BLM Monitoring Well Plugging
Phase III

STATEMENT OF WORK & SITE LOCATION
BUFFALO FIELD OFFICE
HIGH PLAINS DISTRICT OFFICE

BLM

Wyoming - High Plains District Office

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Statement of Work and Specifications

Project Name	BLM Monitoring Well Plugging Phase III & Ford Ranch Orphan
Objectives	- Plug the existing wellbores and reclaim the surface to landowner requirements or BLM standards.
Location	**1. Durham Ranch 14 MW T44N R72W Sec. 14 SENE** *Surface owner and contact info: Durham Ranches, Inc., Ranch manager Pat Thompson 307-257-3813* **a.** Durham Ranch Sec. 14 Wyodak Coal SEO(Wyoming State Engineer's Office) #:P106973.0W **b.** Durham Ranch Sec. 14 Wasatch Sand SEO#: P106972.0W **2. Durham Ranch 6 MW T45N R71W Sec. 6 SWNE** *Surface owner and contact info: Durham Ranches, Inc., Ranch manager Pat Thompson 307-257-3813* **c.** Durham Ranch Sec. 6 Wyodak Coal SEO#: P106975.0W **d.** Durham Ranch Sec. 6 Wasatch Sand SEO#: P106974.0W **3. Kingsbury MW T46N R78W Sec. 25 NWSE** *Surface Owner and contact info: Bureau of Land Management* a. KU 33-25-4678S-MON API (American Petroleum Institute) #:49-019-06445 SEO#: P179493.0W **4. Napier MW T48N R76W Sec. 24 SESE** *Contact: Bureau of Land Management* a. Napier MW Big George Coal API#:49-005-07914 SEO#: P133775.0W b. Napier MW Wasatch Sand API#:49-005-07915 SEO#: P133776.0W **5. Skewed MW's T48N R77W Sec. 21 SENW** *Surface Owner and contact info: Bureau of Land Management* a. SK1 b. SK2S c. SK2D d. SK3 e. SK4S f. SK4D g. SK5 h. SK6 i. SK7 j. SK8 k. SK9 l. SK10 m. SK11 **Skewed MW's T48N R77W Sec. 21 SENW** *Contact: Anschutz Corporation, PRB Regulatory Cindy Vue – (303) 299-1578*

a. SK12
b. SK13
c. SK14
d. SK15
e. SK16
f. SK17
g. SKS18

6. **Sasquatch MW T48N R78W Sec. 26 NWNE**
   Surface Owner and contact info: Bureau of Land Management
   a. Sasquatch MW
      API#:49-019-20920
7. **Carr Draw MW T50N R75W Sec. 29 NENE**
   Surface Owner & Contact Information: Billy C. Maycock 307-682-3977
   a. Carr Draw MW Gates/Werner Coals
      API#:49-005-07636, SEO#: P177450.0W
   b. Carr Draw MW Overburden Sand/Big George Coal
      API#:49-005-07635, SEO#: P177448.0W
8. **Timar Stock Well T50N R80W Sec. 6 SENE**
   Surface Owner and Contact information: Bureau of Land Management
   a. Stock Water Well
9. **Coal Gulch MW T51N R78W Sec. 26 SWSW**
   Surface owner and contact info: *Bureau of Land Management*
   a. Coal Gulch MW Dual Completion
      API#:49-019-24209, SEO#: P159720.0W
10. **Petrified Tree MW T51N R80W Sec. 31 SWNE**
    Surface Owner & Contact Information: Bureau of Land Management
    a. Petrified Tree MW
11. **Remington MW T58N R79W Sec. 30 SWNE**
    Surface owner and contact info: Padlock Ranch Inc., Contact: Trey Patterson 307-655-2264
    a. Remington 30-07A
       API#:49-033-23127, SEO#:P139658.0W
    b. Remington 30-07CK
       API#:49-033-23107, SEO#:P139652.0W
    c. Remington 30-07C
       API#:49-033-23126, SEO#:P139649.0W
12. **Ford Ranch II POD T58N R75W Sec. 27, 32**
    Ford Ranch Trust Representative & Contact: Ryan Fieldgrove 307-684-2211
    a. Ford Ranch II Fed 13CW-32
       API#:49-005-59912,
    b. Ford Ranch Playa Outfall

Prescription	**All Wells:** A. BLM makes no guarantee of the condition of the wellbore. Contractor may encounter tubing, airlines, wire, pumps, and other related well equipment in wellbore. B. Contractor shall pull all tubing, airlines, wire, pumps, and all related well equipment from wellbore, if present. C. Contractor shall haul all tubing pulled from the wellbores on BLM surface and transport the tubing to the BLM Welch Ranch property, and unload/stack the tubing at the Welch Ranch Property. Legal location is as follows **T57N R84W Sec. 1 SWNE**. D. Bentonite chips shall be poured into the wellbore in manner that keeps the potential for bridging at a minimum. Contractor shall pour bentonite chips into the wellbore across a coarse mesh screen to prevent bridging. Pour rate shall be no less than 3 minutes per 50-pound bag of bentonite. E. Plugging rig shall have the ability to retrieve tension set packers set at up to 30,000 pounds of tension. F. If packer does not release from wellbore, contractor may have to mill out packer/tubing to get to prescribed plugging depth. G. Bit and scraper shall be run on a tubing work string for all steel cased wells. No bit and scraper shall be ran in PVC cased wells. H. Plug the wellbores per the provided plugging specifications and reclaim all disturbed surfaces per the provided reclamation plan. I. All displaced fluids shall be captured and transported to a Wyoming DEQ approved Produced Water Disposal & Treatment facility. J. An earthen pit may be excavated to capture any cement circulated to surface and to clean cementing equipment. K. If the casing test fails or no test is conducted, all balanced plugs shall be tagged after a minimum wait on cement time of 4 hours. A casing test shall consist of pressuring up casing to 500 pounds per square inch (psi) for 30 minutes with no more than a 10% bleed off in pressure. This casing test applies for steel cased wells only. L. Contractor shall have cementing equipment capable of operating in an inner diameter annulus 4 inches and greater. M. Cement wait time shall be at least 4 hours. N. If a cement plug or grout plug is tagged below the prescribed depth, remedial cementing or grouting shall occur until cement or grout plug can be tagged at prescribed depth. O. Bentonite Grout Slurry: means an inorganic mixture of a minimum 20 percent by weight solids bentonite, with polymers, water, or other additives for the yield/rate control, which forms a low permeability seal (not greater than 1 x 10^-7 centimeters/second) and is mixed to the manufacturer's specifications. P. Tremie pipe (grout pipe) – A small diameter conductor pipe, hose or tubing used in down hole placement of well construction material (cement, grout mixture, gravel pack, etc.). Q. Non-Slurry bentonite grouts must be in place before significant hydration occurs. R. Water used for plugging operations shall be from a municipal source. S. Contractor shall remove all infrastructure on the pad then re-seed the disturbed areas with BLM seed mix in figure 1. T. Removal of pipe: Excavate approximately 3 to 5 feet deep, cut pipe from valve or riser (typically up to 2 inch or 3-inch diameter and black HDPE), fuse cap to existing pipe, remove and dispose of valve, backfill with existing material and compact in one-foot lifts. Valve sets may be up to 8-inch diameter.

U. Strip 6 inches of topsoil from a 10-foot radius around the well head and store in a pile adjacent to the work site for final reclamation. Excavate around the well casing to a depth adequate to cut and cap the well casing a minimum of 3 feet below ground surface.
V. Contractor shall supply and erect identification markers on all wells in this contract. Permanently weld a well identification marker to the cut off well casing. The well identification marker shall be a metal plate at least ¼-inch thick. The following information shall be permanently placed on the marker by beading-on with a welding torch or engraving: 1) BLM 2) Lease serial number, 3) well name and number 4) legal location – Qtr/Qtr Section TXXN, RXXW. Bury the marker with native material. This applies to all wells except Skewed wells. See the part below regarding Skewed wells.
W. All Skewed wells all have 2-inch PVC casing extending to total depth. Cemented inside a 5-inch steel casing that is set approximately 6 feet into the ground. Contractor shall pull 5-inch steel casing, cut 2-inch PVC casing at pull depth, and fill the resultant hole with native material.

1. Durham Ranch 14 MW T45N R71W Sec. 6 SWNE

a. Durham Ranch Wyodak Coal

-This well has 5.5-inch outer diameter steel casing set at 720 feet and cemented to surface. This well was drilled to a TD (Total depth) of 820 feet with at 9.875-inch drill bit. Casing pound per foot weight is unknow. Contractor will have to measure casing inner diameter to ensure proper down-hole tool sizing.

-Plugging Procedure:

i. Run bit and scraper to 700 feet.
ii. Set CIBP (Cast Iron Bridge Plug) at 695 feet.
iii. Cement from CIBP to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

b. Durham Ranch Wasatch Sand

-This well has 5.5-inch outer diameter steel casing set at 720 feet and cemented to surface. This well was drilled to a TD of 820 feet with at 7.875-inch drill bit. Casing pound per foot weight is unknow. Contractor will have to measure casing inner diameter to ensure proper down-hole tool sizing.

-Plugging Procedure:

i. Run bit and scraper to 700 feet.
ii. Set CIBP at 695 feet.
iii. Cement from CIBP to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

	Well Site: There are (2) wells on this location, the Durham Ranch Sec. 14 Wyodak Coal and the Durham Ranch Sec. 14 Wasatch Coal. Both are single completion. All pipes shall be cut and capped at least 3 feet below surface, associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around hut and wooden platform under well hut, well heads, as well as hut and steel culvert. After the wells are plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1, or surface owner specified seed mix. See photos in Appendix 1 and maps in Appendix 2. Access Road: The access is a primitive 2 track off a main dirt road. Any road damage created during plugging will need to be repaired to a condition similar or better than existing.
Specifications	**2. Durham Ranch 6 MW T45N R71W Sec. 6 SWNE** **a. Durham Ranch Wyodak Coal** -This well has 5.5-inch outer diameter steel casing set at 363 feet and cemented to surface. Casing pound per foot weight is unknow. Contractor will have to measure casing inner diameter to ensure proper down-hole tool sizing. **-Plugging Procedure:** i. Run bit and scraper to 343 feet. ii. Set CIBP at 338 feet. iii. Cement from CIBP to surface. **Well Specific Cement Requirements:** All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight. **b. Durham Ranch Wasatch Sand** -This well has 5.5-inch outer diameter steel casing set at 285 feet and cemented to surface. Casing pound per foot weight is unknow. Contractor will have to measure casing inner diameter to ensure proper down-hole tool sizing. **-Plugging Procedure:** i. Run bit and scraper to 265feet. ii. Set CIBP at 260 feet. iii. Cement from CIBP to surface. **Well Specific Cement Requirements:** All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

Well Site: There are (2) wells on this location, the Durham Ranch Sec. 6 Wyodak Coal and the Durham Ranch Sec. 6 Wasatch Coal. Both are single completion. All pipes shall be cut and capped at least 3 feet below surface, associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around hut and wooden platform under well hut, well heads, as well as hut and steel culvert.
After the wells are plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1, or surface owner specified seed mix.
See photos in Appendix 1 and maps in Appendix 2.

Access Road: The access is a primitive 2 track off a scoria road. Any road damage created during plugging will need to be repaired to a condition similar or better than existing.

3. Kingsbury MW T46N R78W Sec. 25 NWSE

a. KU 33-25-4678S-MON

- This well has 7-inch, 20 pound per foot steel production casing set at 1644 feet. The production casing is cemented to surface. The surface casing is set at 167 feet and cemented to surface.

- Plugging procedure:

i. Pull 2.375-inch tubing and packer set at 1452 feet.
ii. Run bit and scraper to 1457 feet.
iii. Set CIBP at 1562 feet.
iv. Place 15 feet of cement on top of CIBP.
v. Set CIBP at 1521 feet.
vi. Place 90 feet of cement on top of CIBP.
vii. Set CIBP at 1405 feet.
viii. Place 80 feet of cement on top of CIBP.
ix. Set CIBP at 1248 feet.
x. Place 240 feet on top of CIBP.
xi. Cement from 260 feet to surface

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

Well Specific Tubing Requirements: All tubing pulled from this well shall be transported to BLM Welch Ranch Property.

Well Site: There is 1 well on this location, KU 33-25-4578S-MON which is a dual completion. No reclamation will need to be done on this location
See photos in Appendix 1 and maps in Appendix 2.

Access Road: The access is a faint 2 track off a gravel county road. Any road damage created during plugging will need to be repaired to a condition similar or better than existing.

4. Napier MW T48N R76W Sec. 24 SWSE

a. Napier MW Big George

- This well has a 7-inch diameter, 20 pound per foot steel production casing is set at 1587 feet and is cemented to surface. Surface casing is set at 166 feet and cemented to surface.

-Plugging procedure:

i. Run bit and scraper to 1542 feet.
ii. Set CIBP at 1537
iii. Cement from CIBP to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

b. Napier MW Wasatch

- This well has a 7-inch diameter, 20 pound per foot steel production casing is set at 1530 feet and is cemented to surface. Surface casing is set at 165 feet and cemented to surface.

-Plugging procedure:

i. Run bit and scraper to 1415 feet.
ii. Set CIBP at 1410 feet.
iii. Place 100 feet of cement on top of CIBP.
iv. Place a balanced cement plug from 1260 feet to 1120 feet.
v. Place a cement plug from 215 feet to surface

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

Well Site: There are 2 wells on this location. Napier MW Big George and Napier MW Wasatch. All pipes shall be cut and capped at least 3 feet below surface. All associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around hut, hut and well heads, as well as steel culverts surrounding wellheads.
After the wells are plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1.
See photos in Appendix 1 and maps in Appendix 2.
Access Road: The location is an eyebrow off main county road. Any damage created during plugging will need to be repaired to a condition similar or better than existing.

