N, R8W

FIGURE 1

REVISIONS			
BY ______	DATE ______	DESCR. ______	
BY ______	DATE ______	DESCR. ______	
BY ______	DATE ______	DESCR. ______	

DRAWN	blb
CHECKED	dgf
APPROVED	AAC
DATE	09-17-09

SMA Civil/Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD,
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P:\5-COGCC LA PLATA COUNTY WELLS 5119088\INDIVIDUAL WELL FOLDERS\FIDDLER\DIAGRAMS AND DWGS\FIDDLER DRAWINGS.DWG

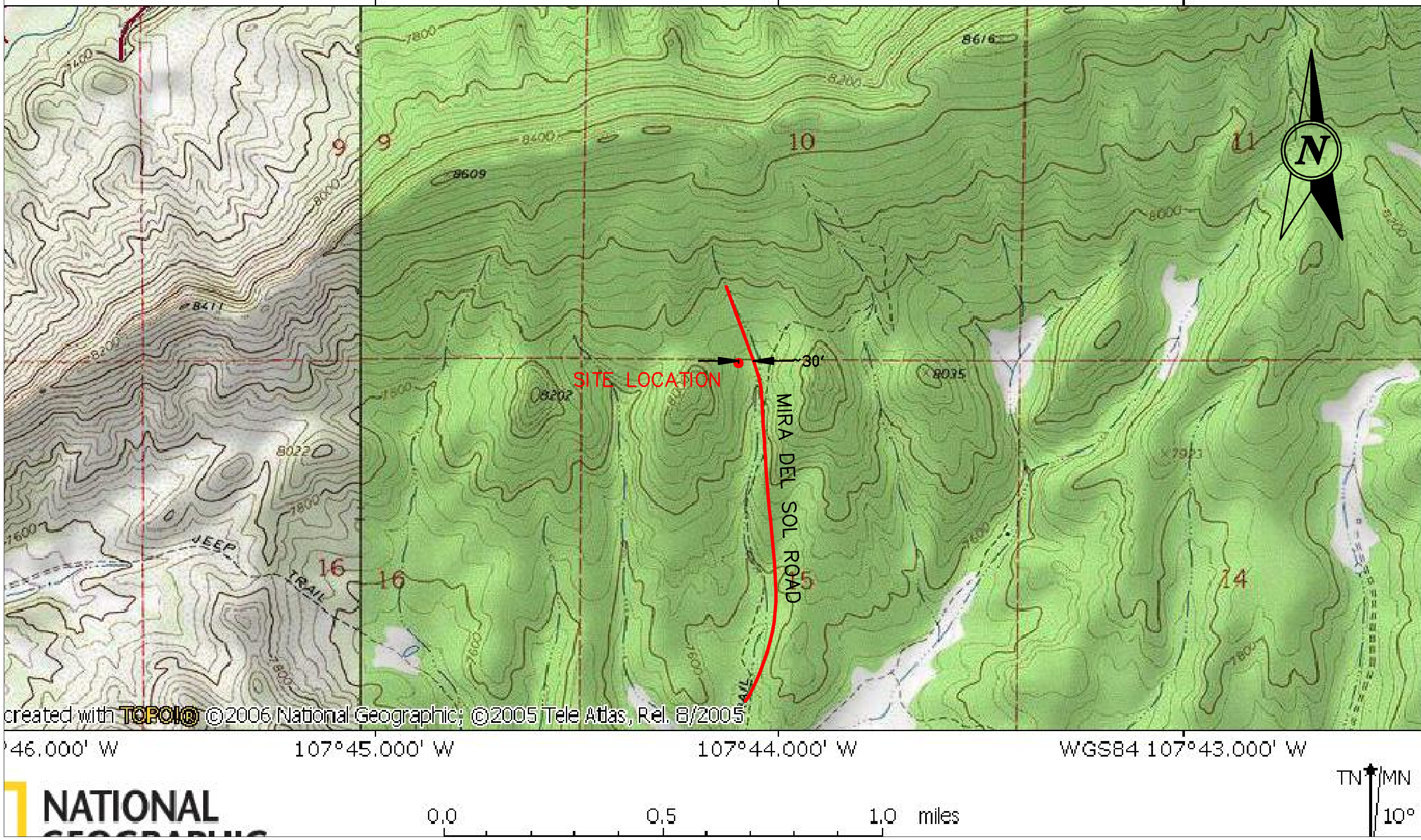
Photo 1: View to the north – Fiddler Site 9/17/09

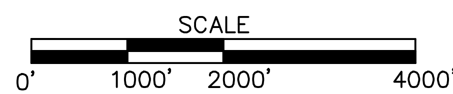
Photo 2: View to the south – Fiddler Site 9/17/09

Photo 3: View to the east – Fiddler Site 9/17/09

Photo 4: View to the west – Fiddler Site 9/17/09

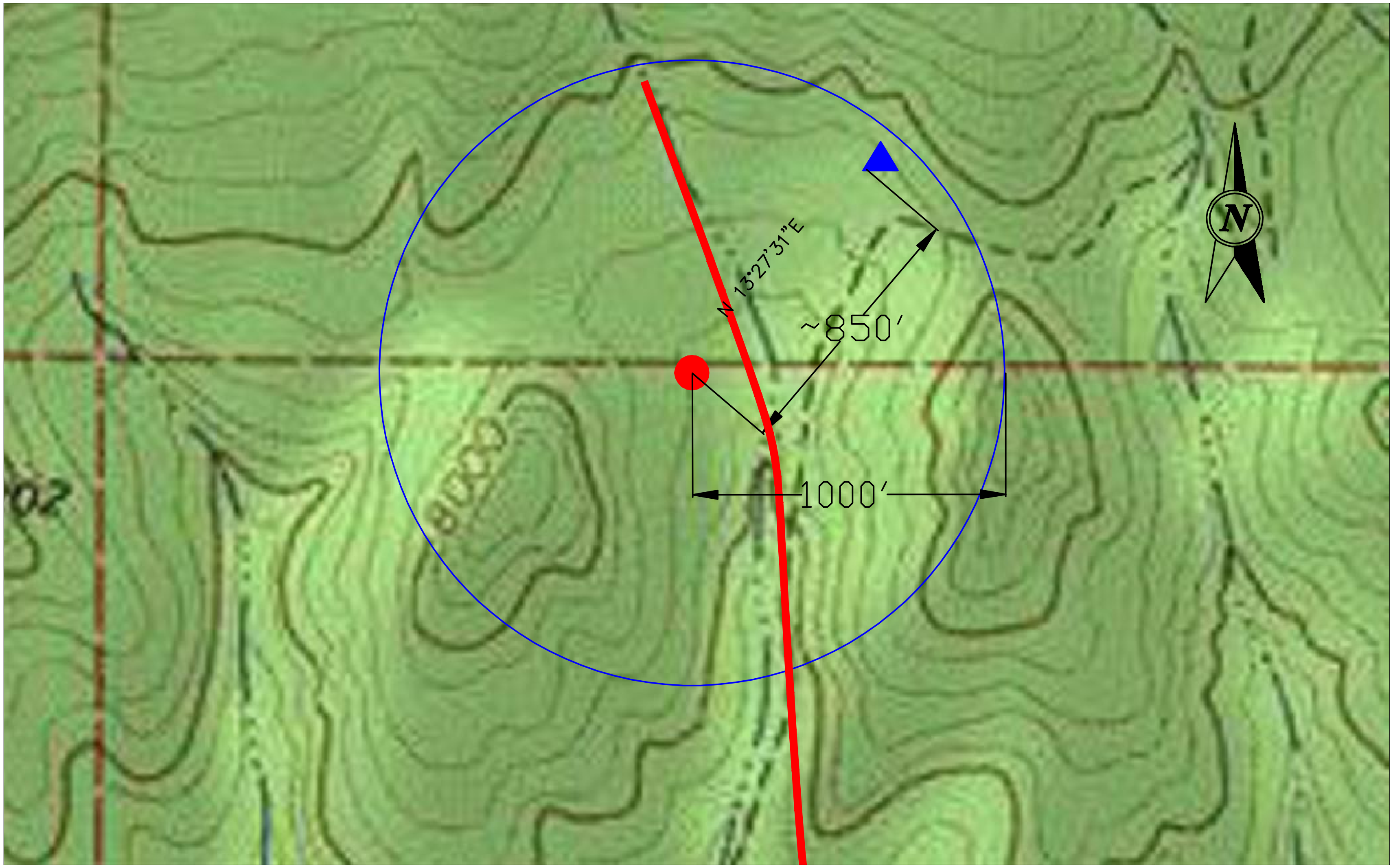
TOPO! map printed on 09/21/09 from "Untitled.tpo"



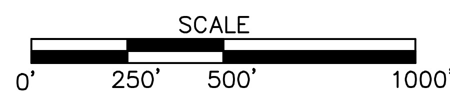


SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 9/21/09	ACCESS ROAD MAP COLORADO OIL AND GAS CONSERVATION COMMISSION FIDDLER SECTION 15 TS 35N R8W LA PLATA COUNTY, COLORADO
DRAWN BY: TLONG	DATE: 9/21/09	
REVISIONS BY:	DATE:	
PROJECT #5119088		



- WATER WELL LOCATION
- 1000' RADIUS



SMA
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612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 9/21/09
DRAWN BY: TLONG	DATE: 9/21/09
REVISIONS BY:	DATE:
PROJECT #5119088	

HYDROLOGY MAP
COLORADO OIL AND GAS CONSERVATION COMMISSION
FIDDLER
SECTION 15 TS 35N R8W
LA PLATA COUNTY, COLORADO

FORM 2 Rev 12/05

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80205 Phone: (303) 894-2100 Fax: (303) 894-2109

DE	ET	OE	ES

Document Number: 1808614

Plugging Bond Surety

APPLICATION FOR PERMIT TO:

1. ☒ **Drill,** ☐ Deepen, ☐ Re-enter, ☐ Recomplete and Operate

2. TYPE OF WELL

OIL ☐ GAS ☐ COALBED ☐ OTHER MONITOR WELL

SINGLE ZONE ☐ MULTIPLE ZONE ☐ COMMINGLE ZONE ☐

Refiling ☐

Sidetrack ☐

3. Name of Operator: COLORADO OIL & GAS CONSERVATION COMMISSION

4. COGCC Operator Number: 5

5. Address: 1120 LINCOLN ST SUITE 801

City: DENVER State: CO Zip: 80203

6. Contact Name: STEVE LINDBLOM Phone: (303)894-2100X5 Fax: (303)894-2109

Email: STEVEN.LINDBLOM@STATE.CO.US

7. Well Name: PALMER RANCH Well Number: 1

8. Unit Name (if appl): Unit Number:

9. Proposed Total Measured Depth: 980

WELL LOCATION INFORMATION

10. QtrQtr: SWNW Sec: 19 Twp: 35N Rng: 8W Meridian: N

Latitude: 37.289572 Longitude: -107.793756

Footage at Surface: 1906 FNL (FNL/FSL) 561 FWL (FEL/FWL)

11. Field Name: Field Number:

12. Ground Elevation: 7089 13. County: LA PLATA

14. GPS Data:

Date of Measurement: 08/13/2009 PDOP Reading: 2.2 Instrument Operator's Name: ROBERT L. POUNDS

15. If well is ☐ Directional ☐ Horizontal (highly deviated) **submit deviated drilling plan.**

Footage at Top of Prod Zone: FNL/FSL FEL/FWL Bottom Hole: FNL/FSL FEL/FWL

Sec: Twp: Rng: Sec: Twp: Rng:

16. Is location in a high density area? (Rule 603b)? ☐ Yes ☐ No

17. Distance to the nearest building, public road, above ground utility or railroad: 75 ft

18. Distance to nearest property line: 550 19. Distance to nearest well permitted/completed in the same formation:

20.

LEASE, SPACING AND POOLING INFORMATION

Objective Formation(s)	Formation Code	Spacing Order Number(s)	Unit Acreage Assigned to Well	Unit Configuration (N/2, SE/4, etc.)
FRUITLAND	FRLDC			

21. Mineral Ownership: [X] Fee [ ] State [ ] Federal [ ] Indian Lease #:

22. Surface Ownership: [X] Fee [ ] State [ ] Federal [ ] Indian

23. Is the Surface Owner also the Mineral Owner? [X] Yes [ ] No Surface Surety ID#:

23a. If 23 is Yes: Is the Surface Owner(s) signature on the lease? [X] Yes [ ] No

23b. If 23 is No [X] Surface Owners Agreement Attached or [ ] $25,000 Blanket Surface Bon [ ] $2,000 Surface Bond [ ] $5,000 Surface Bond

24. Using standard QtrQtr, Sec, Twp, Rng format enter entire mineral lease description upon which this proposed wellsite is located (attach separate sheet/map if you prefer):

MONITOR WELL; NO LEASE REQUIRED.

25. Distance to Nearest Mineral Lease Line: 26. Total Acres in Lease:

DRILLING PLANS AND PROCEDURES

27. Is H2S anticipated? [ ] Yes [X] No If Yes, attach contingency plan.

28. Will salt sections be encountered during drilling? [ ] Yes [X] No

29. Will salt (>15,000 ppm TDS CL) or oil based muds be used during drilling? [ ] Yes [X] No

30. If questions 27 or 28 are yes, is this location in a sensitive area (Rule 903)? [ ] Yes [X] No **If 28, 29, or 30 are "Yes" a pit permit may be required.**

31. Mud disposal: [X] Offsite [ ] Onsite

Method: [ ] Land Farming [ ] Land Spreading [X] Disposal Facility Other:

Note: The use of an earthen pit for Recompletion fluids requires a pit permit (Rule 905b). If air/gas drilling, notify local fire officials.

Casing Type	Size of Hole	Size of Casing	Weight Per Foot	Setting Depth	Sacks Cement	Cement Bottom	Cement Top
CONDUCTOR	12+1/4	9+5/8	36	44	45	50	0
SURF	8+3/4	7	20	300	135	310	0
1ST	6+1/4	4+1/2	10.5	770	193	775	0

32. BOP Equipment Type: [ ] Annular Preventer [X] Double Ram [ ] Rotating Head [ ] None

33. Comments

34. Location ID:

35. Is this application in a Comprehensive Drilling Plan ? [ ] Yes [ ] No

36. Is this application part of submitted Oil and Gas Location Assessment ? [X] Yes [ ] No

I hereby certify all statements made in this form are, to the best of my knowledge, true, correct, and complete.

Signed: Print Name: STEVEN LINDBLOM

Title: Date: 10/21/2009 Email: STEVEN.LINDBLOM@STATE.

