

**ENVIRONMENTAL ASSESSMENT
BUREAU OF LAND MANAGEMENT
FARMINGTON FIELD OFFICE**

**PUBLIC SERVICE COMPANY OF NEW MEXICO RIVER TO LAKE WATERLINE PROJECT
SAN JUAN COUNTY, NEW MEXICO**



**Serial No. NM125446
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**Prepared for:
Bureau of Land Management**



ECOSPHERE ENVIRONMENTAL SERVICES

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1.0 INTRODUCTION

Public Service Company of New Mexico (PNM) proposes to construct a new 42-inch diameter raw water pipeline to replace an existing line. The San Juan Generating Station, owned and operated by PNM, currently pumps raw water from the San Juan River to the San Juan Lake via a 36-inch waterline which has been in service since the about 1970. The proposed waterline would be located on Bureau of Land Management (BLM), private, and state lands, and within San Juan County and New Mexico Department of Transportation (NMDOT) right-of-ways (ROWs).

PNM has applied for a ROW grant with the BLM Farmington Field Office (FFO) to construct and operate the proposed 4.78 mile (25,214 feet) water waterline. PNM would also install a buried fiber optic cable to transmit data from the existing river pump station to the lake pump station. The proposed action is located approximately 2.5 miles west of Kirtland, New Mexico in San Juan County. As proposed, the waterline would extend west from the PNM pumping station adjacent to the San Juan River along existing road ROWs prior to turning north and terminating at the San Juan Lake adjacent to San Juan Generating Station.

This EA describes the pre-project environment and assesses potential impacts of the proposed action and the no action alternative. The direct and indirect site-specific effects of the implementation of the proposed project are assessed. The impacts are analyzed for long-term and short-term consequences and cumulative impacts. Mitigation measures are presented to minimize potential adverse effects from the implementation of the proposed action.

1.1 Purpose and Need

The San Juan Generating Station currently pumps raw water from the San Juan River to the San Juan Lake via a single 36-inch diameter waterline. Corrosion of the pipe interior and the resulting increased friction factor has reduced the original pumping capacity from 20,000 gallons per minute (gpm) to a current capacity of 15,000 gpm. The existing waterline has a limited number of valves, which makes isolating and repairing waterline sections difficult.

To maintain acceptable lake levels, PNM must pump water through the existing waterline as much as possible. Therefore, water is pumped during times of high turbidity levels in the San Juan River, which requires higher blow-down rates from the cooling towers at the generating station to keep the solids at acceptable levels. Blow-down at the generating station requires greater water consumption.

In addition to turbidity issues, the lake level is critical to the operation of the lake pumps, which pump raw water from the lake to the generating station. When the lake level drops below elevation 5,250 feet, the pumps can no longer pull water from the lake and all water supply for the generating station is lost.

The higher pumping capacity (up to 25,000 gpm) would allow PNM to run the river pumps when the water clarity is acceptable and turn the pumps off when turbidity is high. Thus, PNM would be able to stay within their allotted water limits while maintaining a higher lake level and higher water quality pumped to the plant. This would result in reduced water consumption at the plant as blow-down on the cooling towers would be reduced.

The fiber optic line would provide a reliable control data line from the river pump station to the lake pump station.

1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments

Pursuant to 40 Code of Federal Regulations (CFR) 43 and 3400, this site-specific EA tiers to and incorporates by reference the information and analysis contained in the Farmington Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) (BLM 2003a), which was approved as the Final Resource Management Plan for the FFO of the BLM by the Record of Decision (ROD) signed September 29, 2003 (BLM 2003b). The PRMP/FEIS and ROD are available for review at the FFO, Farmington, New Mexico or electronically at http://www.nm.blm.gov/ffo/ffo_home.html. This EA addresses site specific resources and/or impacts that are not covered within the PRMP/FEIS, as required by the National Environmental Policy Act of 1969 (NEPA), as amended [Pub. L. 91-90, 42 United States Code (USC) 4321 et seq.]. The proposed project would not be in conflict with any local, county, or state plans.

1.3 Authorizing Actions and Relationship to Statutes and Regulations

This EA is prepared under the authority of the National Environmental Policy Act (NEPA) of 1969, (42 USC § 4321-4347) and federal regulations found in Council on Environmental Quality (CEQ) Regulations (40 CFR § 1500-1508).

Multiple use, as mandated by the Federal Land Policy and Management Act (FLPMA) of 1976, requires that public lands be managed so that, “The use of some lands are for a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, wildlife and fish, etc ...” (43 USC § 35).

Federal law mandates protection of some surface resources that are potentially affected by the development of the proposed action. Cultural resources threatened by development are protected by the Antiquities Act of 1906, [Public Law (PL) 52-209], the National Historic Preservation Act of 1966 (PL 89-665), and as amended (PL 52-209), and its regulations (36 CFR § 800), and other legislation including NEPA (PL 91-852), and its regulations (40 CFR § 1500 - 1508), the 1971 Executive Order No. 11593, the Archaeological and Historical Conservation Act of 1974 (PL 93-291), the Archaeological Resources Protection Act of 1979 (PL 96-95), and its regulations (36 CFR § 296), the American Indian Religious Freedom Act (48 USC § 1996), and the Native American Graves Protection and Repatriation Act of 1990. Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM –

New Mexico State Historic Preservation Office protocol agreement, which is authorized by the National Programmatic Agreement between the BLM, the *Advisory Council on Historic Preservation*, and the *National Conference of Council of State Historic Preservation Officers.*, and other applicable BLM handbooks.

Under Section 402 of the Clean Water Act (CWA), as amended (33 USC 1251 et seq.), the U.S. Environmental Protection Agency (USEPA) regulates storm water discharges for industrial and construction activities under the National Pollutant Discharge Elimination System (NPDES) program. Additionally, Sections 404 of the Act, regulated by the U.S. Army Corps of Engineers, and Section 401 of the Act, regulated by the New Mexico Environment Department or USEPA (depending upon surface ownership), protect wetlands and waters of the U.S. Operators are required to obtain all necessary permits and approvals for projects requiring CWA permits prior to any disturbance activities. Executive Orders 11988 and 11990 require evaluation of potential impacts to floodplains and wetlands.

Surface water resources are protected from oil pollution sources by the federal Water Pollution Control Act (40 CFR § 112). The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 and other federal regulations are designed to control the releases of hazardous materials into the environment and to direct the handling of response to accidental spills.

Threatened and endangered flora and fauna species are protected under the Endangered Species Act of 1973, as amended (PL 94-325). Additionally, the Migratory Bird Treaty Act (16 USC § 703-712) and the Eagle Protection Act (16 USC § 668-668d) protect other sensitive wildlife species potentially occurring in the proposed project area.

Executive Order 11312 of 1999, "Invasive Species," establishes measures to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological and human health impacts that invasive species cause. The Executive Order provides guidelines to federal agencies to contend with invasive species, to create an Invasive Species Council and to implement an Invasive Species Management Plan.

The federal Plant Protection Act of June 2000 (7 USC § 7701 et seq.), and the federal Noxious Weed Act of 1974 (7 USC § 2801 et seq.), provide for the control and management of non-indigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. Section 2814 of the federal Noxious Weed Act provides for coordination between federal agencies and the states, and provides that federal agencies "shall enter into cooperative agreements with state agencies to coordinate the management of undesirable plant species on federal lands." (7 USC § 7701).

Air quality standards in New Mexico are under the jurisdiction of the New Mexico Environment Department/Air Quality Bureau (NMED/AQB). The Environmental Improvement Act, NMSA 1978 and the Air Quality Control Act, NMSA 1978 dictate state air quality standards. Also, 40 CFR § 60 "Standards of Performance for New Stationary Sources" is administered by the NMED/ABQ.

Executive Order 12898 of 1994, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires implementing procedures to ensure that proposed projects within the auspices of federal agencies do not result in disproportionate shares of negative environmental impacts affecting any group of people due to a lack of political or economic strength. Environmental justice requires, "...the fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." As such, this document includes an assessment of the impacts of the project on minority and low-income populations.

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 Alternative A - No Action

The BLM NEPA Handbook (H-1790-1) states that for EAs on externally initiated proposed actions, the no action alternative generally means that the proposed activity will not take place. This option is provided in 43 CFR 3600. The no action alternative would deny PNM's ROW grant and the proposed waterline would not be constructed or operated. The current waterline would continue to be used resulting in greater water use and loss. No mitigation measures would be required. The no action alternative is included in this EA for comparison purposes between the current baseline and implementation of the proposed action.

2.2 Alternative B - Proposed Action

PNM has applied for a ROW grant with the BLM/FFO to construct and operate a proposed 4.73 mile (25,214 feet) waterline. PNM would also install a buried fiber optic (24 fiber) cable within the ROW for approximately 23,471 feet. The proposed fiber optic line would divert from the waterline ROW on PNM property just south of the existing lake pump station and parallel an existing road for approximately 1,743 feet before terminating at the lake pump station hub. The proposed action would be located in Sections 4 and 5, Township 29 North, Range 15 West, and in Sections 32 and 29 of Township 30 North, Range 15 West, in San Juan County, New Mexico. A vicinity map is provided as Figure 1 in Appendix A. A more detailed location of proposed action is shown as Figure 2 on the Waterflow, New Mexico U.S. Geological Survey (USGS) 7.5-minute quadrangle.

The proposed action would not affect the quantity of water allotted to PNM. There would be no change in the amount of depletions from the San Juan River. PNM will continue to remain within their diversionary and consumptive water rights. PNM holds New Mexico Office of the State Engineer (NMOSE) Permit Numbers 3552 and 2838 for surface water usage. These permits provide PNM a total diversionary right of 30,185 ac-ft per year, with a consumptive right of 27,785 ac-ft per year, for waters drawn from the San Juan River. Between 2006 and 2009, PNM diverted an average of 23,437 ac-ft per year from the San Juan River into San Juan Lake for use at the San Juan Generating Station. The maximum amount diverted during that time frame was 24,602 ac-ft per year.

The proposed action would not be located within a BLM designated Specially Designated Area (SDA) or Area of Critical Environmental Concern (ACEC).

PNM has installed a temporary 12-inch high-density polyethylene (HDPE) surface line to increase capacity and maintain acceptable lake levels. The temporary surface line would be removed if the proposed action is approved and constructed. Under the proposed action, the existing 36-inch line would be taken completely out of service, but would be maintained for redundancy.

The proposed action would be located on BLM, state, NMDOT, county and private (including PNM) lands with varying ROW widths depending on land status. PNM has consulted with San Juan County concerning the proposed action. A letter of support from the county is provided in Appendix B. Table 1 lists the land status, alignment footage, temporary construction ROW width, permanent ROW width and total acreage disturbed. The ROW and temporary construction width would vary due to land status and existing infrastructure which could constrain construction. Refer to the project plats in Appendix A for more details on ROW and temporary construction width.

Table 1. Land Status, Alignment Footage, Temporary Construction Right-of-Way Width, Permanent Right-of-Way Width, and Total Acres Disturbed.

Land Status	Alignment Length (ft)	Permanent Right-of-Way Width (ft)	Permanent Right-of-Way (acres)	Temporary Construction Width (ft)	Temporary Construction (acres) ^d	Total Disturbance (acres)
BLM	3,095	50	3.55	50	3.18	6.73
State	466	50	0.53	50	0.43	0.97
NMDOT	3,075	20	1.41	40	2.82	4.24
County	7,625	20	3.50	60	10.50	14.00
Private	2,645	30	1.82	50	2.69	4.51
CR 6800 (Restricted ROW) ^a	1,338	20	0.61	30	0.92	1.54
CR 6800 (Private) ^b	1,240	30	0.85	20	0.57	1.42
CR 6800 (PNM) ^c	2,835	20	1.30	80	5.58	6.88
PNM	2,895	20	1.33	40	2.66	3.99
PNM ^e	1,743	20	0.80	30	1.20	1.20
Total	26,957		15.72		30.56	45.48

^a Private lands adjoining the CR 6800 ROW are restricted; construction will only occur on the east side of CR 6800.

^b Lands adjoining the CR 6800 ROW are privately owned

^c Lands adjoining the CR 6800 ROW are owned by PNM

^d Property lines intersect the temporary use area. Therefore, a 50 foot permanent easement does not equal a 50 foot temporary construction easement along a given portion of the pipeline. Refer to exhibits in Appendix A.

^e Fiber optic line not located within the waterline ROW

The proposed ductile iron pipe would be 42-inches in diameter and require an approximate 10-foot wide by 8-foot deep trench to allow for 3-feet of cover. Within NMDOT and county ROWs, approximately 150 feet of trench would be left open overnight to minimize interruption to private landowner access. On BLM lands, no more than 1/8 mile of trench would be open at one time.

Temporary use areas (TUAs) would be required to stage pipe, equipment, and store spoils from the trench. Temporary offices for the contractor may also be housed at the TUAs during construction. Table 2 provides the areas and acreages for the proposed TUAs. All TUAs are

located on private land. Two temporary access areas would also be utilized to access the ROW and bore locations. These access areas would be 350-feet in length by 100-feet wide. Refer to Figure 2 in Appendix A.

The proposed action would install a fiber optic cable within the ROW as far from the waterline as possible. The cable would be buried to a depth of 18-24 inches in a 2-foot wide trench. Cable installation would start following waterline construction.

The construction of the proposed action may result in the removal and replacement of approximately 700 feet of an existing potable waterline at the intersection of CR 6700 and U.S. Highway 64. A 4-inch and/or 6-inch waterline could be installed to resolve potential conflicts for safe construction of the 42-inch waterline. Water services connected to this potable waterline would be transferred to the new line once the line has been pressure tested, disinfected and determined acceptable for drinking water use. Both the existing and new potable waterline would remain in service while the services are transferred to minimize the down time of each connection

Table 2. Area and Acreage Proposed for Temporary Use Areas.

Temporary Use Area	Area (acres)
#1	2.33
#2	10.00
#3	5.74
Temporary Access #1	0.75
Temporary Access #2	0.56
Total	19.08

The proposed waterline would bore underneath U.S. Highway 64 and County Road (CR) 6700 (Figure 2). Bore locations would utilize an approximately 25-foot by 40-foot area for the entry point and an approximately 20-foot by 20-foot area for the exit point. At bore locations, an additional 25-foot wide TUA would be needed on the working side of the ROW to allow for safe equipment passage and working space. Provisions for pulling the fiber optic cable at bore locations would be made, since the cable would be installed after the waterline is constructed. Boring would require minimal mud for drilling. Bentonite drilling mud would be used at each bore location to lubricate the casing against the soil. The amount of bentonite used would depend on the soil conditions encountered during the drilling process. No mud pits or pans would be needed to contain the drilling mud. Typically, bentonite used in horizontal drilling is left in the ground. At least 12 inches of cover would be required over any bentonite left in the ground.

