

**Encana Oil & Gas (USA) Inc.**  
**E&P Waste Management Plan**  
**For Water-Based Bentonitic**  
**Drilling Fluids & Drill Cuttings**

**1.0 Scope**

This document was created for the handling, transportation and incorporation of water-based bentonitic drilling fluids and drill cuttings (cuttings) to a pre-approved spreadfield and subsequent tracking documentation. In addition, this document outlines the procedure, guidelines and expectations from Encana Oil and Gas (USA) (Encana) for the owner of the spreadfield site.

This document outlines the operational requirements to be used when applying water-based bentonitic drilling fluids and associated drill cuttings (cuttings) to spreadfields to maintain compliance with the Colorado Oil and Gas Conservation Commission (COGCC) Rule 907.d. (3). These materials are applied as a beneficial soil amendment. Only Encana cuttings will be applied at spreadfield sites. No other waste shall be deposited at these sites. Encana will submit spreadfield updates to the COGCC in a Form 4 Sundry Notice (Table 1).

**2.0 Pre-Application Spreadfield Requirements**

- Encana shall obtain written authorization from the surface owner (if non-Encana land) prior to land application of cuttings. The signed agreement shall state that only Encana generated materials will be accepted and that incorporation of the material into the native soil will occur within 10 days of application.
- Prior to cuttings application, an EH&S representative will ensure composite soil samples are collected from an interval of 0-6 inches below ground surface (bgs), from every area where cuttings will be applied, to document the baseline conditions of the spreadfield. A 5-point soil composite sample will be collected every 10-acres. Soil samples will be analyzed for COGCC Table 910-1.
- If Encana deems appropriate, and/or if non-spread field oil and gas activities occur on site, groundwater monitoring may occur.

**3.0 Application Spreadfield Requirements**

- Transportation of cuttings will be suspended during adverse weather conditions which render the site to muddy or unsafe.

- The proper equipment will be used during incorporation activities.
- The average thickness of cuttings shall be no more than 3-inches prior to incorporation.
- The cuttings shall be applied to prevent ponding or erosion and shall be incorporated as a beneficial amendment into the native soils within 10 days of application. A variance could be requested from the COGCC due to adverse weather conditions.
- Soil samples will be collected by Encana from all active spreadfields on a semi-annual basis for COGCC Table 910-1 Analytes where cuttings have been applied. Composite soil samples will be collected from an interval of 0-6 inches bgs.
- Spreadfields will not be utilized for more than three years continuously.
- All records will be available to the COGCC or landowner upon request, within five business days.

#### **4.0 Cuttings Handling Procedure**

- Driver must check in with the Encana representative prior to start of work, upon arrival on drilling location.
- Check area of ingress/egress for any hazard and to clear the route of the truck.
- Check the solids tanks to make sure the cuttings are properly solidified to eliminate any liquid leakage during transportation.
- Driver must stay with truck throughout cuttings loading.
- Driver will conduct a walk around to check for any material that could become dislodged during transportation before leaving site.
- Driver will cover the load and report to the Company Man's trailer prior to departure and verify the spreadfield location.
- Driver will contact the Company Man or Encana representative immediately if any mud is discharged on the public road for clean-up.

- Cuttings will be properly disposed and the truck will be inspected for any remaining cuttings in the dump bed prior to leaving the spreadfield.
- Daily Tracking Tickets will be used and will include the following information:
  - Name of well in which the cuttings were generated
  - Transportation date from the well to spreadfield
  - The volume of cuttings taken to the spreadfield
  - Name of transporter (truck driver)
  - Location and name of where the cuttings were applied

#### **5.0 Post-Spreadfield Requirements (Site Closure)**

- The resulting concentrations of the spread field's soil will be in compliance with COGCC Table 910-1 concentration levels or within baseline analyte concentrations.
- During closure of a spreadfield, soil samples will be collected from the surface to ensure that impacts are not present. Soil samples will be analyzed for COGCC Table 910-1 Analytes.

#### **6.0 Equipment, Materials, Safety and Environment**

- Bob-tail dump-truck w/ spreader bar for land broadcast.
- Minimum of 2 cuttings bins on drilling location for storage of cuttings.
- Standard Personal Protective Equipment (PPE): hard hats, safety toed boots, fire resistant clothing (FRC) and safety glasses while on the Encana sites.
- Additional PPE as identified in MSDS or in the procedure.
- Report releases or spills in accordance with Employee Environmental, Health and Safety Handbook.

**END OF PROCEDURE**

## Attachments

### Table 1 – Spread Field Locations

Figure 1 – Site Location Map of Bella 1 through Bella 8, 18, and 19 Spread Fields

Figure 2 – Site Location Map of Bella 9-17 Spread Fields

Figure 3 – Site Boundary Map of Bella 1 Spread Field

Figure 4 – Site Boundary Map of Bella 2 Spread Field

Figure 5 – Site Boundary Map of Bella 3 Spread Field

Figure 6 – Site Boundary Map of Bella 4 Spread Field

Figure 7 – Site Boundary Map of Bella 5 Spread Field

Figure 8 – Site Boundary Map of Bella 6 Spread Field

Figure 9 – Site Boundary Map of Bella 7 Spread Field

Figure 10 – Site Boundary Map of Bella 8 Spread Field

Figure 11 – Site Boundary Map of Bella 9 Spread Field

Figure 12 – Site Boundary Map of Bella 10 Spread Field

Figure 13 – Site Boundary Map of Bella 11 Spread Field

Figure 14 – Site Boundary Map of Bella 12 Spread Field

Figure 15 – Site Boundary Map of Bella 13 Spread Field

Figure 16 – Site Boundary Map of Bella 14 Spread Field

Figure 17 – Site Boundary Map of Bella 15 Spread Field

Figure 18 – Site Boundary Map of Bella 16 Spread Field

Figure 19 – Site Boundary Map of Bella 17 Spread Field

Figure 20 – Site Boundary Map of Bella 18 Spread Field

Figure 21 – Site Boundary Map of Bella 19 Spread Field

Figure 22 – Site Location Map of Miller 1 Spread Field

Figure 23 – Site Boundary Map of Miller 1 Spread Field

Figure 24 – Site Location Map of McDonald Farm 1 Spread Field

Figure 25 – Site Boundary Map of McDonald Farm 1 Spread Field

Figure 26 – Site Location Map of McDonald Farm 2 Spread Field

Figure 27 – Site Boundary Map of McDonald Farm 2 Spread Field

Figure 28 – Site Location Map of Reeves 2 through Reeves 4 Spread Fields

Figure 29 – Site Boundary Map of Reeves 2 Spread Field

Figure 30 – Site Boundary Map of Reeves 3 Spread Field

Figure 31 – Site Boundary Map of Reeves 4 Spread Field

**Table 1**  
**Spread Field Locations**  
**Encana Oil & Gas (USA) Inc.**

<b>Site Name</b>	<b>Legal Description</b>	<b>Latitude/Longitude</b>	<b>Driving Directions</b>
Bella 1	NWSE Sec 7, T3N, R66W	40.236798/ -104.806376	0.3 miles east and 0.3 miles north of County Road 34 and Highway 85
Bella 2	SENE Sec 7, T3N, R66W	40.239412/ -104.806328	0.3 miles east and 0.5 miles north of County Road 34 and Highway 85
Bella 3	NWNW Sec 8, T3N, R66W	40.242793/ -104.804040	0.5 miles east of County Road 36 and Highway 85
Bella 4	SWNW Sec 8, T3N, R66W	40.239412/ -104.805867	0.3 miles east and 0.4 miles northeast of County Road 34 and Highway 85
Bella 5	SENW Sec 8, T3N, R66W	40.242792/ -104.805867	0.3 miles east, 1.0 mile northeast, and 0.1 miles east of County Road 34 and Highway 85
Bella 6	NESW Sec 8, T3N, R66W	40.238392/ -104.805627	0.8 miles east of County Road 34 and Highway 85
Bella 7	SWSW Sec 8, T3N, R66W	40.238392/ -104.805627	0.5 miles east of County Road 34 and Highway 85
Bella 8	SESE Sec 7, T3N, R66W	40.238392/ -104.805627	0.4 miles east of County Road 34 and Highway 85
Bella 9	SWNE Sec 30, T3N, R66W	40.199402/ -104.821040	SE of County Road 30 and Highway 85
Bella 10	SWNE Sec 30, T3N, R66W	40.192358/ -104.821130	NE of County Road 28 and Highway 85
Bella 11	SWNE Sec 19, T3N, R66W	40.211998/ -104.816186	SE of County Road 32 and Highway 85
Bella 12	SWNW Sec 19, T3N, R66W	40.211997/ -104.818115	0.3 miles west and 0.2 miles north of County Road 30 and Highway 85
Bella 13	SESW Sec 30, T3N, R66W	40.187203/ -104.823274	NW of County Road 28 and Highway 85