Based on the information provided herein, this Application for Permit-to-Drill complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: David S. Neslin **Director of COGCC** Date: 2/11/2010

API NUMBER

05 067 09804 00

Permit Number: Expiration Date: 2/10/2011

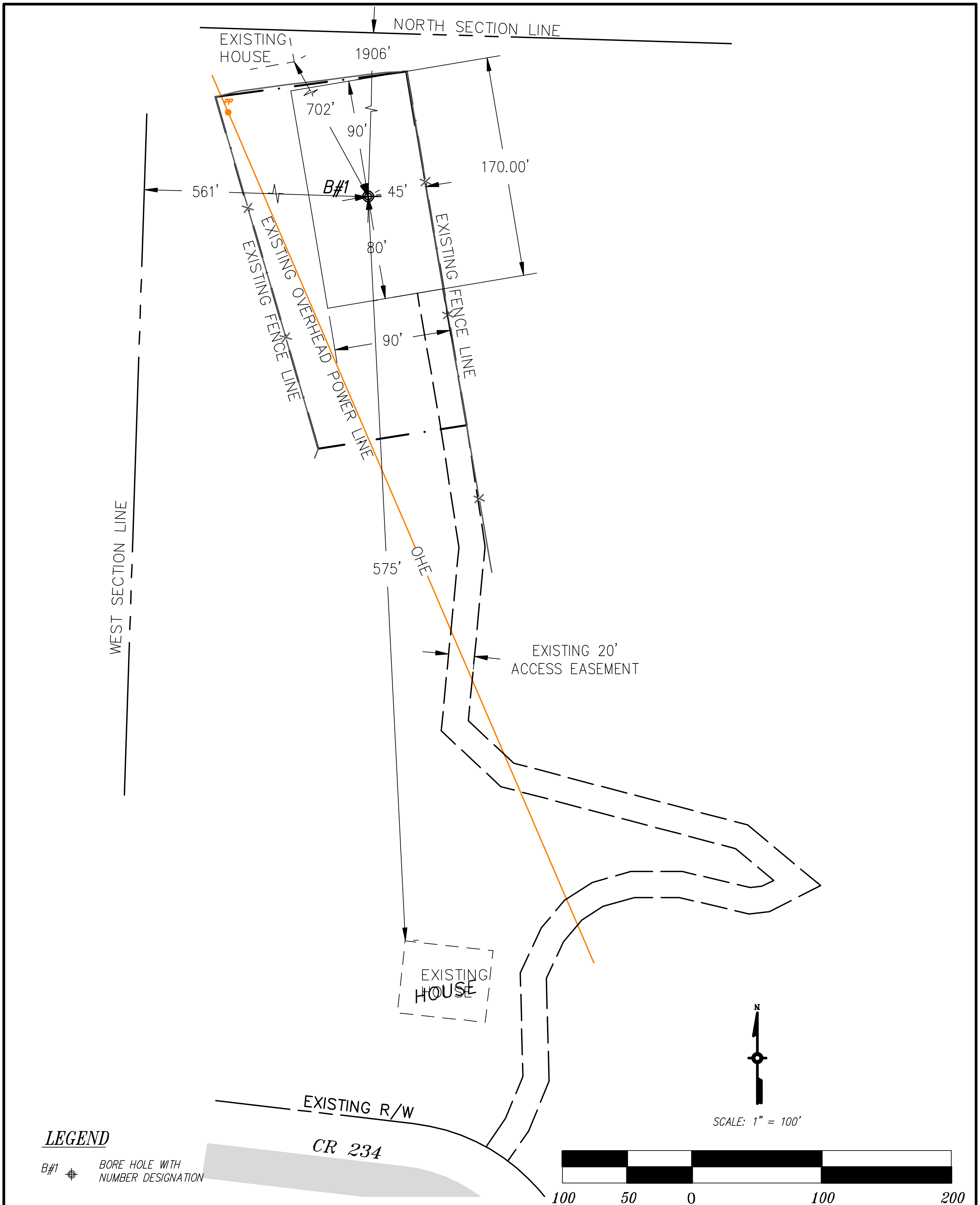
CONDITIONS OF APPROVAL, IF ANY:

All representations, stipulations and conditions of approval stated in the Form 2A for this location shall constitute representations, stipulations and conditions of approval for this Form 2 Permit-to-Drill and are enforceable to the same extent as all other representations, stipulations and conditions of approval stated in this Permit-to-Drill.

Attachment Check List

Att Doc Num	Name	Doc Description
1808614	APD ORIGINAL	LF@2164880|1808614
1808615	WELL LOCATION PLAT	LF@2164881|1808615
1808616	TOPO MAP	LF@2164823|1808616
1808617	30 DAY NOTICE LETTER	LF@2164882|1808617
1808618	CORRESPONDENCE	LF@2164884|1808618
1940971	WAIVERS	LF@2164885|1940971
400025142	WAIVERS	LF@2396927|400025142
400025143	WAIVERS	LF@2396928|400025143
400025144	SURFACE AGRMT/SURETY	LF@2396929|400025144

Total Attach: 9 Files



P:\5-COGCC 4M LA PLATA COUNTY (5119088)\CAD\DWG\PALMERRANCH#1\5119088-PALMERBASE.DWG

COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME BP PALMER RANCH SITE # 1
SW/4NW/4 SECTION 19, T35N, R8W

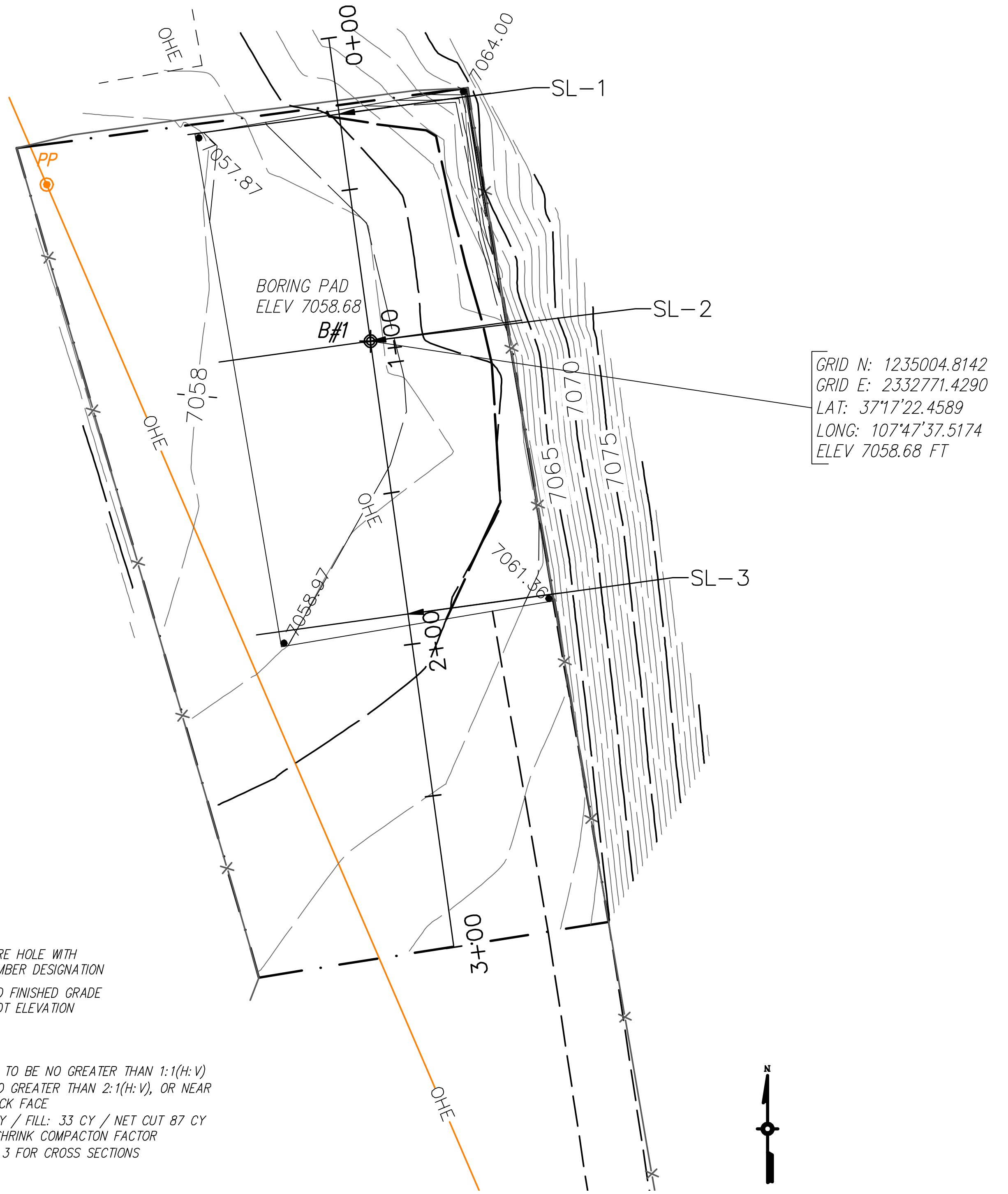
FIGURE 1

REVISIONS
BY ______ DATE ______ DESCR. ______
BY ______ DATE ______ DESCR. ______
BY ______ DATE ______ DESCR. ______

DRAWN djb
CHECKED dgf
APPROVED AAC
DATE 09-25-09

SMA
Civil / Environmental Scientists & Engineers

SOUDER, MILLER & ASSOCIATES, 2101 SAN JUAN BLVD, FARMINGTON, NEW MEXICO 87401 TELE: 505-325-7535
Albuquerque - Las Cruces - Santa Fe, NM
Grand Junction - Cortez, CO - Monticello, UT



LEGEND

B#1 — BORE HOLE WITH NUMBER DESIGNATION

• — PAD FINISHED GRADE SPOT ELEVATION

NOTES:
1) CUT SLOPES TO BE NO GREATER THAN 1:1(H:V) FILL SLOPES NO GREATER THAN 2:1(H:V), OR NEAR VERTICAL IF ROCK FACE
2) CUT: 120 CY / FILL: 33 CY / NET CUT 87 CY USING ZERO SHRINK COMPACTON FACTOR
3) SEE FIGURE 3 FOR CROSS SECTIONS

FINISH GRADE PLAN

COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME BP PALMER RANCH SITE # 1
SW/4NW/4 SECTION 19, T35N, R8W

FIGURE 2

REVISIONS
BY ______ DATE ______ DESCR. ______
BY ______ DATE ______ DESCR. ______
BY ______ DATE ______ DESCR. ______

DRAWN djb
CHECKED dgf
APPROVED AAC
DATE 09-25-09

SMA Civil/Environmental Scientists & Engineers
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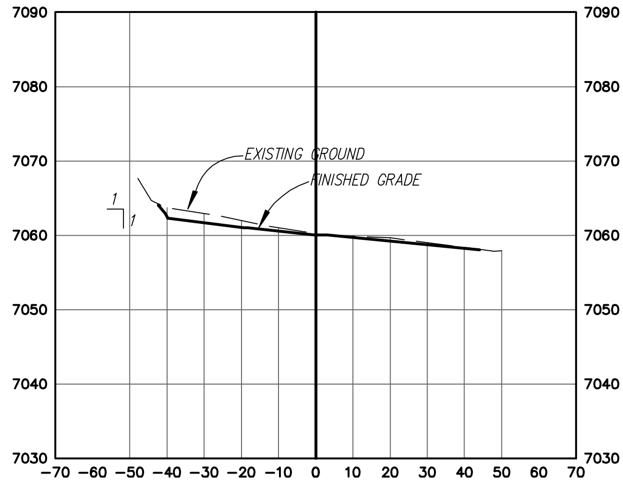
Albuquerque - Las Cruces - Santa Fe, NM
Grand Junction - Cortez, CO - Monticello, UT

P:\5-COGCC 4M LA PLATA COUNTY (5119088)\CAD\DWG\PALMERRANCH#1\5119088-PALMERBASE.DWG



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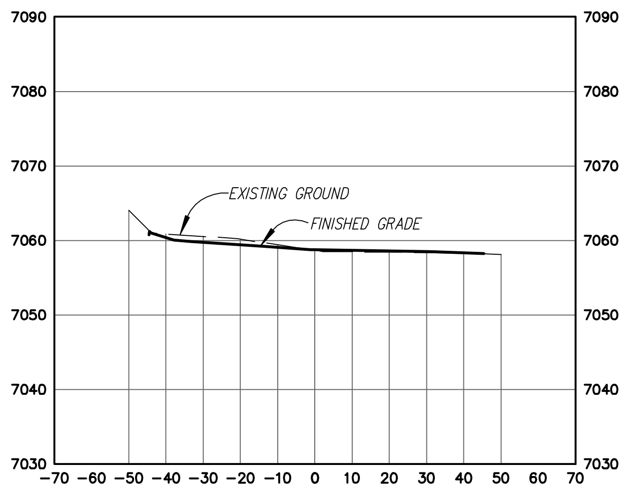
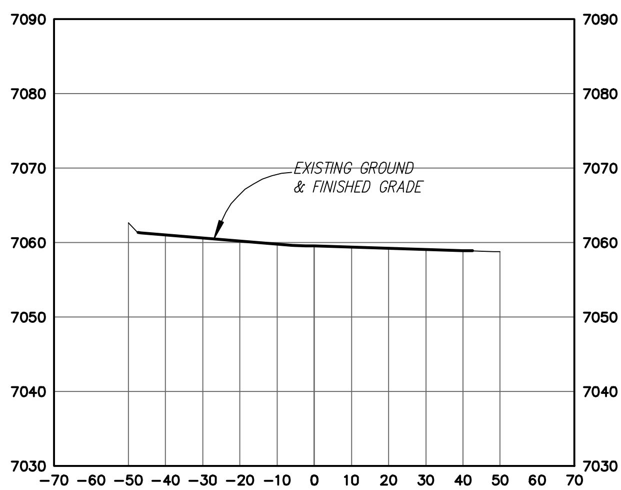


1+00



1+90

HORIZ SCALE: 1" = 50'
VERT SCALE: 1" = 25'

COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME BP PALMER RANCH SITE # 1
SW/4NW/4 SECTION 19, T35N, R8W

FIGURE 3

REVISIONS
BY ______ DATE ________ DESCR. ____________________
BY ______ DATE ________ DESCR. ____________________
BY ______ DATE ________ DESCR. ____________________

DRAWN djb
CHECKED dgf
APPROVED AAC
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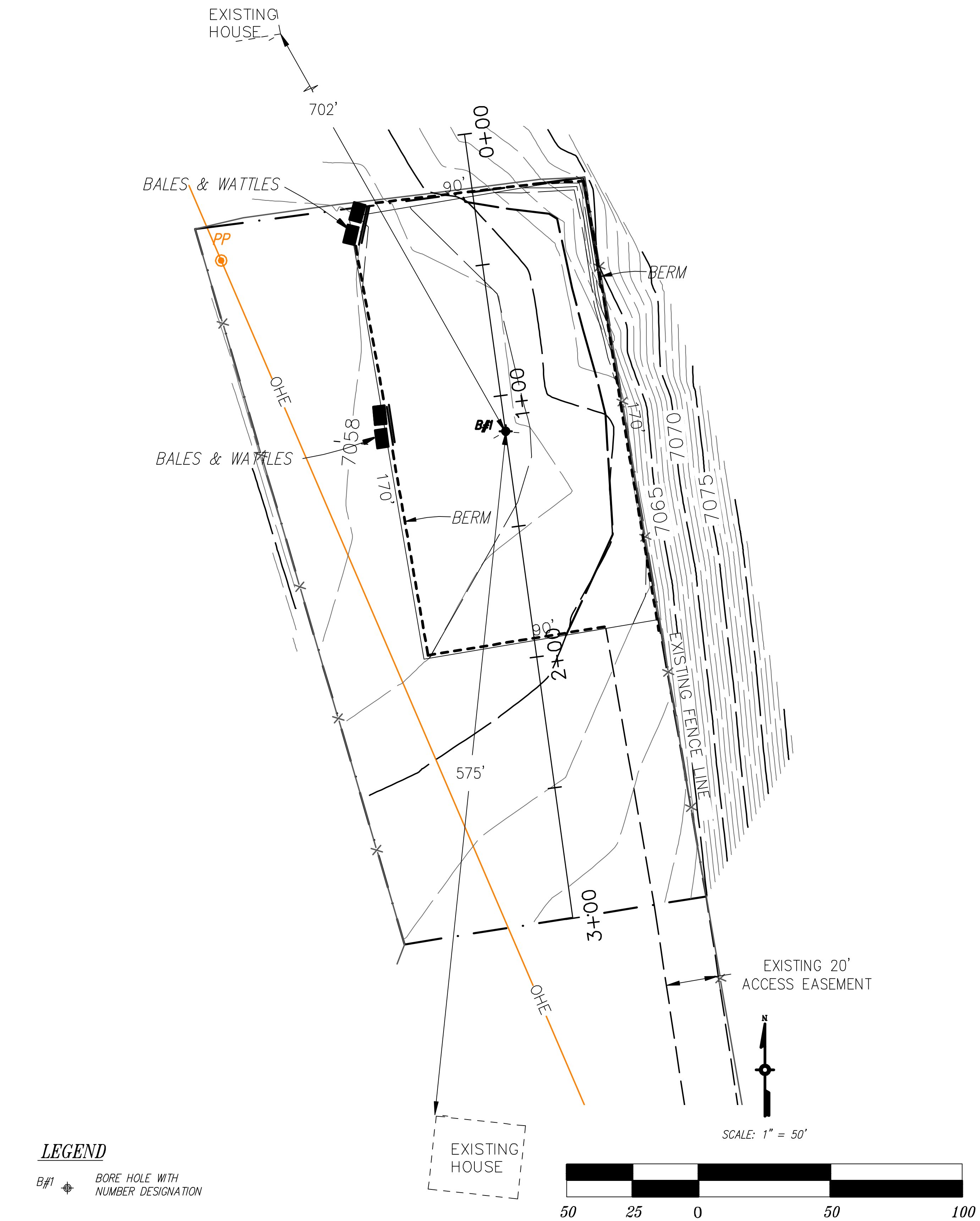
P:\5-COGCC 4M LA PLATA COUNTY (5119088)\CAD\DWG\PALMERRANCH#1\5119088-PALMERBASE.DWG



