

# RECLAMATION

*Managing Water in the West*

## **Environmental Assessment-2011-088**

### **Granby Hydropower Project**

**Eastern Colorado Area Office**

**Great Plains Region**



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**March 2015**

## **MISSION STATEMENTS**

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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# CHAPTER 1 – INTRODUCTION

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## PROPOSED ACTION

Northern Water Conservancy District (Northern Water) has requested approval to develop hydropower at Reclamation-owned Granby Dam (see Figure 1). Under the proposed action, the Bureau of Reclamation (Reclamation) would execute a Lease of Power Privilege (LOPP) with Northern Water. The LOPP would authorize the use of federal lands, facilities, and Colorado-Big Thompson (C-BT) Project water to construct, operate, and maintain a 1.2 megawatt (MW) hydropower facility.

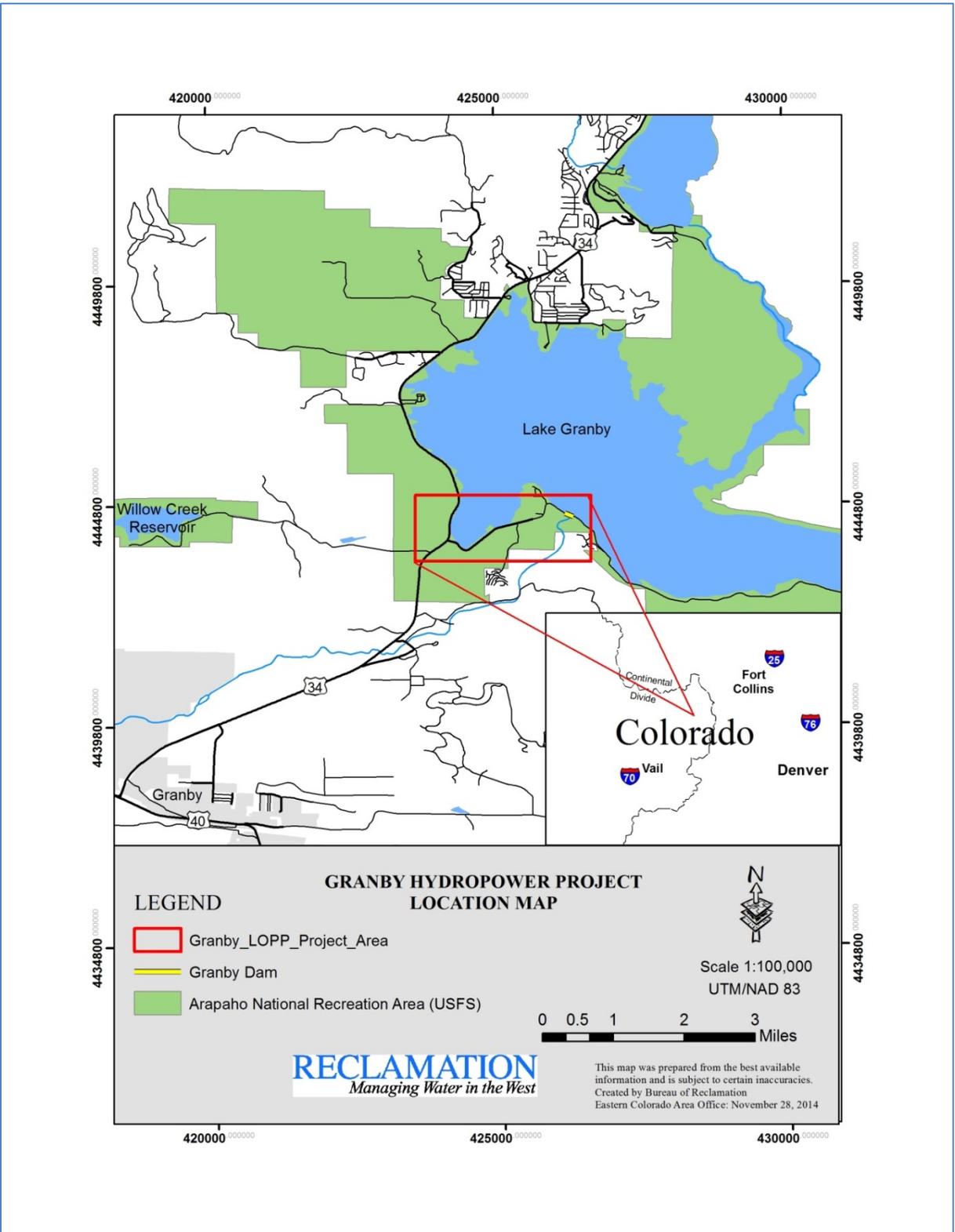
The hydropower facility would be owned, operated, and maintained by the Northern Water Hydropower Water Activity, a government-owned business within the meaning of Article X, section 20(2)(d) of the Colorado Constitution, organized pursuant to C.R.S. § 37-45.1-101 et seq., and owned by the Northern Water.

Under separate but related action, the U.S. Forest Service would authorize Mountain Park Electric (Mountain Parks) to proceed with the Granby Dam Power Line Rebuild Project (Rebuild Project) (see Attachments C and H). The Rebuild Project would replace the existing three-phase power line from the Granby Substation to the top of Granby Dam and incorporate the line to the Granby Hydropower Plant. The U.S. Forest Service is preparing separate NEPA compliance for the Rebuild Project and will incorporate the Mountain Park's connecting power line and new fiber-optic line from the Granby Hydropower Plant into the Rebuild Project's authorization. Water that currently flows through the dam's outlet tunnel would be diverted into a new penstock and pass through the Granby Hydropower Plant before returning to the Colorado River downstream.

This Environmental Assessment (EA) is prepared in accordance with the National Environmental Policy Act, the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and the U.S. Department of the Interior's regulations (43 CFR Part 46). The EA evaluates the environmental effects of issuing the LOPP for construction and operation of the Granby hydropower Project.

## NEED FOR AND PURPOSE OF ACTION

A LOPP is needed to permit a non-federal entity to use a Reclamation facility for electric power generation. The LOPP would ensure that the development of hydropower is implemented consistent with established authorities, purposes, and water operations of the C-BT Project.



**Figure 1 -Project Location Map**

The purpose of the Granby Hydropower Project is to develop a 1.2 megawatt (MW) hydropower plant at Granby Dam to provide a clean, renewable energy source that is locally controlled. Current Federal policy encourages non-Federal development of environmentally sustainable hydropower potential of Federal water resource related projects. The electricity generated by this project would provide Northern Water with an additional source of revenue and provide Mountain Parks with renewable energy.

## **BACKGROUND INFORMATION**

### **Colorado Big-Thompson Project**

Reclamation constructed the Colorado-Big Thompson (C-BT) Project as a multipurpose water supply project. The Project is one of the largest and most complex natural resource developments undertaken by Reclamation consisting of over 100 structures integrated into a trans-mountain water diversion system. The Project is spread over approximately 250 miles in the State of Colorado and stores, regulates and diverts water from the Colorado River on the western slope to the eastern slope of the Rocky Mountains (see Attachment A). Authorized Project purposes include supplemental irrigation, municipal and industrial uses, hydroelectric power, and water-oriented recreation.

### **Lease of Power Privilege**

The LOPP is a contract between a non-Federal entity and the United States to use federal Project facilities for electric power generation consistent with Reclamation Project purposes. The LOPP must not impair the efficiency of Reclamation generated power or water deliveries, jeopardize public safety, or negatively affect any other Reclamation Project purpose. The C-BT Project includes the development of hydropower as an authorized Project purpose. A LOPP has terms of 40 years, and the general authority includes, among others, the Town Sites and Power Development Act of 1906 (43 U.S.C. 522), and the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)).

On August 3, 2013, Congress passed the Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act. This act requires that Reclamation first offer a LOPP to the irrigation district or water users association operating the federal project, or to the irrigation district or water users association receiving water from the federal project. Northern Water operates the collection and delivery system portions of the C-BT Project. Reclamation schedules CB-T West-Slope diversions and East Slope deliveries based on current hydrology. Reclamation operates and maintains six (6) hydropower plants with a total of eleven (11) generator units associated with the C-BT.

On October 19, 2011, a Preliminary Permit for Lease of Power Privilege (Preliminary LOPP) between Reclamation and the Northern Water was executed to formally recognize Northern Water's priority for a LOPP while Northern Water conducted investigations and secured data to determine the feasibility of the project (see Attachment B). The Preliminary LOPP also provides for cost-reimbursement to Reclamation for the NEPA compliance, engineering review, and development of the LOPP. The LOPP must accommodate existing contractual, water delivery,

and environmental commitments related to operations of Granby Dam and the C-BT Project. On June 26, 2012, the Preliminary LOPP was extended to October 19, 2015.