Bella 14	NENW Sec 31, T3N, R66W	40.186161/ -104.823892	SW of County Road 28 and Highway 85
Bella 15	SESW Sec 31, T3N, R66W	40.186161/ -104.823892	0.3 miles south of County Roads 25.5 and 28
Bella 16	NENW Sec 31, T3N, R66W	40.186161/ -104.823892	0.2 miles west of County Roads 25.5 and 28
Bella 17	SWSW Sec 31, T3N, R66W	40.186161/ -104.823892	0.5 miles south and 0.3 miles west of County Roads 25.5 and 28
Bella 18	NENE Sec 17, T3N, R66W	40.225447/ -104.800389	SW of County Roads 34 and 29
Bella 19	NENE Sec 17, T3N, R66W	40.225447/ -104.800389	0.1 miles west of County Roads 32 and 29
Miller 1	SENE Sec 29, T3N, R66W	40.195058/ -104.789915	1 mile west and 0.1 miles south of County Roads 30 and 31
McDonald Farm 1	NENE Sec 11, T3N, R66W	40.243401/ -104.737158	SW of County Roads 30 and 35
McDonald Farm 2	NENE Sec 22, T1N, R66W	40.040809/ -104.758593	SW of County Roads 8 and 33
Reeves 2	SESE Sec 11, T8N, R66W	40.672626/ -104.737536	NW of County Roads 94 and 35
Reeves 3	SWSW Sec 13, T8N, R66W	40.666179/ -104.729787	SE of County Roads 94 and 35
Reeves 4	SWSW Sec 2, T8N, R66W	40.674058/ -104.732407	NW of County Roads 96 and 35

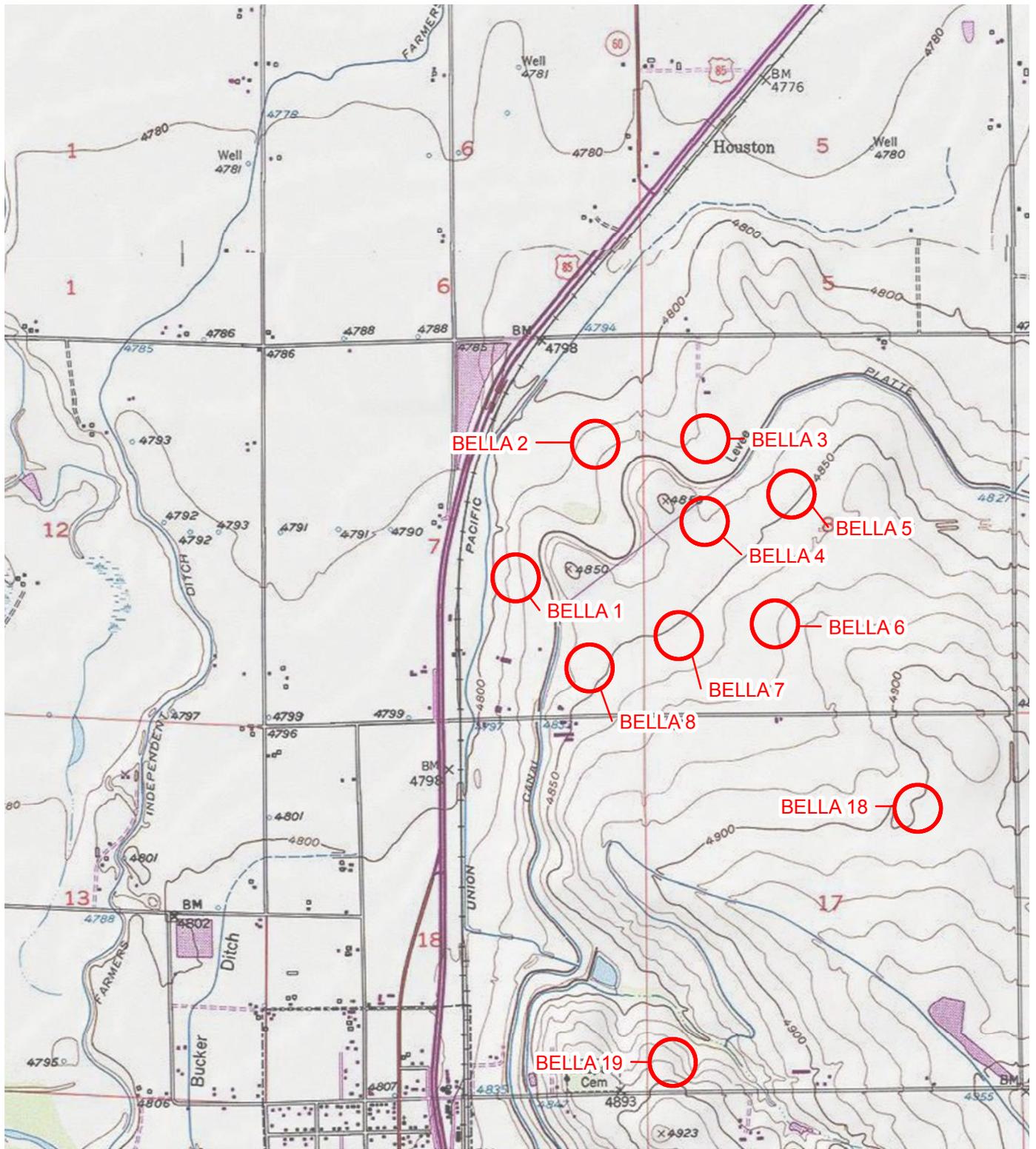


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

○ SITE LOCATION

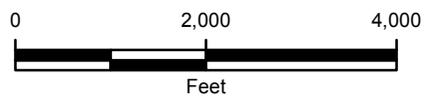


FIGURE 1  
 SITE LOCATION MAP  
 BELLA SPREAD FIELDS 1-8, 18, 19  
 WELD COUNTY, COLORADO



ENCANA OIL & GAS (USA) INC.

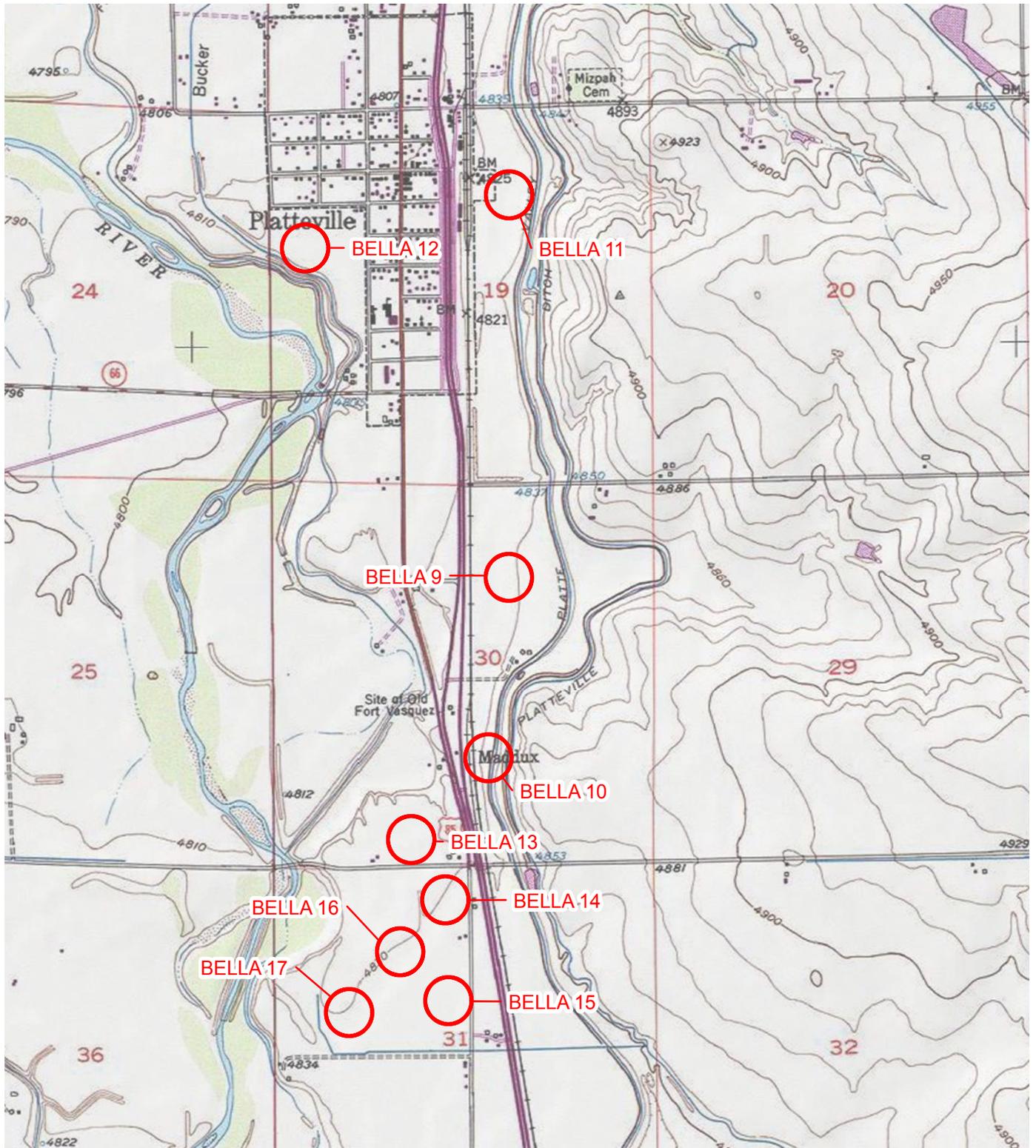
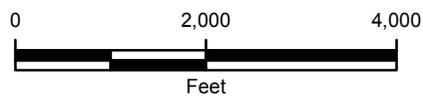


