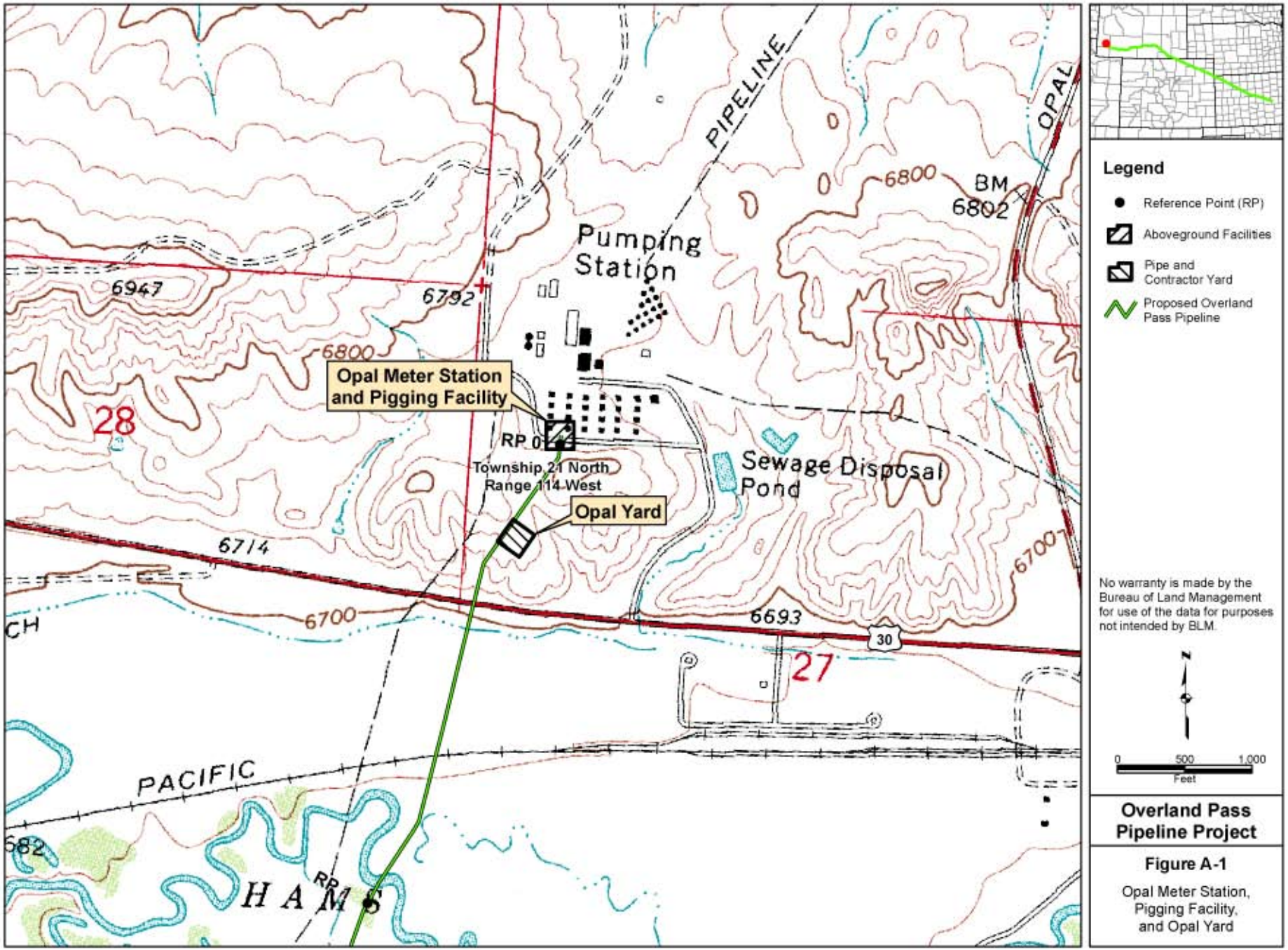
Appendix A

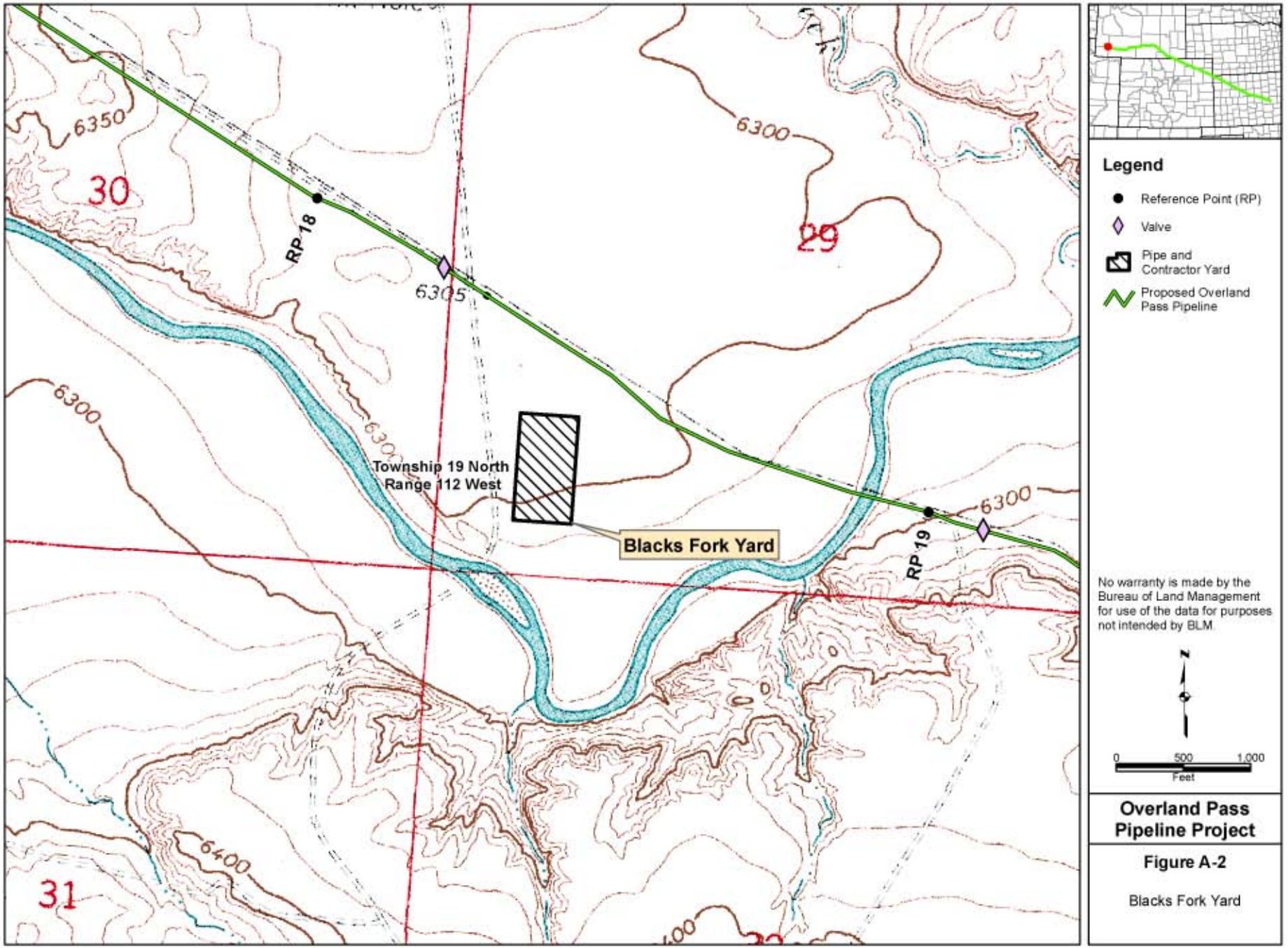
Site-specific Maps for Aboveground Facilities

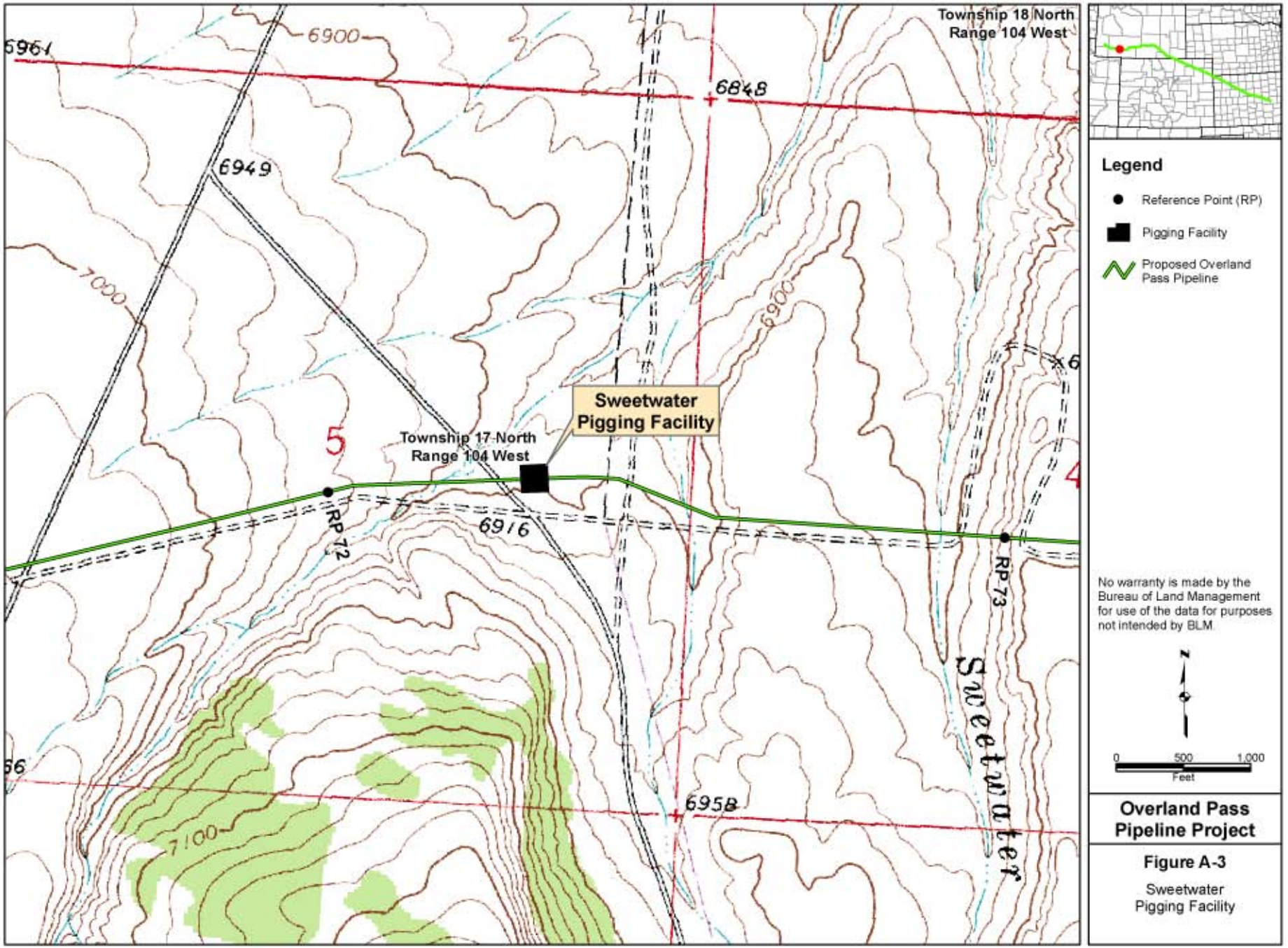


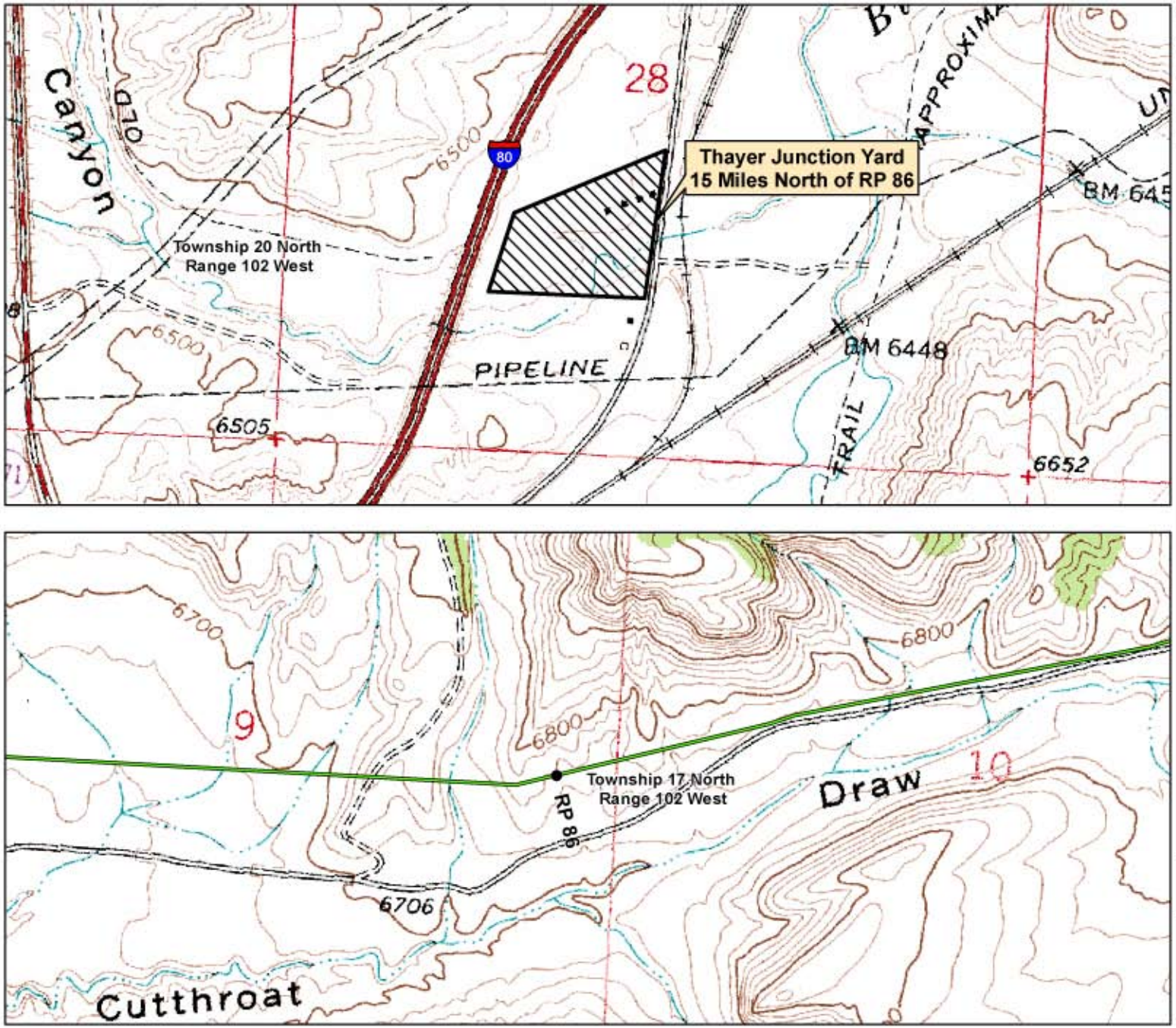
Overland Pass Pipeline Project

Figure A-1

Opal Meter Station, Pigging Facility, and Opal Yard


6350
30
6300
29
RP 18
6305
6300
6300
Township 19 North
Range 112 West
Blacks Fork Yard
6300
RP 19
6400
31
Legend
Reference Point (RP)
Valve
Pipe and Contractor Yard
Proposed Overland Pass Pipeline
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.
N
0
500
1,000
Feet
Overland Pass Pipeline Project
Figure A-2
Blacks Fork Yard


Township 18 North
Range 104 West
6961
6900
6848
6949
7000
6900
Sweetwater
Pigging Facility
Township 17 North
Range 104 West
5
4
RP 72
6916
RP 73
Sweetwater
7100
6958
Legend
Reference Point (RP)
Pigging Facility
Proposed Overland
Pass Pipeline
No warranty is made by the
Bureau of Land Management
for use of the data for purposes
not intended by BLM.
N
0
500
1,000
Feet
Overland Pass
Pipeline Project
Figure A-3
Sweetwater
Pigging Facility



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

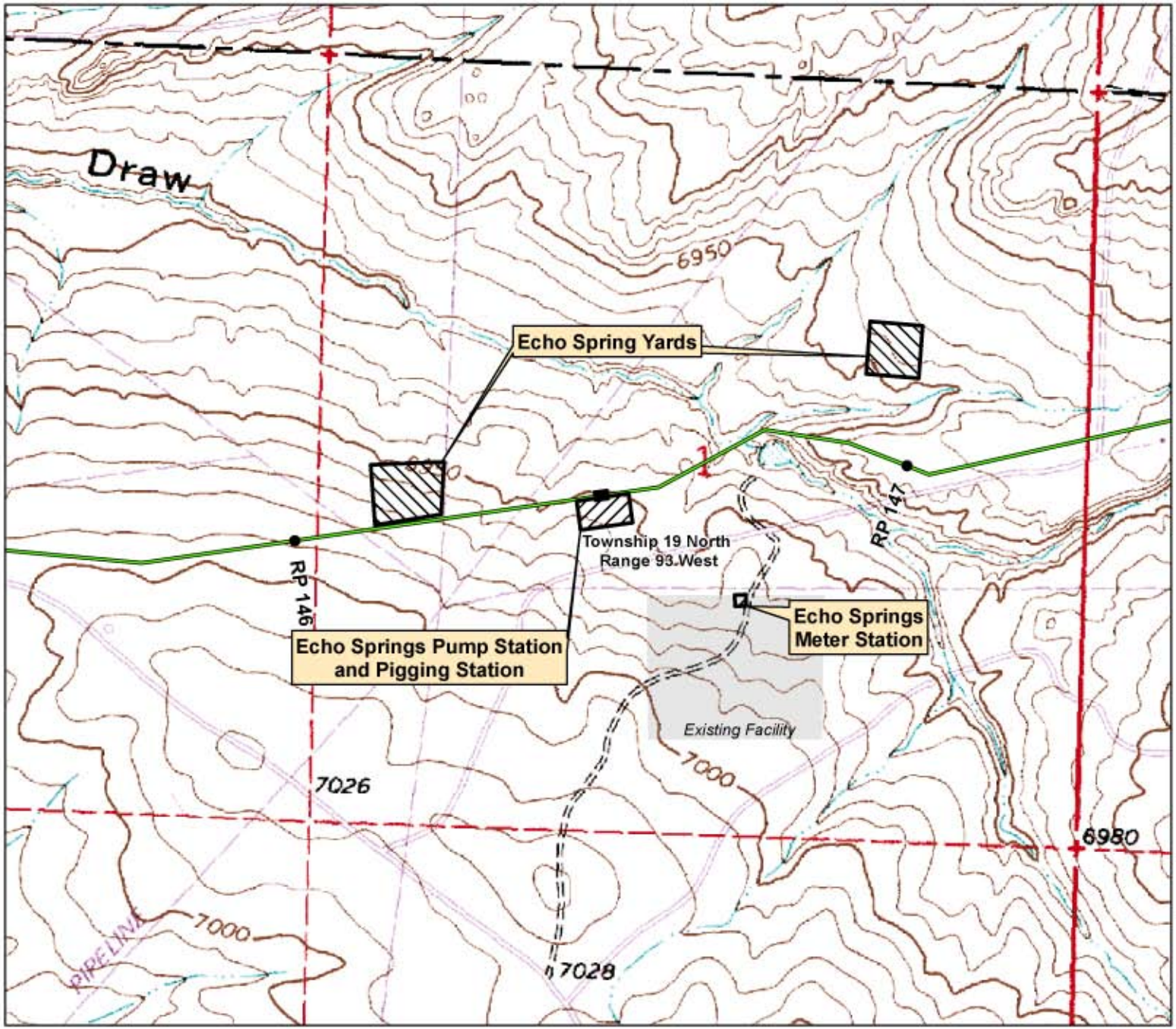
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-4

Thayer Junction Yard



Legend

- Reference Point (RP)
- Aboveground Facilities
- Pipe and Contractor Yard
- Pigging Facility
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

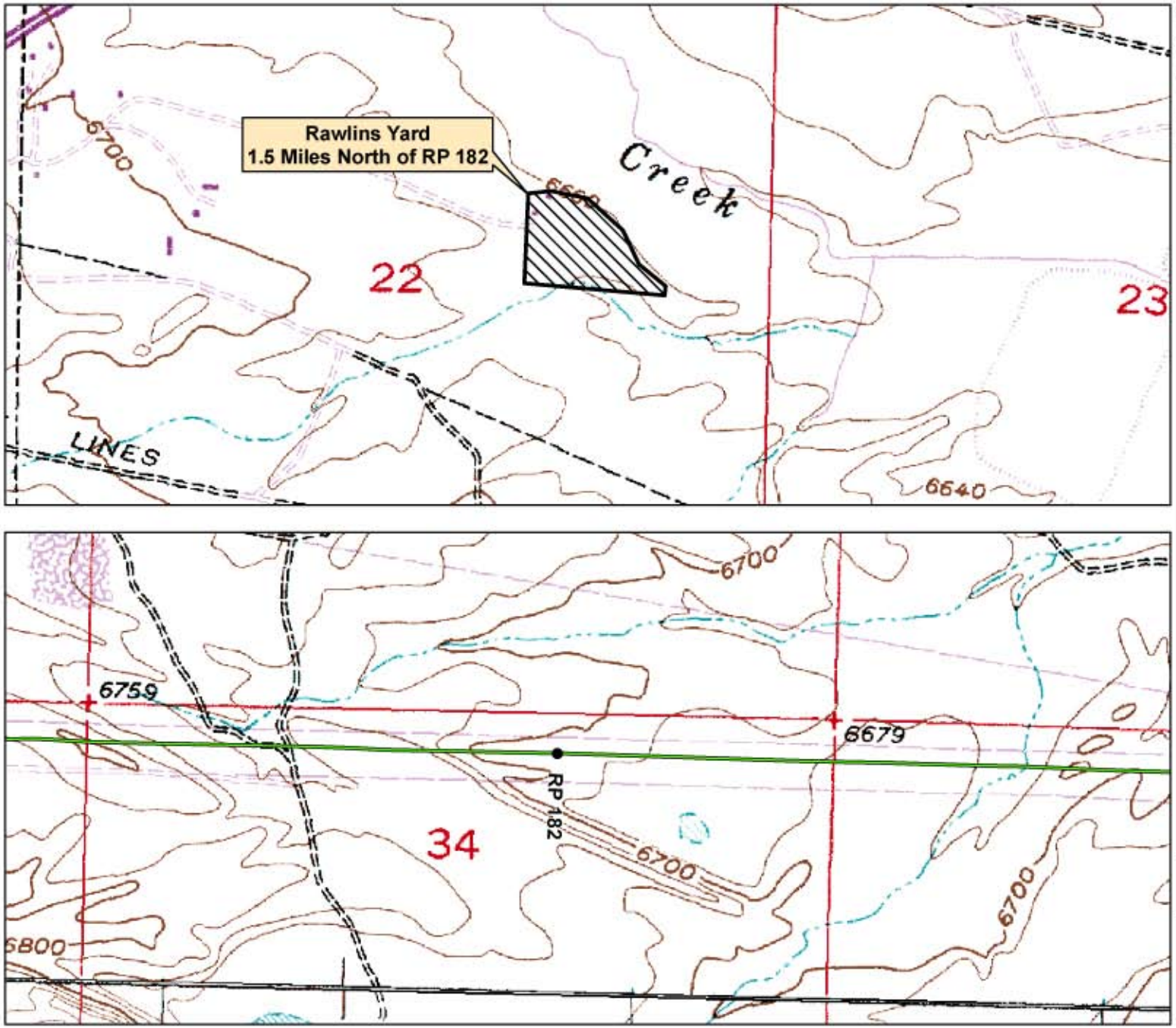
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-5

Echo Springs Pump Station, Meter Station, and Pigging Facility



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

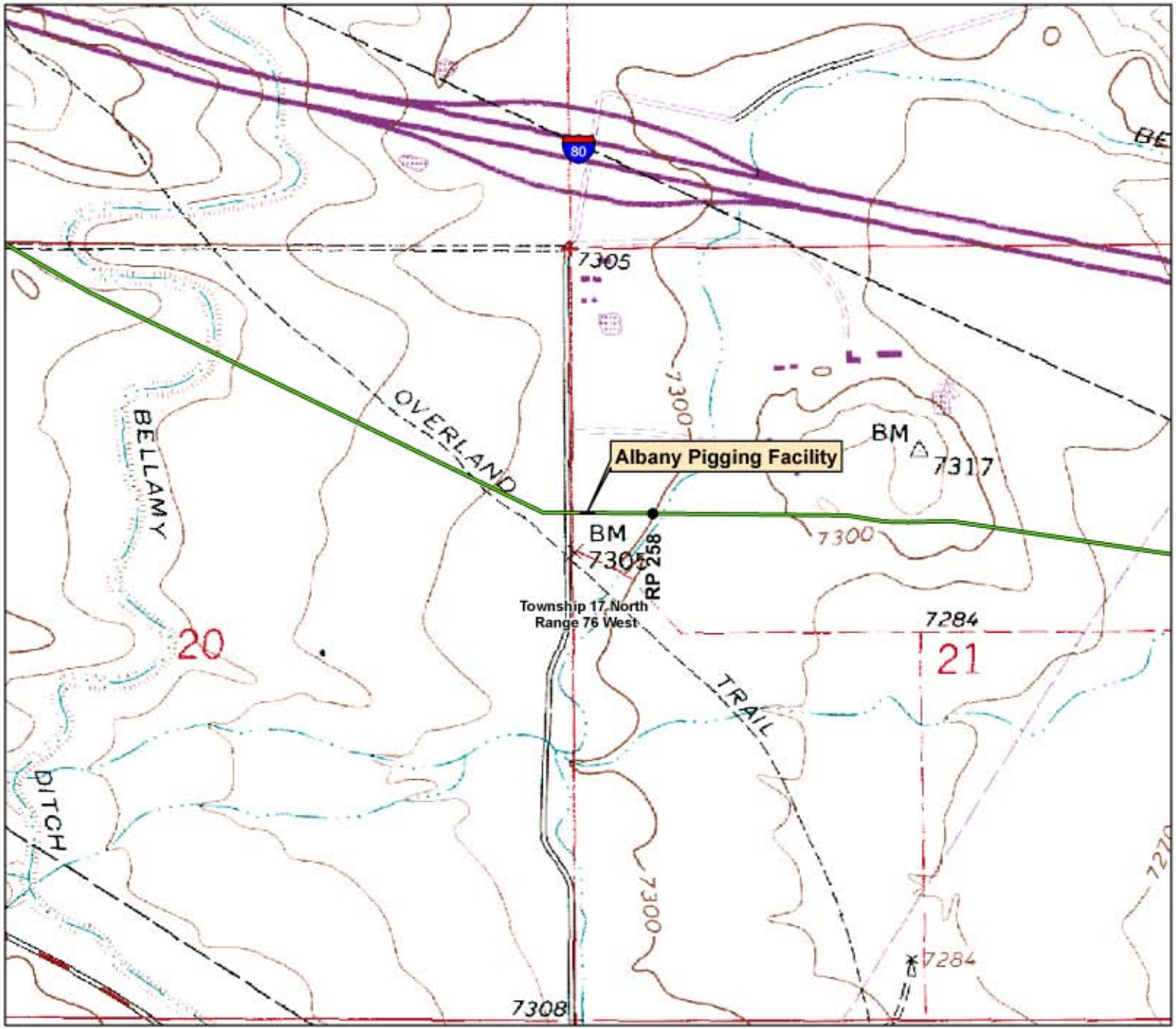
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-6

Rawlins Yard



Legend

- Reference Point (RP)
- Pigging Facility
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

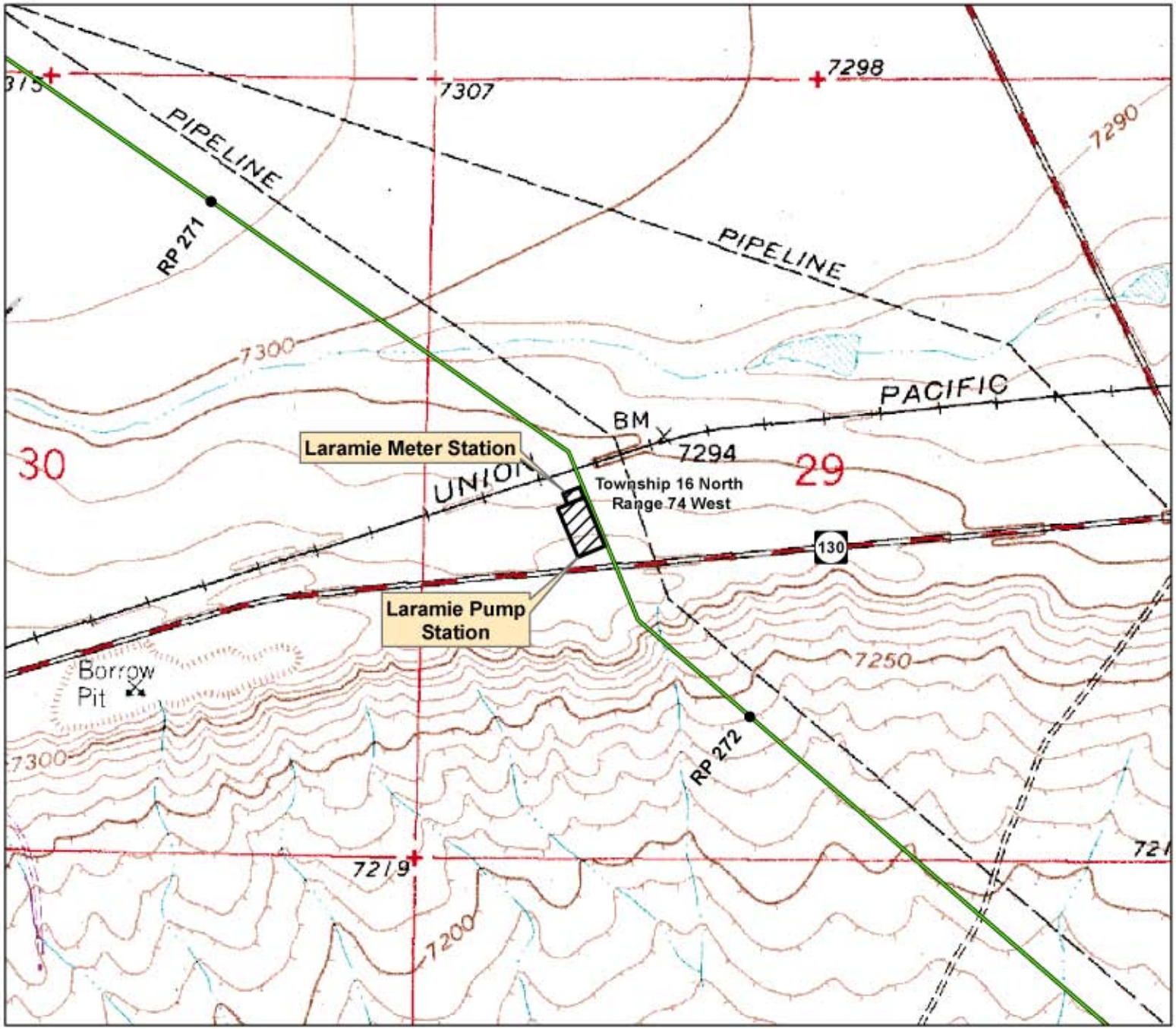
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-7

Albany
Pigging Facility



Legend

- Reference Point (RP)
- Aboveground Facilities
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

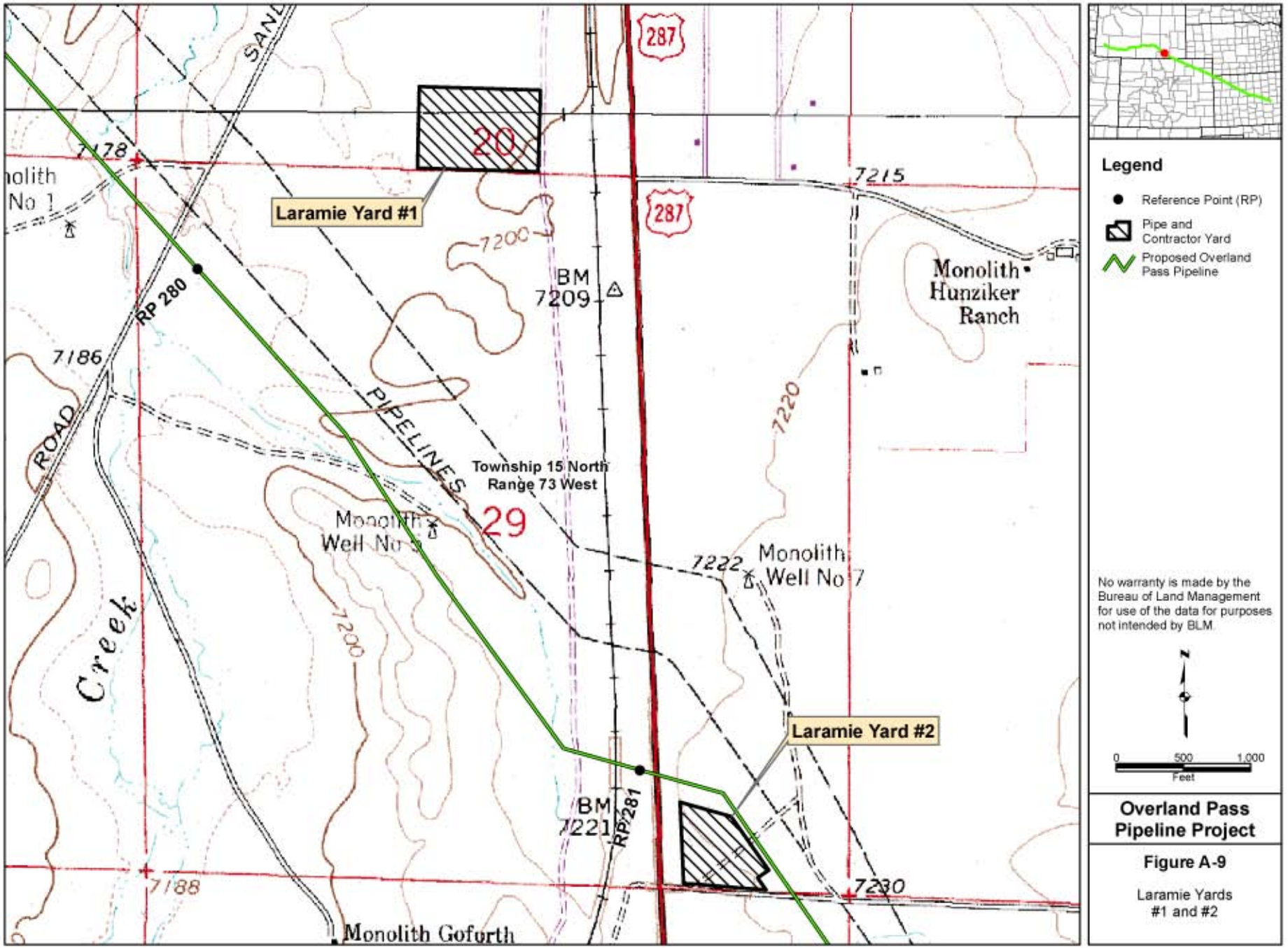
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-8

Laramie Pump Station and Meter Station



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

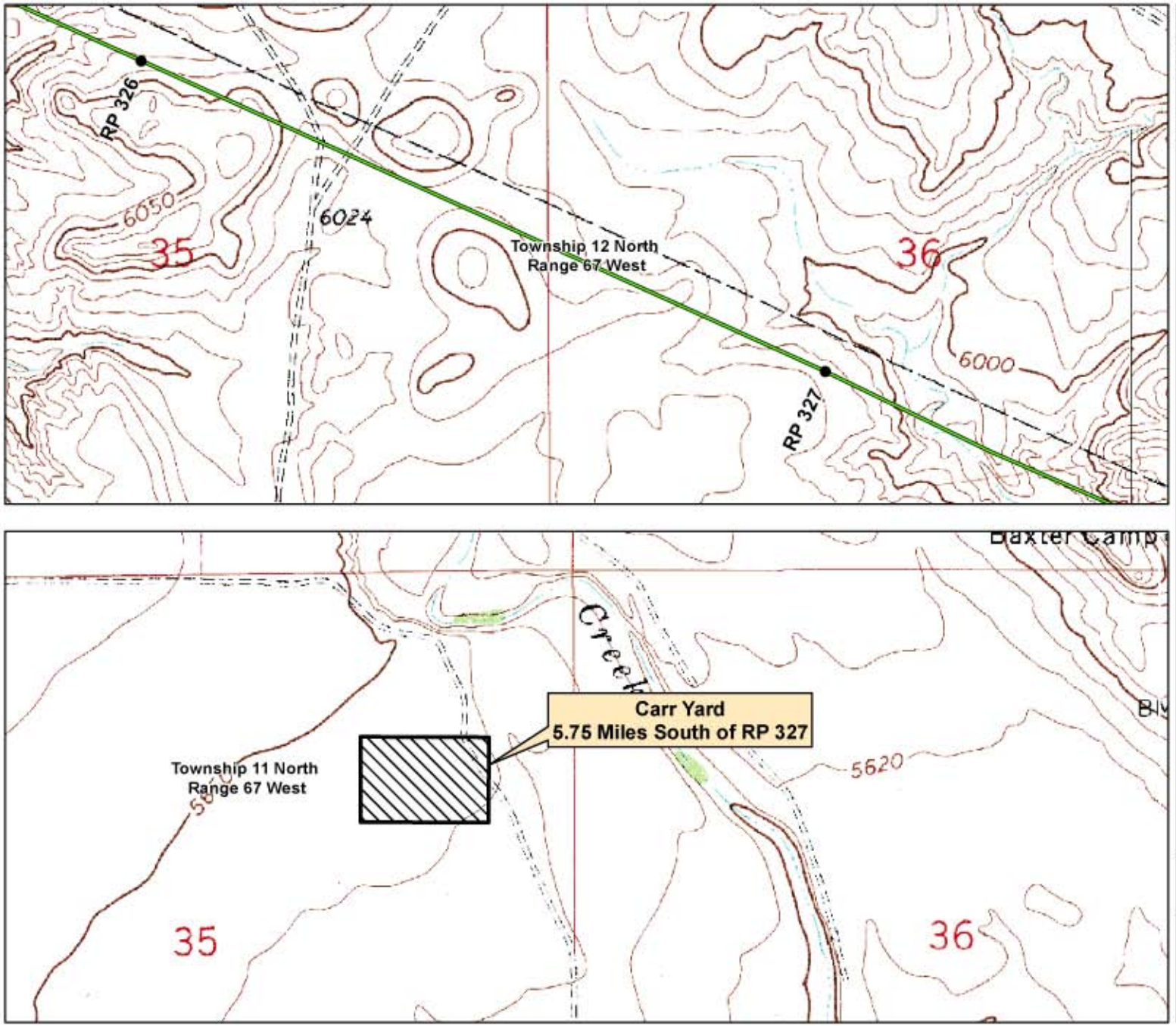
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-9

Laramie Yards
#1 and #2



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

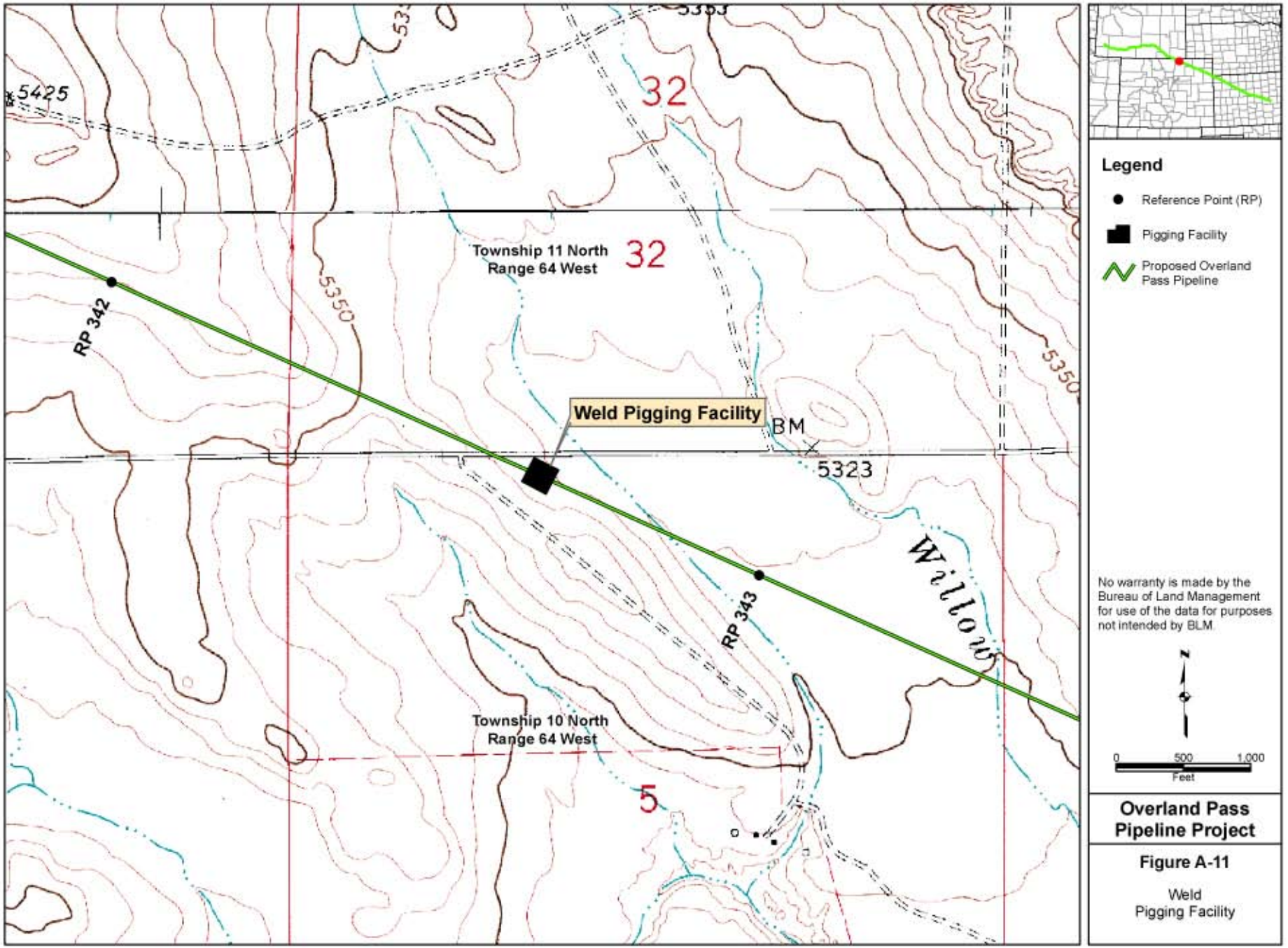
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

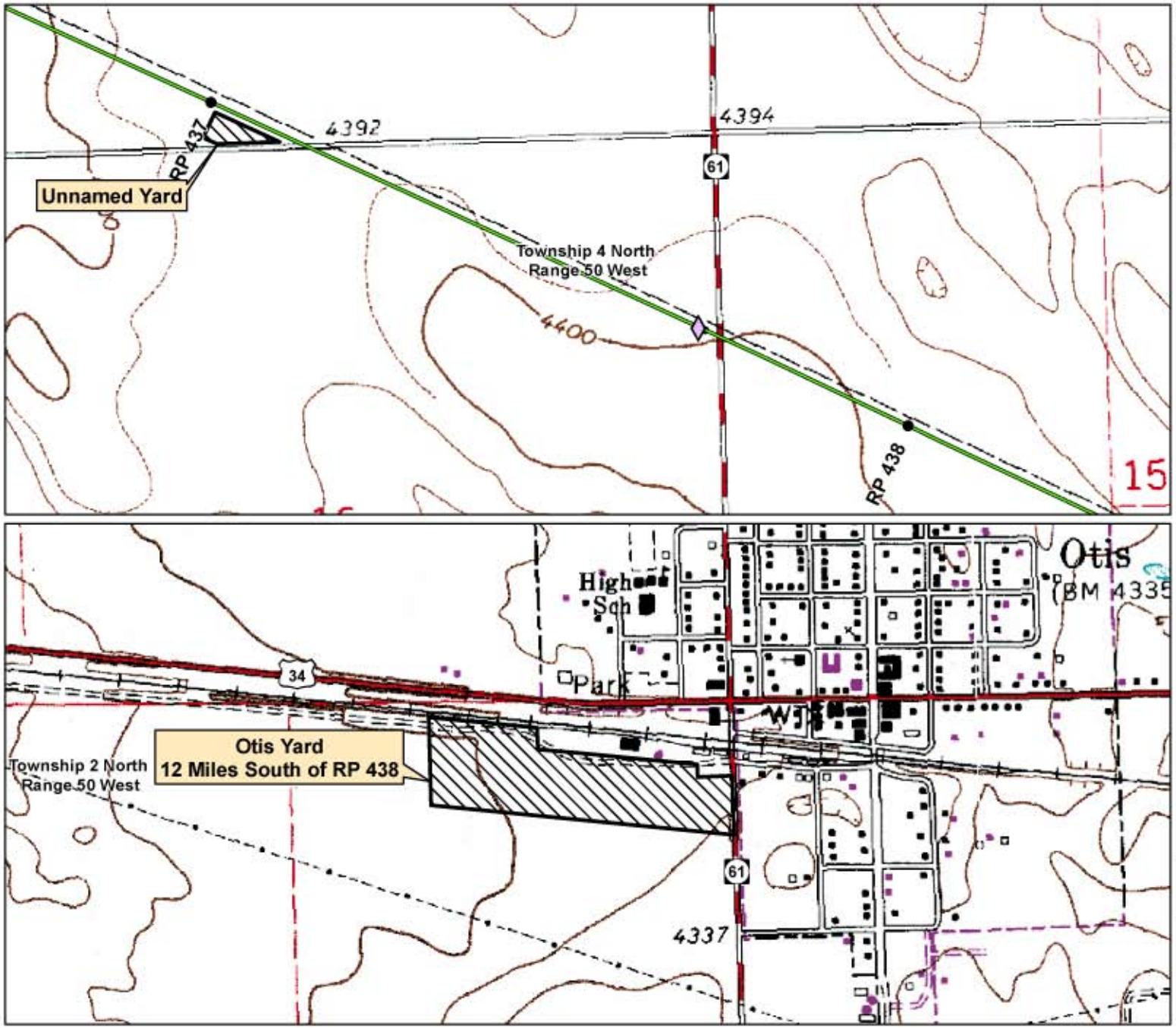
0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-10

Carr Yard


5425
32
Township 11 North
Range 64 West
32
5350
RP 342
Weld Pigging Facility
BM
5323
5350
RP 343
Willow
Township 10 North
Range 64 West
5
Legend
Reference Point (RP)
Pigging Facility
Proposed Overland Pass Pipeline
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.
N
0
500
1,000
Feet
Overland Pass Pipeline Project
Figure A-11
Weld
Pigging Facility



Legend

- Reference Point (RP)
- Valve
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

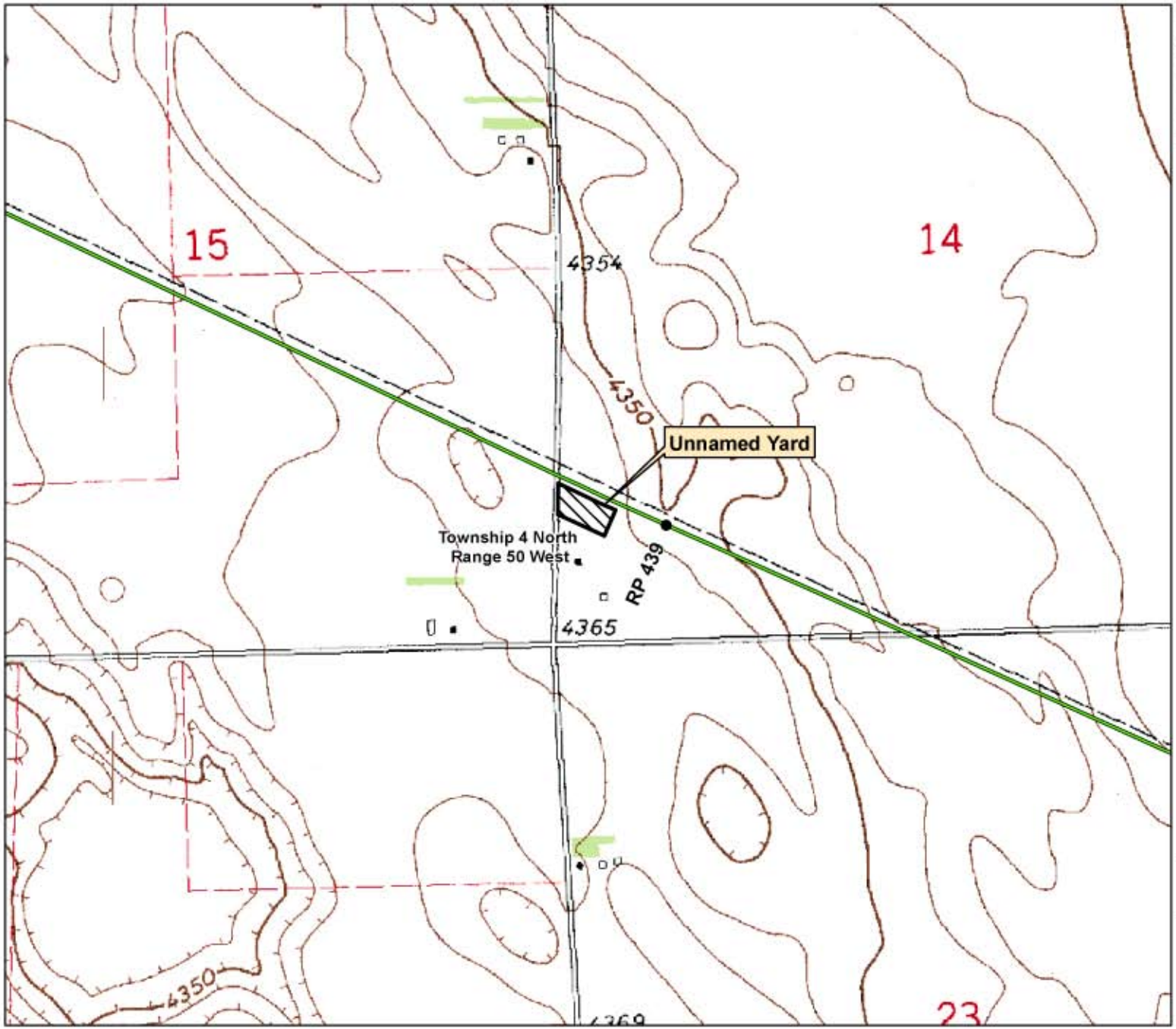
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-12

Unnamed and Otis Yards



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

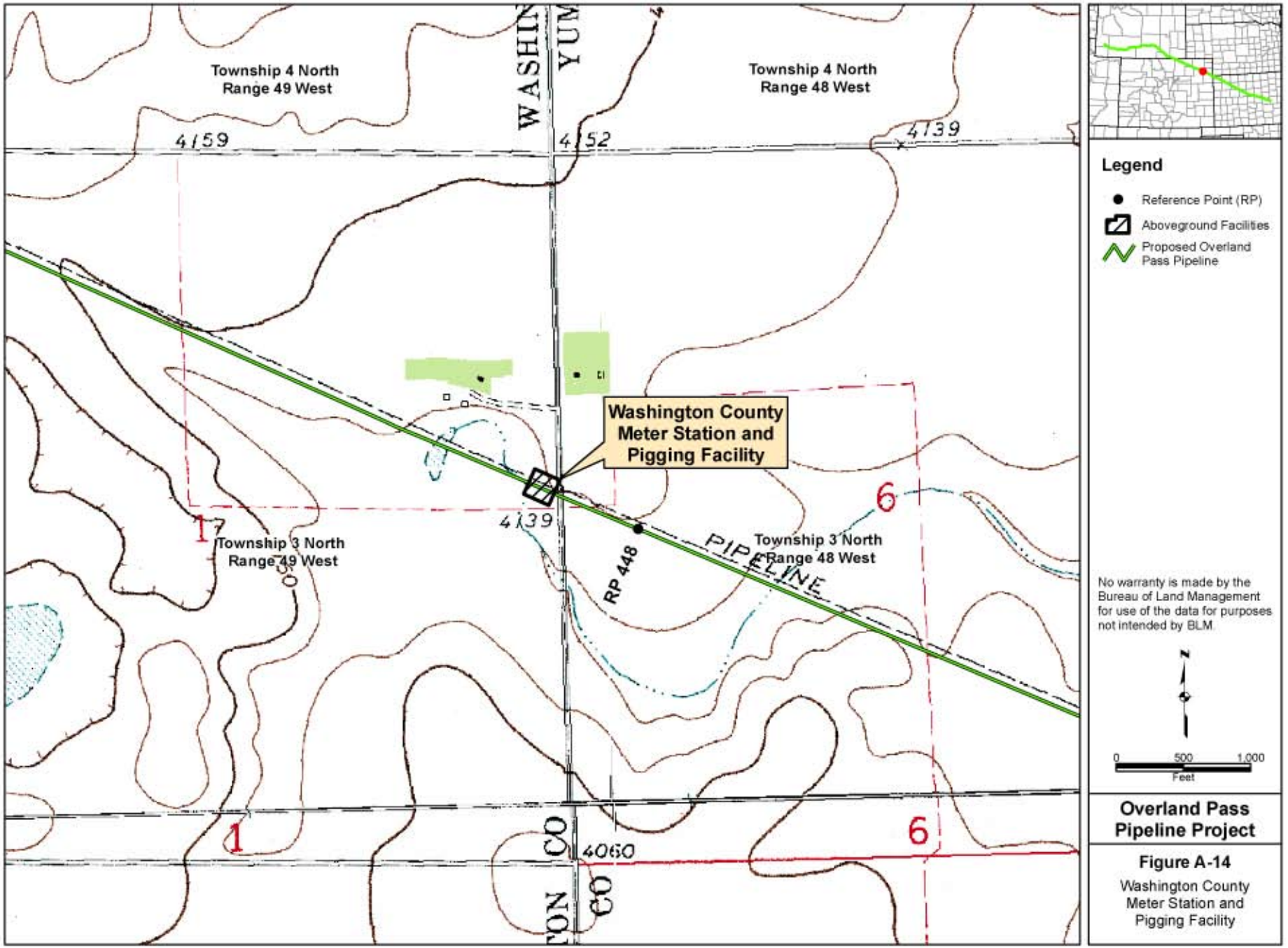
N

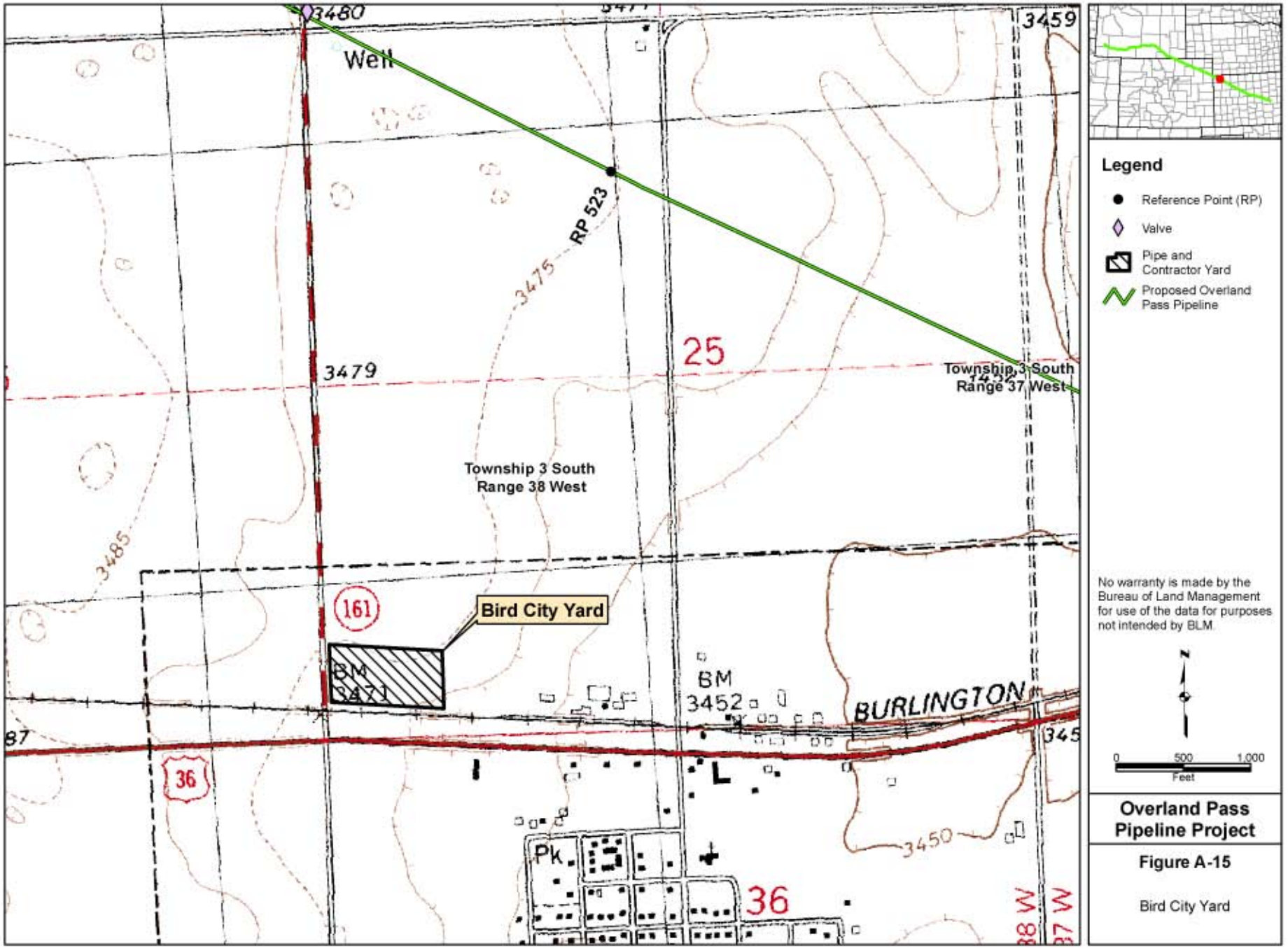
0 500 1,000
Feet

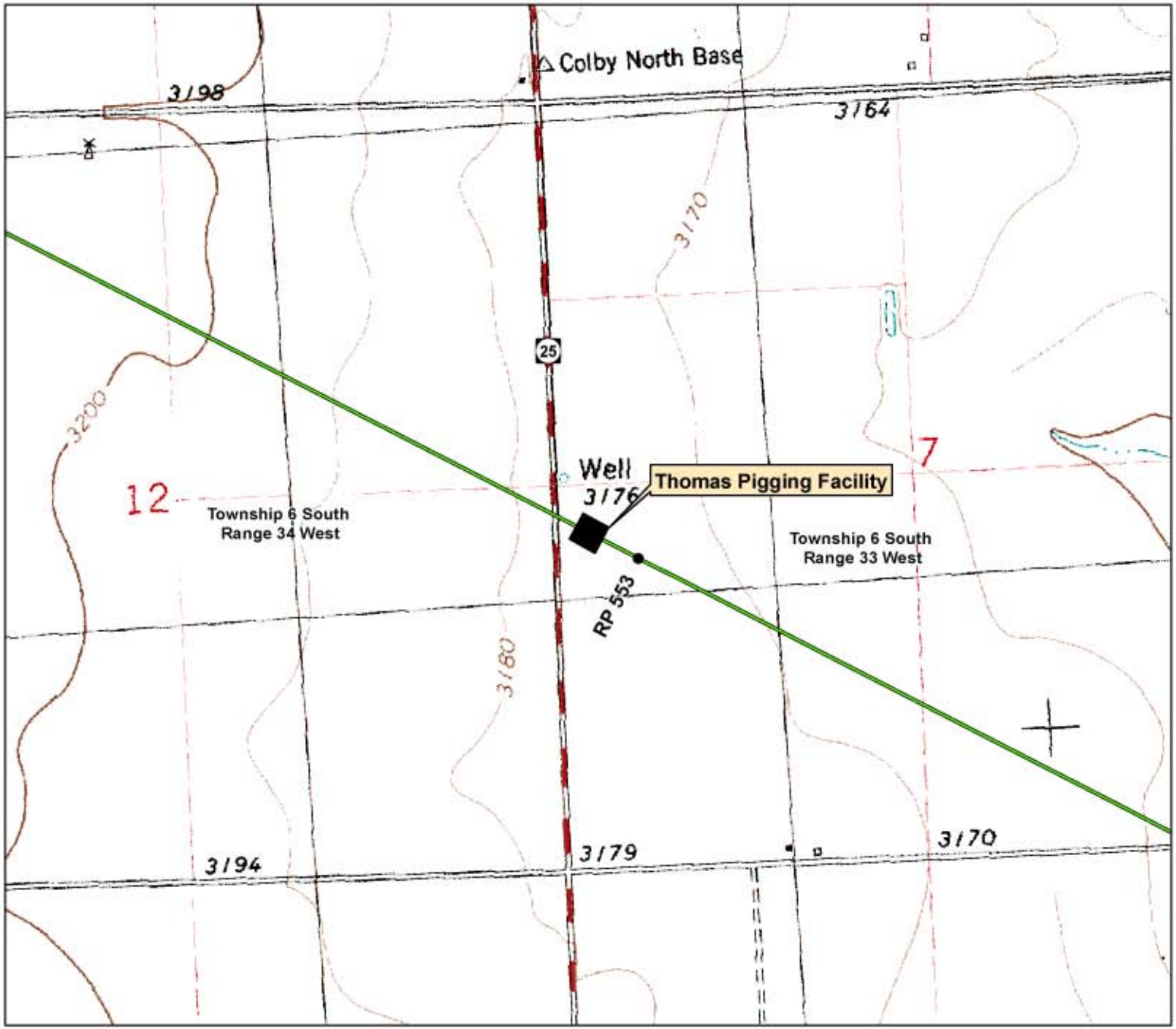
Overland Pass Pipeline Project

Figure A-13

Unnamed Yard


Township 4 North
Range 49 West
Township 4 North
Range 48 West
4159
4152
4139
WASHIN
YUM
Washington County
Meter Station and
Pigging Facility
4139
6
17
Township 3 North
Range 49 West
Township 3 North
Range 48 West
RP 448
PIPELINE
1
6
4060
CO
CO
Legend
Reference Point (RP)
Aboveground Facilities
Proposed Overland
Pass Pipeline
No warranty is made by the
Bureau of Land Management
for use of the data for purposes
not intended by BLM.
N
0
500
1,000
Feet
Overland Pass
Pipeline Project
Figure A-14
Washington County
Meter Station and
Pigging Facility


3480
Well
3459
RP 523
3475
25
3479
Township 3 South
Range 37 West
Township 3 South
Range 38 West
3485
161
Bird City Yard
BM
3471
BM
3452
BURLINGTON
87
36
Pk
3450
36
38 W
37 W
Legend
Reference Point (RP)
Valve
Pipe and
Contractor Yard
Proposed Overland
Pass Pipeline
No warranty is made by the
Bureau of Land Management
for use of the data for purposes
not intended by BLM
N
0
500
1,000
Feet
Overland Pass
Pipeline Project
Figure A-15
Bird City Yard



Legend

- Reference Point (RP)
- Pigging Facility
- Proposed Overland Pass Pipeline

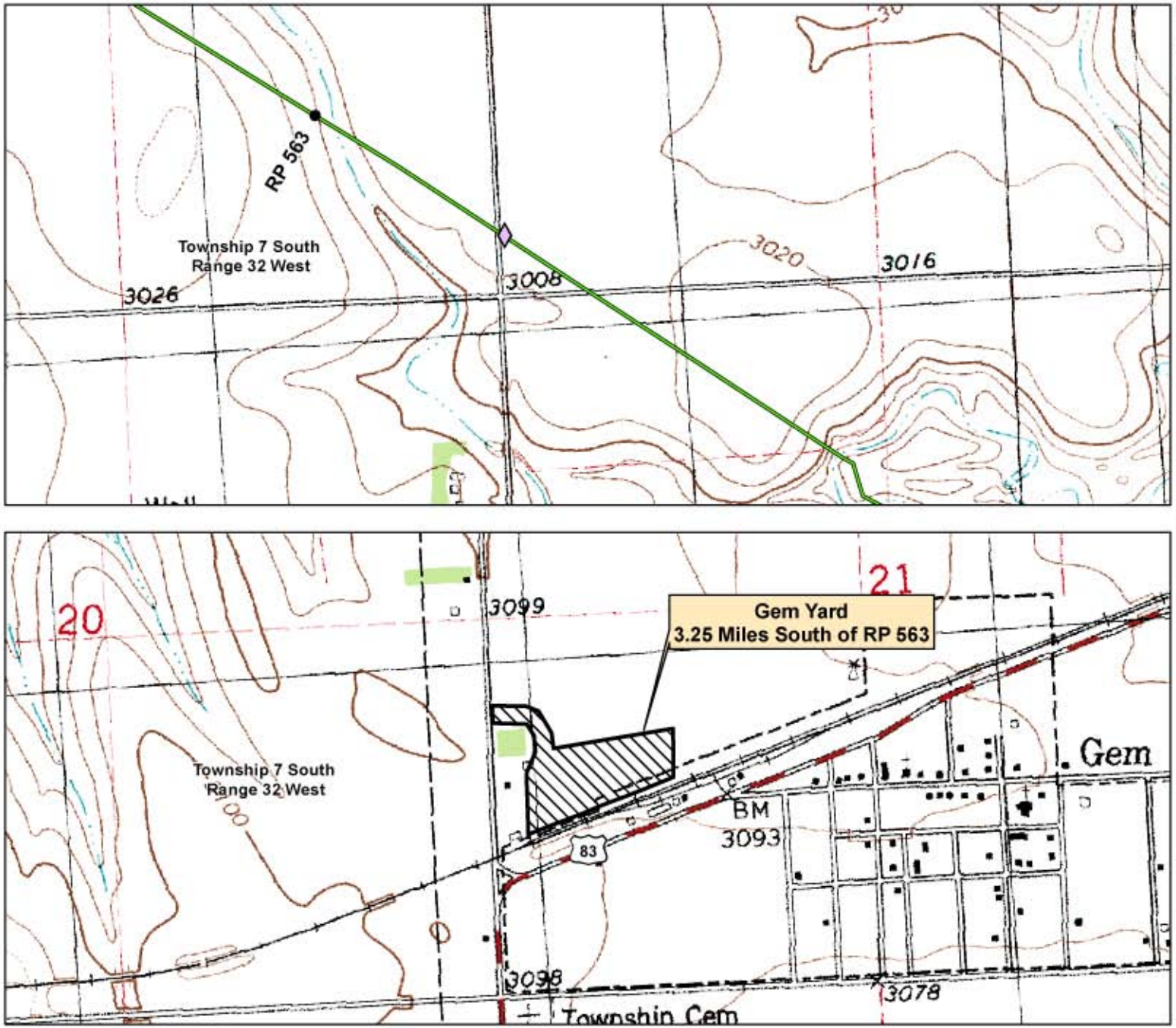
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-16

Thomas
Pigging Facility



Legend

- Reference Point (RP)
- Valve
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

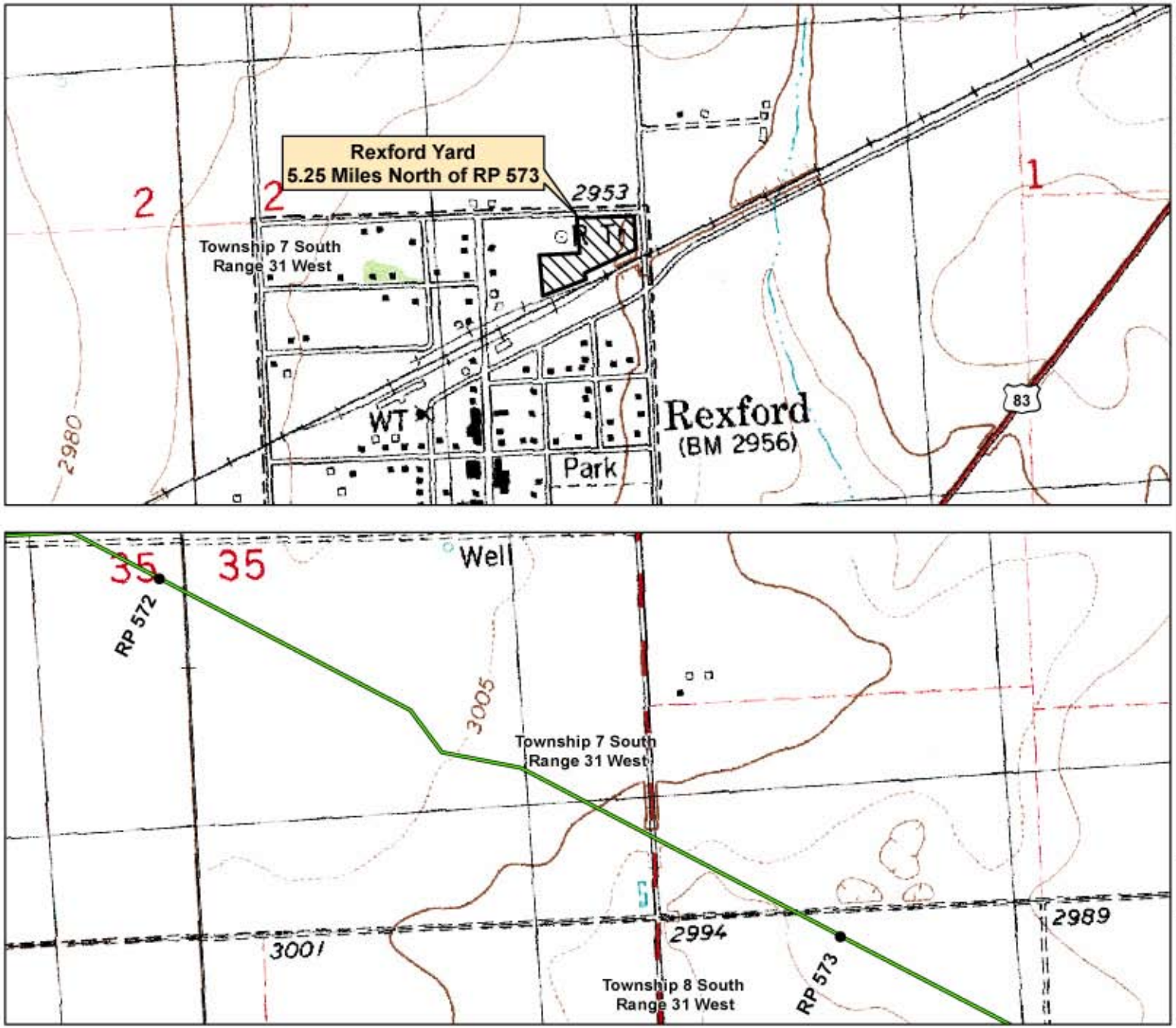
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-17

Gem Yard



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

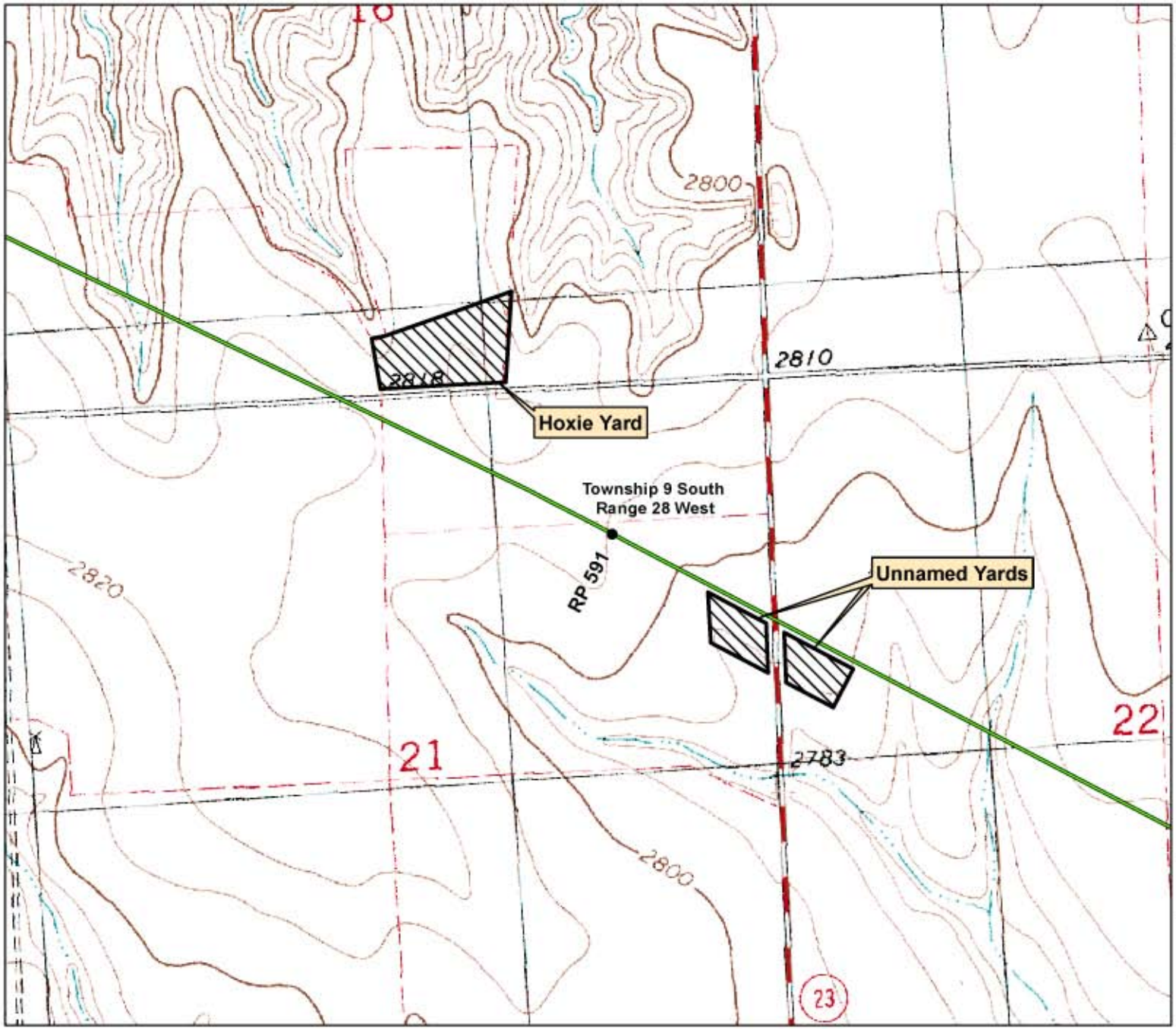
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-18