## SCOPING

Reclamation and Northern Water conducted internal scoping and utilized issues and concerns previously identified during similar LOPP processes for hydropower development. Reclamation also coordinated analysis with other Federal, State and local agencies. Issues identified during that scoping process included:

- Visual impacts from new power lines,
- Potential impacts to existing water deliveries,
- Potential impacts to fisheries in the Colorado River,
- Changes in diversions,
- General support for renewable energy,
- Potential impacts to local wildlife, including nesting osprey,
- Potential impacts to wetland resources, and
- Protection of cultural resources.

During scoping, the following resources were eliminated from further analysis based on limited to potential to affect these resources.

- Geology and Soils-Native soils below Granby Dam Cumilic Cryaquolls and rock outcrops in the surrounding areas are Cryoborolls complex. Excavation for the power plant and penstock would occur within the Cumilic Cryaquolls whose parent material is alluvium and/or alluvial outwash (NRCS 2015). A review by Reclamation's Technical Service Center Embankment Dams and Geotechnical Engineering Group identified no safety of dam issues associated with the proposed location of the power plant (Reclamation 2014).
- Paleontological Resources-The Paleontological Resource Preservation Act of 2009 defines paleontological resources as any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interests and that provide information about the history of life on earth except those associated with archaeological resources or cultural items associated with the Native American Graves Protection and Repatriation Act.

# CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

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Alternatives evaluated in this EA include the No Action Alternative and the Proposed Action Alternative.

## NO ACTION ALTERNATIVE

Under this alternative, Reclamation would not issue a LOPP and the proposed hydropower development at Granby Dam would not be constructed at this time.

## PROPOSED ACTION

Under the Proposed Action, Reclamation would execute a LOPP to permit Northern Water to construct, operate, and maintain a 1.2 MW hydropower plant and associated facilities at Granby Dam. The Granby Hydropower Plant would use water normally discharged to the Colorado River from the Granby Dam outlet works. The plant would divert up to 76 cubic feet per second through a new 36-inch diameter penstock. The penstock would include a buried section and a section installed within the existing outlet tunnel. The power plant would discharge diverted water to the Colorado River downstream of Granby Dam (Figure 2).

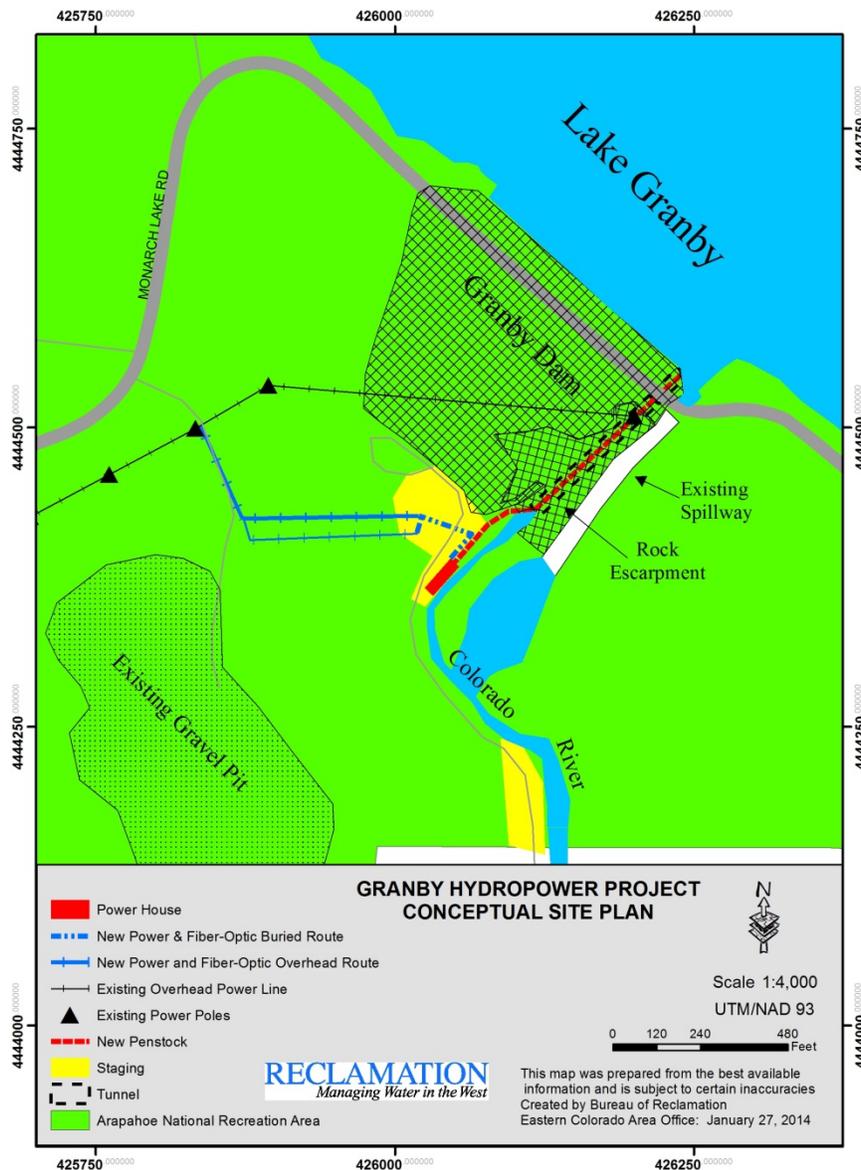
### Granby Dam and Reservoir

Granby Dam and Reservoir is the principle west-slope storage feature of the C-BT Project. Granby Dam is located on the Colorado River near the town of Granby. It collects and stores Project water including the flow of the Colorado River and water pumped from Willow Creek. The dam is constructed of compacted earth-fill at a height of 298 feet. The reservoir has a capacity of 539,800 acre-feet.

Water from Lake Granby is either diverted to the eastern slope or released to the Colorado River. The Farr Pumping Plant diverts water to Shadow Mountain Reservoir where gravity flow transfers the water to Grand Lake and the Alva B Adams Tunnel. The Granby Dam Outlet Works and Spillway release water to the Colorado River.

Reclamation has adopted a monthly water release schedule from Granby Dam to the Colorado River. The releases are defined within a 1961 Secretary of the Interior document entitled “Principles to Govern the Release of Water at Granby Dam to Provide Fishery Flows Immediately Downstream in the Colorado River” (Interior 1961). In general, the schedule of releases calls for:

- a) 20 cubic feet per second (cfs) gaged flows at Granby Dam between October and April; and 75 cfs flows gaged in June and July, and 40 cfs flows gaged in August immediately below Coffee-McQuery Ditch.



**Figure 2-Granby Hydropower Facilities Sketch**

- b) During the non-irrigation season, approximately 7 cfs or the inflow to the Willow Creek Reservoir, whichever is less, is bypassed at Willow Creek Dam for augmentation of the fishery flows in the Colorado River.
- c) Reduced flows during a year of Project Water shortage, as defined by the 1961 Secretary of the Interior document.

Under the proposed action, there would be no change in releases from Granby Dam.

### Hydropower Project Design

Project designs would be reviewed and approved by Reclamation prior to authorizing construction. Existing dam operations would remain unchanged and flows in the Colorado River

downstream of Granby Dam would be maintained to meet previous contractual and environmental commitments. Power produced would be distributed by Mountain Parks Electric.