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SITE LOCATION



**FIGURE 2**  
**SITE LOCATION MAP**  
**BELLA SPREAD FIELDS 9-17**  
**WELD COUNTY, COLORADO**



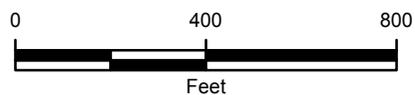
**ENCANA OIL & GAS (USA) INC.**



IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 3**  
SITE BOUNDARY MAP  
BELLA 1 SPREAD FIELD  
NWSE SEC 7-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.

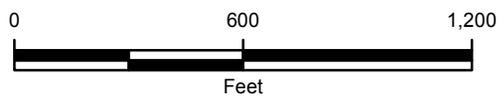




IMAGE COURTESY OF ESRI/BING MAPS

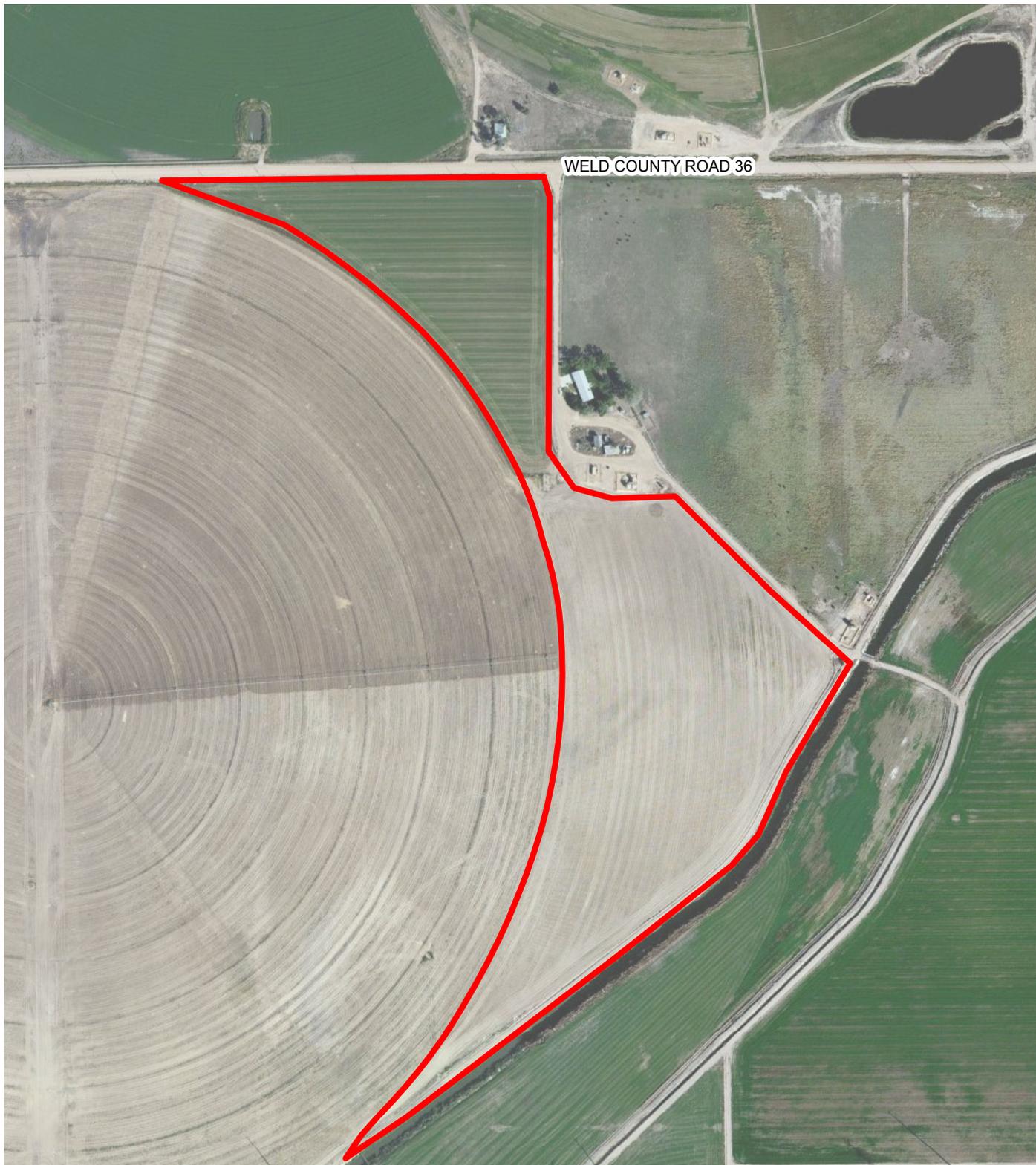
**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 4**  
SITE BOUNDARY MAP  
BELLA 2 SPREADFIELD  
SENE SEC 7-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



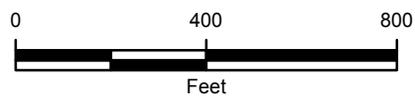


WELD COUNTY ROAD 36

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 5**  
SITE BOUNDARY MAP  
BELLA 3 SPREAD FIELD  
NWNW SEC 8-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