5. Skewed MW's T48N R77W Sec. 21 SENW

Plug Only

	a. SK1 MW **-** This well has as 2-inch PVC casing set to a TD of 25.34 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **b. SK2S MW** - This well has as 2-inch PVC casing set to a TD of 38.88 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **c. SK2D MW** - This well has as 2-inch PVC casing set to a TD of 55.56 feet. **- Plugging procedure:** iv. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **d. SK3 MW** - This well has as 2-inch PVC casing set to a TD of 124.34 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **e. SK4S MW** - This well has as 2-inch PVC casing set to a TD of 22.40 feet. **- Plugging procedure:**

	i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **f. SK4D MW** - This well has as 2-inch PVC casing set to a TD of 63.16 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **g. SK5 MW** - This well has as 2-inch PVC casing set to a TD of 29.80 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **h. SK6 MW** - This well has as 2-inch PVC casing set to a TD of 26.18 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **i. SK7 MW** - This well has as 2-inch PVC casing set to a TD of 38.39 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**:

	1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **j. SK8 MW** - This well has as 2-inch PVC casing set to a TD of 27.12 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **k. SK9 MW** - This well has as 2-inch PVC casing set to a TD of 30.86 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications **l. SK10 MW** - This well has as 2-inch PVC casing set to a TD of 39.21 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **m. SK11 MW** - This well has as 2-inch PVC casing set to a TD of 34.87 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications.

	Well Site: There are 13 wells on this location, the Skewed MWs are all single completions. See photos in Appendix 1 and maps in Appendix 2. Access Road: The access is a 2 track off a main gravel road. Any road damage created during plugging will need to be repaired to a condition similar or better than existing. **5. Skewed MW's T48N R77W Sec. 21 SENW** **a. SK12 MW** - This well has as 2-inch PVC casing set to a TD of 42.47 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **b. SK13 MW** - This well has as 2-inch PVC casing set to a TD of 37.41 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **c. SK14 MW** - This well has as 2-inch PVC casing set to a TD of 41.50 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: <u>1. Non-slurry Bentonite Grout</u> must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **d. SK15 MW** - This well has as 2-inch PVC casing set to a TD of 45.89 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**:

	1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **e. SK16 MW** - This well has as 2-inch PVC casing set to a TD of 41.28 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **f. SK17 MW** - This well has as 2-inch PVC casing set to a TD of 28.21 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **g. SKS18 MW** - This well has as 2-inch PVC casing set to a TD of 77.40 feet. **- Plugging procedure:** i. Place non-slurry bentonite grout from TD to surface. **Well Specific Grout requirements**: 1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications. **Well Site**: The entire area will need to be reseeding after plugging procedures are complete. See Figure 2 for instructions and seed mix, consult landowner for private land seed mix. Well SK12 is a poison well, the concrete and steel posts that are surrounding the well need to be removed and hauled to an approved disposal facility. See photos in Appendix 1 and maps in Appendix 2. Access Road: The access is a 2 track off a main gravel road. Any road damage created during plugging will need to be repaired to a condition similar or better than existing. **6. Sasquatch MW T48N R78W Sec. 26 NWSE**

a. Sasquatch MW

-This well has 7.625-inch, 26.4 pound per foot steel production casing set at 1425 feet.

-This well has a TVD of 1595 feet.

-Plugging Procedure:

i. Pull 2.875 inch tubing set at 1536 feet.
ii. Run bit and scraper to 1380 feet.
iii. Set CIBP at 1375 feet.
iv. Place 100 feet of cement on top of CIBP.
v. Place a balanced cement plug from 1022 feet to 912 feet.
vi. Place a balanced cement plug from 817 feet to 700 feet.
vii. Place a cement plug from 250 feet to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

Well Specific Tubing Requirements: All tubing pulled from this well shall be transported to BLM Welch Ranch Property.

Well Site: There is 1 well on this location, the Sasquatch MW. All pipes shall be cut and capped at least 3 feet below surface. All associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around location, Ag storage tank, outfall, well head, stock tank remove concrete in the middle of stock tank, as well as reclaim the pit adjacent.
After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1. See photos in Appendix 1 and maps in Appendix 2.
Access Road: Access is off a main gravel road, any road damage created during plugging will need to be repaired to a condition similar or better than existing. The access off the main road will need to be ripped 18-24 inches and seeded after plugging operations.

7. Carr Draw MW T50N R75W Sec. 29 NENE

a. Carr Draw MW Gates/Werner Coals

- The 7-inch diameter, 20 pound per foot steel production casing is set at 1412 ft and is cemented to surface.

- Plugging procedure:

i. Pull 2.375-inch tubing and packer set at 851 feet.
ii. Run bit and scraper to 1367 feet.
iii. Set CIBP at 1362 feet

	iv. Place 100 feet of cement on top of CIBP v. Place a balanced cement plug from 1260 feet to 1150 feet. vi. Set a CIBP at 696 feet. vii. Place 100 feet of cement on top of CIBP. viii. Cement from 270 feet to surface **Well Specific Cement Requirements:** All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight. **Well Specific Tubing Requirements:** All tubing pulled from this well shall be stacked and left on location. **b. Carr Draw MW OB/BG Coals** The 7-inch diameter, 20 pound per foot steel production casing is set at 1934 feet and is cemented to surface. **- Plugging procedure:** i. Pull 2.375-inch tubing and packer set at 1865 feet. ii. Run bit and scraper to 1889 feet. iii. Set CIBP at 1884 feet. iv. Place 50 feet of cement on top of CIBP. v. Set CIBP at 1740 feet. vi. Place 150 feet of cement on top of CIBP. vii. Place a balanced cement plug from 1520 feet to 1350 feet. viii. Place a balanced cement plug from 1250 feet to 1140 feet. ix. Place a balanced cement plug from 730 feet to 600 feet. x. Cement from 272 feet to surface **Well Specific Cement Requirements:** All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight. **Well Specific Tubing Requirements:** All tubing pulled from this well shall be stacked and left on location. **Well Site**: There are 3 well locations on this site, 1 well is a dual completion and 2 are single completions. The Carr Draw MW Big George/Wasatch and Carr Draw MW Gates/Werner. The Big George well is High Pressure. All pipes shall be cut and capped at least 3 feet below surface, associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around huts, steel culverts, well heads, as well as the 3 well huts. **Fencing and well huts shall be stacked and left on location.** After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1, or surface owner specified seed mix. See photos in Appendix 1 and maps in Appendix 2.

Access Road: The access to this location is an established 2 track, turning into a primitive 2 track accessing the location. The road will need to be ripped 18-24 inches and seeded after plugging operations.

8. Timar Stock well T50N R80W Sec. 6 SENE

a. Timar Stock well

- This well has a 6.625-inch diameter steel casing set to approximately 150 feet TD. There should be 3.5-inch tubing remaining in the wellbore.

-Plugging procedure:

i. Pull all rods and 3.5-inch tubing from wellbore.
ii. Place bentonite from TD to surface.

TD is estimated to be 150 feet. BLM will reimburse contractor for time and materials that exceed the volume to plug 150 feet of wellbore.

Well Specific Grout requirements:

1. Non-slurry Bentonite Grout must consist of chipped or pelletized bentonite varieties that are hydrated to manufacturer's specifications.

Well Specific Tubing Requirements: All tubing pulled from this well shall be transported to BLM Welch Ranch Property.

Well Site: There is 1 well on this location, the Timar Stock well. All pipes shall be cut and capped at least 3 feet below surface. All associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to well head, remove concrete.
After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1. See photos in Appendix 1 and maps in Appendix 2.
Access Road: Access is a faint 2 track off a county road. The access off the main road will need to be seeded after plugging operations.

9. Coal Gulch MW T51N R78W Sec. 26 SWSW

a. Coal Gulch MW

- This well has a 7-inch diameter, 20 pounds per foot steel production casing set at 1970 feet, cemented to surface. The surface casing is set at 250 feet and cemented to surface.

- Plugging procedure:

i. Pull 2.375-inch short string tubing at 1511 feet length
ii. Pull 2.375-inch tubing and packer set at 1548 feet.
iii. Run bit and scraper to 1756 feet.
iv. Set CIBP at 1751 feet.
v. Place 50 feet of cement on top of CIBP.

	vi. Set CIBP at 1432 feet vii. Place 100 feet of cement on top of CIBP viii. Cement from 300 feet to surface. **Well Specific Cement Requirements:** All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight. **Well Specific Tubing Requirements:** All tubing pulled from this well shall be transported to BLM Welch Ranch Property. **Well Site**: There is 1 well on this location, Coal Gulch MW which is a dual completion, under high pressure gas. All pipes shall be cut and capped at least 3 feet below surface, associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around huts and wooden platform under well hut, well head as well as huts. After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1. See photos in Appendix 1 and maps in Appendix 2. Access Road: The access is a faint 2 track off a gravel road. The access will need to be ripped 18-24 inches and seeded after plugging operations. **10. Petrified Tree MW T51N R80W Sec. 31 SWNE** **a. Petrified Tree MW** This well has a 3.5-inch steel casing set to a TD of approximately 100 feet. **-Plugging Procedure:** i. Pull any rods or tubing from wellbore. ii. Place a bentonite grout slurry from total depth to surface **TD is estimated to be 100 feet. BLM will reimburse contractor for time and materials that exceed the volume to plug 100 feet of wellbore.** **Well Specific Grout requirements:** **<u>Bentonite Grout Slurry:</u> shall be pumped via tremie pipe by positive displacement or similar method (pressure grouted) from the bottom of the well to the surface such that an uninterrupted seal may be emplaced to the land surface.**

Well Site: There is 1 well on this location. Petrified Tree MW. All pipes shall be cut and capped at least 3 feet below surface. All associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to the well head.
After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with BLM approved seed mix listed in Figure 1.
See photo's in Appendix 1 and maps in Appendix 2.

Access Road: Access is off main 2 track and has already been reclaimed. Any damage created during plugging will need to be repaired to a condition similar or better than existing.

11. Remington MW T58N R79W Sec. 30 SWNE

a. Remington 30-07A

- This well has a 7-inch diameter, 17 pound per foot steel production casing set at 314 feet and cemented to surface. The surface casing is set at 60 feet and cemented to surface.

- Plugging procedure:

i. Run bit and scraper to 269 feet.
ii. Set CIBP at 264 feet.
iii. Cement from 264 feet to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

b. Remington 30-07CK

- This well has a 7-inch diameter, 17 pound per foot steel production casing set at 625 feet and cemented to surface. The surface casing is set at 80 feet and cemented to surface.

- Plugging procedure:

i. Run bit and scraper to 580 feet.
ii. Set CIBP at 575 feet.
iii. Place 100 feet of cement on top CIBP.
iv. Cement from 390 feet to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

b. Remington 30-07C

- This well has a 7-inch diameter, 17 pound per foot steel production casing set at 787 feet and cemented to surface. The surface casing is set at 87 feet and cemented to surface.

- Plugging procedure:

i. Run bit and scraper to 792 feet.
ii. Set CIBP at 737 feet.
iii. Place 160 feet of cement on top CIBP.
iv. Cement from 390 feet to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

Well Site: There are 3 wells on this location, the Remington 30-07A, Remington 30-07CK and the Remington 30-07C. All pipes shall be cut and capped at least 3 feet below surface, associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to fencing around huts well head, as well as the 4 well huts and the power drop and all related infrastructure.
After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with the BLM approved seed mix listed in Figure 1, or surface owner specified seed mix.
See photos in Appendix 1 and maps in Appendix 2.
Access Road: The access road is a faint 2 track coming off a main ranch road. The road will need to be ripped 18-24 inches and seeded after plugging operations.

12. Ford Ranch II Fed POD T58N R75W Secs. 27, 32

a. Ford Ranch II Fed 13CW-32 T58N R75W Sec. 32 SWSW

Plugging, Removal and Reclamation.

Well Description-This well has 8.625-inch outer diameter steel casing set at 60 feet and cemented to surface. The production casing is 5.5 inches in outer diameter and weighs 15.5 pounds per foot. The production casing is set at a depth of 400 feet.

-Plugging Procedure:

i. Run bit and scraper to 225 feet.
ii. Set CIBP (Cast Iron Bridge Plug) at 220 feet.
iii. Place 50 feet of cement on top of CIBP.
iv. Set second CIBP at 140 feet.
v. Place 50 feet of cement on top of CIBP.
vi. Set third CIBP at 50 feet.
vii. Cement from CIBP to surface.

Well Specific Cement Requirements: All cement shall be Class G cement mixed at 13.5+ pounds per gallon (ppg) and shall consist of at least 50% cement by weight.