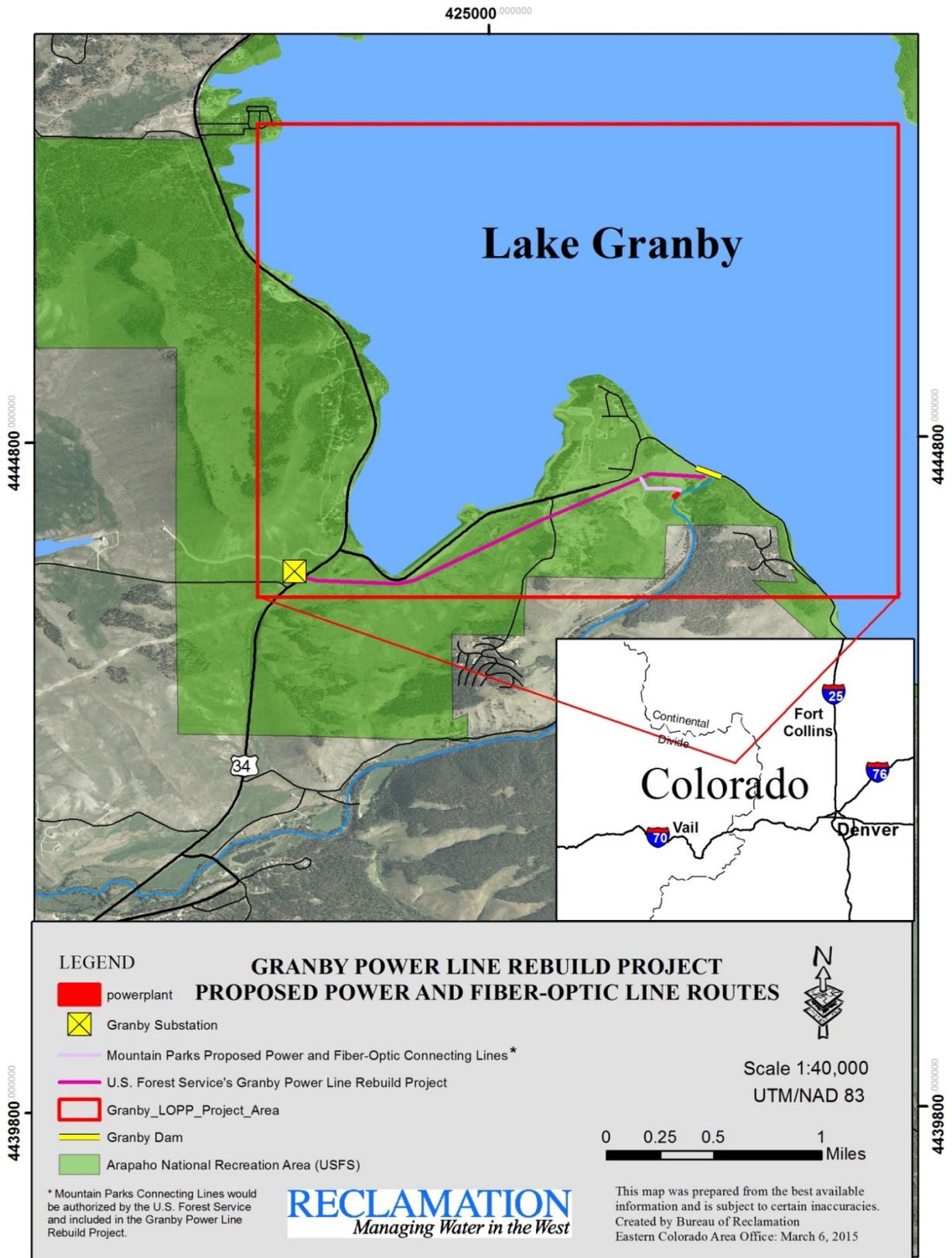
Project design includes connection to the existing outlet within the Granby outlet tunnel, and construction of:

- A. **Intake Structure** – The project would modify the existing Granby Dam intake structure to include a bifurcation below the existing hollow-jet valve. The bifurcation would allow flows through a penstock or bypassing flows through the existing outlet tunnel as needed.
- B. **Penstock** – The project would install approximately 800 feet of 36-inch diameter penstock for diverting water from the outlet works to the power plant. Approximately 500 feet of penstock would be placed within the existing outlet tunnel. The remaining penstock and a flow metering vault would be buried between the outlet tunnel and power plant.
- C. **Power Plant** – The power plant would sit adjacent to the outlet channel downstream of Granby Dam. It would be a steel and/or concrete building structure with a steel reinforced concrete foundation. The building would be approximately 72’ wide by 30’ long and house the generator and mechanical/electrical auxiliaries. The building would be designed to meet Grand County Building Codes, particularly snow and wind loads. A copy of these codes can be found at <http://co.grand.co.us/DocumentCenter/View/756>. The existing tailrace would be used to return power plant flows to the Colorado River.
- D. **Turbines** – The turbines would be two 600 kilowatt Francis turbines with associated generators and electrical gear. A summary of equipment is provided below in Table 1.

**Table 1 - Turbine and Generator Summary**

Description	Criteria
Number of Turbines	2
Rated Flow	37 cfs (per turbine)
Rated Head	225 ft.
Rated Speed	900 rpm
Maximum Setting above Tailwater	6.6 ft.
Generator Type and Rating	Synchronous, 590 kW
Turbine-generator Efficiency at Rated Head	88% at 37 cfs, 84% at 20 cfs
Operating Period	12 months

- E. **Power and Communication Lines** –About 1,000 feet of new power line owned and operated by Mountain Parks would be added to connect the power plant to the existing line from the Granby Substation to Granby Dam as shown in Figure 3. The U.S. Forest Service is preparing separate NEPA compliance for the Granby Dam Power Line Rebuild Project (see Attachments C & H) and will incorporate Mountain Park’s new power line into the Rebuild Project’s authorization. A fiber-optic line is also proposed and would follow the power line.



**Figure 3-Granby Power/Fiber-Optic Route**

Mountain Parks will complete cultural and sensitive plant field surveys of any additional fiber optic alignment and provide to Reclamation and U.S. Forest Service prior to final approval of the U.S. Forest Service's fiber-optic alignment.

Reclamation built the existing three-phase power line as an original C-BT feature to support Granby Dam operations. Western Area Power Authority transferred power line ownership to Mountain Parks and the 60-year-old line requires rehabilitation independent of the hydropower project. The U.S. Forest Service's Rebuild Project would include new wooden poles, power conductors and a fiber optics communication line. Mountain Parks would first install a replacement line that parallels the existing power line. The existing line would be removed once the new line is operational and Mountain Parks Electric would construction, operate, and maintain all power and fiber optic lines.

Combining power and fiber-optic lines onto the same poles would reduce the Granby Hydropower Project's footprint and construction costs. Additional cultural and sensitive plant field surveys may be needed after final pole placements are identified. The U.S. Forest Service would incorporate any new poles into the U.S. Forest Service's Rebuild Project. Mountain Parks would complete any additional surveys in the spring of 2015, once the ground is clear of snow, as determined by the U.S. Forest Service.

Construction of the power plant would begin in the spring of 2015 and is expected to take 12-18 months to complete the project with a cost of approximately \$5.7 million. The Colorado Water Conservation Board is providing a loan to fund the project. Construction of the power and fiber optics lines would begin in September 2015. Construction activities would not impact existing dam operations. Storage areas and staging areas during construction would be adjacent to existing roads as previously shown in Figure 2. Construction access would use existing dam access roads. Northern Water would be responsible for obtaining any required Federal, state, or local permits to construct and operate the project, including permits under the Clean Water Act (Section 402 and 404 permits), which may be needed for construction and dewatering activities.

All disturbed lands would be contoured to prevent erosion, and stockpile topsoil for later use in re-vegetation. The project would use a seeding mix specifically designed for the impact area, and implement a long-term weed control plan. Additional information is found in Chapter 3 under Environmental Commitments.

## **Operation**

The hydropower project would be operated as a "run-of-dam", meaning that with the power project in place, the volume, frequency and timing of releases from Granby Dam to the Colorado River would not change. In general, the first 76 cfs would be released through the power plant. Depending on reservoir elevation, flows above 76 cfs to 440 cfs would be released through the relocated hollow-jet valve. If the reservoir is above the spillway elevation, all flow above 76 cfs would be routed over the spillway. It is anticipated that hydropower production would occur throughout the year, whenever the power plant is in-service.

The facility's design includes features to assure non-interrupted releases from Granby Dam to the Colorado River. When the hydropower facilities go off-line, flows would be immediately diverted back into the existing tailrace to prevent any disruption in flows in the Colorado River.

In the event of an outage, or turbine trip-off, flows would be routed through a new 20-inch hydraulically controlled energy dissipation valve. Releases from Granby Dam would follow existing water rights and agreements and discussed in greater detail in Chapter 3.

The electricity generated by the project would provide Northern Water with an additional source of revenue that may be used to defray annual operating expenses.

## SUMMARY

Table 2 provides a summary of the impacts for each resource analyzed in this EA.