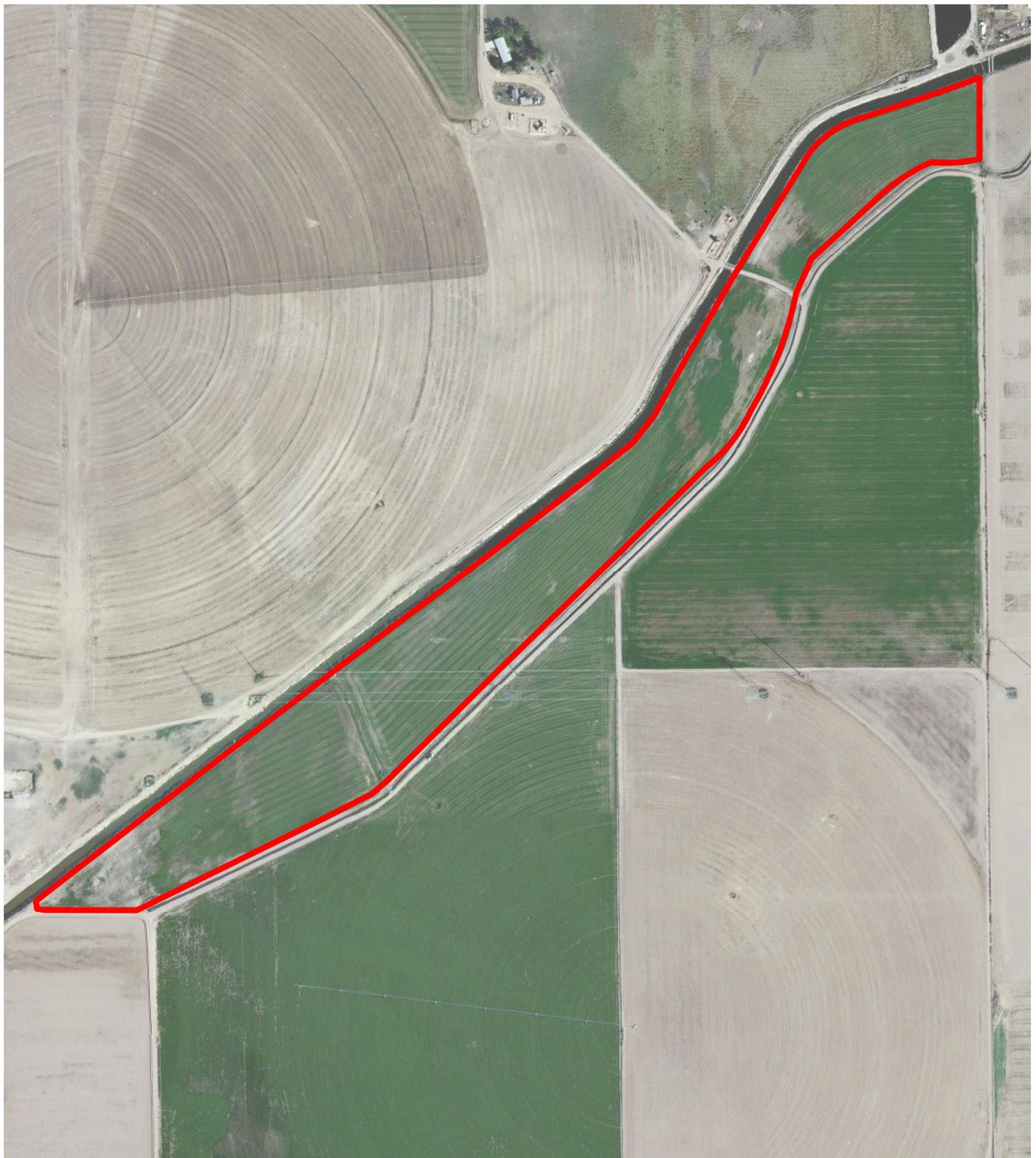
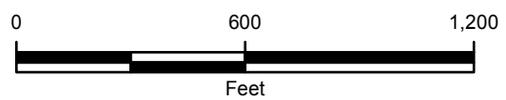


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 6**  
SITE BOUNDARY MAP  
BELLA 4 SPREAD FIELD  
SWNW SEC 8-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



WELD COUNTY ROAD 36

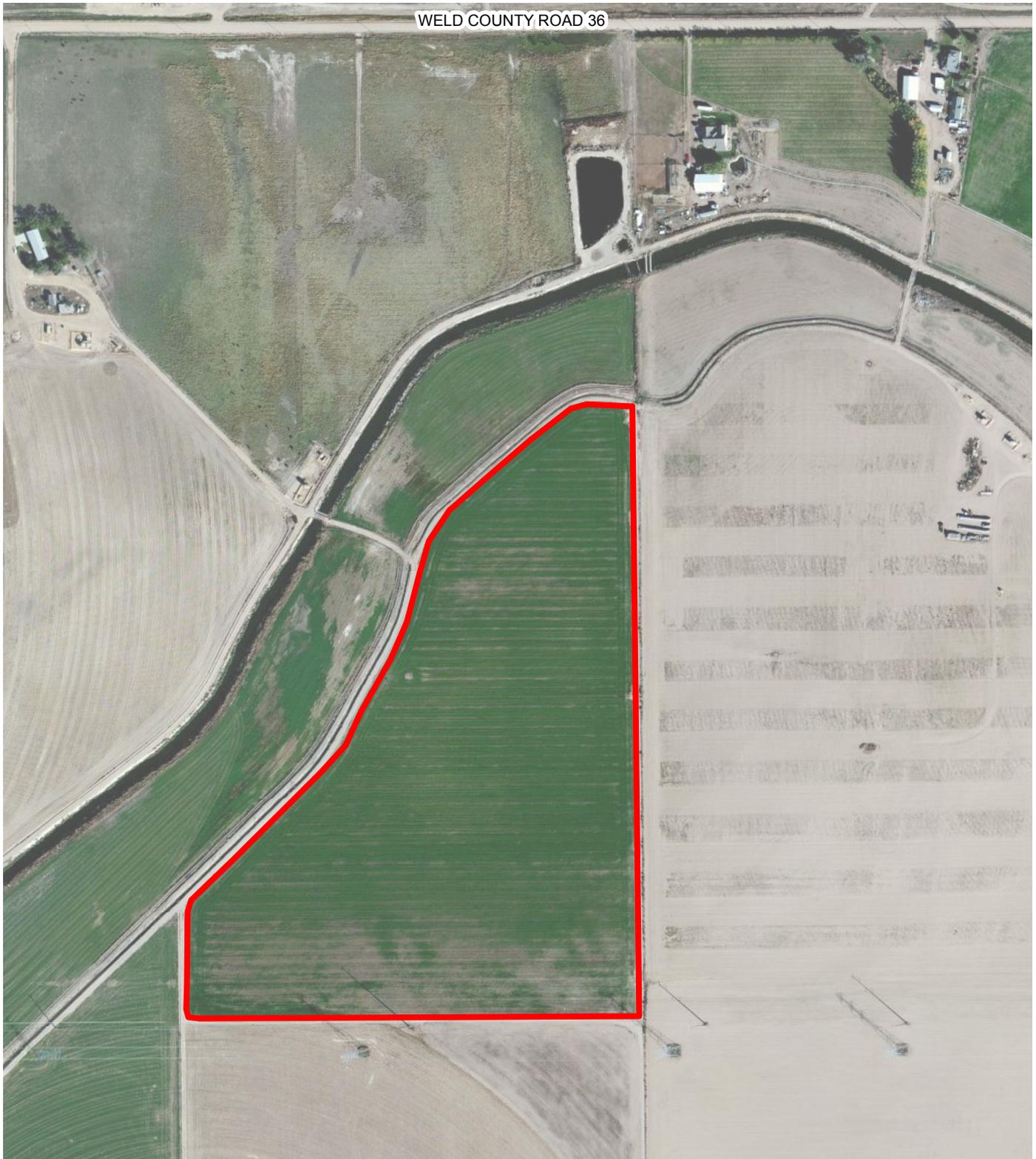
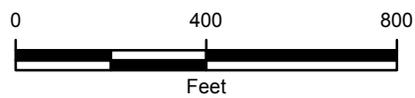


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 7**  
SITE BOUNDARY MAP  
BELLA 5 SPREAD FIELD  
SEW SEC 8-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



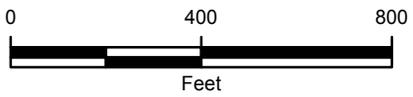


WELD COUNTY ROAD 34

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 8**  
SITE BOUNDARY MAP  
BELLA 6 SPREAD FIELD  
NESW SEC 8-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