Rexford Yard



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

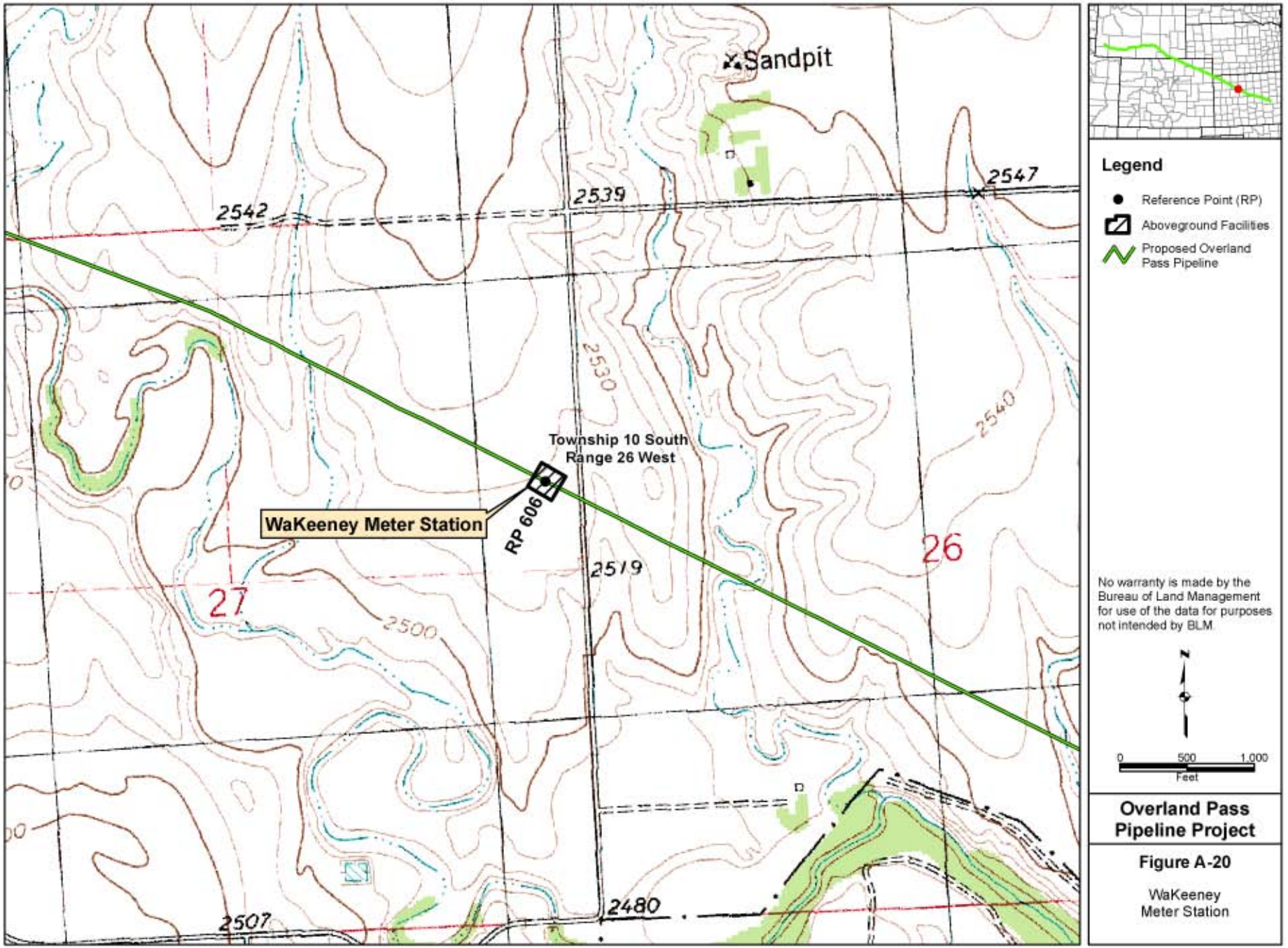
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-19

Hoxie Yard and Unnamed Yards



Legend

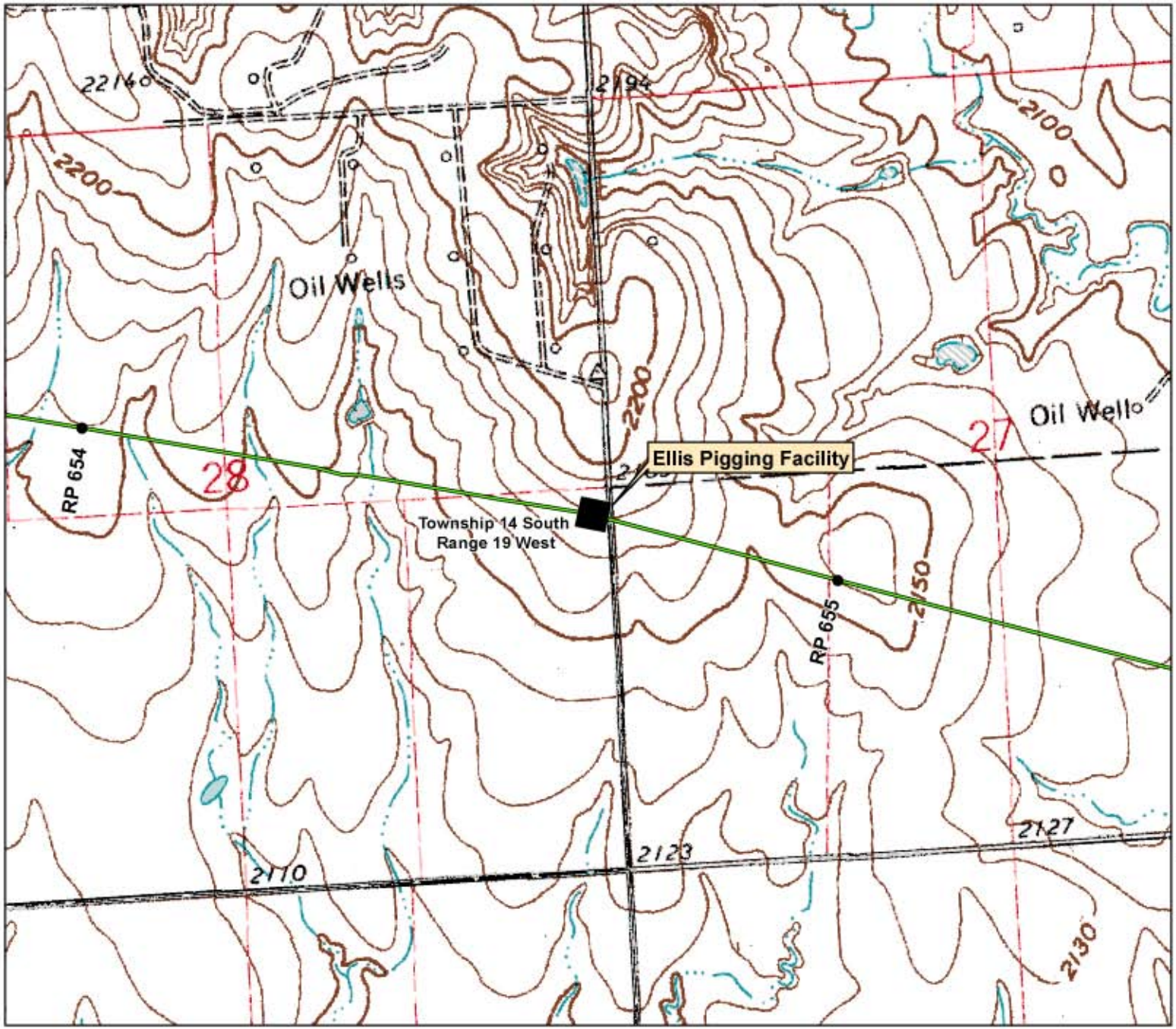
- Reference Point (RP)
- Aboveground Facilities
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

Overland Pass Pipeline Project

Figure A-20

WaKeeney Meter Station



Legend

- Reference Point (RP)
- Pigging Facility
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

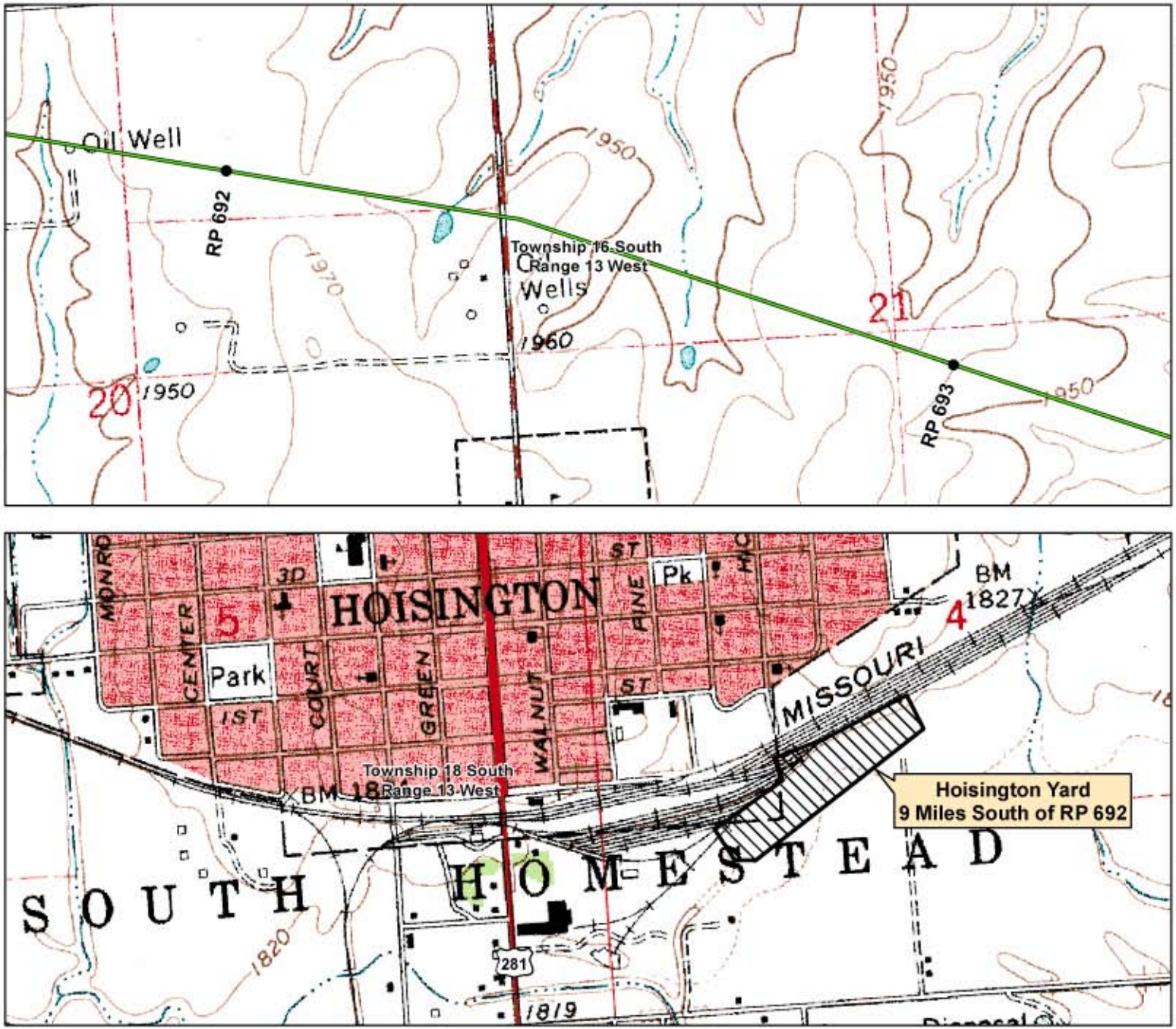
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-21

Ellis
Pigging Facility



Legend

- Reference Point (RP)
- Pipe and Contractor Yard
- Proposed Overland Pass Pipeline

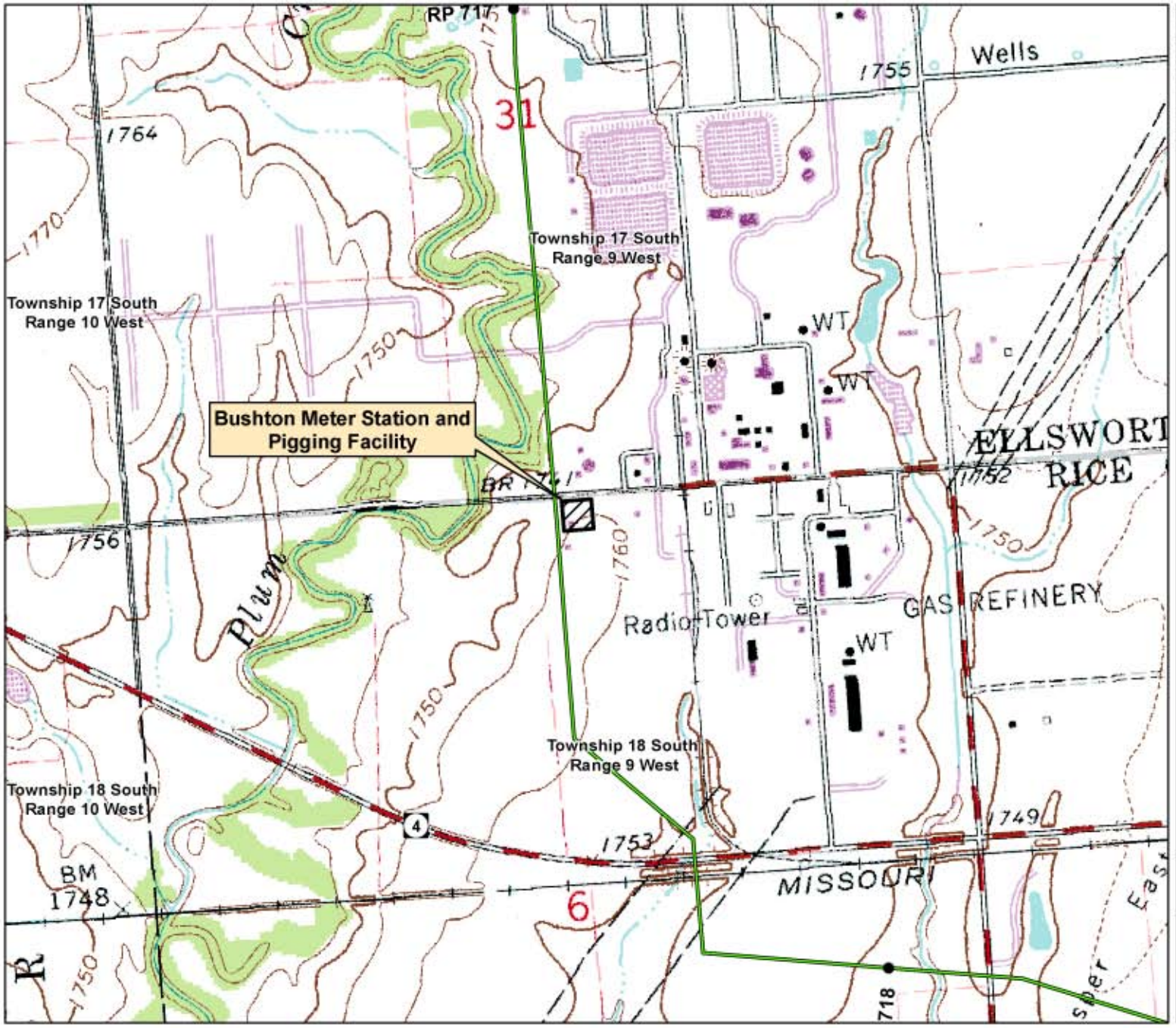
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-22

Hoisington Yard



Legend

- Reference Point (RP)
- Aboveground Facilities
- Proposed Overland Pass Pipeline

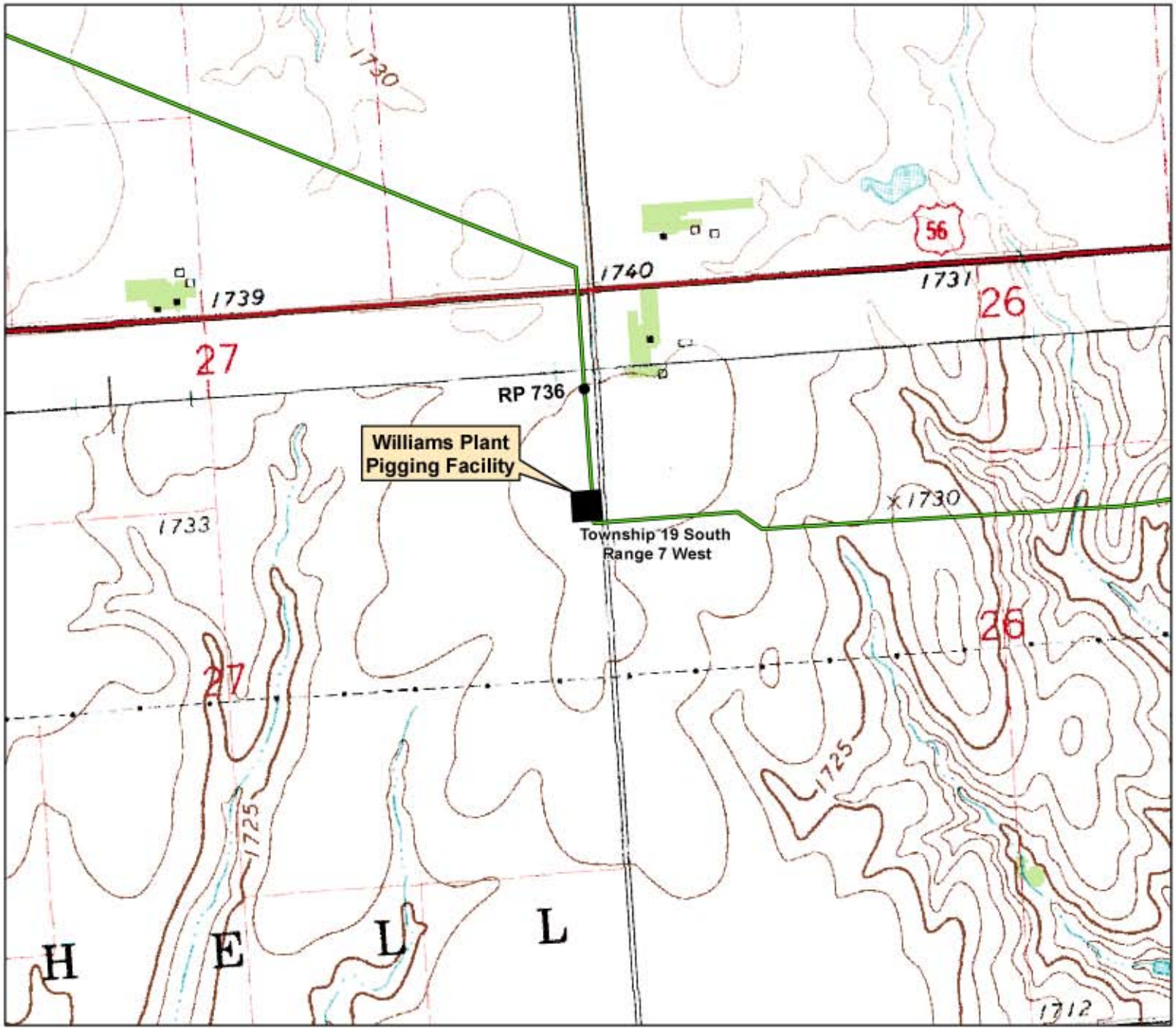
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-23

Bushton Meter Station and Pigging Facility



Legend

- Reference Point (RP)
- Pigging Facility
- Proposed Overland Pass Pipeline

No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM.

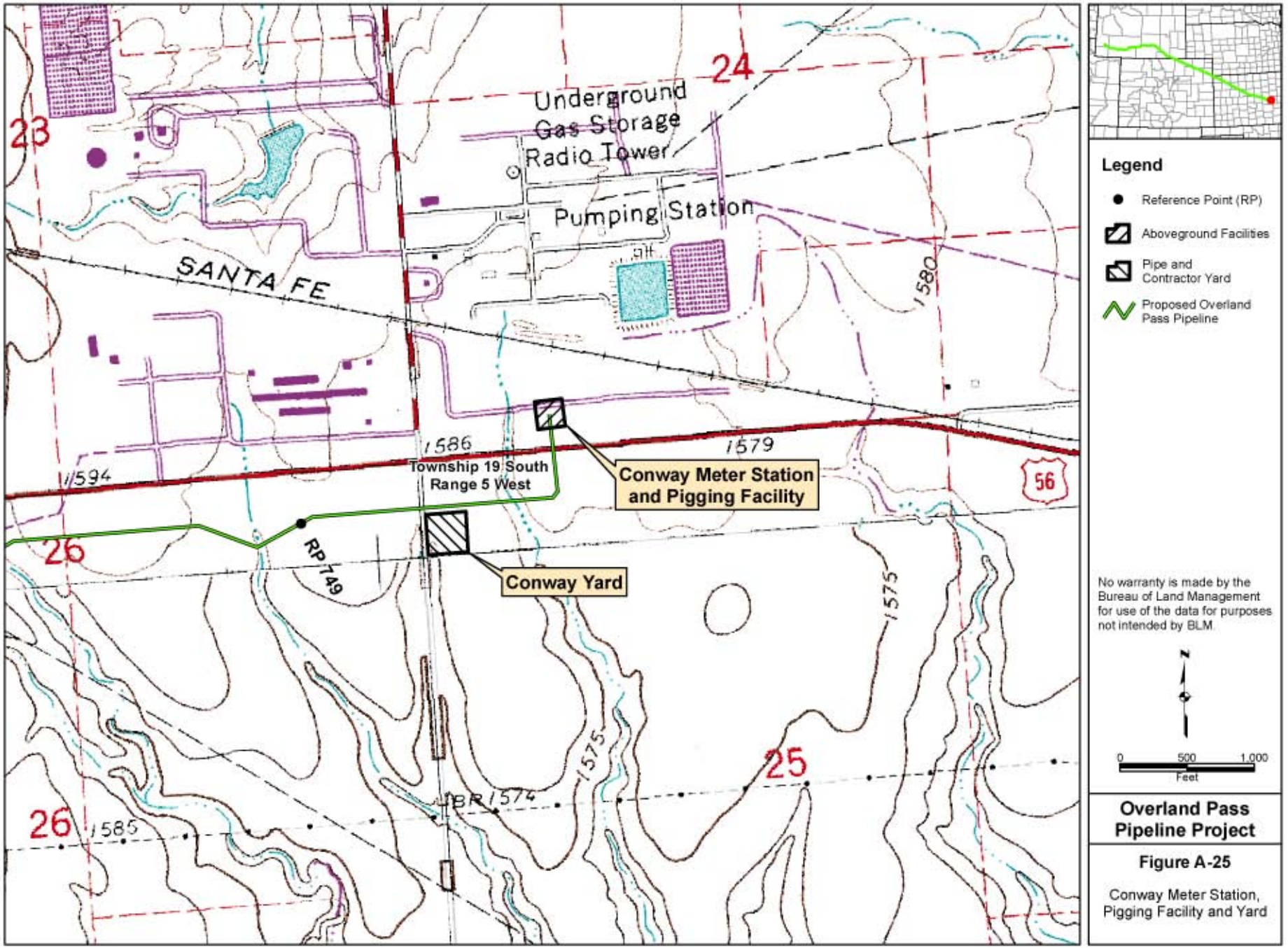
N

0 500 1,000
Feet

Overland Pass Pipeline Project

Figure A-24

Williams Plant
Pigging Facility


Underground
Gas Storage
Radio Tower
Pumping Station
SANTA FE
24
23
26
25
1580
1586
1579
1594
1575
1574
1585
Township 19 South
Range 5 West
56
RP 749
Conway Meter Station
and Pigging Facility
Conway Yard
Legend
Reference Point (RP)
Aboveground Facilities
Pipe and
Contractor Yard
Proposed Overland
Pass Pipeline
No warranty is made by the
Bureau of Land Management
for use of the data for purposes
not intended by BLM.
N
0
500
1,000
Feet
Overland Pass
Pipeline Project
Figure A-25
Conway Meter Station,
Pigging Facility and Yard

Appendix B

Construction, Reclamation, and Revegetation Plan

Overland Pass Pipeline Project

Construction, Reclamation, and Revegetation Plan

Prepared for:

Overland Pass Pipeline Company LLC

Prepared by:

November 2006

OVERLAND PASS PIPELINE PROJECT

CONSTRUCTION, RECLAMATION, AND REVEGETATION PLAN

TABLE OF CONTENTS

LIST OF APPENDICES

NOTE: Appendices to this document are intentionally not included. All available plans and attachments to this document can be found as part of the Draft Plan of Development found at www.blm.gov/wy/st/en/info/NEPA/rfodocs/overland_pipeline.html.

1.0 STRUCTURE OF THE CONSTRUCTION, RECLAMATION, AND REVEGETATION PLAN

The Construction, Reclamation, and Revegetation Plan (CMR Plan) is structured to address site-specific construction mitigation, reclamation, and revegetation plans for each federal land management unit crossed by the pipeline route within BLM and FS lands. This document combines Overland Pass' project-wide Best Management Practices (BMPs) and site-specific mitigation which has been developed utilizing federal land management documents and consultation with agency resource specialists. Mitigation contained in this document may apply project-wide, or only to site-specific areas or conditions. **In instances where mitigation is site-specific, the text has been bolded.** Where appropriate, provisions that pertain to a specific management unit are discussed in greater detail.

2.0 PRECONSTRUCTION

2.1 Construction Right-of-Way Flagging and Project Signs

Overland Pass will complete a final civil survey and stake/flag the right-of-way to locate the pipeline centerline and the construction right-of-way boundaries. Overland Pass will stake the Additional Temporary Workspace (ATWS) boundaries, staging areas, sensitive environmental areas, reclamation treatment areas, access roads, and along the right-of-way every 200 feet, as appropriate, to maintain line-of-sight from one stake to the next. Overland Pass' contractor will be responsible for locating and marking underground crossings (e.g., gas and water pipelines, fiber optic cable, telephone lines, etc.), will be identified and flagged to prevent accidental damage during construction. Staking on the right-of-way and all ATWS will be inspected and maintained for the duration of construction and reclamation.

Overland Pass will preserve all existing General Land Office, BLM, FS, or other recognizable civil survey monuments, cadastral corner markers, witness points, triangulation stations, military control monuments, or other recognizable physical markers (public and private). If markers are disturbed are destroyed, Overland Pass will notify the installing authority and the BLM's Authorized Officer in writing of the incident. Overland Pass will be responsible for repairing markers using surveying procedures found in the *Manual of Surveying Instructions for the Survey of the Public Lands in the United States*.

Table 2.1-1 describes the color-coded flagging system proposed to delineate resource areas throughout the project:

TABLE 2..1-1

Overland Pass Color-Coded Flagging System

Flagging Color(s)	Resource Code
Orange	Pipeline centerline
Orange and Blue	Point of intersect
Pink	Survey control point
White	Limit of ATWS
White and Red	Limit of additional temporary workspace
Yellow	Foreign pipeline crossing
Blue	Waterbodies and wetlands
Green	Sensitive environmental / habitat area

TABLE 2..1-1 Overland Pass Color-Coded Flagging System	
Flagging Color(s)	Resource Code
TBD	Noxious weed area
TBD	Wash station

Signs will be posted along the construction right-of-way to identify sensitive areas and to alert construction personnel of restrictions that apply (table 2.1-2). The limits of these areas will be delineated at the edge of the right-of-way. Fencing may also be required in some areas to further protect site-specific resources. Routine equipment maintenance will be restricted to contractor yards and commercial sites off the right-of-way.

TABLE 2.1-2

Overland Pass Project Signs

Sign	Description
No Refueling or Equipment Maintenance	Restrictive signs for place near wetlands, streams, wells, and environmentally sensitive areas. Signs will be placed at the boundary of the restricted work area.
Approved Access Road	Project-related right-of-way access roads will be identified by road number or name and posted speed limit.
No Project Access	Roads that lead to the right-of-way and could be confused with approved access roads but are not approved for use will be identified.
Sensitive Resource Area	Exclusion areas where equipment and personnel are not permitted to enter without approved will be identified with signs posted on the right-of-way boundary,
Noxious Weed Area/ Wash Stations (TBD)	Signs identifying populations of noxious weeds detected during pre-construction surveys will be placed to caution operators that special site-specific protocols apply in this area.
Regulated Waterbody	COE-regulated waterbodies will be identified; Overland Pass' waterbody procedures or site-specific plans apply at these waterbodies.
Regulated Wetland	COE-regulated wetlands will be identified; Overland Pass' wetland procedures apply at these wetlands.
Monitor Required	Areas where a resource specialist is required for ground disturbing activities will be identified.
Equipment Maintenance Area	Limited to contractor yards.

Overland Pass will require its construction contractor(s) post caution signs on roads, where appropriate, to alert motorists of pipeline construction and warn them of slow traffic. In addition, trucks transporting

pipe and heavy equipment will comply with all applicable state, county and federal laws, rules and permits for these loads.

Overland Pass has identified all landowner-specific issues of concern that may be affected by construction activities. In coordination with these landowners, Overland Pass will implement mitigative measures that:

- Avoid drain tiles and other types of irrigation systems.
- Locate and mark above and below ground water lines.
- Locate and mark all above and below ground utilities.
- Coordinate with landowners which utilize pivot irrigation systems.
- Develop grazing deferment plans with landowners, tenants, or other grazing permit holders that address construction timing, fence cutting and bracing, cattle guard locations, and water requirements for livestock.
- Conduct baseline compaction surveys of the existing soil conditions, as requested by the landowner.

Any component of irrigation systems, waterlines, utilities, or other physical impediments encountered during construction will be repaired to at least pre-construction condition.

3.0 GENERAL PIPELINE CONSTRUCTION PROCEDURES

Construction of the main pipeline is planned for five simultaneous construction areas, or "spreads", averaging about 150 miles each. The pump stations will each be constructed by separate construction crews. Construction is planned to start in the second quarter of 2007, and be completed by the end of the year.

TABLE 1.5-1

Construction Spreads for the Overland Pass Pipeline Project

Spread Name	Mileposts	State
Spread 1	0.0 to 146.5	Wyoming
Spread 2	146.5 to 281.0	Wyoming
Spread 3	281.0 to 438.0	Wyoming/Colorado
Spread 4	438.0 to 591.0	Colorado/Kansas
Spread 5	591.0 to 749.4	Kansas

Overland Pass proposes to use a 75-foot-wide construction right-of-way in most locations. Standard pipeline construction is composed of specific activities that make up the linear construction sequence. These operations collectively include survey and staking of the right-of-way; clearing and grading; trenching; pipe stringing, bending, and welding; lowering the pipeline into the trench; backfilling the trench; hydrostatic testing; final tie-ins; commissioning; and right-of-way cleanup and restoration. Construction personnel will be limited to the areas required to conduct these activities and will not be allowed onto off-right-of-way areas unless necessary. Figure 1 shows the typical steps of cross-country pipeline construction.

3.1 Clearing and Grading

Before clearing and grading are conducted, landowner fences will be braced and cut to landowner or land management agency specifications (see Figures 2a – 2c), and temporary gates and fences will be installed to contain livestock if present. A clearing crew will clear the work area of vegetation and obstacles (e.g., trees, logs, brush, rocks). The clearing crew will follow the fence crew and skim surface vegetation in areas of high fire danger to minimize the potential for wildfires. Where trees are felled, timber will be cut to uniform length and stacked along the edge of the right-of-way until disposal or use during reclamation. Stumps will be cut as close to the ground as possible and left in place except over the trenchline or as necessary to create a safe and level work surface.

Grading will be conducted where necessary to provide a reasonably level work surface. More extensive grading will be required in steep side slope or vertical areas to prevent excessive bending of the pipeline. Overland Pass intends to use several topsoil stripping methods during construction. Where the ground is relatively flat and does not require grading, rootstock will be left in the ground.

3.2 Topsoil Removal and Storage

Overland Pass proposes to use three topsoil removal techniques: trenchline only, trenchline plus spoil side, or full right-of-way stripping (see figures 3, 4, and 5).

The 'trenchline only' technique removes topsoil from the trenchline area only. Overland Pass will utilize a method of trenchline stripping called double-ditching (see Figure 6). The double-ditching method requires two passes to be made by a wheel ditcher. On the first pass, the machine removes topsoil from the trenchline and places it on the non-working side of the pipeline trench. On the second pass, the wheel trencher will excavate subsoil and place it on the working side of the pipeline trench, where equipment is allowed to work on top of the spoil pile. Rooted vegetation on either side of the trench will remain in place under the spoil piles. This is intended to minimize the post-construction area of bare soil and to keep most of the topsoil, with its stock of seeds and roots and microbes, in place during construction, which will help in restoring shrub steppe habitat and agricultural land after construction is completed.

In other locations, the trenchline and spoil side and/or the full right-of-way practices will be used. These techniques require a backhoe or bulldozer to remove the topsoil. It is currently anticipated that in arid areas with limited topsoil, topsoil will be removed from the full right-of-way in most areas to avoid pulverization or rutting during wet periods, and in some instances, to mitigate heavy weed infestations. Topsoil and sub-soil piles will be stored separately until reclamation occurs.

On lands managed by the Kemmerer Field Office (KFO), Rock Springs Field Office (RSFO), and Ashley National Forest (ANF), full right-of-way topsoil stripping will occur to a depth of 6-inches. On lands managed by the Rawlins Field Office (RFO) and PNG, 'trenchline only' topsoil stripping will occur to a depth of 6-inches.

Topsoil and subsoil storage piles will be stored separately. In some instances, separation between piles will require the installation of barriers such as straw bales. In other instances, topsoil will be placed on the working side, and trench spoil will be stored on the non-working side. Gaps will be left between the soil piles to prevent stormwater runoff from backing up or flooding adjacent areas. In areas that are prone to wind erosion, Overland Pass will wet down topsoil piles. Wetting down topsoil piles will create a crust across exposed soils and prevent soil loss by wind. EIs will inspect watered soils regularly and re-watering will occur as needed. Water requirements for topsoiling activities are discussed in the "Water Withdrawal Requirements" section of Overland Pass' Hydrostatic Testing Plan (appendix G) **On the**

PNG, soils may be watered. However, since open trench sections will be limited to one mile at a time, backfilling will occur immediately following pipe installation. Therefore, the potential for topsoil loss will be minimal. Tackifiers are not proposed for use during the project.

3.3 Rutting

In areas where topsoil has not been removed, rutting from construction equipment will be considered excessive if greater than 4-inches on BLM and ANF lands, or greater than 3-inches on PNG lands. In consultation with Overland Pass' Environmental Inspectors (EIs) and agency monitors, topsoil removal techniques may be modified to remedy topsoil rutting. Rutting stipulations will not apply in areas where topsoil removal has occurred.

3.4 Rocky Conditions

When rocky conditions are encountered, tractor-mounted mechanical rippers will be used to fracture rock prior to excavation. Rock will be stockpiled along the edge of the construction right-of-way and either used during reclamation or disposed of at an off-site facility. Rock will not be permanently windrowed along the edge of the construction work area.

3.5 Temporary Erosion Control

The installation of temporary erosion controls will begin immediately following topsoil removal. Temporary erosion controls will be properly maintained throughout construction (on a daily basis) and reinstalled as necessary until replaced by permanent erosion controls. Temporary erosion controls that will be used during construction include the following:

3.5.1 Temporary Slope Breakers

Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way (see figure 7). Temporary slope breakers may be constructed of materials such as soil, staked straw bales or sand bags.

Overland Pass will install temporary slope breakers to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing:

Federally Managed Lands	
Slope (percent)	**Spacing (feet)**
2 to 5 percent	300 feet
5 to 10 percent	200 feet
10 to 15 percent	150 feet
15 to 25 percent	100 feet
>25 percent	100 feet or EI Recommendation
> 30 percent	25 to 50 feet (*PNG Lands only*)

Non-Federally Managed Lands	
Slope (percent)	Spacing (feet)
2 to 5 percent	300 feet
5 to 15 percent	200 feet
15 to 25 percent	100 feet
>30 percent	100 feet or EI Recommendation

On slopes less than 5 percent that are located in areas not prone to soil movement or erosion (e.g. rocky soil conditions) slope breakers may be eliminated at the discretion of the EIs and agency monitors. Slope breaker spacing may also be modified to correspond with slope breakers from adjacent facilities.

The outfall of each temporary slope breaker will be directed to a stable, well vegetated area or into an energy-dissipating device at the end of the slope breaker and off the construction right-of-way. The outfall of each temporary slope breaker will be positioned so as to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources. The requirements stated in section 3.5.1 also apply to permanent slope breakers.

3.5.2 Sediment Barriers

Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. As shown in figures 8, 9, and 10, they may be constructed of materials such as silt fence, staked straw bales, compacted earth (e.g., drivable berms across travelways), sand bags, or other appropriate materials. Where silt fence is used, J-hooks will be installed at outlets.

At a minimum, Overland Pass will install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetlands, or road crossing until construction is complete. Adequate room will be left between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

Where wetlands or waterbodies are adjacent to and downslope of construction work areas, Overland Pass will install sediment barriers along the edge of these areas, to prevent sediment flow into the wetland or waterbody.

In travel lanes, Overland Pass may install drivable berms rather than removable sediment barriers such as straw bales. The EI may specify one technique or the other.

3.6 Trenching

The trench will be excavated by rotary trenching machines, track-mounted backhoes, or other similar equipment to a depth that provides sufficient cover over the pipeline after backfilling. Typically, the trench will be about 4.5 to 5 feet deep (to allow for about 3 feet of cover) and about 3.5 to 4 feet wide in stable soils. Additional cover will be provided at road and waterbody crossings. Less cover is required in rocky areas (18 inches) in open areas; additional cover (30 inches) will be required in rocky areas in commercial and residential areas, roads, and residential ditches. In sandy, unstable soils, the trench could be considerably wider because the walls could cave or slough during trenching. Typically, it will take approximately 4 to 6 weeks from the time the excavator opens the trench until the trench is backfilled. **In the Kemmerer Field Office, open trench sections will be limited to a 10 day period.** It is reasonable to assume that in most areas, up to 10 or 12 miles of trench will be open at a time. **On the Pawnee National Grassland (PNG), open trench will be limited to one mile at a time.**

3.6.1 Open Trench Wildlife Mitigation

Trench plugs will be installed at a maximum of 0.5-mile intervals and at visible wildlife game trails and livestock watering trails that intersect the trench line. **In the Kemmerer Field Office, trench plugs and gaps will be spaced at 0.25 mile intervals.** 20-foot gaps will be left in spoil and topsoil stockpiles at all trench plugs. Suitable ramps will be installed from the bottom of trench to the top with a 5-foot-wide open path across the trench plug. A corresponding gap in the welded pipe string will be left at each trench plug.

3.7 Pipe Stringing, Bending, and Welding

Following trenching, sections of externally coated pipe up to 80 feet long (also referred to as joints) will be transported over public road networks and authorized private access roads to the right-of-way by truck and placed or "strung" along the trench line.

After the pipe sections are strung along the trench and before they are joined together, individual sections of the pipe will be bent where necessary to allow for uniform fit of the pipeline with the varying contours of the bottom of the trench. Typically, a track-mounted, hydraulic pipe-bending machine will tailor the shape of the pipe to conform to the contours of the terrain. Where direction changes require bends greater than what can be properly bent in the field, a factory made "induction bend" will be used. After the pipe sections are bent, they will be welded together into long sections and placed on wooden support skids.

Each weld must exhibit the same structural integrity with respect to strength and ductility as the pipe. Welds will be inspected by quality control personnel utilizing either X-ray techniques or other DOT-approved non-destructive examination to determine the quality of the weld, required in Title 49 CFR Part 195. Welds that do not meet established specifications will be repaired or removed. Once the welds are approved, a protective FBE coating will be applied to the welded joints. The pipeline will then be electronically inspected or "jeeped" for faults or voids in the epoxy coating, and visually inspected for any faults, scratches, or other coating defects. Damage to the coating will be repaired before the pipeline is lowered in.

3.8 Lowering-in, Trench Dewatering, and Backfilling

Before the pipeline is lowered in, the trench will be inspected to be sure it is free of wildlife that may be trapped in the trench as well as rocks and other debris that could damage the pipe or protective coating. In rocky areas, padding material such as finer grain sand, soil, or gravel will be placed in the bottom of the trench to protect the pipeline. No topsoil will be used as padding material. The pipeline may also be wrapped in a rock shield, which is typically made of fabric or screen. Excess rock will be removed from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, residential areas, and on the PNG.

During construction, open trench sections may fill with water due to weather events. In these instances, trench sections will be dewatered by pumping water out and disposing of it in an upland area, or into sediment filtration/energy dissipation device, within the approved workspace. Dewatering devices will typically be located on the edge of the 75-foot construction right-of-way. See Overland Pass' Stormwater Pollution Prevention Plan (SWPPP).

Backfilling with occur within 20 days of trenching in most areas and within 10 days in residential areas. Trench breakers may be installed (see section 3.13.1), where needed. Soils will be replaced from the horizon in which they occur. First, subsoil will be returned to the trenched area. Topsoil will be replaced last at the ground level. **On the PNG, excavated bedrock will be broken up and returned to the**

original bedrock stratum. Soil will be mounded over the trench only to allow for normal soil settling. No crown will be installed over the trench line.

NOTE: In order to comply with the PNG's requirement of one mile of open trench at any one time, Overland Pass may implement the above construction sequencing activities by utilizing a "mini spread" approach whereby each of the above steps is performed in a shorter than normal time by a single construction crew. Consequently, since the trench will be backfilled immediately upon pipe lowering-in, Overland Pass does not propose to utilize tackifiers, as requested by PNG. Spoil and topsoil storage would typically be limited to only 2 or 3 days using this approach.

3.9 Hydrostatic Testing

After backfilling, the pipeline will be hydrostatically tested with pressurized water to ensure the system is capable of withstanding the operating pressure for which it is designed. The pipeline will be broken into 'test segments'. These test segments have been determined by water availability, water permitting requirements, and terrain. Water for hydrostatic testing will be obtained from a combination of groundwater and surface water sources through specific agreements with landowners and permit stipulations. Internal test pressures and durations will be tested at a pressure 25 percent greater than the maximum operating pressure, in accordance with Title 49 CFR Part 195. If leaks are found, the leaks will be repaired and the section of pipe retested until specifications are met.

Following testing, the hydrostatic test water will be discharged to stable, upland areas along the construction right-of-way. If well vegetated areas are not available, water may be discharged through filtration bags or other energy dissipating devices. In some cases, water may be sprayed on agricultural fields as irrigation in coordination with the landowners. **On the PNG, sediment filtration bags will be used in all instances during water discharge.**

After completion of hydrostatic testing, the pipeline will be cleaned and dried using mechanical tools (pigs) that are moved through the pipeline with pressurized, dry air. Details related to hydrostatic testing, including water requirements, withdrawal and discharge locations, aquatic mitigation techniques used during withdrawal, and discharge mitigation techniques, are located in the *Hydrostatic Testing Plan* in Appendix G.

3.10 Tie-Ins, Commissioning, and Markers

Following successful hydrostatic testing, test manifolds will be removed and the final pipeline tie-ins will be made.

After final tie-ins are complete, the tie-in welds have been inspected, and the line is sufficiently dried, pipeline commissioning will commence. Commissioning involves activities to verify that equipment is properly installed and working, the controls and communications systems are functional, and that the pipeline is ready for service. Finally, the pipeline will be cleaned and dried using mechanical tools (pigs) and prepared for service by purging the line of air and loading the line with NGL.

Markers showing the location of the pipeline will be installed at fence and road crossings in order to identify the owner of the pipeline and convey emergency information in accordance with applicable governmental regulations, including DOT safety requirements. Special markers providing information and guidance to aerial patrol pilots will also be installed.

3.11 Decompaction

Once backfilling has been completed decompaction will occur. Both top- and subsoils may be decompacted. Soil will be tested at regular intervals in disturbed areas using penetrometers or other appropriate devices. Similar soil types under similar moisture conditions will be examined in disturbed areas and in undisturbed, off-right-of-way areas to approximate preconstruction conditions.

In compacted soils, Overland Pass will scarify or rip the area to a depth of 6 to 12 inches using a chisel or para-plow, or other similar tillage equipment until the soil density is comparable to areas off the construction right-of-way. If ripped, the ripper shanks will be set apart 12 to18 inches. Topsoil will be replaced after decompaction is completed. Sandy soils will not be scarified.

If severely compacted agricultural areas are encountered, they will be plowed with a paraplow or other deep tillage implement. If the topsoil has a bulk density of 15 percent or greater, it will be decompacted with a harrow plow or other deep tillage equipment prior to seeding and mulching. **On the PNG, the entire length of the right-of-way will be ripped to a depth of at least 12 inches using the required compaction reduction tool which is equipped with winged shanks.**

3.12 Cleanup

Cleanup will begin after backfilling as soon as weather and site conditions permit. During cleanup, construction debris on the right-of-way will be disposed of at off-site facilities. All work areas will be graded and restored to preconstruction contours as closely as possible.

During cleanup, a travel lane may be temporarily left open to allow access by construction traffic. Interim erosion control structures will be inspected and maintained during this period. When access is no longer required, the travel lane will be removed and the right-of-way restored.

Where requested by the landowner or agency monitor, Overland Pass may restrict access to the newly created right-of-way by unauthorized vehicles at public access points by installing gates, boulders, or other barriers.

3.13 Permanent Erosion Control

Permanent erosion controls will be installed immediately following clean up and backfilling, usually within 20 days of backfilling in most areas, or 10 days within residential areas. Permanent erosion controls will provide long-term stability to the right-of-way and prevent excessive soil erosion and divert water to stable areas adjacent to the pipeline.

3.13.1 Trench Breakers

Trench breakers are intended to slow the flow of subsurface water along the closed trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam; topsoil will not be used to serve as a trench breaker. Figure 11 shows trench breaker installation.

Trench breaker locations will coincide with slope breakers, unless the EIs or agency monitors recommend modified spacing. Spacing intervals for trench breakers will be the same as those described for temporary and permanent slope breakers in section 3.5.1.

At a minimum, Overland Pass will install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

3.13.2 Permanent Slope Breakers

Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, sand bags, or some functional equivalent. In the absence of a stable, adjacent areas, energy-dissipating devices will be constructed at the end of the breaker. Slope breaker spacing may also be modified to correspond with slope breakers from adjacent facilities.

Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they will be subject to compliance with all applicable survey requirements.

Overland Pass will construct permanent slope breakers in all areas with slopes greater than 5%. Spacing for permanent slope breakers will be the same as temporary slope breakers described in section 3.5.1.

3.14 Seedbed Preparation

In upland soils not compacted during construction, Overland Pass will disk or harrow the disturbed construction right-of-way approximately 2 to 6 inches deep to roughen the surface to enhance water and root penetration. Drag chains pulled by a tractor or tracked equipment may also be used to rough grade certain portions of the construction work areas.

3.14.1 Mulching

Overland Pass will apply 1.5 tons per acre of clean, weed-free straw mulch to dry, sandy areas and areas with slopes exceeding 10 percent, or at the request of the landowner. **On the PNG, mulch will be uniformly crimped at a rate of 2.5 tons per acre.** In actively cultivated cropland and in areas where surface rock is greater than 4 inches in diameter and exceeds at least 20 percent surface coverage after rough grading, mulch will not be applied unless otherwise requested by the landowner. Mulch will be applied concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Mulch will be uniformly spread over at least 75 percent of the ground surface in disturbed areas to minimize the effects of water and wind erosion and to preserve moisture in areas requiring vegetation. Mulch will be mechanically anchored by disking or punching so that straw strands are compressed into the soil at three to four inches deep, depending the percent slope.

Woody vegetation cleared from the right-of-way may be stored for use as mulch to be spread over the right-of-way following seeding and mulching, if required. A backhoe with a hydraulic thumb or equivalent apparatus operating on the edge of the right-of-way will randomly distribute woody vegetation across the restored right-of-way to create a visual barrier.

If final grading and installation of permanent erosion control measures are delayed and cannot be completed before the following spring, Overland Pass will apply mulch on slopes greater than 5 percent that contain less than 20 percent surface rock greater than 4 inches in diameter. Mulch will provide temporary erosion control until permanent erosion control measures can be installed. **On federal land, steep slopes over 20 percent that are prone to erosion will be stabilized with erosion control fabric or pocking.**

Trees which were not completely removed from the trenchline will be cut off at ground level and stockpiled for use during reclamation. During reclamation, trees will be moved back across the right-of-way and walked over with construction equipment.

Excess rock will be stockpiled along the side of the construction right-of-way for use during reclamation. During reclamation, rock will be spread back across the right-of-way to blend it with adjacent areas. Excess rock which cannot be utilized will be collected and hauled to an off-site disposal facility. Rock will not be windrowed along the edge of the right-of-way.

3.14.2 Seeding Methods

Overland Pass will generally use one of four seeding methods, including seed drill, mechanized broadcast (cyclone) seeder on a tractor, and hand cyclone seeder.

A seed drill will be used to distribute seed on the right-of-way where slopes and soil conditions allow. The seed drill will be calibrated according to the manufacturer's recommendations prior to use and a known amount of seed will be used over a known area to monitor the calibration of the equipment. The average drilled seed depth will be 0.25 to 0.50 inch, not to exceed one inch in depth. Care will be taken to ensure light seed (e.g., winter fat) is evenly applied with heavier seed. In Wyoming and Colorado, sagebrush seed distribution may be increased in areas where sagebrush naturally occurs in denser clusters.

A hand-operated or mechanically powered cyclone seeder will be used when a seed drill is not suitable. The seeding rate will be doubled where a broadcast seeder is used. This method distributes the seeds on the surface and the seeds are subsequently covered by use of a cultipacker, rake, or dragging a chain behind the seeding equipment. Hand-operated cyclone seeders will be used on slopes too steep for equipment to be operated safely. If rock is not present in these areas, hand dragging or raking will be used to incorporate the seed.

Hydroseeding and hydromulching are not expected to be used except in areas where conventional seeding and mulching techniques cannot be applied (i.e., slopes exceeding 25 percent), or when requested by the landowner. The seeding rate during hydroseeding will be broadcast application rate (i.e., twice the drilled rate). Mulch will be applied at a rate of 1.5 tons per acre and will be anchored with a tackifier on slopes exceeding 25 percent. **On the PNG, mulch will be uniformly applied at the rate of 2.5 tons per acre.**

General seeding of disturbed areas will occur in accordance with written recommendations for preparation, rates, methods, and dates obtained from the local soil conservation authority or as requested by the landowner. Appendix E contains Overland Pass' index of site-specific seeding recommendations.

Seeding will typically occur immediately following restoration. In some areas seeding may be delayed by weather. In these instances, seeding will occur in the following spring. **On federal lands, seeding will take place immediately after re-grading, but no later than 20 days after regrading is completed, regardless of the time of year, unless severe weather precludes these activities**. In areas where sagebrush seed is a component of the seed mix, sage may be separately spread in winter of the same year, during a second pass, to facilitate growth. Sagebrush seed mixes may be applied even if snow cover is present.

If seeding cannot be done within the recommended seeding dates, the appropriate interim erosion control measures discussed in section 3.5 will be installed and seeding of permanent vegetation will be performed at the beginning of the next season. Lawns may be seeded on a schedule established with the landowner.

3.14.3 Tree Replanting Methods

Where required by the landowner or permit conditions, tree cuttings, containerized plants, or transplants, will be used to restore woody plant communities, stabilize riparian areas, and provide a visual screens to conceal the right-of-way. Species include willow, cottonwood, and aspen. Willow species will be planted as non-rooted cuttings; and cottonwood as rooted cuttings. Tree cuttings will be obtained from adjacent areas within the surveyed corridor that were identified and approved by the landowner. Locally obtained tree cuttings will be used to ensure that plants are adaptable to the environment.

Tree cuttings will be between 16 and 24 inches long and obtained during the dormant season (February to May) and planted within two weeks of cutting, or stored under refrigeration, until needed.

Willow and aspen cuttings will be spaced with an average of 10 feet/center (for example: an area 50-feet by 100-feet will require 50 trees set at 10-foot spacings). Cottonwoods will be spaced at 15 feet/center. Plantings will be randomly placed to promote a natural distribution, but the recommended average plant density will be maintained. Species will not be planted within 15 feet either side of the pipeline.

Tree cuttings will be inserted into the ground approximately 6 inches and will be covered with a fine plastic netting to deter browsing.

In areas where access along the right-of-way is required for vehicular travel to hydrostatic test section tie-ins, pipeline drying, or valve sites, the travel lane may not be restored or seeded concurrently with right-of-way restoration. A separate crew will restore the travel lane when contractor access along the right-of-way becomes unnecessary.

4.0 SPECIAL PIPELINE CONSTRUCTION PROCEDURES

In addition to standard pipeline construction methods, Overland Pass will use special construction techniques where warranted by site-specific conditions. These special techniques will be used when constructing across paved and unpaved roads, railroads, utility crossovers, steep terrain, unstable soils, waterbodies, wetlands, when blasting through rock, or avoiding sensitive resources.

4.1 Road, Highway, Railroad, Foreign Utility Crossings

Construction across paved roads, highways, and railroads will be in accordance with the requirements of Overland Pass' road and railroad crossing permits and approvals. Major paved roads, highways, and railroads generally will be crossed by boring beneath the road or railroad (see figure 12). Boring requires the excavation of a pit on each side of the feature, the placement of boring equipment in the pit, then boring a hole under the road at least equal to the diameter of the pipe. Once the hole is bored, a prefabricated pipe section will be pulled through the borehole. For long crossings, sections may be welded onto the pipe string just before being pushed through the borehole. There will be little or no disruption to traffic at road, highway, or railroad crossings that are bored. These boring techniques may also be used to avoid specified eligible archaeological sites .

Most smaller, unpaved roads and driveways may be crossed using the open-cut method where permitted by local authorities or private owners (see figure 13). The open-cut method will require temporary closure of the road to traffic and establishment of detours. If no reasonable detour is feasible, at least one lane of the road being crossed will be kept open to traffic, except during brief periods when it is essential to close the road to install the pipeline. Most open-cut road crossings will be completed and the road resurfaced in a few days. Overland Pass will take measures such as posting signs at open-cut road crossings and utilizing flagmen to ensure safety and minimize traffic disruptions.

Additionally, Overland Pass is developing a *Traffic and Transportation Management Plan* (see Appendix F). The *Traffic and Transportation Management Plan* is intended to mitigate potential impacts of project-related road use and construction activity, and to maintain and/or moderately upgrade existing access roads, consistent with project needs relating to the useful management of resources. Overland Pass is currently working with the counties crossed by the pipeline route to obtain permits and develop road mitigation that might be necessary for construction and post-construction of the project. No new roads will be built as part of the Proposed Action. Driveway installation to permanent, aboveground facilities are depicted on the aboveground facility plot plans located in Appendix C.

Foreign pipeline crossing designs will conform to good engineering practices and to the requirements of the regulatory authority (e.g., DOT, County Department of Public Works). Crossings of railroads and roads, where required by the regulatory authorities, will be installed using boring techniques and will possess a heavier wall pipe thickness for additional structural protection.

4.2 Side Slope Cutting and Steep Terrain

Side slope cutting will occur in rough, steep terrain, and in areas where rerouting the pipeline is not feasible due to mitigating factors such as sensitive resource avoidance, paralleling road ways, existing utilities, etc. Where the pipeline crosses laterally along the side of a slope, cut and fill grading may be required to obtain a safe, flat work terrace. Generally, on steep side slopes, soil from the high side of the right-of-way will be excavated and moved to the low side of the right-of-way to create a safe and level work terrace. After the pipeline is installed, the soil from the low side of the right-of-way will be returned to the high side, and the slope's original contours will be restored (see Figure 14 for workspace requirements and layout). Mulch will be applied at a rate of 1.5 tons per acre and will be anchored with a tackifier on slopes exceeding 20 percent.

Steep terrain areas in excess of 10 percent are common in portions of Wyoming. When disturbed by construction through vegetation removal, these areas may be susceptible to erosion if water from snowpack runoff and intense rainfall events are not controlled. In some instances, pipe sections required in these areas will be factory bent to facilitate installation.

Based on site-specific conditions, Overland Pass has identified measures that will be implemented to prevent slope failure. The EIs and agency monitors may modify these mitigation measures on a case-by-case basis. Table 4.3-1 lists the locations of steep slope areas by milepost and the soil/seed mix combination that will be used to stabilize these areas.

4.2.1 Stockpiling

On steep slopes where topsoil, woody debris, and rock cannot be conventionally stockpiled at the edge of the construction right-of-way, the contractor will push the material to ATWS for use during restoration.

4.2.2 Temporary Slope Breakers

Temporary slope breakers will be installed after the right-of-way is graded. In most cases, temporary slope breakers will be spaced at intervals determined by the EI. A temporary breaker will be installed 10 to 30 feet from the crest of a slope to act as a reference point for spacing the remaining breakers. Slope breakers will be inspected on a daily basis in areas of active construction; on a weekly basis in areas with no active construction; within 24 hours of each 0.5-inch or greater rainfall.

Temporary slope breakers may be omitted where the surface is predominately rock and the potential for erosion is minimal.

4.2.3 Trench Breakers

Trench breakers will be constructed at intervals determined by the EI where surface drainages parallel the trenchline. In addition, trench breakers will be installed at the base of steep slopes adjacent to waterbodies.

Recontouring and Slope Reduction

Special attention will be given to shaping the construction right-of-way to direct runoff into existing drainages off the right-of-way. Cut and fill slopes will have the slope reduced to 3:1 or 4:1 ratio or to match the adjacent utility right-of-way to aid in reclamation and stabilization. If necessary, energy dissipation devices may be installed at the bases of cut and fill slopes to prevent scour in adjacent steep banks not located in the construction right-of-way.

4.2.4 Permanent Slope Breakers

Permanent slope breakers will be installed near the top of a slope, typically within 10 to 30 feet of the crest of a slope, to act as a reference point for spacing the remaining breakers. Spacing of the remaining breakers will be determined by the EI. When deciding on the placement interval of permanent slope breakers, the EI will attempt to match then to breakers located on adjacent rights-of-way.

Where the ground surface is naturally rocky and resistant to erosion, permanent breakers may be omitted or the spacing increased at the discretion of the EI.

Mulch Crimping and Punching

If mulch is applied, it will be crimped or "punched" into the topsoil. Crimping and punching involves a two pass application of 1.5 tons per acre of weed-free straw to an area. After the first application of mulch and seed is applied, the material will be crimped into the soil by hand, or with a disk, or "punched" into the surface with a footed roller pulled by a tractor. Following the first mulch application and seeding/fertilizing, a second layer of mulch will be applied and anchored.

Use of a nondirectional footed roller is the preferred method to anchor mulch. This device creates depressions in the soil surface, increases soil contact with the seed, and holds the soil in place. Punching reduces the potential for wind erosion and provides an environment conducive for moisture retention and germination. Punching will not be used in rocky areas.

If mulch is crimped into the surface by a disk, the crimping pattern will be cross hatched to prevent the creation of down slope furrows that could channelize runoff. Mulch will not be crimped in rocky areas.

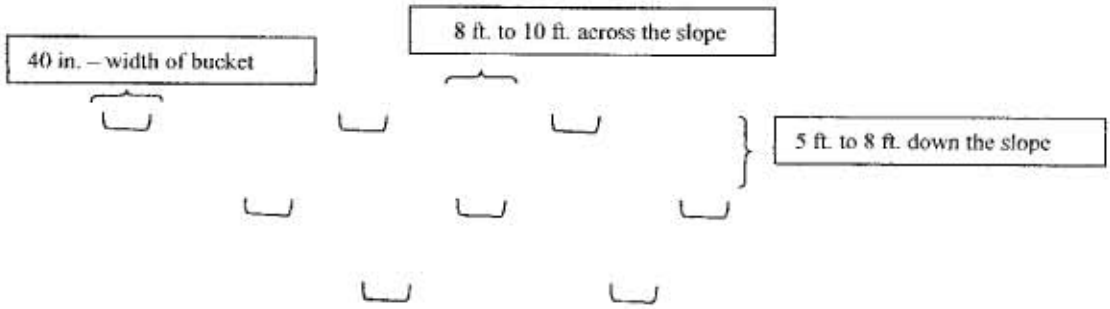
Erosion control fabrics (*i.e.*, jute matting, straw blankets with plastic netting, or curlex) may be substituted for straw mulch on steep, unstable slopes where mulch cannot be applied by mechanical means because of safety concerns. Fabric should overlap by 4 to 6 inches and be stapled or staked into the soil.

4.2.5 Rock Mulch

Rock mulch will be used to control erosion in areas that have a native gravel, cobble, boulder, or bedrock surface. Rock salvaged and stockpiled from these areas during construction will be distributed over the construction right-of-way during restoration and seeded with broadcast seeder. The gaps in the rocks will provide a micro environment beneficial to seed germination by allowing moisture to collect and provide protection from wind. A rock cover will also blend the construction right-of-way into undisturbed areas.

4.2.6 Pocking

In some instances, mulch and erosion control fabrics may not be used. In many areas where slope is 10 percent or greater, Overland Pass will utilize a technique called "pocking". Pocking creates a seedbed which is conducive to the establishment of permanent vegetative cover that will stabilize steep areas, provide forage for wildlife, and create an aesthetically compatible reclaimed right-of-way to that of adjacent areas. Pocking will involve creating a series of regularly spaced depressions, or mini terraces, using a backhoe. The depressions are the width of a standard backhoe bucket and are approximately 8-inches to 12-inches in depth. The following schematic outlines generally how the pocking technique occurs.



The small depressions retain water runoff, creating a more mesic site to facilitate seed germination and subsequent seedling establishment. They will also minimize the potential for rill and gullies to form by diverting runoff and retaining a large portion of collecting precipitation. The depressions are offset from one another in order to minimize the potential that lower terraces would fail should a terrace above it fail. Where pocking is used, permanent slope breakers will not be used.

4.3 Soils Mitigation and Seed Mixes

To promote the optimum regrowth potential for areas with difficult soils, Overland Pass has conducted a detailed analysis of soils along the pipeline route which assessed areas which contain shallow soils, saline/sodic soils, droughty soils, highly erodible soils, and those with a high potential for flooding. Slope, geomorphologic features, and vegetative cover were also factored into the analysis. The results of the analysis combined all factors, along with Overland Pass field personnel's knowledge of problem areas based on adjacent project rights-of-way or other factors, to produce recommendations for site-specific mitigation and seed mixes which are best suited to these areas. The resulting mitigation will produce a stable right-of-way and maximize regrowth potential for the reclaimed areas. The following soil types are discussed in table 4.3-1 along with proposed seed mixes.

4.3.1 Shallow Soils

On steep slopes, shallow soils are extremely erosive. Rooting depth is limited and the soils have limited water storage capacity. These areas are discussed as shallow, shallow rock, bedrock, and bedrock outcrop areas.

4.3.2 Salinity/Sodicity

Saline soils are the result of accumulated soluble salts in concentrations that can prevent plants from taking water and therefore severely limit germination potential. Sodic soils are the result of accumulated sodium which crusts at the ground surface. Plant germination is reduced the potential for root penetration

is greatly reduced. In many areas, these soils are found together and are therefore discussed together in this plan. These areas are discussed as saline or salinity/sodicity, high water table areas, sodic shales, or marine shales.

4.3.3 Droughty Soils

Droughty soils occur as a result of soil texture, landscape position, aspect and slope. There are several areas along the pipeline route which contain these soils. They typically occur in south and west aspects, sandy flat areas, and steep slope areas with limited water holding capacity where run off is a problem. These areas are discussed as sandy, droughty, elevated terrace, steep slope, or coarse alluvium, fragment, or textured areas.

4.3.4 Flooding Soils

These areas include waterbody "low bottoms" that are prone to flooding. These areas are discussed as flooding or unstable areas.

4.3.5 Highly Erodible Soils

Highly erodible soils are typically found in association with steep slopes and are often dictated by substrate. Erosion and deposition are issues that affect the potential for successful revegetation. These areas are discussed as steep slope or unstable areas.

4.4 Waterbody Crossings

4.4.1 Notification

Overland Pass will provide written notification to the authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in a waterbody, or as otherwise specified by that authority. Additionally, Overland Pass will notify the appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

4.4.2 Installation

A total of 97 perennial waterbodies will be crossed by the pipeline (some waterbodies are crossed multiple times; see Appendix 3A of EIR 3). Of these perennial waterbody crossings, 70 are in Wyoming, 10 are in Colorado, and 17 in Kansas. Of the total, six perennial waterbody crossings are located on federally-managed lands. Overland Pass proposes to cross the majority of the perennial waterbodies using the open-cut, flume, or dam and pump methods depending on whether or not they are flowing at the time of construction. The horizontal directional drill (HDD) method will be used to cross the Green and South Platte Rivers. In crossing waterbodies, Overland Pass will adhere to the requirements of its waterbody crossing permits. Site-specific crossing plans are located in Appendix D.

The project will also cross 789 intermittent waterbodies (some waterbodies are crossed multiple times; see Appendix 3A of EIR 3). Many of these waterbodies are dry washes. If these waterbodies are dry when crossed, Overland Pass will use conventional upland cross-country construction techniques. If the waterbodies are flowing when crossed, Overland Pass will use the open-cut, flume, or dam and pump methods, described below. At ditches lined with concrete and aqueducts made out of pipe, Overland Pass will use the bore crossing method depicted in Figure 18.

Additional temporary workspace areas will be required on both sides of all waterbody crossings to stage construction, fabricate pipe, and store materials. On non-federally managed land, these additional

temporary workspace areas will generally be located at least 10 feet away from the water's edge. **On federally managed land, these additional temporary workspace areas will be located at least 50 feet away from the water's edge.** However, should water not be flowing at the time of construction, upland construction techniques will be used. The typical dimensions and locations of additional temporary workspace areas are listed in table 1.4.1-1 and Appendix 9D of EIR 9.

4.4.3 Bridges

Before construction, temporary bridges may be installed across all perennial waterbodies greater than 30 feet across which are flowing, or contain standing water, at the time of construction to allow construction equipment to cross. Construction equipment will be required to use the bridges, except for clearing crews which will be allowed one pass through a waterbody before the bridges can be installed.

Equipment bridges will consist of one of the following: clean rock placed over flume pipes; prefabricated construction mats; rail flat cars placed over the waterbody with or without a culvert; or flexi-float or other temporary bridging, such as Bailey bridges (see Figures 19 and 20 for bridge layouts). Bridge locations, types, and widths are depicted in site-specific plans.

4.4.4 Open Cut Crossing Method

For open-cut crossings, clearing adjacent to waterbodies will involve the removal of trees and brush from the construction right-of-way and additional temporary workspace areas. Woody vegetation within the construction right-of-way will be cut at ground level and cleared to the edge of the waterbody. Sediment barriers may be installed at the top of the streambank if no herbaceous strip exists. Initial grading of the herbaceous strip will be limited to the extent needed to create a safe approach to the waterbody and to install a bridge.

During clearing, sediment barriers will be installed and maintained across the right-of-way adjacent to a waterbody and within additional temporary workspace areas to minimize the potential for sediment runoff. Silt fence and/or straw bales located across the working side of the right-of-way will be removed during the day when vehicle traffic is present and will be replaced each night. Alternatively, drivable berms may be installed and maintained across the right-of-way in lieu of silt fence and/or straw bales.

Once the trench is excavated, the prefabricated segment of pipe will be installed in the trench. Most pipe installed under a waterbody will be coated with concrete or equipped with set-on weights to provide negative buoyancy. The trench will then be backfilled with native streambed spoil. Overland Pass will complete all in-stream work within 24 hours for all minor waterbodies crossings and within 48 hours for intermediate waterbody crossings.

Sediment Control

Silt fence, or equivalent, will be installed and anchored along the banks of waterbodies. Sediment control devices will be maintained until revegetation of adjacent areas is considered successful or the area is stabilized. Permanent diversion berms will be constructed at the base of slopes near waterbodies, unless otherwise specified by the land-managing agency or the EI.

Trench Plugs

Earthen trench plugs will be left in place on both banks of the waterbody until immediately before pipe installation. This will separate the waterbody trench from the upland trench to prevent water from being diverted into the upland portions of the pipeline trench and to keep muddy water that accumulates in the upland trench from flowing into the waterbody.

Pipeline Burial Depth

The pipeline will be installed at a depth below the bed of washes and wetlands that is consistent with DOT pipeline design and operating code as set forth in *49 CFR, PART 195-TRANSPORTATION OF HAZARDOUS LIQUIDS BY PIPELINE*, to prevent exposure of the pipeline and maintain the integrity of the system in event of a flash flood.

Backfill Material

Excavated material will be used for trench backfill in perennial streams and dry washes, unless expressly permitted otherwise by the BLM, the COE, or state regulatory agency. Backfilling will begin as soon as practical after installation of the pipe and reestablishment of the streambanks. In coldwater fisheries, the top one foot of the trench will be filled with clean gravel or native cobble.

If blasting is required for installation in a waterbody, the trench will be backfilled with native rock that was removed during blasting activities.

Streambed and Bank Stabilization

Original channel configurations will be reestablished, and the banks replaced, compacted, and restored to the original condition. Banks may be graded to a more stable configuration if eroding or unstable conditions were present prior to construction.

To provide additional erosion control, Overland Pass will use erosion control fabrics (*e.g.*, jute matting, straw blankets with plastic netting, or curlex) on the banks of washes and waterbodies where steep slopes and a minimum of natural rock are present. A permanent slope breaker will be installed at the base of any slope leading to a waterbody.

If required, Overland Pass will install temporary fences at the edges of waterbodies to prevent grazing cattle from disturbing the area before a mature vegetative cover is established.

The banks of perennial streams will be seeded with mixes listed in Appendix E. Dry wash bottoms will not be seeded.

Incised Banks

Areas where incised banks are crossed will be constructed and restored as outlined in Overland Pass' Incised Bank Stabilization Plan (appendix O).

4.4.5 Flume Crossing Method

The flume crossing method will involve diverting the flow of water across the trenching area through one or more flume pipes placed in the waterbody (see figure 22). The first step in the flume crossing method will involve placing a sufficient number of adequately sized flume pipes in the waterbody to accommodate the highest anticipated flow during construction. After placing the pipes in the waterbody, sand or pea gravel bags, water bladders, or metal wing deflectors will be placed in the waterbody upstream and downstream of the proposed trench. These devices will serve to dam the stream and divert the water flow through the flume pipes, thereby isolating the water flow from the construction area between the dams. Leakage from the dams, or subsurface flow from below the waterbody bed, may cause water to accumulate in the isolated area. As water accumulates in this area, it may be periodically pumped out and discharged into energy dissipation/sediment filtration devices, such as a geotextile filter bag or straw bale structure, or into well-vegetated areas away from the water's edge. Trackhoes located on both banks of the waterbody will excavate a trench under the flume pipe in the dewatered streambed. On non-federally managed land, spoil excavated from the waterbody trench will be placed or stored a minimum of 10 feet from the edge of the waterbody. **On federally managed land, spoil excavated from**

the waterbody trench will be placed or stored a minimum of 50 feet from the edge of the waterbody. However, should water not be flowing at the time of construction, upland construction techniques will be used. Once the trench is excavated, a prefabricated segment of pipe will be installed beneath the flume pipes. The trench will then be backfilled with native spoil from the waterbody bed. The banks will be stabilized before removing the dams and flume pipes and returning flow to the waterbody channel.