	Well Site: There is 1 well on this location. All pipes shall be cut and capped at least 3 feet below surface. All associated infrastructure shall be removed and hauled to an approved facility or storage area. Associated infrastructure includes but not limited to the well head. After the well is plugged and associated infrastructure is removed, the disturbed area will be broadcast seeded with BLM approved seed mix listed in Figure 1. See photos in Appendix 1 and maps in Appendix 2. b. **Ford Ranch Playa Outfall T58N R75W Sec. 27 SWNE** Playa Outfall Description- Outfall consists of a black poly apron and partially buried black poly corrugated pipe (14" diameter by 100 feet). Large black poly corrugated riser (48" diameter) and a valve set within a 12" smooth poly riser. Riser caps and (2) wooden posts. Access Road to the Playa outfall may require spot upgrades due to erosion in several spots. See Figure 6 Photos. **-Removal and Reclamation Procedure:** A. Contractor shall remove all infrastructure associated with the outfall and recontour to the surrounding topography then re-seed the disturbed areas with BLM seed mix specified in the attached reclamation plan. B. Removal of pipe: Excavate approximately 3 to 5 feet deep, cut pipe from valve or riser (typically up to 2 inch or 3-inch diameter and black HDPE), fuse cap to existing pipe, remove and dispose of valve, backfill with existing material, and compact in one-foot lifts. Valve sets may be up to 8-inch diameter. C. Electrical panels – Contractor shall be responsible for locates, verifying conductors are "dead", excavating approximately 3-feet deep, cutting the wires, backfilling with existing materials, compacting in one-foot lifts. D. Strip 6 inches of topsoil from a 10-foot radius around the disturbance and store in a pile adjacent to the work site for final reclamation. Excavate around any removed infrastructure to a depth adequate to cut and cap any piping a minimum of 3 feet below ground surface. Access Road: May require spot upgrade to perform the work. Will not be reclaimed.	
Other Notes		
Project Contacts	Zach Nicholson Project Inspector Office: 307-684-1160	Zach Nicholson Contracting Officer Representative Office: 307-684-1160

	Cell: 307-670-0163 Email: znicholson@blm.gov	Cell: 307-670-0163 Email: znicholson@blm.gov

FIGURE 1: BLM Approved Seed Mix

Species	Common Name	PLS lbs/acre
Elymus trachycaulus spp. *trachycaulus*	Slender wheatgrass	3.0
Pascopyrum smithii	Western Wheatgrass	2.5
Pseudoroegneria spicata ssp. *spicata*	Bluebunch Wheatgrass	1.75
Elymus elymoides	Bottlebrush Squirreltail	1.25
Leymus cinerus	Basin Wildrye	1.25
Nassella viridula	Green Needlegrass	1.0
Calamovifolia longifolia	Prairie Sandreed	0.75
Bouteloua dactyloides	Sideoats Grama	0.5
Poa Secunda	Sandberg Bluegrass	0.15
Festuca saximontana	Rocky Mountain Fescue	0.15
Sporobolus contractus	Sand Dropseed	0.03
Atriplex canescens	Fourwing Saltbush	0.5
Peritoma serrulata	Rocky Mountain Beeplant	0.25
Sphaeralcea coccinea	Scarlet Globemallow	0.1
Dalea purpurea	Purple Prairie Clover	0.2
Artemisia tridentate	Wyoming Big Sagebrush	0.1
Triticum aestivum x Secale cereale	Quickguard	5.0
	Total PLS	18.38
*PLS = pure live seed, Northern Plains adapted species		

FIGURE 2: Reclamation for Skewed well area

Site Description
The Skewed Reservoir Reclamation area is located in Johnson County, Wyoming, NWSE Section 21, T48N/R77W; UTMs 410491E/4885436N. It falls within the 10-14-inch Northern Precipitation Zone and a Loamy-Shallow Loamy Ecological Site Description (ESD). The site lies on a south aspect with a slopes ranging from 3-15%.

See photos in Appendix 1 and maps in Appendix 2.

Reseeding Plan Requirements:
-Rip and reseed the reclaimed reservoir location; an area of approximately 7.7 acres.

- Waterbars are to be constructed a minimum of 18 inches deep, on the contour with no more than 2 feet of drop per 100 feet of waterbar to ensure drainage and extended into established vegetation. All waterbars are to be constructed with the berm on the downhill side to prevent the soft material from silting in the trench. The initial waterbar will be constructed at the top of the backslope. See Figures 3 and 4.

-The soil is to be ripped and prepped for seed bed, mulched, and seeded with the seed mix listed below. Mulch and seed are to be from a weed free certified source.

-Drill seed at a depth not to exceed 0.5 inches. If broadcast seeding, double the rate of application.

-Apply mulch at a minimum rate of 1000 pounds per acre. Mulch maybe wood chips or straw.

-Apply seed at the specified rate. See FIGURE 1 BLM approved seed mix.

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Area to be seeded with instructions highlighted in green

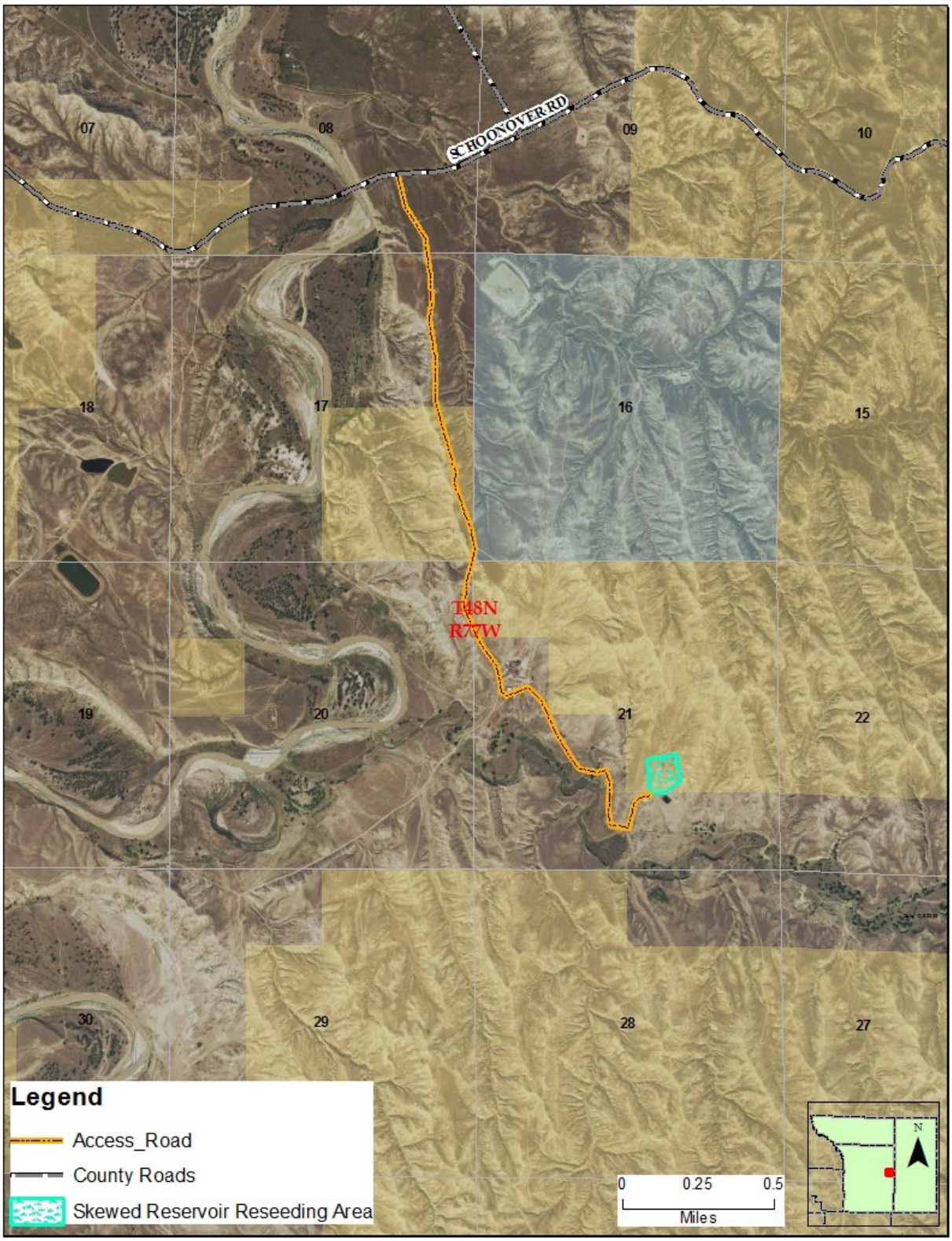

Figure 3. Water Bar Diagram

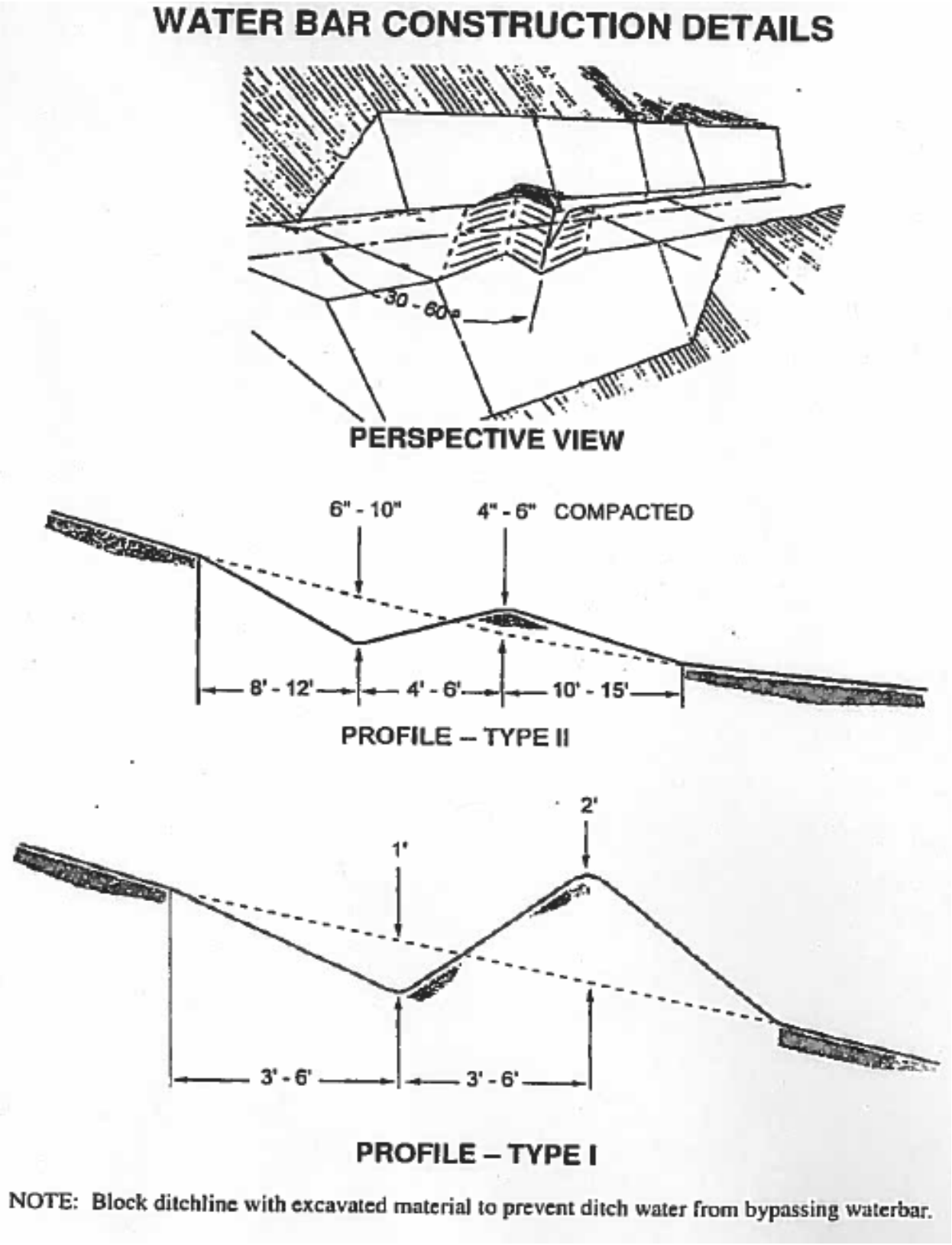

Figure 4. Water Bar Example

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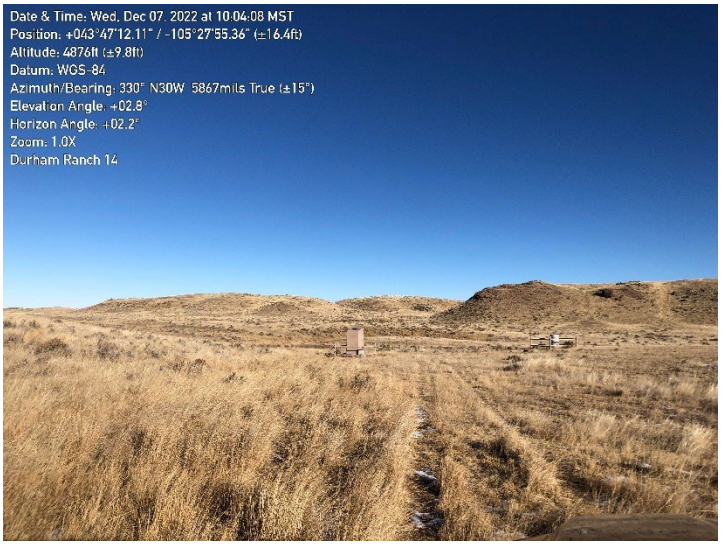
BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Appendix 1: Access and Location Photos

Durham Ranch 14 MW's Access

Durham Ranch 14 Well location



Durham Ranch wells

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Field Office: Buffalo Field Office (BFO)