The proposed waterline would cross over Shumway Arroyo adjacent to CR 6800. At the Shumway Arroyo, the waterline crossing would be buried and placed over several large (6-foot diameter) culverts. The waterline would skirt around the outflow of Farmer’s Mutual Ditch. In this area, the proposed alignment would divert from CR 6800 to the east approximately 60 feet and extend around the outflow before returning to parallel CR 6800 north of the outflow.

The total surface disturbance for the proposed action would be approximately 45.5 acres, not including TUAs. Approximately 95% of the proposed action would be located on existing disturbance; therefore new disturbance would be limited to approximately 4.5 acres. The total long-term permitted acreage for the proposed action would be 15.7 acres.

Construction is tentatively scheduled for November 2010 and would continue for approximately 44 weeks with the proposed project ending with completion of site reclamation. Construction activities would occur five days a week during the working hours of 7:00 AM to 7:00 PM. Construction equipment would include an excavator, dump trucks to transport spoils, a water truck, and light utility vehicles. At bore locations additional equipment would include the boring machine and possibly a crane.

PNM would comply with all applicable federal, state and local laws and regulations and obtain the necessary permits for the installation of the waterline. All areas of proposed surface disturbance were inspected in the field to ensure that potential impacts to natural resources would be minimized through the implementation of mitigation measures. These measures are described for all resources potentially impacted in Section 4.0 of this EA.

In general, waterline construction would follow the sequence listed below:

1. Right-of-way crews clear and prepare the work area ahead of ditching crews.
2. Crews excavate the ditch to an average of 8-feet deep and 10-feet in width. Ditches would be trenched with either a track hoe, wheel ditcher or other excavator. In areas where groundwater is encountered within the trench, dewatering measures would be implemented prior to the excavation of the ditch.
3. The pipe for this project would be 42-inch ductile iron with a mortar interior lining and exterior plastic sheeting for corrosion protection. The pipe would be connected using iron ductile pipe bell and spigot joints. Once placed in the ditch, the waterline would be partially backfilled by a roller or tamping machine. The waterline would then be backfilled with at least 3-feet of soil cover. The waterline would be pressure tested prior to the completion of the project.
4. Cleanup crews would backfill the ditch and then re-contour the disturbed area to as near original condition as possible, and prepare the ROW for reseeding.
5. Installation of water bars, construction berms, and/or terraces: Water diversions would be constructed as needed to control surface water and erosion as specified by the BLM. To accomplish this, water bars or "kicker dikes" would be constructed on the contour across disturbed areas. All such structures would be constructed according to BLM specifications/maintenance requirements or in accordance with best management practices (BMPs).
6. On BLM lands, rehabilitation and reclamation measures would be initiated following closure of the ditch and clean up of the area, and would be coordinated with the BLM

Project Lead. The ROW would be reseeded with a designated BLM, county or NMDOT seed mix depending on land status.

During operation and maintenance, PNM would maintain the waterline ROW according to the environmental protection measures stipulated in the BLM ROW grant.

2.3 Alternatives Considered But Not Analyzed In Detail

Several alternative alignments were considered for the proposed project and are shown on Figure 3 in Appendix A. Initially in 2006, four alternatives were developed to minimize conflicts with existing utilities and ROW access. Alignment 1 was designed to parallel one of BHP-Billiton San Juan Mine's haul roads. Alignments 2 and 3 would have crossed through previously mined and reclaimed areas of the San Juan Mine lease. These three alternatives would have required boring under U.S. Highway 64 immediately north of the PNM river pump station. Alignment 4 would have paralleled the existing waterline and required boring under County Road (CR) 6700 and U.S. Highway 64. Of these alternatives, Alignment 3 was considered the most advantageous as it would have a reduced length and cost, with greater ease of construction by avoiding developed areas and minimizing impacts to traffic, public safety and private residences. The BLM consulted with the New Mexico Mining and Minerals Division (MMD) concerning Alignment 3. The MMD expressed concerns from potential disturbance of coal combustion byproducts (CCBs) from the proposed alternatives. Prior to reclamation, CCBs are backfilled into the mined out areas at San Juan Mine to restore the natural land contours. Due to MMD concerns, Alignments 1, 2 and 3 were eliminated from detailed consideration.

Two additional routes were developed in 2009 and 2010 and are shown on Figure 3 in Appendix A. Alignment A would have crossed under U.S. Highway 64 north of the river pump station and traveled west to the City of Farmington sub-station. The route would have continued to parallel U.S. Highway 64 until approximately ¼ mile west of CR 6800 and then turned north before terminating at San Juan Lake. This route would have crossed through a known cultural resource area.

Alignment B would have followed the San Juan River for a short distance and then turned west through private land paralleling CR 6700. After approximately 1.7 miles, the alignment would have turned north, crossing CR 6700 and then intersecting U.S. Highway 64, before continuing north to the lake. This alignment would have required land acquisition from private land owners.

Additionally, both alignments A and B would have crossed through the BLM designated Hogback ACEC which is managed to protect two federally listed threatened or endangered species, Mancos milkvetch (*Astragalus humillimus*) and Mesa Verde cactus (*Sclerocactus mesae-verdae*). Because of potential adverse impacts to cultural and natural resources, Alignments A and B were both eliminated from detailed consideration.

Alignment 4 was slightly modified to minimize impacts to wetlands and other resources and subsequently identified as the proposed action.

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3.0 DESCRIPTION OF AFFECTED ENVIRONMENT

This section describes the environment that would be affected by implementation of the alternatives described in Section 2.0. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Only the aspects of the affected environment that would be potentially impacted are described.

Field resource investigations of the proposed action were conducted by biologists/resource specialists from Ecosphere Environmental Services (Ecosphere) between April and October 2010. Cultural resources were investigated by archaeologists from the Stratified Environmental Archaeological Services, LLC (SEAS) between April 21 and June 8, 2010.

3.0.1 Critical Elements / Non-Critical Elements

Certain critical environmental elements require analysis under BLM policy [see Appendix 5 of H-1790-1 (NEPA Handbook)]. These elements, in Table 3, are specified by statute, regulation, or Executive Order. Elements that do not exist in the project area or that do not have the potential to be impacted are eliminated from further analysis. Those elements potentially impacted by the proposed action or alternatives are described in the following sections.

Table 3. Affected Environment and Basis for Determination of No Further Analysis of Critical Elements.

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT				
Resources	Located in Project Area	Not Located in Project Area	Further Analysis Presented in Text	Basis for Determination
Air Resources	X		X	
Areas of Critical Environmental Concern (ACECs)		X		The proposed action would not be located within an ACEC
Cultural Resources		X	X	
Native American Religious Concerns		X	X	No concerns have been identified (Jim Copeland per comm., 5/13/10).
Environmental Justice	X		X	
Paleontology		X	X	The project area is located with a PFYC Class 5 designated area.
Farmlands: Prime or Unique		X		There are no prime or unique farmlands within the project area.
Federally Threatened and Endangered Species	X		X	
Water Quality: Surface or Groundwater	X		X	
Floodplains	X		X	Floodplains are located within the proposed project area.
Wetlands/Riparian Zones	X		X	A wetland delineation for the

CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT				
Resources	Located in Project Area	Not Located in Project Area	Further Analysis Presented in Text	Basis for Determination
				proposed action was conducted.
Wild and Scenic Rivers		X		There are no wild and scenic rivers in the project area.
Wilderness		X		The project area is located approximately 30 miles from the nearest Wilderness Area or Wilderness Study Area.
Wastes: Hazardous or Solid		X	X	Due to the handling and storage of minor volumes of fuels and lubricants during excavation and processing, further analysis is warranted.

Non-critical elements are resources that may be affected by the proposed action or alternatives, but are not necessarily required to be analyzed by statute, regulation, or executive order. The non-critical elements listed in Table 4 are either eliminated from further analysis in the table or are brought forward in this EA for analysis because they pertain to management objectives outlined in the FFO PRMP/FEIS (BLM 2003a).

Table 4. Affected Environment and Basis for Determination of No Further Analysis of Non-Critical Elements.

NON-CRITICAL ELEMENTS				
Resources	Located in Project Area	Not Located in Project Area	Further Analysis Presented in Text	Basis for Determination
Topography/Surface Geology	X		X	
Soils	X		X	
Mineral Resources	X		X	
Vegetation, Forestry	X		X	
Invasive, Non-native Species	X		X	
Livestock Grazing		X		There are no BLM/FFO grazing allotments in the proposed project area.
Special Status Species	X		X	
Wildlife	X		X	
Wild Horse and Burros		X		There are no wild horse or burro populations in or near the project area.

Migratory Birds	X		X	
Public Health and Safety	X		X	
Noise	X		X	
Recreation		X		The majority of the proposed action is located within existing road ROWs.
Visual Resources	X		X	

3.1 Air Resources

The proposed project is located in San Juan County, New Mexico. Additional general information on air quality in the area is contained in Chapter 3 of the PRMP/FEIS (BLM 2003a). In addition to the air quality information in the PRMP cited above, new information about greenhouse gases (GHGs), and their effects on national and global climate conditions has emerged since this PRMP was prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO₂), methane (CH₄); nitrous oxide (NO), water vapor; and several trace gasses on global climate. Through complex interactions on a global scale, GHG emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, and may contribute to overall climatic changes, typically referred to as global warming.

The 2003 PRMP discussed ozone in the Baseline Air Quality and Impact Assessment sections. The National Ambient Air Quality Standard (NAAQS) at the time was 0.084 ppm. In March of 2008, the USEPA announced a new primary 8-hour standard of 0.075 ppm.

In addition, the USEPA, on October 17, 2006, issued a final ruling on the lowering of the NAAQS for particulate matter ranging from 2.5 micron or smaller particle size. This ruling became effective on December 18, 2006, stating that the 24-hour standard for PM_{2.5} was lowered to 35 ug/m³ from the previous standard of 65 ug/m³. This revised PM_{2.5} daily NAAQS was promulgated to better protect the public from short-term fine-particle exposure.

Air quality and climate are the components of air resources, which include applications, activities, and management of the air resource. Therefore, the BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as part of the planning and decision making process.

The USEPA has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states of which New Mexico is one. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Greenhouse gases and the potential

effects of GHG emissions on climate are not regulated by the USEPA, however climate has the potential to influence renewable and non-renewable resource management.

3.1.1 Air Quality

The area of the proposed action is considered a Class II air quality area. A Class II area allows moderate amounts air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil and exhaust emissions from motorized equipment.

Air quality in the area near the proposed project is generally good and is not located in any of the areas designated by the USEPA as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act (CAA). During the summers of 2000 through 2002, ozone levels in San Juan County were approaching non-attainment. Additional modeling and monitoring was conducted by Alpine Geophysics, LLC and Environ International Corporations, Inc., in 2003 and 2004. Results of the modeling suggest the episodes recorded in 2000 through 2002 were attributable to regional transport and high natural biogenic source emissions. The model also predicted that the region will not violate the ozone NAAQS through 2007 and that the trends in the 8-hr ozone values in the region will be declining in the future. At the present time, the San Juan County is classified as in attainment with the revised federal ozone standard of 0.075 ppm. Rio Arriba County is unclassified because of there are no ozone monitors sited in Rio Arriba County.

Greenhouse gases, including carbon dioxide (CO₂) and methane (CH₄), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The EPA’s Inventory of US Greenhouse Gas Emissions and Sinks found that in 2007, total U.S. GHG emissions were over 7 billion metric tons and that total U.S. GHG emissions have increased by 17% from 1990 to 2007. Emissions increased from 2006 to 2007 by 1.4 percent (99.0 Tg CO₂ Eq.). The following factors were primary contributors to this increase: (1) cooler winter and warmer summer conditions in 2007 than in 2006 increased the demand for heating fuels and contributed to the increase in the demand for electricity, (2) increased consumption of fossil fuels to generate electricity and (3) a significant decrease (14.2 percent) in hydropower generation used to meet this demand (EPA 2009).

The levels of these GHGs are expected to continue increasing. The rate of increase is expected to slow as greater awareness of the potential environmental and economic costs associated with increased levels of GHG's result in behavioral and industrial adaptations

3.1.2 Climate

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) predicted a warming of about 0.2°C per decade for the next two decades, and then a further warming of about 0.1°C per decade. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses." It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed action and subsequent actions.

3.2 Cultural Resources

The project is located within the archeologically rich San Juan Basin of northwestern New Mexico. In general, the prehistory of the San Juan Basin can be divided into five major periods: PaleoIndian (ca. 10000 B.C. to 5500 B.C.), Archaic (ca. 5500 BC to A.D. 400), Basketmaker II-III and Pueblo I-IV periods (A.D. 1-1540), and the historic (A.D. 1540 to present), which includes Native American as well as later Hispanic and Euro-American settlers. A detailed description of these various periods and select phases within each period is provided in the Farmington PRMP/FEIS (BLM 2003a).

The proposed action is located within the Middle San Juan sub-watershed. Based on the Farmington PRMP/FEIS (BLM 2003a), a total of 2,815 sites representing Paleo, Archaic Period, Basketmaker II, Basketmaker III, Unknown Anasazi, Pueblo I, Pueblo II, Pueblo III, Unknown Navajo, Dinéah/Gobernador Phase, Cabezon Phase, Reservation Phase, Apache, Ute, Pueblo, and Euro-Anglo temporal/cultural components have been documented within the watershed. Of the 18 categories of sites defined based on temporal/cultural affiliation, 15 are represented. Lacking in the watershed are sites attributed to Pueblo IV, Apache and Hispanic occupations. The most frequently occurring cultural affiliations recorded are Pueblo II (20%) and Pueblo III (15%). Sites density is high with any apparent gaps most likely a factor of inventory lacking, not a lack of sites

A Class III archaeological survey was conducted by SEAS between April 21 and June 8, 2010. The total area surveyed, including 50-foot buffer zones, was 90.51 acres. The total area surveyed included the NMDOT requirement of surveying a 100-foot long extension at both ends of NMDOT ROW sections for utility easements. A 50-foot buffer zone on either side of the temporary construction zones was not possible along the CR 6700 and NMDOT ROWs due to

the presence of fenced private residential areas. In those areas, the surveyed area included the permanent ROW width and temporary construction zone, and any additional area, if any, between the County/NMDOT ROW fence and the edge of pavement.