4.4.6 Dam and Pump Crossing Method

Overland Pass may use the dam and pump crossing method as an alternative to the flume crossing method. The dam and pump method is similar to the flume method except that pumps and hoses will be used instead of flumes to move water around the construction work area (see figure 23). The technique involves damming the waterbody with sandbags and/or steel plates upstream and downstream of the trench area. Pumps will be set up at the upstream dam with the discharge line routed through the construction area, discharging water immediately downstream of the downstream dam. Water flow will be maintained through all but a short reach of the waterbody at the actual crossing. The pipeline will be installed in the isolated area between the dams at least 5 feet below the streambed. After backfilling, the dams will be removed and the banks restored and stabilized.

On the PNG, construction across waterbodies that are flowing at the time of construction may be delayed for two days. Overland Pass will use open cut crossing methods if the construction delay results in the waterbody drying up due to a weather event. If delaying construction does not achieve this objective, intermittent waterbodies that are flowing at the time construction will be crossed using either the flume or dam and pump crossing method.

4.4.7 Horizontal Directional Drill Method

The HDD method will only be used for the South Platte and Green River crossings (see site-specific crossing plans in Appendix D).

The first step of HDD will be to drill a small-diameter pilot hole from one side of the crossing (entry side) to the other (exit side). Drilling will be achieved using a powered drill bit. The drilling fluid, commonly referred to as mud, will be a mixture of water and bentonite (a naturally occurring clay mineral), which will be pumped into the drill hole through the drill pipe during the drilling process. The pressure of the drilling mud will transmit hydraulic power through the drill bit, transport cuttings to the surface, lubricate the drill bit and stabilize the drill hole. Water, the main ingredient of drilling mud, will be obtained from the waterbody during drilling or will be trucked in from another source. Small pits will be dug at or near the entry and exit holes to temporarily store the mud and cuttings. The mud and cuttings will be pumped from the temporary storage pits to an on-site recycling unit where the bentonite clay will be processed for reuse.

As drilling the pilot hole progresses, segments of drill pipe will be inserted into the pilot hole to extend the length of the drill across and under the waterbody. The drill bit will be steered and monitored throughout the process to maintain the designated path of the pilot hole. To assist in steering, a sensor grid may be established on the surface on both the entry and exit sides of the horizontal directional drill. The sensor grid will be fabricated by installing several stakes along and above the drill path and wrapping them with an insulated coil wire. The coil wire will be then energized with a portable generator, which creates a magnetic field to help track the drill bit path.

Once the pilot hole is complete, the sensor grid will be removed and the hole will be enlarged to accept the pipeline. To enlarge the pilot hole, a larger reaming tool will be attached to the end of the drill pipe on the exit side of the hole. The reamer will then be drawn back through the pilot hole to the drill rig

(entry side). Drill pipe sections will be added to the rear of the reamer as it progresses toward the rig, thereby allowing a string of drill pipe to remain in the hole at all times. Typically, several passes of consecutively larger reaming tools are required before the hole will be of sufficient size. The final hole will be approximately 1½ times larger than the pipeline to be installed (or approximately 24 inches in diameter).

The pipeline segment to be installed beneath the waterbody will be fabricated into one section on the right-of-way on the exit side of the crossing. The pipe segment will be radiographically inspected and/or hydrostatically tested prior to installation. After the hole is completed, the pipeline segment will be attached to the drill pipe on the exit side of the hole and pulled back through the drill hole toward the drill rig.

Once the pipeline is installed, excess drilling mud will be collected and incorporated into the soil in an upland area or disposed of at an appropriate facility. If water will be left over from the drilling process, it will be discharged into a well-vegetated upland area or into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale dewatering structure at the site.

Ideally, horizontal directional drilling involves no disturbance to the bed or bank of the waterbody being crossed. However, if a natural fracture or void in the ground is encountered, an unexpected release of drilling mud to the environment could occur. Unconsolidated gravel, coarse sand, and fractured bedrock all present circumstances that increase the likelihood of drilling mud releases. These areas present paths that can run laterally or vertically. If drilling mud moves laterally, the release may not be evident on the ground. For a release to be evident, there must be a flow path extending vertically from the drill hole to the surface. The volume of mud released will be dependent on a number of factors, including the size of the fault, the permeability of the geologic material, the viscosity of the drilling mud, and the pressure of the hydraulic drilling system.

Releases to surface generally occur above or near the drill path. If a wetland or waterbody is present, drilling mud could be released into the wetland or waterbody. In the event drilling mud is released on surface, including within a wetland it will be immediately contained with straw bales, silt fence, or berms. A small pit may be immediately dug at the release site to contain its spread, and a pump will be used to transfer the drilling mud from the pit and into a containment vessel.

A drilling mud release to a waterbody will be more difficult to contain because mud is quickly dispersed into the water and carried downstream. In the event of a release to a waterbody, an attempt may be made to plug the fault by lowering the drilling pressure and thickening to the drilling mud, with additional bentonite, or other non-hazardous materials that are compatible with the drill equipment being used.

The *Horizontal Directional Drilling Inadvertent Release Control Plan* describes the prevention, detection, monitoring, notification, and corrective action procedures in the event of an inadvertent release of drilling fluid should the HDD method be used (see section 1.5.3.14).

In most cases, horizontal directional drilling can be completed in spite of an inadvertent drilling mud release. However, in rare situations, horizontal directional drilling may entirely fail and the waterbody may not be able to be crossed using this method. The presence of outwash interspersed with boulders and cobbles, fractured bedrock, or non-cohesive coarse sands and gravels increase the likelihood drilling may fail due to refusal of the drill bit or collapse of the bore hole in non-cohesive, unstable substrate. In the event that an HDD fails prior to completion, Overland Pass will utilize the Site-Specific Open-Cut Contingency Plans prepared for each crossing.

4.5 Wetland Crossings

The pipeline route will cross 85 wetlands (see tables 3.3.1-1 and 3.3.2-1 of EIR 3). Of the total, 12 are located on or partially within federally managed lands. Section 3.3 in EIR 3 discusses further the wetland types crossed and affected by the proposed project. Pipeline construction across wetlands will be similar to typical conventional upland cross-country construction procedures, with several modifications and limitations to reduce the potential for pipeline construction to affect wetland hydrology and soil structure.

Overland Pass will use a 75-foot-wide construction right-of-way through wetlands. Additional temporary workspace areas will be required on both sides of wetlands to stage construction, fabricate the pipeline, and store materials. On non-federally managed land, additional temporary workspace areas will be located in upland areas a minimum of 10 feet from the wetland edge. **On federally managed land, additional temporary workspace areas will be located in upland areas a minimum of 50 feet from the wetland edge.** The typical dimensions and locations of additional temporary workspace areas for each wetland crossed are listed in Appendix 9D of EIR 9.

Construction equipment working in wetlands will be limited to that essential for right-of-way clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the right-of-way. In areas where there is no reasonable access to the right-of-way except through wetlands, non-essential equipment will be allowed to travel through wetlands only if the ground is firm enough or has been stabilized to avoid rutting. Otherwise, non-essential equipment will be allowed to travel through wetlands only once.

Clearing of vegetation in wetlands will be limited to trees and shrubs, which will be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the wetland soils, stump removal, grading, topsoil segregation, and excavation will be limited to the area immediately over the trenchline. A limited amount of stump removal and grading may be conducted in other areas if dictated by safety-related concerns. Topsoil segregation over the trenchline will only occur if the wetland soils are not saturated at the time of construction.

During clearing, sediment barriers, such as silt fence and staked straw bales, will be installed and maintained adjacent to wetlands and within additional temporary workspace areas as necessary to minimize the potential for sediment runoff. Sediment barriers will be installed across the full width of the construction right-of-way at the base of slopes adjacent to wetland boundaries. Silt fence and/or straw bales installed across the working side of the right-of-way will be removed during the day when vehicle traffic is present and will be replaced each night. Alternatively, drivable berms may be installed and maintained across the right-of-way in lieu of silt fence or straw bales. Sediment barriers will also be installed within wetlands along the edge of the right-of-way, where necessary, to minimize the potential for sediment to run off the construction right-of-way and into wetland areas outside the work area. If trench dewatering is necessary in wetlands, silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale structure, to minimize the potential for erosion and sedimentation.

The method of pipeline construction used in wetlands will depend largely on the stability of the soils at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, timber riprap, or straw mats, construction will occur in a manner similar to conventional upland cross-country construction techniques. In unsaturated wetlands, topsoil from the trenchline will be stripped and stored separately from subsoil. Topsoil segregation generally will not be possible in saturated soils.

Where wetland soils are saturated and/or inundated, the pipeline may be installed using the push-pull technique. The push-pull technique will involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats or timber riprap. The prefabricated pipeline will be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats will be removed and the pipeline will sink into place. Most pipe installed in saturated wetlands will be coated with concrete or equipped with set-on weights to provide negative buoyancy.

Because little or no grading will occur in wetlands, restoration of contours will be accomplished during backfilling. Prior to backfilling, trench breakers will be installed where necessary to prevent the subsurface drainage of water from wetlands. Where topsoil has been segregated from subsoil, the subsoil will be backfilled first, followed by the topsoil. Topsoil will be replaced to the original ground level leaving no crown over the trenchline. In some areas where wetlands overlie rocky soils, the pipe will be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, timber riprap, gravel fill, geotextile fabric, and/or straw mats will be removed from wetlands following backfilling.

Where wetlands are located at the base of slopes, permanent slope breakers will be constructed across the right-of-way in upland areas adjacent to the wetland boundary. Temporary sediment barriers will be installed where necessary until revegetation of adjacent upland areas is successful. Once revegetation is successful, sediment barriers will be removed from the right-of-way and disposed of properly.

In wetlands where no standing water is present, the construction right-of-way will be seeded utilizing the seed mixes located in Appendix E. In cultivated cropland, annual rye grass will be planted at a rate of 40 pounds per acre to provide temporary cover while allowing native herbaceous and woody vegetation to become re-established without excessive competition. Lime, mulch, and fertilizer will not be used in wetlands.

4.6 Riparian Vegetation

On federal lands, construction methods for riparian vegetation areas will be conducted utilizing construction techniques which are similar to the proposed methods for wetland crossings in section 4.5. On private lands, Overland Pass proposed to use standard upland construction methods, as discussed above, unless the EI determines that wetland crossing procedures are needed.

4.7 Blasting

Overland Pass anticipates that limited blasting may be necessary as a last resort in areas where competent shallow bedrock or boulders are encountered that cannot be removed by conventional excavation with a trackhoe trencher, ripping with a bulldozer followed by trackhoe excavation, or hammering with a trackhoe-attached device (hoe-ram) followed by excavation. Table 8.2-1 in EIR 8 identifies those areas along the proposed pipeline route where shallow bedrock is anticipated, however blasting may not be necessary at all of these locations. See Appendix L for Overland Pass' Blasting Plan.

4.8 Residential Construction

Based on aerial alignment sheets, no residences are located within 50 feet of the proposed project area, however multiple structures have been identified within 50 feet of the proposed construction work area (see table 9.1.3-5 of EIR 9). None of the structures identified are occupied residences. Overland Pass will adhere to its BMPs and permit conditions when working within 50 feet of structures.

4.9 Rangeland Construction

Overland Pass has identified grazing lease holders on federal lands. See Table 4.9-1 for lease holders by milepost. The grazing lessee/permittee will be contacted by a representative of the right-of-way holder and/or contractor prior to commencing construction on their respective allotment. Each fence crossed by construction crews will be braced and secured to prevent slacking of the wire (see Figure 2a for fence cutting methods to be utilized). The opening created will be closed when construction crews leave the project area to prevent passage of livestock. Any gaps in natural barriers used for livestock control created by construction activity will be fenced according to landowner or lease holder.

TABLE 4.9-1

Overland Pass Pipeline Project - Grazing Leases Located on BLM Lands[1]

BLM Field Office	Lease Holder	Allotment Number (if known)
Kemmerer	Carl Larson	
Kemmerer	Arnold Larson	
Kemmerer	Uinta Development	
Kemmerer	Broadbent	
Rock Springs	Aimone Martin	
Rock Springs	Bar X Sheep Company	
Rock Springs	Big Sandy & Green River Livestock	
Rock Springs	Cedar Creek Ranch	
Rock Springs	Clark & Theresa Weber	
Rock Springs	Crosson Ranches Inc.	
Rock Springs	Don & Peggy Vercimak	
Rock Springs	Don Mines ("Chilton LSE")	
Rock Springs	Donald & Wanda Moon	
Rock Springs	Douglas & Carolyne Hamel	
Rock Springs	Elza Eversole	
Rock Springs	Jon C. Wilde	
Rock Springs	Matthew G. Henry	
Rock Springs	Mud Springs Livestock Company	
Rock Springs	Quarter Circle 3 Bar Ranch	
Rock Springs	Richard P. Thoman	
Rock Springs	Robert Gamble	
Rock Springs	Rock Springs Grazing Association	
Rock Springs	Tripp Living Trust - William H. and Dora L.	
Rock Springs	W&M Thoman Ranches LLC	
Rock Springs	William Bonomo, Jolene Jensen, et al.	
Rawlins	Adams & Adams	10607
Rawlins	Audrey Brokaw	00855
Rawlins	Berthel Land & Livestock	09175
Rawlins	Blake Sheep Company	10616
Rawlins	Booth Brothers Land & Livestock	09025
Rawlins	Lonesome Fox Corporation	00879
Rawlins	Medicine Bow Ranch	00854
Rawlins	P. H. Livestock	00716
Rawlins	Peterson Livestock	00708

[1] Lease holder information trends in a general 'west to east' direction. Some lease holders hold multiple leases which are not contiguous allotments.

TABLE 4.9-1

Overland Pass Pipeline Project - Grazing Leases Located on BLM Lands[1]

BLM Field Office	Lease Holder	Allotment Number (if known)
Rawlins	Q Creek Grazing Association	00819
Rawlins	Rocky Mountain Sheep Grazing Association	00816
Rawlins	Rodewald Grazing	10615
Rawlins	Roland Bower - Percy Grazing Association - G. A. Larson	00829
Rawlins	Tall Grass LLC	00718
Rawlins	Unknown	20603
Rawlins	Wallis Livestock - Peterson Livestock LLC	00827
Rawlins	Wyoming Game & Fish Department	00605

4.10 Grazing Mitigation

To protect livestock on rangeland, Overland Pass will install trench plugs across the pipeline trench where it crosses livestock trails, and ramps will be installed to allow for the escape of livestock should they fall into the trench. Overland Pass will leave gaps between strung sections of pipe about every 0.5 mile or wherever there is a feature crossing (e.g., waterbody, road, utility), or where identified by the EI to allow livestock to pass between long, continuous sections prior to Pipe lowering in. It is anticipated that most segments will be open for 4 to 6 weeks. **Within the PNG, the open trench segments will be limited to short periods from the time the excavator opens the trench until the trench is backfilled due to the limitation of one mile of open trench at any one time.**

Following construction, temporary fences will be removed and livestock will be allowed to graze and roam freely over the permanent right-of-way.

4.10.1 Fencing

Overland Pass is responsible for contacting grazing lessees prior to crossing any fence on public lands, or any fence between public and private land, and for offering the lessees an opportunity to be present when the fence cut(s) is/are made so the lessees can be satisfied that the fence is adequately braced and secured per BLM requirements (see fence bracing typicals in appendix C). The grazing lessee will be contacted by a representative of the right-of-way holder and/or contractor prior to commencing pipeline construction and reclamation on their respective allotment. Before cutting the wires for pipeline construction, each fence crossed by the right-of-way will be braced and secured to prevent slacking of the wire. The opening created will be temporarily closed when construction crews leave the project area to prevent passage of livestock. Any gaps in natural barriers used for livestock control created by construction activity will be fenced according to BLM requirements or landowner's instructions.

All existing improvements, such as fences, gates, irrigation ditches, cattle guards and reservoirs will be maintained during construction and repaired to pre-construction conditions or better.

4.11 Waterlines

Several water pipelines will be crossed by, or are parallel to, the construction right-of-way. A minimum of 10 feet of undisturbed area will be maintained between fence lines and the parallel pipeline, if possible. If construction damage to water pipelines occurs, repairs will be made according to landowner's or lease holder's specifications. If needed, an emergency source of potable water for livestock will be provided by Overland Pass.

On the PNG, several waterlines are located within the construction right-of-way. It is anticipated that construction will occur on PNG land during the peak grazing season of May 15 through October 15. In the event that Overland Pass severs a waterline, the line will be repaired to at least equal or better quality compared to its pre-construction condition. In most cases, Overland Pass will be able to place pipe underneath the waterline. In instances where the line requires cutting or is accidentally severed, the line will be braced on both sides of the affected area near the edges of Overland Pass' pipe trench to cut off water flow. Once the pipe is laid in the trench, a new section of waterline will be placed in the gap. The waterline will be installed back to its original burial depth with at least 6-inches of clearance between the waterline and the newly installed pipeline. Alternate water sources will be provided for livestock during this period in consultation with the leaseholder or waterline owner.

4.12 Winter Construction

See appendix P for Overland Pass' Winter Construction Plan. Winter construction planning will be subject to big game winter range restrictions, as defined in Table 3.8-1, EIR 3.

4.13 Dust Control

Dust control activities will occur throughout the project area, as needed. These activities will be performed using primarily water spraying trucks in construction work areas and on access roads. Water volumes required for dust control are included in the Hydrostatic Testing Plan (Appendix G) and methods are discussed in the Traffic and Transportation Management Plan (Appendix F). Water requirements for dust control are located in EIR 3, Table 3.2.7-1.

5.0 ABOVE GROUND FACILITY CONSTRUCTION

EIR 1 (Project Description) contains detailed information on aboveground facility locations, dimensions, and land requirements. Pump stations will not be located on federally-managed lands.

5.1 Pump Stations

Construction activities at each of the two pump stations will be similar and will include a standard sequence of activities. These include clearing and grading, installing foundations, undergrounds, and control buildings and associated facilities. Figure 24 shows the layout of a typical pump station.

Temporary portable sanitary facilities will be installed during construction. Solid wastes generated during construction will be disposed of in an approved manner, as will all cleaning fluids and other waste materials. Construction activities and the storage of building materials will be confined to the pump station construction sites to the extent practical. Additional storage, if required, will be located in suitable areas off site.

Typical construction activities that will be involved in the development of pump stations are summarized below.

5.1.1 Clearing and Grading

The sites for the pump stations will be cleared of vegetation and graded as necessary to create a level surface for the movement of construction vehicles and to prepare the area for the building and pump foundations. After the completion of clearing and grading, silt fence or straw bales will be installed, as appropriate to the site, to minimize the potential for erosion. Erosion and sediment controls, if required, will be installed.

5.1.2 Foundations

Foundations will be constructed for the buildings, and soil will be stripped from the area of the building foundations. This soil may be used onsite for landscaping.

5.1.3 Underground Facilities

Underground facilities will consist of buried station piping, buried electrical conduits and cable, and a close drain system, with a below ground sump tank.

5.1.4 Building Design and Construction

Each pump station will include one prefabricated control building. The typical construction sequence will be to construct the building foundation and then set the prefabricated building on the foundation.

The pump stations will operate on locally-purchased power, and will be fully automated for unmanned operation. Overland Pass will purchase the power utilizing nearby high voltage transmission lines and install a transformer to reduce the voltage to provide 4,160V power. This 4,160V power will be for the motors that drive the pumps. Overland Pass will install a second transformer to reduce the transmission line voltage to provide 480V power for other pump station equipment.

To the extent compatible with Good Engineering Practice, the station buildings will be architecturally designed (form) and painted (color) to be compatible with landscapes in the areas in which they are located. Additionally, Overland Pass will consult with the BLM and other appropriate agencies to determine which additional aboveground facilities will require painting to enhance visual quality. The paint color will be determined after consultation with these agencies.

5.1.5 High Pressure Piping

High pressure piping in the pump station will have a design factor of 0.50 and will be buried to the extent possible. Grade and wall thickness of the pipe will be selected to ensure the pipe is capable of withstanding the operating pressures for which it is designed.

5.1.6 Pressure Testing

High pressure piping in the pump station will be hydrostatically tested with pressurized water in the piping to ensure the piping is capable of withstanding the operating pressure for which it is designed. Internal test pressures and durations will be in accordance with Title 149 Part 195.

5.1.7 Commissioning

Commissioning involves activities to verify that all pump station equipment is properly installed and working, the controls and communications systems are functional, and the pump station is ready for service.

5.1.8 Final Grading and Landscaping

After the completion of start up and testing, or as soon as weather permits thereafter, the pump station sites will be final graded and landscaped. Because the construction of the stations is scheduled for completion in the fall of 2007, landscaping (if any) may be postponed until the spring or early summer of 2008.

A permanent security fence will be installed around the pump station site. The station access roads also will be final graded. Parking areas for vehicles will similarly be paved or graveled. Motion lights may be installed and exterior lights may be dimmed, particularly in areas of sensitive wildlife habitat.

Because each of the pump station sites is located in remote, undeveloped areas and/or adjacent to existing commercial/industrial facilities, the station buildings will be designed to be consistent with the character of the surrounding land uses (to the extent possible) and an extensive landscaping program is not planned. Vegetation may be planted in front of the gate to each fenced site area and at the entrance to the access road. In addition, trees that are common in the surrounding region may be planted reflecting the pattern of vegetation in surrounding areas.

5.1.9 Infrastructure Facilities

Each pump station will require electricity and telephone facilities, which will be obtained from a local source.

5.1.10 Erosion Control, Revegetation, and Maintenance Procedures

During the construction of the pump stations, Overland Pass will adhere to applicable state and local permits, as well as site-specific mitigation developed in consultation with land managing agencies and landowners.

5.2 Meter Stations

Many of the procedures used in meter station construction will be similar to those used in pump station construction described above as the meter stations will be constructed within proposed pump station sites or existing commercial/industrial facilities. Meter station construction will typically include clearing and grading, preparing foundations, installing underground piping, erecting and installing buildings, installing above ground piping and equipment, testing the piping, testing the control equipment, cleaning up the work area, paving or graveling access roads and parking areas, fencing the facilities, and final grading and landscaping. Figure 25 shows the layout of a typical meter station.

5.3 Mainline Valves and Launcher/Receivers

As part of construction of the pipeline, valves will be installed at spacings defined by the DOT's Title 49 CFR Part 195.260 and listed in table 1.3.2-1. Figures 26a through 26e show the layouts of the various valve sites. Section 11.2.7 of EIR 11 discusses further the placement requirements for valves. Launcher/receiver (scraper trap) sites will be constructed as depicted on figure 27a through 27c.

Valve and launcher and/or receiver construction will include clearing and grading, installing underground piping, testing the piping, testing the control equipment, cleaning up the work area, graveling the site, and fencing the facilities. Valve and launcher and/or receiver construction will generally be concurrent with the construction of the pipeline. Upon completion, the disturbed area will be stabilized with gravel within a fenced enclosure or by seeding with appropriate species outside the fence and the aboveground

components of these facilities will be painted to blend the facilities in with surrounding vegetation and soils. The valves and launcher and/or receiver sites will be enclosed in a chain-link or barbed wire security fence.

6.0 RECLAMATION MONITORING PLAN

6.1 Goals of Reclamation Monitoring Plan

To assess the effectiveness of the reclamation treatments and to evaluate the condition of right-of-way, Overland Pass will implement a monitoring program consisting of field inspections and vegetative analysis. A report of the condition of the right-of-way and the status of sensitive resources affected during construction will be submitted to the BLM. The monitoring program will also identify remedial measures that will be considered by Overland Pass to mitigate environmental degradation if the initial treatments were not effective in achieving the objectives of the reclamation program.

6.2 Reclamation Monitoring Criteria

Overland Pass' effort to reclaim areas disturbed during construction will be evaluated for a minimum period of five years. Successful reclamation performance will be based on revegetation success (*e.g.*, cover, frequency, and diversity), the absence of weeds or invasive plants, stability of the construction right-of-way, waterbody bed and bank stability; and visual aesthetics. Monitoring will continue after the five year period in areas where revegetation, weed, and stability problems continue. **On the PNG, monitoring will occur on an annual basis for the first five years, and where problem areas exist thereafter, and will be subject to the same reporting standards as listed below.**

6.3 Monitoring Techniques and Procedures

To evaluate the success of revegetation, Overland Pass will use a quantitative rapid diversity assessment. This is an effective and efficient technique to monitor the composition of vegetative cover and diversity over time and between sampling plots. The technique is useful to measure the response of vegetation to disturbance.

In association with a vegetative monitoring program, Overland Pass will assess the success of reclamation efforts to stabilize soil and waterbodies.

6.3.1 Vegetation Monitoring

Overland Pass will monitor quadrats (*i.e.*, rectangular analytical plots identified in the field and retrievable by GIS equipment) located in the right-of-way, and control quadrats located outside the right-of-way. Monitoring will occur in July during the first, third, and fifth years following reclamation. Plant diversity, frequency, and percent cover data will be collected. Data obtained from the reclaimed right-of-way will be compared to vegetative data obtained from the undisturbed, naturally-occurring vegetative populations adjacent to the right-of-way. Variation between plots will provide a quantitative indication of the relative success of reclamation. Section 6.4.1 describes the number and location of the plots that will be assessed.

In areas where plantings/transplanting occurred, reclamation success will be based on survivorship and vigor of the transplants.

6.3.2 Erosion and Runoff Control

Periodic ground and aerial inspections of the route by Overland Pass Pipeline Operations and Maintenance (O&M) personnel should detect areas of erosion (*i.e.*, formation of gullies, deposition of sediment) and uncontrolled runoff (*i.e.*, berm washouts) before significant impacts occur. In addition to O&M reconnaissance, reclamation specialists will conduct annual inspections during July of first, third, and fifth years following reclamation to assess the condition of the right-of-way and the effectiveness erosion control measures. This ground inspection will concentrate on steep slopes, erodible soils, and sensitive areas identified during construction by the EIs and agency representatives.

6.3.3 Waterbody Stabilization

In association with erosion control and runoff inspections, Overland Pass representatives will visually assess the condition of bed and bank stabilization measures installed during restoration at waterbodies that were constructed using site-specific crossing plans. This assessment will occur with the same frequency of the erosion and runoff control inspections. In addition, a limited number of dry washes that drain into high quality streams will also be assessed for bed and bank stability.

6.4 Monitoring Methods and Procedures

6.4.1 Vegetation Quadrats

Overland Pass will survey plots to determine the vegetative diversity, density, frequency, and percent cover on the right-of-way and in off right-of-way areas following restoration. The monitoring program will meet the project's post construction monitoring requirements listed in Section VIII.A.3 of the Soil Stabilization Plan, which reads "Revegetation shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation (or crops in cultivated crop land) are similar in density and cover to adjacent undisturbed lands". Overland Pass will consider long term revegetation to be successful if approximately 80% of the proposed vegetative communities are reestablished in disturbed areas. In addition, vegetative monitoring will determine if, or to what extent, noxious weeds have become established in the project areas.

Overland Pass will use two teams for surveys following construction. The teams will consist of a vegetative specialist and a weed expert. Overland Pass will obtain landowner permission prior to conducting surveys.

Overland Pass will assess the vegetative diversity, frequency, and percent cover in sampling quadrats to assess revegetation. Overland Pass will monitor X quadrats, of which, X quadrats will be located in the right-of-way, and X in adjacent, undisturbed areas off the right-of-way. The number of quadrats per vegetative community will reflect the percentage of each community crossed by the pipeline route. **Note:** Overland Pass will consult with the BLM prior initiating the program, to determine appropriate location and number of quadrats to be assessed.

The sampling quadrats will be paired: one quadrat will be located on the construction right-of-way and a second quadrat will be located off the right-of-way in an undisturbed area (*i.e.*, control plot). The control quadrat will be located in proximity to right-of-way quadrat. Quadrant size will vary by vegetative community:

- In Sagebrush Shrub areas: X quadrats (X in the right-of-way and X in undisturbed areas) measuring 3 meters square will be assessed; and,

- In the Grassland areas, X quadrats (X in the right-of-way and X in undisturbed areas) measuring 3 meters square will be assessed.

Within the quadrats, the monitors will determine the diversity of the cover by recording the number of native and invasive species present.

Diversity will be indicated by the number and species of plants counted in each quadrat. Foliar cover will be estimated. "Cover" is defined as the area of ground covered by vertical projection of the aerial portions of plants. Foliar cover will be recorded in 10 percent increments, (*i.e.*, 10, 20, 30 percent, etc.). For example, foliar cover of 10 percent will mean that 90 percent of the quadrat consists of exposed litter, rock, and other surface debris, and 10 percent is covered with living, foliar vegetation.

Comparing the data from sample year to sample year will provide Overland Pass with an indication if: cover is increasing, if the species composition and diversity of the vegetation is expanding or contracting from one area to another, and if noxious weeds have been established in the right-of-way.

The geographic location of quadrats will be collected and stored using hand-held, sub-meter accuracy global positioning system (GPS) equipment. Location and size of the quadrants will be recorded using area polygons. These data can easily be transferred from the GPS equipment to either a CAD or GIS software application for use on project maps or alignment sheets. Overland Pass will also permanently identify the four corners of the quadrats with 1x2-inch wooded or metal stakes embedded into the ground so that a 4-inch section of the stake is visible for future reference.

Overland Pass will also monitor the survival, vigor, and success of transplants in riparian areas. Vegetation quadrat spacing will be the same as in other areas. This assessment will include a count of living transplants and invasive species. These data will be compared to the number of trees transplanted during restoration.

Overland Pass will monitor the presence of noxious weeds in the right-of-way during the same timeframe as outlined above. Measured values for native vegetation will be compared to the minimum success standards for each year in a summary report that will be submitted to the BLM.

If required, Overland Pass will implement an additional revegetation and/or noxious weed control program in areas where monitoring has determined that additional measures would likely be successful.

6.4.2 Erosion and Runoff Control

Overland Pass will selectively survey areas that are susceptible to erosion (*i.e.*, steep slopes and erodible soils) during the same timeframe as outlined above. The surveys will be conducted in July and will involve a visual inspection of steep slopes, erodible soils, and other erosion sensitive areas identified by EIs, and agency personnel during construction. This survey will assess the condition of the right-of-way, ATWS, and access roads, the effectiveness of the erosion control devices, and recommend repair or maintenance procedures that are necessary to meet reclamation objectives. Overland Pass will survey approximately X sites. Overland Pass will obtain landowner permission prior to conducting surveys. The inspection sites will range from 200 to 1,000 feet in length.

Overland Pass will use teams consisting of a soil scientist and a vegetation specialist for the survey. The teams will complete an Erosion and Runoff Control Inspection Form for each site visit. Photographic documentation will accompany the inspection report.

Survey teams will notify Overland Pass O&M personnel if areas of the right-of-way require immediate stabilization and repair to meet the reclamation objectives. O&M personnel will attempt to respond to a repair request within 48 hours of notification.

6.4.3 Waterbody Stabilization

Overland Pass will survey high-quality waterbodies, and dry washes that drain into high-quality streams during the same timeframe as outlined above. This visual assessment will evaluate the stability of the waterbody, condition of permanent erosion and sediment control measures, and the condition of the streambed and banks. Surveys will be conducted in July, and will involve two teams, each consisting of reclamation specialists. Overland Pass will obtain landowner permission prior to conducting surveys. The teams will use a Waterbody Stabilization Inspection Report Form. Photographic documentation will accompany the inspection report.

Overland Pass anticipates that inspection effort will require two weeks of field work to complete. During the surveys teams will notify O&M personnel if any stream or dry wash require stabilization and repair to meet the reclamation objectives. O&M personnel will attempt to respond to a repair request within 48 hours of notification.

6.5 Reclamation Monitoring Reports

Overland Pass will prepare an annual Reclamation Monitoring Report and submit this report to the BLM on or before December 31 of the inspection year. These reports will include:

Vegetation

- A summary of the general vegetative diversity, frequency, and cover between the right-of-way and the comparison with off right-of-way vegetation quadrats;
- An assessment of the condition of transplants in riparian areas;
- Identification of areas that require remedial action;
- Recommendations and schedule for remedial action(s); and,
- Monitoring forms.

Erosion and Water Control

- Summary description of the condition of the right-of-way;
- Identification and description of problem areas;
- Recommendations and schedule for remedial action (s); and
- Erosion and Runoff Control Inspection Forms.

Waterbody Stabilization

- Summary description of the condition and stability of high-quality waterbodies and associated washes;
- Identification and description of problem areas;
- Recommendations and schedule for remedial action (s); and
- Waterbody Stabilization Inspection Report Forms.

6.6 Remedial Action

Overland Pass will consult with the BLM Project Manager prior to initiating remedial actions. This consultation will establish a work schedule, prioritize the list of actions to be taken, identify the equipment required, and describe mitigative measures that will be implemented.

7.0 OPERATION AND MAINTENANCE OF THE FACILITIES

Overland Pass will operate and maintain the pipeline in accordance with Federal and state regulations. The pipeline system will be monitored and controlled 24 hours a day by a remote dispatch center.

Aboveground facilities will be inspected annually to satisfy DOT requirements. Pipeline inspections will encompass testing equipment, recalibration, and repair, replacement, and reporting, as necessary.

The pipeline system will be routinely inspected on the ground or in the air to detect and identify indications of leaks, evidence of pipeline damage, or environmental concerns (*e.g.*, erosion hazards, gullies, sedimentation of waterbodies, all terrain vehicle rutting, etc.). Inspections will be conducted in accordance with minimum Federal safety standards, Transportation of Hazardous Liquids by Pipeline, Title 49 CFR Part 195. Environmental concerns will be addressed as necessary to comply with conditions in this plan.

The pipeline will be protected from external corrosion (pitting) by the protective coating applied to the pipe and by installation of a cathodic protection system. The external pipe coating is the primary corrosion protection method. Cathodic protection applies an electrical current to the pipeline from an external direct current power source (rectifier) to prevent corrosion where the coating is not 100 percent effective. Rectifiers will be located near existing power distribution lines and mounted on poles in or adjacent to the right-of-way and connected to carbon anode ground bed within the permanent 50-foot right-of-way. The condition of the pipe coating and effectiveness of the cathodic protection system will be monitored in accordance with Federal standards and regulations. Repairs to the pipe, pipe coating, or the cathodic protection system will be made as appropriate.

Locations of the cathodic protection rectifiers and ground beds associated with the pipeline cannot be identified until the pipeline is installed and tests are conducted. Test leads will be attached to the line at mile posts, roads, pipeline crossings and highways to monitor the cathodic protection system. Each set of test leads will be connected in a junction box installed on the ground surface along the right-of-way. The junction boxes will not interfere with existing land uses.

Pipeline markers will be installed to mark the underground location of the pipeline and to identify the owner of the system and to display telephone numbers for emergencies or other inquiries. The pipeline markers will be located where the pipeline crosses fence lines, roadways, waterbodies, and other public access locations.

During operation of the pipeline, Overland Pass will periodically remove woody vegetation from scrub-shrub wetlands to facilitate post-construction pedestrian and aerial inspections of the pipeline and right-of-way. In accordance with Overland Pass' environmental plans, Overland Pass will maintain in a 10-foot-wide herbaceous strip centered over the pipeline and will remove trees greater than 15 feet in height within a 30-foot-wide strip centered over the pipeline as is permitted by the BLM.

8.0 ABANDONMENT

Overland Pass has no plan to abandon the pipeline facilities. If and when Overland Pass chooses to abandon part of all of the proposed facilities, Overland Pass will develop an abandonment plan. An

Abandonment Plan would be submitted to the Authorized Officer for approval at least 60 days prior to abandonment of facilities on Federal land and a pre-abandonment conference scheduled.

If abandonment were to occur, the pipeline would be purged of liquid residues, cleaned, isolated from interconnections with other pipelines, and sealed without removing the pipe from the ground. Minimum industry standards require that pipe maintain its integrity for at least 50 years. With regular maintenance during operation, pipe will typically last much longer. Therefore, Overland Pass does not anticipate long term soil subsidence due to a lack of pipe integrity or excessive corrosion.

Abandonment in place minimizes surface disturbance and other potential environmental affects from pipe removal. Aboveground pipeline facilities, including equipment and foundations, at pump and meter stations would be removed, and the station properties reclaimed to maintain consistency with federal land use plans.

Upon abandonment of the pipeline in part or in whole, the right-of-way associated with the abandon facilities will typically be returned to the landowners or land managing agencies according to the easement agreements.

APPENDICES

Appendices to the Construction, Reclamation, and Revegetation Plan intentionally not included in the Overland Pass EIS

Appendix C

Hydrostatic Test Plan

OVERLAND PASS PIPELINE PROJECT

HYDROSTATIC TEST PLAN

DRAFT

Prepared by:

Natural Resource Group, Inc.

January 2007

OVERLAND PASS PIPELINE PROJECT
HYDROSTATIC TEST PLAN
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LIST OF FIGURES

APPENDICES

1.0 EXECUTIVE SUMMARY

Overland Pass Pipeline Company LLC (Overland Pass) will hydrostatically test its proposed 759.82-mile natural gas liquids pipeline with pressurized water to ensure the system is capable of withstanding the operating pressure for which it was designed. Sections of the pipeline will be tested as a single segment utilizing water obtained from a combination of groundwater and surface water sources through specific agreements with landowners and land managing agencies, and in accordance with project plans and federal, state, and local regulations.

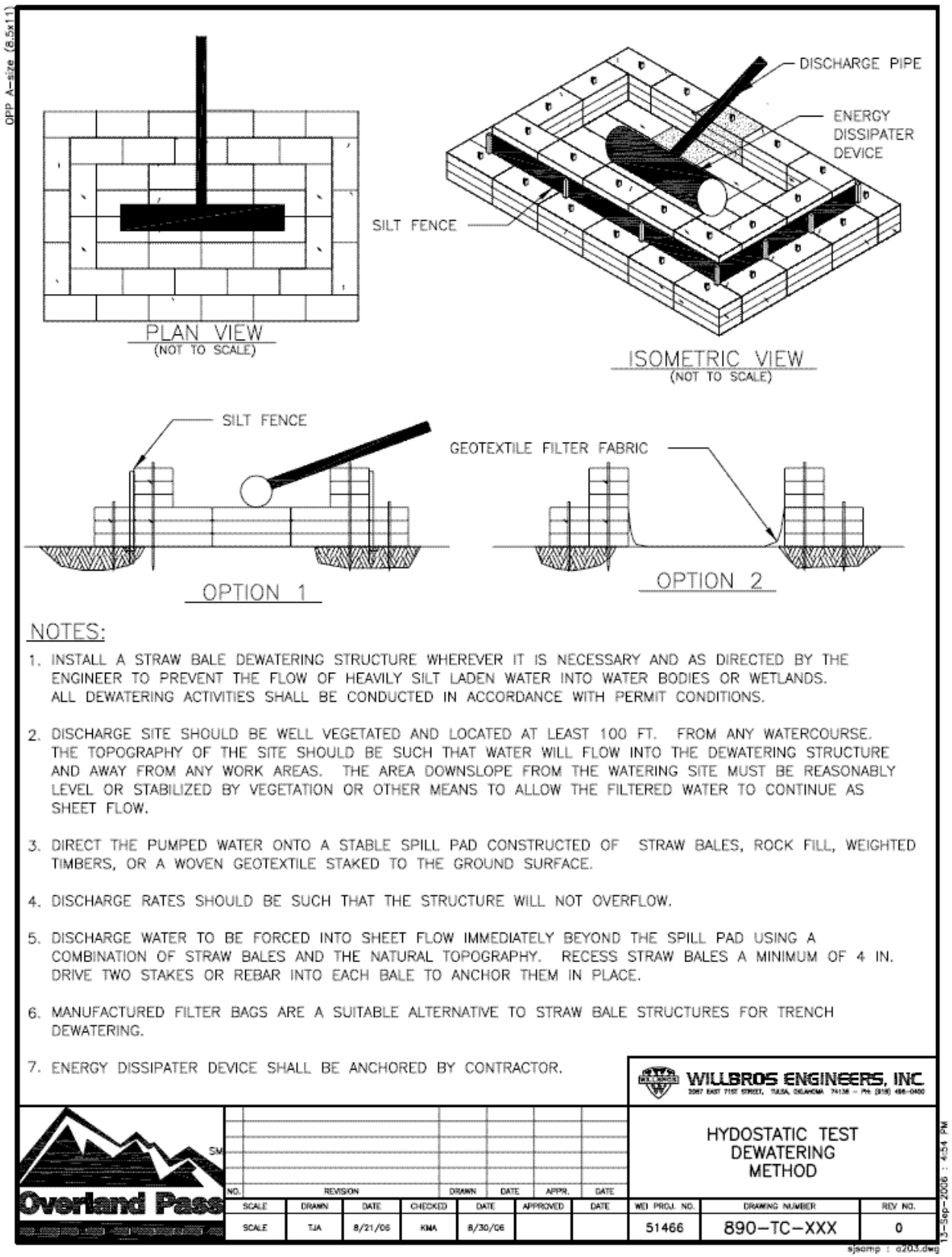
The hydrostatic testing process will involve withdrawing water from an identified source to fill a test section, pressurizing the section to a pressure 25 percent greater than the maximum allowable operating pressure for a period commensurate with Title 49 Code of Federal Regulations Part 195. The water will then be tested for potential pollutants before it is discharged back to the source waterbody or to stable upland areas along the construction right-of-way if taken from surface water or private wells, and back to the source if taken from water storage ponds. Discharge locations will be within 50-100 feet from the edge of a waterbody at either the eastern end or western end of a test section when unable to discharge directly back to the source waterbody's instream flow. These methods will minimize the possibility of introducing nuisance aquatic species into other watersheds, and minimize or eliminate depletions to the waterbody or watershed. Test water will be discharged directly into surface waters only when authorized or required by Overland Pass' National Pollutant Discharge Elimination System permits. Water will be discharged (as required and/or permitted) back to the source waterbody in all cases where feasible; this will eliminate any depletions to the watersheds, but pushing the water back to its source, through the pipeline may increase the length of time for hydrostatic testing. In some cases, water may be sprayed on agricultural fields as irrigation in coordination with landowners. Energy dissipation devices, as depicted in Figures 1-1 and 1-2, will be used during discharges to prevent erosion, streambed scour, suspension of sediments, and excessive streamflow. Sediment filtration bags will be used in conjunction with energy dissipation devices on PNG lands. Overland Pass will not add any chemicals to the hydrostatic test water.

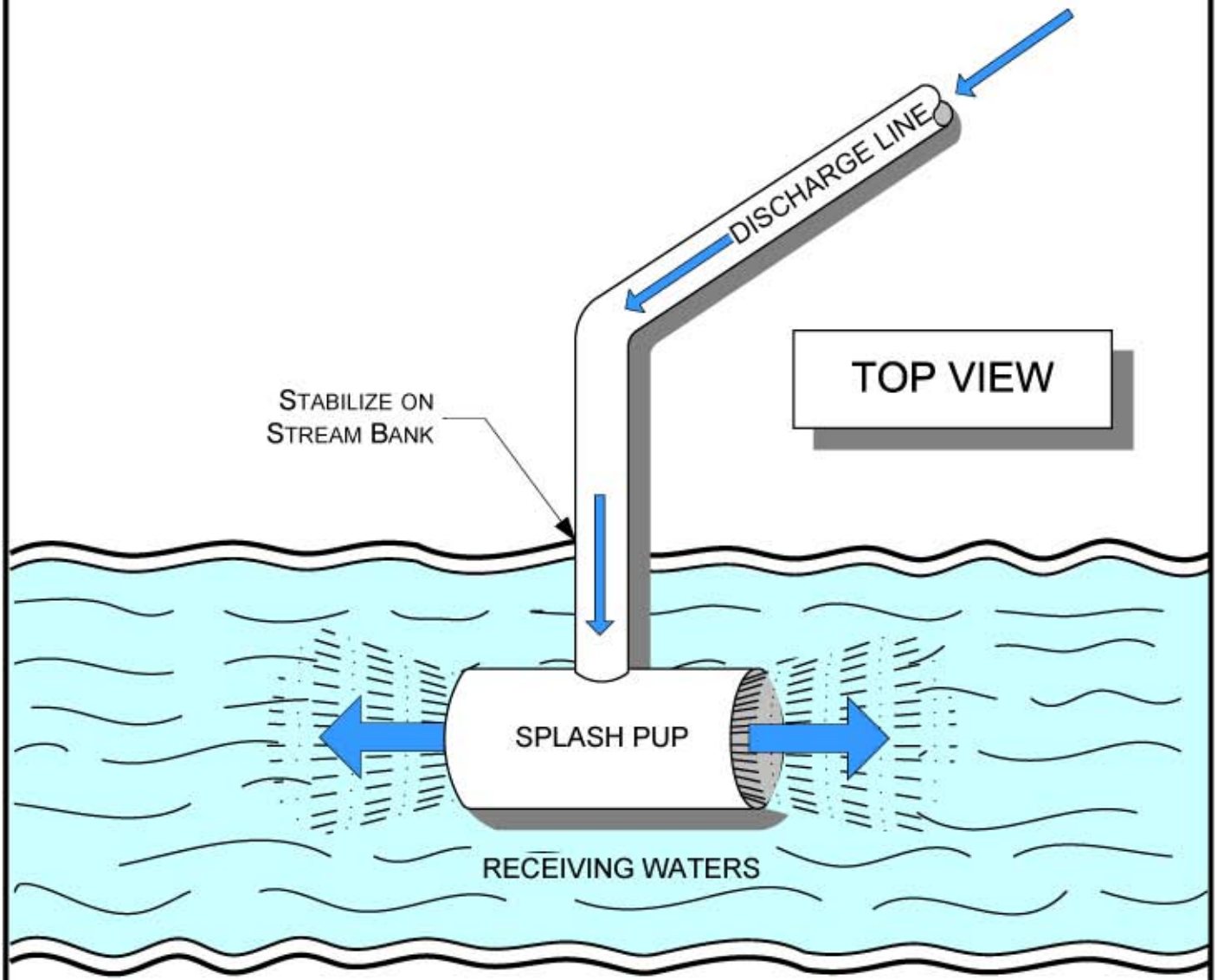
Overland Pass has identified potential water sources to be used for filling each pipe test section and has been in consultation with the various agencies regarding water use. Overland Pass will continue these consultations, including those with the U.S. Fish and Wildlife Service (FWS) regarding water depletion and potential downstream impacts on threatened and endangered species if hydrostatic test water is removed from sensitive water resources. Hydrostatic testing will be conducted in a manner consistent with Overland Pass' detailed environmental plans and permit requirements.

In order to prevent the entrainment of fish or other species of concern during hydrostatic test water withdrawal from waterbodies, ½ to 1 inch mesh will be used and installed around the intake hoses (see figure 1-3). Overland Pass will continue agency consultations to determine if there are any additional requirements regarding this issue. Overland Pass will attempt to avoid backwater areas, slow flow areas, and the mouths of tributary streams when determining the location for hydrostatic intake hoses in waterbodies.

To minimize impacts on surface waters and to prevent erosion Overland Pass plans to discharge hydrostatic test water using a splash pup system (see figures 1-1 and 1-2). A splash pup is a smaller section of pipeline welded at the end of the discharge line at a 90-degree angle. Water is discharged through a splash pup and into a filter bag or other sediment entrapping device, which allows the water to be sprayed onto the ground surface within the structure or back to the source waterbody's instream flow. Use of a splash pup is an effective means of minimizing erosion on the ground surface and dissipating energy to avoid increasing the turbidity of the waterbody and causing significant changes to the flow velocity of a river. All hydrostatic testing activities will be monitored by environmental and craft inspectors and the outflow rates adjusted if necessary so that erosion impacts will be avoided.

Figure 1-1 Hydrostatic Test Dewatering Schematic





For environmental review purposes only.

Overland Pass PIPELINE

Figure 1-2
Typical Splash Pup in Waterbody

DATE:	12/12/1997
REVISED:	1/11/2007
SCALE:	NTS
DRAWN BY:	KMKENDALL

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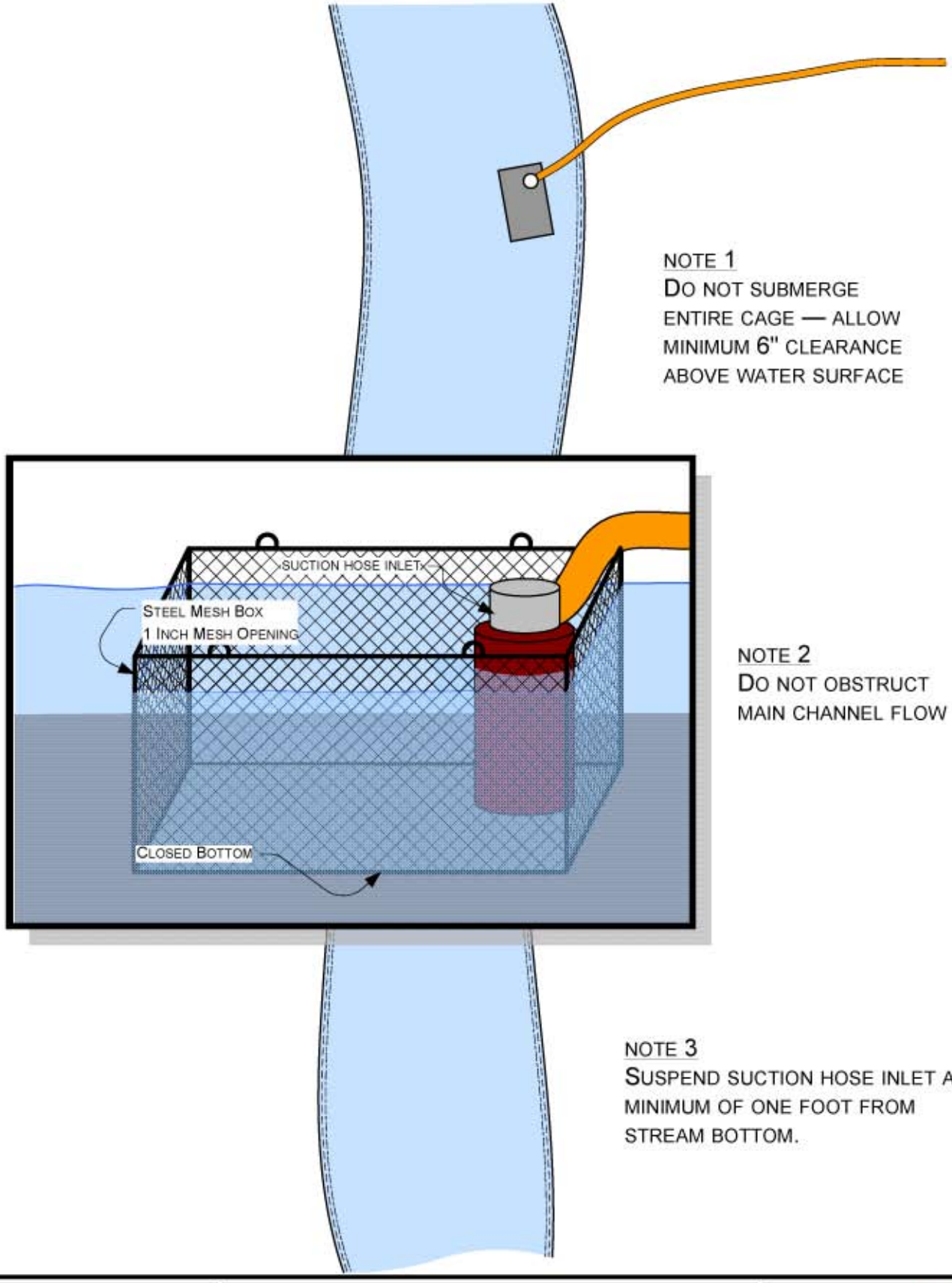


NOTE 1
DO NOT SUBMERGE ENTIRE CAGE — ALLOW MINIMUM 6" CLEARANCE ABOVE WATER SURFACE

NOTE 2
DO NOT OBSTRUCT MAIN CHANNEL FLOW

NOTE 3
SUSPEND SUCTION HOSE INLET A MINIMUM OF ONE FOOT FROM STREAM BOTTOM.

Overland Pass PIPELINE

Figure 1-3
In-Stream Protection for Caged Pump or Suction Hose Inlet

DATE:	12/5/2003
REVISED:	11/24/04
SCALE:	NTS
DRAWN BY:	KMK6792
K:\934\OVERLAND_PASS\60\CAGED PUMP.VSD	

NATURAL RESOURCE GROUP, INC.

The start dates for water withdrawal and hydrostatic testing are dependent on receipt of the Bureau of Land Management Right-of-Way Grant and project Notice to Proceed. Overland Pass currently anticipates hydrostatic test water withdrawals to take place between November 1, 2007 and December 15, 2007. The actual dates of withdrawal will be identified in the hydrostatic test water authorizations issued by the appropriate state agencies. Withdrawal rates from waterbodies will not exceed 0.5 percent of average monthly flow rates as identified by the U.S. Geological Survey (USGS), which is below the BLM recommended threshold of 5.0 percent of flow. Overland Pass will consult with the FWS and the appropriate state agencies to obtain approval for the timing of hydrostatic test water withdrawals.

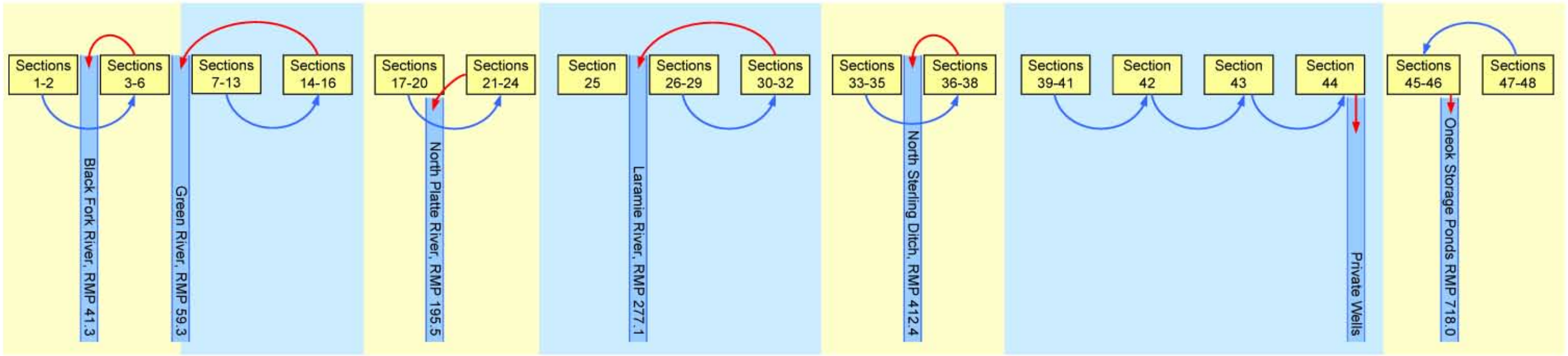
2.0 WATER USE AND TESTING PLAN

Overland Pass will withdraw a maximum of approximately 37.4 million gallons (115.0 acre-feet) of water for hydrostatic testing of its pipeline facilities. The water will be withdrawn from the Blacks Fork River, Green River, North Platte River, Laramie River, North Sterling Ditch of the South Platte River, private wells, and water storage ponds located at the existing ONEOK Bushton plant. In the event that withdrawals from the Blacks Fork River are too large to maintain minimum flow rates as identified by consulting agencies and permits, Overland Pass will obtain hydrostatic test water from the Green River for sections 7 through 16 of Spread 1. Maps in appendix A depict the location of surface water withdrawal and discharge points. The pipeline testing plan will be split by construction spread and tested in 48 sections, as depicted in figure 2-1, Hydrostatic Test Schematic of Water Sources and Transfers. The MP range for each construction spread is as follows:

- Spread 1: 0.0 to 150.85
- Spread 2: 150.85 to 285.68
- Spread 3: 285.68 to 444.20
- Spread 4: 444.20 to 598.63
- Spread 5: 598.63 to 759.82

Hydrostatic test sections have been designed to maximize the efficiency of testing activities, and will allow for the testing of multiple sections at once. The required amount of water from each waterbody will be withdrawn from a single point, with single or multiple pumps. Several sections will be filled from that water source, as outlined below. Headers will be installed on both ends of each test section, and jumper lines will be built between each test section to transfer water into, and out of each section (see figure 2-1). Overland Pass will attempt to reuse hydrostatic test water from one section to the next, where possible.

At the end of each successful test, water will be discharged back to the source waterbody (for Spreads 1 through 4), or at either the easternmost or westernmost end of the section into a stable upland location within 50-100 feet of the source waterbody using energy dissipation and filtration devices, as outlined above. For Spread 5 the water contained in the existing aboveground storage ponds at the existing ONEOK Bushton plant is groundwater taken from storage caverns, and contains some salt. Upon completion of testing, Overland Pass will utilize a splash pup and conduct discharge activities back into the existing aboveground storage ponds at ONEOK's Bushton Plant.



Legend

Return

Transfer

For environmental review purposes only.

Overland Pass PIPELINE

Figure 2 -1
Hydrostatic Test Schematic of Water Source and Transfers

DATE: 1/10/2007
REVISED: 1/11/2007
SCALE: NTS
DRAWN BY: MHN6795
C:\DOCUMENTS AND SETTINGS\MHN6795\MY DOCUMENTS\WATER2.VSD

2.1 Blacks Fork River

2.1.1 Water Use

A total of approximately 2.4 million gallons (7.5 acre-feet) of water will be withdrawn for hydrostatic testing from the Blacks Fork River at Reference MP (RMP) 41.3, within the Blacks Fork Watershed for the hydrostatic testing of Sections 1 through 6. The maximum targeted withdrawal rate of 1000 or 3000 GPM, dependent upon the time of withdrawal, is approximately 0.1 to 0.3 percent of the average monthly flow based on USGS surface water flow data from 2000 through 2004 for the months of November and December. Depending on the withdrawal rate of either 1000 or 3000 GPM, Test Sections 1 and 2 will require about 28.8 or 9.6 hours to fill with approximately 1,730,299 gallons of test water, while Test Sections 3 through 6 will require about 12.0 or 4.0 hours to fill with 717,557 gallons of test water. Of the total 2.4 million gallons of water required from the Blacks Fork River, the following section break downs are proposed:

- Section 1, approximately 490,126 gallons (MPs 0 through 12.37)*
- Section 2, approximately 1,240,173 gallons (MPs 12.37 through 43.67)*
- Section 3, approximately 240,506 gallons (MPs 43.67 through 49.74)
- Section 4, approximately 217,526 gallons (MPs 49.74 through 55.23)
- Section 5, approximately 111,338 gallons (MPs 55.23 through 58.04)
- Section 6, approximately 148,187 gallons (MPs 58.04 through 61.78)

*If time allows, Contractor may fill and use water from Sections 1 and 2 (490,126 + 1,240,173 = 1,730,299 gallons) and transfer that volume to Sections 3, 4, 5, and 6 for testing.

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.1.2 Testing

Test Section 1

Test Section 1 will include approximately 12.37 miles of 14-inch diameter pipe filled with approximately 490,126 gallons of water withdrawn from the Blacks Fork River at RMP 41.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through pipe, and then discharged as permitted to the Blacks Fork River at RMP 41.3 Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 2

Test Section 2 will include approximately 31.3 miles of 14-inch diameter pipe filled with approximately 1,240,173 gallons of water withdrawn from the Blacks Fork River at RMP 41.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water

will be tested for potential pollutants, pushed back through pipe, and then discharged as permitted to the Blacks Fork River at RMP 41.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 3

Test Section 3 will include approximately 6.07 miles of 14-inch diameter pipe filled with approximately 240,506 gallons of water withdrawn from the Blacks Fork River at RMP 41.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through pipe, and then discharged as permitted to the Blacks Fork River at RMP 41.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 4

Test Section 4 will include approximately 5.49 miles of 14-inch diameter pipe filled with approximately 217,526 gallons of water withdrawn from the Blacks Fork River at RMP 41.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through pipe, and then discharged as permitted to the Blacks Fork River at RMP 41.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 5

Test Section 56 will include approximately 2.81 miles of 14-inch diameter pipe filled with approximately 111,338 gallons of water withdrawn from the Blacks Fork River at RMP 41.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through pipe, and then discharged as permitted to the Blacks Fork River at RMP 41.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 6

Test Section 6 will include approximately 3.74 miles of 14-inch diameter pipe filled with approximately 148,187 gallons of water withdrawn from the Blacks Fork River at RMP 41.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through pipe, and then discharged as permitted to the Blacks Fork River at RMP 41.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.1.3 Required Permits

Overland Pass will contact the Wyoming State Engineer's Office to obtain necessary permits to withdraw water from the Blacks Fork River. The water will be discharged back to the Blacks Fork River as permitted, or it will be returned to an upland area within 50-100 feet of the source waterbody. A hydrostatic test water discharge permit will be acquired from the WDEQ prior to discharge.

2.2 Green River*

*For Sections 7-16, the Blacks Fork River will be used for hydrostatic testing withdrawal if water levels allow. Water would then be taken from RMP 41.3 and pushed back to the Blacks Fork and discharged into the source waterbody. If this is not possible the plan below for taking water from the Green River will be employed.

2.2.1 Water Use

A total of approximately 3.5 million gallons (10.8 acre-feet) of water will be withdrawn from the Green River at approximate RMP 59.3 within the Upper Green - Flaming Gorge Reservoir Watershed for the hydrostatic testing of Sections 7 through 16. The maximum targeted withdrawal rate of 1000 or 3000 GPM, dependent upon the time of withdrawal, is less than approximately 0.01 percent of the average monthly flow based on USGS surface water flow data from 2000 through 2004 for the months of November and December. Depending on the withdrawal rate of either 1000 or 3000 GPM, Test Sections 7 through 16 will require about 58.7 or 19.6 hours to fill with approximately 3.5 million gallons of test water. Of the total 3.5 million gallons of water required from the Green River, the following section break downs are proposed:

- Section 7, approximately 45,169 gallons (MPs 61.78 through 62.92)**
- Section 8, approximately 42,792 gallons (MPs 62.92 through 64.0) **
- Section 9, approximately 91,923 gallons, (MPs 64.0 through 66.32) **
- Section 10, approximately 253,582 gallons (MPs 66.32 through 72.72) **
- Section 11, approximately 247,638 gallons (MPs 72.72 through 78.97) **
- Section 12, approximately 627,218 gallons (MPs 78.97 through 94.80) **
- Section 13, approximately 398,599 gallons (MPs 94.80 through 104.86) **
- Section 14, approximately 928,347 gallons (MPs 104.86 through 128.29)
- Section 15, approximately 240,903 gallons (MPs 128.29 through 134.37)
- Section 16, approximately 652,973 gallons (MPs 134.37 through 150.85)

*** If time allows, Contractor may fill and use Sections 7 through 13, test these sections, then transfer the water (1,706,921 gallons) plus 115,302 gallons for a total of 1,822,223 gallons to Sections 14, 15, and 16 for testing.

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.2.2 Testing

Test Section 7

Test Section 7 will include approximately 1.14 miles of 14-inch diameter pipe filled with approximately 45,169 gallons of water withdrawn from the Green River at RMP 59.3. Once the section is filled,

Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 8

Test Section 8 will include approximately 1.08 miles of 14-inch diameter pipe filled with approximately 42,792 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 9

Test Section 9 will include approximately 2.32 miles of 14-inch diameter pipe filled with approximately 91,923 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 10

Test Section 10 will include approximately 6.4 miles of 14-inch diameter pipe filled with approximately 253,582 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 11

Test Section 11 will include approximately 6.25 miles of 14-inch diameter pipe filled with approximately 247,638 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 12

Test Section 12 will include approximately 15.83 miles of 14-inch diameter pipe filled with approximately 627,218 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 13

Test Section 13 will include approximately 10.06 miles of 14-inch diameter pipe filled with approximately 398,599 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will

immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 14

Test Section 14 will include approximately 23.43 miles of 14-inch diameter pipe filled with approximately 928,347 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 15

Test Section 15 will include approximately 6.08 miles of 14-inch diameter pipe filled with approximately 240,903 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 16

Test Section 16 will include approximately 16.48 miles of 14-inch diameter pipe filled with approximately 652,973 gallons of water at RMP 59.3. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Green River at RMP 59.3. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.2.3 Required Permits

Overland Pass will contact the Wyoming State Engineer's Office to obtain necessary permits to withdraw water from the Green River. The water will be discharged back to the Green River as permits allow, or it will be returned to an upland area within 50-100 feet of the source waterbody. A hydrostatic test water discharge permit will be acquired from the WDEQ prior to discharge.

2.3 North Platte River

2.3.1 Water Use

A total of approximately 6.8 million gallons (20.8 acre-feet) of water will be withdrawn from the North Platte River at approximate RMP 195.5 within the Upper North Platte Watershed for the hydrostatic testing of Sections 17 through 24. The maximum targeted withdrawal rate of 1000 or 3000 GPM, dependent upon the time of withdrawal, is approximately 0.01 to 0.02 percent of the average monthly flow based on USGS surface water flow data from 2000 through 2004 for the months of November and

December. Depending on the withdrawal rate of either 1000 or 3000 GPM, Test Sections 17 through 24 will require about 113.0 or 37.7 hours to fill with approximately 6.8 million gallons of test water. Of the total 6.8 million gallons of water required from the North Platte River, the following section break downs are proposed:

- Section 17, approximately 1,093,069 gallons (MPs 150.85 through 171.97)*
- Section 18, approximately 1,024,235 gallons (MPs 171.97 through 191.76)*
- Section 19, approximately 426,463 gallons, (MPs 191.76 through 200.0)*
- Section 20, approximately 531,526 gallons (MPs 200.0 through 210.27)*
- Section 21, approximately 897,435 gallons (MPs 210.27 through 227.61)
- Section 22, approximately 691,449 gallons (MPs 227.61 through 240.97)
- Section 23, approximately 984,901 gallons (MPs 240.97 through 260.0)
- Section 24, approximately 1,128,263 gallons (MPs 260.0 through 281.8)

* If time allows, Contractor may fill and use Sections 17 through 20, test these sections, then transfer the water (3,972,727 gallons) to Sections 21, 22, 23, and 24 for testing.

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.3.2 Testing

Test Section 17

Test Section 17 will include approximately 21.12 miles of 16-inch diameter pipe filled with approximately 1,093,069 gallons of water withdrawn from the North Platte at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 18

Test Section 18 will include approximately 19.79 miles of 16-inch diameter pipe filled with approximately 1,024,235 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 19

Test Section 19 will include approximately 8.24 miles of 16-inch diameter pipe filled with approximately 426,463 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin

pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 20

Test Section 20 will include approximately 10.27 miles of 16-inch diameter pipe filled with approximately 531,526 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 21

Test Section 21 will include approximately 17.34 miles of 16-inch diameter pipe filled with approximately 897,435 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 22

Test Section 22 will include approximately 13.36 miles of 16-inch diameter pipe filled with approximately 691,449 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 23

Test Section 23 will include approximately 19.03 miles of 16-inch diameter pipe filled with approximately 984,901 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 24

Test Section 24 will include approximately 21.8 miles of 16-inch diameter pipe filled with approximately 1,128,263 gallons of water at RMP 195.5. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Platte River at RMP 195.5. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.3.3 Required Permits

Overland Pass will contact the Wyoming State Engineer's Office to obtain necessary permits to withdraw water from the North Platte River. The water will be discharged back to the North Platte River as permitted, or it will be returned to an upland area within 50-100 feet of the source waterbody. A hydrostatic test water discharge permit will be acquired from the WDEQ prior to discharge.

2.4 Laramie River

2.4.1 Water Use

A total of approximately 2.5 million gallons (7.7 acre-feet) of water will be withdrawn from the Laramie River at approximate RMP 277.1 within the Upper Laramie Watershed for the hydrostatic testing of Sections 25 through 32. The maximum targeted withdrawal rate of 1000 or 3000 GPM, dependent upon the time of year, is approximately 0.05 to 0.2 percent of the average monthly flow based on USGS surface water flow data from 2000 through 2004 for the months of November and December. Depending on the withdrawal rate of either 1000 or 3000 GPM, Test Sections 25 through 32 will require about 41.7 or 13.9 hours to fill with approximately 2.5 million gallons of test water. Of the total 2.5 million gallons of water required from the Laramie River, the following section break downs are proposed:

- Section 25, approximately 200,810 gallons (MPs 281.8 through 285.68)*
- Section 26, approximately 372,120 gallons (MPs 285.68 through 292.87)**
- Section 27, approximately 583,798 gallons (MPs 292.87 through 304.15)**
- Section 28, approximately 168,204 gallons (MPs 304.15 through 307.4)**
- Section 29, approximately 257,223 gallons (MPs 307.4 through 312.37)**
- Section 30, approximately 371,602 gallons (MPs 312.37 through 319.55)
- Section 31, approximately 254,636 gallons (MPs 319.55 through 324.47)
- Section 32, approximately 293,969 gallons (MPs 324.47 through 330.15)

* Spread 3 Contractor will fill his westerly sections from the Laramie River, using Test Section 25 to transfer water across Spread 2. This is required because pumping water from the North Sterling Ditch at elevation 4,060 ft. cannot be pumped over the 8,250 ft mountain due to the elevation difference, exceeding pipe pressures.

** If time allows, Contractor may fill and use Sections 26 through 29, test these sections, then transfer the water (1,381,345 gallons) to Sections 30, 31, and 32 for testing.

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.4.2 Testing

<u>Test Section 25</u>

Test Section 25 will include approximately 3.88 miles of 16-inch diameter pipe filled with approximately 200,810 gallons of water withdrawn from the Laramie River at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 26

Test Section 26 will include approximately 7.19 miles of 16-inch diameter pipe filled with approximately 372,120 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 27

Test Section 27 will include approximately 11.28 miles of 16-inch diameter pipe filled with approximately 583,798 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 28

Test Section 28 will include approximately 3.25 miles of 16-inch diameter pipe filled with approximately 168,204 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 29

Test Section 29 will include approximately 4.97 miles of 16-inch diameter pipe filled with approximately 257,223 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 30

Test Section 30 will include approximately 7.18 miles of 16-inch diameter pipe filled with approximately 371,602 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 31

Test Section 31 will include approximately 4.92 miles of 16-inch diameter pipe filled with approximately 254,636 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 32

Test Section 32 will include approximately 5.68 miles of 16-inch diameter pipe filled with approximately 293,969 gallons of water at RMP 277.1. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the Laramie River at RMP 277.1. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.4.3 Required Permits

Overland Pass will contact the Wyoming State Engineer's Office to obtain necessary permits to withdraw water from the Laramie River. The water will be discharged back to the Laramie River as permitted, or it will be returned to an upland area within 50-100 feet of the source waterbody. A hydrostatic test water discharge permit will be acquired from the WDEQ prior to discharge.

2.5 South Platte River- North Sterling Ditch

2.5.1 Water Use

A total of approximately 5.9 million gallons (18.1 acre-feet) of water will be withdrawn from the North Sterling Ditch at approximate RMP 412.4 within the Middle South Platte - Sterling Watershed for the hydrostatic testing of Sections 33 through 38. The maximum targeted withdrawal rate of 1000 or 3000 GPM, dependent upon the time of withdrawal, is approximately 0.01 to 0.03 percent of the average monthly flow based on USGS surface water flow data from 2000 through 2004 for the months of November and December. Depending on the withdrawal rate of either 1000 or 3000 GPM, Test Sections 33 through 38 will require about 98.4 or 32.8 hours to fill with approximately 5.9 million gallons of test water. Of the total 5.9 million gallons of water required from the North Sterling Ditch, the following section break downs are proposed:

- Section 33, approximately 728,195 gallons (MPs 330.15 through 344.22)*
- Section 34, approximately 896,917 gallons (MPs 344.22 through 361.55)*
- Section 35, approximately 1,884,924 gallons (MPs 361.55 through 397.97)*
- Section 36, approximately 939,357 gallons (MPs 397.97 through 416.12)
- Section 37, approximately 146,467 gallons (MPs 416.12 through 418.95)
- Section 38, approximately 1,306,818 gallons (MPs 418.95 through 444.20)

* If time allows, Contractor may fill and use Sections 33 through 35, test these sections, then transfer the water (3,510,036 gallons) to Sections 36, 37, and 38 for testing.

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.5.2 Testing

Test Section 33

Test Section 33 will include approximately 14.07 miles of 16-inch diameter pipe filled with approximately 728,195 gallons of water from the North Sterling Ditch at RMP 412.4. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Sterling Ditch at RMP 412.4. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 34

Test Section 34 will include approximately 17.33 miles of 16-inch diameter pipe filled with approximately 896,917 gallons of water from the North Sterling Ditch at RMP 412.4. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Sterling Ditch at RMP 412.4. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 35

Test Section 35 will include approximately 36.42 miles of 16-inch diameter pipe filled with approximately 1,884,924 gallons of water from the North Sterling Ditch at RMP 412.4. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Sterling Ditch at RMP 412.4. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 36

Test Section 36 will include approximately 18.15 miles of 16-inch diameter pipe filled with approximately 939,357 gallons of water from the North Sterling Ditch at RMP 412.4. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Sterling Ditch at RMP 412.4. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 37

Test Section 37 will include approximately 2.83 miles of 16-inch diameter pipe filled with approximately 146,467 gallons of water from the North Sterling Ditch at RMP 412.4. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Sterling Ditch at RMP 412.4. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 38

Test Section 38 will include approximately 25.25 miles of 16-inch diameter pipe filled with approximately 1,306,818 gallons of water from the North Sterling Ditch at RMP 412.4. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, pushed back through the pipe, and then discharged as permitted to the North Sterling Ditch at RMP 412.4. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.5.3 Required Permits

Overland Pass will contact the Colorado State Engineer's Office to obtain necessary permits to withdraw water from the North Sterling Ditch. The water will be discharged back to the North Sterling Ditch as permitted, or it will be returned to an upland area within 50-100 feet of the source waterbody. A hydrostatic test water discharge permit will be acquired from the Colorado Division of Public Health and Environment (CDPHE) prior to discharge.