**Table 2 - Summary of Potential Impacts for Alternatives**

<b>Resource</b>	<b>No Action Alternative</b>	<b>Hydropower Development at Drop 4</b>
Energy Production	None	5,000 megawatt-hours (MWh) of energy per year.
Wetlands & Riparian Resources	No effect	0.04 acres of herbaceous wetlands temporarily affected during construction and loss of 0.01 acres of herbaceous wetlands for the power plant outlet.
Recreation Use	No effect	No effect
Visual Resources	No effect	Minor effects
Fisheries Resources	No effect	No effect
Water Rights	No effect	No change in water rights
Threatened and Endangered Species	No effect	No effect
Wildlife and Vegetation	No effect	Temporary impacts associated with construction and maintenance of the hydropower facilities.
Water supply for Irrigation and Municipal Uses	No effect	No effect
Cultural Resources	No effect	No adverse effect
Indian Trust Assets	No effect	No effect
Air Quality	No effect	Minor changes in air quality during construction associated with fugitive dust. Active dust abatement program would be implemented to keep changes in air quality to an insignificant level. Offset emission of carbon dioxide (estimated at between 10,400,000 to 10,900,000 pounds per year) and other greenhouse gases.
Noise	No effect	Temporary increase of noise levels during construction; distance from any nearby structures and recreational facilities combined with enclosure of project equipment would result in no significant long-term effect.
Socio-economic Conditions	No effect	Assist in providing a source of renewable energy for Mountain Parks Electric; temporary benefit of increased construction jobs. Increased employment/tax revenues. Long-term benefit to Northern Water resulting from sale of power.

# CHAPTER 3 – AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

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This chapter discusses resources that may be affected by actions taken to construct and operate a hydropower plant at Granby Dam. For each resource, existing conditions and impacts are described. This chapter is concluded with a list of environmental commitments.

## COLORADO-BIG THOMPSON PROJECT OPERATIONS AND WATER RESOURCES

*Existing Conditions:* The C-BT Project was authorized as a multipurpose Project. The Project is a trans-mountain diversion that stores and delivers water collected on the western slope and delivers it to the eastern slope of Colorado. Supplemental irrigation, hydroelectric power, municipal and industrial uses, and water-based recreation are all authorized Project purposes. As the name implies, direct flows from the Colorado River watershed are stored and diverted to the Big Thompson River Watershed for distribution to eastern slope users.

Under contract with the United States, Northern Water has operation and maintenance responsibilities for C-BT collection and distribution facilities, including Granby Dam and Reservoir.

Water is collected through a series of reservoirs and dikes, including Lake Granby and Grand Lake, and then moved to the eastern slope via the Alva B. Adams Tunnel. Water rights allow for diversion of up to 310,000 acre-feet of water a year with an annual average diversion over the life of the Project of 220,000 acre-feet. The Colorado-Big Thompson Project provides water to 30 cities and towns, and serves 650,000 irrigated acres and a population of 800,000 people.

*No Action Alternative:* Under the No Action Alternative, current water deliveries and operations would not change.

*Proposed Action:* Under the proposed action, the water release from Granby Dam would be for hydropower production. Under the proposed action, there would be no change in operations, timing, or the amount of water releases from Granby Dam. The hydropower project would be operated as a “run-of-dam<sup>1</sup>” facility, and existing irrigation supplies and water deliveries would not be affected. Hydropower production would occur throughout the year.

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<sup>1</sup> Run-of-dam is a modified of “Run-of-River” hydroelectric generation whereby no water storage is used for hydropower generation and hydropower generation is incidental to normal operations of the dam. Power generation is also subject to seasonal river flows and minimum flow requirements.

## ENERGY AND SOCIOECONOMIC CONDITIONS

*Existing Conditions:* Additional hydropower has been developed previously at Carter Lake under the LOPP process. The C-BT Project includes hydroelectric plants at Green Mountain, Mary's Lake, Estes, Pole Hill, Flatiron, and Big Thompson. Green Mountain is the only power plant that discharges into tributaries to the Colorado River (Blue River). The remaining C-BT power plants all discharge into the Big Thompson and Little Thompson drainages. The existing and proposed C-BT hydropower projects are located in the Rocky Mountain Power Area of the Western Electric Coordination Council Region of the North American Electric Reliability Council.

The proposed project may be used to meet a portion of the electricity demand in Mountain Parks' service territory with a renewable energy resource. Mountain Parks is an electric cooperative that provides service within the project surrounding area. In 2013, Mountain Parks delivered 305.4 megawatt-hours (MWH) and added 115 new services bringing their total services to 19,780 customers (MPEI 2014). In the 1940s, Jackson County residents established North Park Rural Electric Association to construct power lines and bring electricity to North Central Colorado. In the 1950s, North Park Rural Electric Association purchased several area power companies and changed its name to Mountain Parks.

Amendment 37 (Colorado Revised Statutes (CRS) 40-2-124) to the Colorado Constitution established a Renewable Energy Standard which requires each provider of retail electric service within the State of Colorado that serves over 40,000 customers to provide at least minimum percentage of electricity (10 percent of retail electrical sales by 2015) from renewable energy sources, including hydroelectricity. Additional Colorado executive orders and regulations (EO B 2013-005, EO B 2013-006, and 4 CCR 723-3-3650) require electric cooperatives and municipal utilities serving more than 40,000, but less than 100,000 customers to provide 6% of retail electric sales in Colorado for the years 2015-2019, and 10% of retail electric sales for year 2020 and each following year.

The C-BT Project and water supplies from the Colorado River are critical to the economies of numerous counties in Colorado. The C-BT Project supports over 650,000 acres of irrigated agriculture in northeastern Colorado and provides water to 30 cities and towns. The population within the C-BT Project is approximately 800,000 people. Principle crops include sugar beets, potatoes, beans, corn, small grains, fruits, alfalfa, vegetables, dairy products, poultry, and eggs. In addition, lambs, hogs, and cattle are fattened from the byproducts of the sugar beets.

*No Action Alternative:* Under the No Action Alternative, Northern Water would not build a hydropower facility at Granby Dam and economic opportunities associated with the hydropower project would be forgone.

*Proposed Action:* The proposed hydropower project would produce an estimated average of 5,000 MWH of energy per year based on run-of-dam flows, and would help meet regional power demands in the future. Power from the proposed project would be distributed through Mountain Parks' facilities. Northern Water expects to sell the power produced by the Granby Hydropower Project to Mountain Parks. Northern Water, acting through its Hydropower Water Activity

Enterprise, would enter into a power purchase contract where power is purchased on a per-kilowatt-hour basis. The term of the power purchase contract is anticipated to be 20 years with a renewal clause.

Table 3 displays the modeled average power plant discharge, Lake Granby water elevation, kilowatt (kW) and megawatt-hour (MWh) based on the 1954 to 2008 Monthly flow averages (Northern Water 2011).

**Table 3 - Modeled Granby Hydro Project Average Discharge, Elevation, kW, and MWh.**

<b>Month</b>	<b>Lake Granby End of Month Elevation (ft.)</b>	<b>Average Net Head after losses (ft.)</b>	<b>Power Plant Discharge (cfs)</b>	<b>Hydropower Capacity (Avg. kW)</b>	<b>Hydropower Output (MWh)</b>
January	8249	194	20	242	180
February	8246	190	20	237	161
March	8241	186	21	247	184
April	8238	183	23	264	191
May	8241	179	69	850	633
June	8256	191	80	1075	774
July	8263	199	81	1140	848
August	8262	200	70	984	732
September	8260	201	58	793	571
October	8258	201	37	511	380
November	8256	201	20	254	183
December	8227	197	20	248	184

The project life is expected to extend beyond 50 years and anticipated to provide Northern Water with a long-term, reliable revenue stream. Estimates show relatively small initial revenues. However, the power plant should produce positive cash flow once operations start. These projections are highly dependent on loan terms and actual operation and maintenance costs. Once the project debt is paid, Northern Water can use the plant power revenues to reinvest in power plant equipment and help pay for C-BT Project operation, maintenance and improvement costs (Northern Water 2011).

The proposed project would provide an additional source of renewable energy to market throughout Colorado. This project qualifies as a renewable energy source as defined under Colorado Revised Statute 40-2-124. Retail electric service providers can use power generated from this power plant to meet Renewable Energy Standard targets.

There would also be short-term employment and spending on goods, services, and materials during the construction phase. This would benefit local communities and businesses, as well as increase tax revenues from taxes collected on these purchases.

The transport and delivery of irrigation or municipal and industrial water in the C-BT system would not be affected by hydropower development during construction, operation, or any future maintenance projects.

## **WETLANDS AND WATER QUALITY**

### *Existing Conditions:*

#### **Lake Granby**

Granby Dam is a key feature of the C-BT Project and was constructed between 1941 and 1950. The dam, spillway and tunnel outlet works are located in a steep, narrow canyon composed of Precambrian crystalline rocks. Soils below the dam are derived from alluvium up to 65 feet thick. Lake Granby has two managed inflows (Willow Creek Pump Canal and Windy Gap Pipeline), one dam release location to the Colorado River, and a separate pump structure that can withdraw water from near the bottom of the reservoir and send it north to Shadow Mountain Reservoir through the Granby Pump Canal (Northern Water 2014). Lake Granby mixes twice a year, in the spring and fall. Water surface elevations vary by 25 feet or more over the year, typically reaching maximum annual content by mid-July and lowest in mid-April.