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Durham Ranch 6 MW's Access

Durham Ranch 6 MW's Location

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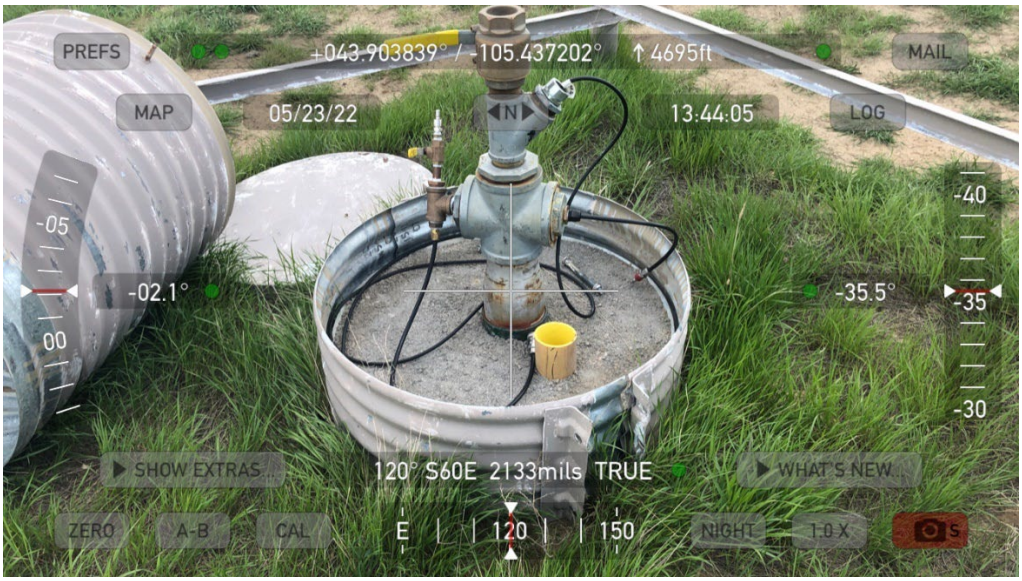
Durham Ranch 6 Sand Well

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Durham Ranch 6 Coal Well



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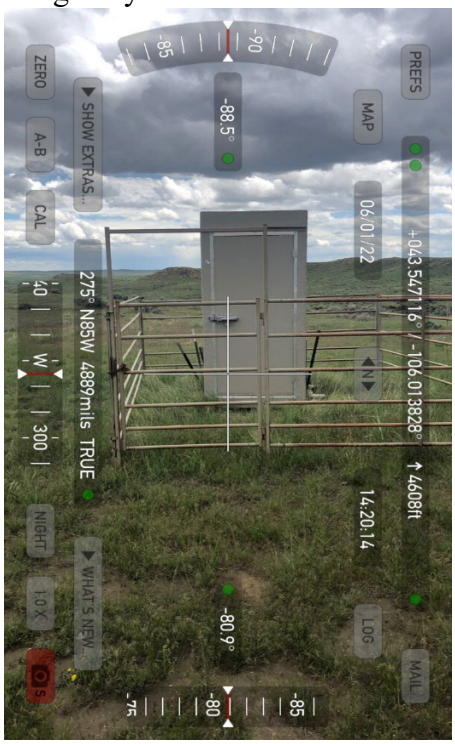
Field Office: Buffalo Field Office (BFO)

Kingsbury Location and well



BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
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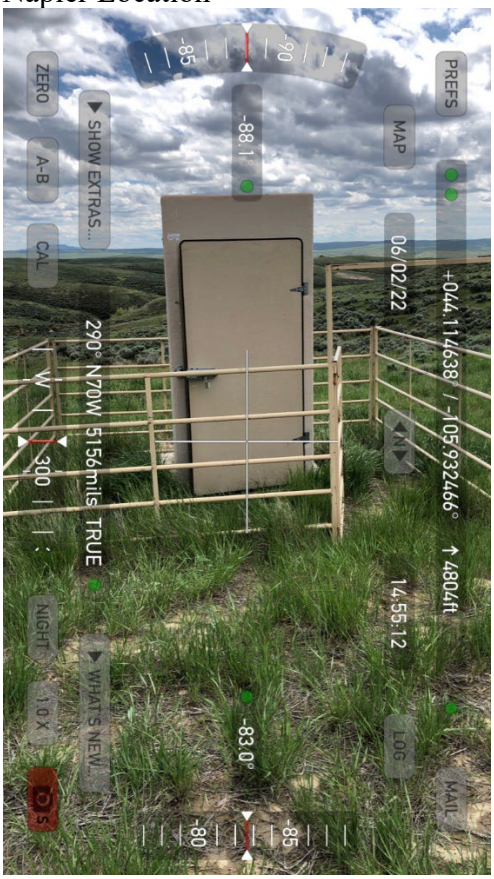
Napier Access

Napier Location



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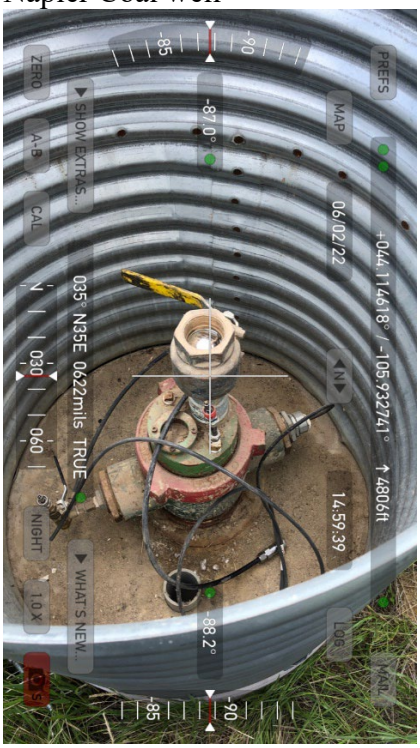
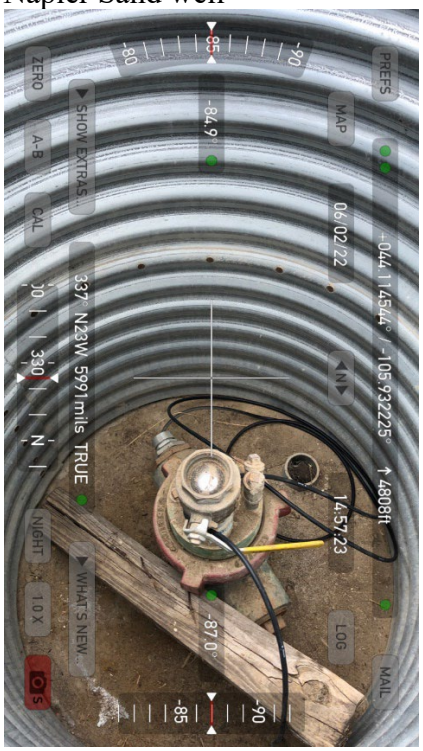
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Napier Coal well



Napier Sand well



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Skewed Location

Skewed well example

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Access for Skewed wells

Concrete and Steel posts need removed

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Sasquatch Access

Sasquatch Location

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Field Office: Buffalo Field Office (BFO)

Sasquatch well

Sasquatch Pit

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Sasquatch Outfall

Carr Draw Access

Carr Draw Location

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Carr Draw Big George Dual Completion

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Carr Draw Werner Dual Completion

Timar Stockwell Access

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Timar Wellhead

Timar Well

Coal Gulch Access

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Coal Gulch Location

BLM Monitoring Well Plugging SOW Phase III
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Field Office: Buffalo Field Office (BFO)

Coal Gulch Wellhead

Petrified Tree Access

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Field Office: Buffalo Field Office (BFO)

Petrified Tree Wellhead

Remington Access

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Field Office: Buffalo Field Office (BFO)

Remington Location

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Field Office: Buffalo Field Office (BFO)