2.6 Private Wells

2.6.1 Water Use

A total of approximately 8.0 million gallons (24.5 acre-feet) of water will be withdrawn from private wells between MPs 444.2 to 598.63 in Colorado and Kansas for the hydrostatic testing of Sections 39 through 44. Depending on the withdrawal rate of either 1000 or 3000 GPM, Test Sections 39 through 44 will require about 133.2 or 44.4 hours to fill with approximately 8.0 million gallons of test water. Of the total 8.0 million gallons of water required from the private wells, the section break downs are as follows:

- Section 39, approximately 526,350 gallons (MPs 444.2 through 454.37)
- Section 40, approximately 1,118,947 gallons (MPs 454.37 through 475.99)
- Section 41, approximately 1,092,034 gallons (MPs 475.99 through 497.09)
- Section 42, approximately 2,481,143 gallons (MPs 497.09 through 545.03)
- Section 43, approximately 2,287,062 gallons (MPs 545.03 through 589.22)
- Section 44, approximately 487,016 gallons (MPs 589.22 through 598.63)

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.6.2 Testing

The test section withdrawal MP location will change based on the exact well source locations; however, the maximum volume will not change. If large volume wells are available and determined to have water rights for this temporary use, the total volume of water needed could be reduced by 50%; a minimum amount of 2,737,331 gallons could be used if the timing is such that sections 39, 40, and 41 can be fitted, tested, and moved to Section 42, tested, moved to Section 43, tested and moved to Section 44 for the final test.

Test Section 39

Test Section 39 will include approximately 10.17 miles of 16-inch diameter pipe filled with approximately 526,350 gallons of water. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1969 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back to the source well. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 40

Test Section 40 will include approximately 21.62 miles of 16-inch diameter pipe filled with approximately 1,118,947 gallons of water. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back to the source well. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 41

Test Section 41 will include approximately 21.1 miles of 16-inch diameter pipe filled with approximately 1,092,034 gallons of water. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back to the source well. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 42

Test Section 42 will include approximately 47.94 miles of 16-inch diameter pipe filled with approximately 2,481,143 gallons of water. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back to the source well. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 43

Test Section 43 will include approximately 44.19 miles of 16-inch diameter pipe filled with approximately 12,287,062 gallons of water. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back to the source well. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 44

Test Section 44 will include approximately 9.41 miles of 16-inch diameter pipe filled with approximately 487,016 gallons of water. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back to the source well. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.6.3 Required Permits

Overland Pass will contact the Colorado State Engineer's Office and the Kansas Department of Agriculture Division of Water Resources to obtain necessary permits to withdraw water. Hydrostatic test water discharge permits will be acquired from the CDPHE and Kansas Department of Health and Environment (KDHE) prior to discharge.

2.7 Storage Ponds

2.7.1 Water Use

A total of approximately 8.3 million gallons (25.6 acre-feet) of water will be withdrawn from storage ponds at the ONEOK Bushton Plant at RMP 718.0 for the hydrostatic testing of Sections 45 through 48. Of the total 8.3 million gallons of water required the section break downs are as follows:

- Section 45, approximately 1,129,298 gallons (MPs 598.63 through 620.45)*
- Section 46, approximately 2,350,720 gallons (MPs 620.45 through 665.87)*
- Section 47, approximately 3,142,575 gallons (MPs 665.87 through 726.59)*
- Section 48, approximately 1,719,825 gallons (MPs 726.59 through 759.82)*

* Since only four test sections are planned and ONEOK water is available and will be returned to the storage ponds at Bushton, 4,862,400 gallons can be pushed to Sections 47 and 48. These sections can be tested and water moved to section 45 and 46. After testing of sections 45 and 46, the water will be returned to the storage ponds.

Each test section will require approximately 2 days for the completion of testing. If minor water leaks, air pockets, or stabilization problems occur, testing may take an additional day.

2.7.2 Testing

Test Section 45

Test Section 45 will include approximately 21.82 miles of 16-inch diameter pipe filled with approximately 1,129,298 gallons of water at RMP 718.0. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back into the source storage pond at RMP 718. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 46

Test Section 46 will include approximately 45.42 miles of 16-inch diameter pipe filled with approximately 2,350,720 gallons of water at RMP 718.0. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back into the source storage pond at RMP 718. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 47

Test Section 47 will include approximately 60.72 miles of 16-inch diameter pipe filled with approximately 3,142,575 gallons of water at RMP 718.0. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back into the source storage pond at RMP 718. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

Test Section 48

Test Section 48 will include approximately 33.23 miles of 16-inch diameter pipe filled with approximately 1,719,825 gallons of water at RMP 718.0. Once the section is filled, Overland Pass will immediately begin pressurizing the section to the required pressure of 1800 psig, then hold this pressure for an 8-hour duration. Upon satisfactory completion of the test, the water will be tested for potential pollutants, and then discharged as permitted back into the source storage pond at RMP 718. Water will be discharged at a rate commensurate with agency consultations and permit requirements.

2.7.3 Required Permits

No permit is required to withdraw water from the storage ponds. A hydrostatic test water discharge permit will be acquired from the KDHE prior to discharge.

HYDROSTATIC TEST PLAN

APPENDIX A
HYDROSTATIC TEST WATER WITHDRAWAL AND DISCHARGE LOCATION MAPS

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Hydrostatic Testing Withdrawal and Discharge Locations

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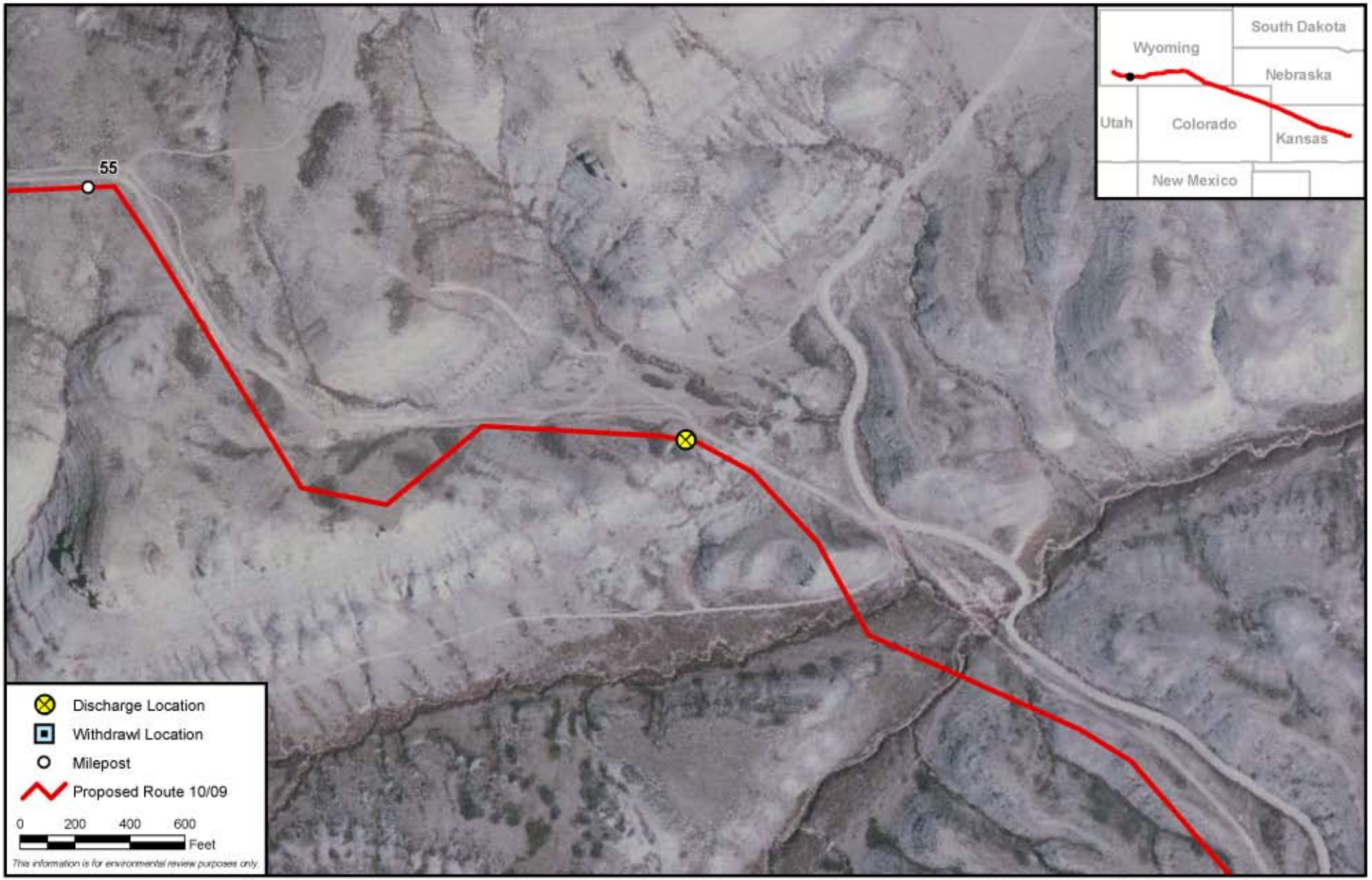

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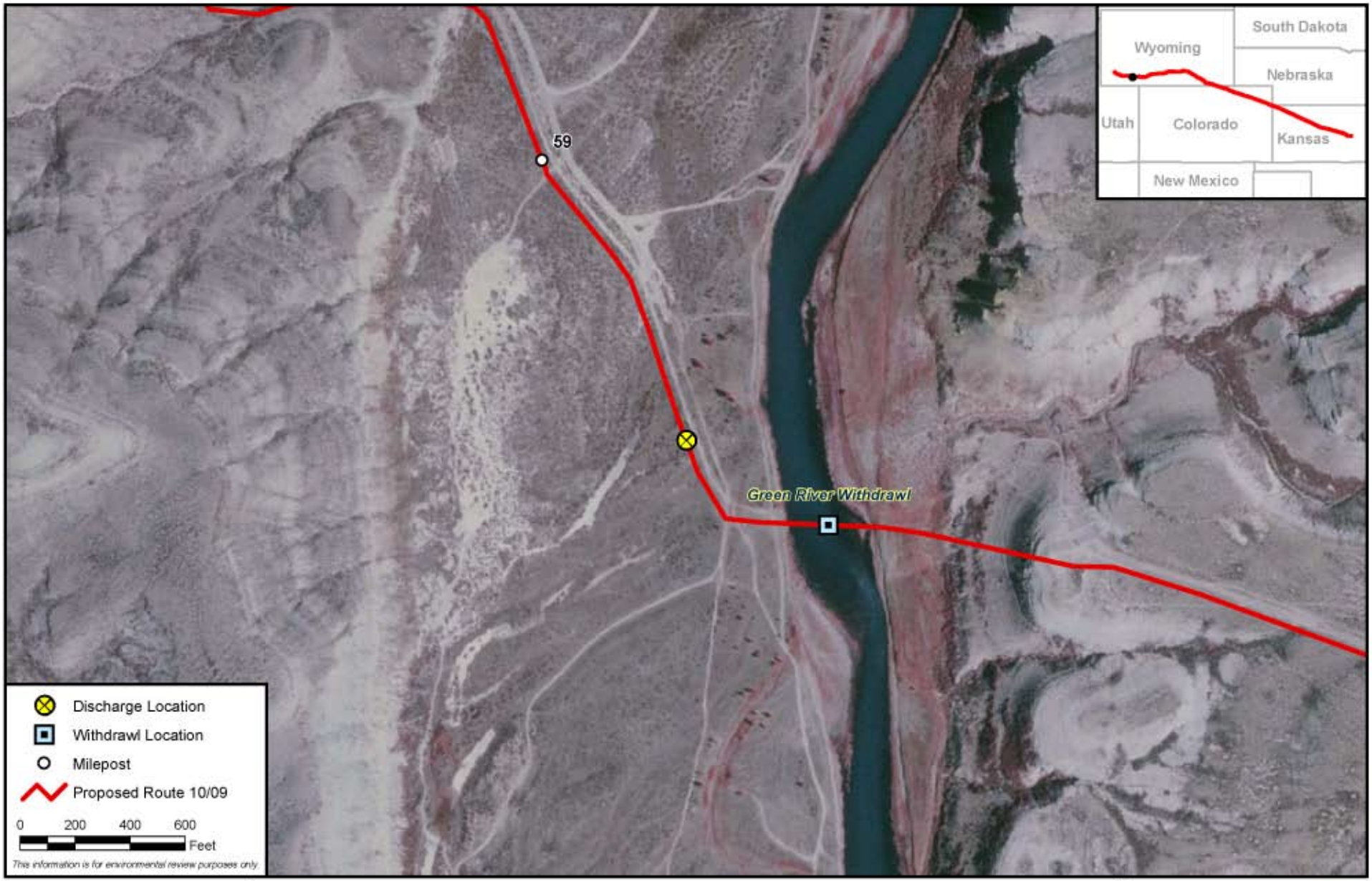

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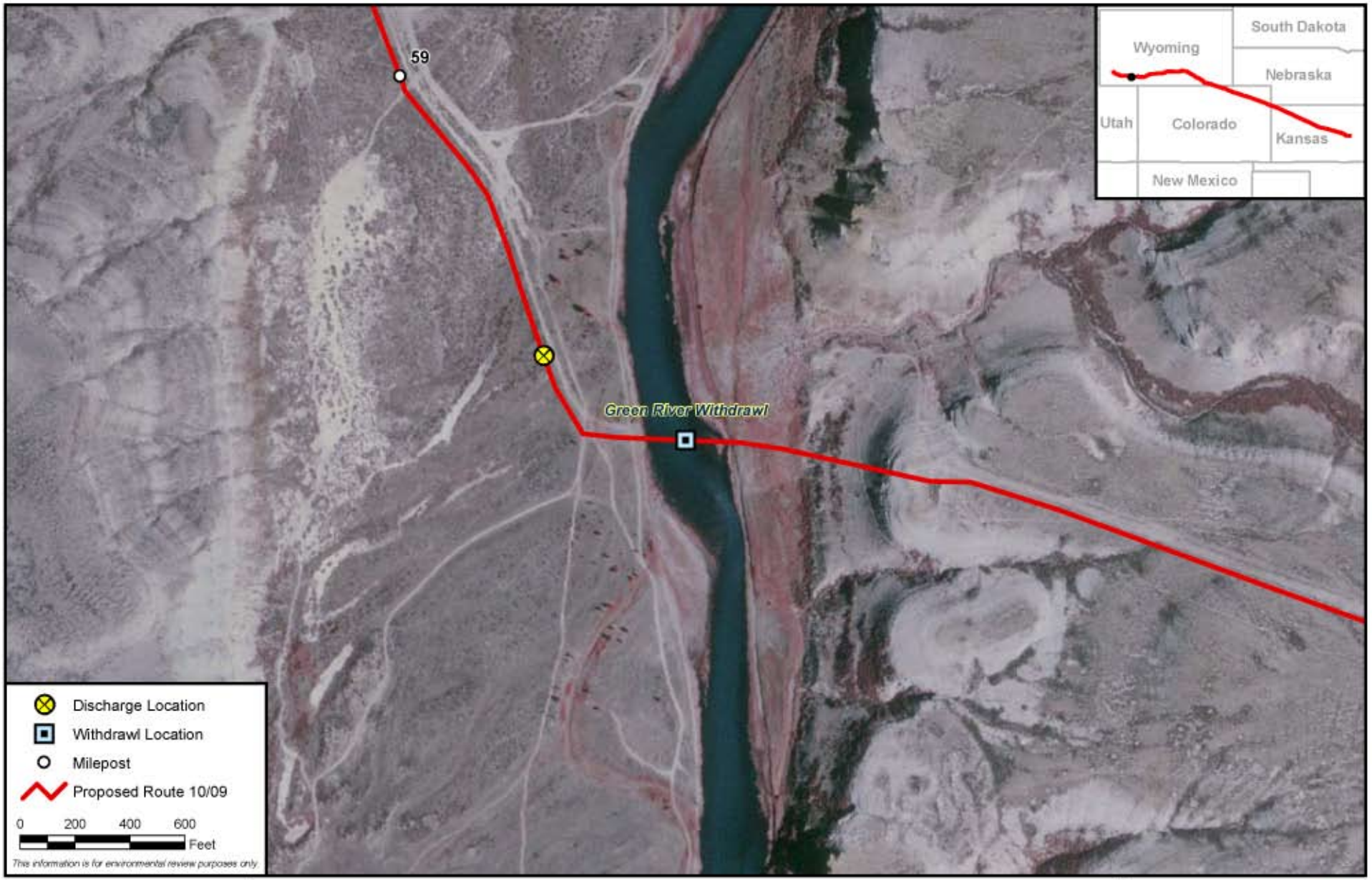

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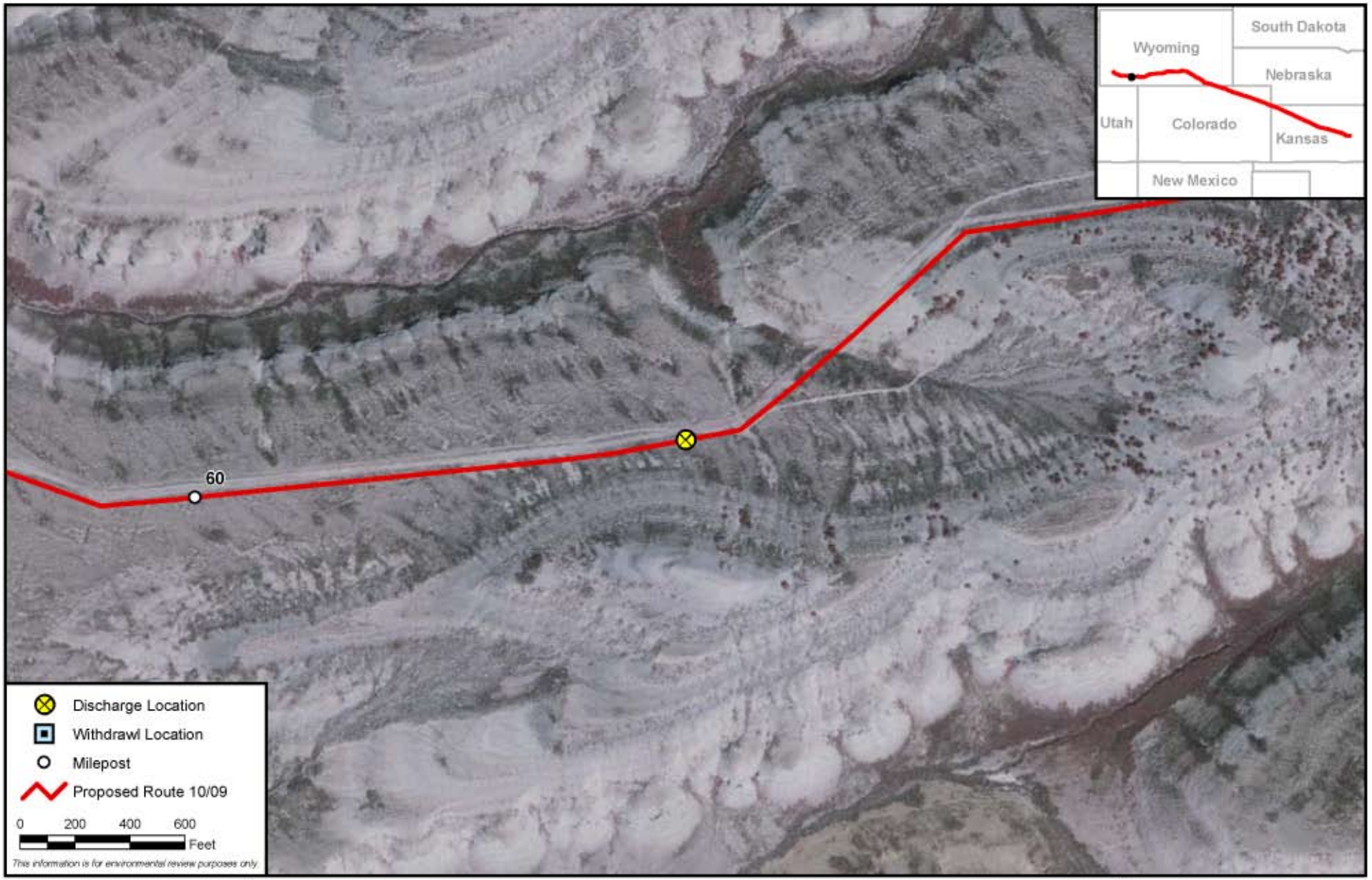

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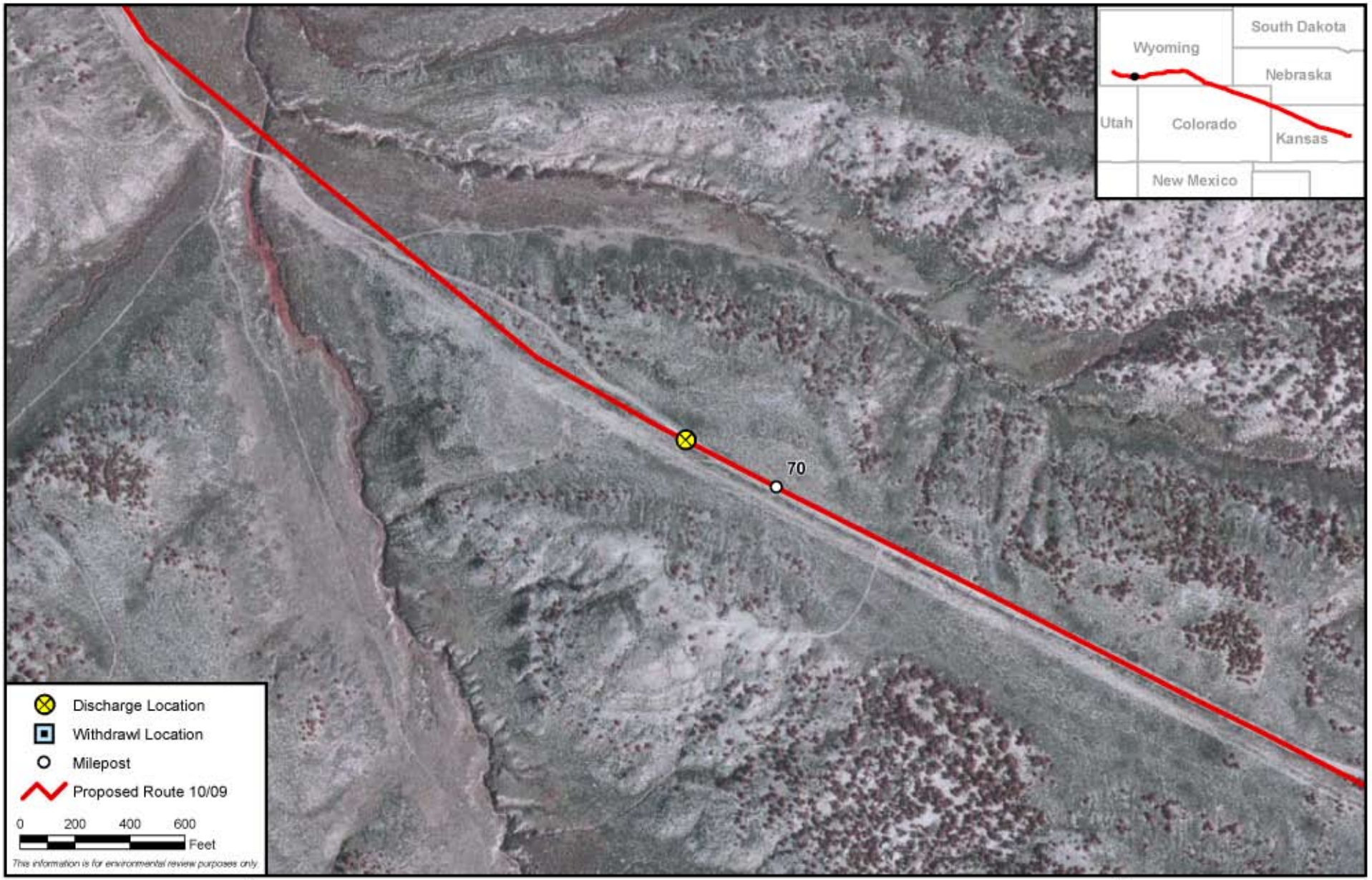

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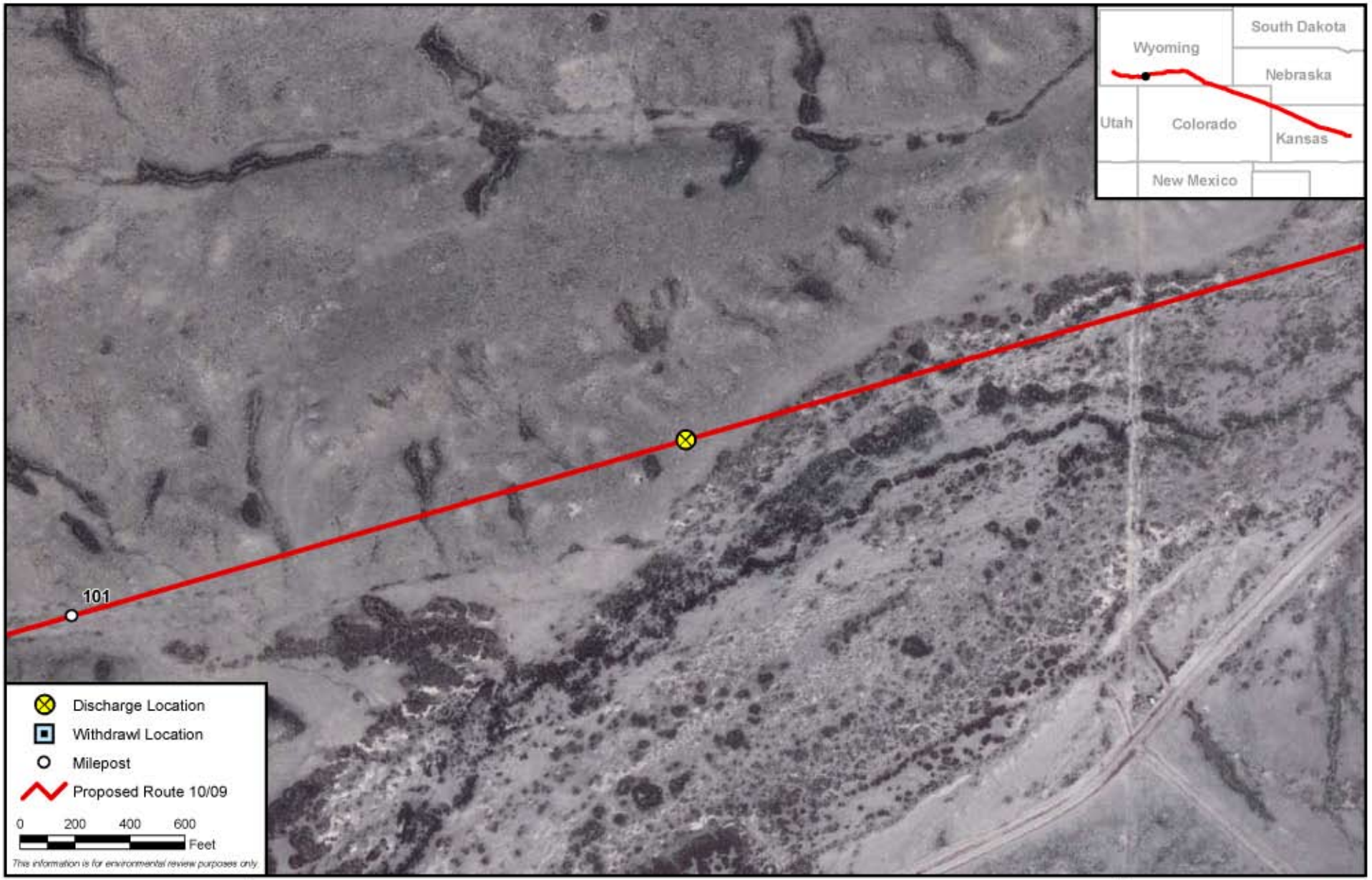

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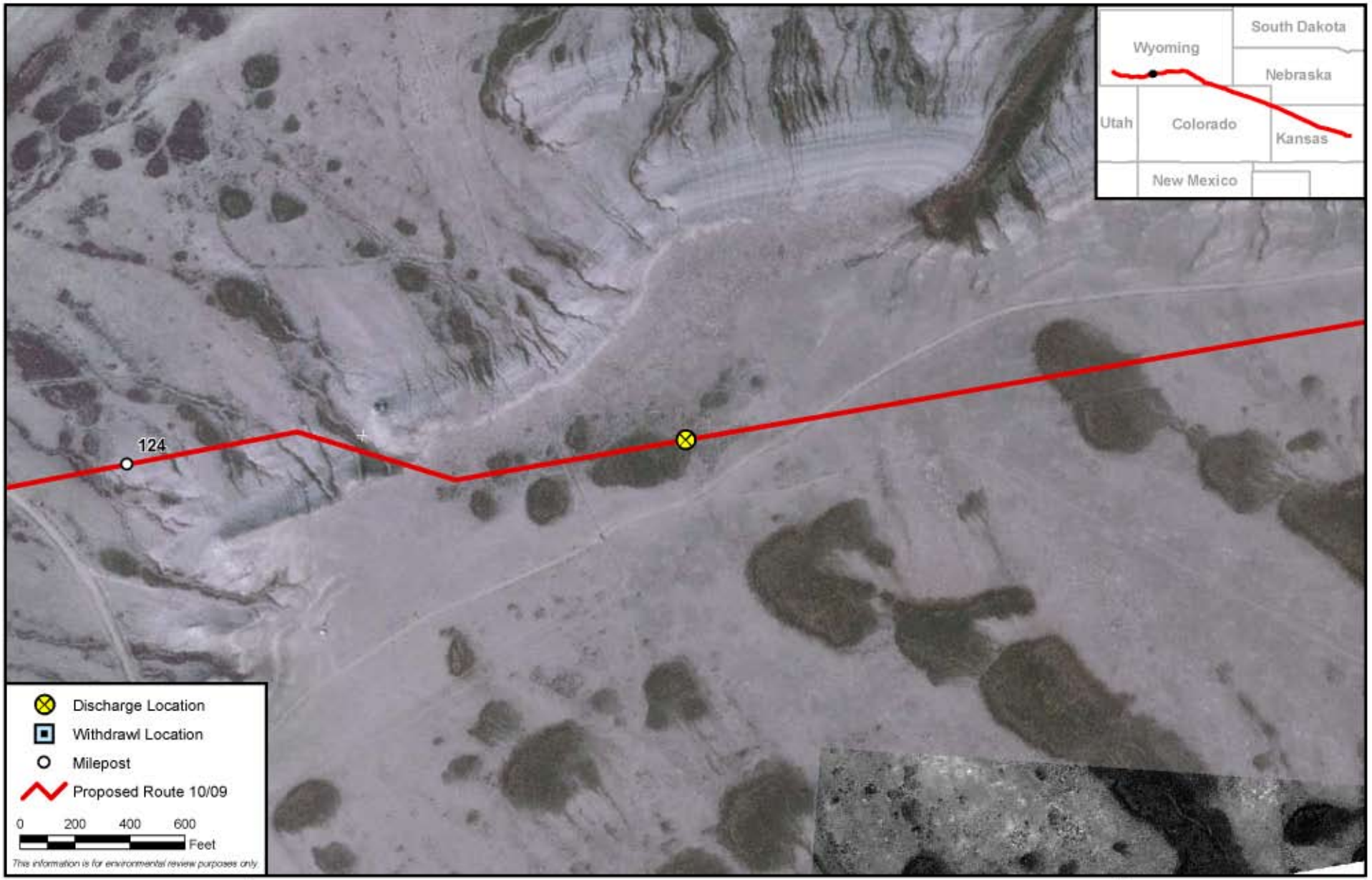

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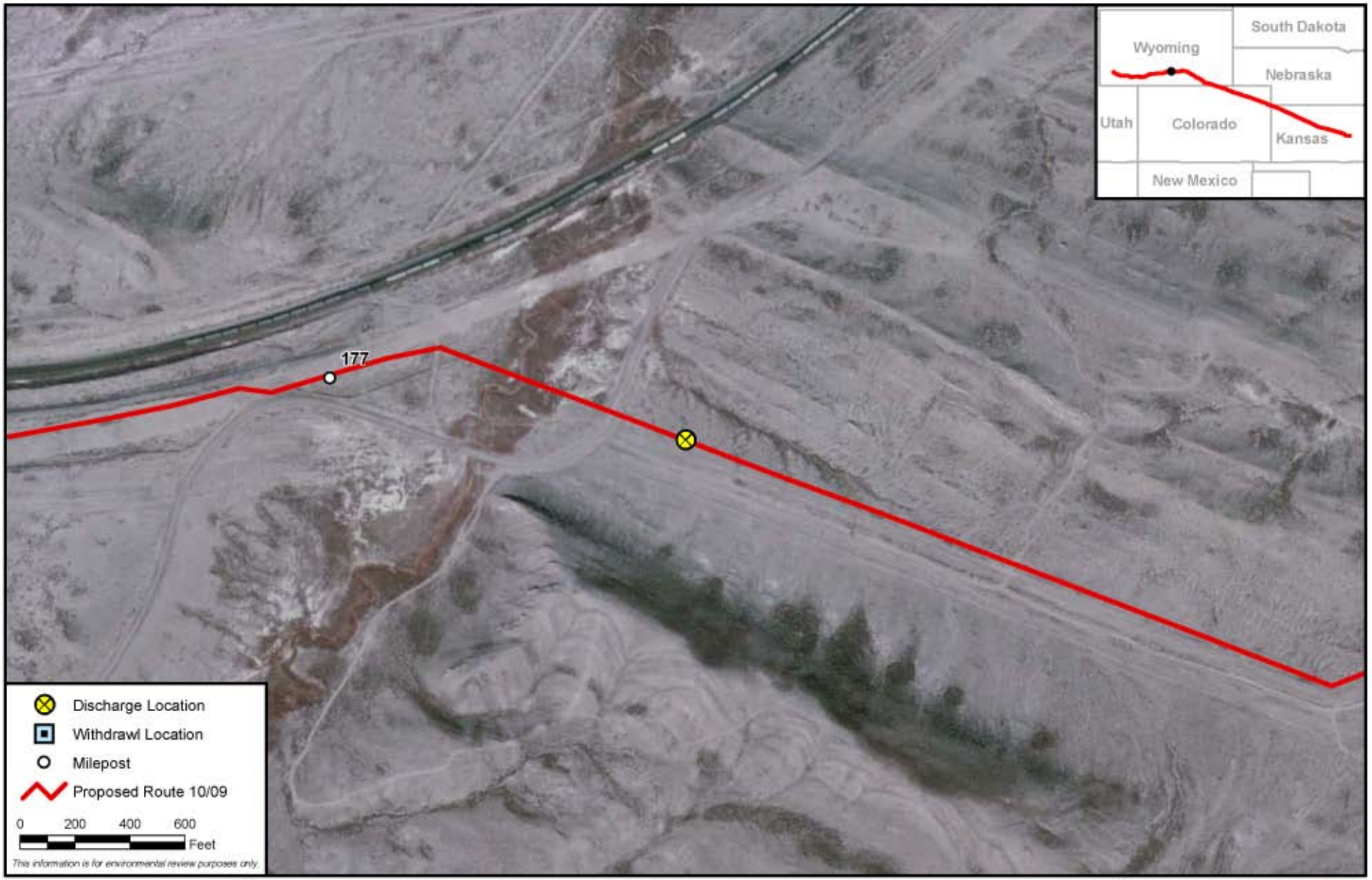

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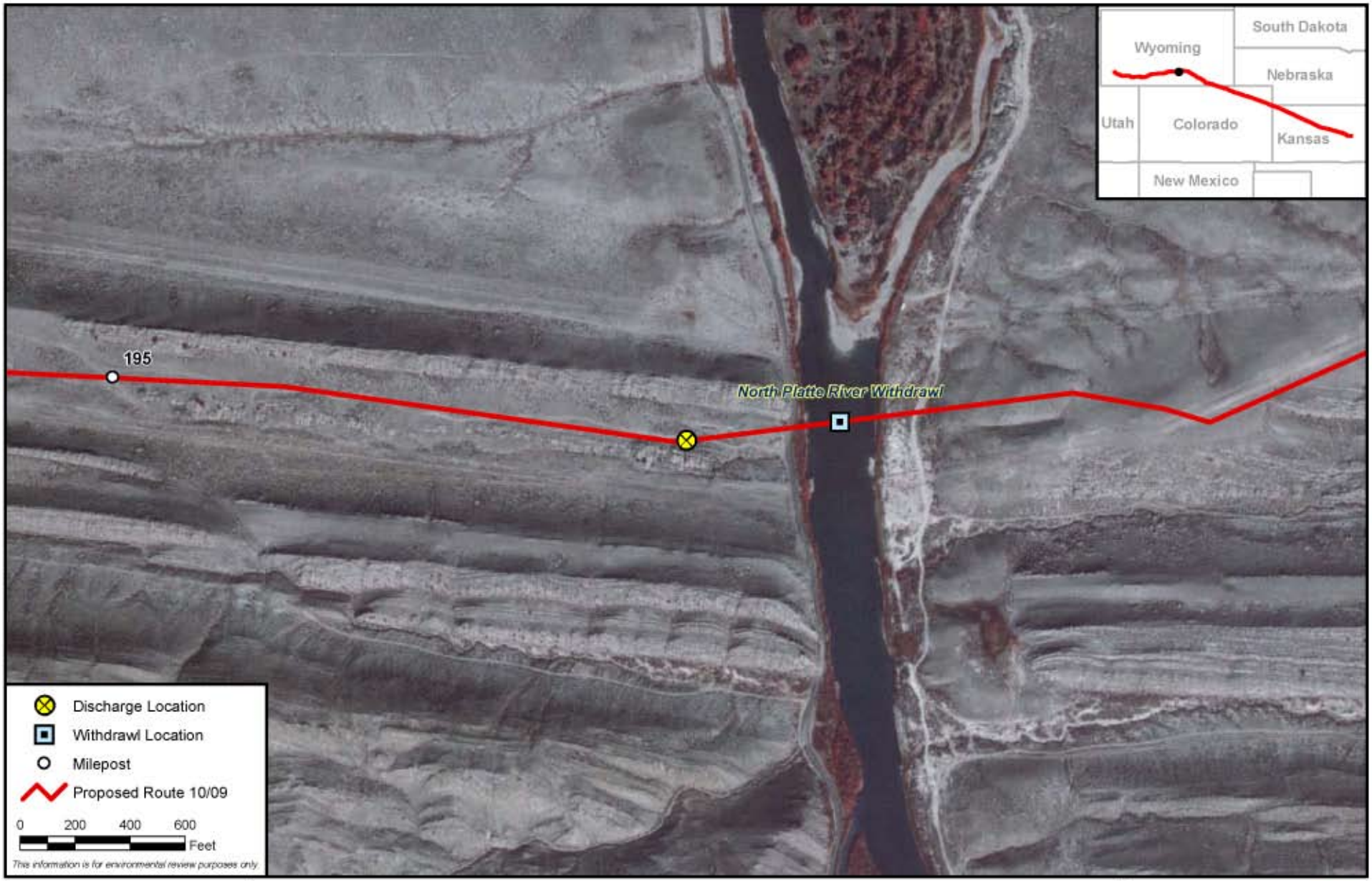

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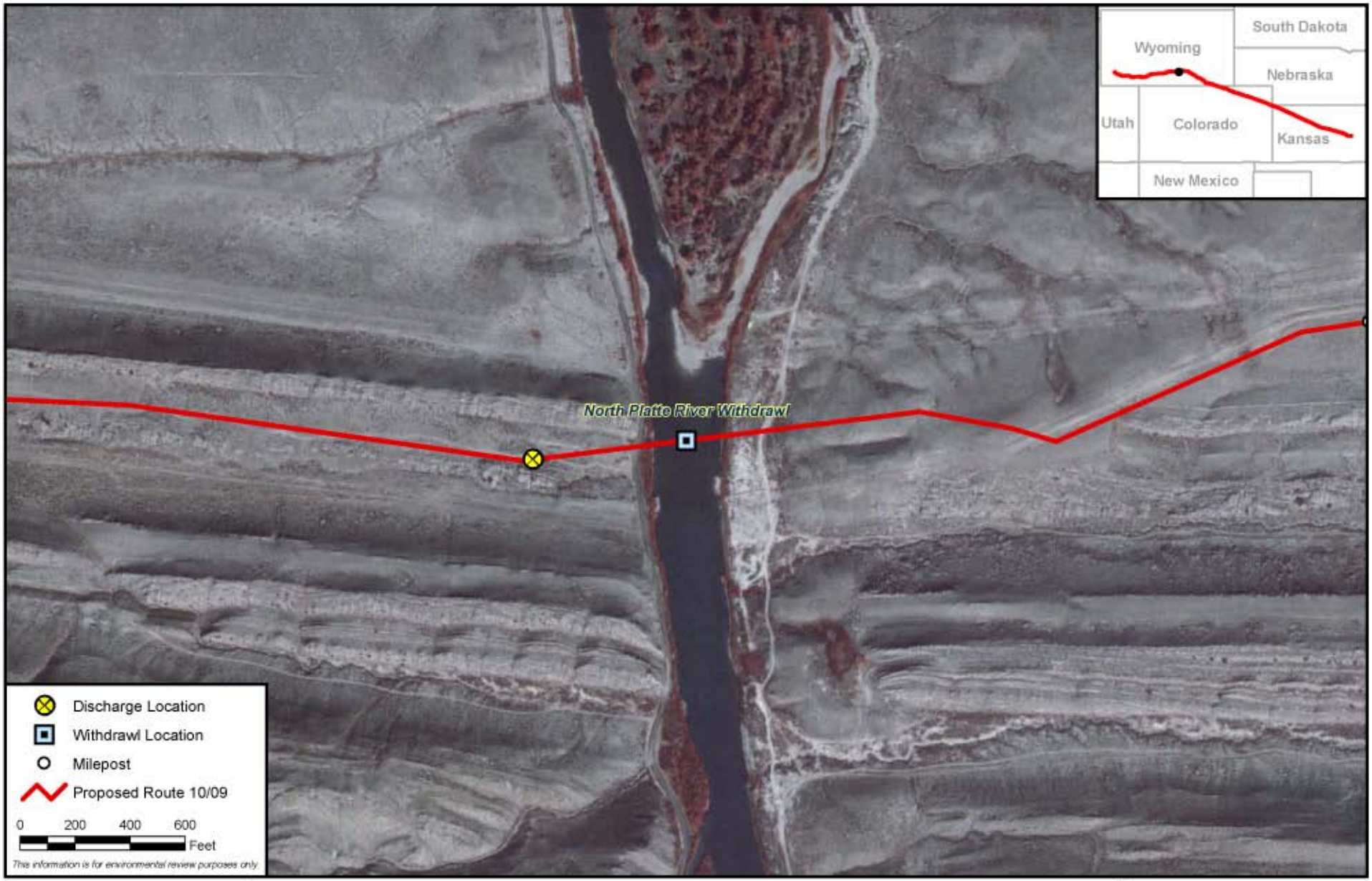

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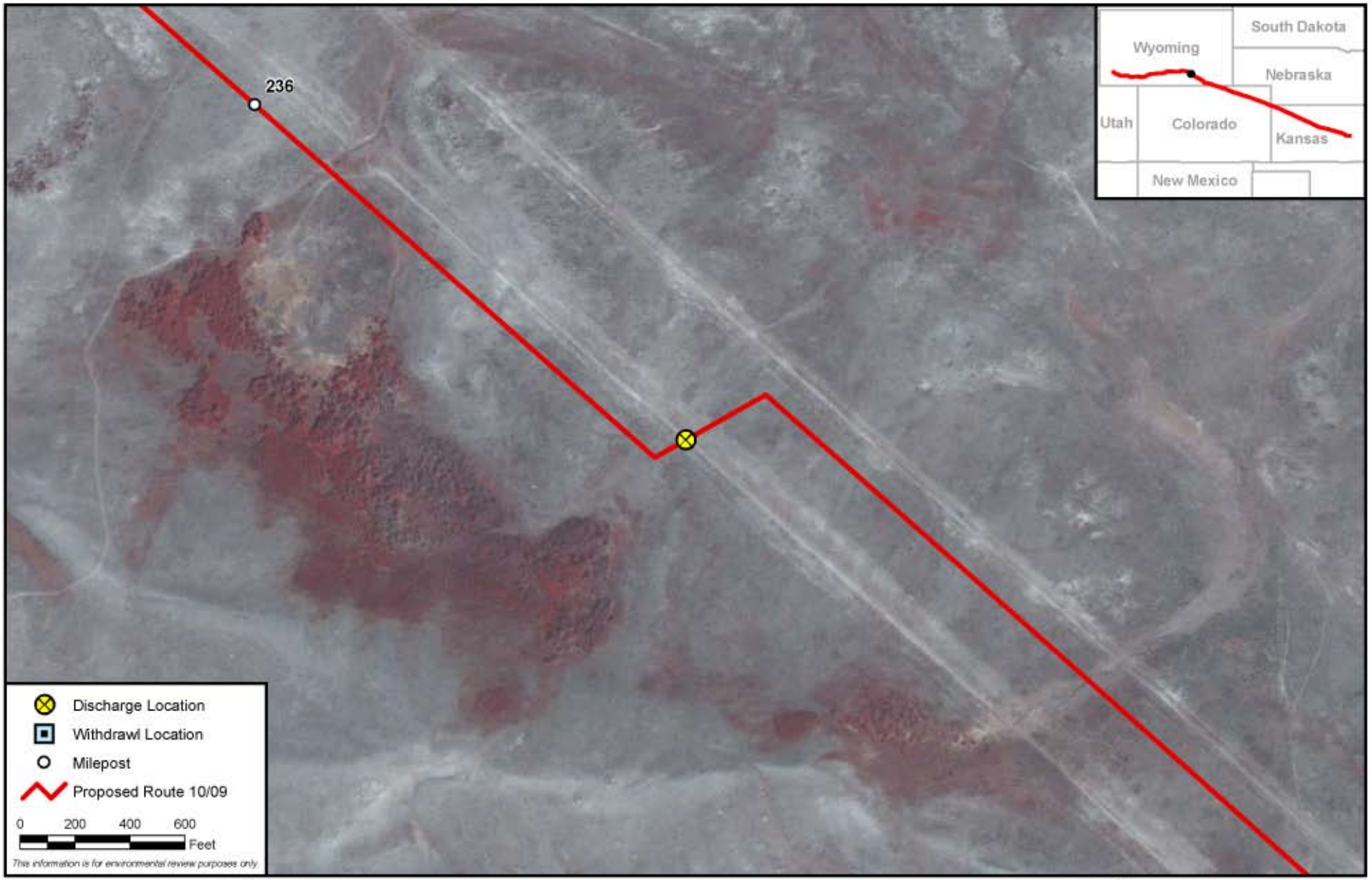

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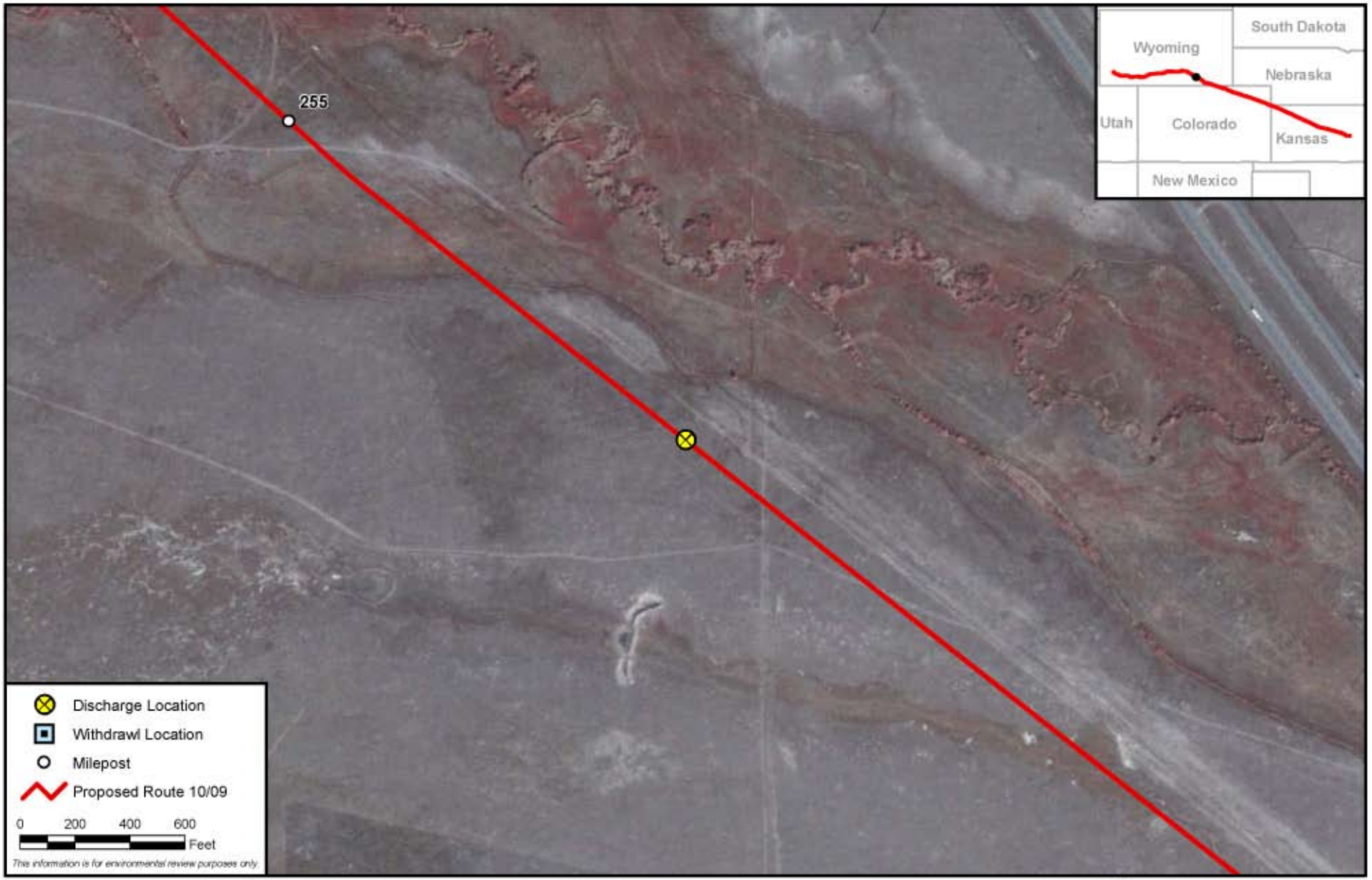

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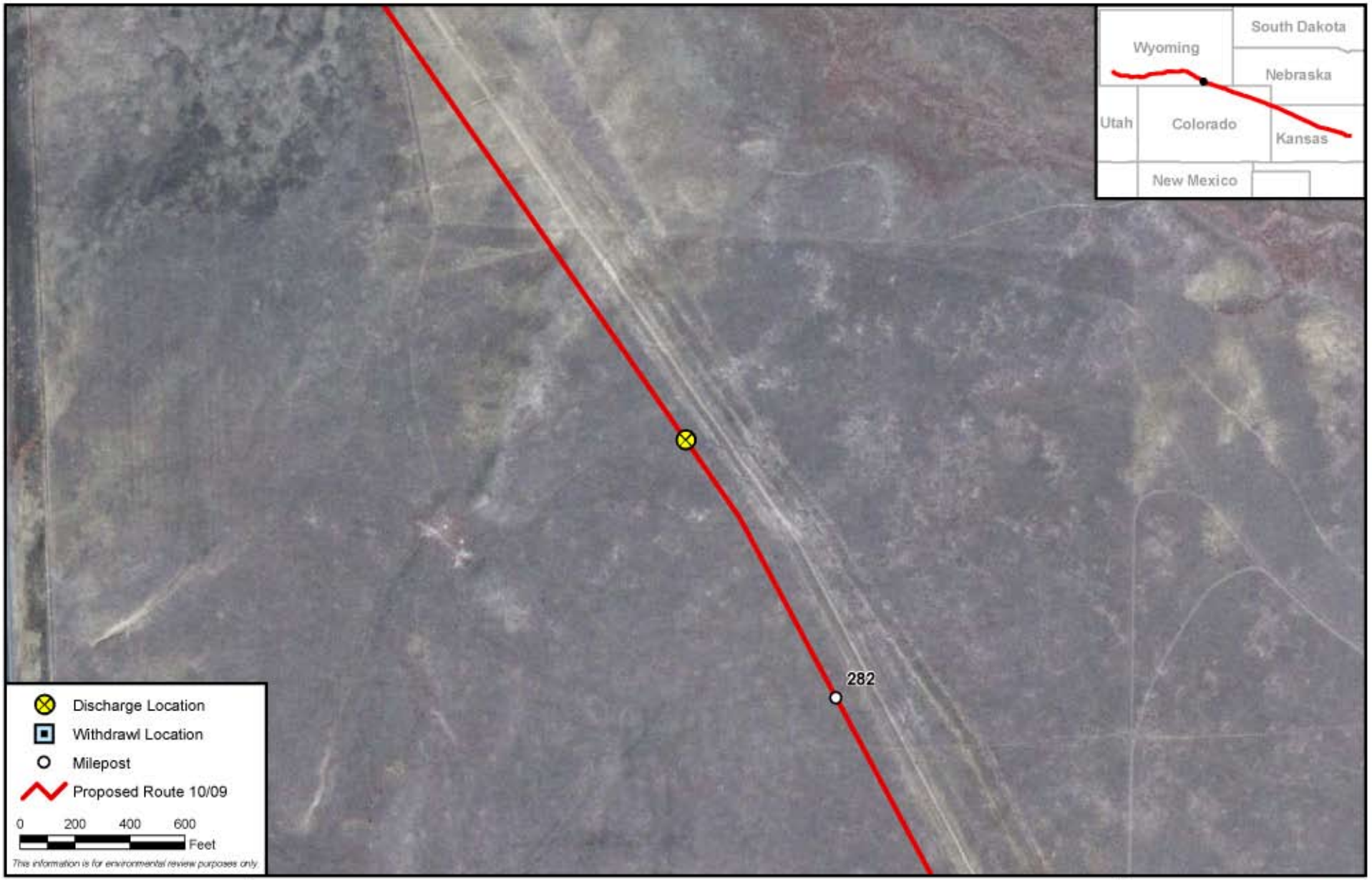

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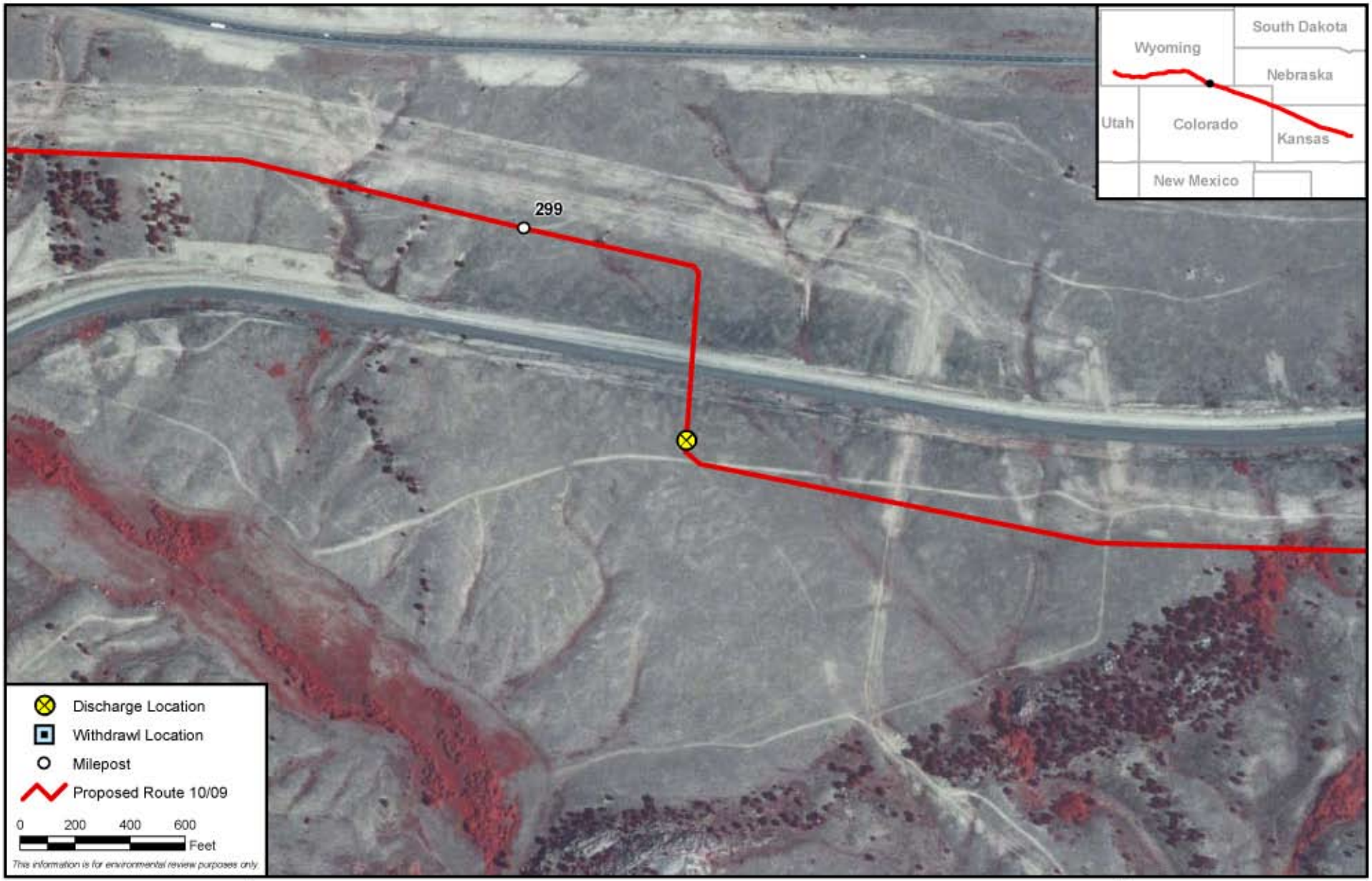

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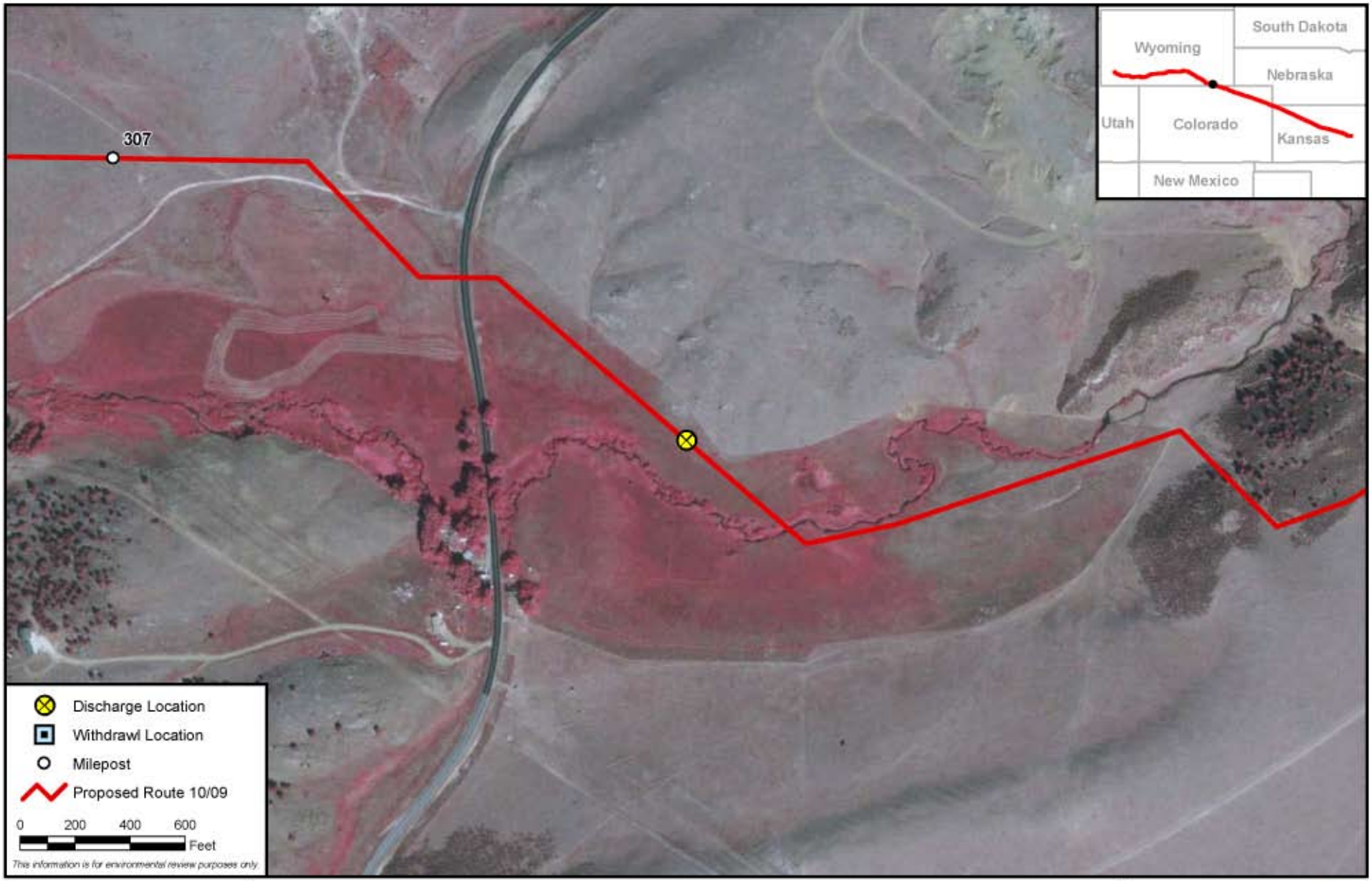

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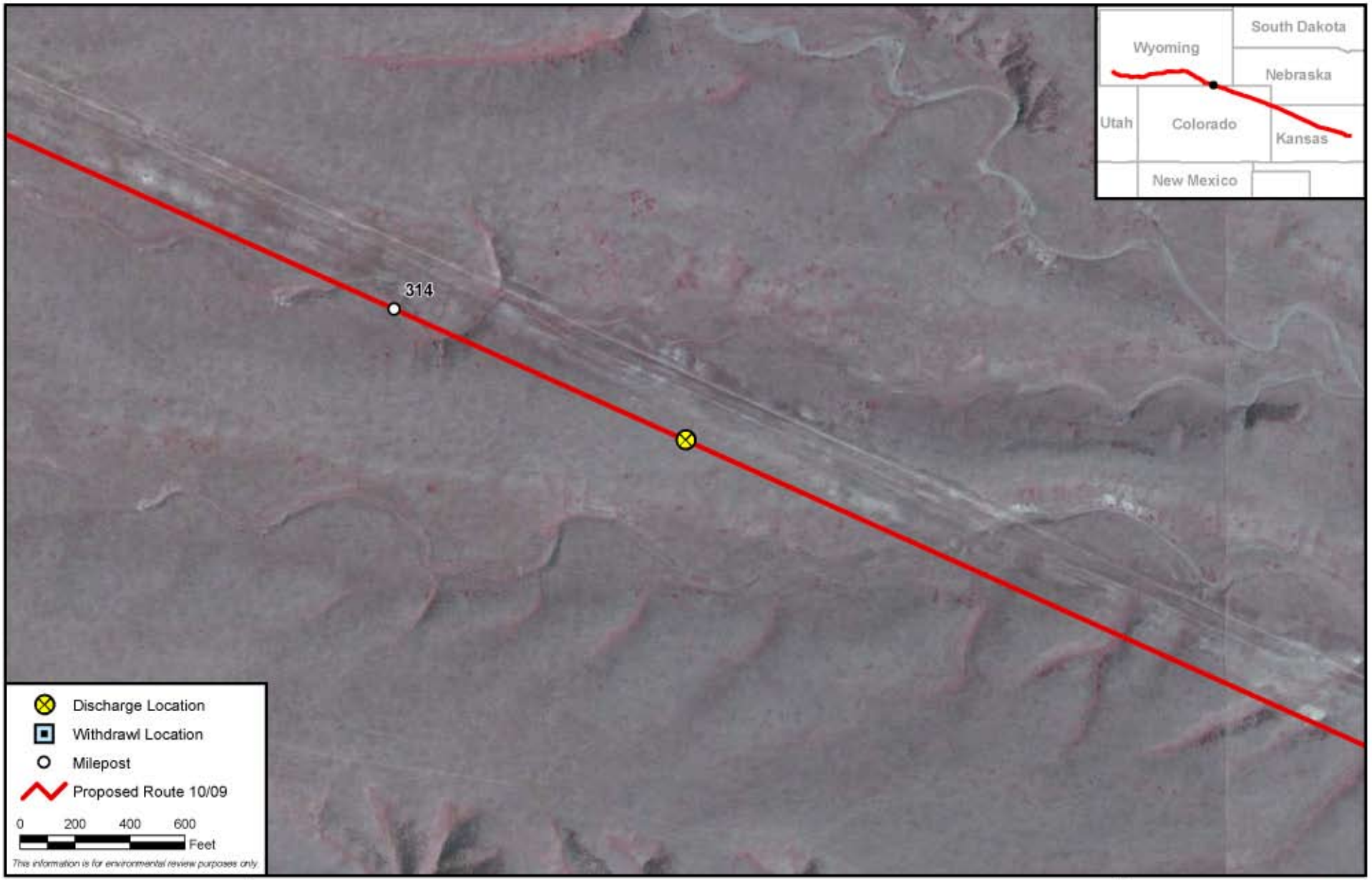

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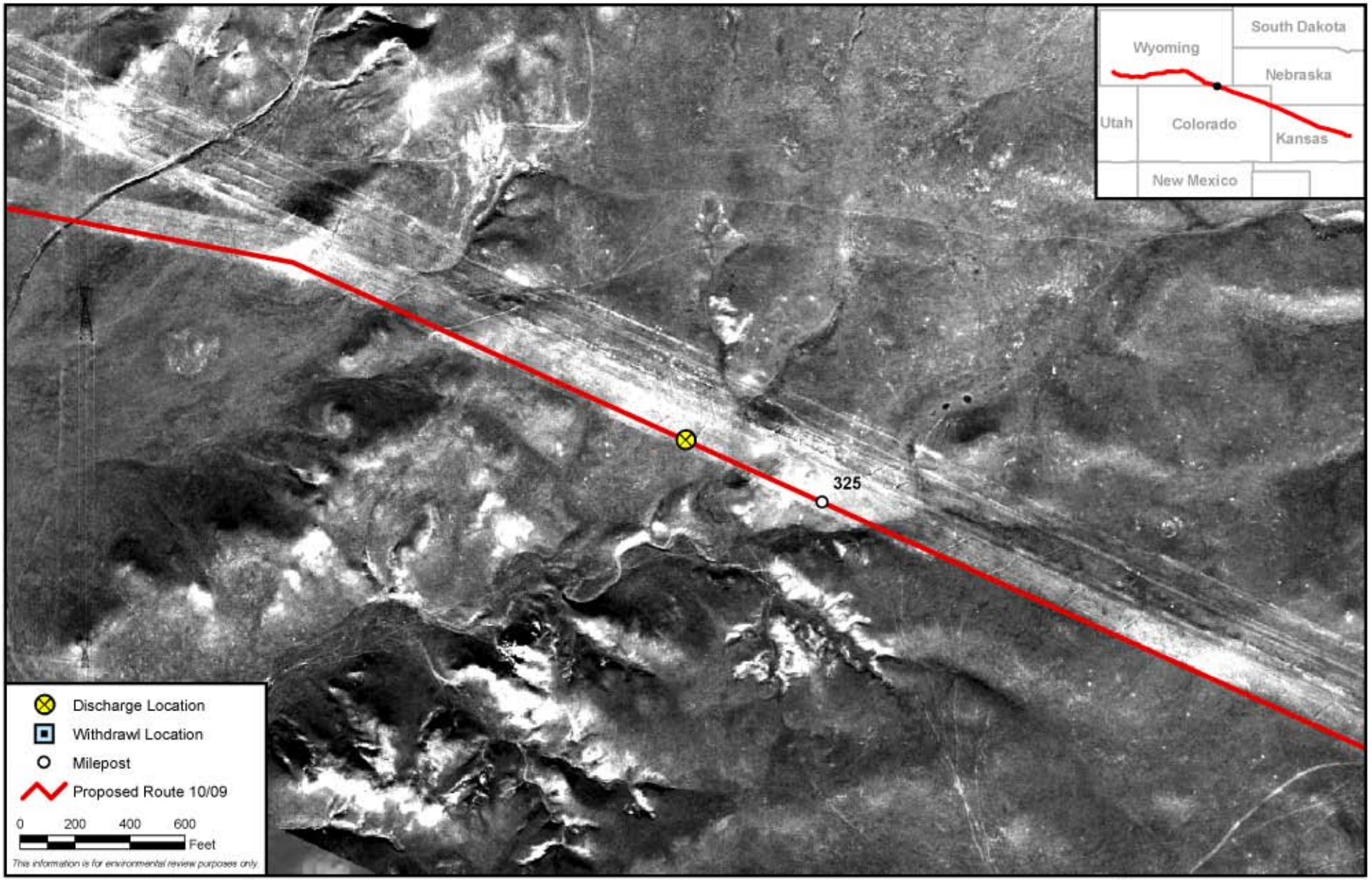

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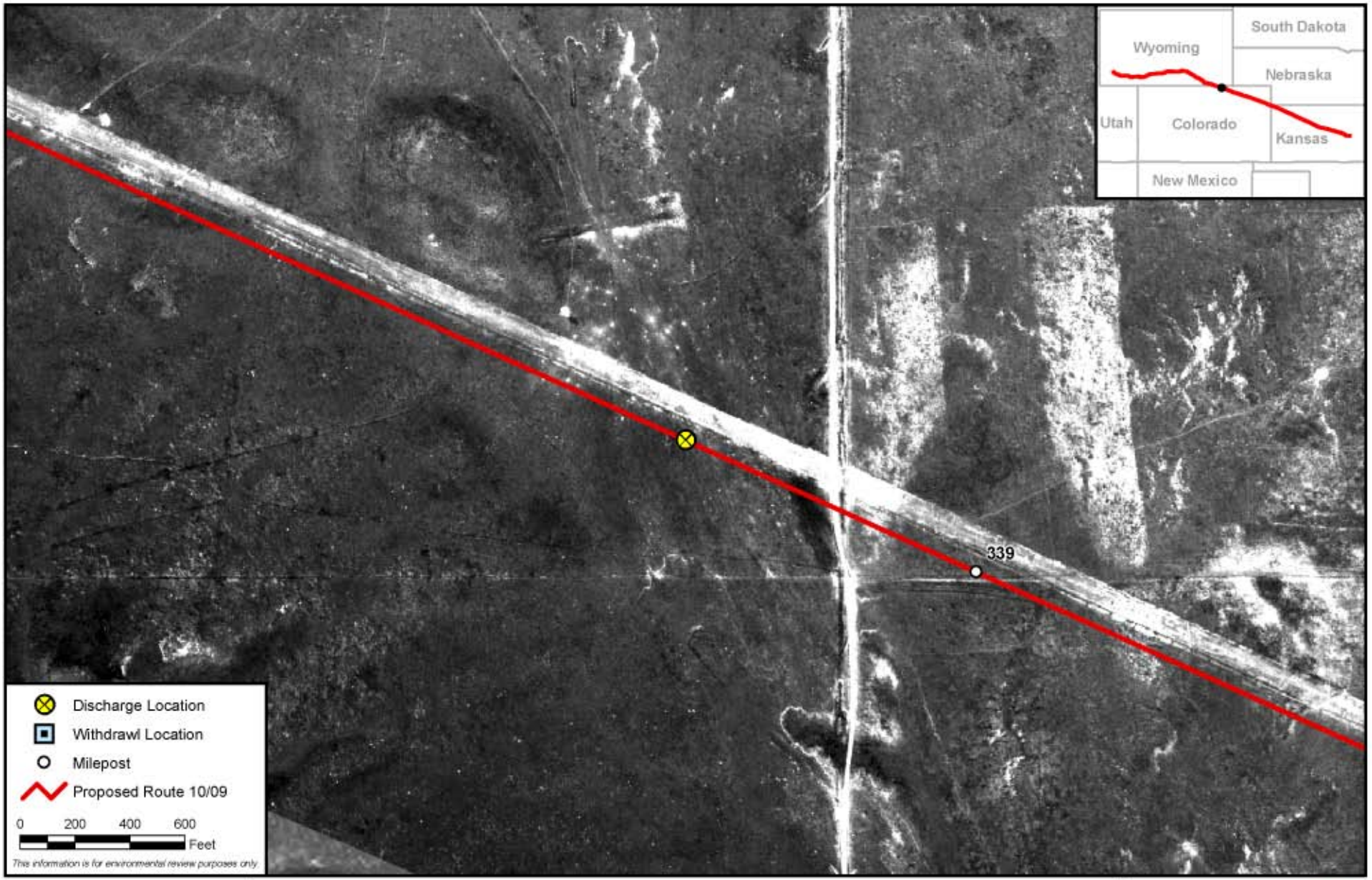