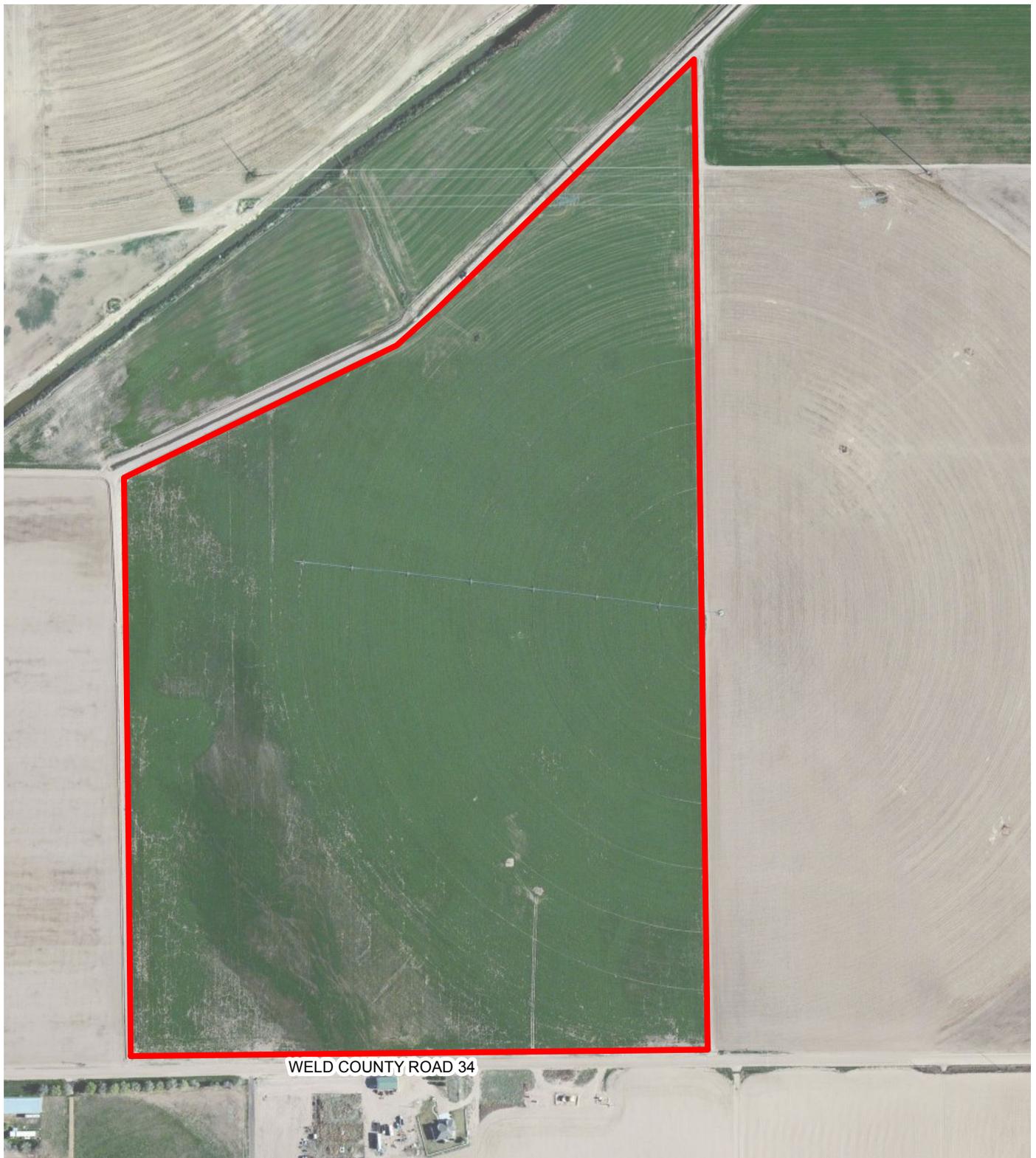
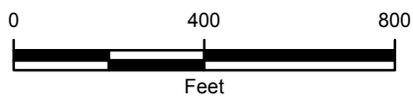


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 9**  
SITE BOUNDARY MAP  
BELLA 7 SPREAD FIELD  
SWSW SEC 8-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



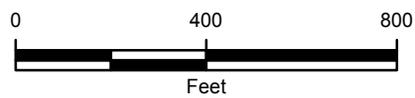


WELD COUNTY ROAD 34

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 10**  
SITE BOUNDARY MAP  
BELLA 8 SPREAD FIELD  
SESE SEC 7-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.

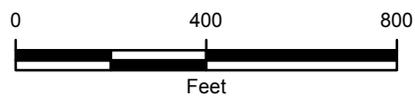




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 11**  
SITE BOUNDARY MAP  
BELLA 9 SPREAD FIELD  
SWNE SEC 30-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.

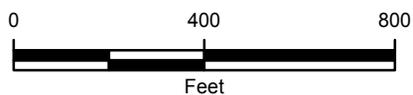




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 12**  
**SITE BOUNDARY MAP**  
**BELLA 10 SPREAD FIELD**  
**SWNE SEC 30-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





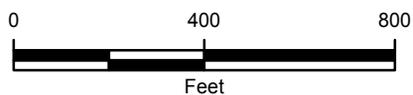
WELLY COUNTY ROAD 32

85

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 13**  
SITE BOUNDARY MAP  
BELLA 11 SPREAD FIELD  
SWNE SEC 19-T3N-R66W  
WELLY COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.

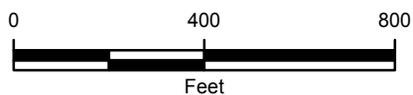




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 14**  
**SITE BOUNDARY MAP**  
**BELLA 12 SPREAD FIELD**  
**SWNW SEC 19-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





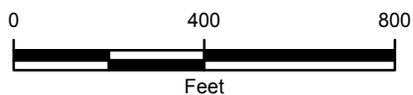
WELD COUNTY ROAD 28



IMAGE COURTESY OF ESRI/BING MAPS

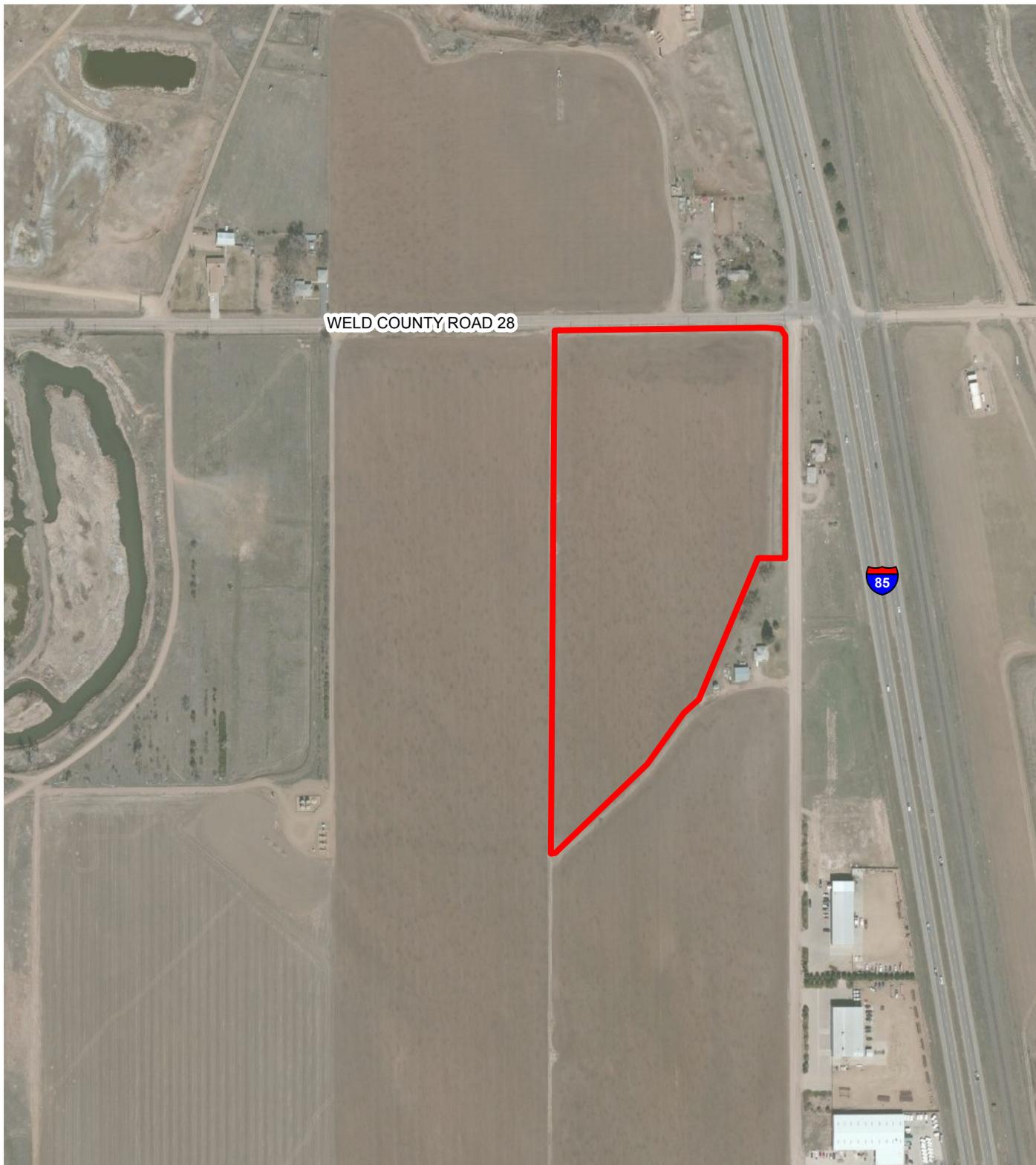
**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 15**  
**SITE BOUNDARY MAP**  
**BELLA 13 SPREAD FIELD**  
**SESW SEC 30-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





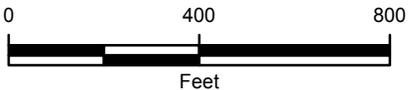
WELD COUNTY ROAD 28



IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 16**  
**SITE BOUNDARY MAP**  
**BELLA 14 SPREAD FIELD**  
**NENW SEC 31-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**

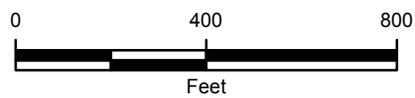




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 17**  
SITE BOUNDARY MAP  
BELLA 15 SPREAD FIELD  
SENW SEC 31-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.