One previously recorded site (LA 148558), one newly recorded site (LA 166786), and two isolated manifestations (IM 1-2) were located within the surveyed area. Site LA 148588, the Farmer's Mutual Ditch, is an historic irrigation canal. Site LA 166786 is a artifact scatter of unknown prehistoric to early historic aboriginal origin. Only LA148588 was recommended as historically significant and eligible for the National Register of Historic Places. The cultural resources inventory report (SEAS 10-004) has been submitted under separate cover to the BLM/FFO (BLM Rpt. 2010(IV)051F).

3.3 Native American Religious Concerns

There are several pieces of legislation or executive orders that are considered in an evaluation of Native American Religious Concerns (i.e., American Indian Religious Freedom Act [AIRFA] of 1978, Executive Order 13007, The Native American Graves Protection and Repatriation Act [NAGPRA] of 1990, and the Archaeological Resources Protection Act [ARPA] of 1979).

Traditional Cultural Properties (TCPs) are a separate class of cultural resources which may occur in the EA analysis area, may or may not coincide with archaeological sites and artifact loci, and may fall under the purview of one or more of the cited legislation. The National Park Service Parker and King 1998:1) has defined TCPs as follows:

A traditional cultural property can be defined generally as one (a property) that is eligible for the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. (National Register Bulletin 38)

Native American cultural associations are the "communities" most likely to identify TCPs, although TCPs are not restricted to this group. Some TCPs are well known, while others may only be known to a small group of traditional practitioners, or otherwise only vaguely known.

For the proposed action, identification efforts for Native American Religious Concerns were limited to reviewing existing published and unpublished literature (e.g. Valkenburgh 1941, 1974) and personal communications with BLM cultural resources staff. There are no TCPs known to occur within or proximate to the proposed project area. (Jim Copeland, pers. comm., May 13, 2010).

3.4 Environmental Justice

Executive Order 12898 requires federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety effects to minority and low income populations. Minorities comprise a large proportion of the population residing inside the

boundaries of the BLM/FFO (see pages 3-106 to 3-107 of the PRMP/FEIS for more details on ethnicity and poverty rates).

3.5 Paleontological Resources

The BLM uses the Potential Fossil Yield Classification (PFYC) system to identify areas with a high potential to produce significant fossil resources (IM 2008-009). This system has ranked all lands within the FFO management area as a Class 5 designation. Class 5 designations are described as being Very High Potential paleontological resource areas, thus requiring an assessment at the project level (IM 2008-011). The proposed project area is located within the paleontological rich area of the San Juan Basin of northern New Mexico.

3.6 Federally Threatened and Endangered Species

According to the USFWS, there are nine federally listed threatened and endangered species with the potential to occur in San Juan County, New Mexico. Table 5 summarizes the habitat descriptions and potential presence of federally listed species in the project area. In August 2010, a Biological Assessment/Evaluation (BAE) for the proposed action was prepared by Ecosphere. The BAE was revised in October 2010. The BAE, provided in Appendix C, addresses the potential for federally listed species to occur in the project area and provides the basis for the findings listed in the table.

Table 5. Habitat Descriptions and Presence of USFWS Listed Threatened (T), Endangered (E), Proposed Threatened (P), or Candidate (C) Species with Potential to Occur in San Juan County, New Mexico.

Species	Status	Habitat Descriptions	Presence ¹
Black-footed ferret (<i>Mustela nigripes</i>)	E	Open grasslands with year-round prairie dog colonies.	NP
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	E	Breeds in dense, shrubby riparian habitats, usually in close proximity to surface water or saturated soil.	K
Yellow-billed cuckoo (<i>Coccyzus americanus occidentalis</i>)	C	Nests in cottonwood/willow riparian habitat with dense understory along rivers; rare in the San Juan valley	NP
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	T	Nests in caves, cliffs, or trees in steep-walled canyons of mixed conifer forests.	NP
Mountain plover (<i>Charadrius montanus</i>)	P	Breeds in flat, open grasslands; often associated with prairie dog towns and intensive grazing.	NP
Colorado pikeminnow (<i>Ptychocheilus lucius</i>)	E	Large rivers with strong currents, deep pools, and quiet backwaters.	K

Species	Status	Habitat Descriptions	Presence ¹
Razorback sucker (<i>Xyrauchen texanus</i>)	E	Medium to large rivers with silty to rocky substrates. Prefers strong currents and deep pools.	K
Knowlton's cactus (<i>Pediocactus knowltonii</i>)	E	Alluvial deposits that form rolling, gravelly hills in piñon-juniper and sagebrush communities (6,200-6,400 ft).	NP
Mancos milkvetch (<i>Astragalus humillimus</i>)	E	Cracks of Point Lookout Sandstone of the Mesa Verde series (5,000-6,000 ft).	NP
Mesa Verde cactus (<i>Sclerocactus mesae-verdae</i>)	T	Highly alkaline soils in sparse shale or adobe clay badlands of the Mancos and Fruitland formations (4,000-5,550 ft).	K

Source: USFWS 2010

¹ **K**- Known, documented observation within project area; **S** -Habitat suitable and species suspected to occur within the project area; **NS** -Habitat suitable but species is not suspected to occur within the project area; **NP**- Habitat not present and species unlikely to occur within the project area.

The beginning of the proposed waterline is located 200 feet north of the San Juan River and adjacent to designated critical habitat for the Colorado pikeminnow (*Ptychocheilus lucius*). Critical habitat for the Colorado pikeminnow includes the San Juan River and its 100-year floodplain from the State Route 371 Bridge in Township 29 North, Range 13 W, Section 17 (New Mexico Principal Meridian) to Neskahai Canyon in the San Juan arm of Lake Powell in Township 41 South, Range 11 East, Section 26 (Salt Lake Principal Meridian) up to the full pool elevation (Federal Register 1994).

San Juan County Federal Emergency Management Agency was consulted to determine the presence of flood plains within the proposed project area. The proposed action is not located within the San Juan River floodplain. The determination is provided in Appendix D. Designated critical habitat for razorback sucker (*Xyrauchen texanus*) is located approximately seven miles downstream on the San Juan River. Razorback sucker are known to occur in the stretch of the San Juan River adjacent to the proposed project.

The proposed project area provides potential habitat for southwestern willow flycatcher (*Empidonax traillii extimus*). There is no critical habitat designated for southwestern willow flycatcher within the proposed project area. USFWS protocol surveys for southwestern willow flycatcher were conducted between May and July 2010. During the first survey period the species (single individual) was recorded in the area. The species was not recorded in the area during any subsequent surveys. Surveys were completed on July 14, 2010.

One Mesa Verde cactus (*Sclerocactus mesae-verdae*) was recorded during the biological survey within the existing ROW of County Road 6800. This individual is approximately 30 feet from the proposed ROW centerline. The cactus is not within typical habitat and the area has been previously disturbed.

3.7 Floodplains

A beginning portion of the proposed action would not be located within the San Juan River 100-year floodplain (see Appendix D). However, Shumway Arroyo is located within the proposed project area and has been designated a Special Flood Hazard Area-Zone A.

3.8 Wetlands/Riparian Zones

A jurisdictional wetland delineation was conducted in April 2010 of the proposed action by Ecosphere. A copy of the report is on file with the USACE Durango Regulatory Office. One jurisdictional wetland was identified within the proposed ROW at the beginning of the line. This wetland covers approximately 2.9 acres within the proposed preliminary ROW and is located within the high waterline of the San Juan River. The proposed ROW was modified from the preliminary alignment to avoid the wetland. Refer to Figure 4 in Appendix A for the change to the preliminary alignment. The modified proposed alignment would skirt the eastern boundary of the wetland. The actual area of the wetland is larger than that delineated, likely extending beyond the western boundary which was digitally recorded to correspond to the preliminary ROW width.

Shumway Arroyo appears to support a linear strip of wetlands along both banks in the proposed project area. The wetland area in Shumway Arroyo was not investigated in detail during the delineation as the proposed action would not be constructed in the area, but above it adjacent to CR 6800.

The USACE concurred with the wetland delineation on July 8, 2010.

3.9 Water Quality: Surface and Groundwater

The proposed action would be located in the Middle San Juan sub-watershed within the Upper Colorado River Hydrologic Region. The proposed project is located approximately 200 feet north of the San Juan River at the beginning of the line. The end of the line would be located in San Juan Lake, which is man-made. Surface water from the proposed project area flows towards the San Juan River via Shumway Arroyo and unnamed drainages. The proposed project would cross three unnamed ephemeral drainages and Shumway Arroyo. Figure 3 shows the locations of these drainages. A pre-construction notification has been provided to the U.S. Army Corps of Engineers (USACE) to construct the proposed action under Nationwide Permit (NWP) #12 – Utility Line Crossings.

The proposed action would skirt around the outflow of Farmer's Mutual Ditch at approximately Station 193+00. The irrigation ditch provides water for farming and ranching in a broad section of the San Juan River valley and was constructed in the 1920s. The ditch flows underground and then outflows via an above ground pipe immediately adjacent to CR 6800 just north of Shumway Arroyo.

The primary aquifers in the BLM/FFO area are the Uinta-Animas and the Mesaverde, which are sandstone based. Groundwater is readily available in most of the BLM/FFO area and is of fair to poor quality. A search of the New Mexico State Engineers Office - Water Administration and Technical Engineering Resource System (WATERS) database for the proposed project area and vicinity (1/2-mile radius) was performed. The database indicates 14 water wells located with the proposed project area or a 1/2-mile radius. Of these wells, five are associated with San Juan Mine and are ground water monitoring wells. The nearest domestic water well is located approximately 650 feet south of CR 6700. There is a water well adjacent to TUA #2 and one approximately 50 feet east of TUA #1.

3.10 Wastes: Hazardous or Solid

Minimal amounts of hazardous materials would be located on the project site in the form of oil, fuel, hydraulic fluids, and coolants would be onsite during construction. Drilling fluids proposed for use would be bentonite, which is non-toxic, clay. No chemicals subject to Superfund Amendments and Reauthorization Act (SARA) Title III in amounts greater than 10,000 lbs would be used. No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities would be used. Non-hazardous solid waste generated at the proposed project area would be stored in appropriate containers and disposed of at an approved facility on an as needed basis. The staging area would be located on private land leased by PNM.

3.11 Topography/Surface Geology

The proposed action begins immediately south of U.S. Highway 64 adjacent to the San Juan River about ½ mile north of Nenahnezad, New Mexico. The proposed waterline would extend east along the San Juan River valley for approximately two miles before turning due north and crossing agricultural fields. This portion of the proposed alignment is relatively level. The proposed alignment exits the valley where the Shumway Arroyo enters it, and proceeds north ascending eroded, incised badlands that form the river terrace. Terrain in this portion is mildly rolling and dissected by unnamed, shallow east-flowing drainages. The final 3,200 feet of the proposed alignment extends northeast and cross-country over mildly rolling to level terrain. TUA #3 is slightly rolling with sandstone gravels and cobbles, and platy shale fragments. Slopes along the proposed alignment range from approximately 0-18 degrees. Elevations of the proposed waterline alignment range from around 5,090 feet in the eastern portion to 5,300 feet in the western portion.

The surficial geology and stratigraphy of the project area is channel and floodplain Quaternary alluvial deposits and Picture Cliffs Sandstone. The surface geologic materials were determined from the Geologic Map of New Mexico, updated by the New Mexico Bureau of Geology and Mineral Resources (NMBGMR 2003). Picture Cliffs Sandstone is a tan, cross-bedded, medium to massive bedded, fine to medium grained sandstone of marine origin. It has a thickness up to 375 feet (Ward 1990).

3.12 Mineral Resources

The primary mineral resources managed by the BLM/FFO are coal, oil, and natural gas. The proposed project is located in the general vicinity of active coal mines and existing pipeline ROWs.

3.13 Soils

Ten major soil groups are found within the proposed project area: Badland-Monierco-Rock outcrop complete, moderately steep; Badland; Blancot-Notal association, gently sloping; Fruitland sandy loam, 0-2% slopes; Fruitland sandy loam 2-5% slopes; Fruitland sandy loam, wet, 0-2% slopes; Garland loam; Haplargids-Blackston-Torriorthents complex, very steep, Turley clay loam, wet, 0-2% slopes, and Walrees loam (Keetch 1980). Fruitland sandy loam, wet, 0-2% slopes has hydric soil inclusions found in depressions while Turley clay loam, wet 0-2% slopes also has hydric inclusions on alluvial fans, and Walrees loam can have hydric soils in wet inclusions within floodplains according to the San Juan County, New Mexico, Eastern Part Hydric Soils List (NRCS 2002). None of these soil units are included on the National Hydric Soils list (NRCS 2010).

Badland-Monierco-Rock outcrop complex, moderately steep is on hills, ridges, and mesas with slopes from 0 to 30%. This unit is 40% Badland, 30% Monierco fine sandy loam, and 20% rock outcrop. Badland consists of nonstony, barren shale uplands that are dissected by intermittent drainageways and gullies. The Monierco soil is formed in alluvial and eolian material derived from shale. Permeability of the Monierco soil is moderately slow and the hazard of water erosion is moderate. The hazard of soil blowing is severe. Rock outcrop consists of barren sandstone on ridges, benches, and escarpments (Keetch 1980).

Badlands are characterized by non-stony barren shale. This soil forms on uplands that are highly dissected with intermittent drainage ways. Runoff potential is high and geologic erosion is active. Due to very slow permeability, a large amount of water runs off after a normal rain, and flash floods follow heavy rains (Keetch 1980).

The Blancot-Notal association, gently sloping mapping unit is found on fans and valleys and is composed of approximately 55% Blancot loam, 25% Notal silty clay loam and approximately 20% contrasting inclusions. Formed in alluvium, Blancot soil is deep and well drained. Permeability is moderate with available water capacity high. Effective rooting depth is 60 inches or greater. Runoff is medium and the hazard of water erosion is moderate. The hazard of wind erosion is moderate. The shrink swell potential ranges from low to moderate. Notal is deep and well drained, slightly saline, with a very high available water capacity. Permeability is slow with effective rooting depth in excess of 60 inches. Runoff is medium while the hazard of water erosion is moderate. The potential of wind erosion is severe. Additionally the estimated content of exchangeable sodium is approximately 5-50 percent. The shrink-swell potential ranges from moderate to high for Notal soils (Keetch 1980).