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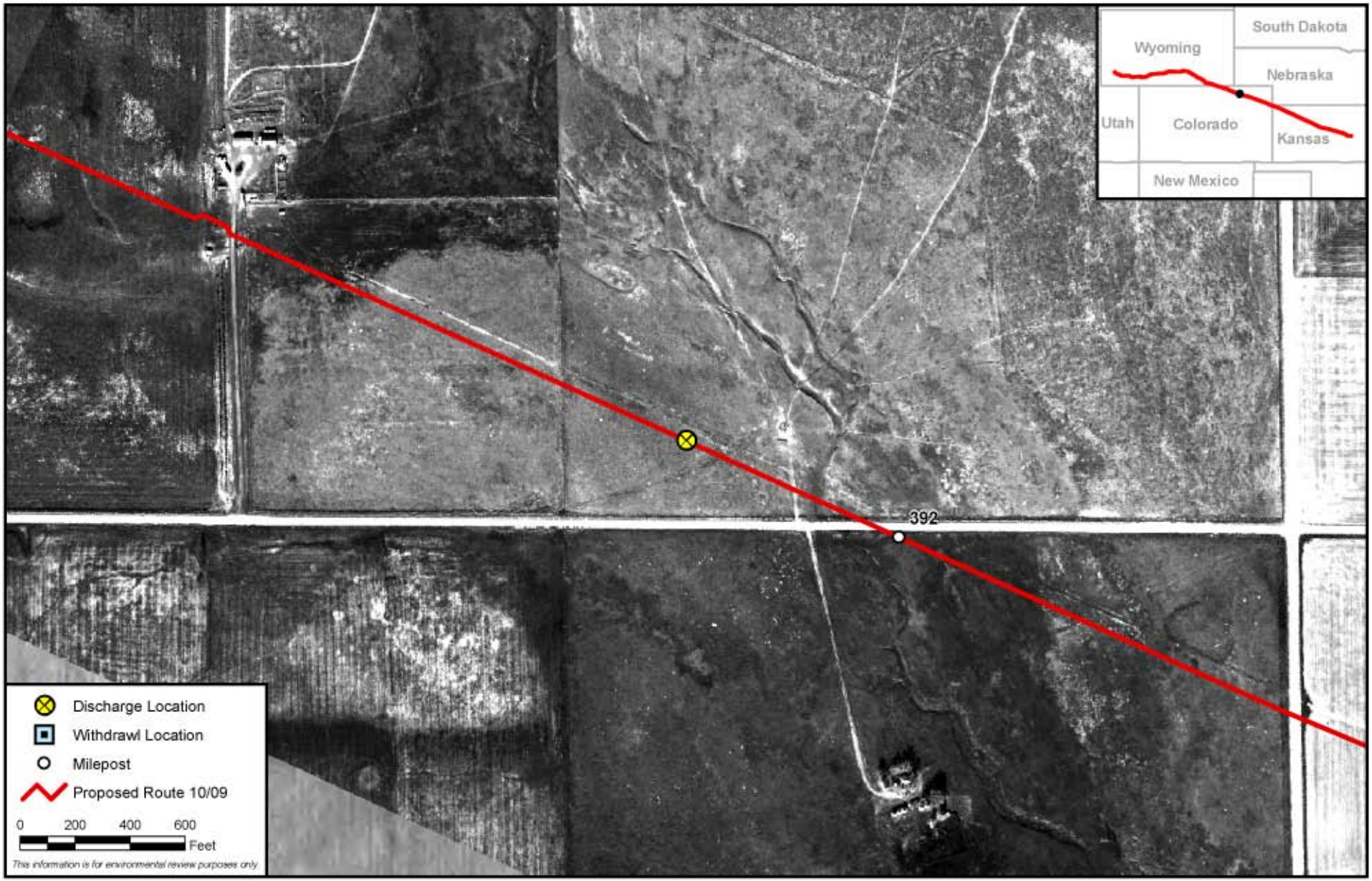

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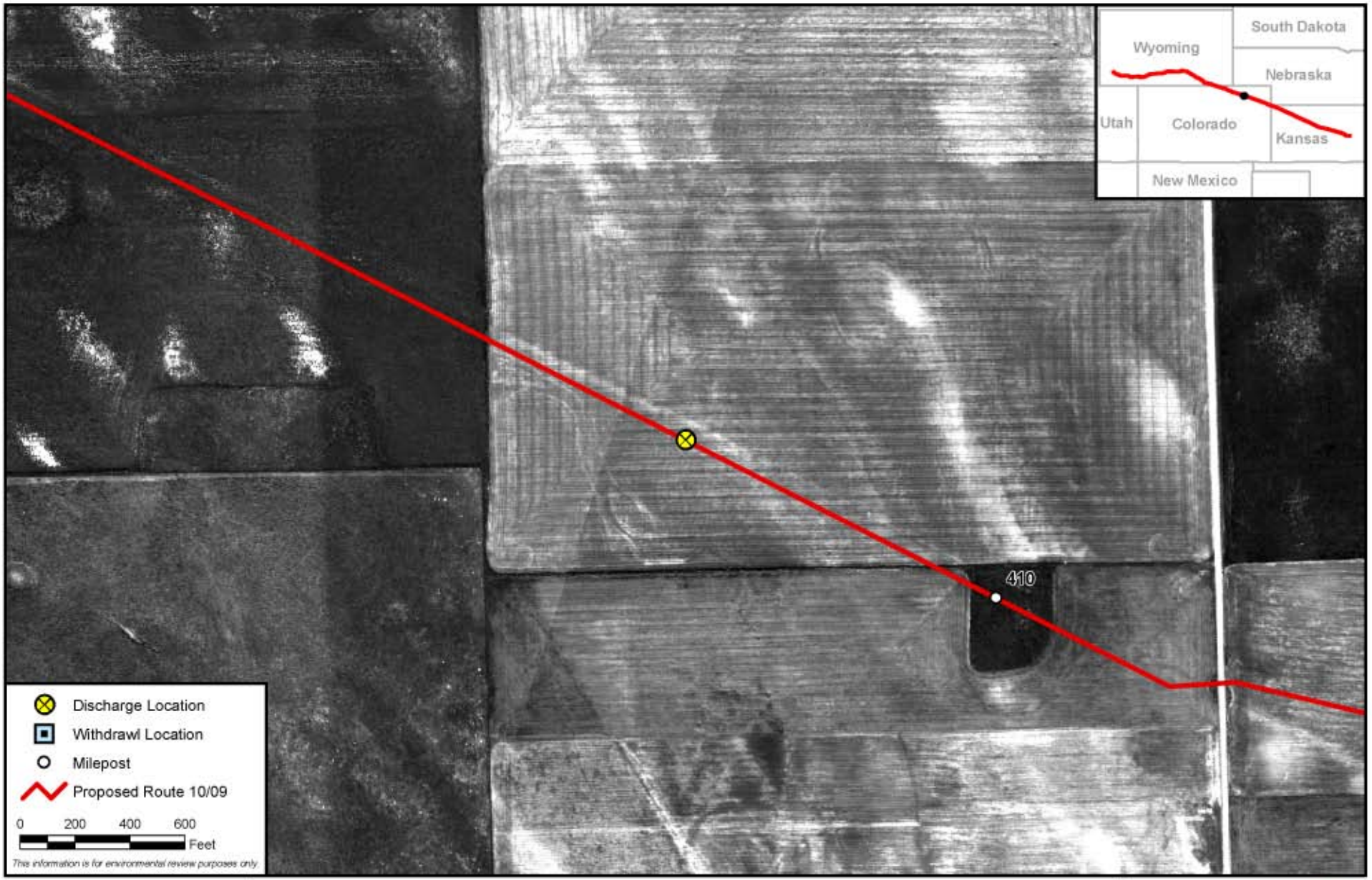

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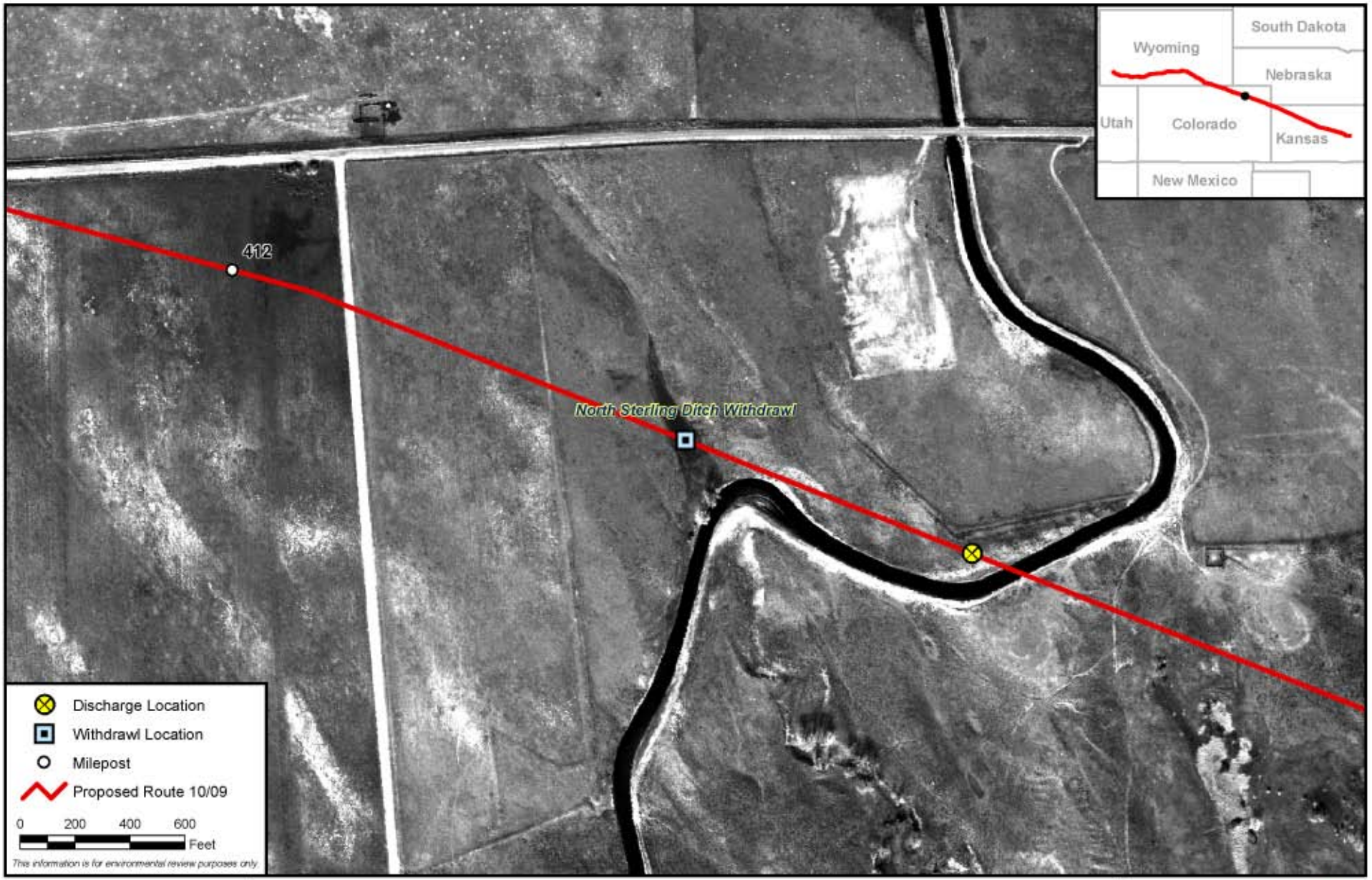

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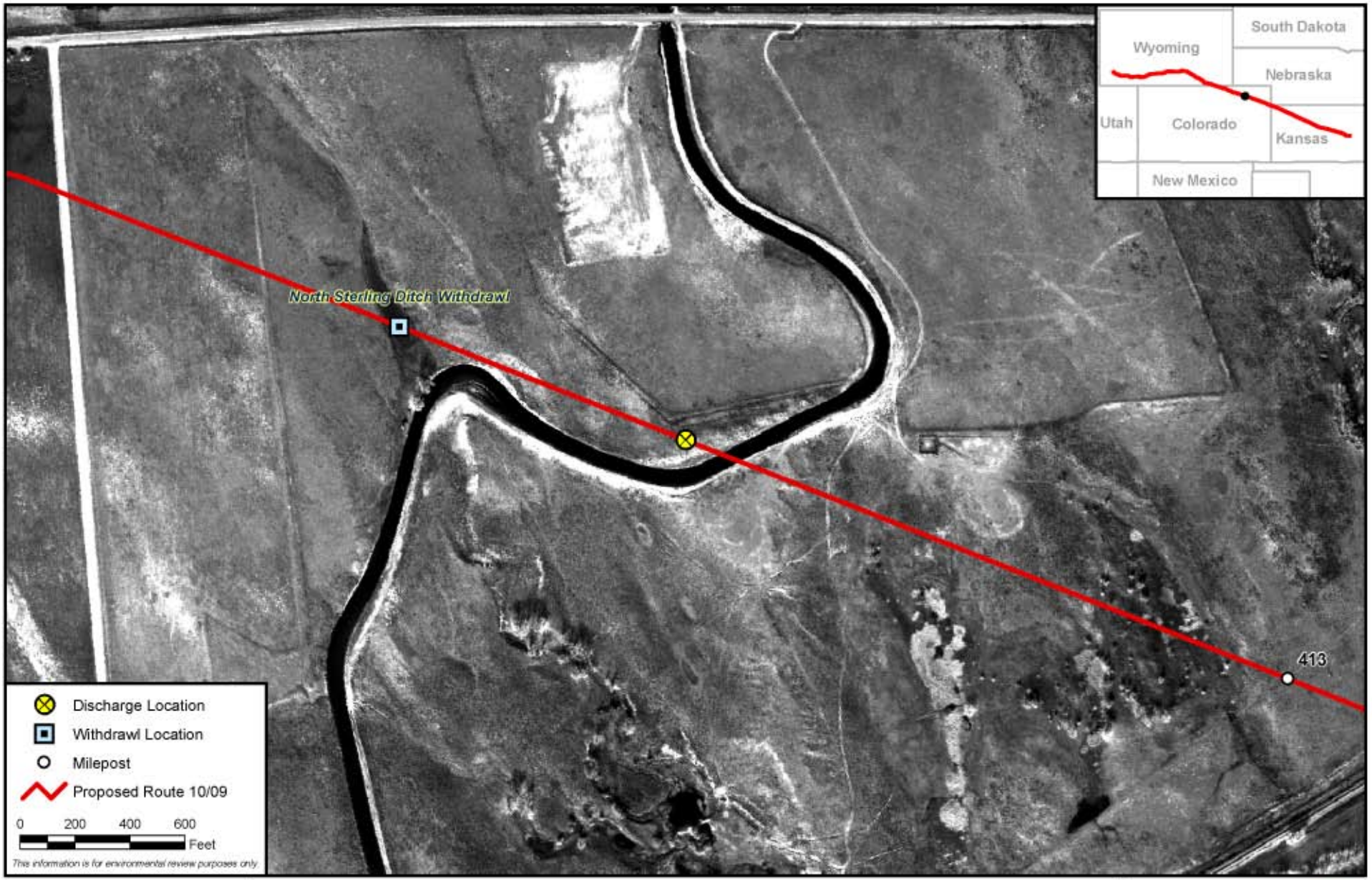

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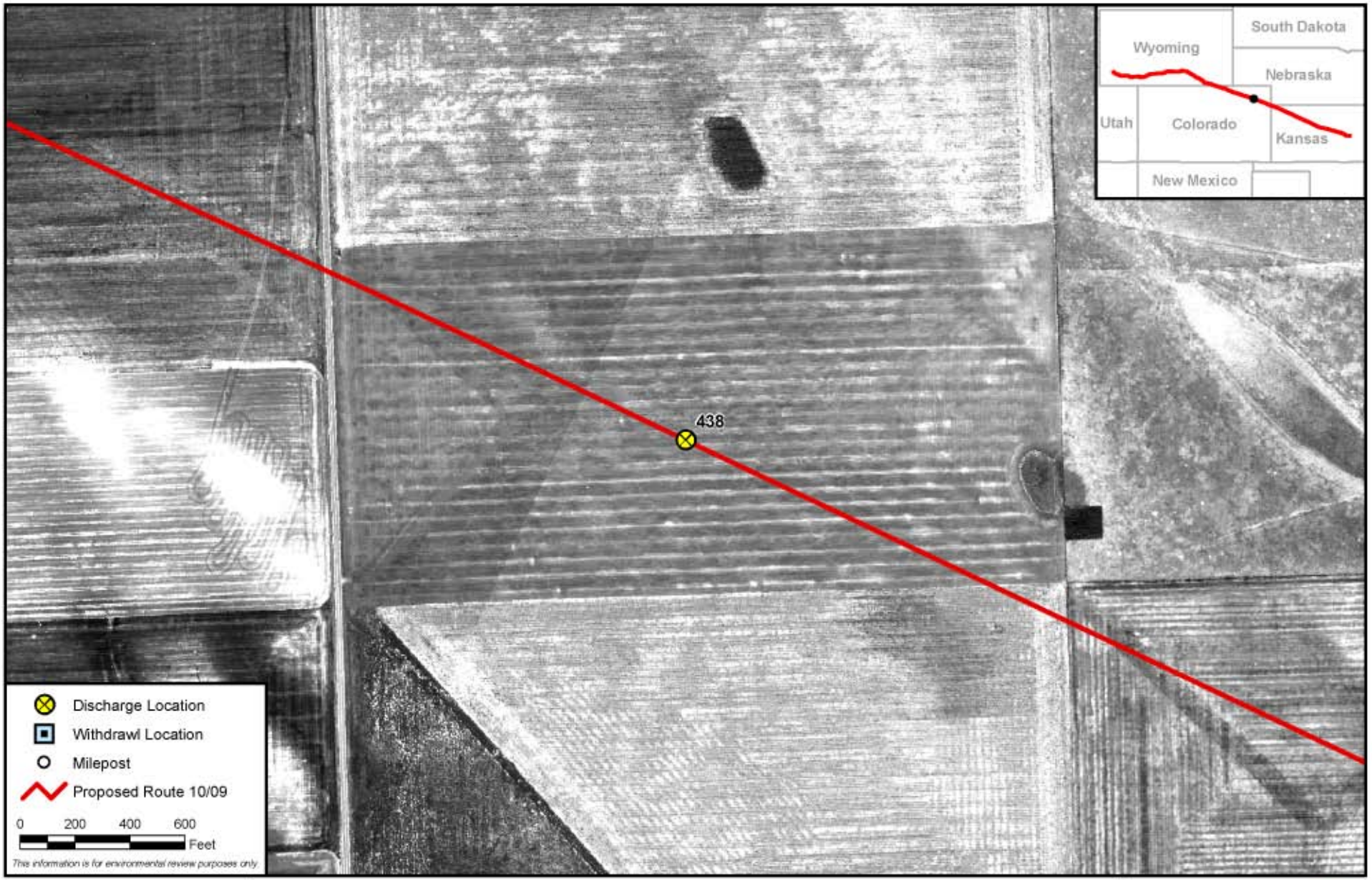

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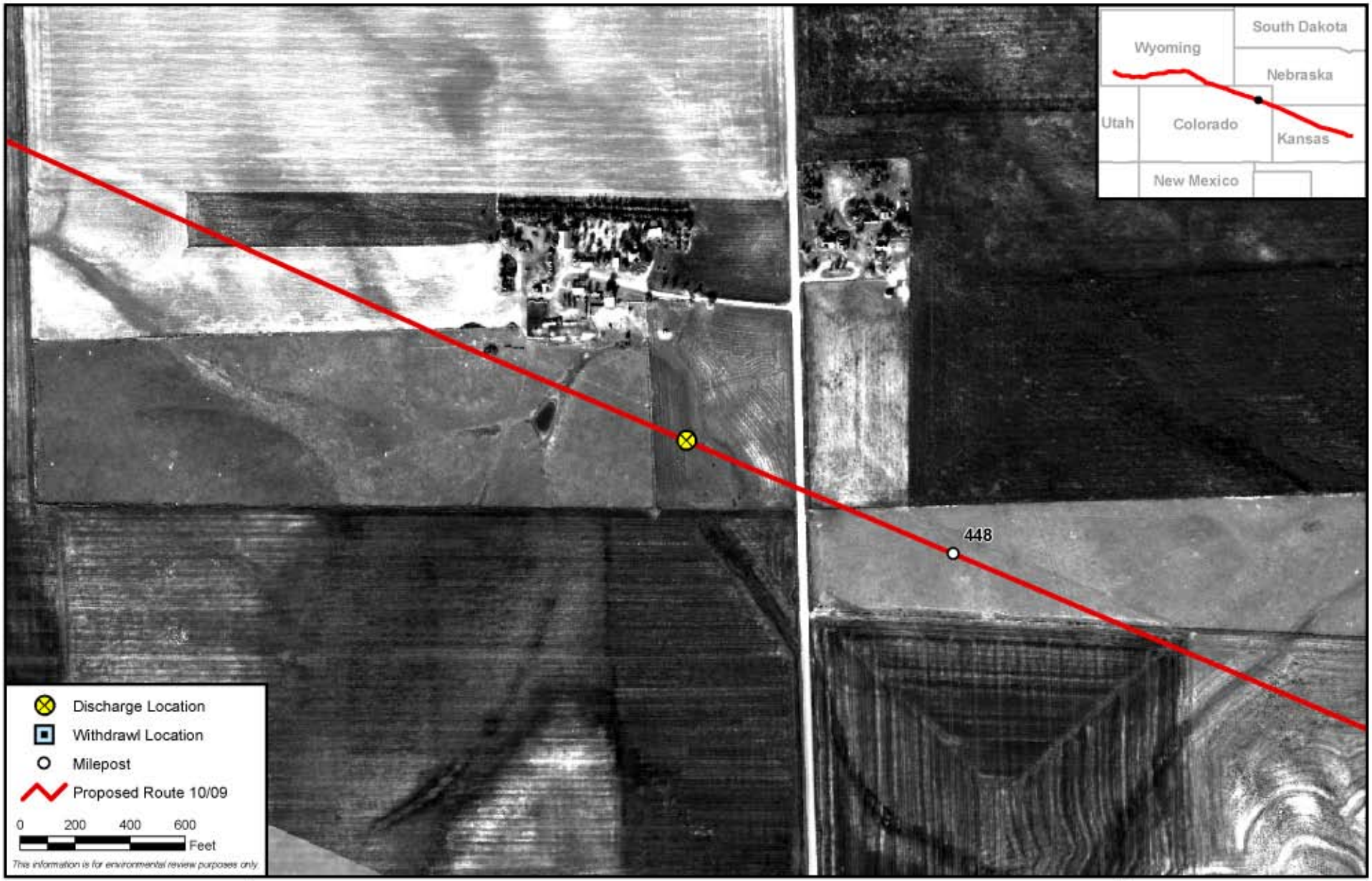

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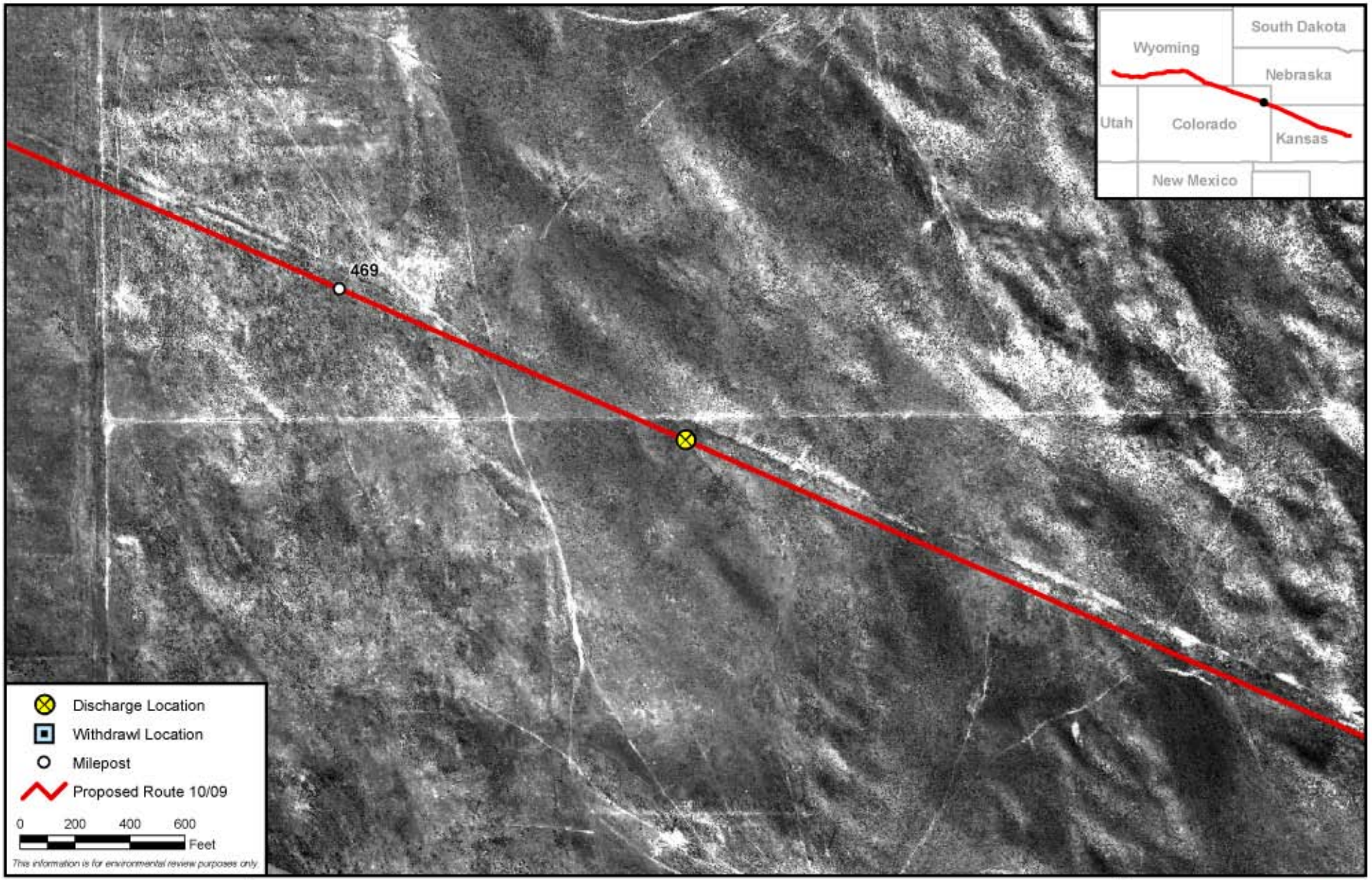

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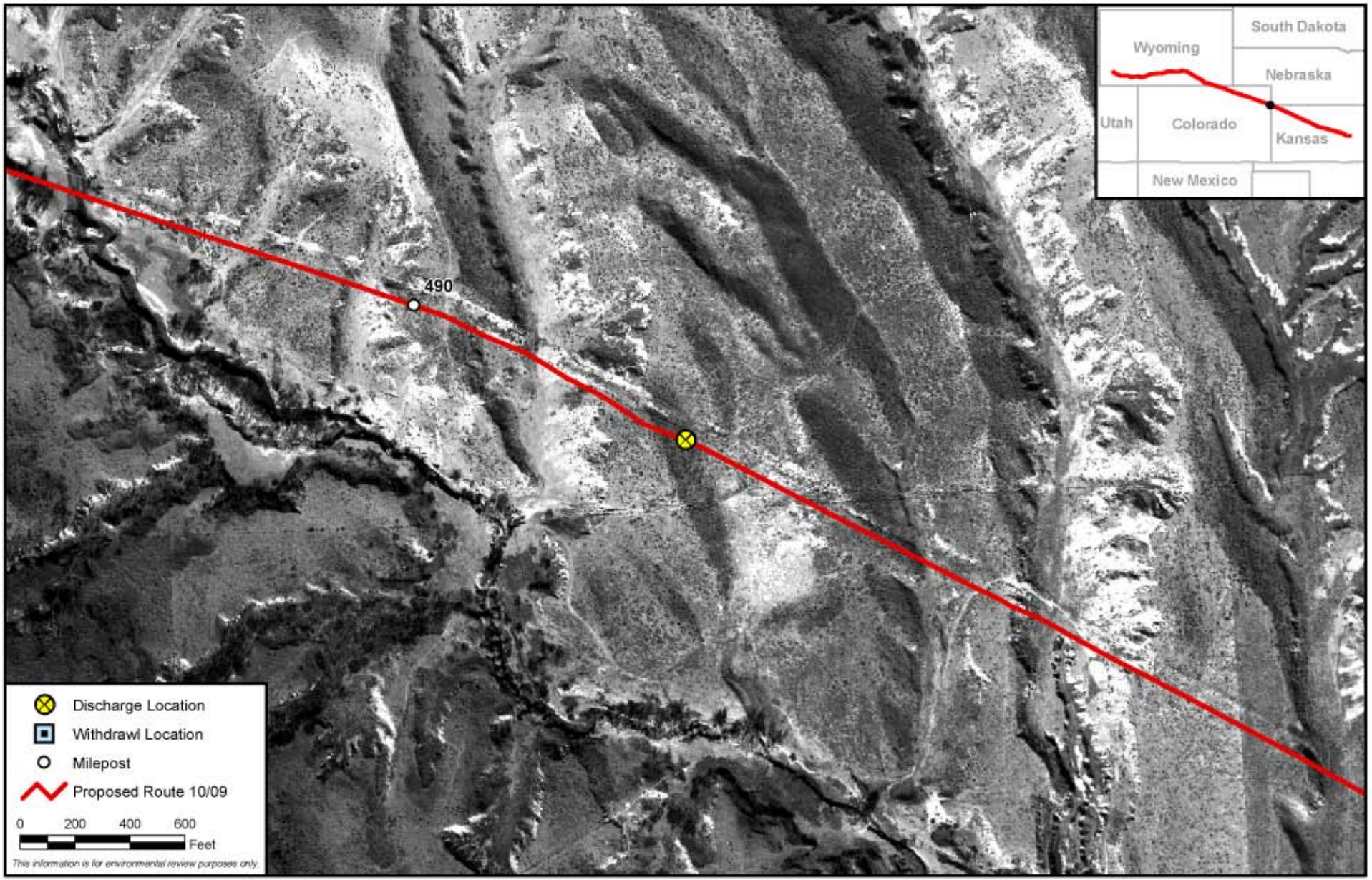

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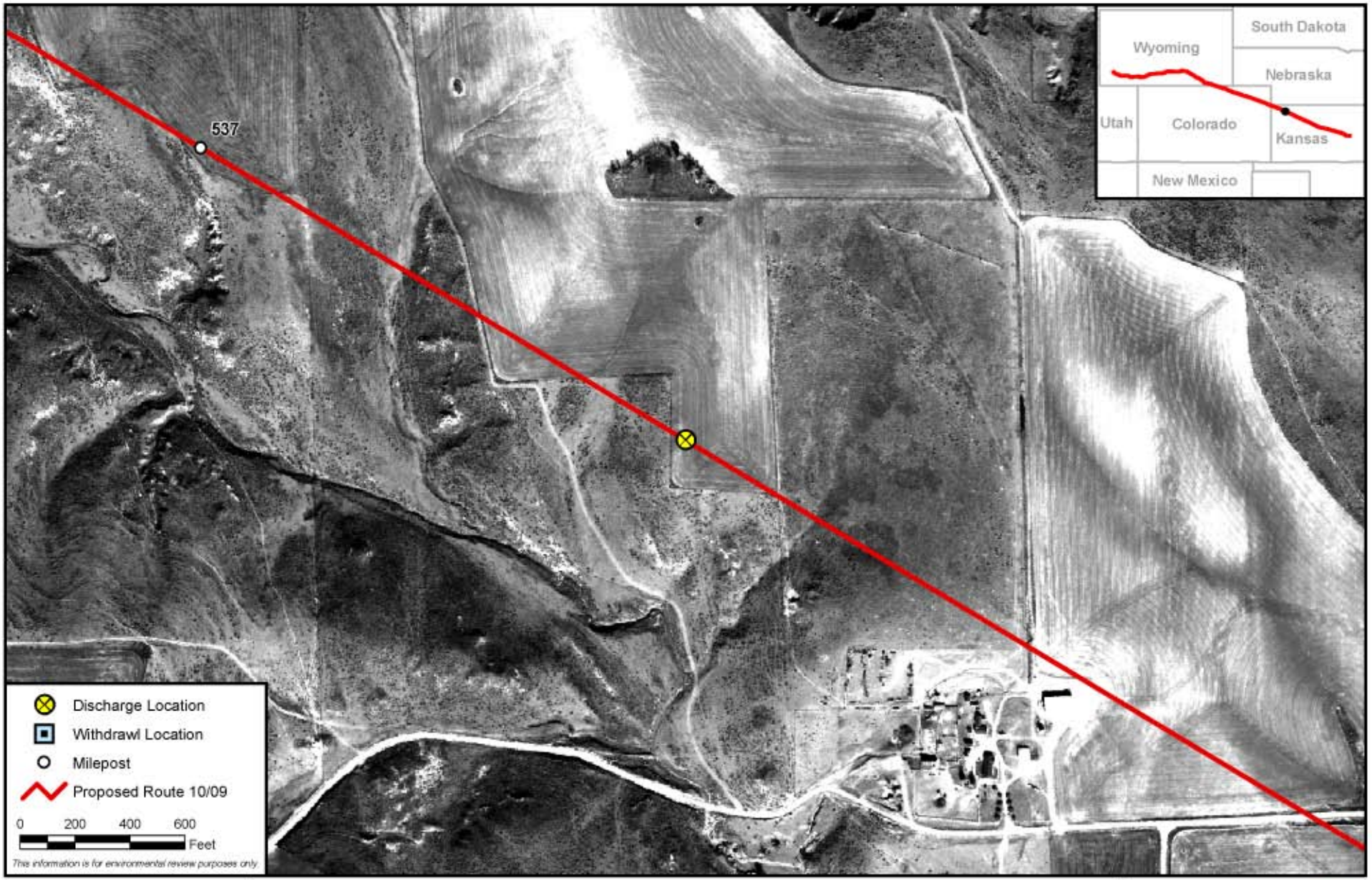

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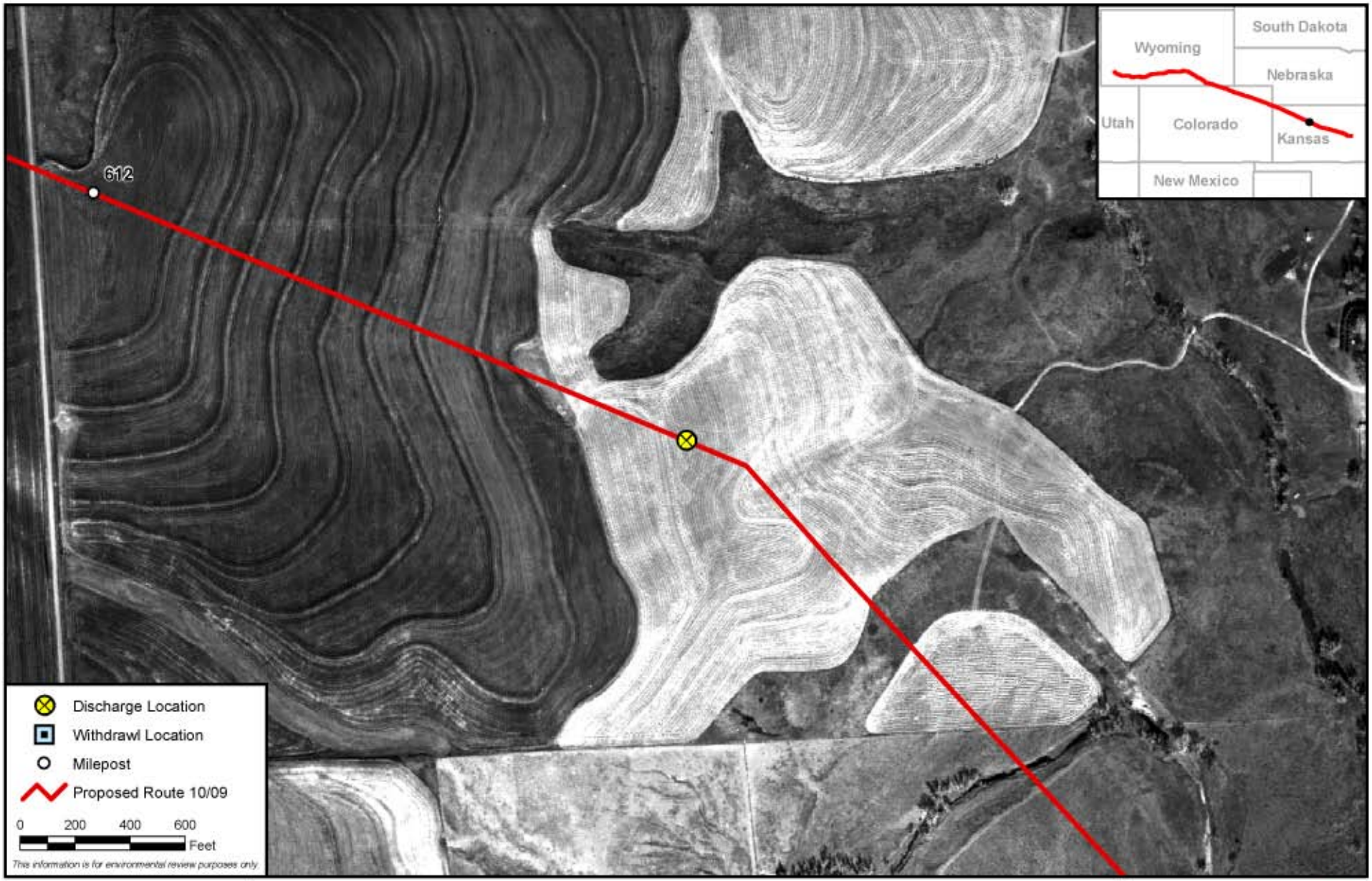

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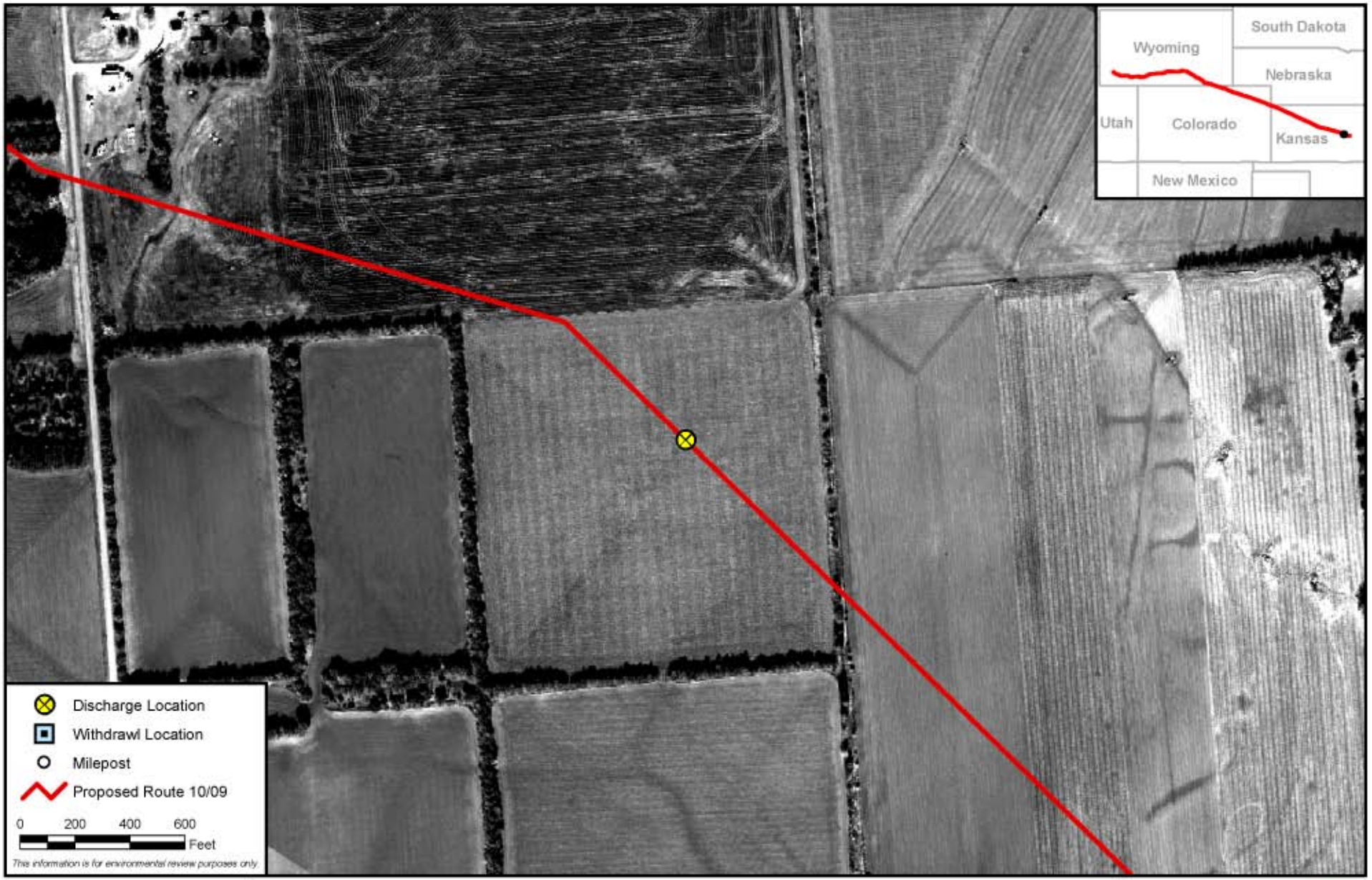

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NATURAL RESOURCE GROUP, INC.

Appendix D

Weed Management Plan

OVERLAND PASS PIPELINE PROJECT

WEED MANAGEMENT PLAN

PRELIMINARY

Prepared by:

Natural Resource Group, Inc.

August 2006, Rev. 2

OVERLAND PASS PIPELINE PROJECT
WEED MANAGEMENT PLAN
TABLE OF CONTENTS

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List of Tables

Attachment List

NOTE: Appendices to this document are intentionally not included. All available plans and attachments to this document can be found as part of the Draft Plan of Development found at www.blm.gov/wy/st/en/info/NEPA/rfodocs/overland_pipeline.html.

A. State Laws Regarding Noxious Weeds [Provided in March 2006. To be provided again with final version.]

B. Agency Correspondence [Provided in March 2006. To be provided again with final version.]

C. Weed Survey Maps – *TO BE INCLUDED WITH FINAL VERSION*

1.0 INTRODUCTION

Noxious weed control practices for the Overland Pass Pipeline Project described in the Weed Management Plan (Plan) plan have been developed in consultation with the following federal land management agencies:

- Bureau of Land Management (BLM), Kemmerer Field Office, Wyoming;
- BLM, Rock Springs Field Office, Wyoming;
- BLM, Rawlins Field Office, Wyoming;
- U.S. Forest Service (FS), Flaming Gorge National Recreation Area, Wyoming; and
- FS, Pawnee National Grassland, Colorado.

Additionally, Overland Pass consulted with the County Weed and Pest Districts and Weed Control Supervisors for the following counties:

- Lincoln, Wyoming
- Sweetwater, Wyoming
- Carbon, Wyoming
- Albany, Wyoming
- Laramie, Wyoming
- Larimer, Colorado
- Weld, Colorado
- Morgan, Colorado
- Logan, Colorado
- Washington, Colorado
- Yuma, Colorado
- Cheyenne, Kansas
- Rawlins, Kansas
- Thomas, Kansas
- Sheridan, Kansas
- Gove, Kansas
- Trego, Kansas
- Ellis, Kansas
- Russell, Kansas
- Barton, Kansas
- Ellsworth, Kansas
- Rice, Kansas

- McPherson, Kansas

2.0 GOALS AND OBJECTIVES

This Plan is intended to describe a weed management project that prescribes methods to prevent and control the spread of noxious weeds and other invasive species during and following construction of the Overland Pass Pipeline Project. Overland Pass and its Contractors will be responsible for implementing the methods described in this Plan.

This Plan is applicable to the construction and operation of the proposed pipeline facilities, including the pipeline right-of-way, the proposed aboveground facilities, areas of extra temporary workspaces, and any other areas disturbed during the construction and operation of the proposed facilities.

3.0 NOXIOUS WEED AND INVASIVE SPECIES INVENTORY

Legally, a noxious weed is any plant officially designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property (Sheley, Petroff, and Borman, 1999). A noxious weed is also commonly defined as a plant that grows out of place (e.g., a rose can be a weed in a wheat field) and is "competitive, persistent, and pernicious" (James et al, 1991). Noxious weeds are officially designated as unwanted or undesirable. Noxious weeds are opportunistic plant species that readily flourish in disturbed areas, thereby preventing native plant species from establishing successive communities.

Unlike “noxious species”, “invasive species" are defined as species that are non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Invasive plants include not only noxious weeds, but also other plants that are not native to this country. The BLM considers plants invasive if they have been introduced into an environment where they did not evolve. As a result, they usually have no natural enemies to limit their reproduction and spread (Westbrooks, 1998).

The BLM maintains a National List of Invasive Weed Species of Concern for western states that includes 132 plant species. The BLM inventories for Colorado can be accessed at: http://www.co.blm.gov/botany/weedhome.htm. The BLM inventories for Wyoming can be accessed at: http://www.wy.blm.gov/weeds/whatis.htm. The noxious weed list for the State of Kansas can be accessed at: http://www.ksda.gov/Default.aspx?tabid=329.

Not all invasive species are legally designated as noxious species. Colorado and Wyoming also maintain official state lists of weed species that are designated noxious species. Information on the State of Colorado Weed Management Program and species lists can be obtained at: http://www.ag.state.co.us/DPI/weeds/Weed.html. Information on the State of Wyoming Weed and Pest Districts and species lists can be obtained at: http://www.wyoweed.org/wp_dist.html.

3.1 WYOMING

Under the authority of the Wyoming Weed and Pest Control Act of 1973 (Act) (Wyoming Statute 115-119), Wyoming has officially designated 24 plant species as noxious. Per the Act, weed control is the responsibility of the landowner or the owner of rights-of-way or easement. Noxious weed control is required at the county level.

3.2 COLORADO

Under its Colorado Weed Management Act, §§ 35-5.5-101 through 119, C.R.S. (2000), Colorado has officially designated 82 plant species as noxious, which are divided into three lists. Colorado State List A species are noxious weeds that are not common to the state and require eradication. Upon identification of a list A species, the State Weed Coordinator/County Weed Control Supervisor is to be notified to coordinate control efforts. Eighteen weed species were identified in the project area from list A. List B species are noxious weeds for which the state is currently developing management plans but does not require treatment for at this time. List C species are weed species commonly found throughout the state. While the state does not require treatment for species included on its Lists B and C, control of these species may be required at the county level.

3.3 KANSAS

Under the Kansas Department of Agriculture Administrative Code and Statutes, Chapter 2.--AGRICULTURE Article 13.--WEEDS 2-1314, the treatment of noxious weeds are defined as:

> "It shall be the duty of persons, associations of persons, the secretary of transportation, the boards of county commissioners, the township boards, school boards, drainage boards, the governing body of incorporated cities, railroad companies and other transportation companies or corporations or their authorized agents and those supervising state-owned lands to control the spread of and to eradicate all weeds declared by legislative action to be noxious on all lands owned or supervised by them and to use such methods for that purpose and at such times as are approved and adopted by the Kansas department of agriculture."

Kansas has officially designated 17 plant species as noxious.

3.4 CONSULTATIONS

Through consultations with BLM and FS, the states of Wyoming, Colorado, and Kansas Departments of Agriculture, and the individual counties affected by the project, a list of noxious weeds of concern within the project area was developed and is presented in tables 3.4-1, 3.4-2, and 3.4-3. Copies of consultation letters, e-mail, and phone logs of conversation with the agencies are included as Attachment B of this Plan.

TABLE 3.4-1

Overland Pass Pipeline Project
Noxious Weed Species of Concern within the Project Area in Wyoming

		BLM Districts			Wyoming Counties				
Weed Species	State List	KFO	RSFO	RFO	Lincoln	Sweet-water	Carbon	Albany	Laramie
Black henbane				X		X		X	
Canada thistle	X	X	X	X	X	X	X	X	X
Common burdock	X	X	X	X	X	X	X	X	X
Common mullein									X
Common Tansy	X	X	X		X	X	X	X	X
Dalmation toadflax	X	X	X	X	X	X	X	X	X
Diffuse knapweed	X	X	X	X	X	X	X	X	X
Dyer's woad	X	X	X	X	X	X	X	X	X
Field bindweed	X	X	X	X	X	X	X	X	X
Foxtail barley						X			

TABLE 3.4-1

Overland Pass Pipeline Project
Noxious Weed Species of Concern within the Project Area in Wyoming

		BLM Districts			Wyoming Counties				
Weed Species	State List	KFO	RSFO	RFO	Lincoln	Sweet-water	Carbon	Albany	Laramie
Gum weed				X					
Hairy goldenaster									X
Halogeton				X			X		
Hoary cress (whitetop)	X	X	X	X	X	X	X	X	X
Houndstongue	X	X	X	X	X	X	X	X	X
Kochia				X					
Lady's bedstraw						X			
Leafy spurge	X	X	X	X	X	X	X	X	X
Locoweed								X	
Mountain thermopsis						X			
Musk thistle	X	X	X	X	X	X	X	X	X
Oxeye daisy	X	X	X		X	X	X	X	X
Perennial pepperweed	X	X	X	X	X	X	X	X	X
Perennial sowthistle	X	X	X		X	X	X	X	X
Plains larkspur							X	X	X
Plains pricklypear							X		X
Plumeless thistle	X	X	X		X	X	X	X	X
Puncturevine									X
Purple loosestrife	X	X	X		X	X	X	X	X
Quackgrass	X	X	X		X	X	X	X	X
Russian knapweed	X	X	X	X	X	X	X	X	X
Russian thistle				X					
Sandbur									X
Salt cedar (tamarisk)	X	X	X	X	X	X	X	X	X
Scotch thistle	X	X	X		X	X	X	X	X
Skeletonleaf bursage	X	X	X		X	X	X	X	X
Spotted knapweed	X	X	X	X	X	X	X	X	X
St. Johnswort	X	X	X		X	X	X	X	X
Viper's bugloss									X
Wild licorice									X
Wild oats					X				
Wyeth's lupine							X		
Yellow taodflax	X	X	X		X	X	X	X	X

TABLE 3.4-2

Overland Pass Pipeline Project
Noxious Weed Species of Concern within the Project Area in Colorado

Weed Species	State "A" List	Pawnee National Grasslands	Colorado Counties: Larimer	Weld	Morgan	Logan	Washington	Yuma
Absinth wormwood		X		X				
African rue	X							
Camelthorne	X							
Canada thistle		X	X	X	X	X	X	X
Chinese clematis		X		X				
Common crupina	X							
Cypress spurge	X							
Dalmation toadflax		X	X	X				X
Diffuse knapweed		X	X	X	X	X	X	X
Dyer's woad	X							
Field bindweed		X		X	X	X	X	X
Giant salvinia	X							
Hydrilla	X							
Hoary cress (whitetop)						X		X
Jointed goatgrass					X		X	X
Leafy spurge		X	X	X	X	X		X
Meadow knapweed	X							
Mediterranean sage	X							
Medusahead	X							
Musk thistle		X	X	X	X	X	X	X
Myrtle spurge	X							
Orange hawkweed	X							
Perennial pepperweed						X		
Plumeless thistle		X		X				
Purple loosestrife	X					X		
Rush skeletonweed	X							
Russian knapweed		X	X	X	X	X		X
Salt cedar (tamarisk)		X	X	X				X
Scotch thistle		X		X				
Sericea lespedeza	X							
Showy milkweed						X		
Silverleaf bursage							X	X
Skeletonleaf bursage						X		
Spotted knapweed		X	X	X	X	X		X
Squarrose knapweed	X							
Tansy ragwort	X							
Volunteer rye					X			
Woollyleaf bursage						X	X	X
Yellow starthistle	X							
Yellow toadflax		X	X	X				

TABLE 3.4-3

Overland Pass Pipeline Project
Noxious Weed Species of Concern within the Project Area in Kansas

Weed Species	State List	Kansas Counties: Ellis	Kansas Counties: Ellsworth	Kansas Counties: Cheyenne, Rawlins, Thomas, Sheridan, Gove, Trego, Russell, Barton, Rice, McPherson
Bull thistle	X	X	X	
Bur ragweed	X	X	X	X
Canada thistle	X	X	X	X
Common teasel		X		
Dalmation toadflax		X		
Field bindweed	X	X	X	X
Hoary cress (whitetop)	X	X	X	X
Johnsongrass	X	X	X	X
Kudzu	X	X	X	X
Leafy spurge	X	X	X	X
Multiflora rose	X	X	X	X
Musk thistle	X	X	X	X
Phragmites		X		
Pignut	X	X	X	X
Quackgrass	X	X	X	X
Russian knapweed	X	X	X	X
Salt cedar (tamarisk)		X		
Sericea lespedeza			X	

3.5 WEED MANAGEMENT AREAS

Weed Management Areas (WMAs) are typically determined by multiple partners (e.g., federal, state, and local agencies, organizations, private landowners) who collectively identify the boundaries of a management area and work with landowners in that area to contribute to the management of a designated weed species. WMAs that Overland Pass consulted for the Overland Pass Pipeline Project include the Southeast Carbon County (Wyoming) Weed Management Area and Medicine Bow Conservation District Weed Management Group. WMAs are based on the location of a weed infestation or an area that is deemed a high priority to detect and control weeds. The parties work together to plan and budget weed management efforts for both long-term and seasonal needs. The Wyoming Weed and Pest Management Districts are currently updating their lists of noxious species and known locations; these will be compared with the proposed pipeline route when available. Overland Pass will consult with additional weed management groups, if identified.

4.0 NOXIOUS WEED AND INVASIVE SPECIES MANAGEMENT

The Overland Pass Pipeline Project's weed management program is designed to:

- identify areas supporting weeds prior to construction;
- prevent the introduction and spread of weeds from construction equipment during construction; and
- contain weed seeds and propagules by preventing segregated topsoil from being spread to adjacent areas or along the construction right-of-way.

4.1 IDENTIFICATION OF PROBLEM AREAS

Overland Pass will conduct surveys for weed species of concern within the project area concurrent with biological and botanical surveys in 2006. Maps depicting locations of the weed populations and a summary table identifying the weed locations by milepost will be included in Attachment C. These surveys will be conducted by qualified specialists. Overland Pass also identified known locations of weed infestations in the project area by contacting county and local weed control districts and BLM and FS field offices (see table 2.4-1). In addition to the areas supporting known infestations, all areas supporting noxious species will be delineated by the Environmental Inspectors (EI) by using color-coded flagging on the construction right-of-way prior to construction. The construction alignment sheets will identify the location of known weed infestations. Identification of existing noxious weed locations will alert environmental inspection and construction personnel to implement weed control measures during construction.

4.2 PREVENTIVE MEASURES

The following measures will be implemented to prevent the spread of noxious weeds.

- Overland Pass is not planning to conduct pretreatment of noxious weeds prior to construction, but rather focus its efforts on containing existing weed populations (see Overland Pass' agency consultation records located in Attachment B) and developing a long-term control plan.
- Prior to the beginning of construction of the project, and prior to initiation of activity on all federal lands, all Contractor vehicles and equipment will be cleaned of soil and debris capable of transporting weed propagules. All contractor vehicles and equipment will be inspected by the EIs and may require additional cleaning if necessary prior to mobilization to the right-of-way. Cleaning will be conducted using methods approved by federal Compliance Monitors (CMs) after consultation with local environmental staff.
- Overland Pass will install wash stations at state lines. Stations would be sited at least 0.25 mile from perennial waterbodies. Station design and post-construction removal would be subject to agency approval. Stations would not be used in areas where full right-of-way topsoil stripping is utilized. During winter construction conditions, stations would utilize compressed air for weed cleaning.
- Overland Pass may install intermediate wash stations at specified locations based on weed survey results, agency requirements, or other mitigating factors.
- Areas of the right-of-way where weed infestations are identified will be clearly marked prior to construction. In these areas, the Contractor will conduct full right-of-way topsoil stripping and will stockpile cleared vegetation and segregated topsoil (see the Soil Stabilization and Restoration Plan for topsoil segregation requirements) along the right-of-way. The stockpiles will be maintained adjacent to the areas from which they were obtained to eliminate the transport of soil-borne noxious weed propagules to other areas along the right-of-way. During reclamation, the Contractor will return topsoil and vegetative material to the areas from which they were obtained.
- The Contractor will ensure that straw bales used to construct sediment control devices or used as mulch applications will be certified weed free and obtained from approved certified sources as recommended by the County Weed and Pest Districts, Weed Control Supervisors, and the States of Colorado, Wyoming, and Kansas.

- The Contractor will ensure that seed mixes and mulching materials utilized for revegetation will be certified weed free and obtained from approved certified sources as recommended by the States of Colorado, Wyoming, and Kansas

4.3 TREATMENT METHODS

Overland Pass' objective is to assist local, county, and state noxious weed control efforts, comply with the requirements to prevent the spread of noxious weeds, and treat areas of the right-of-way where weed species form a significant portion of the vegetation community in comparison to adjacent undisturbed areas. Overland Pass will utilize established reclamation practices to prevent the establishment of noxious weeds in reclaimed construction areas and pipeline right-of-way. In the event noxious weed species become established in the right-of-way, Overland Pass will make good faith efforts to control weeds in the right-of-way and to work with adjacent landowners to prevent spread of the species to adjacent lands.

Overland Pass will implement weed control measures in accordance with existing regulations and jurisdictional land management agency or landowner agreements and in accordance with Overland Pass' construction mitigation procedures. Overland Pass intends to utilize state-certified weed control contractor services as recommended by the local regulatory entities. Post-construction weed control measures may include the application of herbicide or mechanical, and/or alternative methods. The weed control measure chosen will be the best method available for the time, place, and species of weed as mutually agreed upon by Overland Pass and the appropriate regulatory agencies.

The Contractor will implement reclamation procedures of disturbed lands immediately following construction as described in the Soil Stabilization and Restoration Plan. Continuing revegetation efforts will ensure adequate vegetative cover to discourage the invasion of noxious weeds. In areas of severe weed infestation, as determined by Overland Pass' EI(s), Overland Pass may elect to delay reclamation efforts and conduct intensive weed control efforts prior to implementing reclamation procedures.,

The Contractor will limit the use of fertilizer in reclaimed areas. Fertilizer will only be applied where specified by the jurisdictional land management agency or the property owner.

Herbicide application is an effective means of reducing the size of weed populations. Herbicide applications will be conducted prior to seed maturation where possible. Applications will be controlled, as described in section 5.1, to minimize the impacts on the surrounding vegetation. Herbicide treatment methods will be based on species-specific and area-specific conditions (e.g., proximity to water, riparian areas, or agricultural areas, and time of year) and will be coordinated with the local counties and regulatory agencies. Spot herbicide applications will be the preferred option. In areas of dense infestation, a broader application will be used and a follow-up seeding program implemented. The timing of subsequent revegetation efforts will be based on the persistence of the selected herbicide.

Mechanical methods entail the use of equipment to mow or disc weed populations. Mechanical treatments will be conducted prior to seed maturation where required. If such a method is used, subsequent seeding will be conducted to re-establish a desirable vegetative cover that will stabilize the soils and slow the potential re-invasion of weeds.

Local regulatory advice will be sought for biological and alternate noxious weed control methods, which Overland Pass may implement through agreements with the WMAs or private landowners.

4.4 BLM-SPECIFIC REQUIREMENTS

The BLM has developed specific requirements for herbicide use on BLM-managed lands. The *Final Environmental Impact Statement on Vegetation Treatment on BLM Lands in Thirteen Western States* (U.S. Department of the Interior, 1991) lists 19 herbicides acceptable for use on BLM lands. Guidelines for the use of chemical control of vegetation on BLM lands are presented in the BLM's Chemical Pest Control Manual. These guidelines require submittal of a Pesticide Use Proposal (PUP) and Pesticide Application Records (PARs) for the use of herbicides on BLM lands.

The occurrence of weeds within the pipeline right-of-way will be reported to the BLM field office where the weeds occur. The appropriate weed control procedures, including target species, timing of control, method of control, and obtaining the appropriate authorizations will be determined in consultation with BLM personnel. Overland Pass will be responsible for providing the necessary personnel or hiring a Contractor to implement the weed control procedures. Overland Pass may be able to utilize cooperative agreements that may exist between the BLM and counties by providing the funds required for county personnel to implement the necessary weed control procedures.

4.5 SPECIFIC REQUIREMENTS ON THE PAWNEE NATIONAL GRASSLAND

Noxious weed management on PNG lands is conducted per the *Noxious Weed Management Plan on the Arapaho and Roosevelt National Forests and Pawnee National Grassland* (USDA Forest Service, 2003). This plan is an integrated approach to weed management and includes five components: awareness, prevention, inventory, treatment, and monitoring.

The occurrence of weeds within the pipeline right-of-way on PNG lands will be reported to the PNG District Weed Coordinator. The appropriate weed control procedures, including target species, timing of control, method of control, and obtaining the appropriate authorizations will be determined in consultation with FS personnel. Acceptable herbicides must be listed and analyzed in a USDA Risk Assessment, and use of pesticides will require the submittal of a Pesticide Use Proposal Report and a Pesticide Use Report after application. Overland Pass will be responsible for providing the necessary personnel or hiring a contractor to implement the weed control procedures.

5.0 MONITORING

Following construction, Overland Pass will monitor the pipeline right-of-way and proposed facilities for weeds. In addition, Overland Pass will conduct revegetation monitoring as required by the Soil Stabilization and Restoration Plan. Following the end of Overland Pass' revegetation monitoring program, weed infestations will be monitored as part of its operations and maintenance surveys.

Overland Pass' effort to reclaim areas disturbed during construction will be evaluated over a period of 5 years. Successful reclamation performance will be based on revegetation success (e.g., cover, diversity), the absence of weeds or invasive plants, and the erosional stability of the construction right-of-way. Additionally, BLM and FS will conduct monitoring of the project area that will continue until they have determined revegetation is successful.

To evaluate the success of revegetation, Overland Pass will monitor quadrants (i.e., rectangular analytical plots identified in the field and retrievable by GIS equipment) located in the right-of-way, and control quadrants located outside the right-of-way. Revegetation monitoring will occur in July during the first, third, and fifth years following reclamation. Plant diversity, percent cover, and other data obtained from the reclaimed right-of-way will be compared to vegetative data obtained from the undisturbed, naturally-

occurring vegetative populations adjacent to the right-of-way. Variation between plots will provide a quantitative indication of the relative success of reclamation.

Initially, Overland Pass will conduct weed management surveys and control measures for 5 years following construction. In areas where weed infestations still require management, surveys and control measures will be implemented where problem areas still exist. The Rawlins BLM Office has recently revised its RMP to state that the goal of post-construction weed control is to maintain a 0 percent threshold for weed occurrences along new rights-of-way. Overland Pass is committed to make a good faith effort in meeting this objective.

To conduct weed monitoring, Overland Pass will use a team composed of a vegetative specialist and a weed expert to survey annually in July. Overland Pass will consult with the appropriate regulatory agencies prior to initiating the surveys, to determine appropriate locations. Overland Pass will obtain landowner permission prior to conducting surveys. Landowners will be consulted regarding weed control status and implementation measures, and will be encouraged to report concerns to Overland Pass. Landowners can contact Overland Pass by talking with their specified land agent, calling Overland Pass, or by submitting an electronic comment on Overland Pass' website.

Overland Pass will prepare annual reclamation monitoring reports. These reports may include information such as:

- a summary of the general vegetative cover and diversity between the right-of-way and the comparison with off right-of-way vegetation quadrants;
- an assessment of the condition of transplants in riparian areas;
- photographs;
- identification of areas that require remedial action;
- recommendations and schedule for remedial action(s); or
- monitoring forms.

Copies of these monitoring reports will be kept on file with Overland Pass and will be provided annually to appropriate agency personnel.

6.0 HERBICIDE APPLICATION, HANDLING, SPILLS, AND CLEANUP

6.1 HERBICIDE APPLICATION AND HANDLING

Herbicide application will be based on information gathered from the local Weed Districts and federal agencies. Before application, Overland Pass or its Contractor will obtain any required permits from the local Weed Districts and/or the federal agencies. A licensed Contractor will perform the application in accordance with applicable laws and regulations.

All herbicide applications will follow United States Environmental Protection Agency label instructions. Application of herbicides will be suspended when any of the following conditions exists:

- wind velocity exceeds 6 miles per hour (mph) during application of liquid or granular herbicides;
- snow or ice covers the foliage of noxious weeds; or

- precipitation is occurring or is imminent.

Vehicle-mounted sprayers (e.g., handgun, boom, injector) will be used mainly in open areas that are readily accessible by vehicle. Hand application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain. Calibration checks of equipment will be conducted at the beginning of spraying and periodically to ensure that proper application rates are achieved.

Herbicides will be transported to the project site daily with the following provisions:

- on-site herbicide quantities will be limited where practical;
- concentrate will be transported in approved containers only and in a manner that will prevent tipping or spilling, and in a compartment that is isolated from food, clothing, and safety equipment;
- mixing will be conducted in an upland area and at a distance greater than 100 feet from open or flowing water, wetlands, greater than 200 feet from private wells and greater than 400 feet from public wells; and
- all herbicide equipment and containers will be inspected for leaks daily.

6.2 HERBICIDE SPILLS AND CLEANUP

Overland Pass is developing a Spill Preservation, Containment, and Control (SPCC) Plan that incorporates all reasonable precautions to be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in herbicide storage areas to allow for quick and effective response to spills. Items to be included in the spill kit are:

- protective clothing and gloves;
- a minimum of 20 pounds of suitable commercial adsorbent and barrier materials;
- plastic bags and bucket;
- shovel;
- fiber brush and screw-in handle;
- dust pan;
- caution tape; and
- detergent.

Response to an herbicide spill will vary depending on the material spilled, and the size and location of the spill. The order of priorities after discovering a spill are to protect the safety of personnel and the public, minimize damage to the environment, and conduct cleanup and remediation activities.

6.3 WORKER SAFETY AND SPILL REPORTING

All herbicide Contractors will obtain and have readily available copies of the appropriate material safety data sheets and the herbicide labels for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements. Further information regarding spill response and reporting can be found in the SPCC Plan.

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ATTACHMENTS

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Appendix E

Comparison of Route Alternatives

Appendix E Comparison of Route Alternatives in the Rock Springs, Wyoming Area

Note: In this table, route alternatives are compared from RP 27 to RP 120 to facilitate direct comparison. This area differs from the segment used for comparison in Chapter 2 between the Proposed Action and the Southern Energy Corridor – Copper Ridge Bypass Alternative.

Factor	Proposed Action	Northern Route	I-80 Route	Southern Routes	
				South A	South B
Length (miles)	93.3 miles	107.7 miles	101.5 miles	97.5 miles	98.9 miles
Pumping Requirements (number of pump stations; number of pumps; hp; electrical power requirements; acreage required)	Base Case	147.85 HP 2,940.08 KWH	64.66 HP 1,285.75 KWH	29.54 HP 587.25 KWH	42.48 HP 844.6 KWH
Valves (number; probable locations; accessibility issues)	12	14	13	12	12
Side-slope Construction (slope class and miles) Steep slopes = 30% or greater	<10%: 3.38 10% :0.76 20%: 1.52 30%: 0 **Total: 5.66**	<10%: 12.71 10%: 1.7 20%: 0.11 30%: 0.13 **Total: 14.65**	<10%: 11.52 10%: 1.14 20%: 0.98 30%: 0.38 **Total: 13.02**	<10%: 9.69 10%: 1.81 20%: 1.78 30%: 0.09 **Total: 13.37**	<10%: 8.37 10%: 1.43 20%: 1.67 30%: 0.09 **Total: 11.56**
Additional surface disturbance associated with side slope construction	17 acres	45 acres	40 acres	41 acres	35 acres
TUAs (list of anticipated EWS areas for wash crossings, road crossings, truck turnarounds, storage sites, and approximate acres) [a]	Truck turnarounds: 6.5 acres Roads: 35.1 acres Waterbody <25': 219.0 acres Waterbody 50' > 100': 23.0 acres	Truck turnarounds: 9.6 acres Roads: 48.2 acres Waterbody < 25': 104.7 acres Waterbody 50' > 100': 121.7 acres	Truck turnarounds: 7.2 acres Roads: 50.9 acres Waterbody < 25': 152.9 acres Waterbody 50' > 100': 36.7 acres	Truck turnarounds: 6.5 acres Roads: 50.9 acres	Truck turnarounds: 6.9 acres Roads: 50.9 acres
				Waterbody < 25': 175.2 acres Waterbody 50' > 100': 32.1 acres	
Duration of construction (months; if multiple years would be required, state this clearly)	5 months	6 months	7 months	6 months	5 months
Number of spreads (number)	1	1	1	1	1
Workforce (number of workers)	296	326	355	326	296
Waterbody crossings	Interm: 160 Peren: 10 **Total: 170**	Interm: 76 Peren: 53 **Total: 129**	Interm: 111 Peren: 16 **Total: 127**	Interm: 131 Peren: 14 **Total: 145**	
Road crossings	Paved: 19 Gravel/ Dirt: 32 Paved roads to be bored; smaller, unpaved roads (e.g., gravel, dirt) to be open cut.	Paved: 26 Gravel/ Dirt: 44 Same crossing methods as proposed action.	Paved: 31 Gravel/ Dirt: 43 Same crossing methods as proposed action.	Paved: 14 Gravel/ Dirt: 60 Same crossing methods as proposed action.	Paved:16 Gravel/ Dirt: 58 Same crossing methods as proposed action.
Foreign line crossings (number)	Desktop: 15 Actual estimated: 87	Desktop: 17 Actual estimated: 99	Desktop: 15 Actual estimated: 87	Desktop: 12 Actual estimated: 70	Desktop: 13 Actual estimated: 76
Federal land ownership (miles; acres)	Federal (BLM, FS, and BOR): 39.6 miles, 360.0 acres	Federal (BLM and BOR): 57.3 miles, 520.9 acres	Federal (BLM, FS, and BOR): 42.8 miles, 389.1 acres	Federal (BLM, FS, and BOR): 48.2 miles, 438.1 acres	Federal (BLM, FS, and BOR): 47.2 miles, 429.1 acres
Access Roads Required (number)	51	70	74	74	74

Appendix E Comparison of Route Alternatives in the Rock Springs, Wyoming Area

Factor	Proposed Action	Northern Route	I-80 Route	Southern Routes	
				South A	South B
Pipe Storage / Contractor yards (number required; acres; locations)	4-53 acres	4-53 acres	4-53 acres	4-53 acres	4-53 acres
Hydrostatic Test water (sources and approx gallons)	5,682,000	6,559,000	6,182,000	5,936,000	6,026,000
OPPs Cost (installation $)	$48.9	$57.9	$59.2	$53.2	$53.3
Constructability Constraints/Issues (describe)	None	More steep areas	Rock Springs	Cooper Ridge	More steep areas
Geological Hazards	Geologic hazards such as seismic events, landslides/steep slopes, subsidence, flooding/scour, avalanches, volcanism, and expansive soils were reviewed along each of the alternative routes. All of the routes would encounter similar potential geological hazards and conditions as that identified along the proposed route (see EIR 7), with the exception of landslides and subsidence. The Southern "A" route would have an elevated landslide risk due to the Circle Creek Canyon crossing near South Baxter. The Northern route would cross several miles of active trona mining. The I-80 route would be located near mined out coal areas with known subsidence.				
Poor Reclamation Potential	All routes would cross soil types with the potential for poor reclamation. Regardless of its final preferred location, Overland Pass would use industry standards to construct the pipeline (e.g., separating topsoil from subsoil, as necessary, to avoid soil mixing), and would implement its *Soil Stabilization and Restoration Plan* at all locations, the reclamation and restoration mitigation measures outlined in its Plan of Development for federal lands, and site-specific reclamation and restoration mitigation measures developed for the project.				
HCAs crossed or potentially affected (miles)	Drinking Water: 7.95 Ecological Areas: 7.65 Populated Areas: 3.94	Drinking Water: 8.33 Ecological Areas: 3.11 Populated Areas: 4.58	Drinking Water: 7.95 Ecological Areas: 3.83 Populated Areas: 13.33	Drinking Water: 3.26 Ecological Areas: 7.58 Populated Areas: 4.13	Drinking Water: 3.26 Ecological Areas: 7.58 Populated Areas: 4.13
Occupied structures within 500 feet of ROW [b]	3	40	233	14	14
Other relevant factors			Route would cross an urban residential area and water holding ponds.	Routes would cross high, difficult terrain	

[a]See Waterbody crossings and Road crossings for number. All temporary use area (TUA) calculations are represented in acres and assume the following:

Intermittent streams were calculated using *Open-cut <25 feet wide* dimensions (200 feet x 50 feet + 200 feet x 100 feet), assuming four TUAs at each crossing.