WELD COUNTY ROAD 28

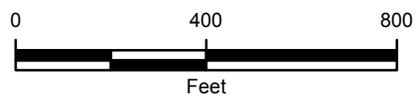
WELD COUNTY ROAD 26 1/2



IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 18**  
**SITE BOUNDARY MAP**  
**BELLA 16 SPREAD FIELD**  
**NENW SEC 31-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





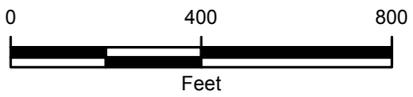
WELD COUNTY ROAD 28

WELD COUNTY ROAD 26 1/2

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 19**  
**SITE BOUNDARY MAP**  
**BELLA 17 SPREAD FIELD**  
**SWNW SEC 31-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**



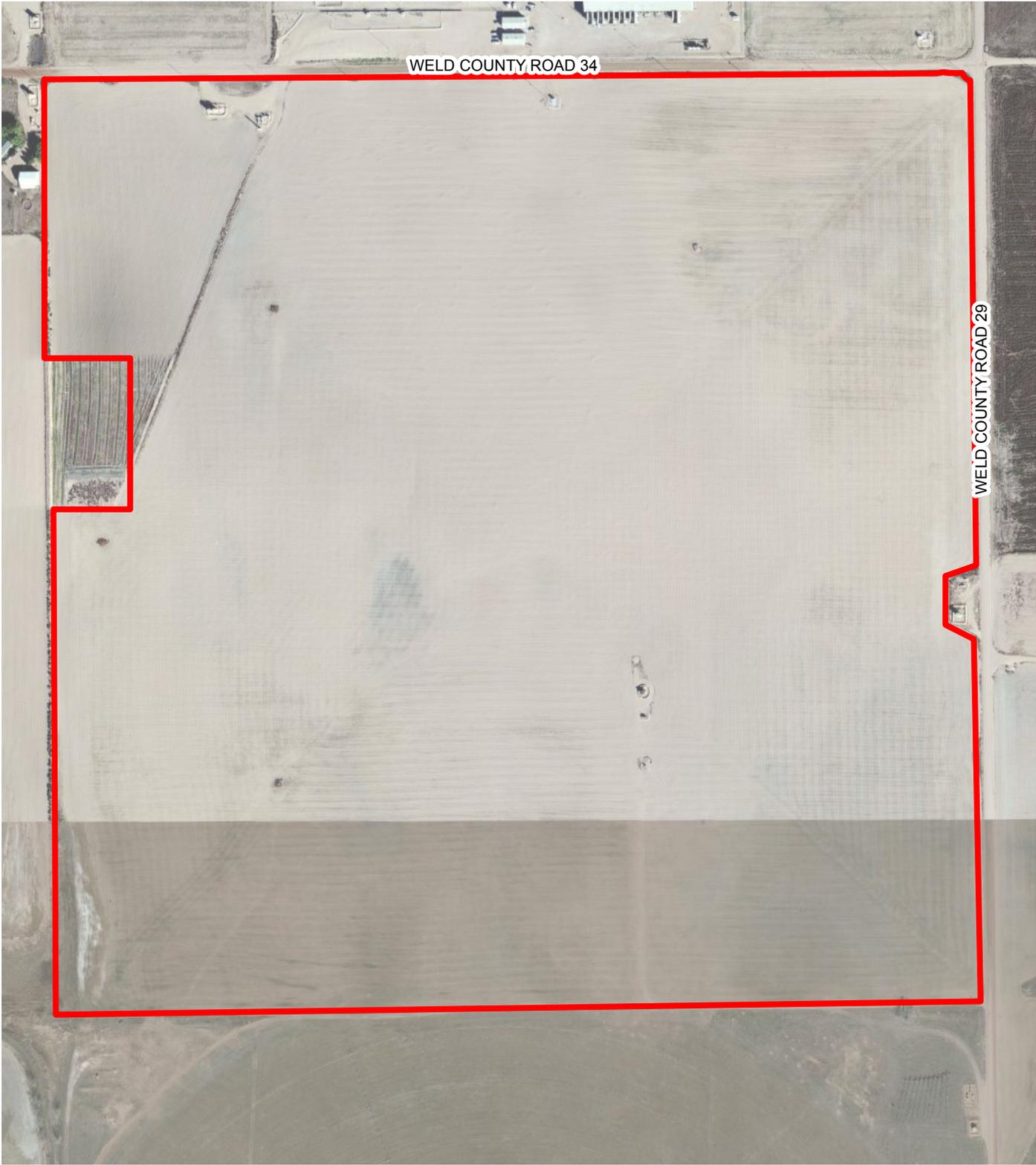


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY

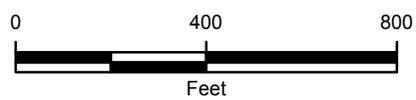


FIGURE 20  
SITE BOUNDARY MAP  
BELLA 18 SPREAD FIELD  
NENE SEC 17-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



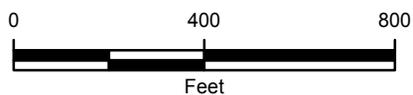


WELD COUNTY ROAD 32

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 21**  
**SITE BOUNDARY MAP**  
**BELLA 19 SPREAD FIELD**  
**NENE SEC 17-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**



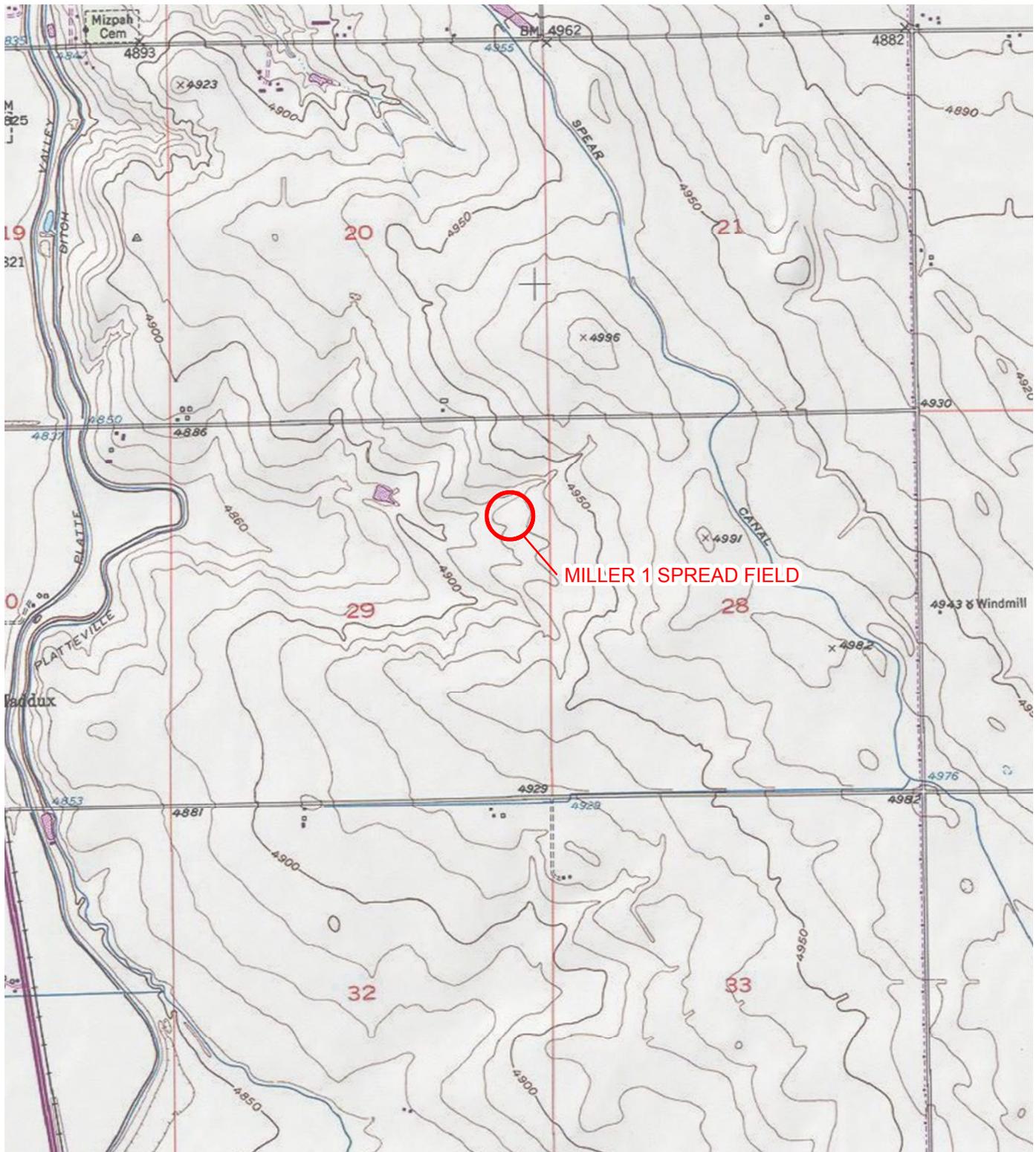
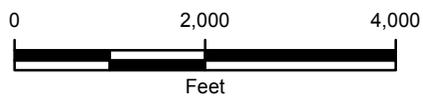