Fruitland sandy loam, 0-2% slopes is a deep well-drained soil found on fans and in valleys. Included in this unit are small areas of Fruitland sandy loam on 0-2 percent slopes. Permeability of this soil is moderately rapid with available water capacity moderate. Effective rooting depth is 60 inches or greater. Runoff is medium and the hazard of water erosion is moderate. The potential for wind erosion is moderate. This soil unit has a slight road hazard rating (Keetch 1980).

Fruitland sandy loam, wet, 0-2% slopes is a deep, somewhat poorly drained soil on fans and valleys. It formed in alluvium derived predominantly from sandstone and shale. Permeability of this soil is moderately rapid, while available water capacity is moderate. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. The hazard of wind erosion is severe. The main limitation for this soil type is wetness, which makes it poorly suited to urban development (Keetch 1980).

Garland loam is a deep, well drained soil on terraces and sides of valleys. It formed in alluvium derived from mixed sources. Slope is 0-3 %. Included in this unit are small areas of Doak soils on terraces, which make up about 5% of the unit. Permeability is moderate to a depth of 24 inches and rapid below this depth. Available water capacity is moderate. Runoff is slow and the potential for water erosion is slight. The potential for wind erosion is moderate. Most areas of this unit are used for irrigated crops, where the main limitation is the hazard of soil blowing (Keetch 1980).

Haplarids-Blackstone-Torriorthents complex, very steep is found on terraces, mesas and plateaus in the project area. Included in this unit are small areas of rock outcrop on ledges, shelves, and breaks. The complex is composed of 45% Haplargids on 8-50% slopes, 30% Blackston gravelly loam on 8-40% slopes, and 20% Torriorthents on 8-50% slopes. Haplargids are shallow to deep and well drained to excessively drained. Permeability tends to be moderate to moderately slow with available water capacity low to high. Runoff is slow to rapid and the potential for water erosion is slight to severe. The hazard of wind erosion is slight. Blackston soil is deep and well drained with a moderately slow permeability. Available water capacity is low while runoff tends to be slow. The potential for wind erosion with Blackston soil is moderate with a slight potential for water erosion. Torriorthents are shallow to deep and well drained. Permeability of this soil ranges from moderately rapid to moderately slow. Available water capacity is low to high. The hazard of water erosion is slight to severe with the potential for wind erosion slight. The major limitations of this mapping unit are the steepness of slope and the potential for wind and water erosion (Keetch 1980).

Turley clay loam, wet, 0-2% slopes is a deep, somewhat poorly drained soil on fans. It formed in alluvium derived predominantly from sandstone and shale. Included in the unit are small areas of Fruitland soils, wet, which make up approximately 5% of the unit. Permeability is moderately slow with a very high available water capacity. Runoff is slow, and the hazard of water erosion is slight. The hazard of soil blowing is severe. The unit is poorly suited to urban development.

Walrees loam is a moderately deep, somewhat poorly drained soil on flood plains and terraces. It formed in alluvium derived from mixed sources. Slope ranges from 0-2%. Green River and

Werlog soils comprise about 30% of the unit. Permeability is moderately slow to a depth of 30 inches and very rapid below. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow and the hazard of water erosion is slight, while the hazard for wind erosion is severe. The main limitations to this soil are wetness and the potential for flooding (Keetch 1980).

3.14 Vegetation

The proposed beginning of the line would skirt along the east side of thick stands of coyote willow (*Salix exigua*) and areas of dense juncus (*Juncus balticus*) intermixed with saltgrass (*Distichlis spicata*), smooth brome (*Bromus inermis*) and Canada wildrye (*Elymus canadensis*). Vegetation within the proposed ROW is dominated by rubber rabbitbrush (*Ericameria nauseosa*), Canada thistle (*Cirsium arvense*), Russian knapweed (*Acroptilon repens*), musk thistle (*Carduus nutans*), cheatgrass (*Bromus tectorum*), and saltgrass. The proposed alignment would cross a shallow drainage lined with less than six foot high coyote willow and Siberian elms (*Ulmus pumila*) and then ascend and an approximately 20 foot embankment to the U.S. Highway 64 ROW.

The proposed waterline alignment would then parallel existing road ROWs that are mainly vegetated with common weedy species. Cover was highly variable and ranged from 0-55%. Dominant species include Siberian elm, cheatgrass, foxtail barley (*Hordeum jubatum*), bindweed (*Convolvulus arvense*), knotweed (*Polygonum aviculare*), filaree (*Erodium cicutarium*), alfalfa (*Medicago sativa*), chorispora (*Chorispora tenella*), tumble mustard (*Sisymbrium altissimum*), London rocket (*Sisymbrium irio*), dandelion (*Taraxacum officinale*), Russian thistle (*Salsola tragus*), broadleaf plantain (*Plantago major*), and globemallow (*Sphaeralcea coccinea*). A large cottonwood tree (*Populus fremontii*) occurs at Station 277+00 along CR 6700. Four cottonwoods are located on the north side of U.S. Highway 64 at Station 214+00.

Between approximately Station 242+98 and Station 213+00, where the alignment would turn and cross CR 6700, the proposed ROW extends through agricultural fields that have not been recently cultivated. The two private access areas are similar in vegetation composition. These areas support mainly weedy species such as tansy mustard (*Descurainia pinnata*), common ragweed (*Ambrosia artemisiifolia*), and tumble mustard. Cover is variable and ranges from 0-80%.

Along CR 6800, vegetation changes in response to soils. Dominant species include shadscale (*Atriplex confertifolia*), broom snakeweed (*Gutierrezia sarothrae*), Indian ricegrass (*Achnatherum hymenoides*), sand drop seed (*Sporobolus cryptandrus*), halogeton (*Halogeton glomeratus*), and penstemon (*Penstemon angustifolius*). The area is disturbed and cover ranges from 0-30%. No trees occur within this portion of the ROW.

The 3,300 foot cross-country portion of the proposed ROW supports galleta (*Pleuraphis jamesii*), shadscale, rubber rabbitbrush, scorpion weed (*Phacelia integrifolia*), blazing star (*Mentzelia albicaulis*), and beeplant (*Cleome lutea*). Cover was visually estimated at 25-30%.

TUA #1 is located adjacent to the existing river pump station and is highly disturbed. The area contains random debris including lumber, metal, tires, cables, and pipe. Vegetation is dominated by upland species and weedy species with a visually estimated, highly variable 5-10% cover. Dominant species observed included rubber rabbitbrush, four-wing saltbush (*Atriplex confertifolia*), field bindweed, cheatgrass, and common ragweed. Scattered Siberian elms also occur within the TUA.

The northern portion of TUA #2 is vegetated by this saltgrass intermixed with juncus and very short, two to three feet high coyote willow with an average cover of 80%. A thin strip of saltcedar (*Tamarix pentandra*) and Russian olive (*Elaeagnus angustifolia*) lines an old irrigation ditch that separates the northern portion of the TUA with a cultivated agricultural field to the south. The field was fallow at the time of the survey.

TUA #3 is vegetated mainly with galleta, shadscale, and prickly pear (*Opuntia polyacantha*). Vegetative cover was fairly low due to rock cover and was estimated to range from 0-20%. No trees occur within this area.

A number of BLM invasive and non-native plant species of concern were identified in the proposed project area and are discussed below in Section 3.2.5. A complete list of plants observed in the proposed project area is provided in the project BAE (Appendix C).

3.15 Invasive, Non-native Species

The BLM/FFO maintains a list of invasive and non-native plant species of concern (BLM 2003a). No invasive, non-native plant species were identified on BLM managed lands. However, a number of species were recorded within the proposed waterline ROW and TUAs. Table 6 provides the species name and location within the proposed project area.

Table 6. Name and Location of BLM/FFO Invasive, Non-Native Species within the Proposed Project Area.

Species Name	Location
Canada thistle (<i>Cirsium arvense</i>)	Scattered in northern portion of TUA #1
	Scattered from beginning of the line to Station 343+00
	Station 186+00 to 194+00 (Shumway Arroyo and Farmer's Mutual Ditch)
Hoary cress/whitetop (<i>Cardaria draba</i>)	U.S. Highway 64 ROW east of Station 343+00
Jointed goatgrass (<i>Aegilops cylindrical</i>)	Scattered from beginning of the line to Station 343+00
Musk thistle (<i>Carduus nutans</i>)	Scattered in northern portion of TUA #1
	Scattered from beginning of the line to Station 343+00
Russian knapweed (<i>Acroptilon repens</i>)	Scattered in northern portion of TUA #1
	Scattered from beginning of the line to Station 343+00
Russian olive	Along road west and adjacent to TUA #2
	Scattered in northern portion of TUA #1

<i>(Elaeagnus angustifolia)</i>	Scattered from beginning of the line to Station 343+00
	Northern portion of TUA #2
Saltcedar <i>(Tamarix sp.)</i>	Scattered in northern portion of TUA #1
	Scattered from beginning of the line to Station 343+00
	Northern portion of TUA #2
	Private access adjacent to U.S. Highway 64
	Station 186+00 to 194+00 (Shumway Arroyo and Farmer's Mutual Ditch)

3.16 Special Status Species

In accordance with BLM Manual 6840, the BLM manages certain sensitive species not federally listed as threatened or endangered in order to prevent or reduce the need to list them as threatened or endangered in the future. Special status species and their potential to occur in the proposed project area are listed in Table 7. The BAE located in Appendix C provides the basis for the findings listed in the table.

Table 7. Habitat Descriptions and Potential Presence of BLM/FFO Special Status Species.

Species	Habitat Associations	Presence *
Golden eagle <i>(Aquila chrysaetos)</i>	In the west, mostly open habitats in mountainous, canyon terrain. Nests primarily on cliffs and trees.	S
Ferruginous hawk <i>(Buteo regalis)</i>	Flat or rolling terrain in grasslands, shrub-steppes, and deserts; may occur in the periphery of piñon-juniper or other forests. Badlands. Prefers elevated nest sites (e.g., buttes, utility poles, trees) but also nests on the ground.	S
Mountain plover <i>(Charadrius montanus)</i>	Breeds in flat, open grasslands; often associated with prairie dog towns and intensive grazing.	NP
Prairie falcon <i>(Falco mexicanus)</i>	Found in arid, open grasslands and shrub-steppe habitats. Prairie falcons require cliffs for nesting.	S
American peregrine falcon <i>(Falco peregrinus anatum)</i>	Rugged terrain with rocky cliffs and canyons (30-1,000+ ft high), adjacent to rivers, lakes, or streams. Urban areas with towers and buildings are also inhabited.	NP
Burrowing owl <i>(Athene cunicularia)</i>	Rarely dig their own burrows and are typically associated with prairie dog colonies.	NP
Bald eagle <i>(Haliaeetus leucocephalus)</i>	Nests in forested areas adjacent to large bodies of water.	S
Brack's hardwall cactus <i>(Sclerocactus cloveriae</i> ssp. <i>brackii)</i>	Sandy clay of the Nacimiento Formation in sparse shadscale scrub (5,000-6,000 ft).	NP
Aztec gilia <i>(Aliciella formosa)</i>	Salt desert scrub communities in soils of the Nacimiento Formation (5,000-6,000 ft).	NP

Source: BLM 2008

* **K** - Known, documented observation within project area; **S** - Habitat suitable and species suspected to occur within the project area; **NS** - Habitat suitable but species is not suspected to occur within the project area; **NP** - Habitat not present and species unlikely to occur within the project area.

The project area provides suitable foraging habitat for sensitive raptor species including golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), and ferruginous hawk (*Buteo regalis*). No potential nesting habitat occurs within the proposed project area.

Field surveys for active raptor nests were completed in the project area in April 2010. No active nests were observed within ½ mile of the proposed waterline. There are three historic or recently active ferruginous hawk territories located within three to seven miles south of the proposed action (BHP-Billiton 2010, unpublished data). Two golden eagle territories, one of which was active in 2010, are located from four to six miles northeast of the proposed project. The nearest prairie falcon nesting territory is located approximately four miles northeast of the proposed project (BLM 2009, unpublished data).

Given the proximity of the proposed action to the San Juan River, bald eagles (*Haliaeetus leucocephalus*), could also occur within the area between November and March. There is no potential habitat for any other BLM/FFO special status species within the proposed project area.

3.17 Wildlife

The project area occurs in a mosaic of riparian, agricultural, and Great Basin desert scrub communities. Desert scrub communities support a variety of wildlife, including mammals, birds, and reptiles. Mammal species commonly occurring in desert scrub/grasslands may include black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), kangaroo rat (*Dipodomys* spp.), mule deer (*Odocoileus hemionus*), pronghorn antelope (*Antilocapra Americana*) and coyote (*Canis latrans*). The riparian habitat in the project area, while limited in size, likely attracts a wide variety of wildlife species including raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), least chipmunk (*Eutamias minimus*), gray squirrel (*Sciurus griseus*), fox (*Vulpes* sp.) and bats (*Myotis* sp.).

Reptile species that may occur in the project area include collared lizard (*Crotaphytus collaris*), short-horned lizard (*Phrynosoma douglasii*), sagebrush lizard (*Sclerophorus graciosus*), plateau striped whiptail (*Cnemidophorus velox*), bullsnake (*Pituophis melanoleucus*), and western rattlesnake (*Crotalis viridis*).

Wildlife or signs of wildlife observed within and around the project area include desert cottontail, black-tailed jackrabbit, raccoon, mule deer, least chipmunk, sagebrush lizard and collared lizard. A complete list of wildlife and wildlife sign observed during the field investigation of the project area is provided in the project BAE (Appendix C).

3.18 Migratory Birds

Under the Migratory Bird Treaty Act (MBTA) and Executive Order 13186, “Responsibilities of Federal Agencies to Protect Migratory Birds”, federal agencies are required to consider management impacts to migratory nongame birds. While all migratory songbirds are protected by law, certain species have been determined to be at greater risk than others. There are slightly over 350 avian species in San Juan County and the surrounding area administered by the BLM/FFO. A total of 136 species have been confirmed as breeding in San Juan County with likely additional species if one considers the adjacent counties within the FFO area. Data collected through breeding bird surveys coordinated by the USFWS as well as other private sector efforts have provided the basis for the New Mexico Partners in Flight (NMPIF) organization to develop bird “Watch Lists” and the USFWS’s “Birds of Conservation Concern List”. The proposed project area primarily contains two of the habitat types addressed in these documents: Great Basin Desert Shrub (sage/grass) and southwest riparian. Some of the birds listed as “Highest Priority” by the NMPIF group as well as USFWS “Birds of Conservation Concern” includes the ferruginous hawk (*Buteo regalis*), gray vireo (*Vireo vicinior*), and Bendire’s Thrasher (*Taxostoma bandirei*).