Perennial streams were calculated using *Open-cut 50 > 100 feet wide* dimensions (250 feet x 75 feet + 250 feet x 125 feet), assuming four TUAs at each crossing.

Road crossings were calculated using *Two-lane roads* dimensions (200 feet x 75 feet), assuming two TUAs at each crossing.

Truck turnarounds were calculated using *Stringing truck turnaround* dimensions (100 feet x 150 feet), assuming one TUA every approximately 5 miles.

[b]Occupied structures based on review of Overland Pass' Snap Map (proposed route) and aerial photos. Not all occupied structures are residences but display potential recent activity (e.g., buildings related to oil and gas exploration or development activities).

Appendix F

Waterbody Crossing Tables

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
Wyoming							
0.6	Roberson Ditch	I	<50	3B	Open Cut	No	No
0.8	Tributary to Hams Fork River	I	<50	2AB	Open Cut	No	No
0.9	Hams Fork River	P	50	3B	Open Cut	No	No
1.1	Tributary to Hams Fork River [b]	I	<50	2AB	Open Cut	No	No
1.2	Tributary to Hams Fork River [b]	I	<50	2AB	Open Cut	No	No
1.5	South Side Ditch	I	<50	3B	Open Cut	No	No
1.8	Tributary to South Side Ditch	I	<50	3B	Open Cut	No	No
2.9	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
3.1	Roberson Creek [b]	I	<50	4A	Open Cut	No	No
3.5	Tributary to Roberson Creek	I	<50	3B	Open Cut	No	No
3.7	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
4.0	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
4.2	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
4.4	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
4.8	Tributary to Roberson Creek	I	<50	3B	Open Cut	No	No
5.7	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
5.8	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
6.2	Tributary to Roberson Creek	I	<50	3B	Open Cut	No	No
6.8	Tributary to Roberson Creek	I	<50	3B	Open Cut	No	No
7.1	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
7.2	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
7.3	Tributary to Roberson Creek [b]	I	<50	3B	Open Cut	No	No
7.5	Tributary to Roberson Creek[b]	I	<50	3B	Open Cut	No	No
7.8	Tributary to Roberson Creek	I	<50	3B	Open Cut	No	No
7.9	Tributary to Roberson Creek	I	<50	3B	Open Cut	No	No
8.5	Roberson Creek [b]	I	<50	4A	Open Cut	No	No
9.7	Tributary to Dry Muddy Creek [b]	I	<50	3B	Open Cut	No	No
10.3	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
10.5	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
10.9	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
12.6	Tributary to Dry Muddy Creek [b]	I	<50	3B	Open Cut	No	No
12.9	Tributary to Dry Muddy Creek [b]	I	<50	3B	Open Cut	No	No
13.8	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
13.9	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
14.1	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
14.9	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
15.4	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
15.7	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
15.8	Dry Muddy Creek	I	<50	3B	Open Cut	No	No
16.2	Tributary to Dry Muddy Creek [b]	I	<50	3B	Open Cut	No	No
16.9	Tributary to Dry Muddy Creek	I	<50	3B	Open Cut	No	No
17.4	Tributary to Dry Muddy Creek [b]	I	<50	3B	Open Cut	No	No
18.9	Blacks Fork River	P	>100	2AB	Open Cut	Fecal Coliform	No
20.2	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
20.6	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
21.3	Porter Hollow Draw	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
21.4	Porter Hollow Draw	I	<50	3B	Open Cut	No	No
22.0	Telephone Draw [b]	I	<50	3B	Open Cut	No	No
23.1	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
24.4	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
25.9	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
26.0	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
27.9	Tributary to Blacks Fork River [b]	I	<50	3B	Open Cut	No	No
28.4	Tributary to Blacks Fork River [b]	I	<50	3B	Open Cut	No	No
28.5	Tributary to Blacks Fork River [b]	I	<50	3B	Open Cut	No	No
29.4	Tributary to Spider Creek	I	<50	3B	Open Cut	No	No
30.2	Tributary to Spider Creek [b]	I	<50	3B	Open Cut	No	No
31.4	Tributary to Spider Creek	I	<50	3B	Open Cut	No	No
32.6	Tributary to Spider Creek [b]	I	<50	3B	Open Cut	No	No
34.0	Tributary to Spider Creek [b]	I	<50	3B	Open Cut	No	No
35.4	Tributary to Meadow Springs Wash [b]	I	<50	3B	Open Cut	No	No
35.8	Tributary to Meadow Springs Wash [b]	I	<50	3B	Open Cut	No	No
36.8	Tributary to Meadow Springs Wash	I	<50	3B	Open Cut	No	No
38.2	Tributary to Meadow Springs Wash	I	<50	3B	Open Cut	No	No
38.5	Tributary to Meadow Springs Wash	I	<50	3B	Open Cut	No	No
38.5	Tributary to Meadow Springs Wash	I	<50	3B	Open Cut	No	No
38.9	Tributary to Meadow Springs Wash	I	<50	3B	Open Cut	No	No
40.6	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
41.3	Blacks Fork River	P	>100	2AB	Open Cut	No	No
44.5	Tributary to Blacks Fork River [b]	I	<50	3B	Open Cut	No	No
44.9	Tributary to Blacks Fork River [b]	I	<50	3B	Open Cut	No	No
47.2	Tributary to Blacks Fork River	I	<50	3B	Open Cut	No	No
49.2	Tributary to Telephone Canyon	I	<50	3B	Open Cut	No	No
49.8	Tributary to Telephone Canyon	I	<50	3B	Open Cut	No	No
50.2	Tributary to Telephone Canyon	I	<50	3B	Open Cut	No	No
50.9	Tributary to Telephone Canyon	I	<50	3B	Open Cut	No	No
51.2	Telephone Canyon	I	<50	3B	Open Cut	No	No
51.5	Tributary to Telephone Canyon [b]	I	<50	3B	Open Cut	No	No
53.6	Tributary to Green River	P	<50	3B	Open Cut	No	No
55.7	Logan Draw [b]	P	<50	4A	Open Cut	No	No
55.8	Tributary to Logan Draw [b]	P	<50	4A	Open Cut	No	No
59.3	Green River [b]	P	100 <x< 400	1	Open Cut	No	Class 1
65.1	Tributary to Little Bitter Creek [b]	P	<100	2C	Open Cut	No	No
66.1	Little Bitter Creek [b]	P	<100	2C	Open Cut	No	No
67.9	Tributary to Rock Canyon [b]	I	<50	3B	Open Cut	No	No
68.2	Tributary to Rock Canyon [b]	I	<50	3B	Open Cut	No	No
68.6	Tributary to Rock Canyon	I	<50	3B	Open Cut	No	No
69.5	Tributary to Rock Canyon	I	<50	3B	Open Cut	No	No
69.6	Rock Canyon	I	<50	3B	Open Cut	No	No
71.5	Tributary to Sweetwater Creek	I	<50	3B	Open Cut	No	No
72.2	Tributary to Sweetwater Creek	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
72.9	Sweetwater Creek [b]	I	<50	3B	Open Cut	No	No
73.8	Unnamed Creek	I	<50	3B	Open Cut	No	No
74.3	Unnamed Creek	I	<50	3B	Open Cut	No	No
76.1	Unnamed Creek	I	<50	3B	Open Cut	No	No
76.5	Unnamed Creek	I	<50	3B	Open Cut	No	No
76.5	Unnamed Creek	I	<50	3B	Open Cut	No	No
77.2	Unnamed Creek	I	<50	3B	Open Cut	No	No
77.2	Unnamed Creek	I	<50	3B	Open Cut	No	No
77.3	Unnamed Creek [b]	I	<50	3B	Open Cut	No	No
77.9	Unnamed Creek [b]	I	<50	3B	Open Cut	No	No
77.9	Unnamed Creek [b]	I	<50	3B	Open Cut	No	No
78.5	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
78.5	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
80.0	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
80.7	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
80.8	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
80.9	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
81.3	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
81.5	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
81.6	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
81.6	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
82.2	Tributary to Salt Wells Creek	I	<50	3B	Open Cut	No	No
82.7	Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
83.0	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
83.4	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
83.5	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
83.8	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
84.1	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
84.5	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
84.7	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
84.8	Tributary to Salt Wells Creek [b]	I	<50	3B	Open Cut	No	No
85.2	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
85.2	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
85.4	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
85.6	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
85.7	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
85.9	Tributary to Cutthroat Draw [b]	I	<50	3B	Open Cut	No	No
86.5	Tributary to Cutthroat Draw [b]	I	<50	3B	Open Cut	No	No
86.6	Tributary to Cutthroat Draw [b]	I	<50	3B	Open Cut	No	No
87.1	Tributary to Cutthroat Draw [b]	I	<50	3B	Open Cut	No	No
87.3	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
87.4	Tributary to Cutthroat Draw	I	<50	3B	Open Cut	No	No
87.5	Cutthroat Draw	I	<50	3B	Open Cut	No	No
87.5	Cutthroat Draw	I	<50	3B	Open Cut	No	No
87.6	Cutthroat Draw	I	<50	3B	Open Cut	No	No
87.7	Cutthroat Draw	I	<50	3B	Open Cut	No	No
88.1	Cutthroat Draw [b]	I	<50	3B	Open Cut	No	No
88.9	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
89.3	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
89.6	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
90.1	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
90.4	Tributary to Black Butte Creek [b]	I	<50	3B	Open Cut	No	No
91.0	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
91.2	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
91.4	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
91.7	Tributary to Black Butte Creek [b]	I	<50	3B	Open Cut	No	No
92.2	Tributary to Black Butte Creek [b]	I	<50	3B	Open Cut	No	No
92.6	Tributary to Black Butte Creek [b]	I	<50	3B	Open Cut	No	No
92.9	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
93.3	Tributary to Black Butte Creek	I	<50	3B	Open Cut	No	No
93.9	Unnamed Creek [b]	I	<50	3B	Open Cut	No	No
95.0	Unnamed Creek [b]	I	<50	3B	Open Cut	No	No
97.7	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
98.3	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
98.8	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
100.0	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
101.0	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
102.1	Patrick Draw	I	<50	4A	Open Cut	No	No
102.4	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
103.0	Tributary to Bitter Creek [b]	I	<50	3B	Open Cut	No	No
103.8	Tributary to Bitter Creek	I	<50	3B	Open Cut	No	No
104.3	Tributary to Bitter Creek [b]	I	<50	3B	Open Cut	No	No
104.4	Tributary to Bitter Creek [b]	I	<50	3B	Open Cut	No	No
104.8	Tributary to Bitter Creek	I	<50	3B	Open Cut	No	No
105.0	Tributary to Bitter Creek	I	<50	3B	Open Cut	No	No
105.5	Tributary to Bitter Creek	I	<50	3B	Open Cut	No	No
105.6	Tributary to Bitter Creek [b]	I	<50	3B	Open Cut	No	No
106.0	Tributary to Bitter Creek [b]	I	<50	3B	Open Cut	No	No
106.3	Tributary to Bitter Creek	I	<50	3B	Open Cut	No	No
107.2	Bitter Creek [b]	P	<100	2AB	Open Cut	No	No
108.1	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
108.4	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
108.8	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
109.1	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
109.6	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
109.8	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
110.3	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
110.5	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
110.8	Tributary to Patrick Draw	I	<50	3B	Open Cut	No	No
111.1	Tributary to Patrick Draw [b]	I	<50	3B	Open Cut	No	No
111.5	Unknown [b]	I	<50	3B	Open Cut	No	No
111.6	Unknown [b]	I	<50	3B	Open Cut	No	No
111.8	Unknown [b]	I	<50	3B	Open Cut	No	No
111.8	Unknown [b]	I	<50	3B	Open Cut	No	No
112.1	Unknown	I	<50	3B	Open Cut	No	No
113.5	Unknown	I	<50	3B	Open Cut	No	No
113.5	Unknown	I	<50	3B	Open Cut	No	No
113.7	Unknown	I	<50	3B	Open Cut	No	No
113.9	Unknown	I	<50	3B	Open Cut	No	No
114.2	Unknown	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
114.3	Unknown	I	<50	3B	Open Cut	No	No
114.5	Unknown [b]	I	<50	3B	Open Cut	No	No
115.1	Unknown	I	<50	3B	Open Cut	No	No
115.2	Unknown	I	<50	3B	Open Cut	No	No
115.2	Unknown	I	<50	3B	Open Cut	No	No
116.9	Unknown	I	<50	3B	Open Cut	No	No
117.2	Unknown	I	<50	3B	Open Cut	No	No
118.0	Unknown [b]	I	<50	3B	Open Cut	No	No
118.1	Unknown [b]	I	<50	3B	Open Cut	No	No
118.1	Unknown [b]	I	<50	3B	Open Cut	No	No
118.4	Unknown [b]	I	<50	3B	Open Cut	No	No
120.6	Unknown [b]	I	<50	3B	Open Cut	No	No
120.7	Unknown [b]	I	<50	3B	Open Cut	No	No
121.3	Unknown [b]	I	<50	3B	Open Cut	No	No
122.6	Unknown [b]	I	<50	3B	Open Cut	No	No
123.5	Unknown [b]	I	<50	3B	Open Cut	No	No
123.7	Unknown [b]	I	<50	3B	Open Cut	No	No
124.0	Unknown	I	<50	3B	Open Cut	No	No
126.0	Unknown	I	<50	3B	Open Cut	No	No
126.3	Unknown	I	<50	3B	Open Cut	No	No
126.4	Unknown [b]	I	<50	3B	Open Cut	No	No
127.1	Unknown	I	<50	3B	Open Cut	No	No
127.6	Unknown	I	<50	3B	Open Cut	No	No
133.1	Unknown [b]	I	<50	3B	Open Cut	No	No
133.5	Unknown [b]	I	<50	3B	Open Cut	No	No
134.0	Unknown	I	<50	3B	Open Cut	No	No
135.5	Frewen Lake [b]	Playa	3,140	3B	Open Cut	No	No
138.2	Latham Draw	I	<50	3B	Open Cut	No	No
139.7	Tributary to Latham Draw [b]	I	<50	B	Open Cut	No	No
140.2	Tributary to Latham Draw	I	<50	3B	Open Cut	No	No
146.6	Hansen Draw	I	<50	4A	Open Cut	No	No
147.8	Tributary to Hansen Draw [b]	I	<50	3B	Open Cut	No	No
151.6	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
153.0	Fillmore Creek	P	< 100	3B	Open Cut	No	No
153.7	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No
155.2	Tributary to Unnamed Lake	I	<50	3B	Open Cut	No	No
155.6	Tributary to Unnamed Lake [b]	I	<50	3B	Open Cut	No	No
158.5	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No
159.0	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No
159.0	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No
159.6	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
160.0	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
160.7	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
161.1	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
161.2	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
162.0	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No
162.3	Fillmore Creek	I	<50	3B	Open Cut	No	No
162.5	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
163.6	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No
163.6	Tributary to Fillmore Creek [b]	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
164.2	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
164.5	Fillmore Creek	I	<50	3B	Open Cut	No	No
165.2	Tributary to Fillmore Creek	I	<50	3B	Open Cut	No	No
168.1	Separation Creek [b]	I	<50	3B	Open Cut	No	No
170.3	Tributary to Hadsell Draw [b]	I	<50	4A	Open Cut	No	No
170.5	Tributary to Hadsell Draw [b]	I	<50	4A	Open Cut	No	No
172.5	Hadsell Draw [b]	I	<50	4A	Open Cut	No	No
174.2	Tributary to Hogback Lake [b]	I	<50	3B	Open Cut	No	No
174.7	Tributary to Hogback Lake [b]	I	<50	3B	Open Cut	No	No
174.8	Tributary to Hogback Lake [b]	I	<50	3B	Open Cut	No	No
177.1	Sixteenmile Draw	I	<50	3B	Open Cut	No	No
177.5	Tributary to Sixteenmile Draw	I	<50	3B	Open Cut	No	No
178.4	Coal Creek	I	<50	3B	Open Cut	No	No
178.9	Coal Creek	I	<50	3B	Open Cut	No	No
179.0	Coal Creek	I	<50	3B	Open Cut	No	No
179.1	Coal Creek	I	<50	3B	Open Cut	No	No
179.2	Coal Creek	I	<50	3B	Open Cut	No	No
180.2	Tributary to Coal Creek	I	<50	3B	Open Cut	No	No
180.4	Tributary to Coal Creek	I	<50	3B	Open Cut	No	No
180.5	Tributary to Coal Creek	I	<50	3B	Open Cut	No	No
182.6	Tributary to Sugar Creek	I	<50	3B	Open Cut	No	No
183.3	Tributary to Sugar Creek	I	<50	3B	Open Cut	No	No
183.4	Tributary to Sugar Creek	I	<50	3B	Open Cut	No	No
183.6	Tributary to Sugar Creek	I	<50	3B	Open Cut	No	No
184.4	Tributary to Sugar Creek	I	<50	3B	Open Cut	No	No
186.4	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
186.5	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
187.4	Unnamed Tributary to Lake [b]	I	<50	3B	Open Cut	No	No
187.9	Unnamed Tributary to Lake [b]	I	<50	3B	Open Cut	No	No
188.4	Unnamed Tributary to Lake [b]	I	<50	3B	Open Cut	No	No
190.2	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
190.6	Lake [b]	Playa	1,200	3B	Open Cut	No	No
190.9	Unnamed Tributary to Lake [b]	I	<50	3B	Open Cut	No	No
191.1	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
191.2	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
192.2	Unnamed Tributary to Lake [b]	I	<50	3B	Open Cut	No	No
193.4	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
195.5	North Platte River	P	100 <x< 300	2AB	Open Cut	Selenium	No
198.2	Tributary to North Platte River [b]	I	<50	3B	Open Cut	No	No
198.3	Tributary to North Platte River [b]	I	<50	3B	Open Cut	No	No
200.2	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
202.2	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
204.8	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
205.3	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
206.1	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
207.1	Tributary to Coyote Canyon Creek	I	<50	3B	Open Cut	No	No
207.4	Tributary to Coyote Canyon Creek	I	<50	3B	Open Cut	No	No
207.9	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
208.3	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
208.7	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
209.0	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
209.3	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
209.6	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
209.9	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
210.1	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
210.2	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
210.5	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
210.9	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
211.4	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
211.6	Mud Springs Reservoir	Pond	250	3B	Open Cut	No	No
211.7	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
211.8	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
212.1	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
212.3	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
212.7	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
213.0	Tributary to St. Mary's Creek [b]	I	<50	3B	Open Cut	No	No
213.3	Tributary to St. Mary's Creek	I	<50	3B	Open Cut	No	No
215.2	Martinez Springs Creek	I	<50	2AB	Open Cut	No	No
215.3	Dana Springs Creek	I	<50	2AB	Open Cut	No	No
216.5	Kinney Creek [b]	I	<50	3B	Open Cut	No	No
216.6	Kinney Creek [b]	I	<50	3B	Open Cut	No	No
217.3	Tributary to Percy Creek	I	<50	3B	Open Cut	No	No
218.7	Tributary to Percy Creek	I	<50	3B	Open Cut	No	No
219.8	Tributary to Percy Creek [b]	I	<50	3B	Open Cut	No	No
220.0	Tributary to Percy Creek [b]	I	<50	3B	Open Cut	No	No
221.4	Tributary to Percy Creek [b]	I	<50	3B	Open Cut	No	No
222.2	Tributary to Moody Lake	I	<50	3B	Open Cut	No	No
224.9	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
225.3	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
225.9	Unnamed Tributary to Lake	I	<50	3B	Open Cut	No	No
228.1	Medicine Bow River	P	>100	2AB	Open Cut	No	No
229.1	Tributary to Bear Creek	I	<50	3B	Open Cut	No	No
229.2	Tributary to Bear Creek	I	<50	3B	Open Cut	No	No
229.9	Tributary to Bear Creek	I	<50	3B	Open Cut	No	No
230.0	Tributary to Bear Creek	I	<50	3B	Open Cut	No	No
230.5	Tributary to Bear Creek	I	<50	3B	Open Cut	No	No
231.3	Bear Creek	P	<100	2AB	Open Cut	No	No
232.4	Wagonhound Creek	P	<100	2AB	Open Cut	No	No
234.9	Tributary to Upper Foote Creek	I	<50	3B	Open Cut	No	No
235.4	Tributary to Upper Foote Creek	I	<50	3B	Open Cut	No	No
236.9	Tributary to Upper Foote Creek	I	<50	3B	Open Cut	No	No
237.1	Tributary to Upper Foote Creek	P	<100	2AB	Open Cut	No	No
237.9	Foote Creek	P	<100	2AB	Open Cut	No	No
238.0	Foote Creek	P	<50	2AB	Open Cut	No	No
238.2	Foote Creek	P	<50	2AB	Open Cut	No	No
239.8	Rock Creek	P	<100	2AB	Open Cut	No	No
239.9	Rock Creek	P	<100	2AB	Open Cut	No	No
240.0	Rock Creek	P	<100	2AB	Open Cut	No	No
240.1	Rock Creek	P	<100	2AB	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
240.9	Canon Ditch	P	<100	3B	Open Cut	No	No
241.5	Tributary to Threemile Creek	P	<100	2AB	Open Cut	No	No
241.6	Threemile Creek	P	<100	2AB	Open Cut	No	No
242.1	Tributary to Threemile Creek	P	<100	2AB	Open Cut	No	No
242.4	Tributary to Threemile Creek	P	<100	2AB	Open Cut	No	No
242.5	Tributary to Threemile Creek	P	<100	2AB	Open Cut	No	No
242.6	Tributary to Threemile Creek	P	<100	2AB	Open Cut	No	No
242.6	Canon Ditch	P	<100	3B	Open Cut	No	No
242.9	Tributary to Canon Ditch	P	<100	3B	Open Cut	No	No
243.0	Three Mile Creek	P	<100	2AB	Open Cut	No	No
243.4	Seepage Creek	P	<100	3B	Open Cut	No	No
243.9	Tributary to Jimmie Creek	P	<100	3B	Open Cut	No	No
244.3	Jimmie Creek	P	<100	3B	Open Cut	No	No
244.4	Tributary to Jimmie Creek	P	<100	3B	Open Cut	No	No
245.3	Dutton Creek	P	<100	2AB	Open Cut	No	No
245.8	Dutton Creek	P	<100	2AB	Open Cut	No	No
245.9	Dutton Creek	P	<100	2AB	Open Cut	No	No
247.1	Sheep Creek	P	<100	3B	Open Cut	No	No
247.6	Tributary to Dutton Creek	I	<50	3B	Open Cut	No	No
248.4	Tributary to Cooper Creek	P	<100	2AB	Open Cut	No	No
249.1	Cooper Creek	P	<100	2AB	Open Cut	No	No
249.1	Cooper Creek	P	<100	2AB	Open Cut	No	No
249.6	Cooper Creek	P	<100	3B	Open Cut	No	No
250.1	South Fork Cooper Creek	P	<100	3B	Open Cut	No	No
251.0	Tributary to South Fork Cooper Creek	I	<50	3B	Open Cut	No	No
251.0	Tributary to South Fork Cooper Creek	I	<50	3B	Open Cut	No	No
251.4	Tributary to Fourmile Creek	I	<50	3B	Open Cut	No	No
251.6	Tributary to Fourmile Creek [b]	I	<50	3B	Open Cut	No	No
252.1	Tributary to Fourmile Creek [b]	I	<100	3B	Open Cut	No	No
252.6	Fourmile Creek	P	<100	3B	Open Cut	No	No
252.6	Fourmile Creek	P	<100	3B	Open Cut	No	No
252.7	Ditch	I	<50	3B	Open Cut	No	No
252.8	Ditch	I	<50	3B	Open Cut	No	No
253.3	Tributary to Fourmile Creek	I	<50	3B	Open Cut	No	No
253.7	Tributary to Fourmile Creek	I	<50	3B	Open Cut	No	No
254.2	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
254.6	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
254.8	Sevenmile Creek	P	<100	3B	Open Cut	No	No
255.1	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
255.7	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
255.8	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
256.0	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
256.2	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
256.4	Tributary to Sevenmile Creek	I	<50	3B	Open Cut	No	No
257.4	Bellamy Ditch No. 1	I	<50	4A	Open Cut	No	No
258.0	Bellamy Ditch No. 2	I	<50	4A	Open Cut	No	No
259.2	Unnamed Tributary to Lake	I	<50	4A	Open Cut	No	No
260.1	Unnamed Tributary to Lake	I	<50	4A	Open Cut	No	No
261.1	Unnamed Tributary to Lake	I	<50	4A	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
262.2	Tributary to Victoria Ditch	I	<50	4A	Open Cut	No	No
262.4	Tributary to Victoria Ditch	I	<50	4A	Open Cut	No	No
262.7	Snake Ditch	I	<50	4A	Open Cut	No	No
262.9	Snake Ditch	I	<50	4A	Open Cut	No	No
263.0	Victoria Ditch	I	<50	4A	Open Cut	No	No
263.5	Little Laramie River	P	<100	2AB	Open Cut	No	No
264.0	Alsop Slough	I	<50	2B	Open Cut	No	No
264.1	Alsop Ditch	I	<50	2B	Open Cut	No	No
264.5	Browns Creek	P	<100	2AB	Open Cut	No	No
264.7	Sand Creek	I	<100	2AB	Open Cut	No	No
265.0	Tributary to Sand Creek	I	<50	2C	Open Cut	No	No
265.2	Park Ditch	I	<50	4A	Open Cut	No	No
265.3	Tributary to Park Ditch	I	<50	3B	Open Cut	No	No
265.4	Tributary to Pilger Lake	I	<50	3B	Open Cut	No	No
265.6	Tributary to Pilger Lake	I	<50	3B	Open Cut	No	No
266.7	Tributary to Poverty Flat Ditch	I	<50	3B	Open Cut	No	No
267.4	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
267.7	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
267.8	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
267.9	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
268.0	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
268.2	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
268.9	Tributary to Knadler Lake	I	<50	3B	Open Cut	No	No
271.3	Tributary to North Canal	I	<50	3B	Open Cut	No	No
272.6	Unknown	I	<50	3B	Open Cut	No	No
272.8	Unknown	I	<50	3B	Open Cut	No	No
272.9	Unknown	I	<50	3B	Open Cut	No	No
275.2	North Canal	I	<50	4A	Open Cut	No	No
275.8	Pioneer Canal	I	<50	4A	Open Cut	No	No
277.1	Laramie River	P	<100	2AB	Open Cut	No	No
277.7	Fivemile Creek	I	<50	3B	Open Cut	No	No
277.8	Tributary to Fivemile Creek	I	<50	3B	Open Cut	No	No
278.2	Lake	Playa	250	3B	Open Cut	No	No
279.5	Lake	Playa	250	3B	Open Cut	No	No
279.8	Harney Creek	I	<50	3B	Open Cut	No	No
280.4	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
280.9	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
281.4	Simpson Springs Creek	I	<50	4A	Open Cut	No	No
283.0	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
283.8	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
284.1	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
284.4	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
284.6	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
284.7	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
285.1	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
285.4	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
285.6	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
286.1	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
286.1	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
286.5	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
286.6	Tributary to Harney Creek	I	<50	3B	Open Cut	No	No
287.2	Tributary to Spring Creek	I	<50	3B	Open Cut	No	No
287.3	Spring Creek	I	<50	3B	Open Cut	No	No
288.0	Tributary to Spring Creek	I	<50	3B	Open Cut	No	No
288.4	Tributary to Spring Creek	I	<50	3B	Open Cut	No	No
292.4	Dale Creek	P	<50	2AB	Open Cut	No	No
292.8	Tributary to Dale Creek	P	<50	3B	Open Cut	No	No
293.5	Tributary to Dale Creek	P	<50	3B	Open Cut	No	No
294.1	Tributary to Dale Creek	P	<50	3B	Open Cut	No	No
295.0	Tributary to Dale Creek	P	<50	3B	Open Cut	No	No
295.3 [c]	Lone Tree Creek	P	<50	3B	Open Cut	No	No
295.5 [c]	Lone Tree Creek	P	<50	3B	Open Cut	No	No
296.7	Tributary to Lone Tree Creek	P	<50	3B	Open Cut	No	No
297.0 [c]	Tributary to Lone Tree Creek	P	<50	3B	Open Cut	No	No
298.2	Tributary to Lone Tree Creek	P	<50	3B	Open Cut	No	No
299.3	Tributary to Lone Tree Creek	P	<50	3B	Open Cut	No	No
301.3	Tributary to Lone Tree Creek	P	<50	3B	Open Cut	No	No
304.6	Tributary to Lone Tree Creek	I	<50	3B	Open Cut	No	No
306.5	Tributary to Lone Tree Creek	I	<50	3B	Open Cut	No	No
307.0	Tributary to Lone Tree Creek	I	<50	3B	Open Cut	No	No
307.5	Lone Tree Creek	P	<50	2C	Open Cut	No	No
308.8	Tributary to Willow Creek	I	<50	3B	Open Cut	No	No
309.1	Tributary to Willow Creek	I	<50	3B	Open Cut	No	No
309.6	Tributary to Willow Creek	I	<50	3B	Open Cut	No	No
310.1	Tributary to Willow Creek	I	<50	3B	Open Cut	No	No
311.3	Tributary to Goose Creek	I	<50	3B	Open Cut	No	No
311.5	Tributary to Goose Creek	I	<50	3B	Open Cut	No	No
311.6	Tributary to Goose Creek	I	<50	3B	Open Cut	No	No
314.0	Tributary to Duck Creek	I	<50	3B	Open Cut	No	No
314.4	Tributary to Duck Creek	I	<50	3B	Open Cut	No	No
315.5	Tributary to Duck Creek	I	<50	3B	Open Cut	No	No
315.9	Tributary to Duck Creek	I	<50	3B	Open Cut	No	No
316.3	Duck Creek	I	<50	3B	Open Cut	No	No
317.1 [c]	Brush Creek	I	<50	3B	Open Cut	No	No
317.2 [c]	Brush Creek	I	<50	3B	Open Cut	No	No
318.4	Brush Creek	P	<50	3B	Open Cut	No	No
318.4	Brush Creek	P	<50	3B	Open Cut	No	No
318.5	Brush Creek	P	<50	3B	Open Cut	No	No
319.7	Tributary to Spotwood Creek	P	<50	3B	Open Cut	No	No
320.1	Tributary to Spotwood Creek	P	<50	3B	Open Cut	No	No
Colorado							
321.9	Tributary to Lone Tree Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
322.6	Tributary to Lone Tree Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
322.9	Lone Tree Creek	P	<50	ALWW2, AG, RSC	Open Cut	No	No
324.2	Unknown	I	<50	Unknown	Open Cut	No	No
325.8	Unknown	I	<50	Unknown	Open Cut	No	No
327.1	Unknown	I	<50	Unknown	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
328.1	Tributary to Owl Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
329.2	Tributary to Owl Creek	I	<50	ALWW2, AG, RSC n	Open Cut	No	No
330.0	Owl Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
331.8	Unknown	I	<50	Unknown	Open Cut	No	No
332.6	Tributary to Cow Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
332.9	Cow Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
334.3	Eastman Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
334.4	Eastman Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
335.2	Tributary to Eastman Creek	I	<50	Unknown	Open Cut	No	No
335.3	Tributary to Eastman Creek	I	<50	Unknown	Open Cut	No	No
335.7	Tributary to Eastman Creek	I	<50	Unknown	Open Cut	No	No
335.9	Tributary to Eastman Creek	I	<50	Unknown	Open Cut	No	No
338.9	West Fork Willow Creek [b]	I	<50	ALCW2	Open Cut	No	No
342.8	Tributary to West Fork Willow Creek	I	<50	ALCW2	Open Cut	No	No
343.3	Willow Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
344.4 [c]	Tributary to Willow Creek [b]	I	<50	Unknown	Open Cut	No	No
345.7	Tributary to Willow Creek [b]	I	<50	Unknown	Open Cut	No	No
346.5	Tributary to Willow Creek [b]	I	<50	Unknown	Open Cut	No	No
349.5	Geary Creek	I	<50	ALCW2	Open Cut	No	No
349.6	Tributary to Geary Creek	I	<50	ALCW2	Open Cut	No	No
351.6	Tributary to Geary Creek [b]	I	<50	ALCW2	Open Cut	No	No
358.3	Little Crow Creek	I	<50	ALCW2	Open Cut	No	No
358.4	Little Crow Creek	I	<50	ALCW2	Open Cut	No	No
361.4	Crow Creek	I	<50	ALWW2, AG, RSC	Open Cut	No	No
363.3	Jackson Draw	I	<50	ALWW2, AG, RSC	Open Cut	No	No
364.8	Lake	Playa	<50	Unknown	Open Cut	No	No
369.2	Lake	Playa	<250	Unknown	Open Cut	No	No
370.2 [c]	Lake	Playa	**	Unknown	Open Cut	No	No
370.7	Lake	Playa	<250	Unknown	Open Cut	No	No
376.1	Lake [b]	Playa	<250	Unknown	Open Cut	No	No
377.7	Lake	Playa	<250	Unknown	Open Cut	No	No
379.6	Tributary to Wild Horse Creek	I	<50	Unknown	Open Cut	No	No
380.4	Tributary to Wild Horse Creek [b]	I	<50	Unknown	Open Cut	No	No
381.0	Tributary to Wild Horse Creek [b]	I	<50	Unknown	Open Cut	No	No
381.2	Tributary to Wild Horse Creek [b]	I	<50	Unknown	Open Cut	No	No
384.9	South Pawnee Creek	I	<100	ALWW2, AG, RSC	Open Cut	No	No
390.7	Unnamed	I	<50	Unknown	Open Cut	No	No
391.9	Unnamed	I	<50	Unknown	Open Cut	No	No
403.5	LF Draw	I	<50	ALWW2, AG, RSC	Open Cut	No	No
404.0	Tributary to LF Draw	I	<50	Unknown	Open Cut	No	No
404.2	Tributary to LF Draw	I	<50	Unknown	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
408.1	Riverside Canal (abandoned)	I	<100	Unknown	Open Cut	No	No
410.3	Tributary to North Sterling Canal	I	<50	Unknown	Open Cut	No	No
411.1	Tributary to North Sterling Canal	I	<50	Unknown	Open Cut	No	No
412.3	Tributary to North Sterling Canal	I	<50	Unknown	Open Cut	No	No
412.3	Tributary to North Sterling Canal	I	<50	Unknown	Open Cut	No	No
412.6	North Sterling Canal	P	<100	ALWW1, RPC, AG	Open Cut	No	No
413.2	South Platte River	P	> 100	DS, ALWW2, RPC, AG	HDD	NO_3, E. coli	No
413.5	Tributary to South Platte River	I	<50	ALWW2, AG, RSC	Open Cut	No	No
413.7	Tributary to South Platte River	I	<50	ALWW2, AG, RSC	Open Cut	No	No
413.8	Tributary to South Platte River	I	<50	ALWW2, AG, RSC	Open Cut	No	No
413.9	Tributary to South Platte River	I	<50	ALWW2, AG, RSC	Open Cut	No	No
414.0	Tributary to South Platte River	I	<50	ALWW2, AG, RSC	Open Cut	No	No
414.8	Company Ditch	P	<100	ALWW2, AG, RSC	Open Cut	No	No
416.0	Ditch	P	<100	ALWW2, AG, RSC	Open Cut	No	No
416.2	South Platte Ditch	P	<100	ALWW2, AG, RSC	Open Cut	No	No
416.9	Sand Hill Ditch	P	<100	ALWW2, AG, RSC	Open Cut	No	No
417.8	Twentymile Slough	I	<50	ALWW2, AG, RSC	Open Cut	No	No
424.2	Tributary to South Platte	I	<50	ALWW2, AG, RSC	Open Cut	No	No
426.2	Tributary to South Platte	I	<50	ALWW2, AG, RSC	Open Cut	No	No
426.6	Tributary to South Platte	I	<50	ALWW2, AG, RSC	Open Cut	No	No
427.0	Tributary to South Platte	I	<50	ALWW2, AG, RSC	Open Cut	No	No
427.2	Tributary to South Platte	I	<50	ALWW2, AG, RSC	Open Cut	No	No
428.2	Tributary to South Platte	I	<50	ALWW2, AG, RSC 2	Open Cut	No	No
429.3	Unknown	I	<50	Unknown	Open Cut	No	No
447.7	Small Lake	Pond	<50	Unknown	Open Cut	No	No
447.8	Surveyor Creek	I	<50	Unknown	Open Cut	No	No
448.2	Surveyor Creek	I	<50	Unknown	Open Cut	No	No
474.0	Chief Creek	P	<100	ALCW1, RPC,, AG, DWS	Open Cut	No	No
476.6	Tributary to North Fork Republican River	I	<100	ALWW2, RSC, AG	Open Cut	No	No
477.3	North Fork Republican River	P	<100	ALCW1, RPC, DWS, AG	Open Cut	No	No
477.5	Tributary to North Fork Republican River	I	<50	ALWW2, RSC, AG	Open Cut	No	No
477.7	Tributary to North Fork Republican River	I	<50	ALWW2, RSC, AG	Open Cut	No	No
478.1	Tributary to North Fork Republican River	I	<50	ALWW2, RSC, AG	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
480.4	Tributary to North Fork Republican River	I	<50	ALWW2, RSC, AG	Open Cut	No	No
489.8	Horse Creek	I	<50	Unknown	Open Cut	No	No
490.1	Tributary to Horse Creek	I	<50	Unknown	Open Cut	No	No
490.4	Tributary to Horse Creek	I	<50	Unknown	Open Cut	No	No
490.5	Tributary to Horse Creek	I	<50	Unknown	Open Cut	No	No
490.7	Tributary to Horse Creek	I	<50	Unknown	Open Cut	No	No
490.8	Tributary to Horse Creek	I	<50	Unknown	Open Cut	No	No
491.6	Tributary to Arikaree River	I	<50	Unknown	Open Cut	No	No
491.7	Arikaree River	P	> 100	ALWW1, RPC, AG	Open Cut	No	No
492.1	Tributary to Arikaree River	I	<50	Unknown	Open Cut	No	No
492.2	Tributary to Arikaree River	I	<50	Unknown	Open Cut	No	No
Kansas							
492.7	Tributary to Arikaree River	I	<50	GP	Open Cut	No	No
492.9	Tributary to Arikaree River	I	<50	GP	Open Cut	No	No
493.2	Tributary to Arikaree River	I	<50	GP	Open Cut	No	No
493.9	Tributary to Arikaree River	I	<50	GP	Open Cut	No	No
494.2	Tributary to Arikaree River	I	<50	GP	Open Cut	No	No
494.5	Tributary to Arikaree River	I	<50	GP	Open Cut	No	No
495.6	Devil's Canyon Gulch	I	<50	GP	Open Cut	No	No
499.2	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
500.4	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
501.9	Hackberry Creek	I	<50	GP	Open Cut	No	No
502.2	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
503.0	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
503.1	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
503.7	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
504.5	Tributary to Hackberry Creek	I	<50	GP	Open Cut	No	No
509.4	Cleveland Run	I	<50	Unknown	Open Cut	No	No
510.3	Cleveland Run	I	<50	Unknown	Open Cut	No	No
510.4	South Fork Republican River	P	> 100	GP, S, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
512.0	Tributary to South Fork Republican River	I	<50	GP	Open Cut	No	No
513.0	Bluff Creek	I	<50	GP	Open Cut	No	No
513.1	Bluff Creek	I	<50	GP	Open Cut	No	No
513.3	Bluff Creek	I	<50	GP	Open Cut	No	No
514.6	Bluff Creek	I	<50	GP	Open Cut	No	No
515.5	Bluff Creek	I	<50	GP	Open Cut	No	No
515.6	Bluff Creek	I	<50	GP	Open Cut	No	No
520.3	Big Timber Creek	I	<50	GP	Open Cut	No	No
527.7	Small Lake	Playa	<100	Unknown	Open Cut	No	No
530.1	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
531.3	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
531.5	Little Beaver Creek	I	<50	GP	Open Cut	DO, F	No
532.0	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
532.9	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
533.0	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
536.5	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
538.6	Beaver Creek	P	<100	GP, E, FP	Open Cut	DO, F	No
539.1	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
539.6	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
540.2	Tributary to Beaver Creek	I	<50	GP	Open Cut	No	No
542.2	Tributary to North Fork Sappa Creek	I	<50	GP, E, Q, DS, FP,GR,IW,IR,LW	Open Cut	No	No
542.6	North Fork Sappa Creek	I	<50	GP, E, Q, DS, FP,GR,IW,IR,LW	Open Cut	No	No
542.7	Tributary to North Fork Sappa Creek	I	<50	GP, E, Q, DS, FP,GR,IW,IR,LW	Open Cut	No	No
548.9	Middle Fork Sappa Creek	I	<50	GP	Open Cut	No	No
549.6	Unknown	I	<50	GP	Open Cut	No	No
550.5	Unknown	I	<50	GP	Open Cut	No	No
551.4	Unknown	I	<50	GP	Open Cut	No	No
555.3	Unknown	I	<50	GP	Open Cut	No	No
555.8	Unknown	I	<50	GP	Open Cut	No	No
558.1	South Fork Sappa Creek	I	<50	GP	Open Cut	No	No
558.8	Unknown	I	<50	GP	Open Cut	No	No
561.9	Tributary to Prairie Dog Creek	I	<50	GP	Open Cut	No	No
563.0	Tributary to Prairie Dog Creek	I	<50	GP	Open Cut	No	No
563.8	Prairie Dog Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
563.9	Prairie Dog Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
563.9	Prairie Dog Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
564.4	Tributary to Prairie Dog Creek	I	<50	GP	Open Cut	No	No
568.2	Tributary to Solomon River	I	<50	GP	Open Cut	No	No
570.3	North Fork Solomon River	I	<50	GP	Open Cut	No	No
577.8	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
580.5	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
582.0	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
582.4	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
582.5	Sand Creek	I	<50	Unknown	Open Cut	No	No
582.7	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
583.1	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
583.8	Tributary to Sand Creek	I	<50	Unknown	Open Cut	No	No
587.0	Unknown	I	<50	Unknown	Open Cut	No	No
587.5	South Fork Solomon River	I	<50	GP	Open Cut	No	No
588.0	Unknown	I	<50	Unknown	Open Cut	No	No
588.1	Unknown	I	<50	Unknown	Open Cut	No	No
588.4	Unknown	I	<50	Unknown	Open Cut	No	No
589.2	Unknown	I	<50	Unknown	Open Cut	No	No
589.4	Unknown	I	<50	Unknown	Open Cut	No	No
589.7	Unknown	I	<50	Unknown	Open Cut	No	No
590.3	Unknown	I	<50	Unknown	Open Cut	No	No
591.6	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
592.1	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
592.3	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
593.2	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
593.6	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
594.5	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
595.0	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
595.3	Tributary to Midway Draw	I	<50	GP	Open Cut	No	No
599.0	Leeds Draw	I	<50	Unknown	Open Cut	No	No
599.3	Leeds Draw	I	<50	Unknown	Open Cut	No	No
599.5	Leeds Draw	I	<50	Unknown	Open Cut	No	No
600.0	Leeds Draw	I	<50	Unknown	Open Cut	No	No
600.9	Leeds Draw	I	<50	Unknown	Open Cut	No	No
601.3	Tributary to Saline River	I	<50	GP	Open Cut	No	No
601.7	Tributary to Saline River	I	<50	GP	Open Cut	No	No
602.0	Tributary to Saline River	I	<50	GP	Open Cut	No	No
602.2	Tributary to Saline River	I	<50	GP	Open Cut	No	No
602.5	Tributary to Saline River	I	<50	GP	Open Cut	No	No
602.8	Tributary to Saline River	I	<50	GP	Open Cut	No	No
604.5	Turner Draw	I	<50	Unknown	Open Cut	No	No
605.0	Turner Draw	I	<50	Unknown	Open Cut	No	No
605.1	Turner Draw	I	<50	Unknown	Open Cut	No	No
605.6	Turner Draw	I	<50	Unknown	Open Cut	No	No
606.3	Tributary to Saline River	I	<50	GP	Open Cut	No	No
606.8	Tributary to Saline River	I	<50	GP	Open Cut	No	No
607.6	Tributary to Saline River	I	<50	GP	Open Cut	No	No
608.4	Saline River	P	<100	GP, E, P, DS, FP, GR, IW, IR, LW	Open Cut	No	No
608.7	Tributary to Saline River	I	<50	GP	Open Cut	No	No
608.8	Saline River	P	<100	GP, E, P, DS, FP, GR, IW, IR, LW	Open Cut	No	No
609.2	Saline River	P	<100	GP, E, P, DS, FP, GR, IW, IR, LW	Open Cut	No	No
609.7	Plum Creek	P	<100	GP, E, FP	Open Cut	No	No
610.7	Tributary to Saline River	I	<50	GP	Open Cut	No	No
611.0	Tributary to Saline River	I	<50	GP	Open Cut	No	No
611.4	Tributary to Saline River	I	<50	GP	Open Cut	No	No
611.7	Tributary to Saline River	I	<50	GP	Open Cut	No	No
612.8	Coyote Creek	I	<50	GP, E	Open Cut	No	No
613.5	Tributary to Saline River	I	<50	GP	Open Cut	No	No
613.9	Tributary to Saline River	I	<50	GP	Open Cut	No	No
614.6	Tributary to Saline River	I	<50	GP	Open Cut	No	No
615.0	Tributary to Saline River	I	<50	GP	Open Cut	No	No
615.6	Tributary to Saline River	I	<50	GP	Open Cut	No	No
616.6	Tributary to Saline River	I	<50	GP	Open Cut	No	No
617.3	Tributary to Saline River	I	<50	GP	Open Cut	No	No
618.4	Trego Creek	I	<50	GP,E,Q	Open Cut	No	No
618.5	Trego Creek	I	<50	GP,E,Q	Open Cut	No	No
619.3	Trego Creek	I	<50	GP, E,Q	Open Cut	No	No
612.0	Trego Creek	I	<50	GP, E, Q	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
620.2	Trego Creek	I	<50	GP, E, Q	Open Cut	No	No
620.9	Trego Creek	I	<50	GP, E, Q	Open Cut	No	No
622.2	Unknown	I	<50	GP	Open Cut	No	No
623.0	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
623.6	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
624.0	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
625.1	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
625.5	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
625.9	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
626.4	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
626.7	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
627.1	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
627.9	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
628.0	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
628.8	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
629.3	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
630.1	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
630.7	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
631.6	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
632.3	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
632.9	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
633.3	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
634.0	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
635.4	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
635.5	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
637.4	Big Creek	P	<100	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	DO	No
638.0	Unknown	I	<50	GP	Open Cut	No	No
639.2	Unknown	I	<50	GP	Open Cut	No	No
639.7	Unknown	I	<50	GP	Open Cut	No	No
640.9	Unknown	I	<50	GP	Open Cut	No	No
641.3	Unknown	I	<50	GP	Open Cut	No	No
641.7	Unknown	I	<50	GP	Open Cut	No	No
642.5	Unknown	I	<50	GP	Open Cut	No	No
643.2	Unknown	I	<50	GP	Open Cut	No	No
644.0	Unknown	I	<50	GP	Open Cut	No	No
645.7	Unknown	I	<50	GP	Open Cut	No	No
646.6	Unknown	I	<50	GP	Open Cut	No	No
647.3	Unknown	I	<50	GP	Open Cut	No	No
647.8	Unknown	I	<50	GP	Open Cut	No	No
649.2	Unknown	I	<50	GP	Open Cut	No	No
649.5	Unknown	I	<50	GP	Open Cut	No	No
650.5	Unknown	I	<50	GP	Open Cut	No	No
650.6	Unknown	I	<50	GP	Open Cut	No	No
650.9	Unknown	I	<50	GP	Open Cut	No	No
650.9	Unknown	I	<50	GP	Open Cut	No	No
651.0	Unknown	I	<50	GP	Open Cut	No	No
651.4	Unknown	I	<50	GP	Open Cut	No	No
651.8	Unknown	I	<50	GP	Open Cut	No	No
652.1	Unknown	I	<50	GP	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
652.5	Unknown	I	<50	GP	Open Cut	No	No
652.8	Unknown	I	<50	GP	Open Cut	No	No
653.3	Unknown	I	<50	GP	Open Cut	No	No
653.5	Unknown	I	<50	GP	Open Cut	No	No
654.8	Unknown	I	<50	GP	Open Cut	No	No
654.0	Unknown	I	<50	GP	Open Cut	No	No
654.1	Unknown	I	<50	GP	Open Cut	No	No
654.2	Unknown	I	<50	GP	Open Cut	No	No
654.4	Unknown	I	<50	GP	Open Cut	No	No
655.9	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
656.1	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
657.4	Lookout Hollow	I	<50	GP	Open Cut	No	No
658.5	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
658.8	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
659.7	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
656.0	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
660.5	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
660.7	Tributary to Lookout Hollow	I	<50	GP	Open Cut	No	No
661.2	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
663.2	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
663.4	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
664.1	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
665.4	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
666.5	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
667.2	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
667.5	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
668.0	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
669.3	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
670.1	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
670.7	Tributary to Big Creek	I	<50	GP	Open Cut	No	No
672.8	Unknown	I	<50	GP	Open Cut	No	No
673.3	Unknown	I	<50	GP	Open Cut	No	No
674.2	Unknown	I	<50	GP	Open Cut	No	No
674.4	Unknown	I	<50	GP	Open Cut	No	No
674.8	Unknown	I	<50	GP	Open Cut	No	No
675.3	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
676.3	Smokey Hill River	P	<100	GP	Open Cut	No	No
676.8	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
677.5	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
678.0	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
679.0	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
680.5	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
681.6	Tributary to Smokey Hill River	I	<50	GP	Open Cut	No	No
681.9	Unknown	I	<50	GP	Open Cut	No	No
683.1	Unknown	I	<50	GP	Open Cut	No	No
683.2	Unknown	I	<50	GP	Open Cut	No	No
683.7	Unknown	I	<50	GP	Open Cut	No	No
683.9	Unknown	I	<50	GP	Open Cut	No	No
684.3	Landon Creek	I	<50	GP	Open Cut	Selenium	No
685.0	Unknown	I	<50	GP	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
686.0	Unknown	I	<50	GP	Open Cut	No	No
686.6	Unknown	I	<50	GP	Open Cut	No	No
687.5	Sellens Creek	I	<50	GP, E, FP	Open Cut	No	No
687.6	Sellens Creek	I	<50	GP, E, FP	Open Cut	No	No
687.7	Sellens Creek	I	<50	GP, E, FP	Open Cut	No	No
688.7	Sellens Creek	I	<50	GP, E, FP	Open Cut	No	No
689.7	Unknown	I	<50	GP	Open Cut	No	No
690.0	Unknown	I	<50	GP	Open Cut	No	No
690.8	Unknown	I	<50	GP	Open Cut	No	No
691.0	Unknown	I	<50	GP	Open Cut	No	No
691.2	Unknown	I	<50	GP	Open Cut	No	No
691.2	Unknown	I	<50	GP	Open Cut	No	No
691.7	Deception Creek	I	<50	GP	Open Cut	Turb., Cl, SO_4	No
692.3	Unknown	I	<50	GP	Open Cut	No	No
692.6	Unknown	I	<50	GP	Open Cut	No	No
693.4	Goose Creek	I	<50	GP, E, FP	Open Cut	No	No
693.8	Goose Creek	I	<50	GP, E, FP	Open Cut	No	No
694.4	Unknown	I	<50	GP	Open Cut	No	No
694.6	Unknown	I	<50	GP	Open Cut	No	No
694.9	Unknown	I	<50	GP	Open Cut	No	No
695.6	Unknown	I	<50	GP	Open Cut	No	No
696.1	Unknown	I	<50	GP	Open Cut	No	No
696.7	Unknown	I	<50	GP	Open Cut	No	No
697.3	Unknown	I	<50	GP	Open Cut	No	No
698.0	Unknown	I	<50	GP	Open Cut	No	No
698.3	Unknown	I	<50	GP	Open Cut	No	No
699.5	Cow Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	Chloride	No
700.0	Cow Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
700.1	Cow Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
700.2	Cow Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
701.0	Cow Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
701.5	Cow Creek	I	<50	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
702.6	Unknown	I	<50	GP	Open Cut	No	No
702.8	Unknown	I	<50	GP	Open Cut	No	No
703.5	Unknown	I	<50	GP	Open Cut	No	No
703.7	Unknown	I	<50	GP	Open Cut	No	No
704.5	Unknown	I	<50	GP	Open Cut	No	No
705.6	Unknown	I	<50	GP	Open Cut	No	No
705.8	Unknown	I	<50	GP	Open Cut	No	No
706.4	Unknown	I	<50	GP	Open Cut	No	No
706.6	Unknown	I	<50	GP	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
707.0	Unknown	I	<50	GP	Open Cut	No	No
708.6	Unknown	I	<50	GP	Open Cut	No	No
709.0	Unknown	I	<50	GP	Open Cut	No	No
709.5	Calf Creek	I	<50	GP	Open Cut	No	No
710.0	Calf Creek	I	<50	GP	Open Cut	No	No
710.9	Calf Creek	I	<50	GP	Open Cut	Chloride	No
711.0	Calf Creek	I	<50	GP	Open Cut	No	No
712.2	Plum Creek	I	<50	GP, E, FP	Open Cut	No	No
712.6	Plum Creek	I	<50	GP, E, FP	Open Cut	No	No
713.2	Plum Creek	I	<50	GP, E, FP	Open Cut	No	No
714.0	Plum Creek	I	<50	GP, E, FP	Open Cut	No	No
714.6	Plum Creek	I	<50	GP, E, FP	Open Cut	No	No
714.7	Plum Creek	P	<100	GP, E, FP	Open Cut	No	No
714.9	Plum Creek	P	<100	GP, E, FP	Open Cut	No	No
715.3	Plum Creek	P	<100	GP, E, FP	Open Cut	Chloride	No
715.8	Plum Creek	P	<100	GP, E, FP	Open Cut	No	No
716.7	Plum Creek	I	<100	GP, E, FP	Open Cut	No	No
717.4	Plum Creek	P	<100	GP, E, FP	Open Cut	No	No
717.4	Plum Creek	P	<100	GP, E, FP	Open Cut	No	No
717.7	Plum Creek	I	<100	GP, E, FP	Open Cut	No	No
718.0	Unknown	P	<100	GP	Open Cut	No	No
718.8	Unknown	I	<50	GP	Open Cut	No	No
720.0	Unknown	I	<50	GP	Open Cut	No	No
720.4	Lost Creek	I	<50	GP, E	Open Cut	Chloride	No
721.2	Lost Creek	I	<50	GP, E	Open Cut	No	No
722.0	Unknown	I	<50	GP	Open Cut	No	No
722.6	Unknown	I	<50	GP	Open Cut	No	No
722.8	Unknown	I	<50	GP	Open Cut	No	No
724.4	Unknown	I	<50	GP	Open Cut	No	No
725.2	Little Cow Creek	P	<100	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	No	No
725.9	Tributary to Little Cow Creek	I	<50	GP	Open Cut	No	No
726.1	Tributary to Little Cow Creek	I	<50	GP	Open Cut	No	No
727.3	Unknown	I	<50	GP	Open Cut	No	No
728.3	Unknown	I	<50	GP	Open Cut	No	No
728.7	Unknown	I	<50	GP	Open Cut	No	No
730.0	Owl Creek	I	<50	GP	Open Cut	Cl, Zn	No
730.0	Owl Creek	I	<50	GP	Open Cut	Cl, Zn	No
730.1	Owl Creek	I	<50	GP	Open Cut	Cl, Zn	No
731.2	Mitchell Creek	I	<50	GP	Open Cut	No	No
733.7	Tributary to Jarius Creek	I	<50	GP	Open Cut	No	No
736.8	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No
737.3	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No
737.6	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No
738.1	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No
738.5	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No
738.8	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No
739.4	Tributary to Dry Creek	I	<50	GP	Open Cut	No	No

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
740.6	Little Arkansas River	P	<100	GP, E, P, DS, FP,GR,IW,IR,LW	Open Cut	Cu, Cl, Atrazine	No
740.9	Tributary to Little Arkansas River	I	<50	GP	Open Cut	No	No
741.1	Tributary to Little Arkansas River	I	<50	GP	Open Cut	No	No
742.1	Salt Creek	I	<50	GP, E, P, FP	Open Cut	Cu, NH_4, Cl, NO_2, NO_3, Atrazine	No
743.0	North Fork	I	<50	Unknown	Open Cut	No	No
743.3	Tributary to North Fork	I	<50	GP	Open Cut	No	No
743.7	Tributary to North Fork	I	<50	GP	Open Cut	No	No
744.4	Unknown	I	<50	GP	Open Cut	No	No
744.8	Unknown	I	<50	GP	Open Cut	No	No
744.9	Unknown	I	<50	GP	Open Cut	No	No
745.7	Lone Tree Creek	I	<50	Unknown	Open Cut	Cu, Cl, Atrazine	No
746.0	Lone Tree Creek	I	<50	Unknown	Open Cut	No	No
746.3	Lone Tree Creek	I	<50	Unknown	Open Cut	No	No
746.7	Lone Tree Creek	I	<50	Unknown	Open Cut	No	No
746.9	Lone Tree Creek	I	<50	Unknown	Open Cut	No	No
747.3	Lone Tree Creek	I	<50	Unknown	Open Cut	No	No
747.7	Lone Tree Creek	I	<50	Unknown	Open Cut	No	No
748.3	Unknown	I	<50	GP	Open Cut	No	No
748.5	Unknown	I	<50	GP	Open Cut	No	No
748.9	Unknown	I	<50	GP	Open Cut	No	No
749.3	Unknown	I	<50	GP	Open Cut	No	No

[a] State Surface Water Quality Classifications:

The following lists indicate general surface water quality classifications, based on beneficial uses for which state standards have been developed. Additional regulations govern standards and antidegradation requirements. Further information is available from respective state water quality regulatory agencies: Wyoming Department of Environmental Quality (Cheyenne), Colorado Department of Public Health and Environment (Denver), and Kansas Department of Health and Environment (Topeka).

Wyoming: In general, the listing for a particular water indicates the "highest" use of that water; i.e., Class 3 waters generally do not support Class 1 or 2 uses.

Class 1 – Outstanding Waters – In nearly every case, these are protected for all uses.

Class 2 – Fisheries and Drinking Water

2AB - Support Game Fish

2A – No known potential for game fish, but are used as public or domestic drinking water supplies.

2B – Known/potential to support game fish. Drinking water uses are not attainable.

2C – Support nongame fish populations.

Class 3 – Aquatic Life Other than Fish

3A – Not known to support fish populations or drinking water supplies, and where not attainable.

3B – Tributary waters and adjacent wetlands not known to support fish populations or drinking water supplies, and where not attainable.

3C – Waters or perennial streams that do not support fish or drinking water supplies, but do support wetland characteristics.

Class 4 – Agriculture, Industry, Recreation and Wildlife

4A – Artificial canals and ditches that are not known to support fish populations.

4B – Intermittent and ephemeral stream channels that are not able to sustain aquatic life.

4C – All waters that have been determined to lack the potential to normally support and sustain aquatic life.

Colorado:

AG - Agriculture

ALCW1 - Aquatic Life Cold Water-Class 1

Table F-1 Waterbodies Crossed by the Proposed Overland Pass Pipeline Project

Reference Point	Waterbody Name	Flow	Approximate Width (feet)	Water Quality Classification [a]	Proposed Crossing Method	303(d) Listed [d]	ONRW [e]
	ALCW2 - Aquatic Life Cold Water-Class 2 ALWW1 - Aquatic Life Warm Water-Class 1 ALWW2 - Aquatic Life Warm Water-Class 2 DWS - Domestic Water Source RPC - Recreation Primary Contact RSC - Recreation Secondary Contact Kansas: GP – General purpose waters E – Expected aquatic life use water P – Primary contact recreation Q – Secondary contact recreation DS – Domestic water supply use FP – Food procurement use GR – Ground water recharge IS – Industrial water supply use IR – Irrigation use LW – Livestock watering use [b] Within or adjacent to federally managed land. [c] Located within 500 feet of the pipeline crossing, but not directly impacted. [d] Impaired for stated beneficial uses; impairment listed. [e] Outstanding Natural Resource Waters; specific state water quality antidegradation policies may apply.						

Table F-2 Waterbodies Crossed by the Proposed Southern Energy Corridor – Copper Ridge Bypass Alternative Pipeline Route

Waterbody Name	Flow	Approximate Width (feet)
Tributary to Little Bitter Creek	P	<100
Little Bitter Creek	P	<100
Cedar Creek	P	<100
Cedar Creek	P	<100
Cedar Creek	I	<50
Tributary to Little Bitter Creek	I	<50
Tributary to Sand Wash	I	<50
Coal Mine Canyon Creek	I	<50
Coyote Canyon Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Circle Springs Draw	I	<50
Tributary to Circle Creek	I	<50
Circle Creek	I	<50
Circle Creek	I	<50
Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Circle Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Mail Station Draw	I	<50
Tributary to Mail Station Draw	I	<50
Tributary to Mail Station Draw	I	<50
Tributary to Mail Station Draw	I	<50
Mail Station Draw	I	<50
Tributary to Mail Station Draw	I	<50
Tributary to Salt Wells Creek	I	<50
Blair Creek	I	<50
Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Salt Wells Creek	I	<50
Tributary to Cutthroat Draw	I	<50
Tributary to Cutthroat Draw	I	<50
Tributary to Cutthroat Draw	I	<50

Table F-2 Waterbodies Crossed by the Proposed Southern Energy Corridor – Copper Ridge Bypass Alternative Pipeline Route

Waterbody Name	Flow	Approximate Width (feet)
Tributary to Cutthroat Draw	I	<50
Cutthroat Draw	I	<50

Appendix G

Special Status Species Tables

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Federal						
Mammals						
Black-footed ferret	*Mustela nigripes*	FE; CO-E; WY-NSS1; KS-E	Suitable habitat consists of black-tailed prairie dog colonies or complexes (80 acres or greater) or White-tailed prairie dog colonies or complexes (200 acres or greater). Most litters are born in May and emerge from their nursery dens in July.	Low. Historic occurrence along the proposed project route in Wyoming, Colorado, and Kansas.	No.	BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; Derby et al. 2006; KDWP 2005; USFWS 2005; WGFD 2005c.
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	FT w/CH; CO-T	This subspecies occurs in habitats consisting of well-developed plains riparian vegetation with dense herbaceous vegetation that include of a variety of grasses, forbs, and thick shrubs in close proximity to water. Suitable habitat can occur along stream channels, vegetated irrigation canals, ditches, and riparian and wetland areas (including wet meadows). Hibernation occurs from September-October to April-May. Nests are constructed in underground burrows. Young are born between mid-June and late July.	Moderate. This species has been documented along the proposed project route. Suitable habitat for this species occurs in riparian habitats in Albany and Laramie counties Wyoming; and Morgan and Weld counties, Colorado. This species and its required habitat are not found within the proposed project vicinity in Kansas.	No.	CNHP 2006; Derby et al. 2006; KDWP 2005; USFWS 2005.
Gray wolf	*Canis lupus*	FT	Formerly thought to be extinct in Wyoming, reintroduction in the Yellowstone area has lead to a viable population in that portion of the state. The gray wolf occupies a variety of habitats in that area, often associated with ungulate herds, such as elk. Pups born between March and late-April.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming, Colorado, or Kansas. The USFWS did not identify this species for analysis.	Yes. The proposed project route does not occur within the geographic range of this species.	USFWS 2005; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Grizzly bear	*Ursus arctos horribilis*	FT; WY-NSS3	Formerly a habitat generalist, the grizzly now occurs only in the montane regions of northwest Wyoming, where it can be found in a wide variety of habitats from open grassland plateaus to conifer forests. Cubs born between January and March.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming, Colorado, or Kansas. The USFWS did not identify this species for analysis.	Yes. The proposed project route does not occur within the geographic range of this species.	USFWS 2005; WGFD 2005c; NatureServe 2006.
Birds						
Bald eagle	*Haliaeetus leucocephalus*	FT; CO-T; WY-NSS2; KS-T; USFS-R4S	This species typically occurs near large bodies of water that support suitable roosting and foraging habitat. Nests are commonly built in mature cottonwoods or conifers along lakes or other large bodies of water. Wyoming Breeding Season: February 1-July 31. Colorado Breeding Season: November 15 through July 31. Wyoming Winter Roosting Period: November 15 through April 30. Colorado Winter Roosting Period: November 15 through March 15.	Moderate. This species has been documented along the proposed project route in Wyoming and Colorado. No known occurrence in the vicinity of the proposed project route in Kansas; however suitable habitat is present.	No.	BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; Derby et al. 2006; KDWP 2005; Kingery 1998; NatureServe 2006; USFWS 2005; WGFD 2005d; Craig 2002; BLM 1990.
Yellow-billed cuckoo	*Coccyzus americanus*	FC; BLM-WY; WY-NSS2	This species inhabits lowland deciduous woodlands, willow and alder thickets, mature cottonwood-riparian woodlands, deserted farmlands, and orchards. Breeding typically occurs in riparian woodlands. Breeding Season: June 1 through July 31.	Low. This species has been documented within the vicinity of the proposed project route in Wyoming. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; Derby et al. 2006; USFS 2005; NatureServe 2006; Kingery 1998; USFWS 2005; WGFD 2005d.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Whooping crane	*Grus americana*	FE; CO-E; KS-E	During migration, this species feeds and roosts in a variety of habitats including croplands, large and small freshwater marshes, the margins of lakes and reservoirs, and submerged sandbars in rivers. Spring and Fall migration through the Proposed project regions generally occurs from February through April and from October through November, respectively. Breeding Season: May 1 through July 31.	Low. Occurrence of this species along the proposed project route would be limited to migrating individuals from the Arkansas-Wood Buffalo population in eastern Colorado and Kansas. Affected by water depletions to the Platte River in Colorado and Wyoming. Also affected by proposed project activities occurring during migration in Barton, McPherson, Rice, Russell, Sheridan, and Trego County, Kansas.	No.	CNHP 2006; Derby et al. 2006; NatureServe 2006; Kingery 1998; USFWS 2005; KDWP 2005.
Interior least tern	*Sterna antillarum athalassos*	FE; KS-E; CO-E	Nesting habitat consists of sparsely vegetated sandy, gravelly, or silty, beaches and sandbars within wide, unobstructed river channels or salt flats along lake shorelines and irrigation reservoirs. Nest locations are generally away from the water's edge since nesting typically begins while river flows are high and relatively small amounts of sandy habitat is exposed. Breeding season: May 1 through August 15.	Low. In Colorado: Adobe Creek and Nee Noshe Reservoirs, Kiowa Co., and Horse Creek Reservoir, Otero Co. Affected by water depletions to the Platte River in Wyoming and Colorado. Affected by proposed project activities occurring during migration in Barton and Rice County, Kansas.	No.	CNHP 2006; Derby et al. 2006; Haig and Elliot-Smith 2004; NatureServe 2006; Kingery 1998; USFWS 2005; KDWP 2005.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Piping plover	*Charadrius melodus circumcinctus*	FT; CO-T; KS-T	This species inhabits open sandy areas and saline flats with little vegetation along rivers, lakes, ponds, and marshlands. It nests on sandbars and sand and gravel beaches with short, sparse vegetation along inland lakes, on natural and dredge islands in rivers, on gravel pits along rivers, and on salt-encrusted bare areas on interior alkali ponds and lakes. Sparse clumps of grass or herbaceous vegetation are important habitat components. Breeding season: May 1 through August 15.	Low. Current breeding range occurs along the Platte River, the Arkansas River, reservoirs in eastern Colorado. Affected by water depletions to the Platte River Colorado and Wyoming. Affected by proposed project activities occurring during migration in Barton and Rice County, Kansas.	No.	CNHP 2006; Derby et al. 2006; NatureServe 2006; Kingery 1998; USFWS 2005; KDWP 2005.
Lesser prairie chicken	*Tympanuchus pallidicinctus*	FC; CO-T	Open shortgrass prairie habitat. Breeding Season: April 1-September 15.	Low. No known occurrence within the vicinity of the proposed project route in Kansas; however, potential breeding habitat occurs in Kansas south of I-70 in Trego County and in Ellis County. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming or Colorado.	No.	CNHP 2006; Derby et al. 2006; Kingery 1998; USFWS 2005.
Eskimo curlew	*Numenius borealis*	FE; KS-E	This species is a rare spring migrant that feeds and rests in burned-over prairies, agricultural areas, and marshes. In Kansas, Eskimo Curlews were formerly a regular spring transient through the eastern half of the state. In Kansas, Eskimo Curlews were formerly a regular spring transient through the eastern half of the state. They are now considered extirpated from Kansas. Breeding Season: June 1 through August 15.	Extremely Low. This species was not identified by the USFWS for analysis. This species and its required habitat are not found within the proposed project vicinity in Wyoming or Colorado. Occurrence in Kansas would be limited to accidental migrants.	Yes. There is no known historic occurrence within counties crossed by the proposed project route.	CNHP 2006; Derby et al. 2006; NatureServe 2006; Kingery 1998; USFWS 2005; KDWP 2005.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Mexican spotted owl	*Strix occidentalis*	FT; CO-SOC	Occurs in moderately closed (>50% canopy cover) and steep (>40% grade) in portions of the Rocky Mountain west. Critical habitat has been designated in Weld County, Colorado. Breeding Season: April 1 through August 31.	None. This species and its required habitat are not found within the proposed project vicinity in Wyoming, Colorado, or Kansas.	Yes.	CNHP 2006; Derby et al. 2006; Kingery 1998; USFWS 2005.
Amphibians						
Wyoming toad	*Bufo baxteri*	FE, WY-NSS1	This species inhabits floodplains, ponds, and small seepage lakes in shortgrass communities of the Laramie Basin. Requires some deep soft soil for burrowing. Breeding occurs in May through August.	Low. An historic observation of this species was documented along the proposed project route in Laramie River Valley in Albany County, WY. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado or Kansas.	No.	USFWS 2005; Cerovski et al. 2004; Keinath et al. 2003.
Fish						
Bonytail	*Gilia elegans*	FE; CO E; USFS-R4S	This rare species occur in larger river channels of Green, Colorado, Yampa, and Gilia Rivers in Colorado River drainage. This species primarily occupies pools and eddies rather than areas with swift current. Spawning typically occurs in June and July.	Low. Critical habitat and historic occurrence in the Green River.	No.	USFWS 1990, 1993; Woodling 1985.
Colorado pikeminnow	*Ptychocheilus lucius*	FE; CO-E	This species occurs in big, deep-water riverine habitats at a variety of depths and velocities over silt, sand, gravel, and boulder substrates. Spawning occurs in run, eddy, and pool habitats in from June through August. Young fish primarily inhabit shallow, backwater areas over silt and sand bottoms.	Low. Critical habitat and known occurrence in the Green River.	No.	FWS 1993; Woodling 1985.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Humpback chub	*Gilia cypha*	FE; CO E; USFS-R4S	This species occupies a variety of riverine habitats including in deep water pools riffles and eddies over silt, sand, boulder, and bedrock substrate. Spawning typically occur after the highest spring flows when water temperatures approach 68°F. Young fish utilize shallow areas in backwaters, eddies, and runs.	Low. Critical habitat and known occurrence in the Green River.	No.	Lee et al. 1980; FWS 1993; Woodling 1985.
Razorback sucker	*Xyrauchen texanus*	FE; CO-E; USFS-R4S	This species is found in backwaters, eddies, pools, and flat-water areas in the main channel. Sand or silt substrates with low water velocity are preferred. Spawning occurs over mixed substrate in the spring with rising water levels and increasing temperatures ranging from 48° to 63°F. Young fish utilize quiet, shallow backwaters and river margins.	Low. Critical habitat and known occurrence in the Green River.	No.	FWS 1993; Woodling 1985.
Pallid sturgeon	*Scaphirhynchus albus*	FE; KS-E	It inhabits bottom areas of large turbid rivers that have strong current and a firm sandy substrate. They also may be found along sandbars and behind wing dikes. Spawning period: April through August.	Low. Known occurrence in the Platte River below the Elk River confluence.	No.	GPNC 2005b.
Arkansas darter	*Etheostoma cragini*	FC; KS-T	Species is found in clear streams with low current, sandy substrates, and abundant aquatic vegetation.	None. Found in tributaries of the Arkansas River	Yes. Although this species occurs in KS, it does not occur in any portion of the project area as proposed (USFWS 12/13/05).	FWS 2005; Woodling 1985
Arkansas river shiner	*Notropis girardi*	FT; KS-E	Species is found in wide, shallow rivers and streams with sandy bottoms.	None. Presently restricted to tributaries of the Arkansas River drainage in Kansas.	Yes.	FWS; KDWP website