WELL PAD DIAGRAM
COGCC FRUITLAND 4M MONITORING PROJECT
WELL NAME BP PALMER RANCH SITE # 1

FIGURE 1

REVISIONS		
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______

DRAWN djb
CHECKED dgf
APPROVED AAC
DATE 09-25-09

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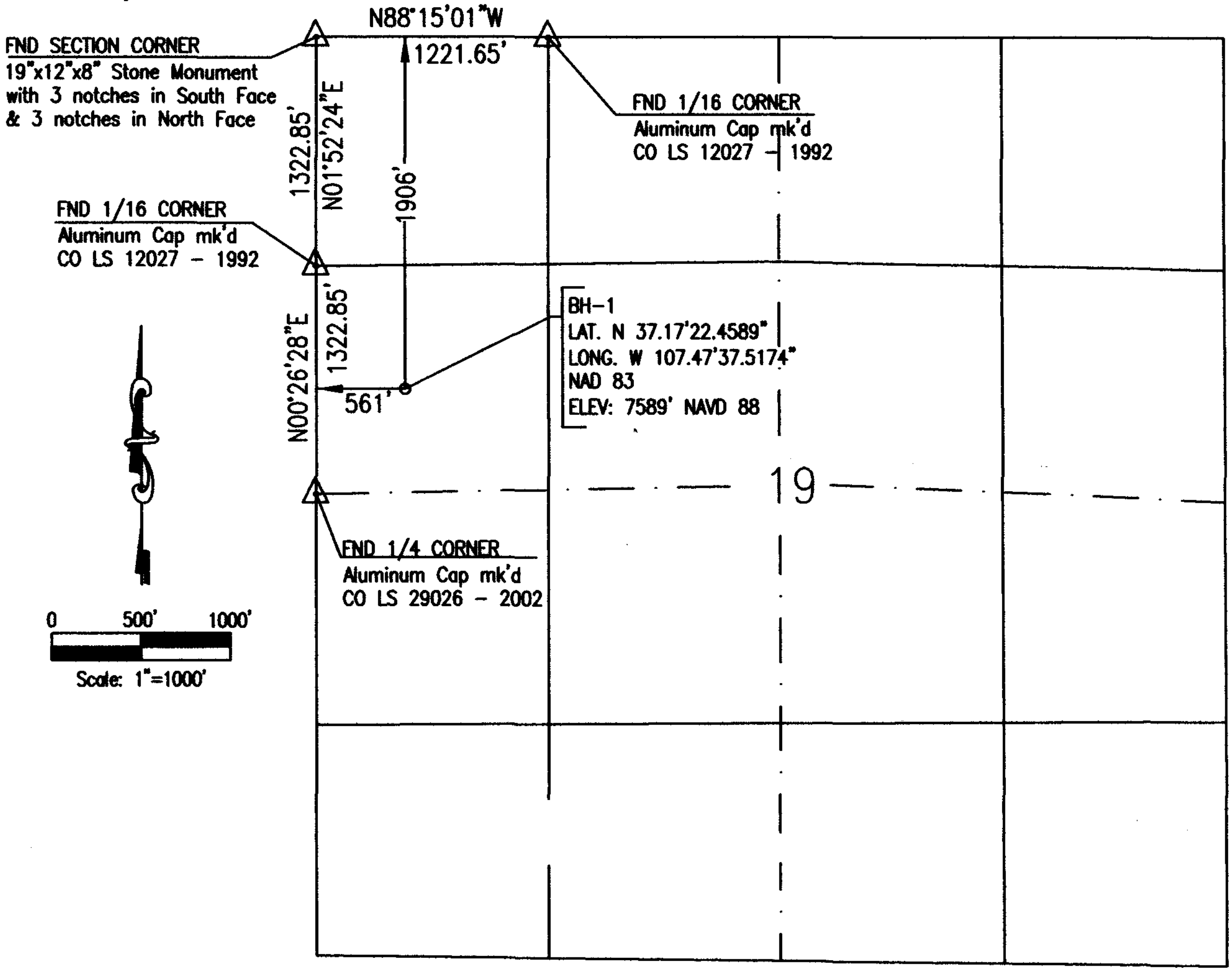
P:\5-COGCC 4M LA PLATA COUNTY (5119088)\CAD\DWG\PALMERRANCH#1\5119088-PALMERBASE.DWG

SMA Scientists, Engineers & Surveyors SOUDER, MILLER & ASSOCIATES

SURVEY PLAT
BP PALMER (BH-1)



Operator		Colorado Oil and Gas Conservation Commission	Well Name	BP PALMER (BH-1)
Section 19	Township 35 North	Range 8 West		Meridian N.M.P.M.
Footages 1906' FNL & 561' FWL				County/State La Plata, CO
Elevation 7589'			Requested By	Steven R. Lindblom

I, LYNN D. LANTZ, A REGISTERED PROFESSIONAL SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT ACCURATELY REPRESENTS THIS SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.

LYNN DEE LANTZ 12046 PROFESSIONAL LAND SURVEYOR STATE OF COLORADO

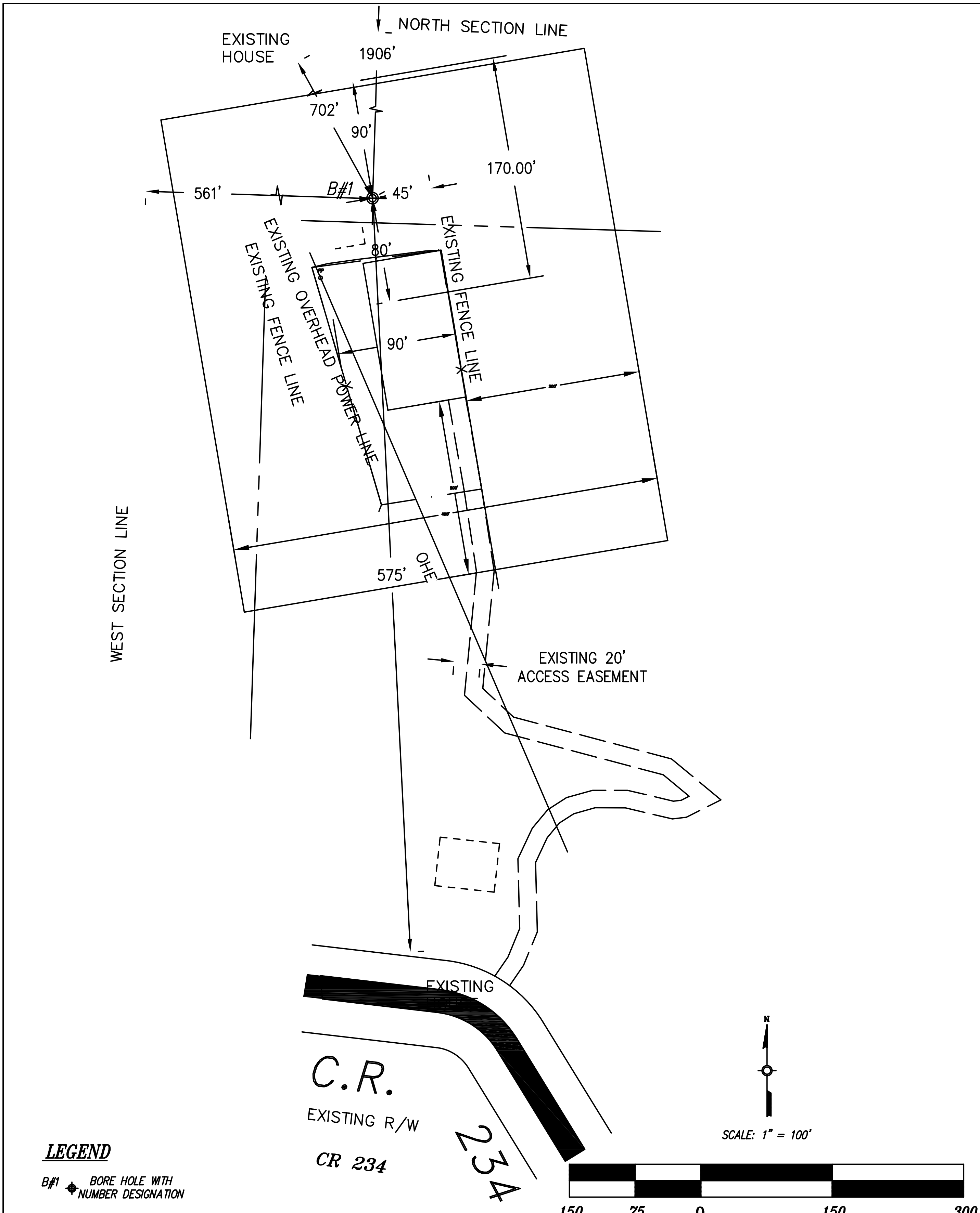
17 FEB 2010

LYNN D. LANTZ
COLORADO P.L.S. #12046

DATE

NOTES:
1. Basis of bearing is Colorado Coordinate System, South Zone.
2. PDOP for this survey is 2.2'.
3. Section corner monument is an Aluminum Cap on a rebar as shown on Access Easement Exhibit Map by Scott A. Wagner, CO LS 32445 dated May 6, 2008.
4. Well location distances calculated from GPS observation collected on 8/13/2009.
5. There presently exists no visible improvements within 200' of this location.
6. Surface use for the land surrounding this location is private grazing.
7. Well location distances are measured perpendicular to section lines.

BASIS OF ELEVATION – Topo elevation observed from NAVD 88.



P:\5-COGCC LA PLATA COUNTY WELLS 5119088\INDIVIDUAL WELL FOLDERS\PALMER RANCH\PALMER BASE MAPS.DWG

LOCATION DRAWING
PALMER RANCH SITE
SW/4NW/4 SECTION 19, T35N, R8W

FIGURE 1

REVISIONS		
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______
BY ______	DATE ______	DESCR. ______

DRAWN djb
CHECKED dgf
APPROVED AAC
DATE 09-25-09

SMA Civil / Environmental Scientists & Engineers

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Albuquerque – Las Cruces – Santa Fe, NM
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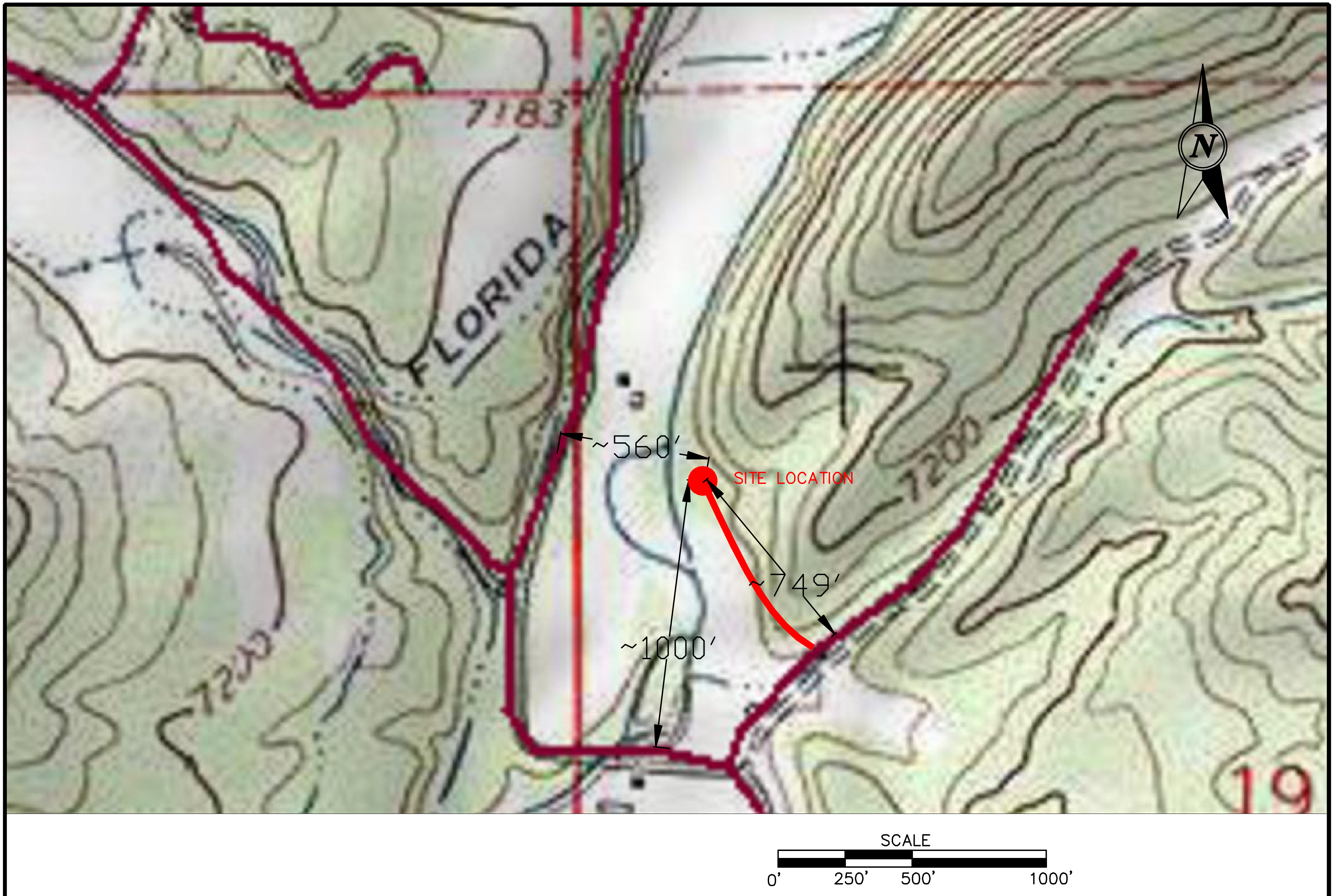
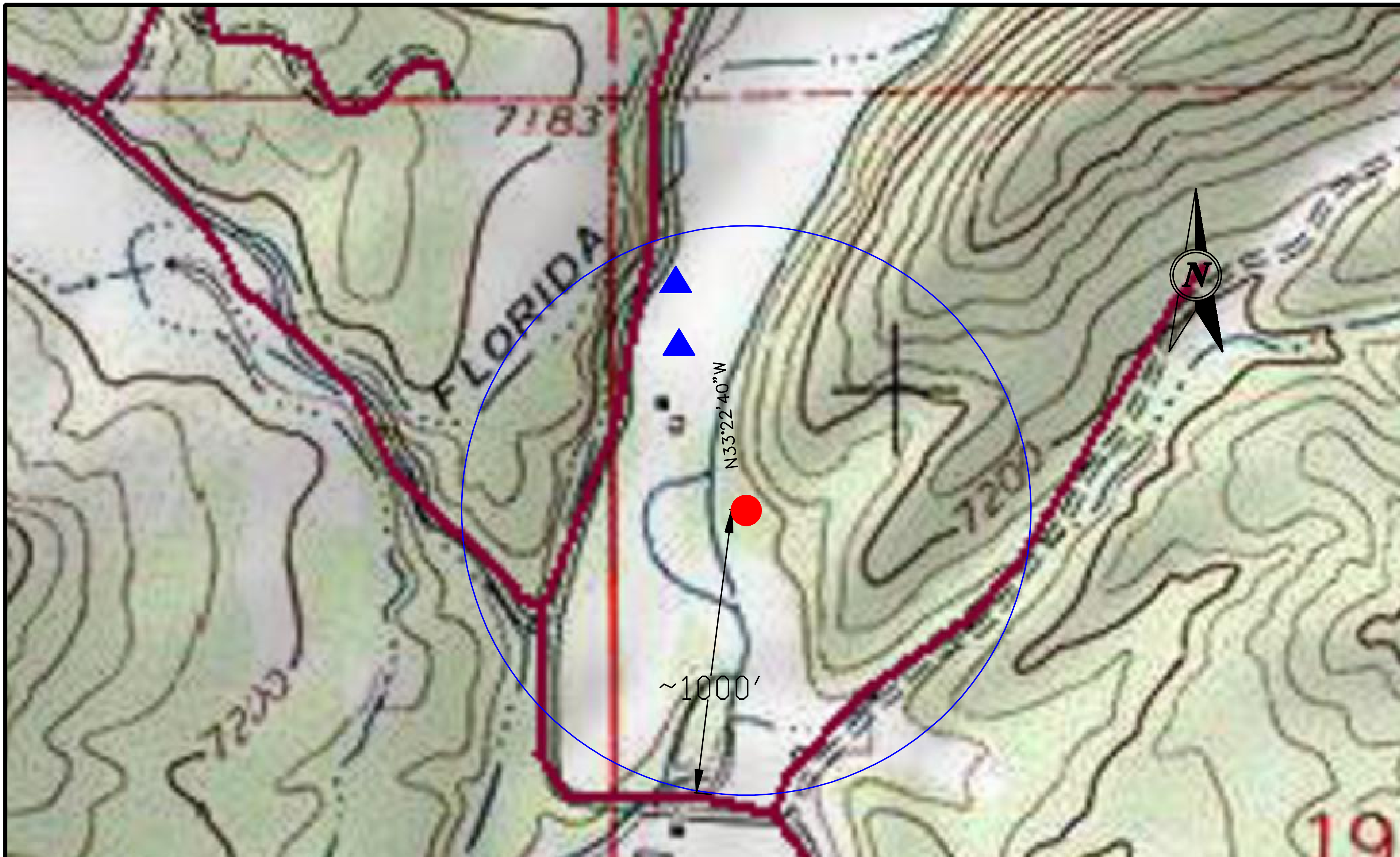