The NMPIF group has identified priority species of birds for the state of New Mexico by habitat type. The FFO area lies within the Colorado Plateau physiographic region as identified by the NMPIF. The Bird Conservation Plan developed for the State of New Mexico by NMPIF lists the sage thrasher (*Oreoscoptes montanus*) and sage sparrow (*Amphispiza belli*) within the Great Basin Desert Shrub habitat type as “highest priority” species for conservation. Priority species for southwest riparian areas include Bell’s vireo (*Vireo bellii*), Southwestern willow flycatcher, Lucy’s warbler (*Vermivora luciae*), and Abert’s towhee (*Pipilo aberti*) (NMPIF 2007).

Most of the priority bird species identified by the NMPIF also occur on the USFWS Division of Migratory Bird Management “Birds of Conservation Concern 2008” within Bird Conservation Region 16 – Southern Rockies/Colorado Plateau. Birds included on this list are those “species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973” (USFWS 2008).

Birds that may nest in desert scrub habitats in San Juan County include Gambel’s quail (*Callipepla gambelii*), horned lark (*Eremophila alpestris*), sage sparrow (*Amphispiza belli*), and western meadowlark (*Sturnella neglecta*). Other species that may utilize desert grassland habitats during the non-breeding season include mourning dove (*Zenaidura macroura*), mountain bluebird (*Sialia currucoides*), and lark sparrow (*Chondestes grammacus*). The open agricultural fields and rolling terrain of the project area and vicinity also offer potential foraging habitat for several raptor species such as golden eagle, prairie falcon, ferruginous hawk, red-tailed hawk (*Buteo jamaicensis*), and northern harrier (*Circus cyaneus*). The project area provides potential foraging and perching habitat for a variety of raptor species. However, there is no suitable nesting habitat for these species within the proposed project area due to a lack of cliffs or other prominent topographical features.

A small nest, less than six inches in diameter, was located in a Russian olive in TUA #2 during biological surveys of the area. The nest was not occupied during the April 2010 survey. Species identified in the project area during the biological surveys included ash-throated flycatcher (*Myiarchus cinerascens*), western kingbird (*Tyrannus verticalis*), northern flicker (*Colaptes auratus*), mourning dove, house finch (*Carpodacus mexicanus*), black-billed magpie (*Pica hudsonia*), broad-tailed hummingbird (*Selasphorus platycercus*), horned lark, Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), common raven (*Corvus corax*), American robin (*Turdus migratorius*), western mockingbird (*Mimus polyglottos*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark, black-chinned hummingbird (*Archilochus alexandri*), yellow-breasted chat (*Icteria virens*), brown-headed cowbird (*Molothrus ater*), common yellowthroat (*Geothlypis trichas*), blue grosbeak (*Passerina caerulea*), black-headed grosbeak (*Pheucticus melanocephalus*), Lazuli bunting (*Passerina amoena*), and southwestern willow flycatcher.

3.19 Noise

In the majority of the project area ambient noise levels are low to moderate and affected primarily by periodic traffic along county and state roads. At the PNM river pump station noise levels are greater as the pumps affect noise levels in the southern portion of the site and U.S. Highway 64 increases noise levels in the northern portion. The PNM pumps are enclosed within a building.

3.20 Visual Resources

Visual Resource Management (VRM) on public lands is conducted in accordance with BLM Handbook 8410 and BLM Manual 8411. Further details of the FFO VRM Program are contained on pages 2-9 to 2-10 and 3-61 to 3-63 of the Farmington PRMP/FEIS. The proposed project area is on BLM lands designated by the BLM as VRM Class IV. Modifications to the visual resource must follow the guidelines for the types of change suitable for each class. Class IV VRM classification provides for activities that require major modification of the landscape and the level of change to the landscape can be high.

3.21 Public Health and Safety

A portion of the proposed waterline would be constructed adjacent to U.S. Highway 64 and would also bore under the highway. This four-lane highway receives a high level of traffic particularly during commute times. CR 6700 is lined with private residences that have driveways and buried utilities. These utilities include telephone/fiber optic lines, water, and natural gas lines. Overhead utility lines are located along CR 6700 and 6800 which also pose a risk during construction.

Equipment would need to be refueled and maintained; therefore hazardous materials (oil, diesel, and gasoline) would be used and stored within the proposed project area (refer to Section 3.10 for a description of solid and hazardous wastes).

4.0 ENVIRONMENTAL CONSEQUENCES

Environmental resources may be affected in many ways during implementation of the proposed action. The effect, or impact, is defined as any change or alteration in the pre-existing condition of the environment produced by the proposed action, either directly or indirectly. This chapter analyzes the environmental consequences of the proposed action.

Impacts can be either long-term (permanent, residual) or short-term (incidental, temporary). Short-term impacts affect the environment for only a limited time period and the environment usually reverts rapidly to the pre-disturbance condition. Short-term impacts are often disruptive and obvious. Long-term impacts are substantial and permanent alterations to the pre-project environment. The BLM defines long-term impacts as those impacts whose results endure more than five years. Impacts may be irreversible or residual and affected resources irretrievable.

For the purpose of this EA, potential impacts have been divided into three categories:

High - as defined in CEQ guidelines (40 CFR 1500-1508), impacts which are substantial in severity and therefore should receive the greatest attention in decision-making.

Moderate - impacts which cause a degree of change that is easy to detect, but do not meet the criteria for significant impacts.

Low - impacts which cannot be easily detected and cause little change in the existing environment.

No Action Alternative

Under the no action alternative, the ROW grant would be denied and the construction of the 42-inch waterline would not occur. PNM would continue to pump water from the San Juan River during periods of high turbidity, increasing the chance of equipment corrosion and degradation, and periods of blow down at the plant which increases the amount of water consumed. The temporary surface line, which is supplementing water supplies at the lake, would need to remain in place. There would be no new impacts to surface resources in the project area. The no action alternative would result in the continuation of current land and resource uses in the project area. This alternative will not be evaluated further in Chapter 4.0.

Action Alternative - Proposed Action

Under the proposed action, the PNM River to Lake Waterline would be constructed, with mitigation measures to reduce potential impacts to the environment. The total surface disturbance for the proposed action would be 64.6 acres. Approximately 95% of the proposed action would be located on existing disturbance; therefore new disturbance would be limited to approximately 4.5 acres. The total long-term permitted acreage for the proposed action would be 15.7 acres. Refer to Chapter 2 for details on the proposed action. The potential environmental

consequences and proposed mitigation measures for this alternative are described for both critical and non-critical elements in the following sections.

4.1 Air Resources

The proposed project would be expected to last approximately 44 weeks. Existing access roads would be used by the hauling trucks for transporting materials.

4.1.1 Direct and Indirect Impacts

Air quality would temporarily be directly impacted with pollution from exhaust emissions, chemical odors, and dust that would be caused by the motorized equipment used to excavate the trench and construct the waterline. These impacts would be localized. Active dust generation would discontinue upon completion of the construction activities. The significance threshold of 35 ug/m³ daily PM_{2.5} NAAQS enacted in October 2006 is not expected to be exceeded under the proposed action. Air pollution from the motorized equipment would discontinue at the completion of the construction phase of the operations. The winds that characterize the northwestern part of New Mexico generally disperse the odors and emissions. The impacts to air quality from fugitive dust would be greatly reduced once construction is completed, but would continue until the ROW is fully reclaimed. Reclamation (seeding and mulching) would reduce the impacts from windblown dust from the ROW. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from coal mining, and dust from use of roads for vehicular traffic. Overall, impacts to air quality would be short-term and low.

Climate

No impacts to the climate are anticipated as a result of this project.

4.1.2 Mitigation

The FFO has been a participant of the Four Corners Air Quality Task Force (FCAQTF) since its inception back in 2002 when it was known as the Four Corners Ozone Task Force. Because of the unanswered questions raised by these modeling efforts, the FCAQTF has continued to look at air quality issues in the Four Corners region. The FCAQTF is comprised of a broad base of representatives including federal, state, Indian, and local governments, as well as industry, interest groups, and concerned community members. The FCAQTF has several working groups, which worked on the development of a mitigation options report (completed December 2007), to serve as a resource and guide to the regulatory agencies. The responsible agencies may use the report as the basis for developing air quality management plans for the region. This may include developing new and revising existing regulations, supporting new legislation, developing new outreach and information programs, and developing and/or expanding voluntary programs for emission reductions.

The BLM's regulatory jurisdiction over authorized activities on federal lands has resulted in the development of BMPs designed to reduce impacts to air quality. Typical measures may include: require that vapor recovery systems be maintained and functional in areas where petroleum

liquids are stored; revegetate areas of disturbed land, and water dirt roads during periods of high use in order to reduce fugitive dust emission.

4.2 Cultural Resources

One previously recorded site (LA 148558), one newly recorded site (LA 166786), and two isolated manifestations were located within the area surveyed for cultural resources for the proposed action. Neither of the isolated manifestations is considered eligible for nomination to the NRHP as detailed recording in the field has characterized their limited information potential in archival form. No further cultural resource work is considered necessary, as neither site would be affected by the proposed project based on distance from the ROW. The BLM cultural resource staff have concurred with those recommendations. The cultural report has been submitted to the BLM/FFO for review and concurrence.

4.2.1 Direct and Indirect Impacts

No direct impacts to cultural resources are expected as a result of the proposed project. A potential indirect effect from the proposed action is the increase in human activity in the area with the increased possibility of unauthorized removal or other alteration to cultural resources in the area.

4.2.2 Mitigation

A cultural resources determination of effect for the proposed action will be issued by BLM/FFO archaeologists. This determination will be included in the BLM/FFO cultural resources stipulations attached to the stipulations. All BLM/FFO cultural resources stipulations will be followed as indicated in the Cultural Resource Records of Review, attached to the stipulations. Final project clearance and stipulations will be issued by the BLM/FFO.

No site-specific mitigation measures for cultural resources have been recommended. If previously undocumented cultural sites are encountered during construction, all activities will stop in the vicinity of the discovery and the BLM/FFO will be immediately notified. The site will then be evaluated. Mitigation measures such as data recovery may be required by the BLM to prevent impacts to newly identified cultural resources.

4.3 Native American Religious Concerns

The proposed action is not known to physically threaten any TCPs, prevent access to sacred sites, prevent the possession of sacred objects or interfere or otherwise hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act or Executive Order 13007. There are currently no known remains that fall within the purview of the Native American Graves Protection and Repatriation Act or the Archaeological Resources Protection Act.

4.3.1 Direct and Indirect Effects

Although none have been identified, any heretofore unidentified effects of the proposed action to Native American Religious Concerns, direct and indirect, are expected to be low and short-term.

4.3.2 Mitigation

No site specific mitigation measures for Native American Religious Concerns have been recommended. In the event of any discoveries during project implementation, the BLM will be notified.

4.4 Environmental Justice

In compliance with Executive Order 12898, this assessment determined that the proposed action is not expected to result in disproportionate shares of negative environmental impacts affecting any group of people due to a lack of political or economic strength. Development of the proposed action would not result in negative impacts to minority or low income populations.

4.4.1 Direct and Indirect Impacts

No direct or indirect impacts to minority or low income populations are expected as a result of the proposed action.

4.4.2 Mitigation

No site-specific mitigation measures for Environmental Justice are recommended.

4.5 Paleontological Resources

The proposed project would be assessed individually based on BLM's PFYC system, GIS/Remote Sensing based locality data, known paleontological locality information, existing reports and data for the area. If preliminary analysis indicates that the proposed project area has a high probability to fall within an appropriate designated class area additional surveys, reporting and stipulations would be required. According to Sherrie Landon, BLM/FFO Paleontologist, a project specific survey is not required for the proposed action (Landon 2010, pers. comm.).

The Picture Cliffs Formation found within the proposed project area is not known to contain paleontological resources. No fossils were observed within or proximate to the proposed project area.

4.5.1 Direct and Indirect Effects

Although no fossils were observed, impacts to paleontological resources from the proposed project implementation could possibly occur. Direct impacts of the proposed project to fossil localities could result from the ground disturbing activities or the disturbance of the stratigraphic context in which they are located. This project could also create indirect impacts to sensitive areas by changing erosion patterns. Additionally there could be an increase in off-road vehicular

access from the project area for recreational activities. An increase in human activity in the area could increase the possibility of unauthorized removal or other alterations to paleontological resources in the area. Potential impacts to paleontological resources as a result of the proposed action would be low and long-term

4.5.2 Mitigation

All BLM/FFO paleontological resources stipulations will be followed as indicated in the ROW grant. These stipulations may include, but are not limited to temporary or permanent fencing or other physical barriers, monitoring of earth disturbing construction, project area reduction and/or specific construction avoidance zones, and employee education. Upon review, a determination for final project clearance and stipulations will be issued by the BLM/FFO.

4.6 Federally Threatened and Endangered Species

The initial approximately 670 feet of the waterline would be located adjacent to designated critical habitat for Colorado pikeminnow. Razorback sucker is also known to occur in the portion of the San Juan River adjacent to the beginning of the line with designated critical habitat for this species occurring approximately seven miles downstream.

A migrant southwestern willow flycatcher was documented in the riparian habitat adjacent to the proposed beginning of the line at the river pump station. No nesting southwestern willow flycatchers were documented at the site during protocol surveys conducted between May and July 2010. There would be no removal of potential nesting habitat as the preliminary alignment for the proposed action was modified to avoid impacts.

One Mesa Verde cactus was located within approximately 30 feet of the proposed ROW centerline in the existing CR 6800 ROW.

The proposed project area does not contain suitable habitat for any other federally listed species with the potential to occur in San Juan County.

4.6.1 Direct and Indirect Impacts

There would be no change in the amount of depletions from the San Juan River from those currently allotted to PNM. No construction activities would occur within or adjacent to the San Juan River stream channel under the proposed action. Therefore, no bank stabilization, stream channel bed control, gabion weirs or other structures would be required. There would be no removal of potential habitat for the razorback sucker or Colorado pikeminnow. Vegetation removed within the proposed ROW within the broad floodplain is not located near the waterway and would not affect water temperatures or reduce habitat for fish.