Remington Wells

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Remington Power Drops

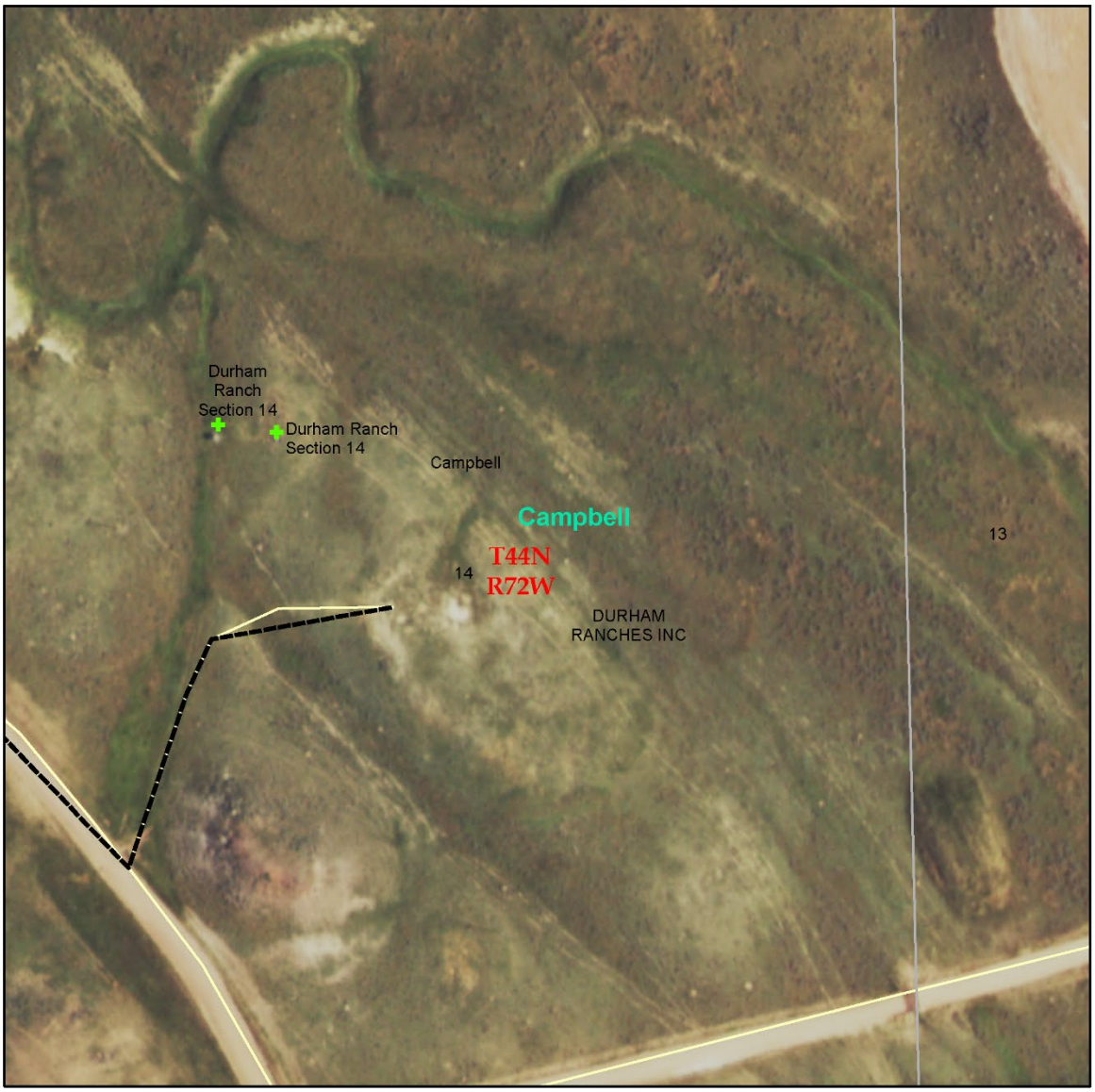
Appendix 2 Maps

Durham Ranch 14 MW Access Map

Legend

- Durham Ranch 14 Location
- Durham Ranch 14 Access

Durham Ranch 14 MW Location Map



Legend

- Durham Ranch 14 Location
- Durham Ranch 14 Access

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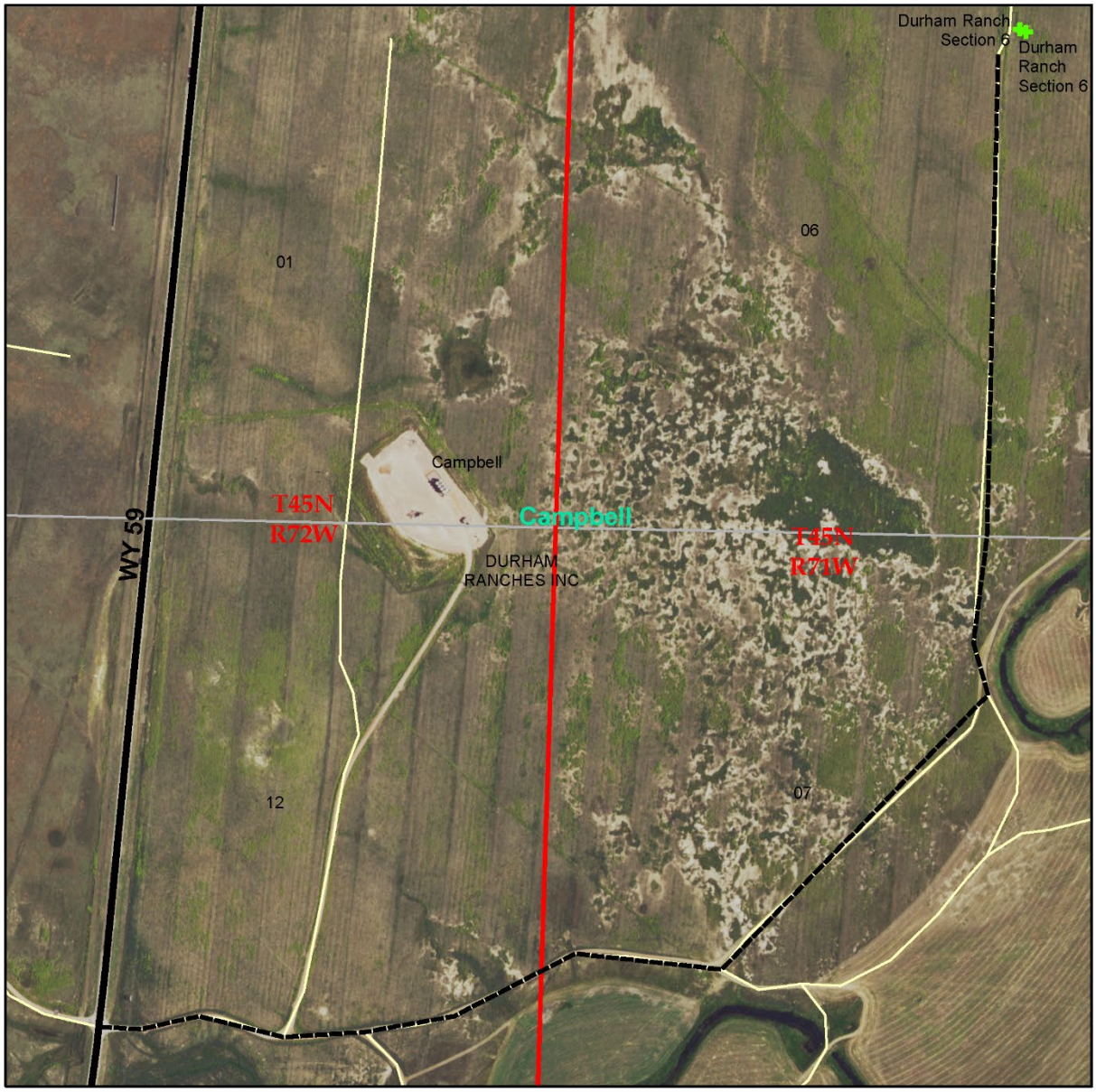
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Durahm Ranch 6 MW Access Map



Legend

- DurhamRanch6_Location
- DurhamRanchSec.6_Access

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Durahm Ranch 6 MW Location Map

Legend

- DurhamRanch6_Location
- DurhamRanchSec.6_Access

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
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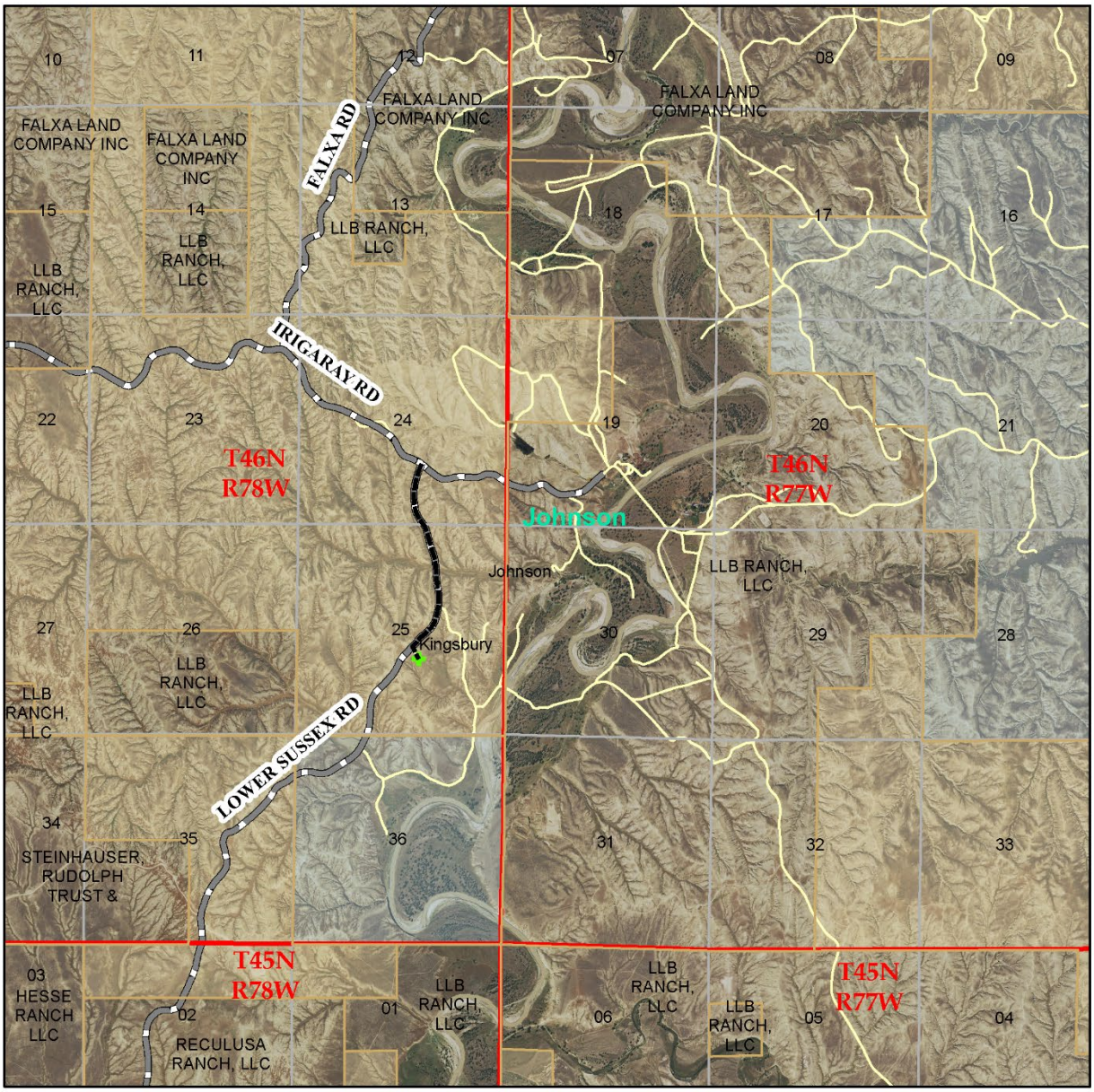
Kingsbury MW Access Map



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- KingsburyMWLocation
- KingsburyAccessMW

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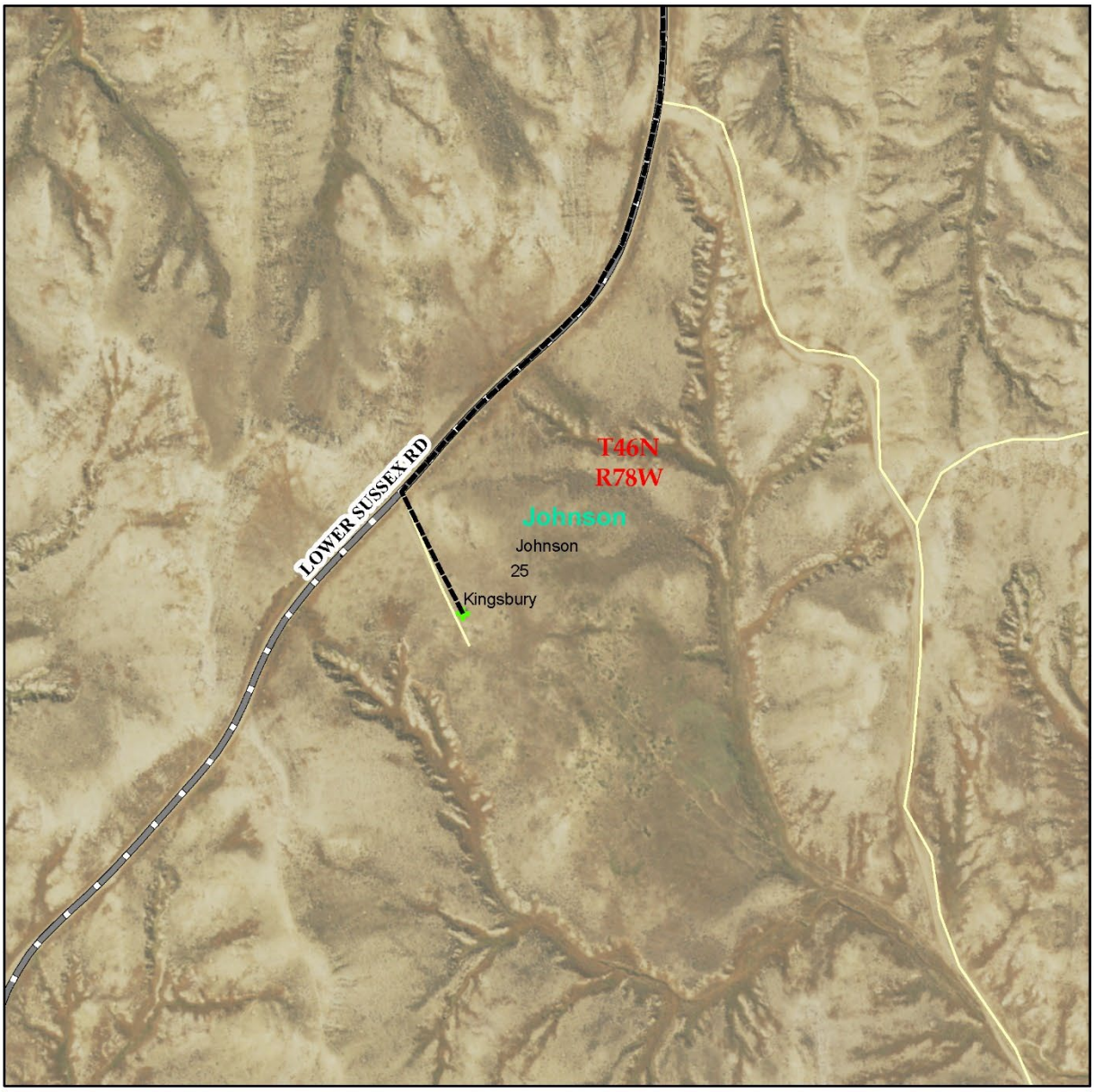
BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Kingsbury MW Location Map