SMA Civil / Environmental Scientists & Engineers	APPROVED: DGF	DATE: 9/28/09	ACCESS ROAD MAP
612 E. MURRAY DR. FARMINGTON, NM 87401	DRAWN BY: TLONG	DATE: 9/28/09	COLORADO OIL AND GAS CONSERVATION COMMISSION
PH. (505) 325-5667 FAX (505) 327-1496	REVISIONS BY:	DATE:	PALMER SITE
	PROJECT #5119088		SECTION 19 TS 35N R8W LA PLATA COUNTY, COLORADO



▲ – WATER WELL LOCATION

○ – 1000' RADIUS

SCALE

0' 250' 500' 1000'

SMA

Civil / Environmental Scientists & Engineers

612 E. MURRAY DR.
FARMINGTON, NM 87401

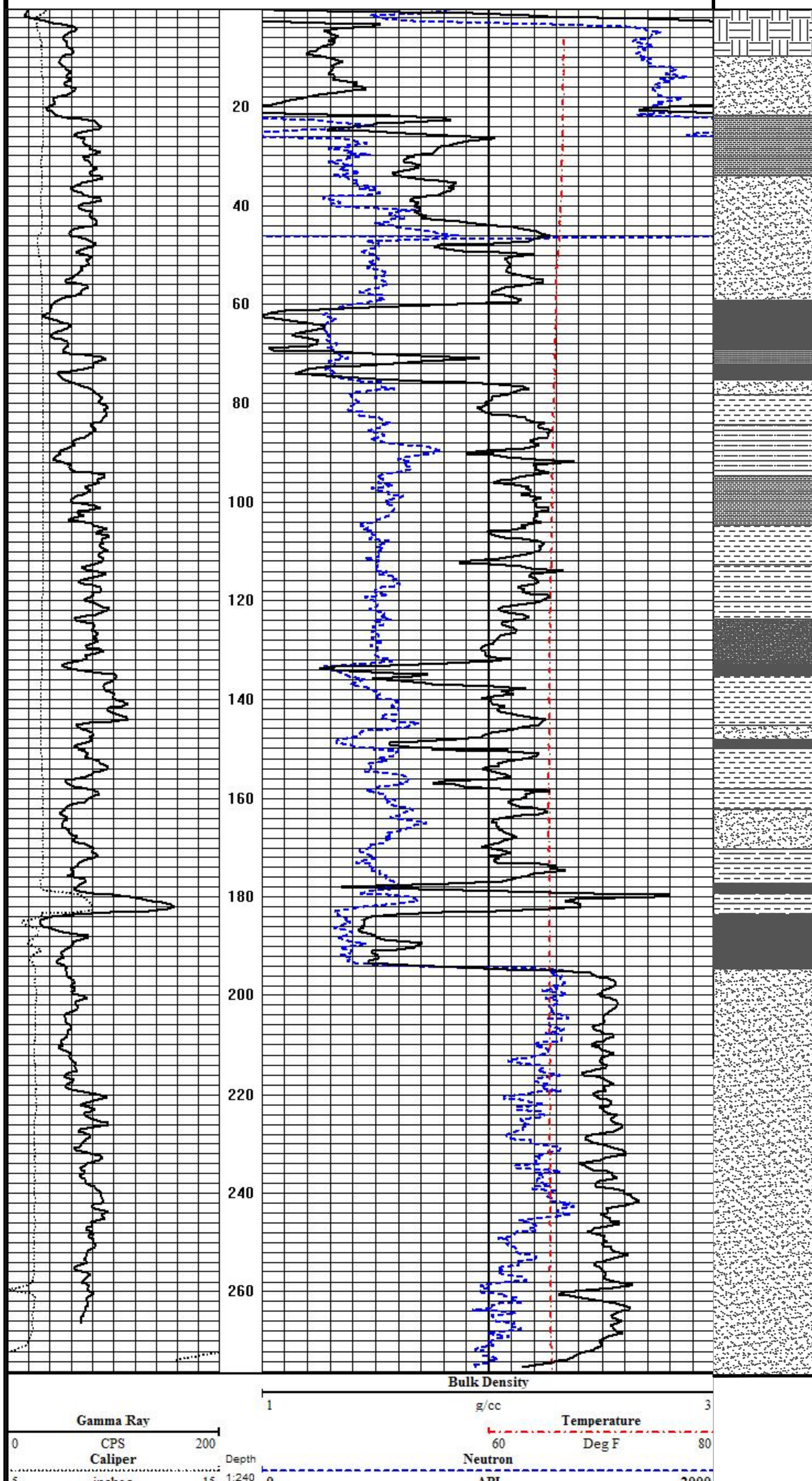
PH. (505) 325-5667
FAX (505) 327-1496

APPROVED: DGF	DATE: 9/28/09
DRAWN BY: TLONG	DATE: 9/28/09
REVISIONS BY:	DATE:
PROJECT #5119088	

HYDROLOGY MAP
COLORADO OIL AND GAS CONSERVATION COMMISSION
PALMER SITE
SECTION 19 TS 35N R8W
LA PLATA COUNTY, COLORADO

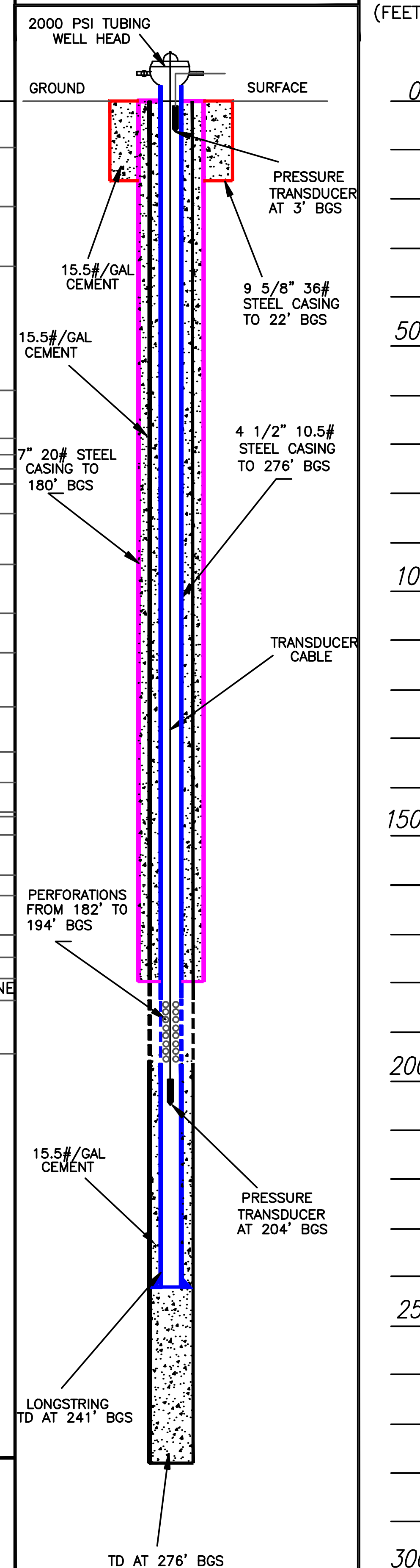
Appendix C: Geophysical, Lithological & Well Construction Diagrams

GEOPHYSICAL LOG	GRAPHICAL	LITHOLOGICAL DESCRIPTION	WELL CONSTRUCTION	DEPTH (FEET)



LITHOLOGICAL DESCRIPTION

- DRILLING PAD MATERIAL AND ALLUVIUM
- Tan SANDSTONE, vfg, sub–ang
- Lt gray–tan SILTSTONE interbedded w/gray MUDSTONE
- Tan–white SANDSTONE, vfg, sub–ang interbedded w / gray MUDSTONE
- Black COAL
- Dk gray SHALE, very carbonaceous
- Black COAL
- Tan SANDSTONE, vfg, sub–ang
- Dk gray MUDSTONE
- DK gray SILTSTONE
- DK gray MUDSTONE interbedded w/ dk gray SILTSTONE
- DK gray MUDSTONE
- DK gray MUDSTONE interbedded w/ dk gray SILTSTONE
- DK gray MUDSTONE interbedded w/ dk gry SILTSTONE and lt gray SANDSTONE, vfg, sub–ang
- Black COAL
- DK gray MUDSTONE
- Lt gray SANDSTONE, vfg, sub–ang
- Black COAL
- Gray–blk MUDSTONE, interbedded w/ gray–blk SHALE
- Gray MUDSTONE interbedded w/ blk SHALE
- Lt gray SANDSTONE, vfg, sub–ang w/scattered hornblende
- Dk gray SILTSTONE interbedded w/ gry–blk MUDSTONE
- Black COAL
- Dk gray SILTSTONE interbedded w/gry–blk MUDSTONE
- Black COAL
- Lt gray SANDSTONE, fg, sub–rounded w/ abundant dark heavy minerals



CONSTRUCTION DETAILS

BORE HOLE: 12 1/4" TO 25' BGS
CONDUCTOR CASING: 9 5/8" 36# STEEL TO 22' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 8 3/4" TO 194' BGS
SURFACE CASING: 7" 20# STEEL TO 180' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 6 1/4" TO 276'
LONG STRING: 4 1/2" 10.5# STEEL TO 241' BGS
CEMENT: 15.5#/GALLON TO SURFACE
PERFORATIONS: 182' TO 194' BGS, 4 SHOTS PER FOOT
TRANSDUCER DEPTHS: 3' AND 204' BGS
WELL HEAD: BIG RED TOOL 2000 PSI TUBING HEAD
TELEMETRY EQUIPMENT: IN–SITU REMOTE TERMINAL UNIT AND IN–SITU LEVEL TROLL PRESSURE TRANSDUCERS WITH CABLES

DRAWN: TLONG	DATE: 12/15/09
REVISED: TLONG	REVISION: #4 4/30/10
APPROVED: DGF	DATE: 4/30/10

DATE STARTED: 9/30/09
DATE COMPLETED: 10/10/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY

SITE LOCATION:

NE/NW QUARTER SECTION 15
TOWNSHIP 35N RANGE 07W
GPS: 37.307842, 107.62565
LA PLATA COUNTY, COLORADO

NOTES:

LITHOLOGICAL DESCRIPTIONS COMPLETED BY BRAME GEOSCIENCE, LLC.

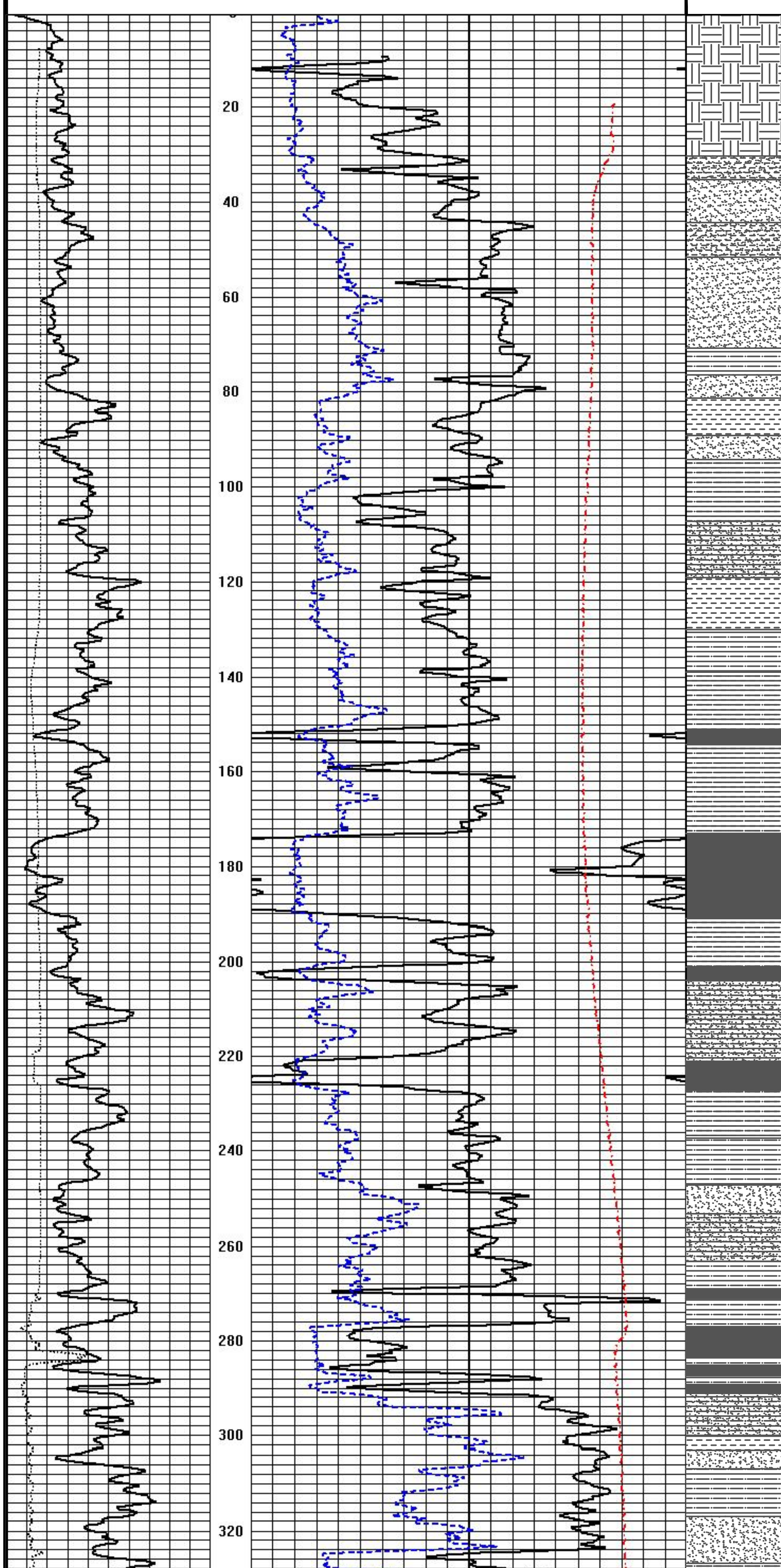
SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325–5667 FAX (505) 327–1496