Ground disturbance associated with construction within the floodplain has the potential to increase sediments reaching the San Juan River. Additionally, accidental fuel, lubrication or other hazardous material spills in the construction zone, depending upon the size, has potential to

reach the San Juan River and adversely impact water quality. Overall, changes in the amount or availability of food supply would be unlikely to occur. No changes in other water quality parameters such as temperature, nutrients, dissolved oxygen, and pH would occur. The proposed action is not expected to have any impacts to predation of, or competition with, Colorado pikeminnow or razorback sucker.

Construction of the proposed action would not result in adverse effects on primary constituent elements within Colorado pikeminnow or razorback sucker designated critical habitat, with the implementation of mitigation measures. Potential impacts to Colorado pikeminnow and razorback sucker would be low and short-term.

Potential impacts to southwestern willow flycatcher would be limited to temporary avoidance of suitable habitat resulting from increased noise and human activity during construction. These impacts would be avoided if construction activities in areas of the proposed waterline that are adjacent to suitable habitat occur outside of the breeding season. No potential nesting or migratory habitat would be removed by the proposed action. With the implementation of mitigation measures, no direct or indirect impacts to southwestern willow flycatcher would occur.

With the implementation of mitigation measures, no direct or indirect impacts to Mesa Verde cactus would occur.

4.6.2 Mitigation

BMPs outlined in the Stormwater Pollution Prevention Plan (SWPPP) will be implemented to avoid or minimize potential effects from sediment or the accidental release of hazardous substances (i.e., oil, diesel) on the protected Colorado pikeminnow and designated critical habitat, and razorback sucker. Construction and reclamation of the initial approximately 700 feet of waterline would be conducted outside the southwestern willow flycatcher migratory and breeding season (April to August). A pre-construction survey to determine the presence/absence of southwestern willow flycatchers in the area may be recommended. Temporary fencing to restrict construction activities would avoid direct and indirect impacts to Mesa Verde cactus. Monitoring by a qualified biologist may be required by the BLM/FFO during construction activities within 100 feet of the cactus.

4.7 Floodplains

The proposed action would cross over Shumway Arroyo designated as a Special Flood Hazard Area-Zone A. No construction activities are proposed within the arroyo channel. The proposed waterline would be constructed above the channel adjacent to CR 6800 on top of the arroyo culverts.

4.7.1 Direct and Indirect Impacts

There would be no impacts to the floodplain structure or channel morphology from the proposed action. No impacts to flow patterns or floodplain acreage are expected. No obstructions to floodwater would occur under the proposed action. The proposed action would result in a minor,

undetermined increase in sediment transfer during construction and until the area has re-vegetated (approximately one to two years). These indirect impacts would be short-term.

4.7.2 Mitigation

Preparation and implementation of the SWPPP would eliminate or minimize potential effects from sediment within the floodplain.

4.8 Wetlands/Riparian Zones

One jurisdictional wetland was identified within the preliminary waterline alignment at the beginning of the line. This wetland covers approximately 2.9 acres within the proposed preliminary ROW. The proposed ROW was modified from the preliminary alignment to avoid direct impacts to the wetland. The modified proposed alignment would skirt the eastern boundary of the wetland.

The wetland area in Shumway Arroyo would not be affected as the proposed project would not be constructed in the area, but above it adjacent to Country Road 6800.

There are no wetlands or riparian zones around San Juan Lake.

4.8.1 Direct and Indirect Impacts

No direct or indirect impacts to wetlands are anticipated as a result of the proposed action.

4.8.2 Mitigation

All work will be conducted within only those areas permitted and construction activities will be minimized to the extent practical within the limits of disturbance. The wetland area located adjacent to the ROW beginning of the line, and the wetland in Shumway Arroyo, will be temporarily fenced to restrict construction activities. A SWPPP plan would be prepared and implemented for the proposed action. The SWPPP will include recommended BMPs to be implemented during site clearing, trenching and reclamation activities that will further eliminate impacts to wetlands.

4.9 Water Quality: Surface and Groundwater

Approximately 670 feet of the proposed waterline would be constructed adjacent to the San Juan River, north of the river channel. The proposed waterline would cross three ephemeral washes. The proposed waterline would also skirt the outflow of Farmer's Mutual Ditch, located immediately north of Shumway Arroyo.

4.9.1 Direct and Indirect Impacts

In total, a maximum of 220 linear feet of surface disturbance would occur within the three ephemeral drainages, which would correlate to approximately 166 cubic yards of material

temporarily dredged in order to bury the waterline. This would result in minor short-term changes to surface contours during construction and increased sedimentation into area waterways. The proposed action would expose a maximum of approximately 59 acres of soil as a sediment source entering the ephemeral drainages and Shumway Arroyo. These sources could eventually enter the San Juan River. Impacts to water quality would primarily be associated with runoff following storm events. There is also potential for fuel and oil spillage associated with the proposed project. The impacts to surface water quality due to increases in sediment would be low as the surface water present in the general vicinity of the project area is ephemeral. Impacts to water quality from sedimentation would continue until the disturbed areas are stabilized; these impacts would be low and short-term. Impacts due to potential fuel and oil spillage would also be low and short-term.

4.9.2 Mitigation

A SWPPP plan would be prepared and implemented for the proposed action. All stipulations in the conditional Section 401 Certification of the Nationwide Permits for ephemeral waters as issued by the NMED/SWQB will be adhered to. Fuel, oil, hydraulic fluid, lubricants and other petrochemicals will not be stored within the 100-year floodplain and will have a secondary containment system to prevent spills. Appropriate spill cleanup materials such as booms and absorbent pads will be available on-site at all times during construction. All heavy equipment used in the project area will be pressure washed and/or steam cleaned before the start of the project and inspected daily for leaks. Leaking equipment will not be used in or near surface water. Equipment refueling will be conducted at least 100 feet from surface water.

The proposed waterline would be constructed in accordance with the General Conditions of Nationwide Permit (NWP) #12 – Utility Line Crossings as issued by the USACE. Soil erosion and sediment controls specified in the NWP general conditions will be used and maintained to minimize potential impacts to water quality.

The ROW will be recontoured and reseeded following construction which will minimize sediment transfer.

4.10 Wastes: Hazardous or Solid

Minimal amounts of hazardous materials would be located on the project site in the form of oil, hydraulic fluids, and coolants. There would be no vehicle or equipment maintenance performed in the project area, other than emergency repairs as necessary to allow for continued operations and or getting vehicles to repair locations. No chemicals subject to SARA Title III in amounts greater than 10,000 lbs would be used. No extremely hazardous substances as defined in 40 CFR 355 in threshold planning quantities would be used. The staging area would be located on private land

4.10.1 Direct and Indirect Impacts

The accidental release of small amounts of oil, fuel, hydraulic fluids, or coolants poses a potential threat to project area resources. The volumes contained in the vehicles and equipment would be below the threshold reporting volumes. Impacts to the environment due to hazardous wastes would be low and short-term.

4.10.2 Mitigation

If there are any spills or leaks from equipment or vehicles, absorbent pads will be utilized to collect leaking fluids; these will be disposed of off-site at a permitted facility. All hazardous substances will be handled and disposed of according to federal law. Non-hazardous solid waste generated at the proposed project area will be stored in appropriate containers and disposed of at an approved facility on an as-needed basis. PNM will report all spills immediately to the NMED/SWQB. If any spills occur on BLM lands, the FFO would also be notified.

4.11 General Topography/Surface Geology

A maximum of approximately 45.5 acres within the proposed ROW could be disturbed by the proposed action. Alterations to current topography would be minimal given the level of existing disturbance and because the proposed replacement waterline would parallel the existing waterline, and existing road ROWs in previously disturbed areas for the majority of its length. Following implementation of mitigation measures, impacts to topography would not likely be noticeable.

4.11.1 Direct and Indirect Impacts

Impacts to the project area topography would be low and long-term.

4.11.2 Mitigation

After the trench is backfilled, the ROW would be recontoured and reseeded. It is recommended that existing topography be retained where possible. Erosion control and sediment removal structures such as berms, straw bales and silt fences will be utilized as necessary, as outlined in the SWPPP. Reclamation will help to minimize the visual impacts resulting from the changes in the project area topography.

4.12 Mineral Resources

The proposed exploration area would be located in an area near an active coal mine. Natural gas development is minimal in the area.

4.12.1 Direct and Indirect Impacts

There would be no impacts to coal mining in the area. The proposed project is not expected to impact oil and gas development.

4.12.2 Mitigation

No mitigation measures for mineral resources are recommended.

4.13 Soils

Ten different major soil units occur within the proposed project area. The hazard of water erosion for project area soils ranges from slight to severe. The hazard of wind erosion for project area soils also ranges from slight to severe (Keetch 1980). Accelerated precipitation runoff and soil erosion due to wind and water is possible, especially given the soil types present in the proposed project area. The most susceptible period for soil erosion impacts is during clearing and trenching when strong winds or precipitation events during soil disturbing activities could mobilize soils.

4.13.1 Direct and Indirect Impacts

A maximum of approximately 45.5 acres of soil could be exposed over the course of construction as a result of site clearing, blading, and trench excavation. This would result in temporary disturbance, compaction, and mixing of soils within the proposed site. An undetermined amount of soil erosion, by both wind and water, would continue in the project area until the ROW is reclaimed. Direct impacts to the project area soils would be low to moderate and short-term.

4.13.2 Mitigation

Trench spoils will be stored on the working side of the ROW when possible. If sufficient space is not available within the ROW trench spoils will be transported to the nearest TUA and stored, then transported back to the trench for backfilling. Vehicular traffic from PNM and their contractors will be restricted to the proposed permitted areas and existing roads. Erosion control structures such as berms, straw bales and silt fences will be placed as necessary and outlined in the SWPPP. All sites will be revegetated with a specified seed mix upon completion of construction.

4.14 Vegetation, Forestry

Implementation of the proposed project would result in the disturbance of a maximum of approximately 45.5 acres of disturbed reseeded vegetation in road ROWS, cultivated and non-cultivated agricultural fields, Great Basin desert scrub, and a small area where upland and riparian species transition. The majority of vegetation within the proposed ROW has been previously disturbed and reseeded. Elm trees are located along fence lines in the CR 6700 and 6800 and some may be removed. A large cottonwood tree is located on CR 6700 at Station 277+00 and will not be removed; however, trenching activities may cut some tree roots. Given the current health, size of the tree and available water supply, it is unlikely that the tree would suffer adverse effects.

4.14.1 Direct and Indirect Impacts

The removal of native and woody vegetation could result in a change in species composition and density following successful re-vegetation of the project area. This impact would affect the final 3,300 feet of the proposed ROW that is vegetated by Great Basin desert scrub and the initial 670 feet that is located in a riparian transition zone. Vegetation removal would increase the potential for soil erosion. The removal of vegetation also increases the likelihood of invasive weed infestations. Impacts to vegetation are expected to be low and short-term.

4.14.2 Mitigation

All clearing activities will be confined to the ROW. Tree removal will be minimized to the greatest extent possible. The proposed ROW alignment will skirt the large cottonwood tree on CR 6700 as far as possible to the north while still retaining one open traffic lane for safe public transportation. Disturbed areas will be reseeded with an appropriate seed mix, based on ownership status, as part of site reclamation. Tables 8, 9 and 10 provide the seed mixes for San Juan County, NMDOT and BLM/FFO.

All seed shall be certified noxious weed free prior to use. The amount of seed per acres is for a drilled rate. For broadcast applications the rate will be doubled.

Table 8. San Juan County Seed Mix

Common Name	Variety	Percent for Mix	PLS Lbs/Acre
Western wheatgrass	Arriba	23%	3.0
Indian ricegrass	Paloma or Rimrock	23%	3.0
Slender wheatgrass	San Luis	15%	2.0
Crested wheatgrass	Hy-Crest	22%	3.0
Bottlebrush squirreltail		15%	2.0
Four-wing saltbush		2%	0.25

Note: Four-wing saltbush may be omitted. All rates shown are for pure live seed (PLS).

For the San Juan County seed mix, the following are alternative Species for Consideration if one of the species above is not available:

- Grass: Alkali sacaton (for clayey and salty bottoms)
- Needle and thread
- Pubescent wheatgrass
- Intermediate wheatgrass
- Smooth brome (for higher elevations)

Table 9. New Mexico Department of Transportation (NMDOT) Seed Mix for Sandy Soils.

Species	Origin	Pure Live Seed Lbs/Acre
Indian ricegrass	Paloma	3.0
Sand dropseed	New Mexico	2.0
SideoatsfGramma	Vaughn	5.0

Table 10. Bureau of Land Management Farmington Field Office Seed Mix, Public Service Company of New Mexico (PNM) River to Lake Waterline.

Species	Pure Live Seed Lbs/Acre
Indian ricegrass	4.0
Sand dropseed	1.0
Scarlet globemallow	1.0
Four-wing saltbush	3.0

4.15 Invasive, Non-native Species

Seven BLM listed invasive, non-native species of concern were identified in the project area; Canada thistle, hoary cress/whitetop, jointed goatgrass, musk thistle, Russian knapweed, Russian olive, and saltcedar. Surface disturbance activities associated with the proposed project create potential for the establishment and spread of noxious weeds and invasive, non-native species.

4.15.1 Direct and Indirect Impacts

The proposed project would have low and long-term impact from the potential introduction of invasive, non-native species into the area.

4.15.2 Mitigation

Timely reclamation of the ROW and cleaning of vehicles and equipment prior to entering the ROW, TUAs, or private access areas, and reseeding will minimize the potential for invasive and non-native species to establish.

4.16 Special Status Species

Field surveys for active raptor nests were completed in the project area in early April and May 2010. No active nests were observed within a 1/2-mile of the proposed ROW. The proposed project area does not contain suitable nesting habitat for raptors. However, the area does provide suitable foraging habitat for golden eagles, prairie falcons, and ferruginous hawks given the close proximity of active nesting territories. Bald eagles, which are known to winter in the area, may incidentally occur in the project area during the period of November through March.

4.16.1 Direct and Indirect Impacts

Direct impacts to golden eagles, ferruginous hawks and prairie falcons as a result of the proposed project would include a modification of a maximum of 45.5 acres of potential foraging habitat. Not all of this acreage is considered to be suitable foraging habitat as it contained within existing

road ROWs. Other direct impacts to raptor species, including bald eagle, would be avoidance of the project area due to increased human disturbance and vehicle presence and associated noise during site construction. Indirect impacts may include a change in vegetation species composition and density following reclamation in approximately 5.7 acres of Great Basin desert scrub. Impacts from habitat modification would be low and short-term. Avoidance impacts would be low and short-term.