In 1991, Northern Water instituted a baseline monitoring program. The objectives of the program are to:

- Monitor trends and changes in water quality in lakes and reservoirs and flowing sites: streams, rivers and canals.
- Assess potential water quality changes in receiving streams, upstream and downstream of where C-BT Project and Windy Gap Project water is released.
- Assess compliance with state water quality standards.

Water quality in Lake Granby is generally good. Lake Granby's surface water elevations vary considerably depending on hydrology and operations (Reclamation 2008). These variations can affect in-reservoir quality. All of the key applicable water-quality standards were met within 2008 with the exception of dissolved oxygen, dissolved manganese, and temperature. However, interim temperature standards were met in 2008. The 2012 "Operational and Water Quality Summary Report for the Three Lakes" (Northern Water 2014) reports relatively low Chlorophyll *a* concentrations in Lake Granby ranging from 2 to 4.2 ug/L for 2007-2012. Lake Granby exhibits the best clarity with average annual clarity ranging from 3.8 to 5.2 m over the recent 6 year period. Dissolved oxygen concentrations reflect the expected, primary water temperature –controlled patterns and there are no issues related to aquatic life standard thresholds.

#### **Colorado River**

Downstream of Granby Dam, Northern Water operates a water quality monitoring station (CR-GRD). The Upper Colorado River Segment 3 (downstream of Windy Gap Reservoir at 578

Road Bridge to the Blue River confluence) has been listed impaired by the Colorado Water Quality Control Commission for temperature since 2007. The exceedance of temperature standards tends to happen in late summer during hot days with low flow conditions (Northern Water 2010). Temperature standards are meant to be protective of aquatic life and sensitive fish species present in Colorado streams and rivers. This segment of the Colorado River is a Gold Medal fishery that supports important recreation and is economically important to Grand County.

The Clean Water Act (CWA) establishes the basic structure for regulating discharges into the waters of the United States. Section 404 of the CWA requires permits for the discharge of dredged or fill material into waters of the United States. Wetland areas adjacent to waters of the United States may also be subject to permit requirements. Authorization can either be issued under nationwide or individual permits and are site specific. Nationwide permits include entire groups of activities. Lake Granby and the Colorado River are waters of the United States and regulated by the CWA.

In addition, Section 402 of the CWA states that any person who proposes to discharge pollutants from a point source to waters of the United States must apply for a Non-Point Discharge Elimination System (NPDES) Permit (402 Permit). CWA 402 permits are typically required when construction activities require dewatering or discharges into waters of the United States.

*No Action Alternative:* Under the No Action Alternative, there will be no changes in wetlands or water quality in Lake Granby or the Colorado River.

*Proposed Action:*

The operation of Granby Dam would not change; therefore, the proposed action is predicted to have no effect on water quality of either Lake Granby or the Colorado River. The hydropower project would use the existing dam intake structure and the elevation of reservoir withdraws would not change; therefore, no changes in downstream temperatures are predicted. As mentioned above, Northern Water operates a baseline monitoring program and it is anticipated that they would continue to monitor water quality in both Lake Granby and the Colorado River.

It is anticipated that a CWA 402 Permit would not be required, but the proposed hydropower project would continue to directly discharge into waters of the United States (continued releases from Granby Dam to the Colorado River). It is anticipated that dewatering would not be needed for construction. However, if unexpected groundwater is encountered during construction and dewatering becomes necessary, Northern Water would obtain the appropriate CWA 402 permits from the Water Quality Control Division of the Colorado Department of Public Health and Environment.

Northern Water retained ERO Resources Corporation (ERO) to delineate wetlands within areas to be disturbed as part of the hydropower project (ERO 2014B). Wetland delineations were conducted on October 21, 2014, using methods as outlined in the 1987 Corps of Engineers Wetland Delineation Manual (ACOE 1987) and Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coasts (ACOE 2010.) Wetlands and other waters of the U.S. were delineated within the footprint of the powerhouse

and a 20-foot buffer around the powerhouse. The delineation identified the following Waters of the U.S. within the project area (See Figure 4):

- 1) The Colorado River, an approximately 20-foot-wide stream classified as a Riverine, Lower Perennial, Unconsolidated Bottom—Permanently Flooded (Cowardin et al. 1979).
- 2) A narrow strip of herbaceous wetlands (W1) along the edge of the Colorado River just above the ordinary high water mark (OHWM) dominated by Kentucky bluegrass and rough bentgrass.
- 3) The woody wetland vegetation (narrowleaf cottonwood) on the upper banks of the Colorado River was considered upland because of the lack of hydrology and understory vegetation.
- 4) A narrow band of wetlands (W2) dominated by rough bentgrass, similar to the vegetation in W1, was observed in a narrow ditch west of the existing road. This wetland is outside of the project footprint and would not be affected.

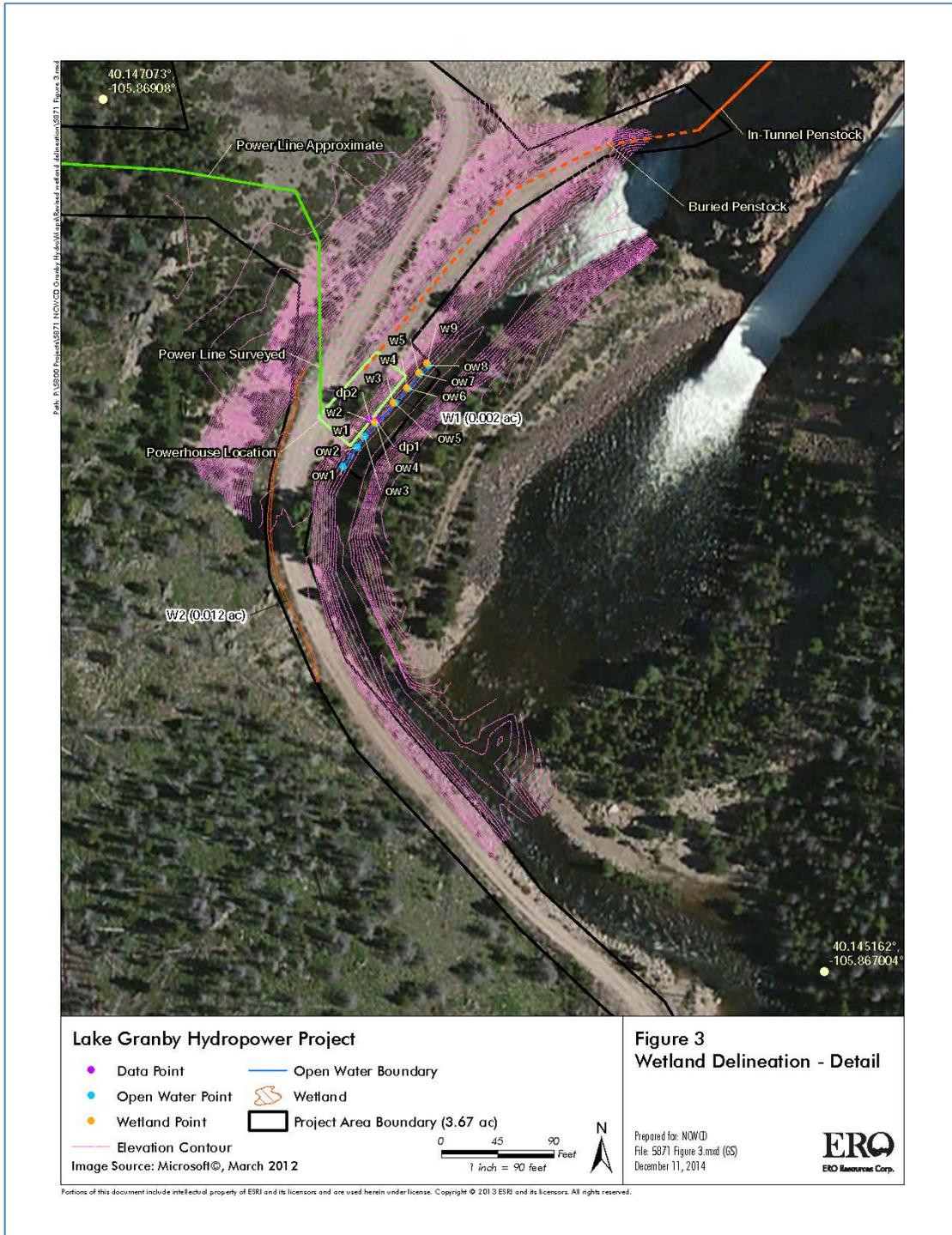
Approximately 0.04 acres of intermittent and herbaceous wetlands along the Colorado River would be temporarily affected during construction and 0.01 acres would be permanently removed for the power plant outlet. Northern Water has requested authorization from the Army Corps of Engineers under Section 404 of the CWA, Nationwide Permit (NWP) No. 17 (Hydropower Projects). Permit No. 17 addresses discharges of dredged/fill material associated with hydropower projects having:

- 1) less than 5000 kW at existing facilities, and
- 2) are issued exemption granted by FERC (in this case exempt from FERC through the Lease of Power Privilege). Northern Water is responsible for obtaining this Nationwide permit authorization.