GEOPHYSICAL, LITHOLOGICAL AND WELL CONSTRUCTION DIAGRAM
COGCC FRUITLAND METHANE MONITORING WELL PROJECT

BP HIGHLANDS MW–34–7–15–1, API # 05–067–09794

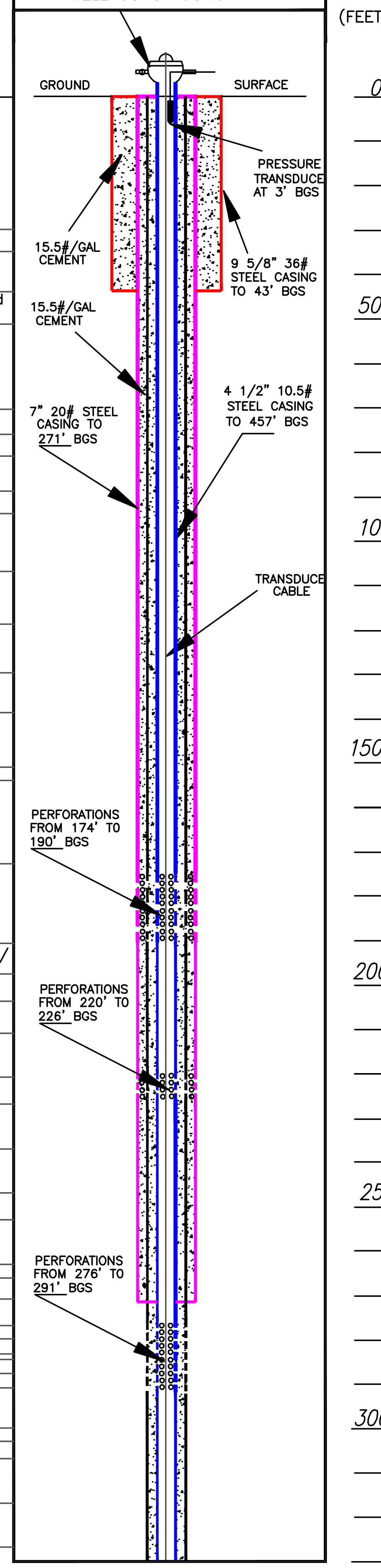
FIGURE 4

GEOPHYSICAL LOG	GRAPHICAL	LITHOLOGICAL DESCRIPTION



- DRILLING PAD MATERIAL AND ALLUVIUM
- Lt. gray-tan SANDSTONE, vfg, sub-ang interbedded w/ tan-gray MUDSTONE
- Lt. gray-tan SANDSTONE, vfg, sub-ang
- Lt. gray-tan SANDSTONE, vfg, sub-ang interbedded w/ tan-gray MUDSTONE
- Lt. gray-tan SANDSTONE, vfg, sub-ang
- Dk. gray SILTSTONE
- Lt. gray-tan SANDSTONE, vfg, sub-ang
- Dk. gray-blk MUDSTONE
- Lt. gray-tan SANDSTONE, vfg, sub-ang
- Blk. carb MUDSTONE interbedded w/dk gray-blk. SILTSTONE
- Lt. gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub-ang
- Blk. carb SHALE interbedded w/dk gray-blk. MUDSTONE
- DK. gray-blk. slight carb SILTSTONE
- b. gray-blk. mod card MUDSTONE interbedded w/ dk gray SILTSTONE
- Blk. Coal
- DK. gray-blk. carb MUDSTONE interbedded w/ dk gray SILTSTONE
- Blk. Coal
- DK. gray-blk. slight carb SILTSTONE interbedded w/ gray-blk MUDSTONE
- Blk. Coal
- DK. gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub-ang
- DK. gray SILTSTONE interbedded w/dk MUDSTONE and lt. gray SANDSTONE, vfg, subang
- Blk. Coal
- Dk. gray-blk. SILTSTONE interbedded w/dk gray-blk. MUDSTONE
- Dk. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, fg, sub-ang
- Lt. gray SANDSTONE, vfg, fg, sub-ang interbedded w/ dk. gray MUDSTONE
- Dk. gray MUDSTONE
- Blk. Coal
- Dk. gray MUDSTONE
- Blk. Coal
- Dk. gray-blk. carb MUDSTONE
- Blk. Coal
- Dk. gray-blk. carb MUDSTONE
- Blk. Coal
- Blk. carb MUDSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sun-ang

WELL CONSTRUCTION



CONSTRUCTION DETAILS

BORE HOLE: 12 1/4" TO 44' BGS
CONDUCTOR CASING: 9 5/8" 36# STEEL TO 43' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 8 3/4" TO 282' BGS
SURFACE CASING: 7" 20# STEEL TO 271' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 6 1/4" TO 457'
LONG STRING: 4 1/2" 10.5# STEEL TO 457' BGS
CEMENT: 15.5#/GALLON TO SURFACE
PERFORATIONS: 174–190, 220–226, 276–291, 334–363,

TRANSDUCER DEPTHS: 3' AND 390' BGS
WELL HEAD: BIG RED TOOL 2000 PSI TUBING HEAD
TELEMETRY EQUIPMENT: IN-SITU REMOTE TERMINAL UNIT AND IN-SITU LEVEL TROLL PRESSURE TRANSDUCERS WITH CABLES

DATE STARTED: 10/9/09
DATE COMPLETED: 11/17/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY

SITE LOCATION:

NE/NW QUARTER SECTION 10 08W
TOWNSHIP 35N RANGE 08W
GPS: 37.30958', 107.73513'
LA PLATA COUNTY, COLORADO

NOTES:

LITHOLOGICAL DESCRIPTIONS COMPLETED BY BRAME GEOSCIENCE, LLC.

DRAWN: TLONG	DATE: 12/15/09
REVISED: TLONG	REVISION: #4 4/30/10
APPROVED: DGF	DATE: 4/30/10

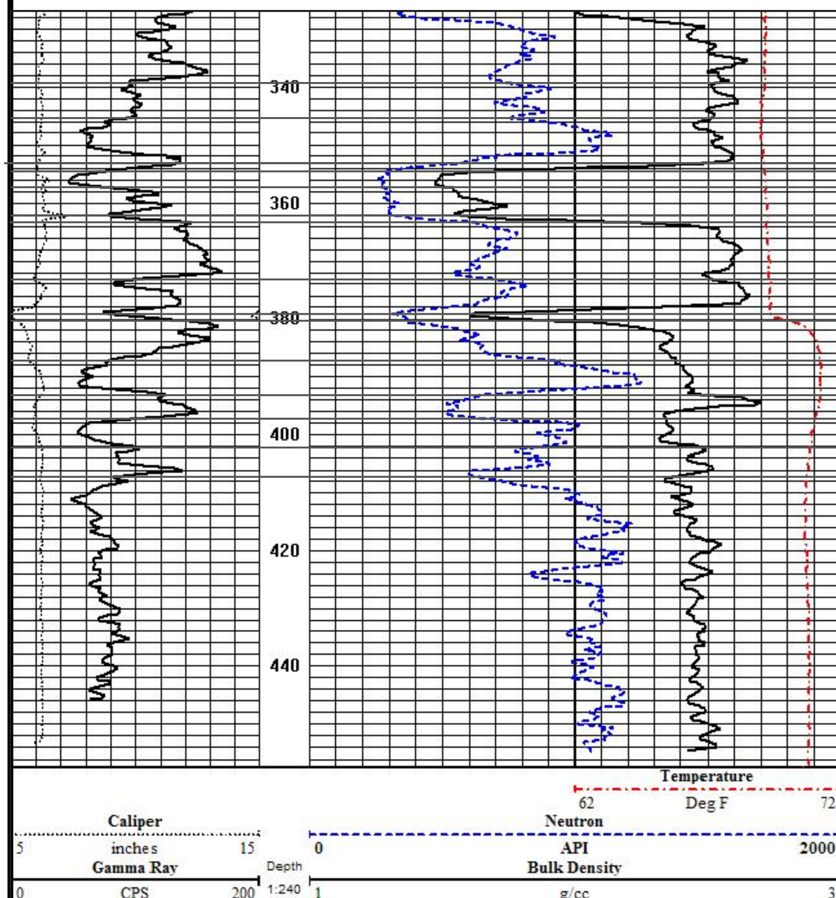
SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325-5667 FAX (505) 327-1496

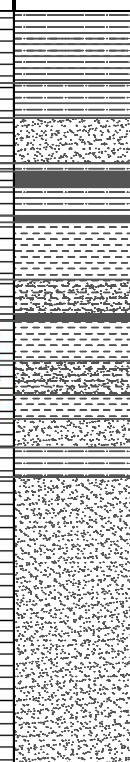
GEOPHYSICAL, LITHOLOGICAL AND WELL CONSTRUCTION DIAGRAM
COGCC FRUITLAND METHANE MONITORING WELL PROJECT

FIDDLER MW-35-8-10-1, API # 05-067-09803

FIGURE 5

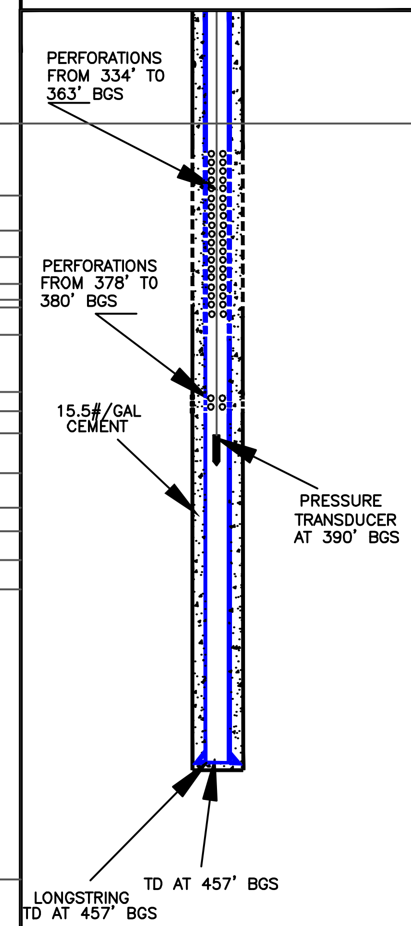
GEOPHYSICAL LOG	GRAPHICAL	LITHOLOGICAL DESCRIPTION	WELL CONSTRUCTION	DEPTH (FEET)





LITHOLOGICAL DESCRIPTION

- Dk. gray MUDSTONE interbedded w/ lt. gray SILTSTONE
- Lt. Gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sun–ang
- Lt. Gray SILTSTONE
- Blk. Coal
- Lt. Gray SILTSTONE / Blk. Coal
- Dk. gray MUDSTONE
- Dk. gray MUDSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang / Blk. Coal
- Dk. gray–blk. MUDSTONE
- Dk. gray MUDSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang
- Dk. gray MUDSTONE
- Lt. gray SANDSTONE, vfg, sun–ang
- Lt. Gray SILTSTONE
- Lt. Gray SANDSTONE, fg, sub–rounded w/ abundant heavy minerals



DEPTH (FEET): 350, 400, 450, 200, 250, 300

CONSTRUCTION DETAILS

BORE HOLE: 12 1/4" TO 44' BGS
CONDUCTOR CASING: 9 5/8" 36# STEEL TO 43' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 8 3/4" TO 282' BGS
SURFACE CASING: 7" 20# STEEL TO 271' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 6 1/4" TO 457'
LONG STRING: 4 1/2" 10.5# STEEL TO 457' BGS
CEMENT: 15.5#/GALLON TO SURFACE
PERFORATIONS: 174–190, 220–226, 276–291, 334–363,

TRANSDUCER DEPTHS: 3' AND 390' BGS
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DATE STARTED: 10/9/09
DATE COMPLETED: 11/17/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY

SITE LOCATION:

NE/NW QUARTER SECTION 10 08W
TOWNSHIP 35N RANGE 08W
GPS: 37.30958', 107.73513'
LA PLATA COUNTY, COLORADO

NOTES:

LITHOLOGICAL DESCRIPTIONS COMPLETED BY BRAME GEOSCIENCE, LLC.

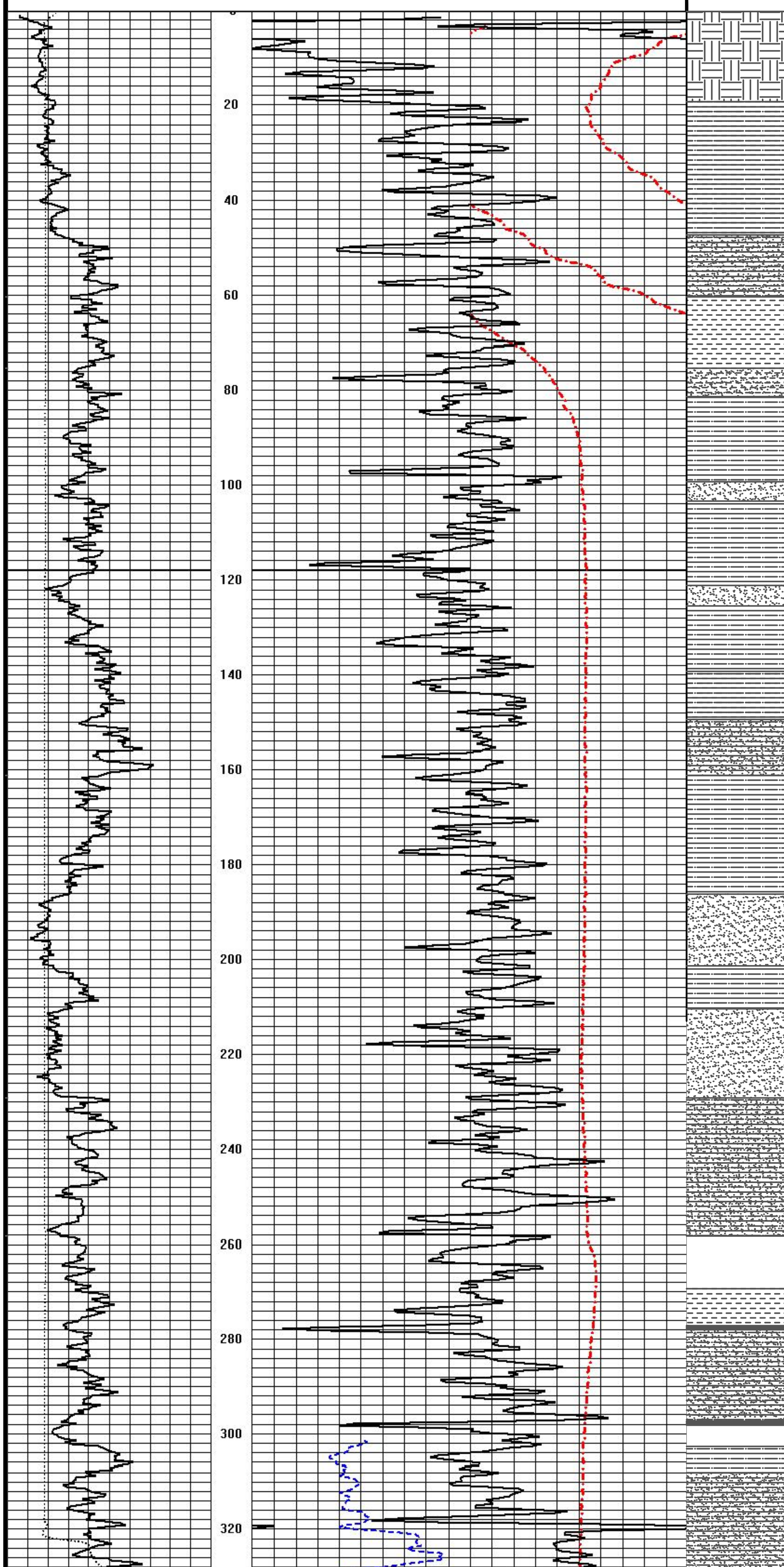
DRAWN: TLONG	DATE: 12/15/09
REVISED: TLONG	REVISION: #4 4/30/10
APPROVED: DGF	DATE: 4/30/10

SMA
Civil / Environmental Scientists & Engineers
612 E. MURRAY DR. FARMINGTON, NM 87401
PH. (505) 325–5667
FAX (505) 327–1496

GEOPHYSICAL, LITHOLOGICAL AND WELL CONSTRUCTION DIAGRAM
COGCC FRUITLAND METHANE MONITORING WELL PROJECT
FIDDLER MW–35–8–10–1, API # 05–067–09803