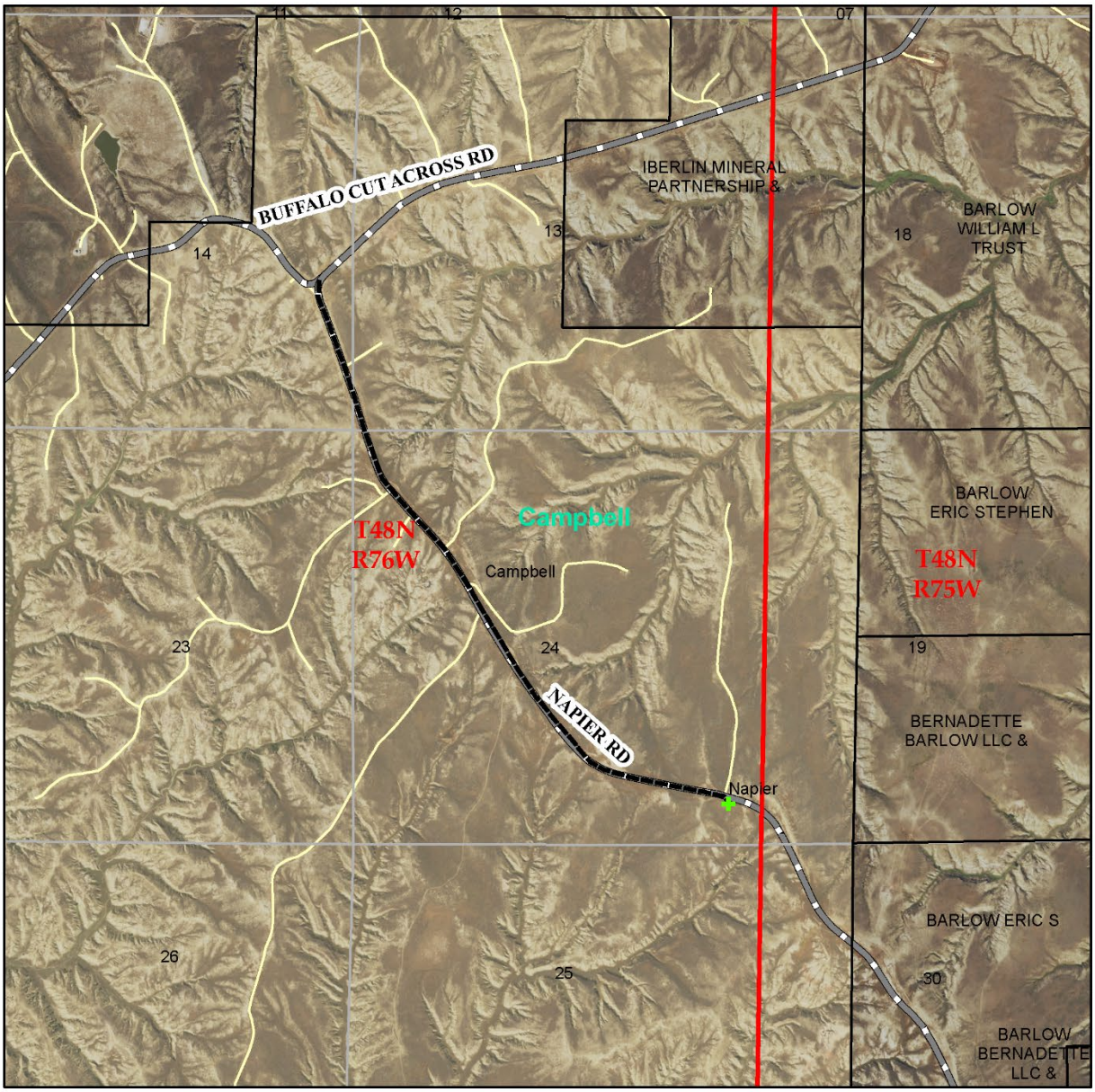


Legend

- KingsburyMWLocation
- KingsburyAccessMW

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Napier MW Access Map



Legend

- NapierMWLocation
- Napier_MW_Access

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Napier MW Location Map

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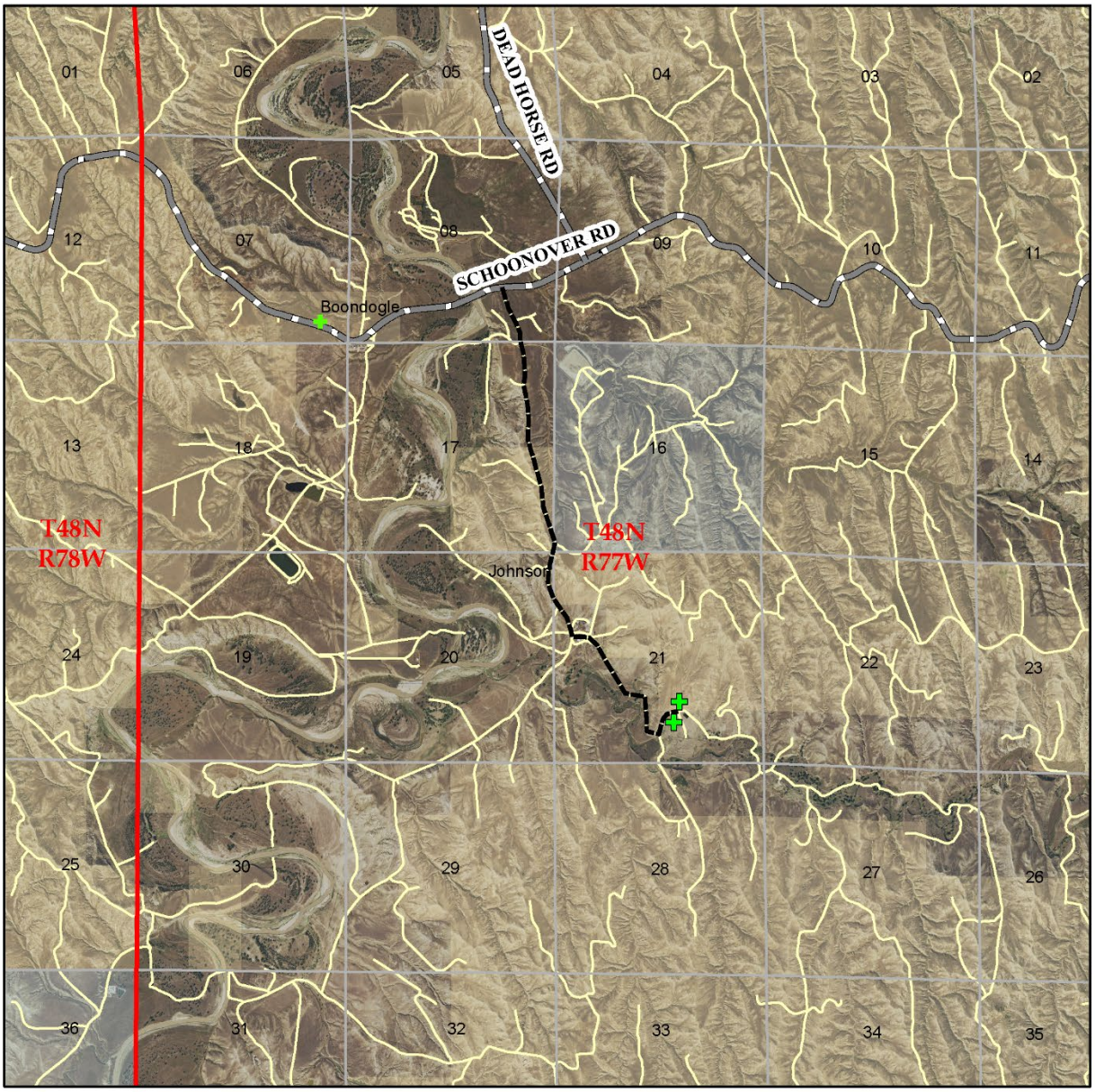
- NapierMWLocation
- Napier_MW_Access

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Skewed MW Access Map



Legend

- Skewed MWs
- SkewedMW_Access

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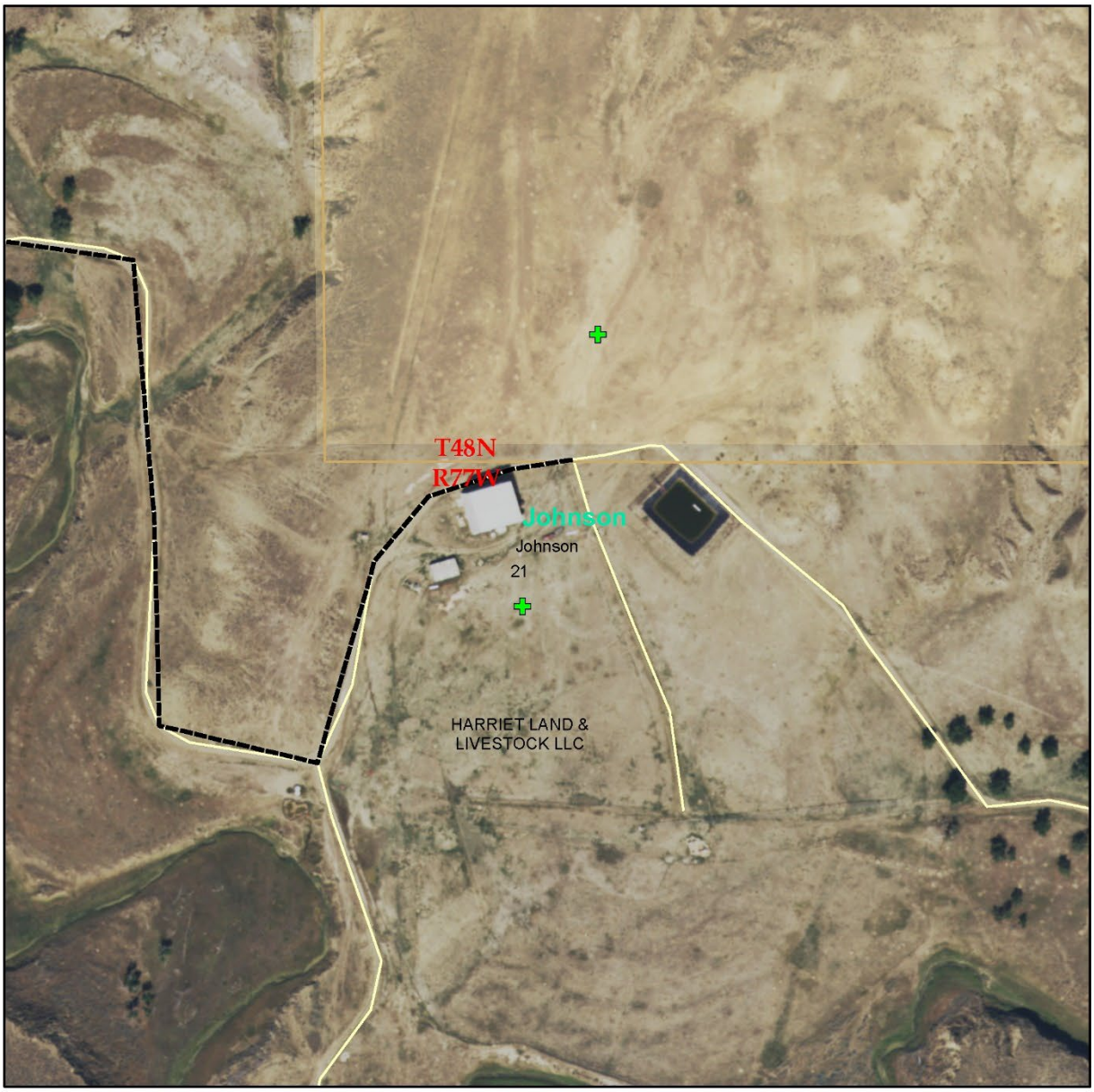
Skewed MW Location Map