A copy of Nationwide Permit No. 17 can be found at:

<http://www.spk.usace.army.mil/Missions/Regulatory/Permitting/NationwidePermits.aspx>. In addition, Regional Conditions for Nationwide permits in Colorado also apply. The conditions can be found at:

[http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012\\_nwps/2012-NWP-RC-CO.pdf](http://www.spk.usace.army.mil/Portals/12/documents/regulatory/nwp/2012_nwps/2012-NWP-RC-CO.pdf)



**Figure 4-Project Area Wetlands (ERP 2014B)**

Written authorization from the Army Corps of Engineers is required prior to commencing construction. All Nationwide Permit No. 17 requirements and Regional Conditions are also incorporated as environmental commitments. Construction would occur when there is no water in the dam outlet channel and stormwater Best Management Practices (BMPs) would be

implemented. The use of BMPs is incorporated as an environmental commitment and examples are described in Attachment I.

The fiber-optic line would be added to U.S. Forest Service's Rebuild Project and the U.S. Forest Service may require additional inventories. The existing power line crosses an emergent wetland south of Monarch Road as shown in Attachment C. Additional pole placement within the existing wetlands or burrowing under the wetland may be necessary and would be determined during final design and before Mountain Parks would receive U.S. Forest Service's final approval. If additional poles are needed to accommodate the fiber-optic line, Mountain Parks should request authorization under Nationwide Permit 12 (Utility Line Activities). A copy of Nationwide Permit No. 12 can be found at the same web link provided above.

## **FISHERIES RESOURCES**

*Existing Conditions:* The Lake Granby and the Colorado River are important fisheries to the State of Colorado and Grand County. A portion of the water impounded by Granby Dam is released downstream to maintain the fisheries in the Colorado River.

Lake Granby is one of the largest cold-water reservoirs in Colorado and is a focal point of the Grand County tourism economy. Lake Granby is one of the most productive lake trout fisheries in the United States producing large numbers of small fish. Kokanee, rainbow trout and brown trout are also stocked. The fishery in the Colorado River below Lake Granby includes predominately rainbow and brown trout. The Grand County Stream Management Plan (Grand County 2010) lists this 8.75 mile stretch of the Colorado River between Lake Granby and Windy Gap Reservoir as Stream Reach CR3. Land use has traditionally been agricultural. However, in recent years residential development has occurred near and along the riverbank on private lands. Recreational fishing in the Colorado River is popular in this reach with anglers being guided or members of fish clubs. Colorado Parks and Wildlife has also established a two (2) trout take limit on this reach of the Colorado River.

The Colorado Department of Public Health and Environmental classifies Stream Reach CR3 as a Tier II stream with chronic temperature standards of 18.2 degrees Celcius MWAT<sup>2</sup> and the acute standard is 23.8 degrees Celcius DM<sup>3</sup>. Temperature within the reach are generally well below the MWAT and DM standards. Northern Water conducts real-time water temperature monitoring on the Colorado River just downstream of Windy Gap Reservoir and can be accessed at <http://www.northernwater.org/WaterQuality/WaterTemperature.aspx>. Enhancement and Mitigation agreements between CPW and Windy Gap Firming and Moffat Tunnel Firming projects address river temperatures associated with pumping for these projects.

*No Action Alternative:* The No Action Alternative would not affect current fishery conditions in either Lake Granby or the Colorado River.

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<sup>2</sup> MWAT-Maximum Weekly Average Temperature

<sup>3</sup> DM-Daily Maximum

*Proposed Action:* The volume of releases from Granby Dam would not change due to operation of the hydropower project. Habitat conditions on the Colorado River downstream of the outlet works would not change.

During installation of the outlet tunnel dual-gate structure and powerhouse outlet, the spillway would be used to dewater the outlet tunnel and channel and to meet downstream release requirements. In the event that reservoir elevations are not sufficient to operate the spillway during construction, portable pumps would be used to meet flow requirements below Granby Dam.

Project design would ensure that the outlet channel and spillway plunge pool remains watered during power plant operations. Backwater from the power plant discharge would be sufficient to provide for fish passage between the outlet tunnel and the Colorado River. Reclamation and Northern Water would coordinate with Colorado Parks and Wildlife and U.S. Forest Service to maintain adequate fish passage to the Colorado River.

Because the hydropower project would use the existing intake at Granby Dam and connect with the existing outlet structure, fish mortality associated with dam releases is predicted to remain unchanged. Release and flow requirements as previously discussed would also remain unchanged and would not adversely affect downstream fisheries resources.

Because the hydropower facilities utilizes the existing dam outlet structure and draws water at the same elevation, no changes the in water temperature of the Colorado River are anticipated. An Intergovernmental Agreement (IGA) developed between Northern Water and Grand County ensures that power plant would not increase water temperature in the Colorado River downstream of Granby Dam that exceeds applicable standards for cold water aquatic species (Attachment E). Promises and covenants listed in the IGA are also incorporated as environmental commitments.

The proposed action is predicted to have no effect on fisheries resources.

## **WILDLIFE AND VEGETATION**

*Existing Conditions:* The general project area below Granby Dam consists of steep-sided Colorado River valley montane habitat. Project area elevation ranges between 8,100 and 8,300 feet. Granby Dam construction in the 1940s disturbed the majority of the native vegetation within the project area. Over the years dam construction, maintenance of access roads and storage areas, disposal of spoil material, and development of borrow areas have disturbed land near Granby Dam.

Disturbed areas are sparsely vegetated with crested wheatgrass, and cheatgrass. The valley floor includes bands of narrowleaf cottonwood, scattered rubber rabbitbrush and other native shrubs. Steep slopes are covered with lodgepole pine, common juniper, mountain sagebrush and bitterbrush. The dominate vegetation type above the Colorado River valley is open shrublands

with mountain sagebrush, bitterbrush, and a variety of grasses and forbs including smooth brome, blue grama, and sulfur flower, (ERO 2014A).

The project area provides limited winter range for mule deer and occasionally elk. There are no prairie dog towns or known active raptor nests in the hydropower project construction footprint. Waterfowl make occasional use of the low velocity sections of the South Canal outside of the drop area. Ospreys are known to nest in areas adjacent to Lake Granby.

*No Action Alternative:* Under the No Action Alternative, a proposed hydropower facility would be not developed and there would be no changes to the existing wildlife and vegetation conditions.

*Proposed Action:* Original construction of Granby Dam disturbed much of the project area with significant earth moving. Construction activities for power plant and penstock would be within the original dam construction footprint and result in minimal disturbance to native vegetation.

A review of CPW geographic information systems (GIS) data (CPW 2014) shows six (6) osprey nest sites within 0.5 miles of Granby Dam and the power and fiber optic lines. The data analyzed includes inactive, destroyed, undetermined, and unknown osprey nest sites but the data shows all six locations as having active osprey nests in 2013. Four of these nests occur adjacent to Mountain Parks' existing power line. Typical timing restrictions for nesting osprey is from May 1 to September 1, but based on existing topography, no restrictions to construction activities at the base of the dam would be needed. Only existing access roads would be used to access construction areas. No heavy construction access would be allowed from the top of the dam from May 1<sup>st</sup> to September 1<sup>st</sup>. The existing gate house may be used by personnel to manually access the outlet tunnel during construction and normal dam operations. Although not anticipated, the use of heavy equipment on Granby Dam could occur outside the May 1<sup>st</sup> to September 1<sup>st</sup> restriction. Reclamation and Northern Water would coordinate activities with the local U.S. Forest Service biologist to determine which osprey nests are active prior to commencing with hydropower construction and determine if timing restrictions are appropriate. Timing restrictions would likely also apply to all power and fiber optic line alignments under the U.S. Forest Service's Rebuild Project for power and fiber-optic lines, if any of the osprey nests are active.