4.16.2 Mitigation

Adherence to stipulations provided by the BLM will minimize effects to all raptors that may utilize the project area. All construction activities will be restricted to the ROW and other permitted areas. Should any nesting raptors be identified during exploration activities, the BLM biologist will be immediately contacted in order to evaluate whether additional resource protection measures are warranted.

4.17 Wildlife

Wildlife in the project area includes a variety of mammals, birds, and reptiles found in desert grassland communities. Wildlife or signs of wildlife observed within and around the project area included desert cottontail, black-tailed jackrabbit, and mule deer.

4.17.1 Direct and Indirect Impacts

The proposed action would result in the modification of a maximum of 45.5 acres of vegetation, thereby decreasing available habitat for a variety of wildlife species. Not all of this acreage is considered to be suitable habitat as it is contained within existing road ROWs and from the moderate level of human habitation. The greatest impacts would occur on approximately 5.7 acres of Great Basin desert scrub in the cross-country portion of the proposed ROW. This habitat modification would temporarily affect species distribution and composition in the project area. Since the vegetation removed would not necessarily be replaced with the same species, and/or in the same distribution, a short-term alteration in habitat utilization is anticipated. Impacts from habitat modification would be low and short-term.

During construction and reclamation there would be direct impacts to area wildlife as a result of human and vehicular activity and the associated noise. These impacts would be low to moderate and short-term. Clearing activities, such as grading, excavating and backfilling, could temporarily displace small numbers of burrowing rodents and reptiles. It is possible that small numbers of these animals may be injured or killed by heavy equipment during construction. Wildlife may temporarily avoid areas where construction is occurring, but would likely return once activities have ceased. Wildlife may also become trapped in the trench, or their movement blocked by long segments of open trench. The impact of the proposed action on wildlife in the project and surrounding area would be low to moderate and short-term for the duration of construction and reclamation.

4.17.2 Mitigation

Clearing activities associated with the proposed project would be limited to the permitted areas. The impacts on wildlife caused by the removal of vegetation will be mitigated through reclamation measures, which include recontouring and reseeding of the ROW. No more than 1/8 mile of trench will be open at one time on BLM/FFO lands to minimize wildlife entrapment and escape ramps or bridges will be constructed to allow wildlife to escape or cross the trench. No more than 150 feet of trench would be open overnight along CR 6700 and 6800.

4.18 Migratory Birds

Executive Order 13186 dated January 17, 2001 calls for increased efforts to more fully implement the MBTA. In keeping with this mandate, the BLM/FFO has consulted the PIF Bird Conservation Plan for the State of New Mexico and the USFWS list of Birds of Conservation Concern. A review of these documents, specifically as they pertain to the Colorado Plateau physiographic area, indicates there are eight “priority” species that utilize the sagebrush/grass within the Great Basin desert scrub habitat type that occur on the NMPIF “Highest Priority” and USFWS “Birds of Conservation Concern 2008” lists. Five of these species occur on both lists. Various types of perturbations and/or anthropogenic activity may affect these species. These species and a brief assessment of the effects of the proposed action on their habitat are provided in Table 11.

Table 11. Migratory Bird Species of Concern Occurring within the BLM/FFO and Potential Impacts.

Species	Habitat Type	Effects	Impact Rating Low/Moderate/High
Grasshopper Sparrow (<i>Ammodramus savannarum</i>)	Sage/grass	May be positively affected due to conversion to grassland.	Low
Sage Sparrow ¹ (<i>Amphispiza belli</i>)	Sage/grass	Minor loss of nesting and brood rearing habitat	Low
Burrowing owl (<i>Athene cunicularia</i>)	Sage/grass	Little effect, nests in abandoned prairie dog burrows.	Low
Ferruginous Hawk (<i>Buteo regalis</i>)	Sage/grass/ Piñon-juniper interface	Loss of nesting and foraging habitat; decrease in prey (small mammals) abundance likely.	Low
Mountain Plover (<i>Charadrius montanus</i>)	Sage/grass	May be positively affected due to conversion to grassland; may produce more prey (i.e., arthropods).	Low
Long-billed Curlew (<i>Numenius americanus</i>)	Sage/grass	May be positively affected due to conversion to grassland.	Low
Sage thrasher ¹ (<i>Oreoscoptes montanus</i>)	Sage/grass	May be some loss of sage/nesting habitat	Low
Bendire’s thrasher (<i>Toxostoma bendirei</i>)	Sage/grass	Little effect anticipated some loss of nesting habitat; increase in prey (i.e., arthropods) likely.	Low

¹ = “High Priority” bird species that are listed on the NMPIF “Highest Priority” birds of conservation concern list but not on the USFWS “Birds of Conservation Concern 2008” list.

4.18.1 Direct and Indirect Impacts

Impacts to migratory birds would generally be low given the level of existing disturbance and human habitation in the project area. Impacts to migratory birds would be greater should clearing and trenching occur during the breeding season of April 15 through July 15. Construction activities may cause some nest abandonment in adjacent areas. Direct and indirect impacts to migratory birds of concern would be low and short-term.

4.18.2 Mitigation

Construction activities will be confined to the proposed project area to avoid further disruption to migratory birds. Adherence to BLM reclamation and sanitation measures will minimize potential impacts. Following exploration activities, disturbed areas will be reseeded with the appropriate BLM seed mix. It is recommended that any bird nests found within the proposed project area be reported to a BLM/FFO biologist for appropriate mitigation prior to clearing activities.

4.19 Noise

The proposed project area is located along portions of U.S. Highway 64, CR 6700 and CR 6800. Numerous residences line CR 6700 and 6800. Ambient noise levels are generally low and affected mainly by periodic traffic. The river pump station near the beginning of the line is enclosed in a building, but does affect noise levels in the immediate area. These noise levels dissipate with distance from the source.

4.19.1 Direct and Indirect Impacts

During construction local residents may experience an increase in noise levels. The proposed action would have low, short-term impacts to the public for the duration of construction. After construction and reclamation is completed there would be no impacts to noise levels in the proposed project area. Construction hours would be from 7:00 am to 7:00 pm five days a week.

4.19.2 Mitigation

Construction activities will be conducted during daylight hours when ambient noise levels are higher.

4.20 Visual Resources

The proposed project is located on BLM and private lands designated by the BLM as Class IV VRM. Class IV VRM provides for activities that require major modification of the landscape and the level of change to the landscape can be high.

4.20.1 Direct and Indirect Impacts

The proposed action would require the removal of soil and an alteration of topography resulting in visual alterations to the landscape. During construction, the effect of ground disturbance,

machinery, pipe and other equipment would result in low to moderate short-term visual impacts. Following reclamation, visual impacts would be low and short-term.

4.20.2 Mitigation

The proposed waterline will be constructed adjacent to existing disturbance; therefore minimizing the visual impacts of the proposed project. After construction, disturbed ground will be re-contoured and re-vegetated.

4.21 Public Health and Safety

The proposed project may impact public health and safety in a number of ways. The primary activities associated with public health and safety are traffic and transportation to and from the project area, including the handling, storage, and operation of heavy equipment associated with clearing and trenching activities. Health and safety issues for site workers include operation of heavy equipment, the presence of hazardous materials, and working in the vicinity of other utilities (gas pipelines and overhead utility lines).

4.21.1 Direct and Indirect Impacts

The proposed project is expected to last 44 weeks with approximately 50 to 75 workers, resulting in a moderate increase in vehicular traffic within the project area. Hazardous materials would be located on the project site in the form of oil, fuel, hydraulic fluids, and coolants. The accidental release of these substances poses a potential threat to project area resources and local health and safety. Construction activities would be a potential source of impact to public due to the physical hazards associated with equipment operation. Traffic flow on CR 6700 and 6800 may be reduced to one lane in areas of trenching. Private driveways may be blocked for short periods of time. Overall, impacts to public health and safety would be low to moderate and short-term.

4.21.2 Mitigation

Proper operation of equipment and machinery and adherence to approved safety practices will minimize potential health and safety risks inherent to exploration operations. The Material Safety Data Sheets (MSDS) will be on file at the contractor's on-site office, and will outline each of the hazardous materials used in the waterline construction. In addition, hauling equipment and materials for the project on public roads will comply with all Department of Transportation regulations, utilizing traffic control when necessary. PNM and its subcontractors will ensure appropriate use and handling of hazardous materials. All equipment operation will be performed in compliance with appropriate Occupation Health and Safety Administration (OSHA) regulations.

The proposed alignment will be offset of overhead utility lines. A One Call prior to and during construction will be conducted to line spot utilities prior to trenching. Traffic control signage and barriers will be set up, and if necessary flagger will be used to direct traffic. No more than approximately 150 feet of trench will be open overnight in residential areas to minimize

interruption of private landowner access. PNM will coordinate with San Juan Mine prior to construction to minimize impacts to workers traveling to and from the mine on CR 6800.

4.22 Cumulative Impacts

Council on Environmental Quality NEPA regulations require that cumulative impacts of a proposed project be addressed when the cumulative impacts are expected to be significant [14 CCR 15130 (a), 40 CFR 1508.25 (a) (2)]. Cumulative impacts are impacts on the environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions [14 CCR 15355 (b), 40 CFR 1508.7]. These impacts can result from individually minor, but collectively significant actions taking place over time. Cumulative impacts are presented in terms of how project specific impacts from the proposed action would add to baseline data derived from development activity in this specific area.

Qwest is planning to relocate their utility line within a portion of CR 6700 in the proposed project area closer to the ROW fence line. Qwest would need to relocate approximately 1.4 miles of telephone line along with pedestals. Qwest would coordinate to complete the relocation prior to the November 2010 construction start date for the proposed PNM 42-inch waterline. Qwest would maintain telephone service during the installation of the new telephone line. Tree removal would be required for the installation of the Qwest telephone line; however Qwest would try to limit the number of trees removed along CR 6700. Large cottonwood trees would not likely be disturbed by construction activities. No other reasonably foreseeable actions have been identified.

The proposed short-term construction activities associated with the action would not likely result in cumulative impacts in terms of visual effects, sediment transfer and surface water effects, changes to vegetation, and wildlife health, distribution, diversity. There would be long-term beneficial impacts from a reduction in water use at the San Juan Generating Station from decreased periods of blow-down and water loss from the waterline. Overall, cumulative impacts to federally listed and other sensitive species as a result of the proposed action are expected to be low and long-term.

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40 CFR All Parts and Sections inclusive Protection of Environment, Revised as of July 1, 2001.

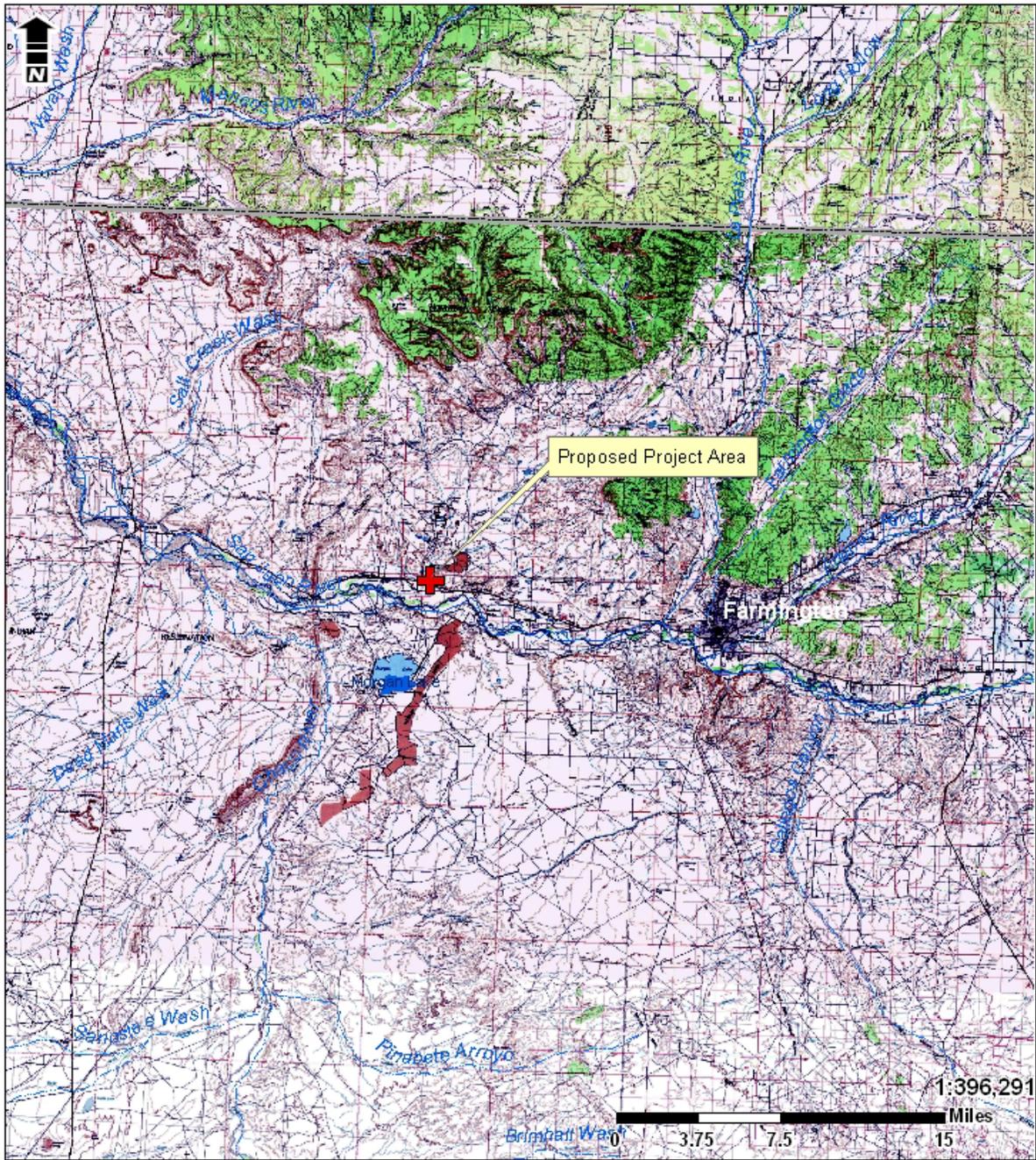
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APPENDIX A