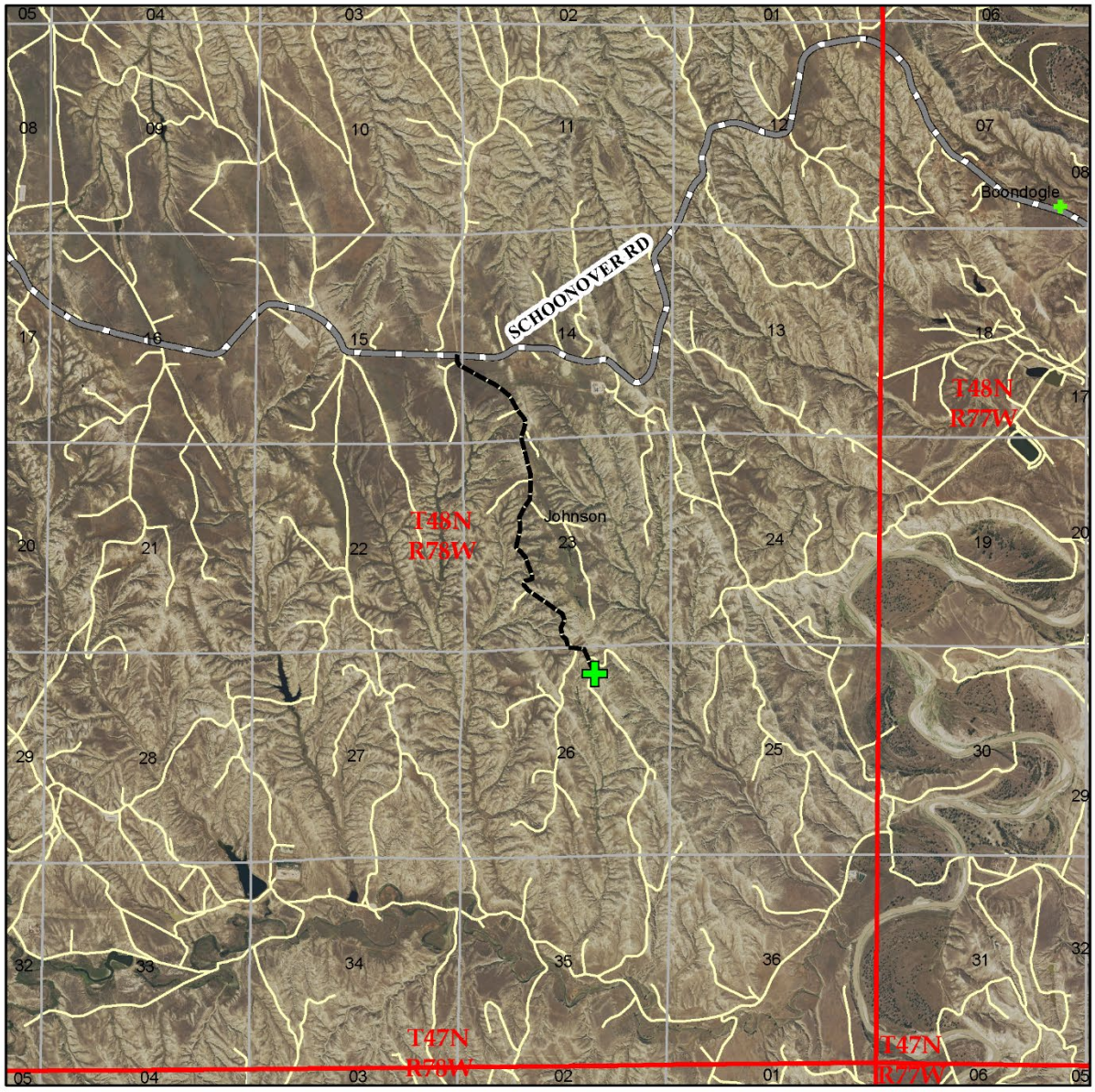


Legend

- Skewed MWs
- SkewedMW_Access

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Sasquatch MW Access Map



Legend

- Existing monitoring wells
- SasquatchMW_Access

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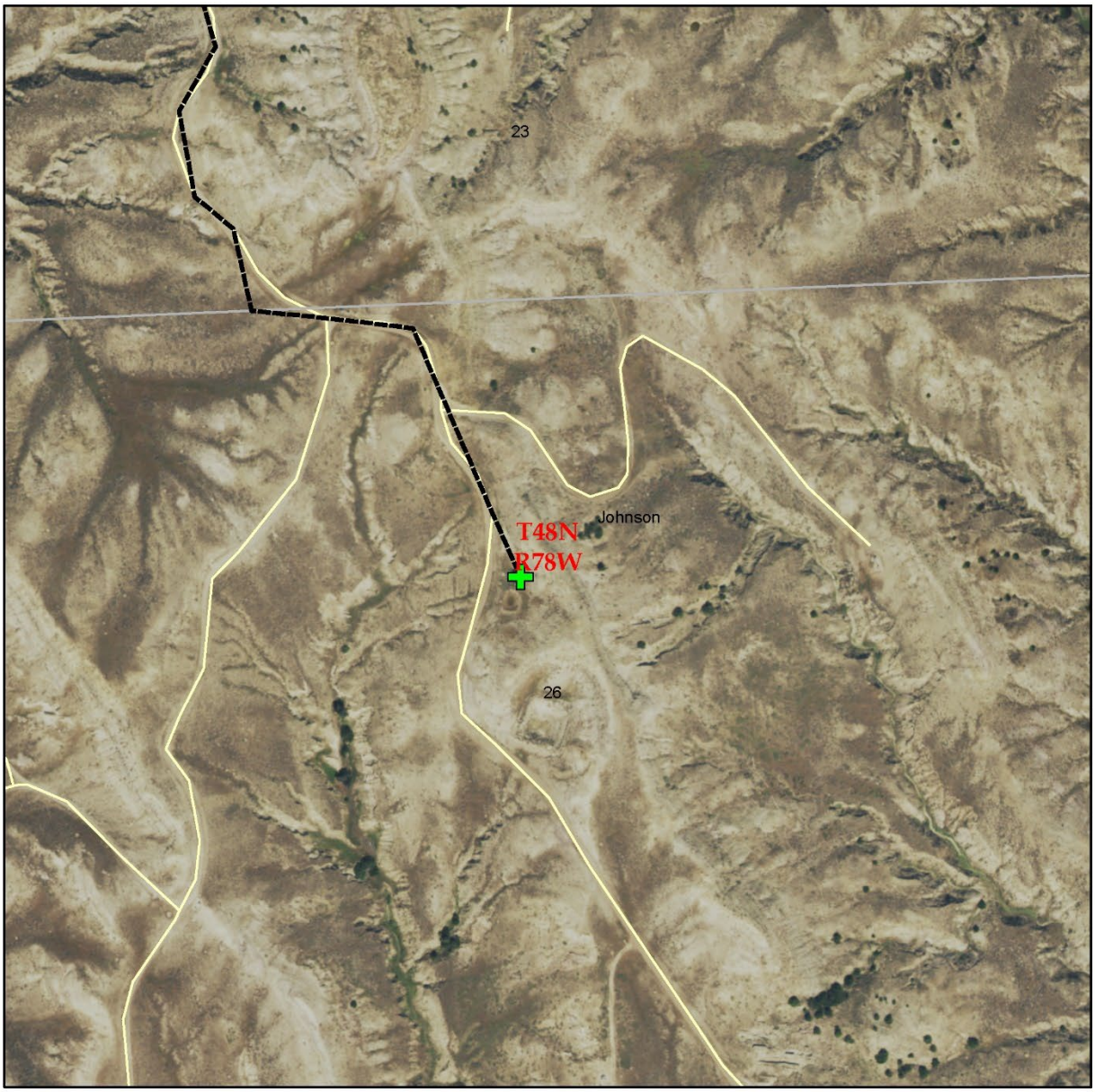
BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Sasquatch MW Location Map



Legend

- Existing monitoring wells
- SasquatchMW_Access

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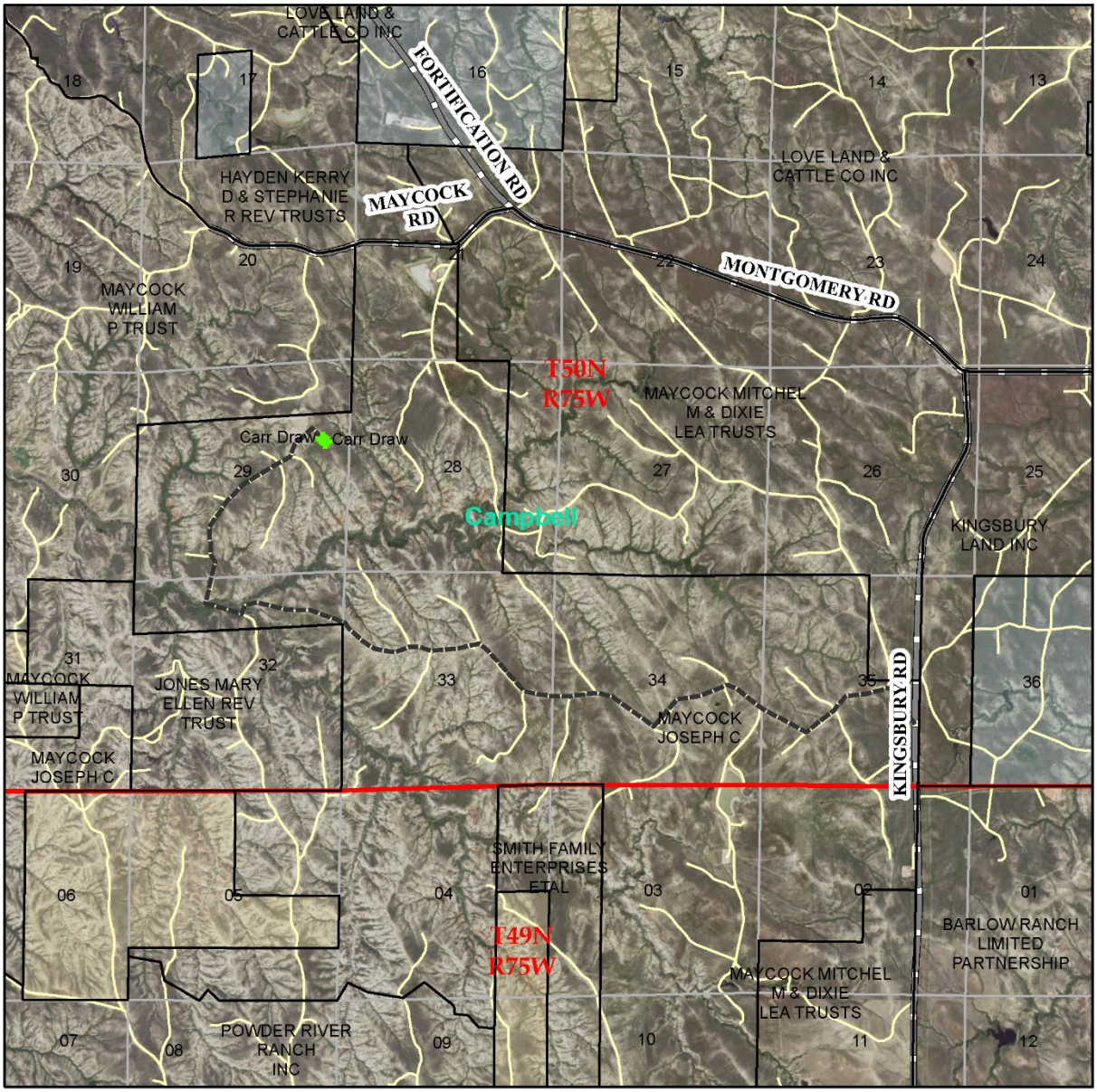
BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Carr Draw MW Access Map



Legend

- Existing monitoring wells
- CarrDraw_MW_Access

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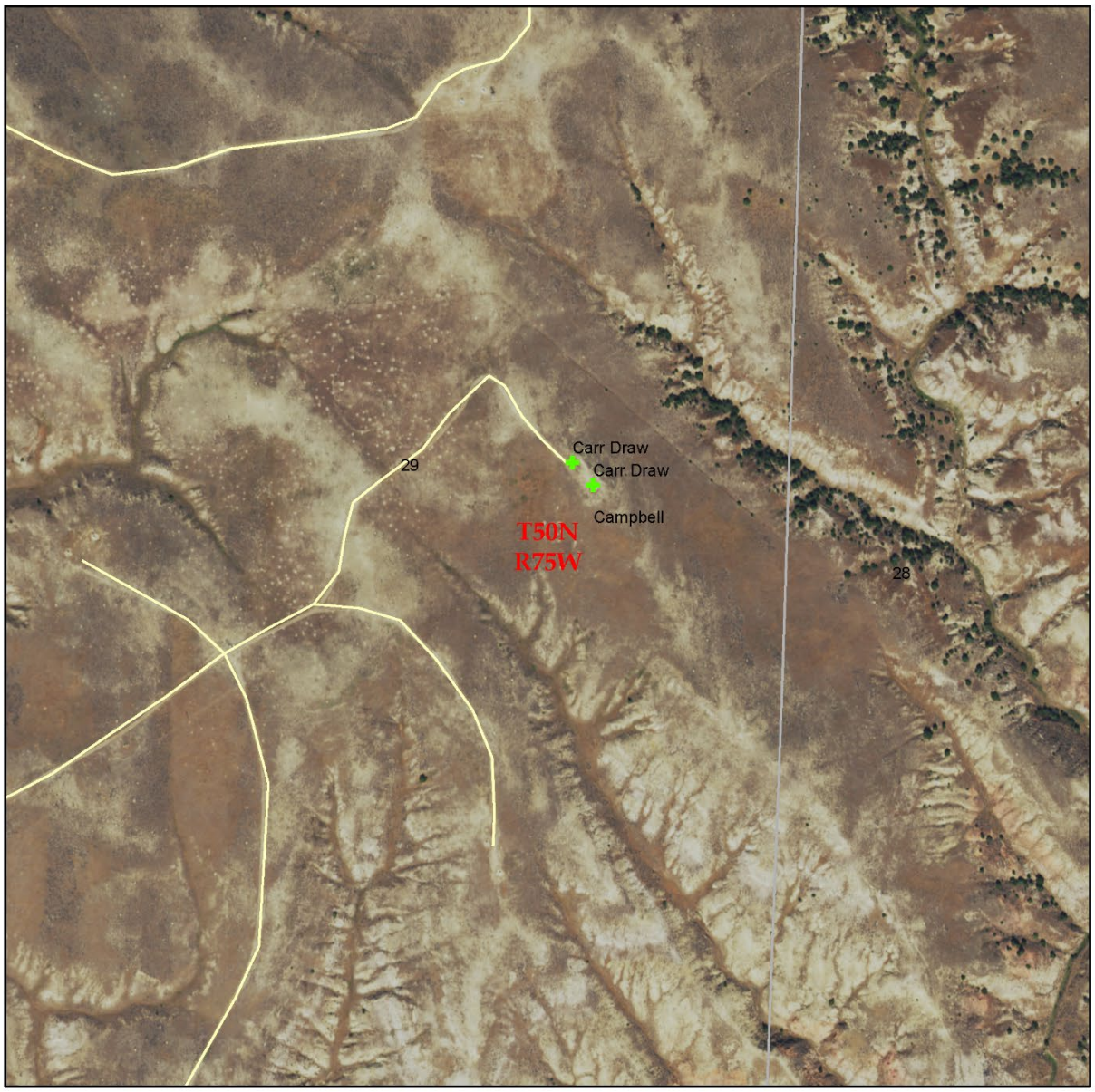
Carr Draw MW Location Map