CPW GIS data also includes the project area as summer foraging habitat for bald eagle (CPW 2014). Summer foraging areas are defined by CPW as those areas frequented by breeding bald eagles from March 15 to July 31. These areas almost are always associated with nesting pairs. No nest sites occur within 0.5 miles of the hydropower project. However, active osprey nests occur adjacent to the existing Mountain Parks power line. CPW data also shows wintering concentrations of bald eagles on the Colorado River downstream of the project area. Bald eagles may avoid the project area during construction but the proposed action would have no impact on long-term summer foraging habitat.

Temporary impacts to wildlife and other vegetation would likely occur due to the construction of the hydropower facilities and power and fiber optic lines. About 1 acre of land would be temporarily disturbed during construction of the hydropower facilities and 0.5 acres for

construction of the power and fiber optic lines. About 0.05 acres would be displaced by the powerhouse footprint. Erosion-control Best Management Practices for drainage and sediment control would be implemented to prevent or reduce nonpoint source pollution during and following construction. Fuel storage, equipment, maintenance, and fueling procedures would be developed to minimize the risk of spills and the impacts from these incidents. A Spill Prevention Control and Countermeasure Plan would be prepared prior to construction. With these control measures in place, wildlife impacts are predicted to be minor, and due primarily to direct disturbance associated with construction. Wildlife may avoid using the area during construction.

As a condition of the LOPP, Northern Water would control invasive and non-native plant species such as Canada thistle, musk thistle, cheatgrass and houndstongue within the project area for the life of the project. Weed control would benefit native plant and animal species that utilize the area. Northern Water is responsible for consultation with Reclamation for acceptable weed control measures, including pesticides/herbicides approved for use on Reclamation land. In addition, Mountain Parks would be responsible for control of noxious weeds under the U.S. Forest Service's Rebuild Project.

Use of herbicides would comply with the applicable Federal and state laws, and would be used only in accordance with their registered uses and within limitations imposed by the Secretary of the Interior. In addition, Grand County and U.S. Forest Service both have noxious and invasive weed plans. These plans can be found at <http://www.co.grand.co.us/DocumentCenter/View/75> and [www.fs.usda.gov/Internet/FSE.../stelprdb5172878.docx](http://www.fs.usda.gov/Internet/FSE.../stelprdb5172878.docx) respectively. Reclamation would coordinate with these agencies prior to approving the use of herbicides for the hydropower project.

All construction equipment would be power-washed and free of soil and debris prior to entering the construction sites to reduce the spread of noxious and unwanted weeds. Topsoil, where available, would be stockpiled during construction for later use in re-vegetation. Disturbed areas would be contoured to reduce erosion and facilitate re-vegetation and would be re-seeded. The plan for re-vegetation and related erosion control/re-contouring and implementation would require approval by Reclamation. Northern Water would work directly with Reclamation and U.S. Forest Service to revegetate disturbed areas and develop appropriate seed mixtures.

Above-ground power line and power pole designs would meet recommended standards as outlined in the *Avian Protection Plan Guidelines* developed by the US Fish and Wildlife Service and Industry (APLIC 2005). A copy of these standards can be viewed at: [http://www.aplic.org/uploads/files/2634/APPguidelines\\_final-draft\\_Aprl2005.pdf](http://www.aplic.org/uploads/files/2634/APPguidelines_final-draft_Aprl2005.pdf).

In addition, Mountain Parks would install guy markers as a standard on the outer down guy at each anchor to maximize visibility. Mountain Parks' typical pole design includes 40 to 50 foot poles with 6- to 7 feet buried in the ground. Mountain Parks has also committed to coordinating final power line designs with the U.S. Forest Service and replacing osprey nesting poles near the new power line as necessary.

## THREATENED AND ENDANGERED SPECIES

*Existing Conditions:* Table 4 includes species which are listed under the Endangered Species Act (ESA) as endangered, threatened, or are a candidate for listing which are potentially occurring in Grand County or in downstream rivers. U.S. Forest Service sensitive plants are also included. Sensitive species are defined as plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by current or predicted downward trends in population numbers or densities or in habitat capacity that would reduce a species' existing distribution.

**Table 4 - Special Status Species in Grand County or Potentially Affected Downstream.**

Common Name	Scientific Name	Status	General Habitat
Bonytail	<i>Gila elegans</i>	Endangered (Federal)	Colorado River and major tributaries
Canada lynx	<i>Lynx canadensis</i>	Threatened (Federal)	Boreal forests with high-density snowshoe hare prey base.
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Endangered (Federal)	Colorado River and major tributaries
Greenback cutthroat trout	<i>Oncorhynchus clarki stomias</i>	Threatened (Federal)	Small, high elevation streams
Greater sage grouse	<i>Centrocercus urophasianus</i>	Candidate (Federal)	Shrub steppe habitats, including a variety of sagebrush species
Harrington Beardtongue	<i>Penstemon harringtonii</i>	Sensitive (USFS)	Open sagebrush habitats on rock loams and rocky clay loams.
Humpback chub	<i>Gila cypha</i>	Endangered (Federal)	Colorado River and major tributaries
Ousterhout milkvetch	<i>Astragalus osterhoutii</i>	Endangered (Federal)	Barren shale soils rich in selenium.
Penland beardtongue	<i>Penstemon penlandii</i>	Endangered (Federal)	White to tan barren shale soils exposures.
Razorback sucker	<i>Xyrauchen texanus</i>	Endangered (Federal)	Colorado River and major tributaries
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Threatened (Federal)	Riparian, cottonwood woodland

Generated by the U.S. Fish & Wildlife Service's Environmental Conservation Online System on 12/03/2014 (Attachment C).

*No Action Alternative:* Under the no action alternative, there would be no change in effect to any threatened, endangered, or candidate species in Grand County, Colorado.

*Proposed Action:* Under the proposed action, there would be no new effects on endangered, threatened, or candidate species or their habitat due to the development of any features of the hydropower project. There are no listed species present in areas that would be affected by construction, and there would be no changes in river flows or water quality that could affect the downstream endangered fish. Water depletions associated with the C-BT Project were consulted

on and addressed in the PBO for Reclamation operations and water depletions in the upper Colorado River upstream of the confluence with the Gunnison River (FWS 1999) and no additional consultation is needed for this project.

Vegetation surveys of the project conducted by ERO Resources (ERO 2014C) identified suitable habitat for Harrington beardtongue on the plains above the Colorado River valley and in the open patches on the steep slope. However, none of the penstemons found had the vegetative, floral or fruiting characteristics of Harrington beardtongue. The project area also lacks suitable habitat for Ousterhout milkvetch and Penland beardtongue. The U.S. Forest Service may require Mountain Parks complete additional sensitive plant surveys before authorizing construction of the fiber-optic line. These inventories would be conducted during the spring/summer of 2015 and incorporated into final designs to avoid impacts to these plants if encountered.

CPW has identified potential suitable habitat for Canada lynx in the vicinity of the project area east of the Colorado River (CPW 2014). Potential lynx habitat is defined by CPW as those areas having the highest potential of lynx concentrations in the state. These areas usually contain positive, probable, or possible reports and the GIS layer was derived from modeling potential lynx habitat. The proposed hydropower facilities and power and fiber optic lines do not occur within and would not affect potential suitable habitat.

The Granby Hydropower Project is also within historic habitat for greater sage grouse (CPW 2014). The dataset was based on the historic grouse range delineated by Schroeder et al 2004 and was further refined by biologist in the Colorado Statewide Greater Sage Grouse Conservation Plan Committee. The project area is not within occupied habitat and lacks suitable habitat for greater sage grouse.

The Granby Hydropower Project is predicted to have no effect on any of the listed or candidate species. Under the U.S. Forest Service's Rebuild Project, Mountain Parks can meet this commitment by modifying construction methods as necessary should follow-up surveys identify sensitive plants, wetland or other protected resources (i.e. partial realignment, increasing the span between poles, or boring under an area to avoid surface disturbances).

In the event of discovery of threatened or endangered species, Northern Water would immediately cease all ground-disturbing activities in the vicinity and notify Reclamation when building the Granby Hydropower Project. Work would not resume until approved by Reclamation.