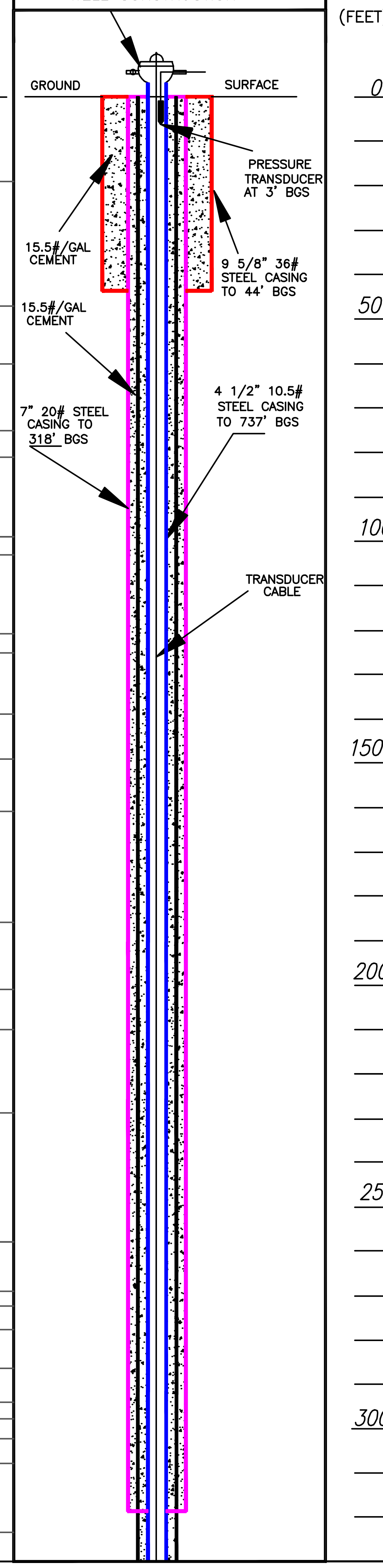
FIGURE 5

GEOPHYSICAL LOG	GRAPHICAL	LITHOLOGICAL DESCRIPTION	WELL CONSTRUCTION	DEPTH (FEET)



LITHOLOGICAL DESCRIPTION

- DRILLING PAD MATERIAL AND ALLUVIUM
- Lt. gray–tan SANDSTONE, vfg, sub–ang interbedded w/lt. gray SILTSTONE
- Dk. gray MUDSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub ang
- Dk. gray MUDSTONE interbedded w/ lt. gray SILTSTONE
- Lt. gray–tan SANDSTONE, vfg, sub–ang interbedded w/ dk. gray carb MUDSTONE
- Lt. to Dk. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub–ang
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub–ang
- Lt. gray SILTSTONE
- Lt. gray SILTSTONE interbedded w/ dk gray MUDSTONE
- Lt. gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub–ang
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub–ang
- Lt. to dk gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang
- UNKNOWN – FILL IN
- Blk. carb MUDSTONE / Blk. COAL
- Dk. gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang
- Dk. gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang and dk. gray MUDSTONE / Blk. COAL
- UNKNOWN – FILL IN
- Lt. gray SILTSTONE
- Lt. gray SILTSTONE interbedded w/ lt. gray SANDSTONE, vfg, sub–ang
- Blk. COAL



CONSTRUCTION DETAILS

BORE HOLE: 12 1/4" TO 48' BGS
CONDUCTOR CASING: 9 5/8" 36# STEEL TO 44' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 8 3/4" TO 324' BGS
SURFACE CASING: 7" 20# STEEL TO 318' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 6 1/4" TO 747'
LONG STRING: 4 1/2" 10.5# STEEL TO 737' BGS
CEMENT: 15.5#/GALLON TO SURFACE
PERFORATIONS: 623–628, 634–637, 640–657 AND 662–671 FEET BGS WITH 4 SHOTS PER FOOT
TRANSDUCER DEPTHS: 3' AND 680' BGS
WELL HEAD: BIG RED TOOL 2000 PSI TUBING HEAD
TELEMETRY EQUIPMENT: IN–SITU REMOTE TERMINAL UNIT AND IN–SITU LEVEL TROLL PRESSURE TRANSDUCERS WITH CABLES

DRAWN: TLONG	DATE: 12/15/09
REVISED: TLONG	REVISION: #4 4/30/10
APPROVED: DGF	DATE: 4/30/10

DATE STARTED: 10/24/09
DATE COMPLETED: 11/10/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY

SITE LOCATION:

SW/NE QUARTER SECTION 19
TOWNSHIP 35N RANGE 08W
GPS: 37.28957', 107.79375'
LA PLATA COUNTY, COLORADO

NOTES:

LITHOLOGICAL DESCRIPTIONS COMPLETED BY BRAME GEOSCIENCE, LLC.

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Civil / Environmental Scientists & Engineers
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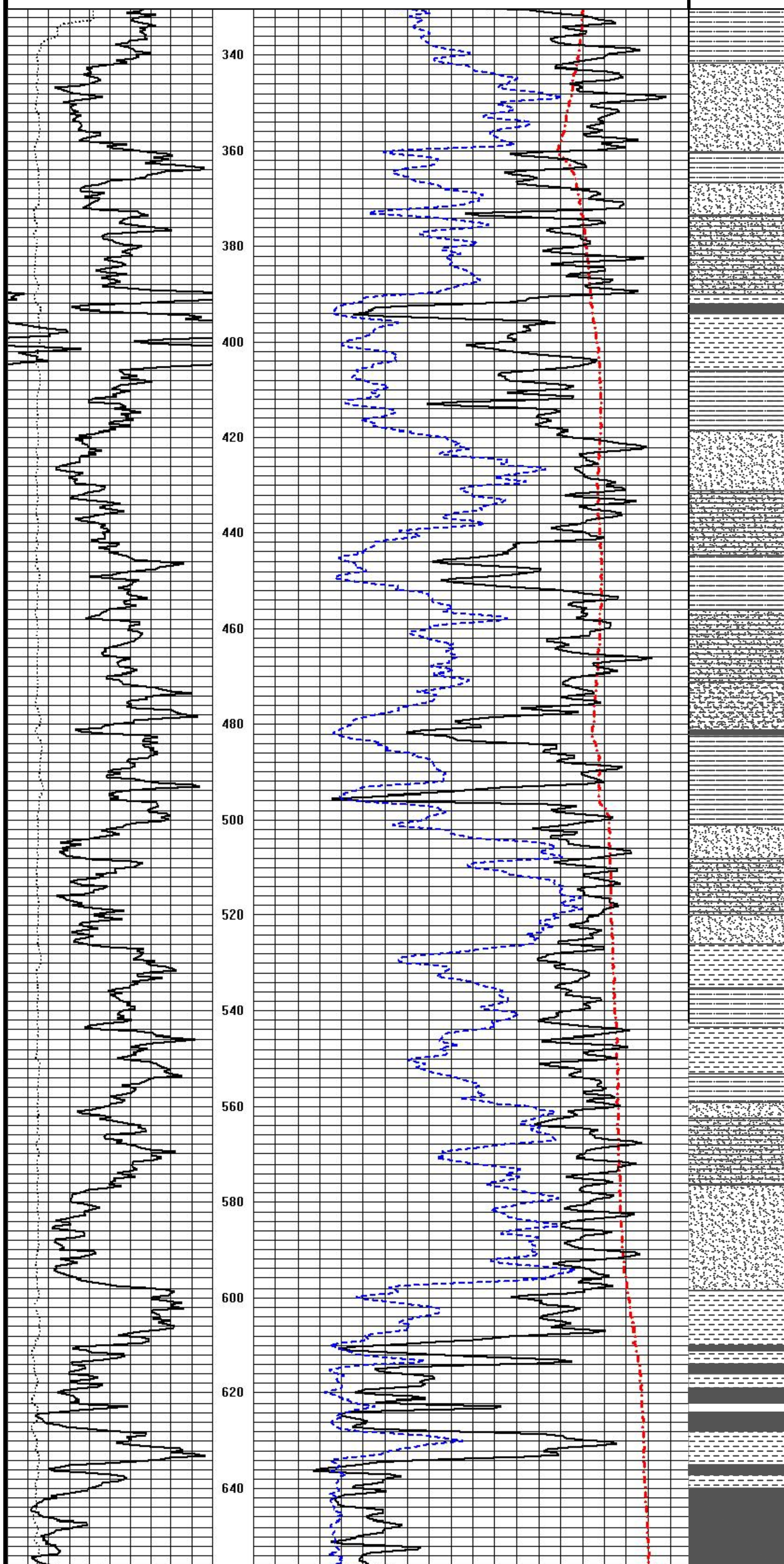
GEOPHYSICAL, LITHOLOGICAL AND WELL CONSTRUCTION DIAGRAM
COGCC FRUITLAND METHANE MONITORING WELL PROJECT

PALMER RANCH MW–35–8–19–1, API # 05–067–09804

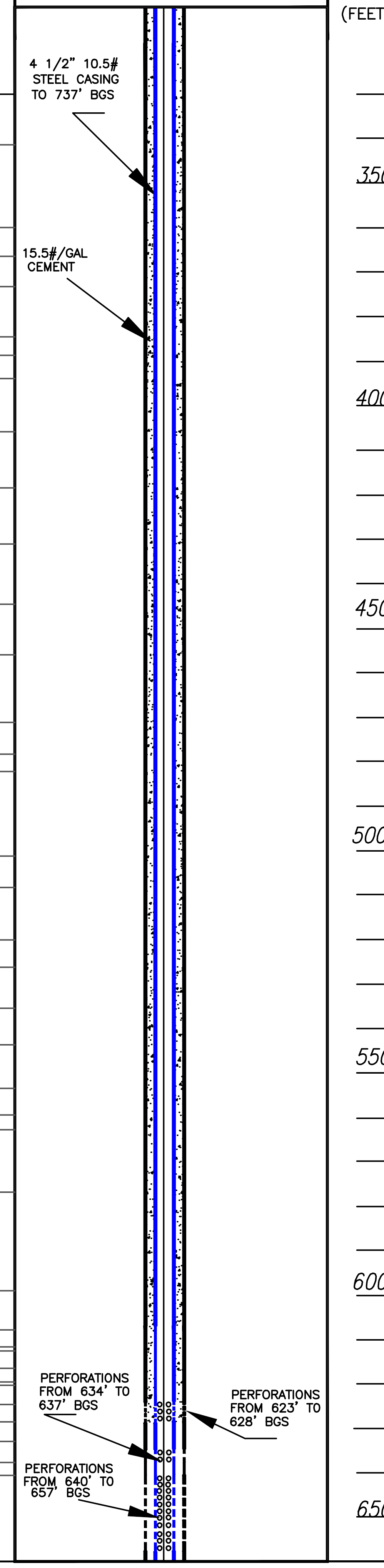
FIGURE 6

GEOPHYSICAL LOG	GRAPHICAL	LITHOLOGICAL DESCRIPTION	WELL CONSTRUCTION	DEPTH (FEET)



LITHOLOGICAL DESCRIPTION

- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SILTSTONE interbedded w/ lt gray SANDSTONE, vfg, sub-ang
- Dk. gray MUDSTONE
- Blk. COAL
- Dk. gray MUDSTONE
- Dk. gray SILTSTONE interbedded w blk carb MUDSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SANDSTONE, vfg, sub-ang interbedded w/ lt. gray SILTSTONE and blk. carb MUDSTONE
- Blk. carb MUDSTONE interbedded w/ lt gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang interbedded w/ lt. gray SILTSTONE
- Dk. gray to blk. MUDSTONE w/ thin lt. gray SANDSTONE, vfg, sub-ang
- Blk. COAL
- Blk. carb MUDSTONE interbedded w/ lt gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SANDSTONE, vfg, sub-ang interbedded w/ lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Blk. carb MUDSTONE
- Lt. gray SILTSTONE
- Blk. mod carb MUDSTONE
- Lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Lt. gray SANDSTONE, vfg, sub-ang interbedded w/ lt. gray SILTSTONE
- Lt. gray SANDSTONE, vfg, sub-ang
- Blk. MUDSTONE
- Blk. COAL
- Blk. carb MUDSTONE
- Blk. COAL
- Blk. carb MUDSTONE
- Blk. COAL
- UNKNOWN – FILL IN
- Blk. COAL
- Blk. carb MUDSTONE
- Blk. COAL
- Blk. carb MUDSTONE
- Blk. COAL



CONSTRUCTION DETAILS

BORE HOLE: 12 1/4" TO 48' BGS
CONDUCTOR CASING: 9 5/8" 36# STEEL TO 44' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 8 3/4" TO 324' BGS
SURFACE CASING: 7" 20# STEEL TO 318' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 6 1/4" TO 747'
LONG STRING: 4 1/2" 10.5# STEEL TO 737' BGS
CEMENT: 15.5#/GALLON TO SURFACE
PERFORATIONS: 623-628, 634-637, 640-657 AND 662-671 FEET BGS WITH 4 SHOTS PER FOOT
TRANSDUCER DEPTHS: 3' AND 680' BGS
WELL HEAD: BIG RED TOOL 2000 PSI TUBING HEAD
TELEMETRY EQUIPMENT: IN-SITU REMOTE TERMINAL UNIT AND IN-SITU LEVEL TROLL PRESSURE TRANSDUCERS WITH CABLES

DRAWN: TLONG	DATE: 12/15/09
REVISED: TLONG	REVISION: #4 4/30/10
APPROVED: DGF	DATE: 4/30/10

DATE STARTED: 10/24/09
DATE COMPLETED: 11/10/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY

SITE LOCATION:

SW/NE QUARTER SECTION 19
TOWNSHIP 35N RANGE 08W
GPS: 37.28957', 107.79375'
LA PLATA COUNTY, COLORADO

NOTES:

LITHOLOGICAL DESCRIPTIONS COMPLETED BY BRAME GEOSCIENCE, LLC.

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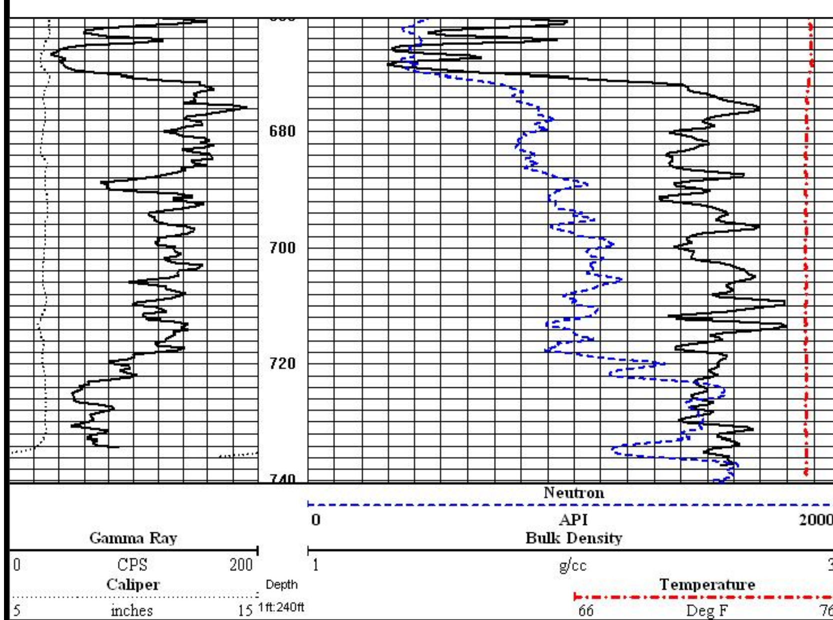
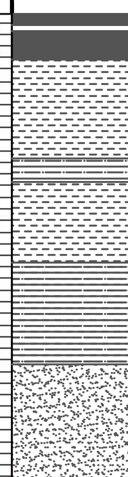
GEOPHYSICAL, LITHOLOGICAL AND WELL CONSTRUCTION DIAGRAM
COGCC FRUITLAND METHANE MONITORING WELL PROJECT
PALMER RANCH MW-35-8-19-1, API # 05-067-09804

FIGURE 6

GEOPHYSICAL LOG	GRAPHICAL	LITHOLOGICAL DESCRIPTION	WELL CONSTRUCTION	DEPTH (FEET)





Blk. COAL

UNKNOWN

Blk. COAL

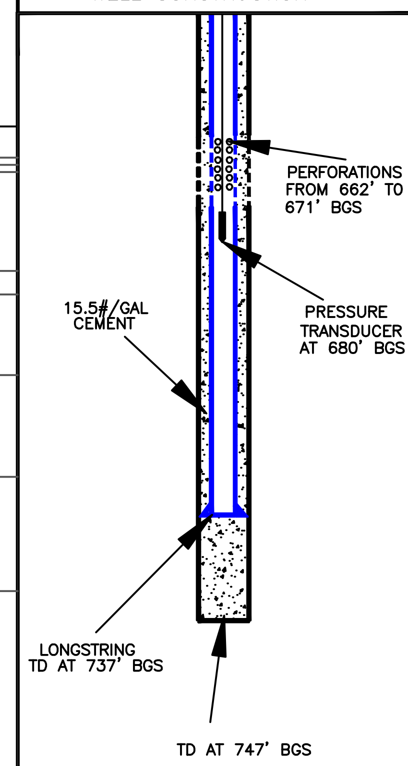
Blk. carb MUDSTONE

Lt. gray SILTSTONE

Blk. carb MUDSTONE

Dk. gray SILTSTONE interbedded w/ blk. carb MUDSTONE

Lt. gray SANDSTONE, fg, sub–rounded w/ abundant dark heavy minerals



700

CONSTRUCTION DETAILS

BORE HOLE: 12 1/4" TO 48' BGS
CONDUCTOR CASING: 9 5/8" 36# STEEL TO 44' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 8 3/4" TO 324' BGS
SURFACE CASING: 7" 20# STEEL TO 318' BGS
CEMENT: 15.5#/GALLON TO SURFACE
BORE HOLE: 6 1/4" TO 747'
LONG STRING: 4 1/2" 10.5# STEEL TO 737' BGS
CEMENT: 15.5#/GALLON TO SURFACE
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TRANSDUCER DEPTHS: 3' AND 680' BGS
WELL HEAD: BIG RED TOOL 2000 PSI TUBING HEAD
TELEMETRY EQUIPMENT: IN–SITU REMOTE TERMINAL UNIT AND IN–SITU LEVEL TROLL PRESSURE TRANSDUCERS WITH CABLES

DATE STARTED: 10/24/09
DATE COMPLETED: 11/10/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY

SITE LOCATION:
SW/NE QUARTER SECTION 19
TOWNSHIP 35N RANGE 08W
GPS: 37.28957', 107.79375'
LA PLATA COUNTY, COLORADO

NOTES:
LITHOLOGICAL DESCRIPTIONS COMPLETED BY BRAME GEOSCIENCE, LLC.