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SITE LOCATION



**FIGURE 22**  
**SITE LOCATION MAP**  
**MILLER 1 SPREAD FIELD**  
**SENE SEC 29-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





WELD COUNTY ROAD 30

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY

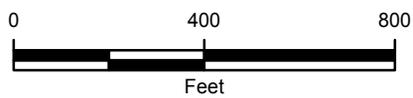
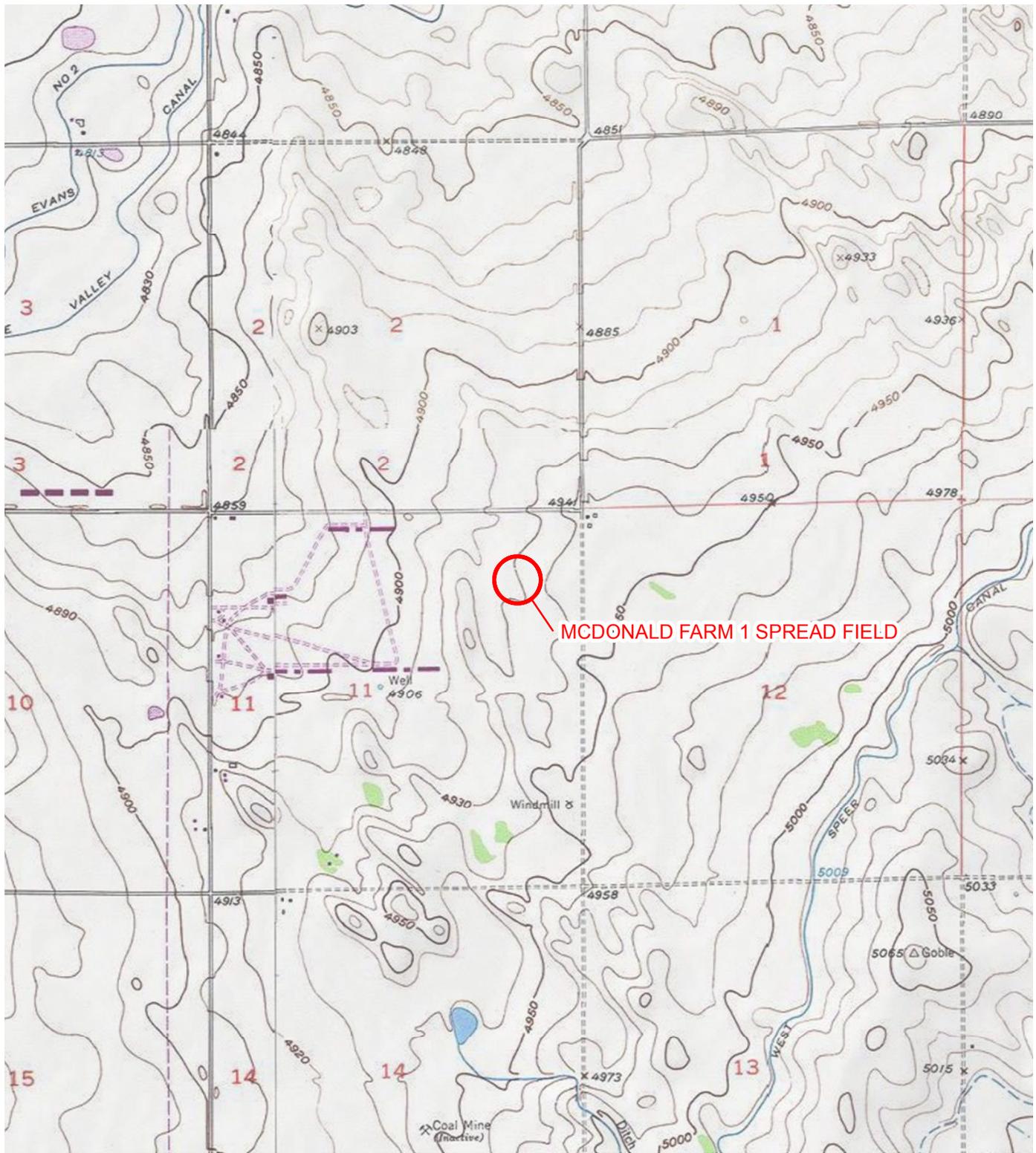


FIGURE 23  
SITE BOUNDARY MAP  
MILLER 1 SPREAD FIELD  
SENE SEC 29-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



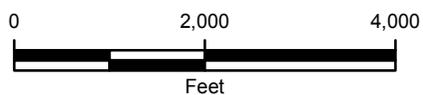


MCDONALD FARM 1 SPREAD FIELD

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SITE LOCATION



**FIGURE 24**  
**SITE LOCATION MAP**  
**MCDONALD FARM 1 SPREAD FIELD**  
**NENE SEC 11-T3N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





WELD COUNTY ROAD 36

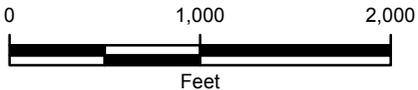
WELD COUNTY ROAD 35

WELD COUNTY ROAD 34

IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 25**  
SITE BOUNDARY MAP  
MCDONALD FARM 1 SPREAD FIELD  
NENE SEC 11-T3N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