FIGURES



PUBLIC SERVICE COMPANY OF NEW MEXICO

PROPOSED RIVER TO LAKE PIPELINE

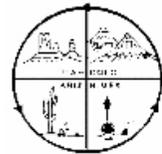
FARMINGTON 100K, USGS QUADRANGLE MAP

FIGURE 1

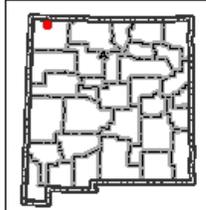
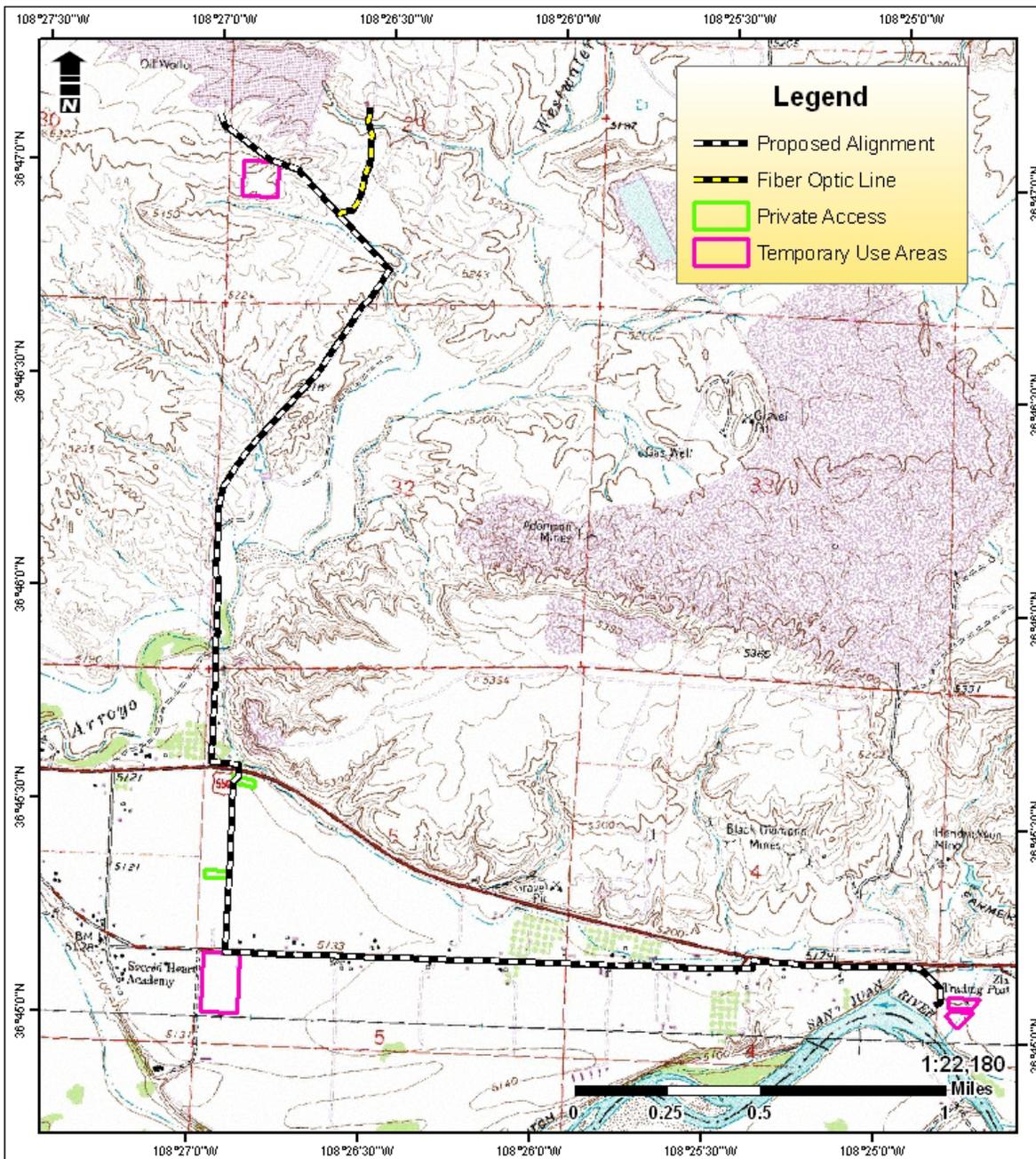
SAN JUAN COUNTY, NEW MEXICO

VICINITY MAP

5/3/10



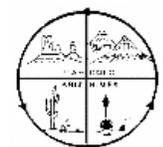
ECOSPHERE
ENVIRONMENTAL SERVICES



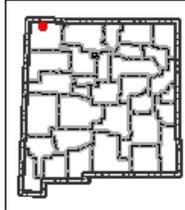
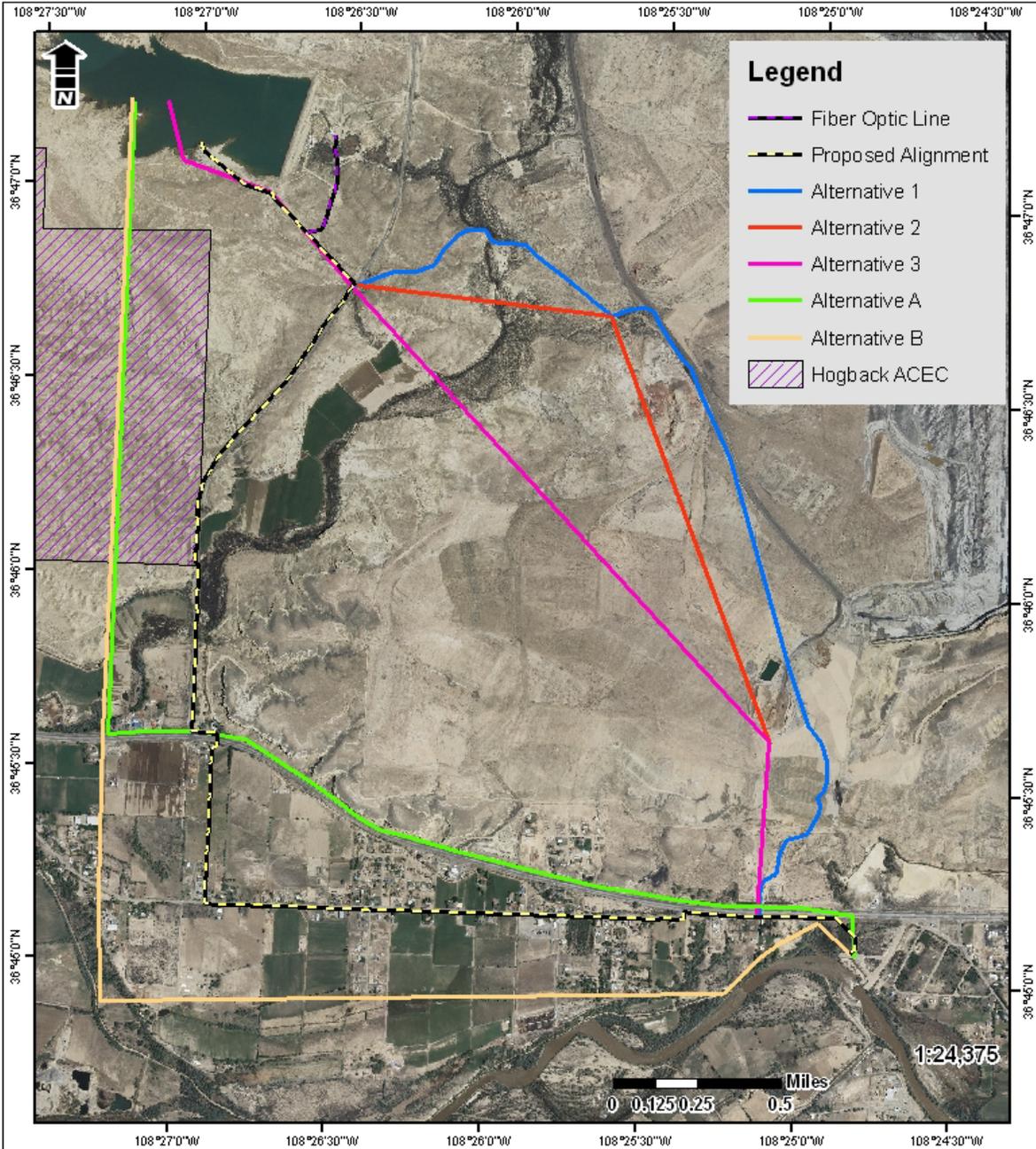
PUBLIC SERVICE COMPANY OF NEW MEXICO

PROPOSED RIVER TO LAKE PIPELINE

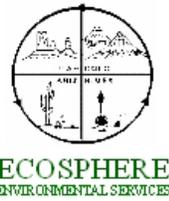
TOWNSHIP 29 NORTH, RANGE 15 WEST, SECTIONS 4 & 5	
TOWNSHIP 30 NORTH, RANGE 15 WEST, SECTIONS 32 & 29	
WATERFLOW, NM, 7.5-MINUTE USGS QUADRANGLE MAP	PROJECT AREA MAP
SAN JUAN COUNTY, NEW MEXICO	5/3/2010

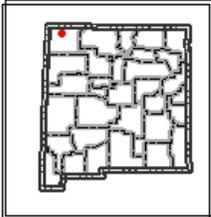
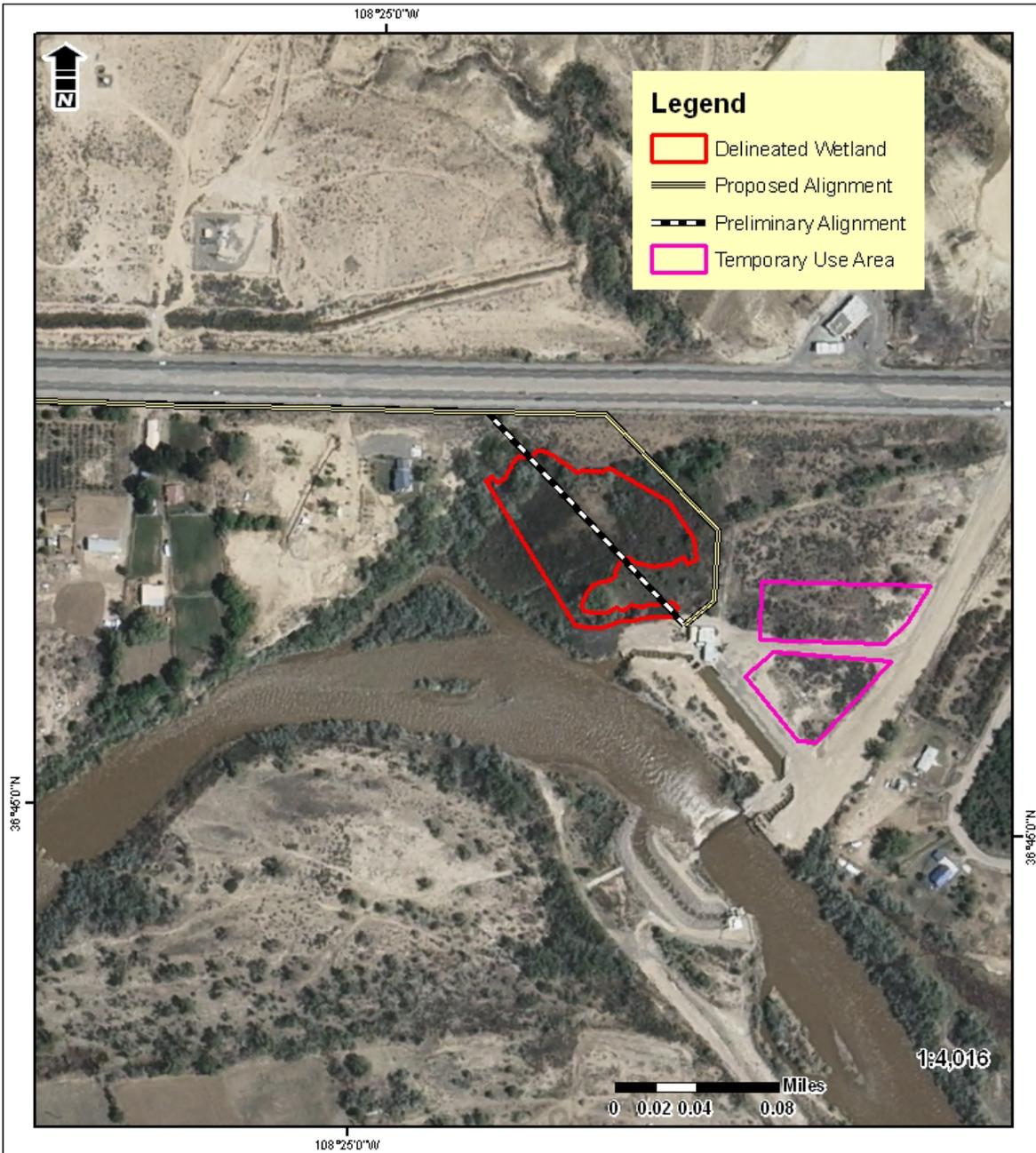


ECOSPHERE
ENVIRONMENTAL SERVICES



PUBLIC SERVICE COMPANY OF NEW MEXICO	
PROPOSED RIVER TO LAKE PIPELINE	
SECTIONS 4 & 5, RANGE 15 WEST, TOWNSHIP 29 NORTH SECTIONS 29 AND 36, RANGE 15 WEST, TOWNSHIP 30 NORTH	FIGURE 3
WATERFLOW, NM 2009 DIGITAL PHOTO ORTHOQUAD	ALTERNATIVES MAP
SAN JUAN COUNTY, NEW MEXICO	5/3/10

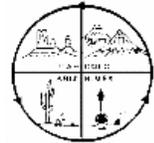




PUBLIC SERVICE COMPANY OF NEW MEXICO

PROPOSED RIVER TO LAKE PIPELINE

SECTION 4, RANGE 15 WEST, TOWNSHIP 29 NORTH	FIGURE 4
WATERFLOW, NM 2009 DIGITAL PHOTO ORTHOQUAD	ALIGNMENT CHANGE
SAN JUAN COUNTY, NEW MEXICO	5/3/10



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ENVIRONMENTAL SERVICES

APPENDIX B

SAN JUAN COUNTY LETTER OF SUPPORT

APPENDIX C
BIOLOGICAL ASSESSMENT/EVALUATION

APPENDIX C

**SAN JUAN COUNTY FEDERAL MANAGEMENT AGENCY
FLOODPLAIN DETERMINATION**