DRAWN: TLONG	DATE: 12/15/09
REVISED: TLONG	REVISION: #4 4/30/10
APPROVED: DGF	DATE: 4/30/10

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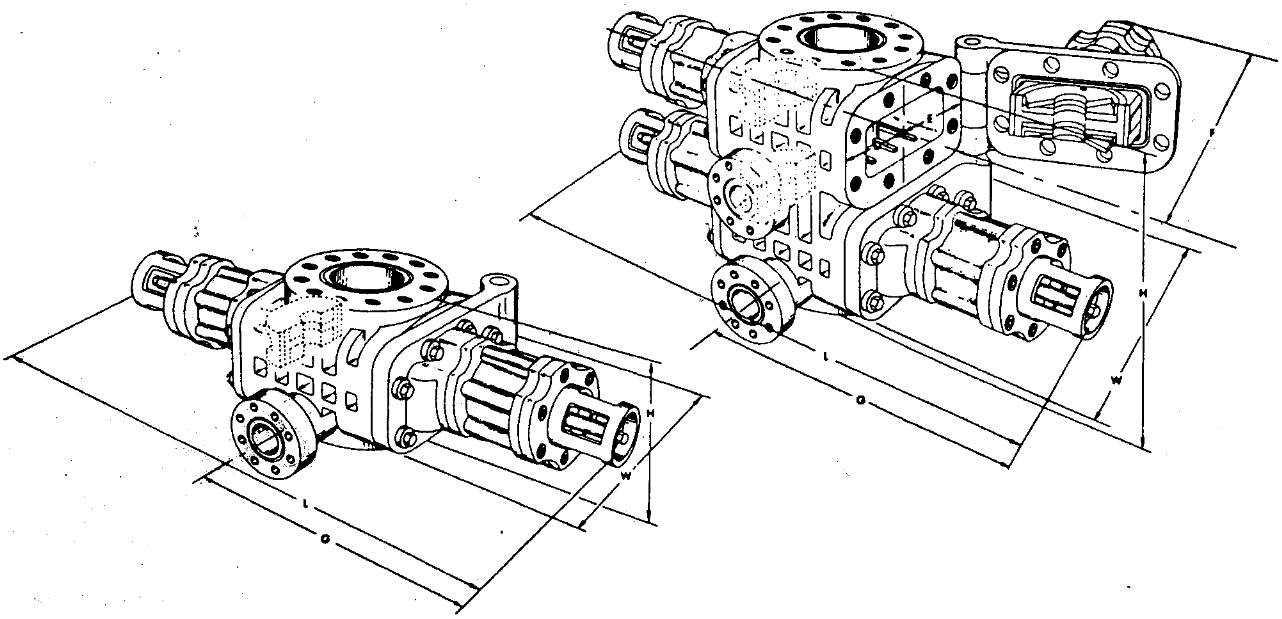
GEOPHYSICAL, LITHOLOGICAL AND WELL CONSTRUCTION DIAGRAM
COGCC FRUITLAND METHANE MONITORING WELL PROJECT
PALMER RANCH MW–35–8–19–1, API # 05–067–09804

FIGURE 6

Appendix D: Blow Out Preventer Diagram

LWS PREVENTERS



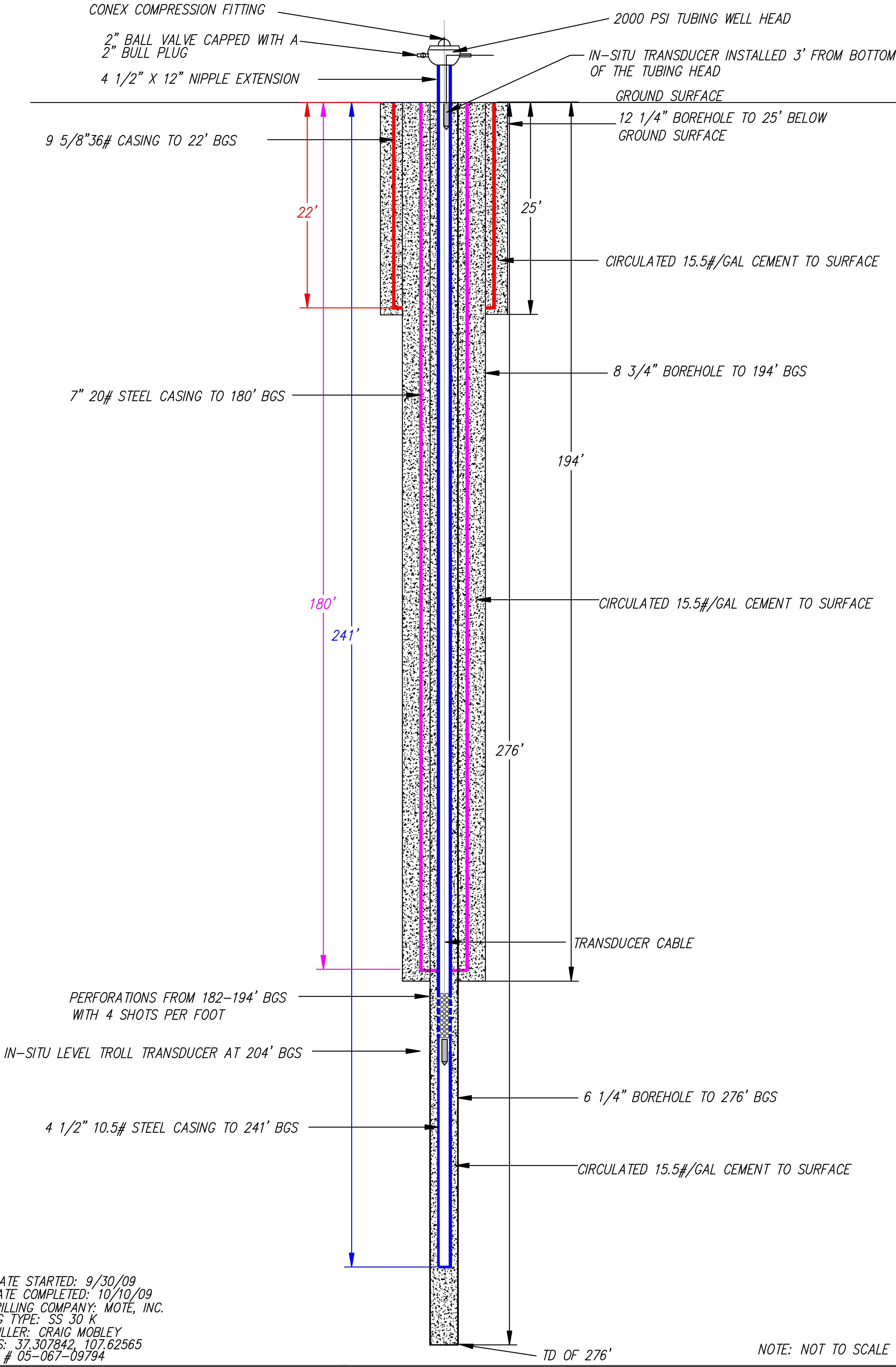
TYPE LWS PREVENTERS

DIMENSIONAL DATA

Size Inches	Working Pressure PSI	Test Pressure PSI	Vertical Bore Inches	Length Inches	Width Inches	PREVENTERS WITH MANUAL LOCKS: Approximate Weight in Lbs. – Studded – Single	Approximate Weight in Lbs. – Studded – Double	Approximate Weight in Lbs. – Flanged – Single	Approximate Weight in Lbs. – Flanged – Double	Approximate Height in Inches – Studded – Single	Approximate Height in Inches – Studded – Double	Approximate Height in Inches – Flanged – Single	Approximate Height in Inches – Flanged – Double	D Center to Front Inches	E Center to Rear Inches	F Door Open to Change Rams Inches	G Door Open to Change Rams Inches	Max. Ram Size Inches
4 1/16	10,000	15,000	4 1/16	42 1/2	22	825*	......	......	......	15 1/2*	......	......	......	10 1/4	11 3/4	13 1/4	24	2 7/8
6	3,000	6,000	7 1/16	58	21 1/2	......	2,600	1,600	2,830	......	26 1/4	26 3/8	36 5/8	9 5/16	12 1/8	21	34	5 9/16
6	5,000	10,000	7 1/16	58	21 1/2	......	3,000	1,600	3,340	13 5/8	27 5/8	27 5/8	38 5/8	9 5/16	12 1/8	21	34	5 9/16
7 1/16	15,000	22,500	7 1/16	74 3/4	31	......	11,200	6,400	12,150	......	43 1/2	37 5/8	59 7/8	13 3/8	17 1/2	19 1/4	44	5 9/16
8	3,000	6,000	9	78 1/8	25 3/4	......	5,300	......	5,700	......	29 1/2	......	41 5/8	11 1/8	14 5/8	23	46	7
8	5,000	10,000	9	79 1/2	25 3/4	......	5,300	......	5,900	......	29 1/2	......	45 1/2	11 1/8	14 5/8	23	46	7
9	10,000	15,000	9	86 1/4	35	5,800	......	6,860	......	20 1/2	......	37 1/4	......	14 1/4	20 5/8	31	50	7
10	3,000	6,000	11	72 3/4	25 7/8	2,400	4,500	2,700	4,800	14 1/2	29 3/8	27 1/8	42	11 9/16	14 5/16	21	42	8 5/8
10	5,000	10,000	11	89 1/4	28 3/4	5,600	7,650	6,600	8,600	17	33	34 3/8	50 1/2	12 3/8	16	29 1/2	49 3/4	8 5/8
11	10,000	15,000	11	90 3/8	30 1/4	......	11,175	6,475	12,950	......	44 1/4	39 1/2	63 5/8	12 7/8	17 3/8	37	50 1/2	8 5/8
12	3,000	6,000	13 5/8	92 1/4	30 7/8	4,300	7,500	5,000	8,200	19 1/2	34 1/2	30 5/8	48	13 5/8	17 1/4	27	51 3/4	10 3/4
13 5/8	5,000	10,000	13 5/8	92 3/4	32 5/8	5,500	9,500	6,250	11,050	25 5/8	36	33 5/8	49 5/8	14 3/4	17 7/8	31	53 3/4	10 3/4
13 5/8	10,000	15,000	13 5/8	129	42 7/8	12,790	21,790	15,150	24,150	27	46	45	64	18	24 7/8	41	71	10 3/4
13 5/8	10,000	(New Design Preventer—See Your Shaffer Representative																
16	3,000	4,500	16 3/4	106 1/2	36 5/8	......	8,500	......	10,256	......	35	......	50 3/8	16 1/2	20 1/8	36	59 3/8	13 3/8
16 3/4	5,000	10,000	16 3/4	134	40	11,100	22,350	12,900	24,150	25	50	42 1/2	67 1/2	18	22	41	76	13 5/8
20	2,000	3,000	21 1/4	127	40 5/8	8,100	16,320	9,300	17,600	22 1/2	47 1/2	37 3/4	62 3/4	17 1/4	23 3/8	40 1/2	70	16
20	3,000	4,500	21 1/4	127	40 5/8	8,400	16,400	10,200	18,350	23 1/8	47 1/2	42 3/4	67 3/4	17 1/4	23 3/8	40 1/2	70	16

TYPE LWS PREVENTERS

Appendix E: As Built Well Diagrams



DATE STARTED: 9/30/09
DATE COMPLETED: 10/10/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30 K
DRILLER: CRAIG MOBLEY
GPS: 37.307842, 107.62565
API # 05-067-09794

NOTE: NOT TO SCALE

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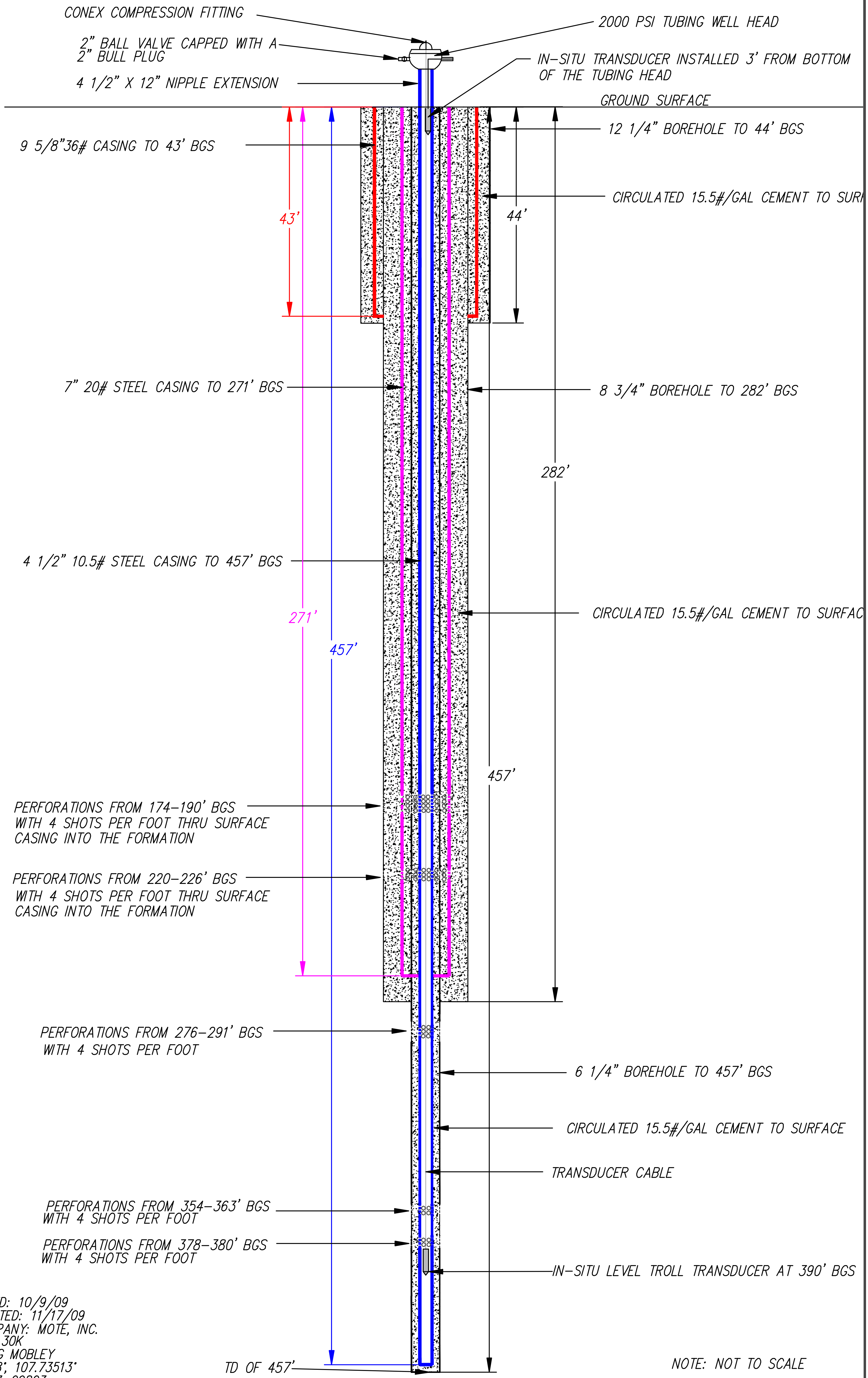
Farmington, New Mexico 87401
(505) 325-5667
Santa Fe - Farmington
Albuquerque - Las Cruces