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Topeka shiner	*Notropis topeka*	FE; KS-T	This species inhabits pool and run areas in the headwaters of small prairie streams with high water quality and cool temperatures. These streams generally exhibit intermittent flow during summer; however pools are maintained by spring or groundwater percolation. The substrate of these occupied streams consist mainly of clean gravel, however bedrock and clay hardpan overlain by a thin silt layer are not uncommon. Spawning period: late spring and summer.	None. Restricted to a few scattered tributaries to the Missouri and Mississippi rivers and the Flint Hills in Kansas.	Yes.	KDWP 2004; Bessken 1997; Cross 1967; Pflieger 1975; KDWP website.
Plants						
Colorado butterfly plant	*Gaura neomexicana ssp. coloradensis*	FT	This subspecies is a short-lived, perennial herb endemic to moist soils in mesic or wet meadows of floodplain areas in southeastern Wyoming, northcentral Colorado, and extreme western Nebraska. This early to mid-seral stage species occurs primarily in habitats created and maintained by streams active within their floodplains, with vegetation that is relatively open and not overly dense or overgrown. It is also found on sub-irrigated, alluvial soils of drainage bottoms surrounded by mixed grass prairie. Elevation: 5800 to 6400 feet. Flowering period: late June to early October.	High. Laramie County, WY, and Weld County, CO. Regional endemic of the North and South Platte watersheds of Wyoming, northeast Colorado, and adjoining Nebraska. It occupies riparian habitats with at least seasonal water flow. Critical habitat present, surveys required.	No. Critical and Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	Fertig et al. 1994; Keinath et al. 2003; Humphrey 2005b; BLM 2006b; BLM 2002; Derby et al. 2006.
Blowout penstemon	*Penstemon haydenii*	FE	This species occurs on steep, northwest-facing slopes of active, blowout sand dunes with sparse vegetative cover. Flowering period: May through June. Elevation: 6,680-7,440 feet.	Low. Endemic to sand dunes south of Ferris Mountains in Carbon County, WY.	No. If suitable habitat is encountered along pipeline, surveys will be conducted.	Fertig 2000; BLM 2006b; BLM 2002; Derby et al. 2006; Humphrey 2005b.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Ute ladies'tresses	*Spiranthes diluvialis*	FT ; USFS-R4S	This perennial, terrestrial orchid grows in moist to very wet meadows along streams or in abandoned stream meanders that still retain ample ground water. It also occurs near springs, seeps, and lakeshores. Elevational: 4265-5249 feet. Flowering period: late July through August.	Moderate. Moist soils and wet meadows in WY counties, and Morgan and Weld counties, CO	No. Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	BLM 2002; Fertig 2000; Humphrey 2005b.
Western prairie fringed orchid	*Platanthera praeclara*	FT	Occurs in mesic upland tallgrass prairie, wet-mesic tallgrass prairie, and sedge meadows. Also known from prairies and swales in dune complexes that are fed by shallow underground water. Flowering period: June through July	None	Yes.	USDA 2007; Hull-Sieg and Bjugstad 1994.
BLM						
Mammals						
Fringed myotis	*Myotis thysanodes*	BLM-WY; WY-NSS2; USFS-R2S	This species primarily inhabits coniferous forests, woodland-chaparral, and basin-prairie shrublands, but have been documented in spruce-fir habitats. Roost sites include caves, abandoned mines, rock crevices, and buildings. Pups born between May and July.	Low. This species has been documented in the vicinity of the proposed project route in Wyoming. No roosts or maternity colonies are known to occur on the PNG; however, suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; Derby et al. 2006; USFS 2005; WGFD 2005c; Ellison 2003.
Long-eared myotis	*Myotis evotis*	BLM-WY; WY-NSS2	Conifer and deciduous forests, caves and mines. Found in conifer forests, especially ponderosa pine. Forage over water holes and possible openings in conifer forests. Roosts in caves, buildings, and mines. Pups born between May and August.	Moderate. This species has been documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; WGFD 2005c; Ellison 2003.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Spotted bat	*Euderma maculatum*	BLM-WY; WY-NSS2; USFS-R4S	Cliff roosting, generally near perennial water and in a variety of habitats (including desert, shrub-steppe, and evergreen forest). Pups born between May and July.	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	No.	WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; CDOW 2006; CDOW no date; CNHP 2005; WGFD 2005c; Ellison 2003.
Townsend's big-eared bat	*Plecotus townsendii*	BLM-WY; WY-NSS2; CO-SOC; KS-SINC; USFS-R4S	This species inhabits dry coniferous forests, juniper woodlands, deciduous forests, basins, desert shrublands, and grasslands. Roost sites typically include caves and abandoned mines, but rock outcrops and buildings also will be used. Pups born between May and July.	Low. This species has been documented in the vicinity of the proposed project route in Wyoming. No known occurrence in the vicinity of the proposed project route in Colorado or Kansas; however, suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; USFS 2005; CDOW 2006; CDOW no date; Derby et al. 2006; KDWP 2005; KSNHD 2005; WGFD 2005c; Ellison 2003.
Pygmy rabbit	*Brachylagus idahoensis*	BLM –WY	Basin prairie and riparian shrub. Two key habitat components include relatively dense/tall sagebrush compared to the surrounding landscape and deep soils. Breeding period extends from spring to early summer.	Moderate. This species has been documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Cervoski et al. 2004; Derby et al. 2006; NatureServe 2006.
Swift fox	*Vulpes velox*	BLM-WY CO-SOC; USFS-R2S;	This species is found in short-, mid-, and mixed grass prairies with gently rolling hills. Den sites are typically located on flat areas or along slopes or ridges that provide a good view. Dens are typically on sites dominated by blue grama or buffalo grass. Young are born in late March, April, or early May.	Moderate. This species has been documented along the proposed project route in Colorado, and in the vicinity of the proposed project route in Wyoming. This species is widespread on the PNG.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CDOW no date, CDOW 2006. CNHP 2006; Derby et al. 2006; USFS 2005.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
White-tailed prairie dog	*Cynomys leucurus*	BLM-WY	This species occupies basin-prairie and mountain-foothill shrublands, sagebrush-grasslands, barren and overgrazed areas, and agricultural areas. Young are born between March and mid-June.	Moderate. This species has been documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; USFS 2005; Derby et al. 2006; NatureServe 2006.
Black-tailed prairie dog	*Cynomys ludovicianus*	BLM-WY; USFS-R2S; CO-SOC	This species Inhabits short-grass or mixed grasslands that contain suitable upland soil types for constructing burrow systems. Young are born between April and mid-June.	High. This species has been documented along the proposed project route in Colorado. Numerous active colonies have been documented on the PNG.	No.	CNHP 2006; USFS 2005; CDOW 2005; CDOW no date; Derby et al. 2006; USFWS 2005; NatureServe 2006.
Idaho pocket gopher	*Thomomys idahoensis*	BLM-WY	Shallow stony soils. Young born between March and mid-June.	Low. No known occurrence of this species in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; NatureServe 2006.
Wyoming pocket gopher	*Thomomys clusius*	BLM-WY	Meadows with loose soil. Dry upland areas (ridgetops, etc.) characterized by loose, gravel-like soil. Endemic to Wyoming, they are often observed near Bidger's Pass. Young born between March and Mid-June.	Moderate. This species has been documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Birds						
Burrowing owl	*Athene cunicularia*	BLM-WY USFS-R2S;; CO-T	This species nests in non-riparian habitats including abandoned burrows of prairie dogs, ground squirrels, foxes, and badgers in grassland, open shrubland, and woodland communities. Wyoming Breeding Season: February 1 through July 31 Colorado Breeding Season: April 1 through October 31.	High. This species has been documented along the proposed project route in Wyoming and Colorado. This species has been documented on all Breeding Bird Survey routes within the PNG.	No.	BLM 2002; BLM 2006b; WYNND 2005; CDOW 2005; CNHP 2006; USFS 2005; Derby et al 2006; Kingery 1998; Craig 2002; BLM 1990.
Mountain plover	*Charadrius montanus*	BLM-WY; USFS-R2S; USFS-R4S; CO-SOC; KS-SINC	Habitat for this species includes shortgrass prairie where grazing is intensive, or in areas of fallow or burned fields, dry mudflats, or active prairie dog colonies. Areas of flat bare ground (>30%) appears to be the most prominent characteristic of suitable breeding habitat. Breeding season: March 15 through July 31.	High. This species was documented along the proposed project route in Wyoming and Colorado. No known occurrences in the vicinity of the proposed project route in Kansas; however suitable habitat is present. Occurrence surveys conducted on the PNG in the mid 1990's show widespread breeding use of the PNG.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; CDOW 2005; Derby et al. 2006; USFS 2005; NatureServe 2006; KDWP 2005; Kingery 1998; KSNHD 2005.
Brewer's sparrow	*Spizella breweri*	BLM-WY; USFS-R2S	Sagebrush foothills and medium-height sagebrush in basins. Also, mountain mahogany hills. Breeding Season: May 15 through July 31.	High. This species was documented along the proposed project route in Wyoming. This species has been documented on all Breeding Bird Survey routes within the PNG.	No.	BLM 2006a; BLM 2006b; BLM 2002; WYNDD 2005; USFS 2005; Derby et al. 2006; Kingery 1998.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Ferruginous hawk	*Buteo regalis*	BLM-WY; CO-SOC; USFS-R2S; KS-SINC	This species occurs in open semi-arid habitats including basin-prairie shrubland, mountain-foothills, badlands, and grassland. Nest sites include trees, ledges, and rock outcrops in sagebrush valleys and rolling grassland habitat. Wyoming Breeding Season: February 1 through July 31. Colorado Breeding Season: February 15 through July 15.	High. This species was documented along the proposed project route in Wyoming and Colorado. No known occurrences in the vicinity of the proposed project route in Kansas; however suitable habitat is present. There is known nesting and occurrence on the PNG.	No.	BLM 2002; BLM 2006a; BLM 2006b; USFS 2005; WGFD 2005; CDOW 2005; CNHP 2006; WYNDD 2005; Derby et al. 2006; KDWP 2005; Kingery 1998; KSNHD 2005; Craig 2002; BLM 1990.
Loggerhead shrike	*Lanius ludovicianus*	BLM-WY; USFS-R2S	This species typically inhabits open riparian areas, agricultural areas, grasslands, and shrublands (especially semidesert shrublands). Nest sites usually occur in isolated trees or large shrubs. Breeding Season: April 1 through June 30.	High. This species was documented along the proposed project route in Wyoming. This species has been documented on the PNG on all Breeding Bird Survey routes.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; CDOW 2006; Derby et al. 2006; USFS 2005; NatureServe 2006; Kingery 1998; Yosev, 1996.
Long-billed curlew	*Numenius americanus*	BLM-WY; CO-SOC; USFS-R2S; KS-SINC	Grasslands, plains, foothills, wet meadows. Breeding Season: March 15 through August 1.	Moderate. This species was documented along the proposed project route in Wyoming and Colorado. No known occurrences in the vicinity of the proposed project route in Kansas; however suitable habitat is present. Incidental observations on the PNG.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; CDOW 2006; Derby et al. 2006; USFS 2005; NatureServe 2006; KDWP 2005; Kingery 1998; KSNHD 2005.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Northern goshawk	*Accipiter gentiles*	BLM-WY; USFS-R4S	This species occupies mature, closed-canopied coniferous and aspen forests habitats. This species nests open older-aged class coniferous forests and aspen stands. Breeding Season: April 15 through August 31.	Moderate. This species was documented within the vicinity of the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; NatureServe 2006.
Golden eagle	*Aquila chrysaetos*	BLM-WY; KS-SINC	This species occurs in a variety of habitats including grassland, pinyon-juniper woodland, coniferous and deciduous forests, shrubland, and rock outcrop. Nest sites are usually on located on cliffs and occasionally in large trees in open habitats. Wyoming Breeding Season: February 1 through July 15. Colorado Breeding Season: December 1 through July 15.	High. This species was documented along the proposed project route in Wyoming. No known occurrences in the vicinity of the proposed project route in Kansas; however suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; NatureServe 2006; KDWP 2005; KSNHD 2005; BLM 1990; Craig 2002.
Peregrine falcon	*Falco peregrinus*	BLM-WY; USFS-R4S; KS-E	This species is found over a wide variety of habitats, but are generally located near open water or marshes that support high concentration of shorebirds or waterfowl. Nest sites occur on tall steep-walled cliffs, bridges, or buildings. Preferred foraging habitat includes lakes, rivers, and wet meadows. Breeding season: February 1 through July 31.	Moderate. This species was documented along the proposed project route in Wyoming. No known occurrence in the vicinity of the proposed project route in Kansas and Colorado; however, suitable breeding habitat is present	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; CNHP 2006; Derby et al. 2006; USFS 2005; KDWP 2005; Kingery 1998; BLM 1990.
Sage sparrow	*Amphispiza belli*	BLM-WY	Sagebrush, basin prairie shrub, mountain foothill shrub. Breeding Season: April 1 through July 31.	Moderate. This species was documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Martin et al 1998.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Sage thrasher	*Oreoscoptes montanus*	BLM-WY	Sagebrush, basin prairie shrub, mountain foothill shrub and greasewood. Breeding Season: April 1 through August 31.	Moderate. This species was documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Reynolds 1999.
Trumpeter swan	*Cygnus buccinator*	BLM-WY; USFS-R4S; WY-NSS2	Lakes, ponds, rivers. Breeding Season: This species does not breed within or near the proposed project route.	Low. Limited to migrant habitat use.	No. Potential occurrence limited to migrant individuals.	BLM 2006c. Mitchell 1994; WGFD 2005d.
White-faced ibis	*Plegadis chihi*	BLM-WY	They occur in wet meadows, marsh edges, and reservoir shorelines. Breeding Season: May 1-August 31	Moderate. This species has been documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; NatureServe 2006.
Greater sage-grouse	*Centrocercus urophasianus*	BLM-WY; USFS-R4S; CO-SOC; WY-NSS2	The sage grouse is a sagebrush obligate species. Lek sites are generally located in open areas such as broad ridges, grassy areas, and disturbed sites, adjacent to suitable nesting habitat. Nesting occurs within sagebrush stands with adequate height and canopy cover, and food source. Breeding Season: February 1 through July 31.	High. This species has been documented in the vicinity of the proposed project route. 18 leks have been documented within one mile of the proposed project route. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; WGFD 2005; CNHP 2006; CDOW 2006; Derby et al. 2006; KDWP 2005; Kingery 1998; WGFD 2005d; BLM 1990.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Columbian sharp-tailed grouse	*Tympanuchus phasianellus columbianus*	BLM-WY	Native bunchgrass and shrub-steppe communities. In western Idaho, preferred big sagebrush habitats with moderate vegetative cover, high plant species diversity, and high structural diversity; in general selected vegetative communities that were least modified by livestock grazing. Deciduous shrubs are critical for winter food and escape cover. Bunchgrasses and perennial forbs are important components of nesting and brood-rearing habitat. Breeding Season: March 1 through July 31.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Yes. The proposed project route occurs outside of the known geographic range for this species.	BLM 2002; NatureServe 2006; WYNDD 2005, WGFD 2006a; WGFD 2006b.
Baird's sparrow	*Ammodramus bairdii*	BLM-WY	Ungrazed or lightly grazed mixed-grass prairie, wet meadows, local pockets of tallgrass prairie, and some disturbed habitats. Prairie with scattered low bushes and matted vegetation. Breeding Season: This species is not known to breed within or near the proposed project route.	Low. No known occurrence of this species occurs within the vicinity of the proposed project route in Wyoming; however suitable habitat is present. Isolated breeding records of this species in Laramie County, Wyoming.	Yes. Occurrence would be limited to accidental migrants.	BLM 2002; Derby et al. 2006; Keinath 2003; NatureServe 2006; Green 2002; WYNDD 2005, .
Reptiles						
Midget faded rattlesnake	*Crotalus viridis concolor*	BLM-WY; CO-SOC	This species inhabits rock outcrops in the sagebrush communities. Live young are born in late summer or early fall	Moderate. This species has been documented along the proposed project route in Wyoming. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Cerovski et al. 2004; Derby et al. 2006; CNHP 2006; CDOW 2006; CDOW no date; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Amphibians						
Western boreal toad	*Bufo boreas boreas*	CO-E; BLM-WY; WY-NSS2	This species typically occupies damp conditions in the vicinity of marshes, wet meadows, streams, beaver ponds, kettle ponds, and lakes. Breeds in still to slow moving waters. Breeding occurs in May through August depending on elevation.	Moderate. This species has been documented along the proposed project route in Wyoming. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present. This species and its required habitat are not found within the proposed project vicinity in Kansas.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; USFWS 2005; USFS 2005; CDOW 2006; CDOW no date; Keinath et al. 2003.
Northern leopard frog	*Rana pipiens*	BLM-WY; CO-SOC.	This species inhabits marshes, ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches. Breeding occurs in March through mid-September.	High. This species has been documented along the proposed project route in Wyoming. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; USFS 2005; CDOW 2006; CDOW no date.
Great Basin spadefoot toad	*Spea intermontana*	BLM-WY	This species inhabits pinon-juniper woodlands, sagebrush, and semi-desert shrubland. This species uses both permanent and temporary water sources for breeding. Breeding occurs in May through July.	High. This species has been documented along the proposed project route in Wyoming.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004.
Spotted frog	*Rana pretiosa*	BLM-WY	Ponds, sloughs, small streams. Breeding occurs between March and May, as winter thaw permits.	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	No.	BLM 2002; BLM 2006a; BLM 2006b; WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Fish						
Bluehead sucker	*Catostomus discobolus*	BLM-WY; WYGF-NSS1	This species is found in a variety of fluvial habitats, ranging from cold, clear trout streams to warm, turbid streams, with moderate-to-fast velocity. This species prefers areas with riffles over a rocky substrate. Spawning occurs in late spring or early summer.	High. Known occurrence in Hams Fork River, Blacks Fork River, and Green River in Wyoming.	No.	Baxter and Simon 1970; Lee et al. 1980; Woodling 1985; WYNDD 2005.
Flannelmouth sucker	*Catostomus latipinnis*	BLM-WY; WYGF-NSS1	This species inhabits large streams and rivers in all habitat types including riffles, runs, pools, eddies, and backwaters. This species also enters mouths of small tributary streams. Spawning occurs in spring and early summer on riffles with coarse gravel bottoms.	High. Known occurrence in Hams Fork River, Blacks Fork River, Green River, and Bitter Creek in Wyoming.	No.	FWS 1993; Woodling 1985.
Leatherside chub	*Gila copei*	BLM –WY; WYGF-NSS1	Found in pools of clear, cool streams of the Bonneville Basin and the Upper Snake River drainage, including the Bear River (Uinta County). Spawning occurs in late summer.	Moderate. Potential occurrence in the Green River and Bear Creek in Wyoming.	No.	WYNDD 2005; Baxter and Simon (1970).
Roundtail chub	*Gila robusta*	BLM-WY; WY-NSS1	This species inhabits pools, eddies, runs, and ruffles in moderate to large rivers. Spawns in spring and early summer.	Moderate. Known occurrence in Hams Fork and Blacks Fork rivers.	No.	Karp and Tyus 1990; Woodling 1985; WYNDD 2005.
Colorado cutthroat trout	*Oncorhynchus clarki pleuriticus*	BLM-WY; USFS-R4S	Clear mountain streams within the Colorado River Basin (NRG SSP).	None.	Yes. Surveys not required by NRG SSP.	WYNDD 2005.
Bonneville cutthroat trout	*Oncorhynchus clarki utah*	BLM-WY	Clear mountain streams within the Bear River Basin (NRG SSP).	None.	Yes. Surveys not required by NRG SSP.	WYNDD 2005.
Fine-spotted Snake River cutthroat trout	*Oncorhynchus clarki spp.*	BLM-WY	Clear fast water within the Snake River Basin (NRG SSP).	None.	Yes. Surveys not required by NRG SSP.	WYNDD 2005.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Plants						
Laramie columbine	*Aquilegia laramiensis*	BLM -WY	Crevices of granite boulders and cliffs. Elevation: 6,400-8,000 feet elevation. Flowering period: June through August.	Moderate.	No. Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	BLM 2006b; BLM 2002.
Nelson's milkvetch	*Astragalus nelsonianus*	BLM-WY	It occupies alkaline, often seleniferous, clay flats, shale bluffs and gullies, pebbly slopes, and volcanic cinders. Known occurrences are found primarily in sparsely vegetated sagebrush and cushion plant communities. Elevation: 5200-7600 feet. Flowering Period: Late May/August	High. Potential habitat present. Known from basins and foothills of Carbon, Natrona, and Sweetwater counties, Wyoming, with one population in Colorado. This species has been documented within the project area.	No. Known occurrences and suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	Spackman et al. 1997; BLM 2002; BLM 2006b; Keinath et al. 2003.
Trelease's racemose milkvetch	*Astragalus racemosus var. treleasei*	BLM-WY	Occurs mainly on outwash flats and fluted Badlands slopes derived from shale. Elevation: 6,500-8,200 feet Flowering period: Mid-June through July	Moderate.	No. Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	Derby et al. 2006; BLM 2002.
Cedar Rim thistle	*Cirsium aridum*	BLM -WY	Barren, chalky hills, gravelly slopes, and fine textured, sandy-shaley draws. Elevation: 6,700 – 7,200 feet Flowering period: June through August.	Moderate. Species endemic to Wind River and Green River Basins, Fremont and Sublette Cos., WY. One area of potential habitat within project area based on WYNND model.	No. Suitable habitat present within the project area. Surveys will be conducted for this species.	BLM 2002; BLM 2006b; Derby et al. 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Ownbey's thistle	*Cirsium ownbeyi*	BLM-WY	Sparsely vegetated shaley slopes in juniper, sagebrush, and riparian communities. Elevation: 5500-6200 feet. Flowering period June-August/July through September.	Moderate.	No. Suitable habitat for this species is present within the project area. Known occurrence adjacent to the project area. Surveys will be conducted for this species.	BLM 2002; Derby et al. 2006; Keinath et al. 2003
Large-fruited bladderpod	*Lesquerella macrocarpa*	BLM-WY	Restricted to the Great Divide and Green River basins of Wyoming. It occurs in sparsely vegetated (*Atriplex gardneri-Elymus elymoides*) communities on barren, fine-textured clays and shales, often with gypsum or bentonite, on low hills knolls, and colluvial fans. Elevation: 7200-7700 feet. Flowering Period: Mid May through July	High. This species has been documented within the project area.	No. Known occurrences and suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	BLM 2002; Keinath et al. 2003; Derby et al. 2006.
Prostrate bladderpod	*Lesquerella prostrata*	BLM-WY	Slopes and rims of whitish to reddish or gray limey clays and soft sandstones with a surface layer of fine gravel, or else on limestone. Elevation: 7200-7700 feet. Flowering period: Mid April-late June/early June through early July.	Moderate.	No. Suitable habitat is present within the project area.	BLM 2002; Derby et al. 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Gibbens' beardtongue	*Penstemon gibbensii*	BLM-WY	This species is found in sparsely vegetated shale or sandy-clay slopes of the Brown's Park Formation. Associated vegetation includes piñon-juniper woodland, sagebrush, or salt desert shrub communities. Elevation: 5,500-7,700 feet. Flowering period: June through September.	Moderate. This species could occur within potentially suitable habitat along the project route in Sweetwater and Carbon Counties, Wyoming.	No. Suitable habitat present within the project area. Surveys will be conducted for this species.	BLM 2002; Fertig 1994; Derby et al. 2006; BLM 2006b; Spackman et al. 1997.
Tufted twinpod	*Physaria condensata*	BLM-WY	Sparsely-vegetated shale slopes and ridges. Elevation: 6500-7000 feet. Flowering period: May-June/June through July.	High. Suitable habitat present.	No. Suitable habitat for this species is present within the project area. Known occurrence adjacent to the project area. Surveys will be conducted for this species.	Keinath et al. 2003, Derby et al. 2006; BLM 2002.
Persistent sepal yellowcress	*Rorippa calycina*	BLM -WY	Riverbanks and shorelines usually on sandy soils near high- water lines. Elevation: 3660-6800 feet. Flowering period: May through August.	High. Potential habitat present. This species has been documented within the project area.	No. Known occurrences and suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	BLM 2006b; BLM 2002; Keinath et al. 2003, Derby et al. 2006.
Laramie false sagebrush	*Sphaeromeria symplex*	BLM -WY	Cushion plant communities on rocky limestone ridges and gentle slopes. Elevation: 7,500 – 8,600 feet Flowering period: May through August.	Moderate.	No. Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	BLM 2006b; BLM 2002; Keinath et al. 2003; Derby et al. 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Green River greenthread	*Thelesperma caespitosum*	BLM -WY; USFS- R4S	White shale slopes and ridges of Green River Formation. Elevation: 6300 feet. Flowering period: May through June	High. This species has been documented within the project corridor.	No. Suitable habitat present within the project area. Surveys will be conducted for this species.	BLM 2002; BLM 2006a; WYNDD 2005; Derby et al. 2006; Goodrich 2006.
Meadow pussytoes	*Antennaria arcuata*	BLM-WY	Moist meadows, seeps, or springs surrounded by sagebrush grassland. Elevation: 4950-7900 feet. Flowering period July through September.	None.	Yes. Known occurrences in WY are in Sweetwater River Valley, southern Wind River Range, and northern Green River Basin which are outside of the project area.	BLM 2002; Derby et al. 2006.
Mystery wormwood	*Artemisia biennis* var. *diffusa*	BLM-WY	Clay flats and playas. Elevation: 6500 feet. Flowering period: August-September.	None.	Yes. BLM (RS) direction: No surveys required.	Derby et al. 2006; BLM 2002.
Starveling milkvetch	*Astragalus jejunus* var. *jejunus*	BLM-WY	Dry, barren ridges and bluffs of shale, sandstone, clay, or cobblestones. Elevation: 6000-7100 feet. Flowering period: May through July.	None.	Yes. BLM (RS) direction: no surveys required for this species.	Derby et al. 2006; BLM 2002.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Precocious milkvetch	*Astragalus proimanthus*	BLM-WY	Cushion plant communities on rocky, clay soils mixed with shale on summits and slopes of white shale hills. Elevation: 6800-7200 feet. Flowering period: May through June/June through July.	None.	Yes. Species is narrowly endemic to the bluffs of Henry's Fork River and vicinity of McKinnon in the southern Green River Basin (an area comprising <320 acres). This area is outside of the project area.	Derby et al. 2006; BLM 2002.
Small rockcress	*Boechera pusilla*	BLM-WY	Cracks and crevices in sparsely vegetated granite-pegmatite outcrops surrounded by sagebrush grassland. Elevation: 8000-8100 feet. Flowering period: May through June/June through July.	None.	Yes. Endemic to the south Wind River Range, Fremont Co., WY (outside project area).	Derby et al. 2006; BLM 2002.
Wyoming Tansymustard	*Descurainia torulosa*	BLM-WY	Sparsely vegetated sandy slopes at base of cliffs of volcanic breccia or sandstone. Elevation: 8300-10,000 feet. Flowering period: July through September.	None.	Yes. Elevational range of this species exceeds those present within the project area.	Keinath et al. 2003; BLM 2002; Derby et al. 2006.
Weber's scarlet-gilia	*Ipomopsis aggregate ssp. Weberi*	BLM-WY; FS-R2S	Openings in coniferous forests and scrub oak woodlands. Elevation: 8,500-9,500 feet. Flowering period: June through August	None.	Yes. Elevational range of this species exceeds those present within the project area.	Keinath et al. 2003; BLM 2002; Derby et al. 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Entire-leaved peppergrass	*Lepidium integrifolium* var. *integrifolium*	BLM-WY	Wet meadows associated with low-elevation riparian habitat of foothills and valley bottoms, at margins where salt accumulates. Elevation: 6170-6790 feet. Flowering period: Mid June-early July/late June through August.	None.	Yes. In WY, known only from the southern Overthrust Belt in Lincoln and Uinta counties, in the Bear River watershed (Outside of the project area)	Derby et al. 2006; BLM 2002.
Western bladderpod	*Lesquerella multiceps*	BLM-WY	Dry gravelly limestone ridges and slopes with thin pockets of soil. Elevation: 8600 feet. Flowering period: May through July/June through early August.	None.	Yes. In Wyoming, known only from the Overthrust Belt in Lincoln County from montane to subalpine elevations which is outside of the project area.	Derby et al. 2006; BLM 2002.
Stemless beardtongue	*Penstemon acaulis* var. *acaulis*	BLM-WY; USFS-R4S	Cushion plant communities on semi-barren rocky ridges and slopes. Elevation: 5900-7200 feet. Flowering period: Mid May-late June/mid June-mid July.	None.	Yes. Narrow endemic in southwestern Sweetwater County, known from only 3 occurrences in the vicinity of McKinnon, WY (outside project area).	Fertig 1994; BLM 2002; Spackman et al. 1997; Derby et al. 2006.
Opal phlox	*Phlox opalensis*	BLM-WY	Clay slopes and ridges. Elevation: 6700-6900 feet. Flowering period: May through June.	None.	Yes. BLM (RS) direction: No surveys required for this species.	Derby et al. 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Beaver Rim phlox	*Phlox pungens*	BLY-WY	Sparsely vegetated slopes on sandstone, siltstone, or limestone substrates. Elevation: 6000-7400 feet. Flowering period: May through June.	None.	Yes. This species is endemic to Wind River Basin (Freemont Co., WY) which is outside of the project area	Derby et al. 2006; BLM 2002.
Dorn's twinpod	*Physaria dornii*	BLM-WY	Dry, calcareous-shaley slopes and ridges with mountain mahogany and rabbitbrush. Elevation: 6500-7200 feet. Flowering period: May-June/June-July.	None.	Yes. Endemic to Rock Creek Ridge area (outside project area).	Keinath et al. 2003; BLM 2002; Derby et al. 2006.
Uinta greenthread	*Thlelsperma pubescens*	BLM-WY	Sparsely vegetated benches and ridges on coarse, cobbly soils of Bishop Conglomerate. Elevation: 8100-8900 feet. Flowering period: July through August.	None.	Yes. BLM (RS) direction: No surveys required for this species.	Derby et al. 2006; BLM 2002.
Cedar Mountain Easter Daisy	*Townsendia microcephala*	BLM-WY	Rocky slopes of Bishop Conglomerate. Elevation: 8500 feet. Flowering period: May through July.	None.	Yes. Elevational range of this species exceeds those present within the project area.	Derby et al. 2006; BLM 2002.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
USFS						
Mammals						
North American wolverine	*Gulo gulo*	USFS-R4S	This species is found in tundra, boreal forests, and coniferous forests of western mountains. Habitat includes large, sparsely inhabited areas with an adequate prey base. Young born between January and April.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Yes. The proposed project route does not occur within the geographic range of this species.	NatureServe 2006; USFS 2006.
Canada lynx	*Lynx Canadensis*	USFS R4S; WY-NSS1	Northern coniferous forests are the preferred habitat of the lynx. Uneven-aged stands with relatively open canopies and well-developed understories are ideal. Young born between May and July.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming, Colorado, or Kansas. The USFWS did not identify this species for analysis.	Yes. The proposed project route does not occur within the geographic range of this species.	NatureServe 2006; Cerovski et al. 2004; WGFD 2005c; NatureServe 2006.
Birds						
Cassin's sparrow	*Aimophila cassini*	USFS-R2S	Open grassland and short-grass plains with scattered bushes or shrubs, sagebrush, mesquite or yucca. May nest in grasses, in patches of ground cactus, at the base of shrubs, or in the lower branches of bushes or cacti. Breeding Season: May 1 through July 15	Moderate. This species has been documented on all Breeding Bird Survey routes within the PNG.	No.	Derby et al 2006; USFS 2005; CNHP 2006; Dunning et al. 1999; Kingery 1998.
McCown's longspur	*Calcarius mccownii*	USFS-R2S	Sparsely vegetated shortgrass prairie. Within Colorado, this species primarily breeds in northern Weld and northeastern Larimer counties. Breeding Season: March 15 through October 15	High. This species has been documented on all Breeding Bird Survey and along the proposed project route routes within the PNG.	No.	NatureServe 2006; USFS 2005; CNHP 2006; With 1944; Derby et al 2006; Kingery 1998.
Chestnut-collard longspur	*Calcarius ornatus*	USFS-R2S	Medium height grass, especially meadows around pools. Breeding Season: May 1 through August 15	Moderate. This species has been documented on the PNG on four of the five Breeding Bird Survey routes	No.	CNHP 2006; USFS 2005; Derby et al. 2006; Kingery 1998.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Northern harrier	*Circus cyaneus*	USFS-R2S	This species inhabits open fields, native and non-native grasslands, agricultural lands, and marshes. Nest sites occur on the dry or elevated ground in a variety of habitats from grasslands to marshes, with abundant ground cover such as tall reeds, cattails, shrubs, and grasses. For breeding and hunting in these habitats, the birds select areas with dense cover (e.g., swales, draws, fencerows, and canal banks). Breeding season February 1 through July 31.	Low. Common year- round residents on the PNG. Not known to nest on the PNG.	No.	CNHP 2006; CDOW 2006; Derby et al. 2006; USFS 2005; NatureServe 2006; Kingery 1998. .
Grasshopper sparrow	*Ammodramus savannarum*	USFS-R2S	"Mid-grass" prairie, tall-grass prairie, hay meadows, and open savanna. Known to nest throughout the eastern plains of Colorado with highest concentrations in Phillips, Sedgewick, Logan, Washington, and northern Yuma counties; along the Arkansas River in Kiowa, Prowers, and Bent counties; and on the Comanche National Grassland. Breeding Season: April 15 through September 15.	Moderate. Fairly common summer resident on the PNG. This species has been documented on all Breeding Bird Survey routes on the PNG.	No.	CNHP 2006; Derby et al. 2006; USFS 2005; Kingery 1998.
Black tern	*Chlidonias niger*	USFS-R2S; KS-SINC.	Ponds, lakes, reservoirs, and marshes. The Kansas status and range of the Black Tern is statewide during migration; nesting has been confirmed at Cheyenne Bottoms and Quivira National Wildlife Refuges. Breeding Season: June 1 through August 15.	Moderate. Known to breed in isolated patches in Colorado. Fairly common summer resident with limited nesting habitat on the PNG. No known occurrence in the vicinity of the proposed project route in Kansas; however, potential breeding habitat is present.	No.	USFS 2005; CNHP 2006; Derby et al 2006; KDWP 2005; KSNHD 2005; Kingery 1998.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Boreal owl	*Aegolius funereus*	USFS-R4S			Yes.	USFS 2006.
Flammulated owl	*Otus flammeoulus*	USFS-R4S	Ponderosa pine or Douglas fir forests in the Ashley National Forest. Stream pediment, stream canyon, glacial canyon, limestone plateau, and limestone hill landtype associations make up nearly all the suitable habitat for this species in the Ashley National Forest. Breeding Season: May 1 through October 1.	None. This species and its required habitat are not found within the proposed project vicinity in Wyoming.	Yes.	USFS 2006; NatureServe 2006.
Great gray owl	*Strix nebulosa*	USFS-R4S	Conifer or conifer/hardwood forest. Occurs in mixed conifer on the Ashley National Forest. Uses older stick nests constructed by other species. Breeding Season: May 1 through August 15.	None. This species and its required habitat are not found within the proposed project vicinity in Wyoming.	Yes	USFS 2006; NatureServe 2006.
Three-toed woodpecker	*Picoides tridactylus*	USFS-R4S	Coniferous or mixed confer forests. Occurs in Douglas fir, spruce/fir, and mixed conifer on the Ashley National Forest. Breeding Season: May1 through July 31	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Yes. The proposed project route does not occur within the geographic range of this species.	USFS 2006; Natureserve 2006.
Amphibians						
Columbia spotted frog	*Rana luteiuentris*	USFS-R4S	This species inhabitas ponds, sloughs, and small streams in the foothills and montane zones. Deposits eggs in late May through June.	None.	Yes. This is not known to occur in the Green River portion of the Ashley NF.	Cervoski et al. 2004

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Plants						
Dwarf milkweed	*Asclepias uncialis*	USFS-R2S	Grassy hills, escarpments, and mesas in semi-arid shortgrass prairie. Elevation: 4000-6500 feet Flowering period: Late April-May/ June-early July.	Moderate. Surveys required by USFS. No surveys required by the BLM.	No. Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	NRG 2006; Derby et al. 2006.
Prairie moonwort	*Botrychium campestre*	USFS-R2S	Dry, gravelly hillsides, often occurring with little bluestem. Elevation: 3700-10,800 feet in Colorado. Flowering period: Leaves appear in early spring, spores produced from spring-July.	Moderate	No. Suitable habitat present on PNG.	NRG 2006; Derby et al. 2006.
Wyoming feverfew	*Parthenium alpinum*	Former USFS-R2S	This species is a mat-forming perennial herb that occurs along stony ridges and low hills, often dominated by cushion plant communities. Elevation: 5400-5800 feet. Flowering period: May.	High. It is known in Colorado from occurrences in Weld County.	No. Suitable habitat for this species is present within the project area. Surveys will be conducted for this species.	Derby et al. 2006.
Graham columbine	*Aquilegia grahamii*	USFS- R4S	Sandy drip lines in hanging gardens of shaded canyons in Weber sandstone. Elevation: 7600 feet. Flowering period: June through July.	None.	Yes. No suitable habitat found within the project area.	Atwood et al. 1991.
Petiolate wormwood	*Artemisia campestris petiolata*	USFS- R4S	Ponderosa pine-lodgepole pine-*Arctostaphylos* communities. Elevation: 8900 feet. Flowering period: July through August.	None.	Yes. Elevational range of this species exceeds those present within the project area.	Atwood et al. 1991.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Dainty moonwort	*Botrychium crenulatum*	USFS- R4S	This species is found in marshy areas and adjacent to springs. Elevation: 8000 feet. Fronds mature June through July.	None.	Yes. Known from Cache, Juab, Summit, and Wasatch counties in Utah (outside the project area).	Atwood et al. 1991.
Slender moonwort	*Botrychium lineare*	USFS- R4S	This species is found in meadows, woodlands, and on shelves on limestone cliffs. Elevation: 4900-6600 feet. Spores mature late June through July.	None.	Yes. Known from Salt Lake County in Utah (outside the project area).	Atwood et al. 1991.
sandhill goosefoot	*Chenopodium cycloides*	USFS-R2S	Sandy soils on dunes and stabilized sand in blowouts. Elevation: 4000-5500 feet in Colorado. Flowering period: July through August/August through September.	None.	Yes. No suitable habitat found within the project area.	NRG 2006; Derby et al. 2006.
Brownie ladyslipper	*Cypripedium fasciculatum*	USFS- R4S	This species is found growing in the duff layer of spruce-fir and lodgepole pine forests. Elevation: 8000-9000 feet. Flowering period: June through July.	None.	Yes. Elevational range of this species exceeds those present within the project area.	Atwood et al. 1991.
Untermann daisy	*Erigeron untermannii*	USFS- R4S	This species is found in P-J, mountain mahogany, limber and bristlecone pine, and sagebrush communities on calcareous shales and sandstones. Elevation: 7000-9400 feet. Flowering period: May through June.	None.	Yes. Endemic to Utah in Duchesne County (outside the project area).	Atwood et al. 1991.
Goodrich stickleaf	*Mentzelia goodrichii*	USFS- R4S	This species is found on steep, white, marly calciferous shales of the Green River Formation. Elevation: 8100-8800 feet. Flowering period: July through August.	None.	Yes. Endemic to southern Duchesne County, Utah (outside the project area).	Atwood et al. 1991.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Arctic poppy	*Papaver radicatum* var. *pygmaeum*	USFS- R4S	This species is found in rock outcrops in alpine tundra communities. Elevation: 11,100-12,800 feet. Flowering period: July through August.	None.	Yes. Elevational range of this species exceeds those present within the project area.	Atwood et al. 1991.
State Status						
Mammals						
Northern pocket gopher	*Thomomys talpoides*	CO-SOC	Found in different habitat types including agricultural and pasture lands, semidesert shrublands, and grasslands at lower elevations upwards into alpine tundra. This species is common in a variety of habitats above about 1,525 m (5,000 ft) in elevation. Young born between March and mid-June.	Low. No known occurrence of this species within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	No.	CNHP 2006; CDOW 2006; CDOW no date; Derby et al. 2006; NatureServe 2006.
Franklin's ground squirrel	*Spermophilus franklinii*	KS-SINC	Associated with the zone where tallgrass prairie and deciduous forest come into contact. It prefers the sheltered cover of dense grasses, weedy fields and wastelands, and shrubby forest edges. Young are born in May or June.	Low. No known occurrence within the vicinity of the proposed project route in Kansas; however, limited suitable habitat is present.	No.	KDWP 2005; KSNHD 2005; NatureServe 2006.
Long-legged myotis	*Myotis volans*	WY-NSS2	Found in conifer and deciduous forests. Roosts include tree and rock crevices, snags and buildings. Pups born between May and August.	Moderate. This species has been documented along the proposed project route in Wyoming.	No.	WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; WGFD 2005c; Ellison 2003.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Pallid bat	*Antrozous pallidus*	WY-NSS2; KS-SINC	Generally found in desert and grassland habitats. Roosts in small crevices in buildings, rocks and other open places. Pups born between May and July.	Moderate. This species has been documented along the proposed project route in Wyoming. This species and its required habitat are not found within the proposed project vicinity in Kansas.	No.	WYNDD 2005; Derby et al. 2006; Cerovski et al. 2004; KDWP 2005; KSNHD 2005; WGFD 2005c; KSNHD 2005; Ellison 2003.
Eastern spotted skunk	*Spilogale putorius*	KS-T w/CH	This species prefer forest edge and upland grassland prairie, especially if rock outcrops and shrubs are present. Their dens are located below ground in grassy banks, rocky crevices or along fence rows, as well as above ground in hay stacks, woodpiles, brushy heaps, hollow logs, and abandoned buildings or outbuildings. Young are born in May or June.	Moderate. The species is known to occur along the proposed project route in Kansas. Designated critical habitat occurs in three counties crossed by the proposed route.	No.	KDWP 2005; KSNHD 2005; KDWP 2006.
Northern myotis	*Myotis septentrionalis*	WY-NSS2	The northern myotis primarily inhabits forested regions. In Wyoming, it can be found in wooded riparian zones in badlands and prairies to higher elevation conifer and deciduous woodlands. During summer, it roosts in crevices and cavities of trees, under loose bark, and occasionally in buildings. During winter, it usually hibernates in caves and abandoned mines. This species does not reproduce within or near the proposed project route.	None. This species and its required habitat are not found within the proposed project vicinity in Wyoming.	Yes. The proposed project route does not occur within the geographic range of this species.	WGFD 2005b; WYNDD 2005; Derby et al. 2006; Cervoski et al 2004; WGFD 2005c.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Kit fox	*Vulpes macrotis*	CO-SOC	This species inhabits semidesert shrubland and margins of pinon-juniper woodlands, saltbruxh, shadscale, sagebrush, and greasewood are commonly found. Appears to rely heavily on lagomorphs as a staple diet but wil also feed on ground-nesting birds, reptiles, and insects. Only one small population is known to occur in Colorado, near Delta, CO. Pups are born in February or March.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	Yes. The proposed project route does not occur within the geographic range of this species.	CNHP 2006; Derby et al. 2006; CDOW no date; CDOW 2005.
Birds						
Snowy plover	*Charadrius alexandrinus*	KS-T; CO-SOC	This species inhabits open alkaline flats, mudflats, sandy shorelines, sandbars with little vegetation along rivers, lakes, ponds, and marshlands. Nesting often occurs on white saline flats. Breeding season: May 1 through August 15.	Low. No known occurrences in the proposed project vicinity in Colorado or Kansas; however, suitable breeding habitat is present.	No.	CNHP 2006; CDOW 2006; Derby et al. 2006; KDWP 2005; Kingery 1998.
Black Rail	*Laterallus jamaicensis*	KS-SINC	Wet meadows or meadows near marshes. While it may use cattails and similar habitats, shallow wetlands with short dense vegetation is preferred. The major threat to the Black Rail is the disappearance of small shallow wetlands. Breeding Season: April 1 through May 31.	Low. No known occurrences within the vicinity of the proposed project route in Kansas; however, suitable breeding habitat is present.	No.	KDWP2005; KSNHD 2005; Eddleman 1994.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Short-eared owl	*Asio flammeus*	KS-SINC	Short-eared owls nest in prairies, marshes, fallow fields, and grain fields. Nests are often in wheatfields or alfalfa fields. They are shallow scrapes lined with vegetation and feathers and are often placed at the base of a tall weed. These nests are often destroyed either by farming operations or by predators. Breeding Season: This species is not known to breed in the proposed project vicinity.	Moderate. No known occurrences within the vicinity of the proposed project route; however, suitable wintering habitat is present. . It is a transient and an irregular or local winter resident throughout Kansas. Most records of occurrence are from October 16 to April 15, but a few may occur at any time in proper habitat.	No.	KDWP 2005; KSNHD 2005; Kingery 1998.
Bobolink	*Dolichonyx oryzivorus*	KS-SINC	The Bobolink prefers tall grasslands such as wet meadows, hayfields, and moist tallgrass prairie. Migrants frequently visit alfalfa fields. They nest on the ground in a shallow depression made of grasses and weed stems. Breeding Season: May 1 through July 31.	Low. No known occurrence within the vicinity of the proposed project route in Kansas; however, suitable breeding habitat is present. This species casually occurs in western Kansas, where it may possibly breed very locally. Nesting has been confirmed from Barton, Cloud, and Stafford counties.	No.	KDWP 2005; KSNHD 2005; Kingery 1998; Martin and Gavin 1995.
Common loon	Gavia immer	WY-NSS1	Lakes above 6,000 feet. Lower elevations during migration. Nests next to water, frequently on an island. Breeding Season: This species does not breed within the vicinity of the proposed project route.	Low. This species was documented in the vicinity of the proposed project route in Wyoming.	Yes. Occurrence would be limited to migrants.	Cerovski et al. 2004; McIntyre et al. 1997; WYNND 2005; WGFD 2005d.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Plains sharp-tailed grouse	*Tympanuchus phasianellus jamesii*	CO-E	Occurs in Gambel oak and other shrublands lacking conifers. Croplands and riparian areas are also used, especially in fall and winter. Leks are located in wet meadows, ridges and knolls, or recently burned areas. Rare to uncommon resident in Douglas County. Breeding Season: March 1 through July 31.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Yes. The proposed project route occurs outside of the known geographic range for this species.	CDOW no date; CNHP 2006; CDOW 2005; Mitchell et al. 2002; Kingery 1998.
Greater sandhill crane	Grus Canadensis tabida	CO-SOC	Migrants occur on mudflats around reservoirs, in moist meadows, and in agricultural areas. Breeding birds are found in parks with grassy hummocks and watercourses, beaver ponds, and natural ponds lined with willows or aspens. In Colorado, abundant spring and fall migrant in the San Luis Valley. Abundant in fall Routte County. Migrant, primarily in spring, in western valleys from Montrose County northward and east to Eagle and Gunnison counties. Breeding Season: May 1 through July 31.	Low. Occurrence would be limited to accidental migrants in Colorado.	Yes. Known distribution outside the vicinity of proposed project route in Colorado. Occurrence would be limited to accidental migrants.	CNHP 2006; CDOW 2006; Derby et al. 2006; CDOW no date; Kingery 1998.
Whip-poor-will	*Camprimulgus vociferus*	KS-SINC	Woodlands. The Whip-poor-will is a locally common transient and summer resident in the eastern part of the state. They have been recorded to occur from April 3 to October 14. Breeding Season: June 1 through July 31.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.	Yes. Breeding is limited to the eastern part of Kansas. Occurrence would be limited to accidental migrants.	KDWP 2005; KSNHD 2005; Kingery 1998;

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Chihuahuan raven	*Corvus cryptoleucus*	KS-SINC	Arid areas, particularly desert and scrubby grasslands. In Kansas, their breeding range formerly encompassed the western part of Kansas along the Colorado border eastward to as far as Ford, Kearny, Finney, and Gray counties. Breeding Season: April 1 through July 31.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.	Yes. Breeding is limited to the eastern part of Kansas. Occurrence would be limited to accidental migrants.	KDWP 2005; KSNHD 2005; Kingery 1998; Bernarz and Raitt 2002.
Curve-billed Thrasher	*Toxostoma curvirostre*	KS-SINC	During the Summer, restricted to arid parts of the southwest, usually in sandsage grasslands and usually near a cholla cactus. In the winter, they wander and have been reported in barnyards, windbreaks, cemeteries, and brushy ravines. Breeding Season: May 1 through July 31.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.	Yes.	KDWP 2005; KSNHD 2005; Kingery 1998; Tweit 1996.
Cerulean warbler	*Dendroica cerulean*	KS-SINC	The Cerulean Warbler can be found in mature, deciduous trees along rivers. Breeding Season: This species is not known to breed within the vicinity of the proposed project route.	Low. No known occurrence within the vicinity of the proposed project route; however, suitable foraging habitat is present. In the western part of Kansas, they might be found in shelter belts, along rivers, or in towns mainly in the canopies of trees.	Yes. Occurrence would be limited to accidental migrants.	KDWP 2005; KSNHD 2005; Kingery 1998; Hammel 2000.
Yellow-throated warbler	*Dendroica dominica*	KS-SINC	The Yellow-throated Warbler is confined mostly to riverine forests, particularly in southeastern Kansas. It prefers tall sycamores for nesting and foraging. Breeding Season: This species does not breed within the vicinity of the proposed project route.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.	Yes. Occurrence would be limited to accidental migrants.	KDWP 2005; KSNHD 2005; Kingery 1998; Hall 1996.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Reptiles						
Glossy snake	*Arizona elegans*	KS-SINC	Dry, open, sandy areas. The range of the Glossy Snake is in western Kansas, southwest of a line from Cheyenne, Rice, and Harvey counties. Eggs hatch in late summer or early fall. Not all adult females are reproductive every year; perhaps female reproduction is biennial at most.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.	No.	KDWP2005; KSNHD 2005; NatureServe 2006.
Western hognose snake	*Heterodon nasicus*	KS-SINC	Grassland or sand prairie in the western two-thirds of Kansas reaching its peak abundance on the High Plains. Lays clutch in June through July. Females may oviposit in alternate years. Sexually mature in second year.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.	No.	KDWP2005; KSNHD 2005; NatureServe 2006.
Common garter snake	*Thamnophis sirtalis*	CO-SOC	In Colorado, the common garter snake inhabits marshes, ponds, and the edges of streams. For the most part, it is restricted to aquatic, wetland, and riparian habitats along the floodplains of streams. Occurs in northeastern Colorado along the South Platte River and its tributaries at elevations below 6,000 feet (1,830 m) and in the North Fork Republican River drainage in Yuma County at about 3,500–3,600 feet (1,065–1,100 m). Gives birth in July or August. Sexually mature in 1-2 years.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	No.	Derby et al. 2006; CNHP 2006; CDOW 2006; CDOW no date; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Eastern hognose snake	*Heterodon platirhinos*	KS-SINC	Forested areas of eastern Kansas to the open prairies along the Colorado border. It prefers sandy areas and is most common along valleys of rivers and in the eastern tier of counties. Most of Kansas is not optimal habitat for this snake and populations of this species in Kansas are probably somewhat isolated. Lays clutch in May-August. Eggs hatch in 39-65 days. Usually sexually mature in 2nd year.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.	No.	KDWP2005; KSNHD 2005; NatureServe 2006.
Yellow mud turtle	*Kinosternon flavescens*	CO-SOC	Typical habitat in Colorado includes permanent and intermittent streams, permanent ponds, isolated temporary ponds and rain pools far from permanent water, irrigation ditches, soggy fields, and the surrounding grasslands and sandhills. Occurs in eastern Colorado in the Republican, Arkansas, and Cimarron River drainages at elevations below 5,000 feet (1,525 m). Known to occur in southeastern Colorado at about 3,800–5,000 feet (1,160–1,525 m). Young are born early-June to mid-July.	Moderate. This species has been documented along the proposed project route in Colorado.	No.	Derby et al. 2006; CNHP 2006; CDOW 2006; CDOW no date; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Amphibians						
Northern cricket frog	*Aeris crepitans*	CO-SOC	In Colorado, the northern cricket frog occurs along the sunny, muddy, or marshy gently sloping edges of permanent or semipermanent ponds, reservoirs, and streams, and along irrigation ditches, in pastures, and in sand-hill country. It is known from the North Fork and South Fork of the Republican River in Yuma County (about 3,500–3,600 feet [1,070–1,100 m]) and perhaps also from the South Platte River drainage in Weld and Morgan counties. Lays clutch of up to a few hundred eggs in spring or summer.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	No.	Derby et al. 2006; CNHP 2006; CDOW 2006; CDOW no date; NatureServe 2006.
Plains leopard frog	*Rana blairi*	CO-SOC	The plains leopard frog inhabits the margins of streams, natural and artificial ponds, reservoirs, creek pools, irrigation ditches, and other bodies of water in plains grassland, sandhills, stream valleys, or canyon bottoms. Occurs in the Great Plains portion of the Arkansas River drainage in southeastern Colorado and in the Republican River drainage in northeastern Colorado at elevations principally below 5,000 feet (1,525 m) but reaching 6,000 feet (1,830 m) in the southwestern portions of Las Animas and Pueblo counties. Clutch of up to a few thousand eggs in spring, summer, or early fall, often after heavy rains. Larvae from early clutches metamorphose in summer; those from late clutches may overwinter and metamorphose the following spring.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	No.	Derby et al. 2006; CNHP 2006; CDOW 2006; CDOW no date; NatureServe 2006.

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Fish						
Plains minnow	*Hybognathus placitus*	CO-E; KS-SINC	This species is most commonly associated with shallow areas in intermittent and perennial streams. They are able to tolerate variable habitat conditions including dewatered reaches. Spawn May through July.	Moderate to high. Potential occurrence in the South Platte and Republican rivers in Colorado and Republican River in Kansas.	No	Woodling 1985
Brassy minnow	*Hybognathus hankinsoni*	CO-T; KS-SINC	This species occurs in a variety of habitats including shallow streams and pools. Spawn in the spring.	Moderate to high. Potential occurrence in the South Platte, Republican, and Aikaree rivers in Colorado and Republican River in Kansas.	No.	Woodling 1985
Orangethroat darter	*Etheostoma spectable*	CO SOC	This species is found in shallow riffles or runs over sand-gravel substrates. Spawning probably occurs in March through May.	Moderate. Known occurrence in the North Fork Republican River and Chief Creek.	No.	Swigle 2006; Woodling 1985
Stonecat	*Noturus flavus*	CO SOC	This species is found in swift portions of riffles and runs near woody debris, cobbles, or sand-gravel substrates. Spawns in June through August.	Low. Known occurrence in the Republican River drainage.	No	Swigle 2006; Woodling 1985
Suckermouth minnow	*Phenacobius mirabalis*	CO-E	Species is usually found in riffle areas of warm prairie streams of all sizes. Spawning suspected to occur in April through August.	Moderate. Potential occurrence in the South Platte and Republican rivers.	No.	Woodling 1985
Arkansas River speckled cub	*Macrhybopsis tetranema*	KS-E	This species prefers shallow channels of permanently flowing streams with clean fine sand.	None. Present distribution restricted to lower portions of Arkansas River basin in Kansas.	Yes.	KDWP website

Table G-1 Analysis of Special Status Species

Common Name	Scientific Name	Status [1]	Habitat Association	Potential for Occurrence [2]	Eliminate from Detailed Analysis	Reference
Flathead chub	*Platygobio gracilis*	KS-T	This species occurs from the Rio Grande to the Arctic Circle in small creeks and the largest rivers that have turbid fluctuating water levels and unstable sand bottoms. This species relies on flood flows to spawn successfully. Spawning occurs after water levels have subsided after peak flows, when water temperatures are warmer and substrate is more stable. Spawning period: March 15 through June 15.	None. In Colorado, existing populations occur in the Arkansas River Basin. Occurrence in Kansas restricted to the Republican and Cimarron rivers.	Yes.	GPNC 2005b; KWPD website.
Invertebrates						
Cylindrical papershell	*Anodontoides ferussacianus*	KS-SINC	These mussels can occur in impoundments and streams and can utilize a wide range of substrates from silt to rubble. In Kansas, known only from the Smoky Hill River. They may occur in the lower Republican and lower Solomon rivers.	Moderate. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is crossed.	No.	KDWP2005; KSNHD 2005.
Wabash pigtoe mussel	*Fusconaia flava*	KS-SINC	This mussel is an obligate riverine species that prefers gravel substrates and moderate currents. Fish hosts include crappies and bluegill.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.	Yes. The proposed project route occurs outside of the known geographic range for this species.	KDWP2005; KSNHD 2005.

[1] Status Definitions:

FE= Federal Endangered
FT= Federal Threatened
FTw/CH= Federal Threatened with Critical Habitat
FC= Federal Candidate
CO-E= Colorado Endangered
CO-T= Colorado Threatened
CO-SOC= Colorado Species of Concern
KS-E= Kansas Endangered
KS-T= Kansas Threatened
KS-T w/CH= Kansas Threatened with Critical Habitat
KS-SINC= Kansas Species in Need of Conservation
WY-NSS1= Wyoming Critically Imperiled Species
WY-NSS2= Wyoming Imperiled Species
BLM-WY = Wyoming BLM sensitive.
USFS-R2S = USFS Region 2/Pawnee National Grassland sensitive species
USFS-R4S = USFS Region 4/Ashley National Forest sensitive species
PNG- Pawnee National Grassland

[2] Species occurrence analyzed for states where they have status.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Federal					
Mammals					
Black-footed ferret	*Mustela nigripes*	FE; CO-E; WY-NSS1; KS-E	Low. Historic occurrence within the vicinity of the proposed project route. Prairie dog towns in WY counties	Low. Historic occurrence within the vicinity of the proposed project route. Prairie dog towns in Morgan, Washington, and Weld counties, Colorado.	Low. Historic occurrence within the vicinity of the proposed project route; no known occurrence in Kansas since 1957.
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	FT; CO-T	Moderate. This species has been documented along the proposed project route. Riparian habitats in Albany and Laramie counties Wyoming. Designated critical habitat occurs outside of the proposed project vicinity.	Moderate. This species has been documented along the proposed project route. Riparian habitats in Morgan and Weld counties, Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Birds					
Bald eagle	*Haliaeetus leucocephalus*	FT; CO-T; WY-NSS2; KS-T	Moderate. This species has been documented along the proposed project route in Wyoming.	Moderate. This species has been documented along the proposed project route in Colorado.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable breeding habitat is present.
Yellow-billed cuckoo	*Coccyzus americanus*	FC; BLM-WY; WY-NSS2	Low. This species has been documented within the vicinity of proposed project route in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Whooping crane	*Grus americana*	FE; CO-E; KS-E	Low. Affected by water depletions to the Platte River in Wyoming.	Low. Occurrence of this species along the proposed project route would be limited to migrating individuals from the Arkansas-Wood Buffalo population in eastern Colorado and Kansas. Affected by water depletions to the Platte River in Colorado.	Low. Occurrence of this species along the proposed project route would be limited to migrating individuals from the Arkansas-Wood Buffalo population in Kansas. Also affected by proposed project activities occurring during migration in Barton, McPherson, Rice, Russell, Sheridan, and Trego County, Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Interior least tern	*Sterna antillarum athalassos*	FE; KS-E; CO-E	None. Affected by water depletions to the Platte River in Wyoming and Colorado	Low. In Colorado: Adobe Creek and Nee Noshe Reservoirs, Kiowa Co., and Horse Creek Reservoir, Otero Co. Affected by water depletions to the Platte River in Wyoming and Colorado	None. In Kansas: Quivira National Wildlife Refuge (Stafford Co.) and on Cimarron River in Meade Co.; none documented on Arkansas River or Missouri River in Kansas. Affected by proposed project activities occurring during migration in Barton and Rice County, Kansas.
Piping plover	*Charadrius melodus circumcinctus*	FT; CO-T; KS-T	Low. Affected by water depletions to the Platte River in Wyoming.	Low. Current breeding range occurs along the Platte River, the Arkansas River, reservoirs in eastern Colorado. Affected by water depletions to the Platte River Colorado.	Low. Affected by proposed project activities occurring during migration in Barton and Rice County, Kansas.
Lesser prairie chicken	*Tympanuchus pallidicinctus*	FC; CO-T	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado.	Low. No known occurrence within the vicinity of the proposed project route in Kansas; however, potential breeding habitat occurs in Kansas south of I-70 in Trego County and in Ellis County.
Amphibians					
Wyoming toad	*Bufo baxteri*	FE, WY-NSS1	Low. An historic observation of this species was documented along the proposed project route in Laramie River Valley in Albany County, Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Fish					
Bonytail	*Gilia elegans*	FE; CO E; USFS-R4S	Low. Critical habitat and historic occurrence in the Green River.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Colorado Pikeminnow	*Plychocheilus lucius*	FE; CO-E	Low. Critical habitat and historic occurrence in the Green River.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Humpback chub	*Gilia cypha*	FE; CO E; USFS-R4S	Low. Critical habitat and historic occurrence in the Green River.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Razorback sucker	*Xyrauchen texanus*	FE; CO-E; USFS-R4S	Low. Critical habitat and historic occurrence in the Green River.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Pallid Sturgeon	*Scaphirhynchus albus*	FE; KS-E	None. This species and its required habitat are not found within the proposed project vicinity in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	Low. Known occurrence in the Platte River below the Elk River confluence.
Plants					
Colorado butterfly plant	*Gaura neomexicana* ssp. *coloradensis*	FT	High. Critical and Suitable habitat for this species is present within the project area.	High. Critical and Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Blowout penstemon	*Penstemon haydenii*	FE	Low. Endemic to sand dunes south of Ferris Mountains in Carbon County, WY. Potential habitat may be present in the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Ute ladies'tresses	*Spiranthes diluvialis*	FT ; USFS-R4S	Moderate. Suitable habitat for this species is present within the project area.	Moderate. Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Western prairie fringed orchid	*Platanthera praeclara*	FT	Moderate. Suitable habitat for this species is present within the project area.	Moderate. Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
BLM					
Mammals					
Fringed myotis	*Myotis thysanodes*	BLM-WY; WY-NSS2; USFS-R2S	Low. This species has been documented in the vicinity of the proposed project route.	Low. No roosts or maternity colonies are known to occur on the PNG; however, suitable habitat is present on the PNG.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Long-eared myotis	*Myotis evotis*	BLM-WY; WY-NSS2	Moderate. This species has been documented along the proposed project route.	Low. No known occurrence within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Spotted bat	*Euderma maculatum*	BLM-WY; USFS-R4S; WY-NSS2	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	Low. No known occurrence within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Townsend's big-eared bat	*Plecotus townsendii*	BLM-WY; USFS-R4S WY-NSS2; CO-SOC; KS-SINC	Low. This species has been documented within the vicinity of the proposed project route in Wyoming.	Low. No known occurrence within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence within the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Pygmy rabbit	*Brachylagus idahoensis*	BLM –WY	Moderate. This species has been documented within the vicinity of the proposed project route.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Swift fox	*Vulpes velox*	CO-SOC; USFS-R2S; BLM-WY	Moderate. This species has been documented within the vicinity of the proposed project route.	High. This species has been documented within the vicinity of the proposed project route in Colorado. This species has been documented and is widespread on the PNG.	Moderate. No known occurrences in the proposed project vicinity in Kansas; however, suitable breeding habitat is present.
White-tailed prairie dog	*Cynomys leucurus*	BLM-WY	Moderate. This species has been documented within the vicinity of the proposed project route in Wyoming.	Moderate. This species has been documented within the vicinity of the proposed project route in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Black-tailed prairie dog	*Cynomys ludovicianus*	BLM-WY; USFS-R2S; CO-SOC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	High. This species has been documented along the proposed project route in Colorado. Numerous active colonies have been documented on the PNG.	Moderate. No known occurrences in the proposed project vicinity in Kansas; however, suitable breeding habitat is present.
Idaho pocket gopher	*Thomomys idahoensis*	BLM-WY	Low. No known occurrence of this species within the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Wyoming pocket gopher	*Thomomys clusius*	BLM –WY	Moderate. This species has been documented along the proposed project route in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Birds					
Burrowing owl	*Athene cunicularia*	USFS-R2S; BLM-WY; CO-T	High. This species has been documented along the proposed project route in Wyoming.	High. This species has been documented along the proposed project route in Colorado. This species has been documented on all Breeding Bird Survey routes on the PNG.	Moderate. No known occurrences in the proposed project vicinity in Kansas; however, suitable breeding habitat is present.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Mountain plover	*Charadrius montanus*	BLM-WY; CO-SOC; USFS-R2; KS-SINC	High. This species was documented within the proposed project corridor in Wyoming	High. This species was documented within the proposed project corridor in Colorado. Occurrence surveys conducted on the PNG in the mid 1990's show widespread use of the PNG by this species for both nesting and foraging.	Moderate. No known occurrences along the proposed project route in Kansas; however, suitable breeding habitat is present.
Brewer's sparrow	*Spizella breweri*	BLM-WY; USFS-R2S	High. This species was documented along the proposed project route in Wyoming.	High. This species was documented along the proposed project route in Colorado. This species has been documented on all Breeding Bird Survey routes on the PNG.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Ferruginous hawk	*Buteo regalis*	CO-SOC; BLM-WY; USFS-R2S; KS-SINC	High. This species was documented along the proposed project route in Wyoming.	High. This species was documented along the proposed project route in Colorado. Known nesting and occurrence on the PNG.	Moderate. No known occurrences along the proposed project route in Kansas; however, suitable breeding habitat is present.
Loggerhead shrike	*Lanius ludovicianus*	BLM-WY; USFS-R2S	High. This species was documented along the proposed project route in Wyoming. The BLM identified this species for detailed analysis.	High. This species has been documented on the PNG on all Breeding Bird Survey routes.	Moderate. No known occurrences in the proposed project vicinity in Kansas; however, suitable breeding habitat is present.
Long-billed curlew	*Numenius americanus*	CO-SOC; BLM-WY; USFS-R2S; KS-SINC	Moderate. This species was documented along the proposed project route in Wyoming.	Low. This species was documented along the proposed project route in Colorado. Incidental observations on the PNG.	Low. No known occurrences along the proposed project route in Kansas; however, suitable breeding habitat is present.
Northern goshawk	*Accipiter gentiles*	BLM-WY; USFS-R4S	Moderate. This species was documented within the proposed project are in Wyoming.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.
Golden eagle	*Aquila chrysaetos*	BLM-WY; KS-SINC	High. This species was documented along the proposed project route in Wyoming.	Moderate. No known occurrences along the proposed project route in Colorado; however, suitable breeding habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable foraging habitat is present.
Peregrine falcon	*Falco peregrinus*	KS-E; BLM-WY; USFS-R4S	Moderate. This species was documented along the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable foraging habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable foraging habitat is present.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Sage sparrow	*Amphispiza belli*	BLM-WY	Moderate. This species was documented along the proposed project route in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Sage thrasher	*Oreoscoptes montanus*	BLM-WY	Moderate. This species was documented along the proposed project route in Wyoming.	Low. No known occurrences in the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Trumpeter swan	*Cygnus buccinator*	BLM-WY; WY-NSS2	Low. Limited to migrant habitat use.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.
White-faced ibis	*Plegadis chihi*	BLM-WY	Moderate. This species has been documented along the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable breeding habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable breeding habitat is present.
Greater sage-grouse	*Centrocercus urophasianus*	CO-SOC; BLM-WY; WY-NSS2; USFS-R4S	High. This species has been documented within the vicinity of the proposed project route. 18 leks have been documented within 1 mile of the proposed project route.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Kansas.
Reptiles					
Midget faded rattlesnake	*Crotalus viridis concolor*	BLM-WY; CO-SOC	Moderate. This species has been documented along the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Amphibians					
Western boreal toad	*Bufo boreas boreas*	CO-E; BLM-WY; WY-NSS2	Moderate. This species has been documented along the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Great Basin spadefoot toad	*Spea intermontana*	BLM-WY	High. This species has been documented along the proposed project route in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Spotted frog	*Ranus pretiosa*	BLM-WY	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Northern leopard frog	*Rana pipiens*	BLM-WY; USFS-R2S; CO-SOC.	High. This species has been documented along the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Fish					
Bluehead sucker	*Catostomus discobolus*	BLM-WY; WYGF-NSS1	High. Known occurrence in Hams Fork River, Blacks Fork River, and Green River in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Flannelmouth sucker	*Catostomus latipinnis*	BLM-WY; WYGF-NSS1	High. Known occurrence in Hams Fork River, Blacks Fork River, Green River, and Bitter Creek in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Leatherside chub	*Gila copei*	BLM-WY; WYGF-NSS1	Moderate. Potential occurrence in the Green River and Bear Creek in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Roundtail chub	*Gila robusta*	BLM-WY; WY-NSS1	Moderate. Known occurrence in Hams Fork and Blacks Fork rivers in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Plants					
Laramie columbine	*Aquilegia laramiensis*	BLM -WY	Moderate. Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Nelson's milkvetch	*Astragalus nelsonianus*	BLM-WY	High. Potential habitat present. Known from basins and foothills of Carbon, Natrona, and Sweetwater counties, Wyoming, with one population in Colorado. This species has been documented within the project area.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Trelease's racemose milkvetch	*Astragalus racemosus* var. *treleasei*	BLM-WY	Moderate. Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Cedar Rim thistle	*Cirsium aridum*	BLM -WY	Low. One area of potential habitat within project area based on WYNND model.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Ownbey's thistle	*Cirsium ownbeyi*	BLM-WY	Moderate. Suitable habitat for this species is present within the project area. Known occurrence adjacent to the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Large-fruited bladderpod	*Lesquerella macrocarpa*	BLM-WY	High. This species has been documented within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Prostrate bladderpod	*Lesquerella prostrata*	BLM-WY	Moderate. Suitable habitat is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Gibbens' beardtongue	*Penstemon gibbensii*	BLM-WY	Moderate. This species could occur within potentially suitable habitat along the project route in Sweetwater and Carbon Counties, Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Tufted twinpod	*Physaria condensata*	BLM-WY	High. Suitable habitat for this species is present within the project area. Known occurrence adjacent to the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Persistent sepal yellowcress	*Rorippa calycina*	BLM -WY	High. Known occurrences and suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Laramie false sagebrush	*Sphaeromeria symplex*	BLM -WY	Moderate. Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Green River greenthread	*Thelesperma caespitosum*	USFS- R4S; BLM -WY	High. This species has been documented within the project corridor. Suitable habitat present within the project area	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
USFS					
Birds					
Cassin's sparrow	*Aimophila cassini*	USFS-R2S	Moderate. No known occurrences in the proposed project vicinity in Wyoming; however, suitable breeding habitat is present.	Moderate. This species has been documented on all Breeding Bird Survey routes on the PNG.	Moderate. No known occurrences in the proposed project vicinity in Kansas; however, suitable breeding habitat is present.
McCown's longspur	*Calcarius mccownii*	USFS-R2S	Moderate. This species was documented along the proposed project route in Wyoming.	High. This species has been documented within the proposed project corridor in Colorado. This species has been documented on all Breeding Bird Survey routes on the PNG.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Chestnut-collard longspur	*Calcarius ornatus*	USFS-R2S	Low. No known occurrences in the proposed project vicinity in Wyoming; however, suitable breeding habitat is present.	Moderate. This species was documented along the proposed project route in Colorado. This species has been documented on the PNG on four of the five Breeding Bird Survey routes.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Northern harrier	*Circus cyaneus*	USFS-R2S	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable year round habitat is present.	Low. Common year- round residents on the PNG. Not known to nest on the PNG.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable year round habitat is present.
Grasshopper sparrow	*Ammodramus savannarum*	USFS-R2S	Low. This species has been documented within the vicinity of proposed project route in Wyoming.	Moderate. Fairly common summer resident on the PNG. This species has been documented on all Breeding Bird Survey routes on the PNG.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Black tern	*Chlidonias niger*	USFS-R2S; KS-SINC.	Low. No known occurrences in the proposed project vicinity in Wyoming; however, suitable breeding habitat is present.	Moderate. Known to breed in isolated patches in Colorado. Fairly common summer resident with limited nesting habitat on the PNG.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, potential breeding habitat is present.
Plants					
Dwarf milkweed	*Asclepias uncialis*	USFS-R2S	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Moderate. Suitable habitat for this species is present within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Prairie moonwort	*Botrychium campestre*	USFS-R2S	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Moderate. Suitable habitat present on PNG.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Wyoming feverfew	*Parthenium alpinum*	Former USFS-R2S	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	High. Potential habitat present. Known from occurrences in Weld County, Colorado. This species has been documented within the project area.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
State Status					
Mammals					
Northern pocket gopher	*Thomomys talpoides*	CO-SOC	Moderate. This species has been documented along the proposed project route in Wyoming.	Low. No known occurrence of this species has been documented within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Franklin's ground squirrel	*Spermophilus franklinii*	KS-SINC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	Low. No known occurrence within the vicinity of the proposed project route; however, limited suitable habitat is present.
Long-legged myotis	*Myotis volans*	WY-NSS2	Moderate. This species has been documented along the proposed project route.	Low. No known occurrence within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Pallid bat	*Antrozous pallidus*	WY-NSS2; KS-SINC	Moderate. This species has been documented within the vicinity of the proposed project route.	Low. No known occurrence within the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Eastern spotted skunk	*Spilogale putorius*	KS-T	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	Moderate. The species is known to occur along the proposed project route in Kansas. Designated critical habitat occurs in three counties crossed by the proposed route.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Birds					
Snowy plover	*Charadrius alexandrinus*	KS-T; CO-SOC	Low. No known occurrences in the proposed project vicinity in Wyoming; however, suitable breeding habitat is present.	Low. No known occurrences in the proposed project vicinity in Colorado; however, suitable breeding habitat is present.	Low. No known occurrences in the proposed project vicinity in Kansas; however, suitable breeding habitat is present.
Black Rail	*Laterallus jamaicensis*	KS-SINC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	None. This species and its required habitat are not found within the vicinity of the proposed project route in Colorado.	Low. No known occurrences within the vicinity of the proposed project route; however, suitable breeding habitat is present.
Short-eared owl	*Asio flammeus*	KS-SINC	Low. No known occurrences in the proposed project vicinity in Wyoming; however, suitable breeding habitat is present.	Low. No known occurrences in the proposed project vicinity in Colorado; however, suitable breeding habitat is present.	Moderate. No known occurrences within the vicinity of the proposed project route;; however, suitable wintering habitat is present. . It is a transient and an irregular or local winter resident throughout Kansas. Most records of occurrence are from October 16 to April 15, but a few may occur at any time in proper habitat.
Bobolink	*Dolichonyx oryzivorus*	KS-SINC	Low. No known occurrence within the vicinity of the proposed project route in Wyoming; however, suitable breeding habitat is present.	Low. No known occurrence within the vicinity of the proposed project route in Colorado; however, suitable breeding habitat is present.	Low. No known occurrence within the vicinity of the proposed project route; however, suitable breeding habitat is present. This species casually occurs in western Kansas, where it may possibly breed very locally. Nesting has been confirmed from Barton, Cloud, and Stafford counties.
Reptiles					
Glossy snake	*Arizona elegans*	KS-SINC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Western hognose snake	*Heterodon nasicus*	KS-SINC	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Common garter snake	*Thamnophis sirtalis*	CO-SOC	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Eastern hognose snake	*Heterodon platirhinos*	KS-SINC	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Yellow mud turtle	*Kinosternon flavescens*	CO-SOC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Moderate. This species has been documented along the proposed project route in Colorado.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Amphibians					
Northern cricket frog	*Aeris crepitans*	CO-SOC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Plains leopard frog	*Rana blairi*	CO-SOC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Low. No known occurrence in the vicinity of the proposed project route in Colorado; however, suitable habitat is present.	Low. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is present.
Fish					
Plains minnow	*Hybognathus placitus*	CO-E; KS-SINC	Low. No known occurrence in the vicinity of the proposed project route in Wyoming; however, suitable habitat is present.	Moderate to high. Potential for occurrence in the South Platte and Republican rivers in Colorado.	Moderate to High. Potential for occurrence in the Republican river in Kansas.
Brassy minnow	*Hybognathus hankinsoni*	CO-T; KS-SINC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Moderate to high. Potential for occurrence in the South Platte and Republican rivers in Colorado.	Moderate to High. Potential for occurrence in the Republican river in Kansas.
Orangethroat darter	*Etheostoma spectable*	CO-SOC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Moderate. Known occurrence in the North Fork Republican River and Chief Creek.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.