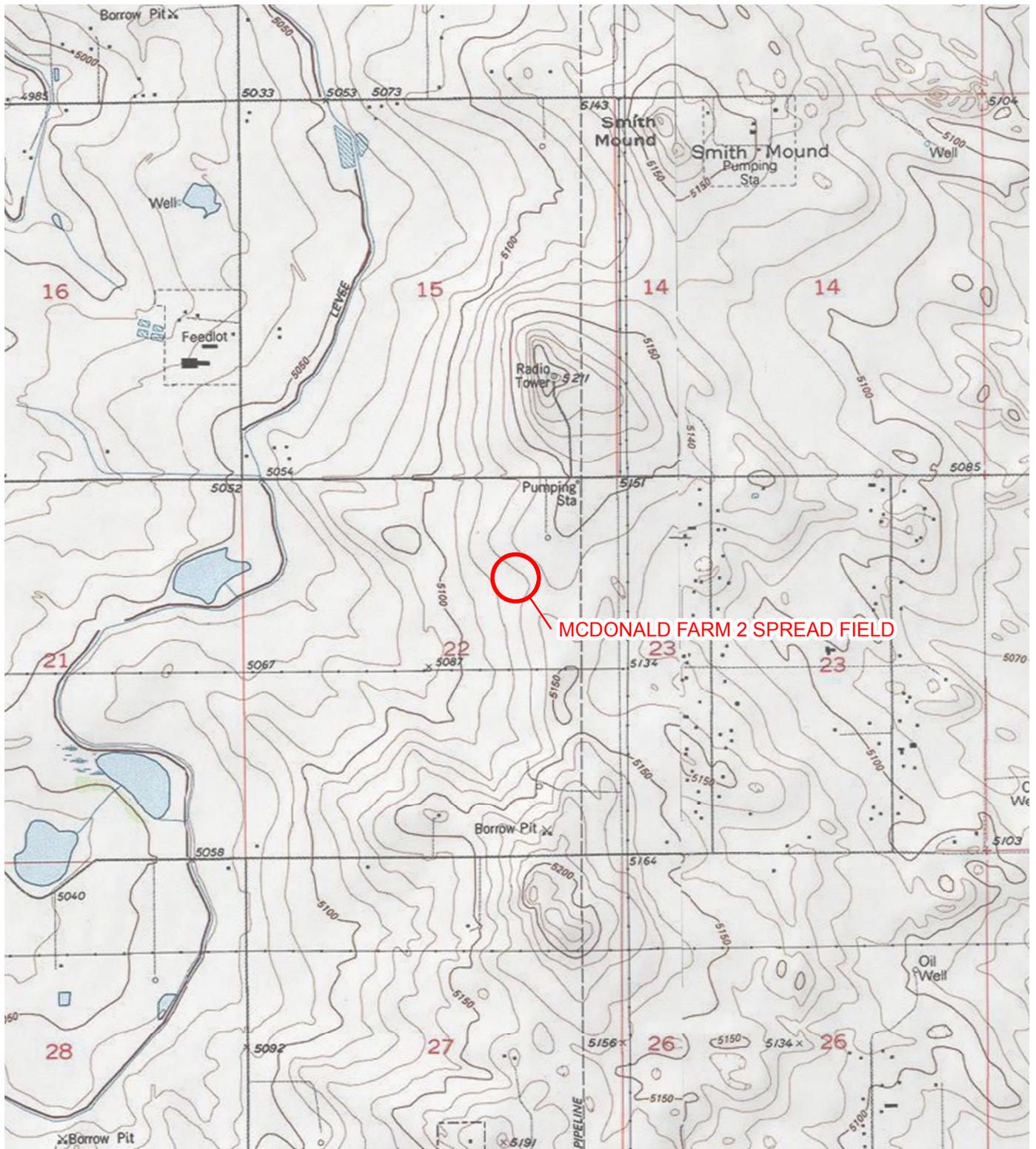
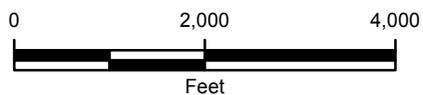


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SITE LOCATION



**FIGURE 26**  
**SITE LOCATION MAP**  
**MCDONALD FARM 2 SPREAD FIELD**  
**NENE SEC 22-T1N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**





IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 MCDONALD FARM 2 SPREAD FIELD BOUNDARY

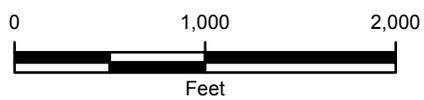


FIGURE 27  
SITE MAP  
MCDONALD FARM 2 SPREAD FIELD  
NENE SEC 22-T1N-R66W  
WELD COUNTY, COLORADO  
ENCANA OIL & GAS (USA) INC.



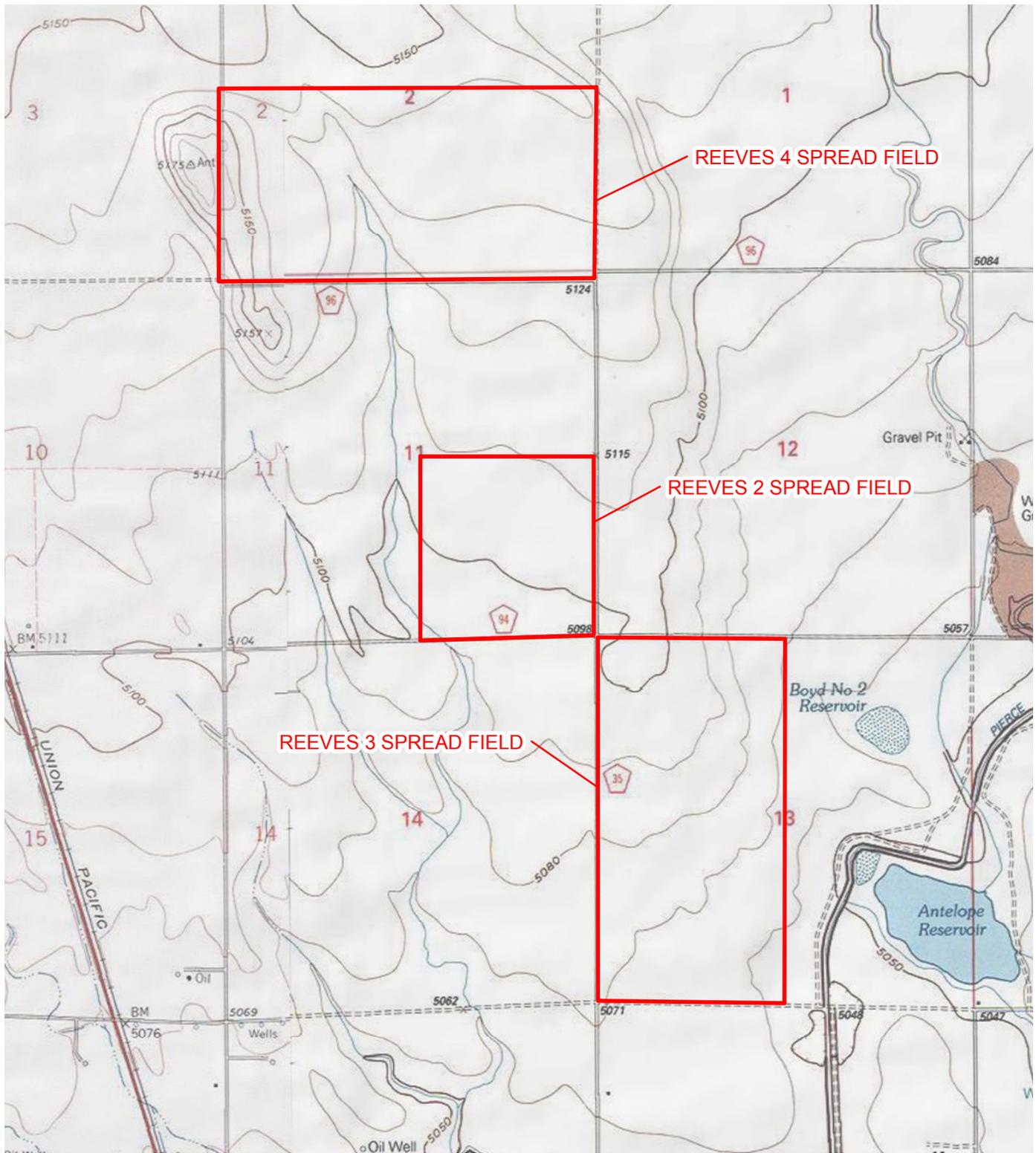
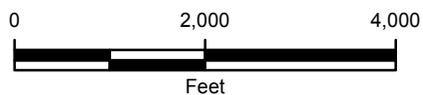


IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SITE LOCATION



**FIGURE 28**  
**SITE LOCATION MAP**  
**REEVES 2, 3, & 4 SPREAD FIELDS**  
**WELD COUNTY, COLORADO**

**ENCANA OIL & GAS (USA) INC.**

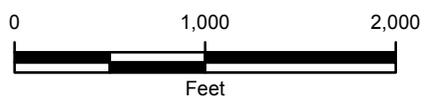




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 29**  
**SITE MAP**  
**REEVES 2 SPREAD FIELD**  
**SESE SEC 11-T8N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**

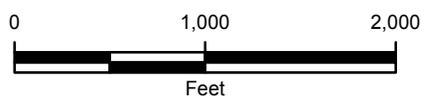




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 30**  
**SITE MAP**  
**REEVES 3 SPREAD FIELD**  
**SWSW SEC 13-T8N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**

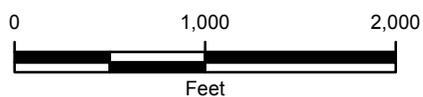




IMAGE COURTESY OF ESRI/BING MAPS

**LEGEND**

 SPREAD FIELD BOUNDARY



**FIGURE 31**  
**SITE MAP**  
**REEVES 4 SPREAD FIELD**  
**SWSW SEC 2-T8N-R66W**  
**WELD COUNTY, COLORADO**  
**ENCANA OIL & GAS (USA) INC.**