APPROVED: DFG	DATE: 4/30/10	BP HIGHLANDS MONITORING WELL #1 AS BUILT WELL DIAGRAM
DRAWN BY: TLONG	DATE: 12/15/09	
REVISIONS BY: TLONG	DATE: 4/30/10	NE/NW QUARTER SECTION 15 TOWNSHIP 35N RANGE 07W
PROJECT # 5119088	FIGURE: 1	LA PLATA COUNTY, COLORADO



DATE STARTED: 10/9/09
DATE COMPLETED: 11/17/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY
GPS: 37.30958°, 107.73513°
API #: 05-067-09803

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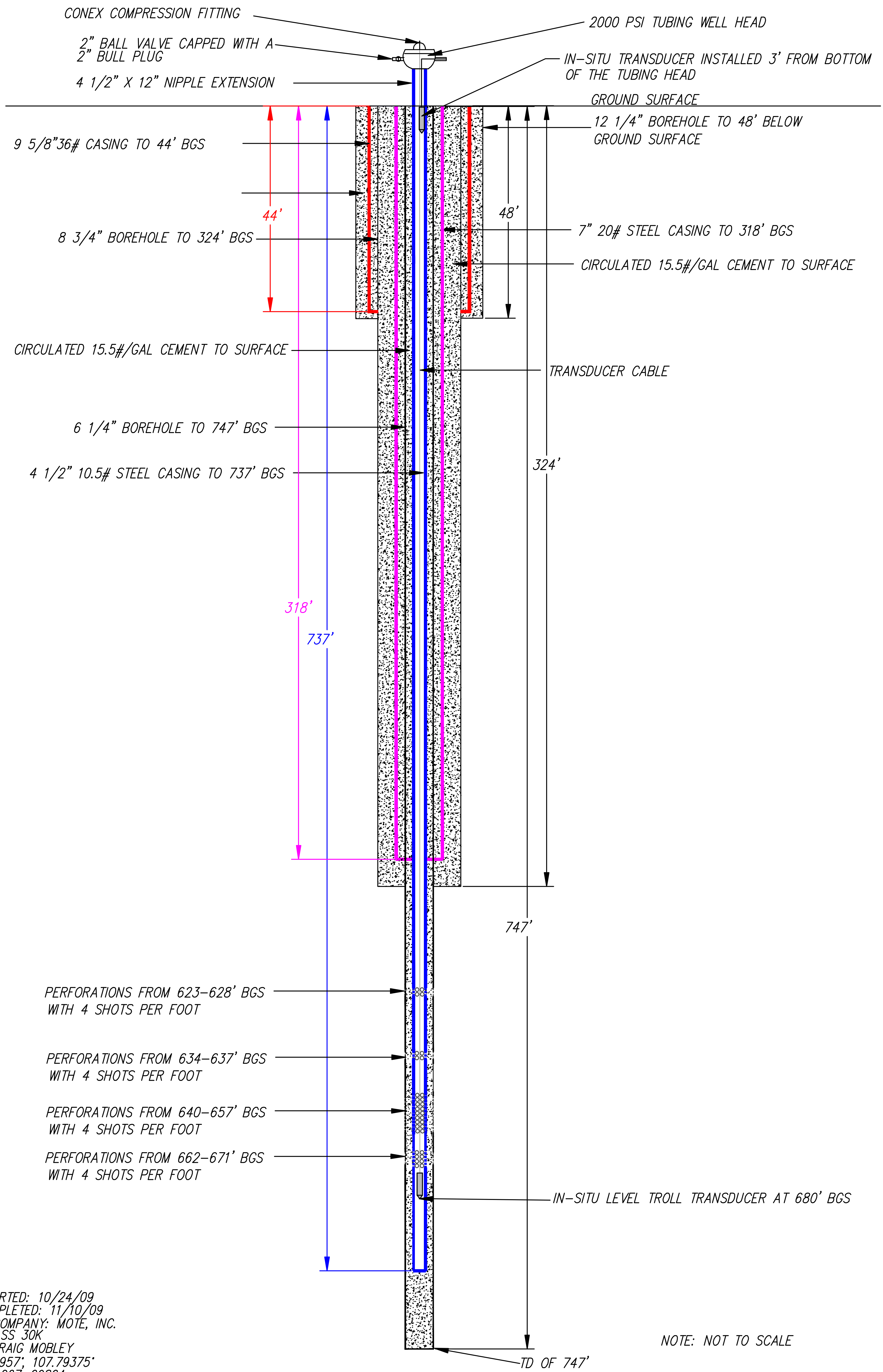
Farmington, New Mexico 87401
(505) 325-5667
Santa Fe - Farmington
Albuquerque - Las Cruces

APPROVED: DFG	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 12/15/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT # 5119088	FIGURE: 2

FIDDLER MONITORING WELL #1
AS BUILT WELL DIAGRAM
SE/SW QUARTER SECTION 10
TOWNSHIP 35N RANGE 08W
LA PLATA COUNTY, COLORADO



DATE STARTED: 10/24/09
DATE COMPLETED: 11/10/09
DRILLING COMPANY: MOTE, INC.
RIG TYPE: SS 30K
DRILLER: CRAIG MOBLEY
GPS: 37.28957°, 107.79375°
API #: 05-067-09804

NOTE: NOT TO SCALE

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Farmington, New Mexico 87401
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Santa Fe – Farmington
Albuquerque – Las Cruces

APPROVED: DFG	DATE: 4/30/10
DRAWN BY: TLONG	DATE: 12/15/09
REVISIONS BY: TLONG	DATE: 4/30/10
PROJECT # 5119088	FIGURE: 3

PALMER RANCH MONITORING WELL #1
AS BUILT WELL DIAGRAM
SW/NE QUARTER SECTION 19
TOWNSHIP 35N RANGE 08W
LA PLATA COUNTY, COLORADO

Appendix F: Geophysical Logs

Appendix G: Site Photographs

Photo 1: View of BP Highlands's site during well pad construction.

Photo 2: View of drilling operations at the BP Highlands site.

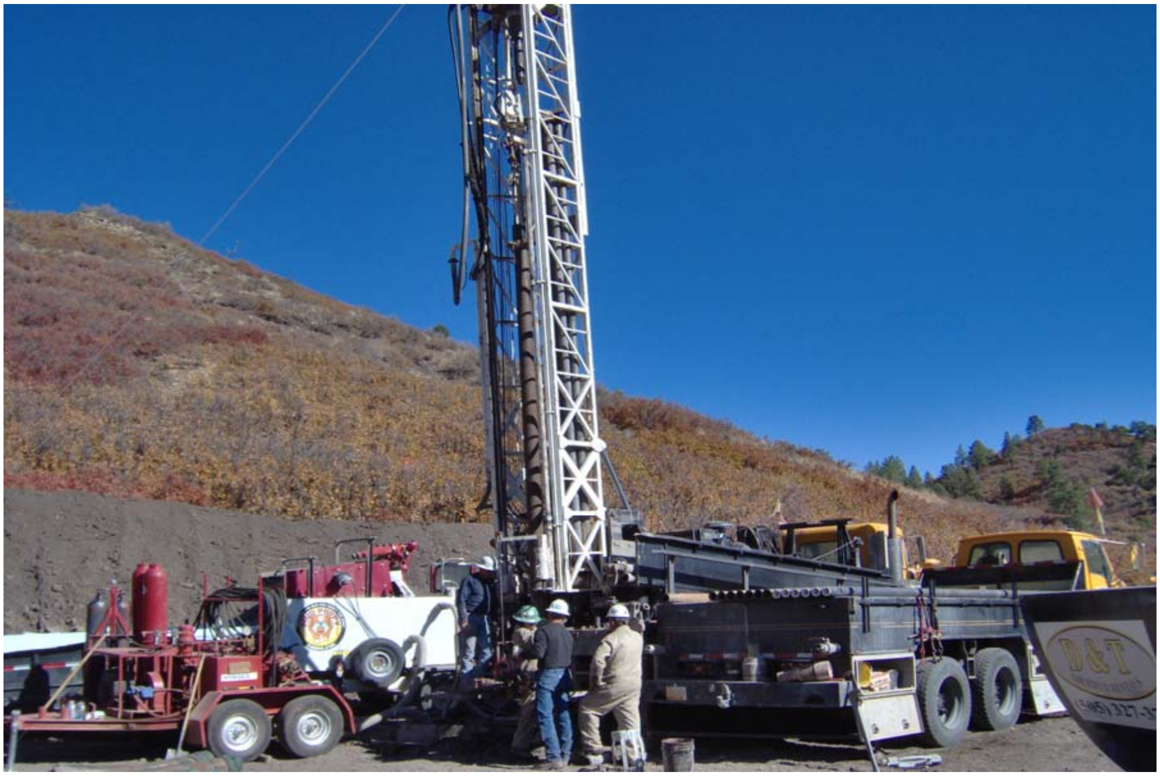

Photo 3: View of drilling operations at the BP Highlands site.

Photo 4: View of drilling operations at the BP Highlands site.

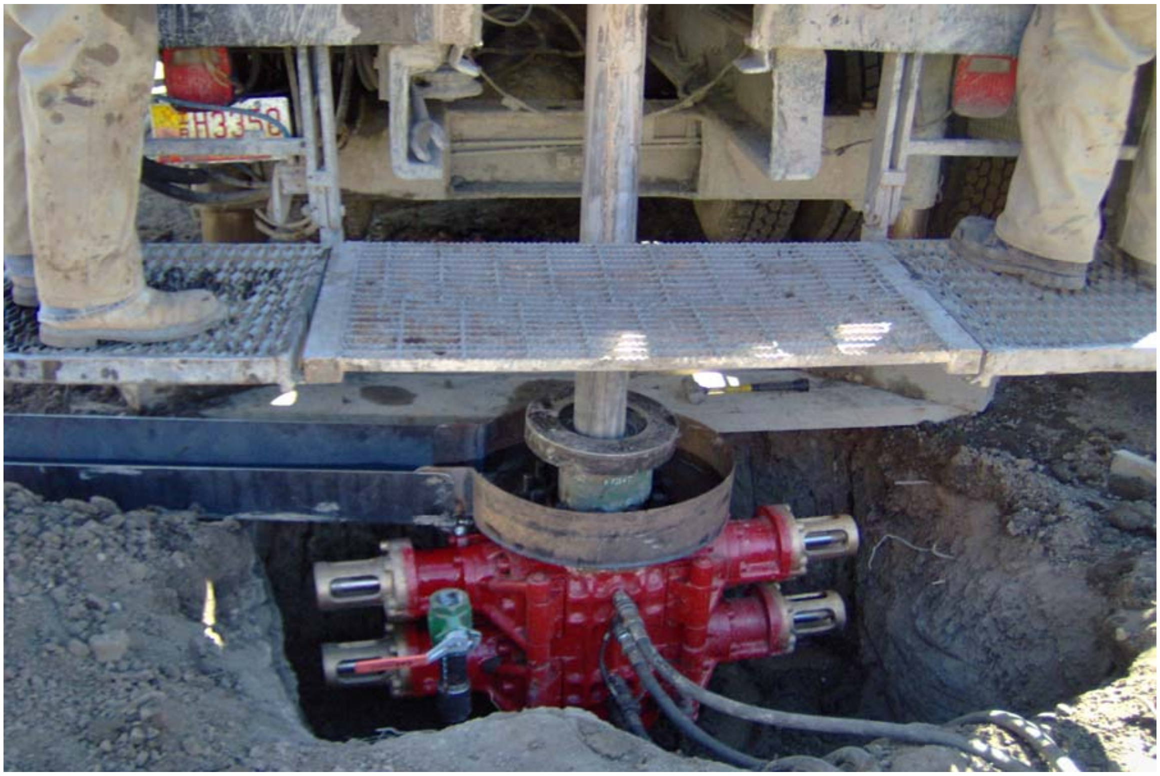

Photo 5: View of Blow-Out Preventer at the BP Highlands site.

Photo 6: View of 4.5" steel casing installation at the BP Highlands site.

Photo 7: View of cementing of the 4.5" casing at the BP Highlands site.

Photo 8: View of the swabbing rig and perforating tools at the BP Highlands site.

Photo 9: View of the telemetry system and a partially reclaimed BP Highlands site.

Photo 10: View of drilling operations at the Fiddler site.

Photo 11: View of drilling operations at the Fiddler site.

Photo 12: View of View of Blow-Out Preventer at the Fiddler site.

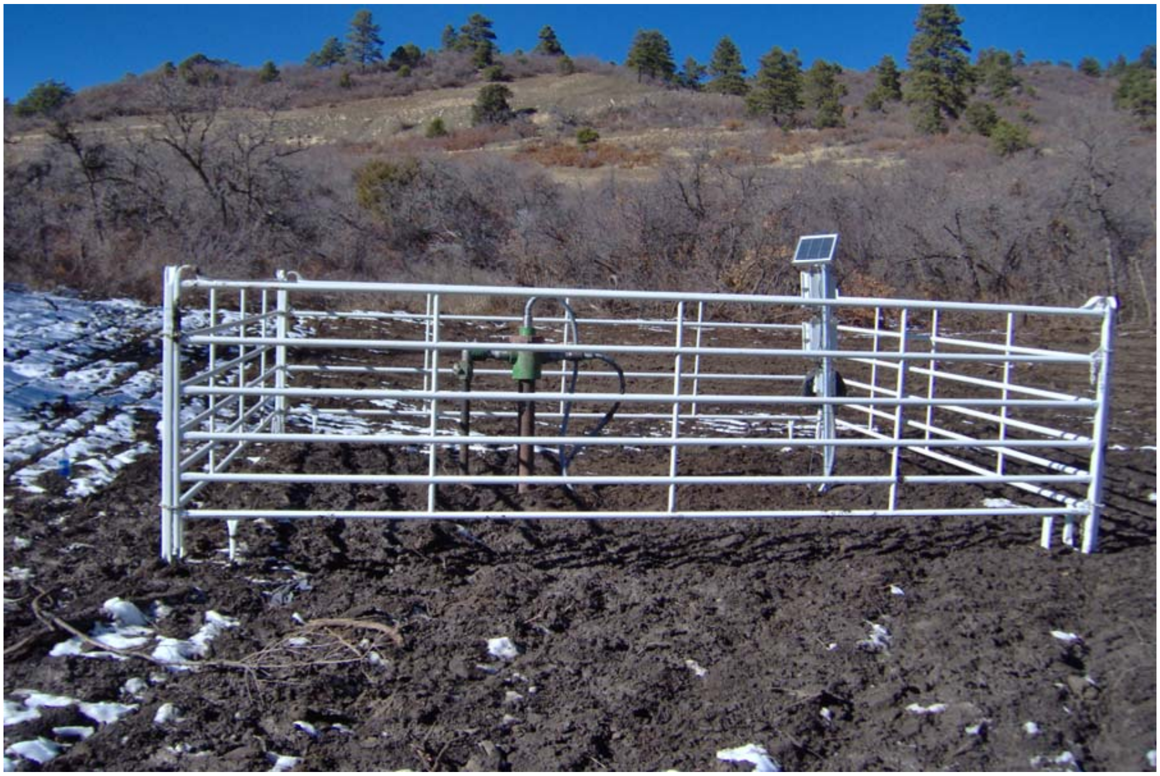

Photo 13: View of the telemetry system and a partially reclaimed Fiddler site.

Photo 14: View of drilling operations at the Palmer Ranch site.

Photo 15: View of conductor casing installation at the Palmer site.

Photo 16: View of cementing conductor casing cementing at the Palmer site.

Photo 17: View of drilling operations at the Palmer site.

Photo 18: View of surface casing installation at the Palmer site.

Photo 19: View of cementing of the surface casing at the Palmer site.

Photo 20: View of installation of the 4.5" casing at the Palmer site.

Photo 21: View of cementing operations of the 4.5" casing at the Palmer site.

Photo 21: View of telemetry system and a partially reclaimed Palmer site.