Table G-2 Special Status Species Potential for Occurrence by State for the Overland Pass Pipeline Project

Common Name	Scientific Name	Status	Potential for Occurrence		
			Wyoming	Colorado	Kansas
Stonecat	*Noturus flavus*	CO-SOC	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Low. Known occurrence in the Republican River drainage.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Suckermouth minnow	*Phenacobius mirabilis*	CO-E	None. This species and its required habitat are not found within the vicinity of the proposed project route in Wyoming.	Moderate. Potential occurrence in the South Platte and Republican Rivers.	None. This species and its required habitat are not found within the proposed project vicinity in Kansas.
Invertebrates					
Cylindrical papershell	*Anodontoides ferussacianus*	KS-SINC	None. This species and its required habitat are not found within the proposed project vicinity in Wyoming.	None. This species and its required habitat are not found within the proposed project vicinity in Colorado.	Moderate. No known occurrence in the vicinity of the proposed project route in Kansas; however, suitable habitat is crossed.

FE= Federal Endangered
FT= Federal Threatened
FC= Federal Candidate
CO-E= Colorado Endangered
CO-T= Colorado Threatened
CO-SOC= Colorado Species of Concern
KS-E= Kansas Endangered
KS-T= Kansas Threatened
KS-SINC= Kansas Species in Need of Conservation
WY-NSS1= Wyoming Critically Imperiled Species
WY-NSS2= Wyoming Imperiled Species
BLM-WY = Wyoming BLM sensitive.
USFS-R2S = USFS Region 2 sensitive species
USFS-R4S = USFS Region 4 sensitive species
PNG- Pawnee National Grasslands

Appendix H

BLM Cultural Resources Protection Procedures

PROGRAM OBJECTIVES

The BLM has developed a cultural resources program designed to inventory, evaluate, and manage cultural resources on BLM-administered public land and in areas of BLM responsibility. The BLM management of cultural resources (archaeological, historic, and socio-cultural properties) is in accordance with the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended, and other applicable legislation.

IDENTIFICATION OF CULTURAL RESOURCES

The BLM requires cultural resource inventories for actions with federal responsibility that include surface disturbance as a part of the action. The purpose of inventories is to identify cultural resources prior to any ground disturbing activity. This way, sites can be protected through project redesign or other mitigation measures prior to any threat of disturbance. Numerous laws and regulations mandate this policy. All portions of the proposed Overland Pass Pipeline, access roads, temporary use areas, and storage yards have been inventoried to Class III standards.

Class III intensive field surveys are conducted by professionals thorough pedestrian survey of an entire target area. The intent of a Class III inventory is to locate and record all historic properties and is consistent with standards in the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716). Class III inventories conform to the prevailing professional survey standards for the region involved, provided that the regional standards meet or exceed the Secretary's Standards and Guidelines. Because Class III survey is designed to produce a total inventory of the cultural properties observable within the target area, once it has been completed no further survey work should be needed in the target area as long as the current standards are met. Areas with a high probability of containing buried cultural materials or known cultural materials may require additional work of professional monitoring and/or data recovery excavations. Areas that require additional work are analyzed on a case-by-case basis, depending on the proposed action and the types of cultural resources present in the project area.

BLM JURISDICTION ON PRIVATELY OWNED AND/OR SPLIT ESTATE LANDS (INCLUDING THE CHECKERBOARD LAND PATTERN)

Survey

The BLM frequently authorizes permits and rights-of-way, or provides approvals for actions on Federal lands in which portions of the overall project may take place on non-Federal lands or the Federal action may have contingent or cumulative effects on non-Federal lands. Before the BLM can authorize (through permit, license, etc.) any project which may adversely affect significant cultural resources (i.e., historic properties), the BLM has the legal responsibility to take into account the effects of its actions on these resources. In order for the BLM to fully consider the effects of its actions, it also has the responsibility to gather the information necessary to know what cultural resources may be affected, evaluate the resources for eligibility for inclusion in the National Register of Historic Places, and mitigate adverse affects to historic properties where possible.

If a project requires the use of federally owned surface lands as well as privately owned surface lands, there are two authorities that require federal agencies to apply the same NHPA Section 106 compliance standards to private lands as they do to federal lands. The regulations at 36 CFR, Part 800.4(b) require the Federal agency to "take the steps necessary to identify historic properties within the area of potential

effect." That this includes both Federal and nonfederal lands is implicit throughout the statute and the regulations, since the regulatory definition of "area of potential effect" is "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties" [36 CFR, Part 800.16(d)]. It makes no distinction between Federal and nonfederal lands. More explicit, however, is Executive Order No. 11593, entitled "Protection and Enhancement of the Cultural Environment." Under the EO, Section 1(3) it states that all Federal agencies: "...in consultation with the Advisory Council on Historic Preservation, institute procedures to assure that Federal plans and programs contribute to the preservation and enhancement of ***non-federally owned*** sites, structures and objects of historical, architectural, or archaeological significance." The BLM's responsibility for inventory, evaluation, and protection of cultural properties on lands outside BLM administrative jurisdiction is limited according to the degree to which the Field Manager's decisions determine or control the location of surface-disturbing activities on those lands.

BLM makes this policy known to project proponents, who in turn are responsible for providing all of the information the BLM requires for making informed decisions. If cultural resource data is lacking from private lands so that the BLM authorized officer cannot make an informed decision, the BLM cannot allow the undertaking to proceed. Thus, it is the responsibility of the project proponent to acquire the appropriate information.

Within the checkerboard land pattern that encompasses much of the planning area, Wyoming BLM has set forth the policy that the entire project area, if it covers any federal lands, must be inventoried. The reasoning for this is that the distances between federal ownership and private ownership are so short, that the potential for the federal portion to not dictate the placement of the project on private is remote.

Split estate lands are defined as those lands where surface ownership transferred to private landowners from the Federal government but the mineral rights were retained by the Federal government. These situations arose either through patent under the 1914 amendment to the Homestead Act or purchase under the Stock-raising Act of 1916. Each of these Acts also allowed for the Federal government to "reenter and occupy so much of the surface...as may be required for all purposes reasonably incident to the mining or removal of coal or other minerals." At the time of purchase, the buyer agreed to these terms. Since completing compliance of the NHPA Section 106 process is required of a Federal agency by statute and regulation prior to the Federal action, and then being able to complete that process is a purpose reasonably incident to the extraction of the minerals.

Site Management

As stated above, BLM has multiple authorities for requiring cultural resource inventories on private lands. This jurisdiction only holds forth with federal undertakings. Cultural resources that are located on private lands are recorded for the permanent record and appropriate mitigation measures are applied, in consultation with the private landowner. This jurisdiction comes from the requirement that the federal agency must take into account its effects on all historic properties. Once the federal undertaking has been fully processed, the federal responsibility for an historic property is completed. The historic property remains under the ownership of the landowner, thus BLM has no control over the historic property outside of the venue of a federal undertaking.

EVALUATION OF CULTURAL RESOURCE SITES

Criterion for Eligibility

The BLM evaluates the significance of cultural resources identified during inventory in consultation with the Wyoming SHPO to determine if the resources are eligible for inclusion in the National Register of Historic Places (NRHP). Cultural resource properties may be considered eligible for listing in the National Register if they meet one or more of the following criteria identified in 36 CFR 60.4:

- **Criterion A:** An historic property is associated with an event or events that have made a significant contribution to the broad patterns of America's History.
- **Criterion B:** An historic property is associated with the lives of persons significant to our past.
- **Criterion C:** An historic property embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic value or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D:** An historic property has yielded or may be likely to yield information important in prehistory or history.

To facilitate evaluation of cultural resource values in Wyoming, the BLM has devised guidelines for determining the eligibility of archaeological and historical sites and historic trails (BLM Manual 8110.32). The guidelines supplement the National Register criteria for evaluation (36 CFR 60.4) and provide consistency across all BLM jurisdictions. Application of the guidelines ensures that significant cultural resources are recognized and managed accordingly.

Aspects of Integrity

Integrity is the ability of a property to convey its significance. To be listed in the National Register of Historic Places, a property must not only be shown to be significant under the National Register criteria, but it also must have integrity. The evaluation of integrity is sometimes a subjective judgment, but it must always be grounded in an understanding of a property's physical features and how they relate to its significance.

Historic properties either retain integrity (this is, convey their significance) or they do not. Within the concept of integrity, the National Register criteria recognize seven aspects or qualities that, in various combinations, define integrity.

To retain historic integrity a property will always possess several, and usually most, of the aspects. The retention of specific aspects of integrity is paramount for a property to convey its significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant.

- **Location**: The place where the historic property was constructed or the place where the historic event occurred.
- **Design**: The combination of elements that create the form, plan, space, structure, and style of a property.

- **Setting**: The physical environment of an historic property.

- **Materials**: The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form an historic property.

- **Workmanship**: The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

- **Feeling**: The property's expression of the aesthetic or historic sense of a particular period of time.

- **Association**: The direct link between an important historic event or person and an historic property.

Contributing and Non-Contributing to NRHP Eligibility

Properties that encompass large areas can be deemed to have contributing and non-contributing portions. Contributing portions are seen to retain integrity of the values for which the property is considered eligible for the NRHP. Non-contributing portions are identified portions of the property which are not deemed to retain the integrity of values which would render the property eligible for the NRHP. The determination of contributing versus non-contributing portions of an eligible property can be made at any time after adequate evaluation has been conducted.

Historic trails including the Overland and Cherokee, the Rawlins to Fort Washakie Freight Road, and the Rawlins to Baggs Freight Road, are considered eligible for the National Register under Criterion A. However, some portions of the trails no longer retain the aspects of integrity necessary for eligibility. As there have been no encompassing inventories of entire trails within the RMPPA, portions of trails are evaluated to determine if they contribute to the eligibility of the property on a case-by-case basis. Trail segments are evaluated pursuant to the National Register criteria of integrity (location, design, setting, materials, workmanship, feeling, and association). If a predominance of criteria are met, the segment will be considered contributing to the properties' overall NRHP eligibility.

Determinations of Effect

Once the eligibility of an historic property has been determined, the BLM must then determine the effects a proposed undertaking may have on a cultural resource. Standard measures for reducing effects are to be considered part of the project design. Determination of effect must be made after standard treatment measures and best management practices have been integrated into the project design. The final project design must incorporate all agreed upon treatment measures and be included in the Conditions of Approval or components of the Surface Use Plan, Plan of Operations, or Plan of Development.

No Historic Properties Affected If no cultural resource sites eligible for listing in the NRHP are present in the proposed project area, there are historic properties present but the undertaking will have no effect upon them, or a proposed project will not be visible from an historic property or there is no contrast between the project and the setting, the BLM will find that the undertaking has no potential to affect historic properties.

No Historic Properties Adversely Affected If a proposed project will cause effects to an historic property, but the effects will not diminish the aspects of integrity nor the characteristics that make the property eligible for listing in the National Register of Historic Places, only non-contributing portions of

historic properties will be affected, or if setting is an important aspect of integrity for an historic property and the project will cause a weak contrast, the BLM will find that the undertaking has no potential to adversely affect historic properties.

Historic Properties Adversely Affected An adverse effect is found when an undertaking may alter, directly, or indirectly, any of the characteristics of an historic property that qualify the property for inclusion in the national Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects cause by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

Consultation

SHPO Consultation

According to the Programmatic Agreement between the Advisory Council on Historic Preservation (ACHP) and the BLM, the BLM is required to consult with State Historic Preservation Officers (SHPOs) on eligibility and effects to each cultural property. The Wyoming BLM and Wyoming SHPO have developed a Protocol for consultation that serves to streamline the process and reduce consultation time frames from the guidelines set forth in the 36 CFR 800 regulations. The BLM has coordinated with Colorado and Kansas SHPOs as to the nature of consultation for this project and will follow the guidelines set forth in the 36 CFR 800 regulations. Determination of effects to sites follows the criteria outlined in 36 CFR 800.5.

Native American Consultation

In addition to consultation with the SHPO offices, the BLM conducts Native American Consultation in compliance with Section 106 of the NHPA, the American Indian Religious Freedom Act of 1978, and Executive Order No. 13007. The BLM has created a process for conducting Native American consultation for federal undertakings, as described in BLM Manual 8120 and BLM Manual H-8120-1. The BLM has worked extensively with tribes who have traditional ties to the region to establish a protocol for consultation. Consultation with Native American tribes is ongoing during the planning process. Determinations of eligibility and effects the project may have on sites are determined by the BLM in consultation with tribal representatives. The likelihood of inadvertently affecting a TCP or sacred site is low because of the established protocols BLM has developed with tribal representatives.

Interested Parties

The BLM will solicit such input through the public participation opportunities afforded by BLM's land use planning and environmental review processes established under the National Environmental Policy Act (NEPA) of 1969 and the Federal Land Policy and Management Act (FLPMA) of 1976, and in accordance with regulations at 43 CFR Part 1610.3. Interested parties shall be invited to participate in the Section 106 consultation process if they have a demonstrated interest in a BLM action. Such interested parties may include, but are not limited to, local governments, grantees, permittees, owners of affected lands or land surfaces, Indian tribes, and other interested parties determined jointly by BLM and SHPOs.

In making determinations of effect, BLM may request comments of interested parties. When BLM makes a determination of adverse effect, they will request comments of interested parties. BLM will maintain lists of interested parties based on their identified interests.

BLM and SHPOs will consult to identify invited concurring parties based on their demonstrated interest and level of participation. Invited concurring parties will be provided the opportunity to sign a Memorandum of Agreement or Programmatic Agreement. Refusal by an invited concurring party to sign an agreement will not invalidate the agreement.

MANAGEMENT OF CULTURAL RESOURCES

Within the framework described above, the BLM has developed protective measures to minimize adverse effects (as defined in 36 CFR 800.5[1]) on significant cultural resource values. Protective measures are used in response to the proposed actions of BLM programs involving surface disturbance. These measures include cultural resource inventories, evaluation of cultural resources located during inventory, setting assessments where applicable, Best Management Practices and mitigation of potential adverse impacts on significant cultural resources.

A setting assessment is used to determine what physical features of a proposed undertaking will be visible from a historic property for which setting is an important aspect of integrity. Visibility of undertakings will vary. The scale of visual analysis should be commensurate with the scale of the undertaking. In the majority of cases, undertakings will not be seen beyond three miles; pipelines, fiber-optic and other ground level disturbance will not likely be seen beyond a mile. In rare cases, undertakings may be seen beyond five miles if they are unusually large or are skylined on the horizon, such as wind turbines and communication towers.

A setting assessment can also be used to determine whether a proposed undertaking will introduce audible elements to the historic property where setting is an important aspect of integrity. These proposed undertakings may include compressor stations, pumping stations, or wind turbines. An assessment of the existing audible elements will be documented and then the BLM archaeologist will work with the project proponent to ensure new audible elements do not result in an adverse effect. Best management practices and mitigation measures will be utilized to achieve this goal.

Best Management Practices

In situations where a proposed undertaking has the potential to affect the physical integrity of an historic property, there are numerous measures that can be applied to reduce or eliminate the effects. BLM archaeologists work with the contracting archaeologist and the project proponent to determine which practice would best suit the needs of all parties. Application of BMPs is dependent upon the nature of the undertaking, and the nature of the historic property.

Avoidance Avoidance, through modification of the proposed undertaking, is the primary and preferred measure used to protect cultural resources. This can be accomplished at the project planning stage.

Monitoring In situations where avoidance of adverse affects is not feasible, or there is a determination of no adverse effects, but the potential remains for there to be adverse effects through inadvertent discovery, a BLM permitted archaeologist will monitor construction activities. The presence of a monitor is to ensure that buried cultural materials are immediately identified and that construction activities in that area are halted to avoid further impacts to the site. Prior to BLM authorization of the project, the project proponent submits a discovery plan to the BLM for review which outlines the way in which cultural resources will be treated and the responsibilities of the project proponent. This plan is reviewed by BLM archaeologists and submitted to SHPO for concurrence. In the case where monitoring results in a discovery situation, the discovery plan is enacted. Depending on the nature of the discovery the project may be allowed to proceed, redesigned, or data recovery may be required.

Standard Measures to Reduce Visual Contrast When a proposed project is found to be within the contributing setting of an historic property, an assessment of potential impacts is conducted through viewshed analyses, on-site inspection, and photo inspection. For historic trails such as the Cherokee Trail, Overland Trail, Rawlins to Fort Washakie Road and Rawlins to Baggs Road, protection measures would be carried out similarly to other historic properties if any project were found to be located within ¼ mile of a contributing portion of the historic trail. When a proposed project is outside of the ¼ mile buffer of the trail, but found to be within the viewshed that contributes to NRHP eligibility, analyses of potential impacts to the integrity of the setting would be carried out in the same way as other properties where setting is an aspect of integrity. Best management practices used to ensure that the contributing viewshed of historic properties are not adversely affected include:

- Develop coordinated road and pipeline systems.
- Use low profile facilities.
- Proper sighting and location to maximize the use of topography and vegetation to screen development. Design projects to blend with topographic forms and existing vegetation patterns.
- Use environmental coloration or advance camouflage techniques to break up visual intrusion of facilities that cannot be completely hidden.
- Use broken linear patterns for road developments to screen roads as much as possible. This can include feathering or blending of the edges of linear rights-of-way to break up the linearity.
- Design linear facilities to run parallel to key observation points rather than perpendicular.

Mitigation

Mitigation measures are determined by the types of proposed actions, the nature of the potential effect and the qualities of the historic property that render it eligible for NRHP listing. Mitigation measures are applied when best management practices will not reduce or minimize adverse effects. Mitigation may include data recovery, HABS/HAER documentation, or other agreed upon measures. Consultation with the Wyoming SHPO and the ACHP is required when proposed actions are expected to adversely affect properties eligible for the National Register and mitigation is determined to be the best course of action.

Data Recovery There are two times during a project that data recovery may be implemented. The first is when it is determined prior to project construction that there will be an adverse effect to an NRHP eligible property. The project proponent, the BLM, and the SHPO work together to develop a data recovery plan which will mitigate the adverse effects. The second is after a discovery situation when it is determined that the project has already adversely impacted an historic property. Again, the project proponent, BLM authorized officer, and SHPO work to develop a plan that mitigates all effects of the construction. Data recovery in itself is a destructive process, thus it must be carried out in a way to successfully retrieve all pertinent information from the site.

HABS/HAER (Historic American Buildings Survey/Historic American Engineering Record) HABS/HAER documentation as a mitigation measure may be implemented if no other mitigation measure would adequately minimize the adverse effect. This documentation includes large format photography, drawings, and research of the property to document all aspects of the property prior to adverse effects.

Agreement Documents In situations where data recovery or HABS/HAER documentation is not appropriate to mitigate adverse effects or multiple historic properties will be affected by a single undertaking, the BLM will work with the SHPO and the project proponent to develop an agreement document. Depending on the nature of the undertaking, this may result in a Memorandum of Agreement (MOA) or a Programmatic Agreement (PA). The agreement document will outline the manner in which adverse effects will be mitigated, and the roles and responsibilities of each signatory. The agreement document stays in effect until all measures have been completed to the satisfaction of all parties.

CULTURAL RESOURCE LAWS AND REGULATIONS

American Antiquities Act of 1906—provides for permits to authorize scholarly use of properties, for misdemeanor-level penalties to control unauthorized use, and for presidential designation of outstanding properties as national monuments for long-term preservation.

National Historic Preservation Act of 1966—

- Section 106 directs all federal agencies to take into account effects of their undertakings (actions and authorizations) on properties included in or eligible for the NRHP.
- Section 110 sets inventory, nomination, protection, and preservation responsibilities for federally owned cultural properties. Section 110(c) requires each federal agency to designate a Preservation Officer to coordinate activities under the act.

American Indian Religious Freedom Act of 1978—establishes the policy of the United States to protect and preserve for the American Indian, Eskimo, Aleut, and Native Hawaiian the inherent right of freedom to believe, express, and exercise their traditional religions. Federal agencies are directed to evaluate their policies and procedures to determine if changes are needed to ensure that such rights and freedoms are not disrupted by agency practices.

Archaeological Resources Protection Act of 1979—provides felony-level penalties for the unauthorized excavation, removal, damage, alteration, defacement, or the attempted unauthorized removal, damage, alteration, or defacement of any archaeological resource, more than 100 years of age, found on public lands or Indian lands. The act also prohibits the sale, purchase, exchange, transportation, receipt, or offering of any archaeological resource obtained from public lands or Indian lands.

Native American Graves Protection and Repatriation Act of 1990—requires Native American consultation for the excavation and/or removal of "cultural items" including human remains, funerary objects, sacred objects, and objects of cultural patrimony. Consultation is also required if "cultural items" are discovered during land use activities.

Executive Order No. 13007: Indian Sacred Sites—establishes access to and ceremonial use of Indian sacred sites by Indian religious practitioners on federal lands. The federal agencies shall avoid adversely affecting the physical integrity of such sacred sites and maintain confidentiality of said sites.

Appendix I

Cultural Resources Site Summary Tables By State

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48LN3639	Historic	Roberson Ditch	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN947/ 48SW6034	Historic	Hams Fork Cutoff Trail	Pipeline	Eligible	No Further Work	No Adverse Effect	Private, BLM
48LN2327	Historic	Oregon Short Line Railroad [OSLR]	Pipeline	Eligible	No Further Work	No Adverse Effect	Private
48LN3634	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN3640	Historic	South Side Ditch	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN3635	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN2204	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN3636	Prehistoric	Far And Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN3637	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN4406	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN4407	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN4408	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN3631	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN4409	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN3627	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN3629	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN3630	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN659	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN530	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN650	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN617	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN529	Prehistoric	Lithic Scatter	Pipeline	Non-Contributing Portion Of Eligible Site	Monitor	No Adverse Effect	BLM
48LN3623	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN1673	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN3624	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN4410	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48LN1778	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN3641	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN616	Prehistoric	Open Camp	Pipeline	Eligible	Avoid Or Mitigate	No Adverse Effect	BLM
48LN3700	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN946	Historic	Blacks Fork Cutoff Trail	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM
48LN3701	Prehistoric	Open Camp	Pipeline	Eligible	Fence And Monitor	No Effect	BLM
48LN626	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN3642	Prehistoric	Open Camp	Pipeline	Eligible	Avoid Or Mitigate	No Adverse Effect	BLM
48LN2308	Historic	Historic Debris	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN1190	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN1062	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN65	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN2307	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LN706	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	State
48UT122/ 48LN269	Multi-Component	Historic Debris/Prehistoric Habitation	Pipeline	Non-Contributing Portion Of Eligible Site	Monitor	No Adverse Effect	Private, State, and BLM
48LN710/ 48SW3371	Multi-Component	Open Camp/Historic Debris	Pipeline	Eligible	Neck/Fence/Monitor	No Adverse Effect	State
48SW2521	Prehistoric	Open Camp	Pipeline	Eligible	Neck/Fence/Monitor	No Adverse Effect	Private And State
48SW1560	Prehistoric	Open Camp	Pipeline	Eligible	Neck/Fence/Monitor	Adverse Effect	Private and BLM
48SW7227	Prehistoric	Lithic Landscape	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW6357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM
48SW7964	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW1612	Prehistoric	Open Camp	Pipeline	Eligible	Fence And Monitor	No Adverse Effect	Private
48SW1610	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW7221	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private, BLM
48SW827	Historic	Oregon Trail	Pipeline	Eligible	No Further Work	No Adverse Effect	Private, BLM
48SW1705	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48SW1023	Prehistoric	Open Camp	Pipeline	Eligible	Neck/Fence/Monitor	No Adverse Effect	Private, BLM
48SW1052	Prehistoric	Camp And Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16588	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW1053	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW9831	Multi-Component	Lithic Scatter And Historic Debris	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16589	Prehistoric	Open Camp And Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW7219	Prehistoric	Lithic Scatter And Fcr	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW7369	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW989	Prehistoric	Lithic And Far Scatter	Pipeline	Eligible	Monitor	No Adverse Effect	Private, BLM
48SW10519	Multi-Component	Open Camp And Historic Debris	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW6637	Prehistoric	Open Camp	Pipeline	Eligible	Fence And Monitor	No Adverse Effect	Private
48SW10520	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW3389	Prehistoric	Open Camp	Pipeline	Eligible	Fence And Monitor	No Adverse Effect	BLM
48SW10521	Prehistoric	Open Camp	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM
48SW3388	Prehistoric	Lithic And Far Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW10522	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW10523	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16590	Prehistoric	Lithic Scater	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW6634	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16591	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW6631	Prehistoric	Lithic Scatter	Pipeline	Eligible	Fence And Monitor	No Adverse Effect	BLM
48SW10524	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW9196	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW12018	Multi-Component	Lithic Scatter And Historic Debris	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48SW8211	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW10526	Prehistoric	Open Camp	Pipeline	Eligible	Neck/Monitor/Fence	No Adverse Effect	BLM
48SW1649	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW8212	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW16592	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW8976	Historic	Bryan To Browns Park Wagon Road	Pipeline	Eligible	No Further Work	No Adverse Effect	Private
48SW1653	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	State
48SW1656	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48LN757	Multi-Component	Lithic Scatter/Historic Debris	Access Road	Not Eligible	No Further Work	No Effect	Private
48LN760	Multi-Component	Lithic Scatter/Historic Camp	Access Road	Eligible	No Further Work	No Adverse Effect	BLM
48LN3541	Prehistoric	Lithic Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM
48LN3542	Multi-Component	Lithic Scatter/Historic Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
48LN4411	Prehistoric	Lithic Scatter	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-KLB-001	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	
IR-EES-01	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-KLB-002	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-JB-101	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-3.4	Historic	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-4.6	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-KKB-25	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-3.5	Historic	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-1.7	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MC1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-9.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-14.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-17.6	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-17.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
IR-19.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-20.4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-KLB-003	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-CG-2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-24.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-24.8	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-24.9	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-JL-3	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-CJK-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-MEC-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-32.7	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-34.8	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-34.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-35.3	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-35.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-36.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-40.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-40.6	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-41.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
48SW15864	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW1226_72	Historic	Overland Trail Segment	Pipeline	Eligible	Avoid, Mitigate Visual Impact	No Effect; Adverse Effect To Setting	BLM/ Private
48SW15863	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW15861	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW1226_73 48SW1226_121 48SW1226_74	Historic	Overland Trail Segment	Pipeline	Eligible	Avoid, Mitigate Visual Impact	No Effect; Adverse Effect To Setting	BLM/ Private
48SW6879	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16620	Historic	Homestead	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW4164	Historic	Vernal-Green River	Pipeline	Eligible	No Further Work	No Adverse Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
		Freight Road					
48SW3734	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
49SW16621	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16622	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16623	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW16624	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16625	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW3865	Historic	Browns Park/Rock Springs Road	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM
48SW10752	Historic	Rock Springs To Hiawatha Freight Road	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM
49SW15703	Historic	Telephone Line	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM
48SW3319	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW16626	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW13914	Prehistoric	Lithic Scatter	Pipeline	Eligible	Avoid Or Mitigate	No Effect	BLM
48SW12421	Historic	Wagon Road	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW1226_61	Historic	Overland Trail Segment	Pipeline	Contributing Segment Of Eligible Resource	Avoid, Restrict The Construction Corridor To The Permanent Row, Fence, And Monitor	No Effect; Adverse Effect To Setting	Private
48SW16627	Prehistoric	Lithic Scatter	Pipeline	Eligible	Fence/Monitor	No Adverse Effect	BLM
48SW2398	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW16628	Prehistoric	Open Camp	Pipeline	Eligible	No Further Work	No Effect	Private
48SW2397	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW1226_132	Historic	Overland Trail Segment	Pipeline	Eligible	Avoid/Fence/ Monitor	No Effect; Adverse Effect To Setting	BLM
48SW11395	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW1226_62	Historic	Overland Trail Segment	Pipeline	Eligible	No Further Work	No Adverse Effect	BLM

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48SW16629	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16630	Prehistoric	Lithic Scatter	Pipeline	Eligible	Avoid/Neck/Fence/ Monitor	No Effect	Private
48SW15897	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW15891	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16631	Prehistoric	Open Camp	Access Road	Not Eligible	No Further Work	No Effect	Private
48SW11576	Prehistoric	Open Camp	Access Road	Not Eligible	No Further Work	No Effect	BLM
48SW6360	Historic	Railroad Camp	Pipe Yard	Not Eligible	No Further Work	No Effect	Private
IR-LF-2	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-LF-3	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-KKB-31	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-46A-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-48A-1	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-53.9	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-54.1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-56.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-59.7	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
IR-62.8	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-KKB-32	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-13	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-MA-12	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-1A	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-72.7	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MA-11	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-73.4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-78.3	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-79.6	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-82.5	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
IR-82.6	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-84.5	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-85.1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-85.3	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-85.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-89.2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-89.8	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-93.2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-93.3	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-97.6	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-102.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-105.8	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-106.8	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW13982	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW15896	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW15890	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW2690	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW15893	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW15894	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW15895	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW3339	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW4155	Prehistoric	Lithic Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	Private
48SW9804	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW5156	Prehistoric	Open Camp	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	Private/BLM
48SW5157	Prehistoric	Open Camp	Pipeline	Eligible, Contributing Portion	Avoid	No Effect	State
48SW12160	Multi-	Lithic Scatter/Historic	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
	Component	Debris Scatter					
48SW6357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Contributing Portion	Bore/Fence/Monitor	No Adverse Effect	Private
48SW12319	Historic	Historic Culvert Related to UPRR Mainline	Pipeline	Eligible	Fence/Monitor	No Effect	Private
48SW12385	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW5602	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW13108	Prehistoric	Open Camp	Pipeline	Eligible, Contributing Portion	Avoid	No Effect	BLM
48SW13106	Prehistoric	Open Camp	Pipeline	Eligible	Fence/Monitor	No Adverse Effect	BLM
48SW13105	Prehistoric	Open Camp	Pipeline	Eligible	Avoid	No Effect	BLM
48SW16633	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW16634	Multi-Component	Lithic Scatter/Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW10277/ CR5739	Historic	Baggs-Wamsutter Road	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW10057	Multi-Component	Open Camp/ Historic Debris Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	Private
48CR2036	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR2039	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR2040	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR1527	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR5512	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR8296	Historic	Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW16635	Prehistoric	Open Camp	Pipeline	Eligible	Avoid/Fence/ Monitor	No Effect	BLM
48SW911	Prehistoric	Lithic Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	BLM
48SW1029	Prehistoric	Open Camp	Pipeline	Eligible	Avoid	No Effect	BLM
48SW6790	Prehistoric	Open Camp	Pipeline	Eligible	No Further Work	No Adverse Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48SW6357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48SW11371	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW1027	Multi-Component	Open Camp/Historic Debris Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	Private
48SW1028	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW891	Multi-Component	Open Camp/Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR7310	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	State
48CR7309	Prehistoric	Open Camp	Pipeline	Eligible	Fence/Monitor	No Effect	State
48CR8727	Multi-Component	Lithic Scatter/Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR7308	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR7311	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR4328	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR7307	Multi-Component	Open Camp/Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR6986	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR6488	Multi-Component	Open Camp/Historic Debris Scatter	Pipeline	Eligible, Contributing Portion	Neck/Fence/ Mitigate/Monitor	Adverse Effect	BLM
48CR6485	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR40	Multi-Component	Open Camp/Historic Debris Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	BLM
48CR3648	Historic	Rawlins To Baggs Stage Road	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR41	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR6484	Prehistoric	Hearth Feature	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR2181	Historic	City Of Rawlins Wood Water Pipe	Pipeline	Eligible	Monitor	Unknown Effect	Private
48CR644	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private

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Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48CR8241	Historic	Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR6566	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR1234	Prehistoric	Open Camp	Pipeline	Eligible	Avoid/Neck/Fence/ Monitor	No Effect	BLM
48CR4008	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	State
48CR8730	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR984	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR983	Prehistoric	Open Camp	Pipeline	Eligible	Fence/Monitor	No Adverse Effect	State
48CR5534	Historic	Historic Fort Steele To Laramie Wagon Road	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private/BLM
48CR629	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR630	Prehistoric	Stone Circle, Tcp	Pipeline	Eligible	Avoid	No Effect	BLM
48CR8732	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR8243	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR8244	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR631	Multi-Component	Open Camp/Historic Debris Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	BLM/ Private
48CR6914	Historic	Saratoga And Encampment Railroad	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR8245	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Contributing Portion	Neck/Fence/Mitigat e	Adverse Effect	Private
48CR8733	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR632	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR1233	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	State
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Contributing Portion	Fence/Monitor	No Effect	State

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	Monitor	No Effect	State
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Effect	Private
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48CR1191	Historic	Lincoln Highway	Pipeline	Eligible, Contributing Portion	Bore/Fence/Monitor	No Adverse Effect	BLM
48CR1232	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR7189	Historic	Road From Elk Mountain to UPRR	Pipeline	Not Eligible	No Further Work	No Effect	BLM/ Private
48CR3917	Prehistoric	Stone Circle	Pipeline	Eligible	Fence/Monitor	No Effect	Private
48CR648	Prehistoric	Open Camp	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	BLM/ Private
48CR1231	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR8247	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR3918	Prehistoric	Lithic Scatter	Pipeline	Eligible, Non-Contributing Portion	Fence/Monitor	No Adverse Effect	Private
48CR8734	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR8735	Multi-Component	Lithic Scatter/Historic Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR3920	Prehistoric	Open Camp	Pipeline	Eligible	No Further Work	No Effect	Private/BLM
48CR4493	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR932	Historic	Overland Trail Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR8736	Historic	Historic Hearth/Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR652	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR3927	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48CR8737	Multi-	Lithic Scatter/Historic	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
	Component	Debris Scatter And Structure					
48CR1229	Prehistoric	Open Camp	Pipeline	Eligible	Avoid/Fence/ Monitor	No Adverse Effect	Private
48CR932	Historic	Overland Trail Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR5834	Prehistoric	Foot Creek Rim Tcp	Pipeline	Eligible	Monitor	No Adverse Effect	BLM
48CR5579	Prehistoric	Tcp-Foote Creek Rim Arch District	Pipeline	Eligible	Monitor	No Adverse Effect	BLM
48CR6885	Historic	Canon Ditch	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR6885	Historic	Canon Ditch	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR6885	Historic	Canon Ditch	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR932	Historic	Overland Trail Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB18	Prehistoric	Open Camp	Pipeline	Eligible	Mitigate/Monitor	Adverse Effect	Private
48AB321	Prehistoric	Lithic Landscape	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48AB1180	Historic	Homestead	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB157	Historic	Overland Trail Segment	Pipeline	Eligible, Contributing Portion	Neck/Fence/Monitor	No Effect	State/ Private
48AB1444	Historic	Cairn	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB17	Historic	Stone Arrangement	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB19	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB1424	Historic	Ranch	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB354	Historic	Lodgepole Creek Trail	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB619	Historic	Laramie, Hahn's Peak, Pacific Railroad	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB835	Historic	Pioneer Canal	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB744	Multi-Component	Historic Cellar/Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48AB1225	Historic	Laramie Valley Railroad Grade	Pipeline	Eligible	Bore/Fence/Monitor	No Adverse Effect	Private
48AB357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Effect	Private
48AB152	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB1423	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB404	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB1760	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB165	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB152	Historic	Lincoln Highway	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Effect	BLM
48AB1761	Historic	Dug Out Feature And Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48AB167	Historic	Buford Cemetery	Pipeline	Not Eligible	Avoid/Fence/ Monitor	No Effect	Private
48LA2827	Historic	Prospect Pit	Pipeline	Not Eligible	No Further Work	No Effect	State
48LA2828	Historic	Prospect Pit	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LA207	Prehistoric	Hunting Blinds	Pipeline	Eligible	Avoid/Fence/ Monitor	No Effect	Private
48LA3	Historic	Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LA2976	Historic	Cairn And Debris Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48LA331	Historic	Stone Wall	Pipeline	Not Eligible	No Further Work	No Effect	Private
48CR1399	Historic	Union Pacific Railroad Segment	Pipeline	Eligible, Non-Contributing Portion	No Further Work	No Effect	BLM
48CR633	Prehistoric	Open Camp	Access Road	Not Eligible	No Further Work	No Effect	BLM
48CR4524	Prehistoric	Open Camp	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private/ BLM
48CR8726	Historic	Foundation And Debris Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48SW10856	Prehistoric	Open Camp	Access Road	Eligible, Non-Contributing Portion	Fence	No Effect	BLM
48CR8728	Prehistoric	Open Camp	Access Road	Not Eligible	No Further Work	No Effect	Private
48CR7327	Multi-Component	Open Camp/Historic Debris Scatter	Access Road	Eligible, Non-Contributing Portion	Avoid	No Effect	BLM
48CR1191	Historic	Lincoln Highway	Access Road	Eligible, Contributing Portion	Fence	No Adverse Effect	Private
48CR4328	Historic	Union Pacific Railroad Segment	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR7311	Historic	Union Pacific Railroad Segment	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR1191	Historic	Lincoln Highway	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48CR4328	Historic	Union Pacific Railroad Segment	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48SW6357	Historic	Union Pacific Railroad Segment	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48CR1191/48SW1834	Historic	Lincoln Highway	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	Private/ BLM
48CR4328/48SW6357	Historic	Union Pacific Railroad Segment	Access Road	Eligible, Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
IR-RDRD-1	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-MD-100	Multi-Component	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-NB-3	Historic	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-NB-2	Historic	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-NB-1	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-MD-101	Historic	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	Private
IR-NB-4	Multi-Component	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-114.6	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MC-10	Prehistoric	Isolated Resource	Access Road	Not Eligible	No Further Work	No Effect	BLM
IR-129.4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
IR-S-130.0A1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-S-130.0A2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-S-130.0A3	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MC-132	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-135.1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-136.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-138.1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-138.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-139.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-140.1	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-143.5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-147.2-NB	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-148.8	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-KKB-4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-11	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-152.3	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
IR-ARF-4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-ARF-5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-ARF-6	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-157.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MRM-100	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MRM-101	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-DS-5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-160.2	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-160.3	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-ARF-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-ARF-2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MD-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-161.1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
IR-SDR-21	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-KD-3	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-KKB-2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-165.4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-7	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-BH-8	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-BH-9	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-170.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-KKB-1A	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-BH-6	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-BH-5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-3	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-2	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-JB-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-SDR-2	Multi-Component	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-BH-1	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-KD-1	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-LF-1	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-SDR-100	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-GFC-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-JB-4	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-JB-5	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	BLM
IR-JL-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-SLP-1	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
IR-MA-01	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MJR-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-MA-2	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-JB-1A	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
IR-286.0	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-287.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-288.0	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-288.8	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-294.4-A	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
IR-294.4-B	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
IR-SDR-1	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-296.9	Prehistoric	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-NC-2	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	Private
IR-303.6	Historic	Isolated Resource	Pipeline	Not Eligible	No Further Work	No Effect	State
48SW8210	Prehistoric	Open Camp	Pipeline	Not Eligible	No Further Work	No Effect	BLM/ Private
48LN2374	Prehistoric	Lithic Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM
48LN2375	Prehistoric	Lithic Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM
48LN3539	Prehistoric	Lithic Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM
48SW16623	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	BLM
48SW16666	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No Further Work	No Effect	Private
48SW468	Prehistoric	Open Camp	Access Road	Eligible	Avoid	No Adverse Effect	BLM
48SW11614	Prehistoric	Open Camp	Access Road	Eligible	Fence	No Adverse Effect	BLM
48SW14000	Prehistoric	Open Camp	Access Road	Eligible	Avoid	No Adverse Effect	BLM
48SW14005	Prehistoric	Open Camp	Access Road	Eligible	Avoid	No Adverse Effect	BLM
48SW14006	Prehistoric	Open Camp	Access Road	Eligible	Avoid	No Adverse Effect	BLM
48SW12421	Historic	Road To Black Buttes	Access Road	Not Eligible	No Further Work	No Effect	BLM/ Private
48CR8771	Historic	Debris Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM
48SW2386	Prehistoric	Lithic Scatter	Access Road	Not Eligible	No Further Work	No Effect	Private
48SW6357	Historic	Union Pacific Railroad Segment	Access Road	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48SW1834	Historic	Lincoln Highway	Access Road	Eligible/Non-Contributing Portion	No Further Work	Destroyed	Private
48CR7327	Multi-Component	Open Camp/Debris Scatter	Access Road	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	BLM

Table I-1 Cultural Resources Located During the Class III Inventories of the Wyoming Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
48SW6167	Historic	Debris Scatter	Access Road	Not Eligible	No Further Work	No Effect	Private
48SW6174	Prehistoric	Open Camp	Access Road	Eligible/Non-Contributing Portion	Fencing And Monitoring	No Adverse Effect	Private
48CR621	Prehistoric	Open Camp	Access Road	Eligible/Non-Contributing Portion	Fencing And Monitoring	No Adverse Effect	BLM
48CR559	Prehistoric	Open Camp	Access Road	Not Eligible	No Further Work	No Effect	BLM
48CR7185	Prehistoric	Open Camp	Access Road	Eligible/ Contributing Portion	Avoid	No Adverse Effect	BLM/ Private
48CR991	Historic	Debris Scatter	Access Road	Not Eligible	No Further Work	No Effect	BLM
48CR3648	Historic	Rawlins To Baggs Stage Road	Access Road	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48CR1191	Historic	Lincoln Highway	Access Road	Eligible/Non-Contributing Portion	No Further Work	Destroyed	BLM
48CR4328	Historic	Union Pacific Railroad Segment (Northern Grade)	Access Road	Eligible/Non-Contributing Portion	No Further Work	Destroyed	BLM
48CR4328	Historic	Union Pacific Railroad Segment (Middle Grade)	Access Road	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48CR4328	Historic	Union Pacific Railroad Segment (Southern Grade-Modern Alignment)	Access Road	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	BLM
48CR7068	Historic	Homestead / Debris Scatter	Access Road	Not Eligible	No Further Work	No Adverse Effect	BLM
48AB543	Historic	Monument Road	Access Road	Eligible/ Contributing Portion	No Further Work	No Adverse Effect	Private
48AB357	Historic	Union Pacific Railroad Segment	Access Road	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	Private
48AB357	Historic	Union Pacific Railroad Segment	Pipeline	Eligible/Non-Contributing Portion	No Further Work	No Adverse Effect	BLM

Table I-2 Cultural Resources Located During the Class III Inventories of the Colorado Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
5LO66.1	Historic	South Platte Ditch	Pipeline	Eligible	Bore		Private
5LO309.2	Historic	North Sterling Canal	Pipeline	Eligible	Bore		Private
5LO346.2	Historic	Union Pacific Railroad – Julesburg to LaSalle Branch	Pipeline	Eligible segment of officially eligible site	Bore		Private
5LO442	Historic	Beaver Creek to Sterling Transmission Line	Pipeline	Not eligible	No further work		Private
5LO479.1	Historic	U. S. Highway 6	Pipeline	Eligible	Bore		State of Colorado ROW through Private
5LO588	Historic	Lutin Residence	Pipeline, ATWS	Not eligible	No further work		Private
5LO593.1	Historic	Davis Brothers Ditch (Company Ditch)	Pipeline	Eligible	Bore		Private
5LO594.1	Historic	Prewitt Drain and Seepage Ditch	Pipeline	Eligible	Bore		Private
5LO617.1	Historic	South Platte Extension Ditch (Sand Hill Ditch)	Pipeline	Eligible	Bore		Private
5MR563.3	Historic	Riverside Canal	Pipeline	Eligible segment of officially eligible site	Bore		Private
5MR868	Historic	Camp	Pipeline	Not eligible	No further work		Private
5WL399	Prehistoric	Lithic scatter	Pipeline	Eligible	Avoid	Alternate route avoids site	USFS – PNG
5WL402	Prehistoric	Lithic procurement/tool manufacture	Pipeline	Not eligible	No further work		Private
5WL403	Historic Prehistoric	Kaohn Homestead Lithic scatter	Pipeline	Eligible Not eligible	Avoid No further work	Alternate route avoids site	USFS – PNG
5WL404	Historic	Gottlob Fritz Homestead	Pipeline	Eligible	No further work		USFS – PNG
5WL405	Historic	Drucker Homestead	Pipeline	Eligible	Avoid	Alternate route avoids site	USFS – PNG
5WL406	Prehistoric	Artifact scatter/Bluff View/ Rattlesnake Ridge Site	Pipeline	Officially eligible	Avoid	Alternate route avoids site	USFS - PNG
5WL407	Historic Prehistoric	Macomber Homestead Prehistoric artifact scatter	Pipeline	Officially not eligible	No further work		USFS – PNG

Table I-2 Cultural Resources Located During the Class III Inventories of the Colorado Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
5WL1066.1	Historic	Burlington & Missouri Valley/Chicago, Burlington & Quincy/Burlington Northern RR	Pipeline	Eligible segment of officially eligible site	Bore		USFS – PNG
5WL1066.2	Historic	Burlington & Missouri Valley/Chicago, Burlington & Quincy/Burlington Northern RR	Pipeline	Eligible segment of officially eligible site	Bore		Private
5WL1093	Prehistoric	Tested cobbles/lithic scatter	Pipeline	Not eligible	No further work		Private
5WL1506	Prehistoric	Artifact scatter/camp	Pipeline	Officially not eligible	No further work		USFS – PNG
5WL1744	Historic Prehistoric	Jesse Gardner Homestead Prehistoric isolated find	Pipeline	Officially not eligible	No further work		Private
5WL1969.37	Historic	Union Pacific Railroad	Pipeline	Officially eligible	Bore		Union Pacific ROW through State of Colorado
5WL2947.4	Historic	Denver Pacific Railroad	Pipeline	Officially eligible	Bore		State of Colorado
5WL2947.6	Historic	Union Pacific Railroad	Access Road	Officially eligible	No further work		Union Pacific ROW through Private
5WL2956.2	Historic	Colorado Railroad/Colorado & Southern Railroad – Dixon to Cheyenne	Pipeline	Officially eligible	Bore		Burlington Northern ROW through State of Colorado
5WL3989	Prehistoric Historic	Prehistoric artifact scatter and historic artifact scatter	Pipeline, ATWS	Officially not eligible	No further work		Private
5WL3996	Prehistoric	Artifact scatter	None	Officially not eligible	No further work		USFS – PNG
5WL4777	Prehistoric	Artifact scatter	Pipeline	Eligible	Avoid	Alternate route avoids site	State of Colorado
5WL4784	Historic	Artifact scatter	Pipeline	Officially not eligible	No further work		USFS – PNG

Table I-2 Cultural Resources Located During the Class III Inventories of the Colorado Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
5WL5118	Historic	Artifact scatter	Pipeline	Not eligible	No further work		City of Fort Collins
5WL5119	Historic	Richard Lilly Homestead	None	Eligible	No further work		Private
5WL5120	Historic	Artifact scatter	None	Not eligible	No further work		Private
5WL5124	Prehistoric	Artifact scatter	None	Not eligible	No further work		Private
5WL5125	Historic	Ashmun Homestead	None	Not eligible	No further work		Private
5WL5134	Historic	Artifact scatter	None	Not eligible	No further work		Private
5WL5135	Prehistoric	Artifact scatter	None	Not eligible	No further work		Private
5WL5136	Prehistoric	Artifact scatter	Pipeline	Eligible	Avoid	Alternate route avoids site	Private
5WL5143	Historic	Bowles Homestead	None	Eligible	No further work		Private
5WL5145	Historic	James Dean Homestead	Pipeline	Eligible	No further work		USFS - PNG
5WL5149	Historic	Cohen Homestead	Pipeline	Not eligible	No further work		Private
5WL5151	Prehistoric	Lithic procurement/lithic reduction	Pipeline	Not eligible	No further work		Private
5WL5152	Prehistoric	Lithic procurement/lithic scatter	Pipeline	Eligible	Avoid	Alternate route avoids site	Private
5WL5156	Prehistoric	Lithic scatter	Pipeline	Not eligible	No further work		USFS – PNG
5WL5158	Historic	Residential	Pipeline, ATWS[1]	Eligible	Avoid	Alternate route avoids site[2]	Private
5WL5159	Prehistoric	Lithic scatter	Pipeline	Not eligible	No further work		Private
5WL5161	Historic	Shaw Homestead	Pipeline	Not eligible	No further work		Private
5WL5162	Prehistoric	Artifact scatter	Pipeline	Not eligible	No further work		Private
5WL5163	Historic	William R. Lemmons Homestead	None	Eligible	No further work		Private
5WL5164	Historic	Possible residence	None	Not eligible	No further work		Private
5WL5166.1	Historic	Road	Pipeline	Not eligible	No further work		USFS – PNG
5WN184	Prehistoric	Lithic scatter	None	Not eligible	No further work		Private
5WN189	Historic	Artifact scatter	None	Not eligible	No further work		Private
5WN190	Prehistoric	Artifact scatter	None	Not eligible	No further work		Private
5WN191	Historic	Bussear Homestead	Pipeline	Not eligible	No further work		Private
5WN192	Historic	Artifact scatter	Pipeline	Not eligible	No further work		Private

Table I-2 Cultural Resources Located During the Class III Inventories of the Colorado Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
5WN197	Historic	Farm complex	None	Not eligible	No further work		Private
5YM43	Historic	Chicken coop	None	Officially not eligible	No further work		Private
5YM44	Prehistoric	Open camp	Pipeline	Not eligible	No further work		Private
5YM63	Prehistoric	Lithic scatter	None	Not eligible	No further work		Private
5YM64	Prehistoric	Lithic scatter	Pipeline	Not eligible	No further work		Private
5YM245.1	Historic	DeArmond Irrigation Ditch No. 1	Pipeline	Not eligible	No further work		State of Colorado
5YM246.1	Historic	Road	Pipeline	Not eligible	No further work		State of Colorado
5YM247.1	Historic	Eckley to Wray Road	Pipeline	Not eligible	No further work		Private
5YM259.1	Historic	Chicago, Burlington & Quincy Railroad – Chicago to Denver Line	Pipeline	Eligible	Bore		Burlington Northern ROW through State of Colorado

[1]ATWS identified on site after submission of inventory report.

[2]Alternate route inventoried to avoid site after submission of inventory report; will be reported on in an addendum report.

Table I-3 Cultural Resources Located During the Class III Inventories of the Kansas Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility[1, 2]	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
14CN00103	Historic	Agrarian	Pipeline	Not Eligible	No further work		Private
14CN00104	Prehistoric	Probable Kill	Pipeline	Unevaluated	No further work	Avoided by reroute	Private
14CN00102	Prehistoric	Lithic Scatter/ Camp	Pipeline	Unevaluated	No further work	Avoided by reroute	Private
14RW00102	Prehistoric	Lithic Scatter/ Camp	Pipeline	Not Eligible	No further work		Private
14RW00101	Historic	Machinery dump	Pipeline	Not Eligible	No further work		Private
14RW00103	Prehistoric	Camp	Pipeline	Not Eligible	No further work		Private
14RW00104	Historic	Domestic	Pipeline	Unevaluated	No further work	Avoided by reroute	Private
14SD00111	Historic	Domestic/ Agrarian	Pipeline	Not Eligible	No further work		Private
14SD00106	Historic	Domestic/ Dump	Pipeline	Not Eligible	No further work		Private
14SD00105	Historic/ Prehistoric	Artifact Scatter	Pipeline/ ATWS 4A0C5	Not Eligible	No further work		Private
14SD00107	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14SD00108 / 14SD00109	Prehistoric	Lithic Scatter	Pipeline	Eligible	Avoid or Data Recovery	Data Recovery	Private
14SD00112	Prehistoric	Lithic Scatter	Pipeline/ Wakeeney Pump Station 2, Alt 1 and 2/ ATWS 4DCE2 and 424B7	Not Eligible	No further work		Private
14SD00102	Prehistoric	Camp/Workshop	Pipeline/ ATWS 4DCE4	Eligible	Avoid or Data Recovery	Data Recovery	Private
14SD00103	Prehistoric	Lithic Scatter	Pipeline	Eligible	Avoid or Data Recovery	Data Recovery	Private
14SD00104	Prehistoric	Lithic Scatter	Pipeline/ ATWS 4DCE6	Eligible	Avoid or Data Recovery	Data Recovery	Private

Table I-3 Cultural Resources Located During the Class III Inventories of the Kansas Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility[1, 2]	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
14SD00110	Prehistoric	Lithic Scatter	Pipeline/ ATWS 4EB66, 4EB67, 4EC5C, 4EC5D, 4CE5F, and 4EC5E	Not Eligible	No further work		Private
14SD00428	Historic/ Prehistoric	Domestic/Camp/ Workshop	Pipeline/ ATWS 4EC60	Eligible	No further work along approved alternate route		Private
14SD00452	Prehistoric	Camp/Lithic Workshop	Pipeline/ ATWS 4EC61	Not Eligible	No further work		Private
14SD00101	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14GO00101	Prehistoric	Lithic Scatter	Pipeline/ ATWS 4DCE8	Not Eligible	No further work		Private
14GO00102	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14GO00301	Prehistoric	Workshop	Pipeline	Not Eligible	No further work		Private
14TO00101	Historic/ Prehistoric	Domestic/ Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14TO00306	Prehistoric	Quarry/Workshop	Pipeline	Eligible	Avoid or Data Recovery	Data Recovery	Private
14TO00317	Prehistoric	Quarry/Workshop/ Possible Camp	Pipeline/ ATWS 49C8D (11222006)	Not Eligible	No further work		Private
14TO00314	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14TO00102	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14TO00112	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14TO00113	Prehistoric	Isolated Find	Pipeline	Not Eligible	No further work		Private
14TO00103	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14TO00107	Prehistoric	Lithic Scatter	Pipeline/ ATWS 4DCCA and 4DC7A	Not Eligible	No further work		Private
14TO00111	Historic	Domestic/ Agrarian	Pipeline	Not Eligible	No further work		Private
14TO00108	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14TO00110	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private

Table I-3 Cultural Resources Located During the Class III Inventories of the Kansas Segment of the OPP Corridor

Site Number	Culture	Site Type or Name	Project Facility[1, 2]	NRHP Recommendation	Management Recommendations	Status of Cultural Work	Land Owner
14TO00109	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14RU00101	Prehistoric	Lithic Scatter	Pipeline	Not Eligible	No further work		Private
14BT00101	Historic	Domestic/ Agrarian	Pipeline/ ATWS 4E4E6	Not Eligible	No further work		Private
14BT00103	Historic	Domestic	Pipeline	Not Eligible	No further work		Private
14BT00102	Historic	Domestic	Pipeline	Not Eligible	No further work		Private
14RC00313	Prehistoric	Village	Pipeline	Not Eligible	No further work		Private
14SD00421	Prehistoric	Camp	Abandoned Alternate Route	Unevaluated	No further work	Abandoned Alternate Route	Private
14SD00426	Prehistoric	Camp	Abandoned Alternate Route	Unevaluated	No further work	Abandoned Alternate Route	Private
14SD00431	Prehistoric	Camp	Abandoned Alternate Route	Unevaluated	No further work	Abandoned Alternate Route	Private
14SD00432	Prehistoric	Camp	Abandoned Alternate Route	Unevaluated	No further work	Abandoned Alternate Route	Private
14SD00433	Prehistoric	Camp/ Lithic Scatter	Pipeline/ ATWS 4EC36, 4EC37, and 4EC3B	Not Eligible (approved route only)	No further work within approved route		Private
14TH00101	Prehistoric	Lithic Scatter	GEM Pipe yard	Not Eligible	No further work		Private

[1]"Pipeline" refers to the 75-foot construction corridor.

[2]"ATWS" refers to an additional temporary workspace required for pipeline construction.

Appendix J

Risk Assessment

APPENDIX J
Environmental Fate and Effects of Natural Gas Liquid Releases

When natural gas is removed from the ground, it is compositionally different than what is transported through natural gas transmission systems and ultimately used as an energy source for end users for home heating and cooking, and industrial energy. When removed from the ground, the mixture is predominately methane, but also includes heavier hydrocarbons and inert gases. Although the mixture can vary greatly, a typical natural gas stream may include 85 percent methane, 10 percent heavier hydrocarbons called natural gas liquids (NGLs), and 5 percent inert gases. NGLs usually are removed from natural gas during processing. Lighter ends, including propane and butane may be removed, stored and shipped separately. Alternatively, the operator may simply ship raw NGLs to a NGL plant for separation.

NGLs exist in fields as constituents of natural gas but are recovered separately as liquids. NGL should not be confused with natural gas, which is composed primarily of methane. NGL molecules liquefy more readily than methane. Overland Pass NGLs are composed of 53 percent ethane, 25 percent propane, 14 percent butane (normal and iso-), with smaller amounts (4 percent) of (iso) pentane, and pentane plus hexane and heptane (sometimes referred to as natural gasoline or plant condensate) (**Table J-1**). NGL is denser than natural gas and becomes combustible at different concentrations than methane.

Table J-1. Composition of Overland Pass Pipeline NGLs

Component	Liquid Volume Percent
Methane	0.36
Ethane	53.16
Propane	25.75
Butanes	13.50
Pentanes	4.42
Hexanes +	2.61
BTEX	0.12
Carbon dioxide	0.11

Note: Specific gravity is 0.446

NGLs have a variety of different uses, including enhancing oil recovery in oil wells, providing raw materials for oil refineries or petrochemical plants, and as sources of energy. They can also be used in many applications, such as:

- Ethane is primarily used for the production of plastics.
- Propane is typically used for heating purposes, gas grills, lanterns etc, but can also be used in the production of plastics.
- Butanes and natural gasoline are primarily used for motor gasoline blending

Properties and Hazards

Ethane (C_2H_6) exists as a colorless, odorless gas at ambient pressure and temperature. It is heavier than air and may concentrate in low-lying areas. Although ethane is not considered highly toxic it can replace oxygen molecules and cause asphyxiation.

Propane (C_3H_8) also exists as a gas at ambient pressure and temperature, but is heavier than air with 1.52 specific gravity as a vapor at 1 atmosphere and 60º F. (air = 1.0). Liquid Propane is lighter than water. It is about one-half as heavy as an equal volume of water.

Butane (C_4H_{10}) exists in both gaseous and liquid forms at ambient pressure and temperature, being less stable than propane in a gaseous form. Butane is heavier than air and heavier than propane. Its main use

these days is industrial as a chemical feedstock (mostly after conversion to iso-butane), and is otherwise more waste than product.

Heavier NGLs (C5H12+), such as pentanes, hexanes, heptanes exist as liquids at ambient pressure and temperature and are shipped in liquid form. Heavier NGLs often are used as a diluent for shipping crude oil via pipeline; it reduces the viscosity of heavier crude oils.

Once released into the environment, NGLs are volatilized and quickly evaporate. NGLs are not generally toxic; however, as the gas takes the place of air, it becomes a simple asphyxiant and can cause suffocation from lack of oxygen. Hydrocarbon liquids shipped via pipelines generally have vapors that are heavier than air and that will collect in low or enclosed areas. These vapors are simple asphyxiants in that they will displace oxygen and create an oxygen-deficient atmosphere in those areas. NGLs are relatively non-toxic below the lower explosive limits (e.g., 30,000 ppm for ethane). Direct exposure to NGLs can result in frostbite to the skin and headache or nausea if inhaled. In addition, an accidental release of NGL, while in transport, may result in the following hazards:

- **POOL FIRES** - Upon release, heavier NGLs are flammable and, therefore, pose the hazard of thermal radiation.
- **FIREBALLS** - A large, pressurized release of a liquefied hydrocarbon such as propane or butane may burn in the form of a fireball, which grows larger and also moves upwards. Thermal radiation is the related hazard.
- **VAPOR CLOUD FIRES** - Upon release, propane or butane can form a vapor cloud that spreads horizontally. If little or no wind is present and atmospheric conditions are very stable, the spreading cloud mixes slowly with oxygen. It can burst into flames if ignited and flash back to the source of the release. Thermal radiation is the hazard.
- **VAPOR CLOUD EXPLOSIONS** - NGL vapor clouds are potentially explosive both in unconfined and confined situations. The hazard of such an explosion generally results from building damage or breaking windows.

Table J-2 provides a summary of the general chemical characteristics of NGLs.

Table J-2 Summary of Properties and Hazards

	Ethane	n-Butane	Propane	Pentane+
Formula	C2H6	C_4H_{10}	C3H8	C_5H12
Family	Hydrocarbon	Hydrocarbon	Hydrocarbon	Hydrocarbon
Appearance liquid	Colorless	Colorless	colorless	colorless
Appearance vapor	Foggy in concentration	Foggy in concentration	Foggy in concentration	Foggy in concentration
Odor	Odorless	Virtually odorless	Odorless	Odorless
Main hazard	Flammable	Flammable	Flammable	Flammable
BP@ATP	-88.6°C	-0.5°C	-42.1°C	°C
Flash point	-135°C	-60°0C	-105°C	°C
Flammable limits (LEL – UEL)	3.0-12.5%	1.9-9.0%	2.1-9.5%	%
Auto-ignition	515°C	405°C	450°C	°C
TLV[a]	No TLV	800 ppm critical effect narcosis	2500 ppm critical effect simple asphyxiant	600 ppm critical effects irritation and narcosis
Odor threshold	Odorless	5000 ppm	Odorless	Odorless
Reaction-air	No reaction	No reaction	No reaction	No reaction
Reaction - water	No dangerous reaction	No dangerous reaction	No dangerous reaction*	No dangerous reaction*

[a]ACGIH
*may form solid hydrates, insoluble.

Environmental Fate

Accidental releases of NGLs can occur during pipeline transport. Media distribution calculations according to Mackay Level 1 (1992) show that in the event of an accidental release of NGLs all of the material will end up in the air compartment due to the volatility of the hydrocarbons (API 2000).

Aerobic biodegradation of ethane is greater than 65% after 35 days (ZoBell 1963). API *Robust Summary of Information on Petroleum Gases* (2000) notes that ethane, propane and butane can be used by bacteria as carbon sources. When released into water, most of the NGLs will float to the surface where they will evaporate.

Evaporation will be the primary mechanism of loss for NGLs, rapidly reducing exposure and toxicity. Dissolution of NGLs in water is not a significant process (i.e., NGS are negligibly water soluble). Photodegradation of NGLs increases with greater solar intensity. It can be a significant controlling factor, especially of lighter products and constituents; but it will be less important during cloudy days and winter months.

Overall, the environmental fate of released NGLs is controlled by many confounding factors. Major factors affecting the environmental fate include spill volume, type of product, dispersal rate of the product, terrain, and weather. In the event of a leak, NGLs released from the pipeline would begin to vaporize, the gases would percolate through the soil and sediments, and then dissipate into the atmosphere. Only that component of the NGL stream that does not readily volatilize at atmospheric pressure (approximately 2 to 4 percent of the NGL) would remain to potentially migrate through the overlying surface materials and enter the groundwater. Once released, the physical environment largely dictates the environmental persistence of the spilled material. Generally, NGLs evaporate quickly and releases would be expected to rapidly dissipate.

Environmental Effects

If released into the environment, NGLs pose a range of risks to the environment and to human populations. NGLs shipped via pipelines generally have vapors that are heavier than air and that will collect in low or enclosed areas. These vapors are simple asphyxiants in that they will displace oxygen and create an oxygen-deficient atmosphere in those areas.

Hydrocarbon vapors are flammable or combustible, although different hydrocarbon liquids have different flash points (the temperatures at which sufficient flammable vapors are emitted) and flammable ranges (the range of vapor concentration in air expressed as a percentage by volume). This potential for flammability is likely the most serious threat to human health and the environment.

NGLs released to the environment may cause adverse biological effects on birds and mammals via inhalation exposure from highly volatile compounds. Acute toxic effects include narcotic effects, and possible death. While releases of NGLs may have an immediate and direct effect on wildlife populations, the potential for physical and toxicological effects attenuates quickly as the volume of material diminishes.

In mammals, high molecular weight alkanes are considered virtually nontoxic. Overall, NGLs have rapid rates of evaporation and low environmental persistence, thus the primary hazard from NGLs is considered to be acute, not chronic, airborne toxicity. Short-term impacts to vegetation in the area of a release may be possible. Aquatic toxicity of petroleum gases is not applicable.

Rats exposed to various concentrations of propane in air showed signs of central nervous system depression, intoxication and death. Recovery from a non-lethal exposure was rapid. The calculated effect concentration (EC_{50}) was 280,000 ppm (504,996 mg/m^3 (Clark & Tinson 1962). A similar study with isobutene resulted in an EC50 of 200,000 ppm (475,444 mg/m3). Hydrocarbons that volatilize into the atmosphere are broken down into smaller compounds by photodegradation and photo-oxidation

The behavioral responses of terrestrial wildlife may help reduce potential adverse effects. Many birds and mammals are mobile and will avoid leak areas. The greatest environmental impact of an NGL spill is the potential for fire and the resulting short-term ecological devastation.

Additional information regarding the fate of NGL and specific NGL components if accidentally released into the environment, including groundwater, can also be found in sections 4.3.4.1 and 4.3.4.2 of the Environmental Assessment for the Mid-America Pipeline Company, LLC (MAPL) Western Expansion Project. This Environmental Assessment was prepared by the BLM in 2005. The BLM's Environmental Assessment concluded that "a release from an NGL pipeline would result in the evaporation of most, if not all, of the liquids on the surface of the ground or in the vadose zone above the water table. Under certain conditions it would be possible for a very small portion of the release to reach the water table. Because of their slight solubility in water, contamination from NGLs would be limited to a few parts-per-million. These concentrations would be further reduced by diffusion and natural attenuation further reducing the risk to potential receptors." This Environmental Assessment is available at http://www.nm.blm.gov/nmso/mid_am_pipeline/mid_am_pipeline.htm.

Assessment of Worst Case Scenario

As noted, in the event of a pipeline rupture NGLS will mostly volatilize and quickly dissipate, thereby minimizing the potential impacts to both humans and ecological receptors. The product contains 0.12% benzene, which, if enough material is spilled, could impact aquatic organisms or humans ingesting drinking water from the contaminated source. The potential for impacts was investigated by evaluating a conservative scenario whereby a complete pipeline rupture is assumed to dump the entire spilled product directly into the water. Mixing is assumed to be immediate and complete and the aquatic organisms and humans are assumed to live in and drink water containing the estimated benzene concentration from that location. Acute and chronic exposure of organisms and ingestion of water by humans are examined.

The pipeline throughput is assumed to be 150,000 bpd. Two stream flows were evaluated; moderate (100 cfs) and high (1000 cfs). In addition, two occurrences were evaluated;

- Complete rupture of the pipeline, and
- 1% leak.

Benzene concentrations were estimated assuming:

- All of the spilled product from the leak or rupture goes into the water
- Benzene is completely solubilized in the water column

	Acute	**Chronic**	**Drinking Water**
Rupture Time:	1-hour	1-hour	1-hour
Averaging Time:	0-hours	168-hours (7-day)	24-hours
Toxicity Value:	7.4 mg/L	1.4 mg/L	0.005 mg/L

If 6,250 barrels of product are spilled to a moderate flow stream the potential benzene concentrations at that location will be at a level seven times the acute toxicity threshold. Concentrations would rapidly drop as the plume moves downstream. The occurrence interval for this scenario is greater than every 50,000 years. All other predicted water concentrations would be below the acute toxicity threshold in water (**Table J-3**). No long-term or chronic impacts would be expected (**Table J-4**); however, if the spill occurred directly into a drinking water source, the potential benzene concentration could exceed the corresponding MCL, if it is assumed that at least 62.5 barrels are spilled into the water (**Table J-5**). Based on the occurrence interval, the likelihood of an impact to drinking water is very low.

Table J-3 Comparison of the Acute Toxicity Threshold for Aquatic Life with Estimated Benzene Concentrations following Pipeline Rupture or Leak to Streams

Throughput – 150,000 bpd	Stream Flow Rate (cfs)	Benzene Acute Toxicity Threshold (mg/L)	Scenario[a]		Projected Occurrence Interval[c] (# yrs between spills)	
			Complete rupture (6250 barrels) (mg/L)	1% Leak (62.5 barrels) (mg/L)	Complete Rupture	1% Leak
Moderate Flow Stream	100	7.4	52[b]	0.5	51,496	23,303
High Flow Stream	1000	7.4	5	0.1	9,363	4,237

[a] Estimated proportion of benzene in the NGL is 0.12 percent, and is assumed to be entirely water solubilized in the event of a spill. The resulting concentration was calculated by multiplying 0.12 percent of the total amount of petroleum product released in 1 hour divided by projected stream flow volume. The model assumes uniform mixing conditions.

[b] Shading indicates concentrations greater than the acute toxicity threshold for aquatic species.
[c] Projected occurrence interval based on historical data from OPS hazardous liquids database.

Table J-4 Chronic Toxicity Threshold for Aquatic Life Compared with Estimated Benzene Concentrations following Pipeline Rupture or Leak to Streams

Throughput – 150,000 bpd	Stream Flow Rate (cfs)	Benzene Chronic Toxicity Threshold[a] (mg/L)	Scenario[b]		Projected Occurrence Interval[c] (# yrs between spills)	
			Complete rupture (19,563 barrels) (mg/L)	1% Leak (221 barrels) (mg/L)	Complete Rupture	1% Leak
Moderate Flow Stream	100	1.4	1.0	0.56	189,600	51,496
High Flow Stream	1000	1.4	0.1	0.06	34,473	9,363

[a] The chronic toxicity value for benzene is based on a 7-day chronic toxicity value of 1.4 mg/L for trout. Exposure concentrations were estimated over a 7-day period since the chronic toxicity value was based on a 7-day exposure.
[b] Estimated proportion of benzene in the petroleum product is 0.12 percent, and is assumed to be entirely water solubilized in the event of a spill. The resulting concentration was calculated by multiplying 0.12 percent of the maximum amount of petroleum product divided by 7 days of stream flow volume. The model assumes uniform mixing conditions.
[c] Projected occurrence interval based on historical data from OPS hazardous liquids database.

Table J-5 Human Drinking Water Standard Compared with Estimated Benzene Concentrations following Pipeline Rupture or Leak to Streams

Throughput – 150,000 bpd	Stream Flow Rate (cfs)	Benzene MCL (mg/L)	Scenario[a]		Projected Occurrence Interval[c] (# yrs between spills)	
			Complete Rupture (6250 barrels) (mg/L)	1% Leak (62.5 barrels) (mg/L)	Complete Rupture	1% Leak
Moderate Flow Stream	100	0.005	2.2[b]	0.02	51,496	23,303
High Flow Stream	1000	0.005	0.02	0.002	9,363	4,237

[a] Estimated proportion of benzene in the petroleum product is 0.12 percent, and is assumed to be entirely water solubilized in the event of a spill. The resulting concentration was calculated by multiplying 0.12 percent of the amount of petroleum product released in 1 hour during a pipeline rupture by 24 hours of stream flow.
[b] Shading indicates concentrations that could exceed the maximum containment level (MCL) for drinking water (0.005 mg/L).
[c] Projected occurrence interval based on historical data from OPS hazardous liquids database.

References:

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