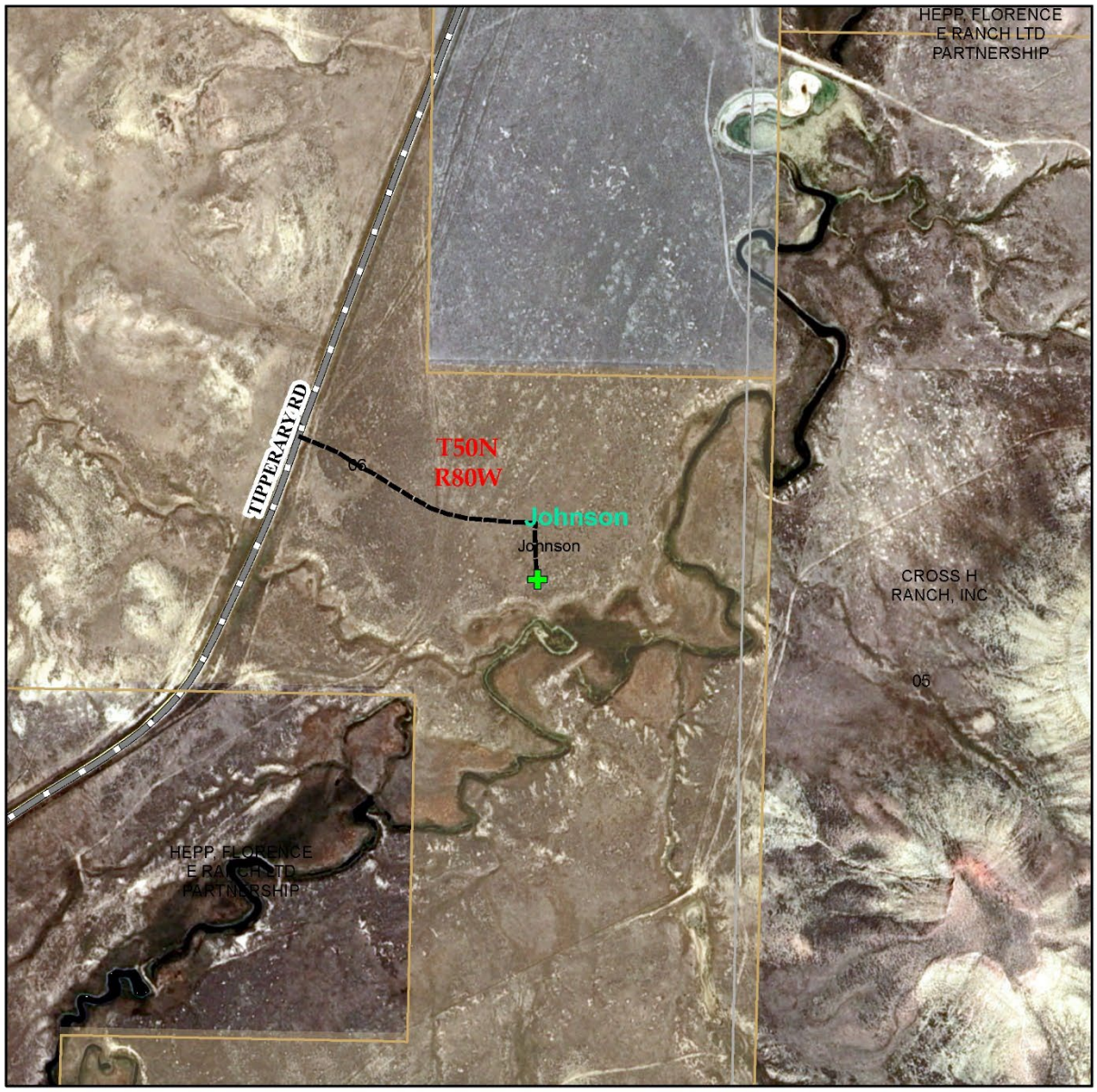


Legend

✚ Existing monitoring wells

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Timar MW Access Map

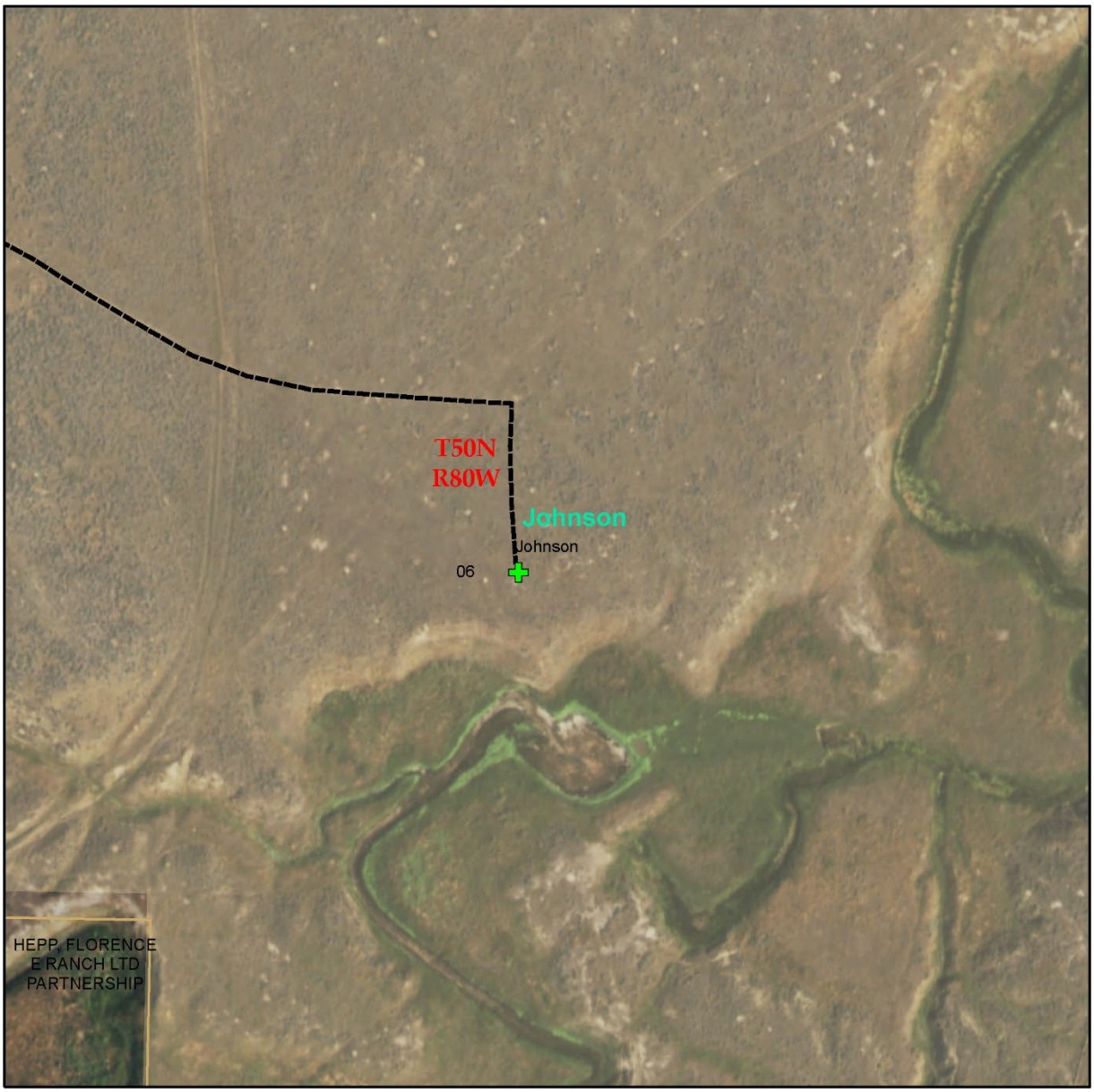


Legend

- TimarStockWellLocation
- TimarStockWellAccess

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Timar MW Location Map

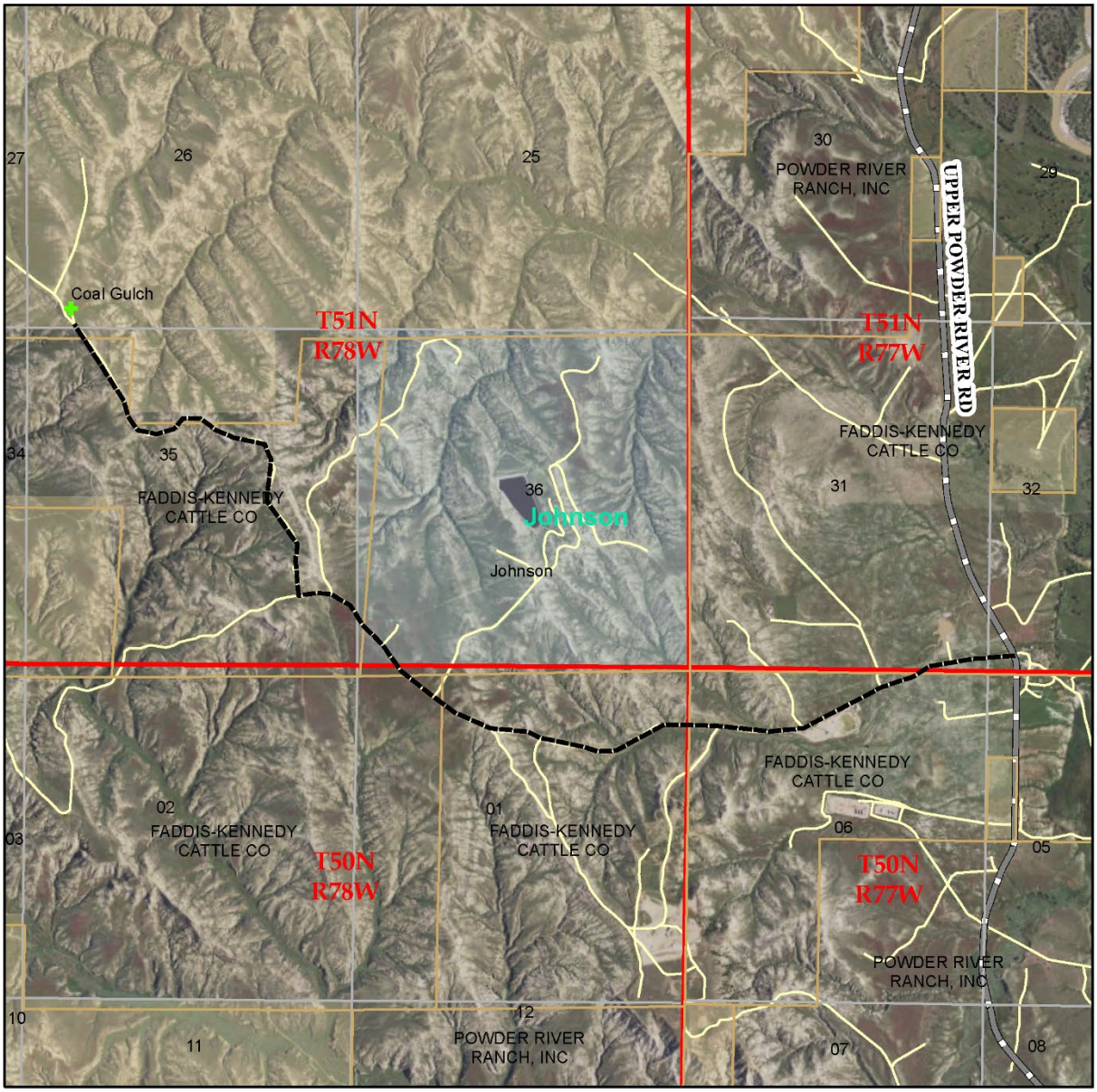


Legend

- TimarStockWellLocation
- TimarStockWellAccess

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Coal Gulch MW Access Map



Legend

- CoalGulchMWLocation
- CoalGulch_MW_Access

Coal Gulch MW Location Map

Legend

- CoalGulchMWLocation
- CoalGulch_MW_Access

Petrified Tree MW Access Map

Legend

- Existing monitoring wells
- PetrifiedTree_MW_Access

BLM Monitoring Well Plugging SOW Phase III
Bureau of Land Management, High Plains District, Wyoming
Field Office: Buffalo Field Office (BFO)

Petrified Tree MW Location Map

Legend

✚ Existing monitoring wells

N
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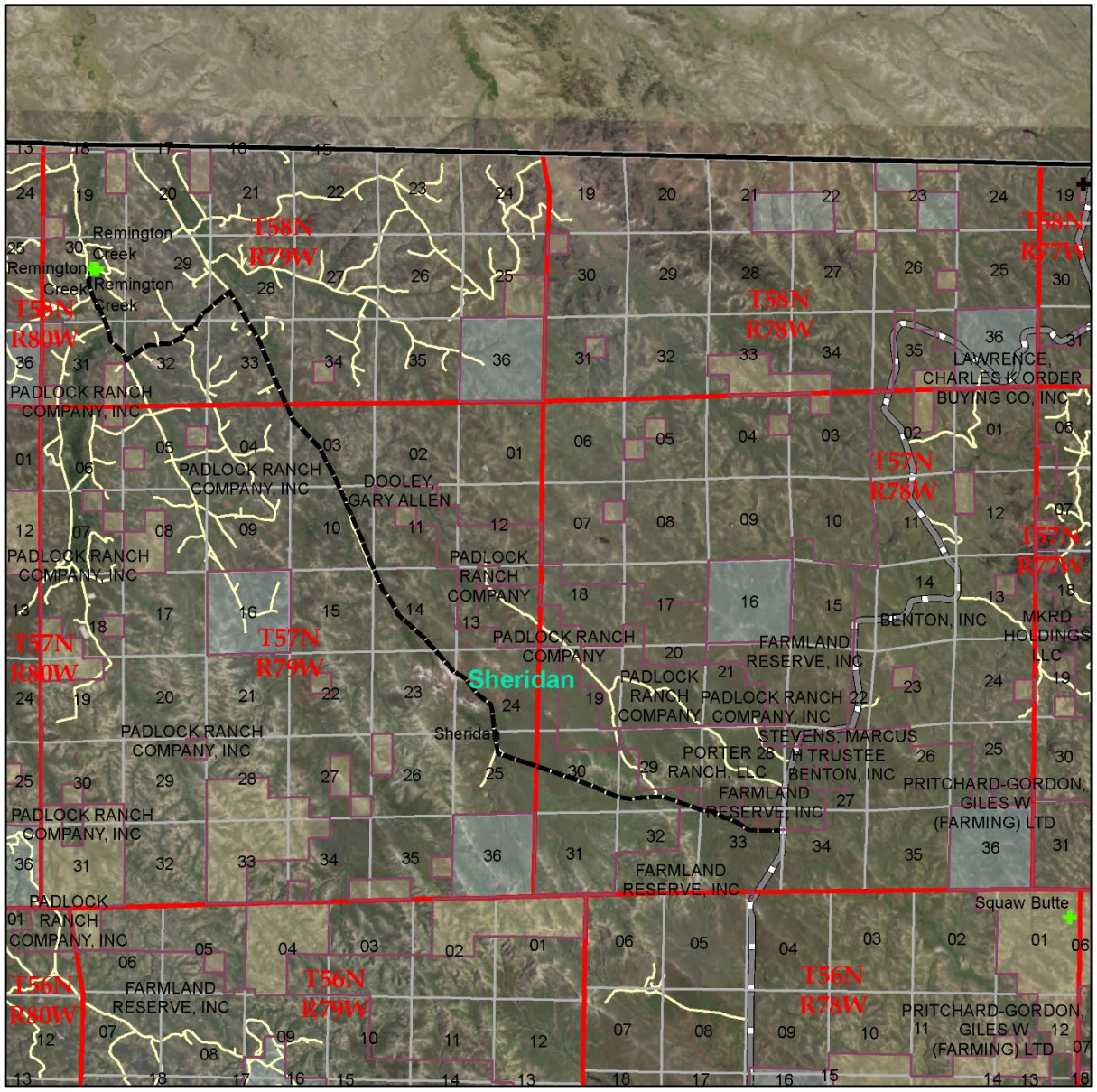
S

Remmington MW Access Map



Legend

- RemmingtonMWLocation
- Remington_MW_Access

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Remmington MW Location Map

Legend

- RemmingtonMWLocation
- Remington_MW_Access

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