## **RECREATION**

*Existing Conditions:* The project area is within the Arapaho National Recreation Area (ANRA) and is managed by the U.S. Forest Service. ANRA is comprised of approximately 35,235 acres in Grand County, Colorado within the Arapaho and Roosevelt National Forests and the C-BT Project. ANRA includes five major reservoirs (Lake Granby, Shadow Mountain Lake, Monarch Lake, Willow Creek Reservoir, and Meadow Creek Reservoir) and Grand Lake.

The ANRA was established by congress in 1978 by the Indian Peaks Wilderness, the Arapaho National Recreation Area, and the Oregon Islands Wilderness Act (ARNA Act) (16 USC §460jj). The area is administered by the U.S. Forest Service, in accordance with the laws and regulations applicable to the national forests, in such a manner as will provide for:

- 1) Pubic recreation and enjoyment;
- 2) The conservation and development of the scenic, natural, historic, and pastoral values of the area;
- 3) The management, utilization, and disposal of natural resources such as timber, grazing, and mineral resources so that their utilization will not substantially impair the purpose for which the recreation area is established;
- 4) The management of water quality in the recreation area consistent with the development of needed water supply and waste-water systems, including the control of aquatic vegetation in the streams, lakes, and reservoirs within the recreation area.

The Act provides for the transfer of Federal land and includes the following language:

*Notwithstanding any other provision of law, any Federal lands or interests in lands located within the Arapaho National Recreation Area shall be transferred without consideration to the administrative jurisdiction of the Secretary (Agriculture) for use by the Secretary in carrying out this subchapter. Lands within the Arapaho National Recreation Area acquired by the Secretary or transferred to the Secretary's administration shall become part of that recreation area and of the national forest within or adjacent to which they are located: provided, that the operation and facilities of the Colorado Big Thompson Project shall remain under the jurisdiction of the United States Bureau of Reclamation.*

The ANRA is a world-class place to boat, camp, hike, fish, ice fish, snowmobile, view wildlife, horseback ride and hold events.

*No Action Alternative:* Under the No Action Alternative, hydropower facilities would not be constructed at Granby Dam. There would be no change in recreation from existing conditions.

*Proposed Action:* Under the proposed action, hydropower facilities would be constructed at Granby Dam. Public access from the downstream of the dam is restricted by a locked gate on private land and access would continue to be restricted under the Proposed Action. Hike-in access from above, via an adjacent gravel pit, may be restricted during construction activities when necessary for public safety. Construction closures would be coordinated with the U.S. Forest Service and signage used as appropriate. Once construction is complete, public access adjacent to the power plant would resume. Fencing around the power plant and transformer/switchgear may be installed for added security but would not limit fishing access to the Colorado River channel. Final fence designs and facility finish colors would be coordinated with the U.S. Forest Service and Grand County to minimize any impacts to visual resources.

Reclamation's issuance of the LOPP to Northern Water would have no long-term effects on recreation resources and short-term affects would be negligible.

## CULTURAL RESOURCES

Cultural resources are defined as any prehistoric and historic districts, sites, buildings, structures, objects, cultural landscapes, sacred sites, and traditional cultural properties. Cultural resources are protected by a number of Federal statutes, regulations, and policies. Section 106 of the National Historic Preservation Act of 1966 (NHPA) mandates that Reclamation take into account the potential effects of a proposed federal undertaking (Proposed Action) on historic properties. Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

The affected environment for cultural resources corresponds to the area of potential effects (APE), as defined in the regulations implementing Section 106 of the NHPA (36 CFR Part 800). The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (36 CFR Part 800.16(d)). The APE for the Proposed Action includes the areas potentially impacted by construction activities and access. The APE totals approximately 4.1 acres.

*Existing Conditions:* A Class I file search and a Class III cultural resource inventory of the APE were completed by Western Cultural Resource Management, Inc. (WCRM) in September 2014. The file search revealed that eight previously conducted cultural resource inventories, six previously recorded cultural resource sites, and three previously recorded isolated finds lie within one mile of the APE. As a result of the Class III cultural resource inventory of the APE, one previously recorded cultural resource site (Granby Dam) and one segment of a previously recorded cultural resource site (Granby to Granby Dam Transmission Line) were identified.

In accordance with 36 CFR Part 800.4, both cultural resources were evaluated for significance in terms of NRHP eligibility. The significance criteria applied to evaluate cultural resources are defined in 36 CFR Part 60.4 as follows:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

- A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. that are associated with the lives of persons significant in our past; or
- C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic

values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- D. that has yielded, or may be likely to yield, information important in prehistory or history.

WCRM recommended the identified segment of the Granby to Granby Dam Transmission Line not eligible for the NRHP. Granby Dam, however, was recommended eligible for the NRHP under Criterion A. Further, WCRM recommended Granby Dam contributing to the Colorado-Big Thompson historic district (Mehls and Lennon 2014:29). Reclamation concurred with these recommendations.

*No Action Alternative:* Under the No Action Alternative, there would be no effect to cultural resources.

*Proposed Action:* Under the Proposed Action, there would be no adverse effect to cultural resources. The Proposed Action would result in no adverse effect to the Granby Dam.

In compliance with 36 CFR Part 800.4(d)(2) and 36 CFR Part 800.11(e), a copy of the Class III cultural resource inventory report and a determination of no adverse effect was submitted to the Colorado State Historic Preservation Office (SHPO), the Grand County Historic Preservation Board, the Advisory Council on Historic Preservation (ACHP), the Arapaho Tribe of the Wind River Reservation, the Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, the Cheyenne and Arapaho Tribes, the Comanche Nation, the Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, the Shoshone Tribe of the Wind River Reservation, the Southern Ute Indian Tribe of the Southern Ute Reservation, the Ute Indian Tribe of the Uintah & Ouray Reservation, and the Ute Mountain Tribe of the Ute Mountain Reservation in December 2014.

## **INDIAN TRUST ASSETS & ENVIRONMENTAL JUSTICE**

Indian Trust Assets (ITAs) are legal interests in property held by the United States for Indian Tribes or individuals. ITAs include, but are not limited to, lands, minerals, hunting and fishing rights, traditional gathering grounds, and water rights. The Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members, and to consult with the tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal health and safety (512 DM 2).

Under the Department of the Interior's policy, Reclamation is responsible for identifying any potential effects to ITAs as part of the planning process for the Proposed Action. Further, any effect to ITAs as a result of the Proposed Action must be addressed within this Environmental Assessment. When an effect to ITAs cannot be avoided, Reclamation will provide appropriate mitigation or compensation to the federally recognized Indian tribes or individuals. The affected environment for ITAs corresponds to the APE for cultural resources.

In addition, Executive Order 12898 on Environmental Justice requires Federal agencies to analyze programs to assure that they do not disproportionately adversely affect minority or low income populations or Indian Tribes.

*Existing Conditions:* Reclamation contacted the Bureau of Indian Affairs (BIA), Anadarko, Concho, Fort Peck, Northern Cheyenne, Southern Ute, Uintah and Ouray, and Ute Mountain Ute Agencies as well as the Arapaho Tribe of the Wind River Reservation, the Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, the Cheyenne and Arapaho Tribes, the Comanche Nation, the Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, the Shoshone Tribe of the Wind River Reservation, the Southern Ute Indian Tribe of the Southern Ute Reservation, the Ute Indian Tribe of the Uintah & Ouray Reservation, and the Ute Mountain Tribe of the Ute Mountain Reservation in December 2014 to identify any potential impacts to ITAs within the APE. No ITAs were identified.

*No Action Alternative:* Under the No Action Alternative, there would be no effect to ITAs. No ITAs have been identified within the APE. The No Action Alternative would have no effect on environmental justice populations in the project area.

*Proposed Action:* Under the Proposed Action, there would be no anticipated effect to ITAs. No ITAs have been identified within the APE.

While a minority population may exist in the general project area, implementation of the Action Alternative would not disproportionately affect low-income or minority populations. The proposed action will not involve population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. The Action Alternative would therefore have no adverse effects to human health or the environment and would not disproportionately affect minority and low-income populations.

## **AIR QUALITY AND NOISE**

*Existing Conditions:* Air quality is good within the project area and there are no air quality non-attainment areas in the vicinity (EPA 2013). Colorado Department of Public Health and Environment (CDPHE) includes the project area within the Central Mountains Region which includes 15 counties in the central area of the state. Skiing, tourism, ranching, mining, and correctional facilities are the primary industries. All of the area complies with National Ambient Air Quality Standards (CDPHE 2013). Grand County's air quality regulations limit solid fuel burning devices in commercial and industrial buildings to one approved solid fuel burning device per lobby or other main common area (Grand County 2014).

There are no significant noise sources or problems in the project area. The primary source of noise in the project area is the noise of flowing water from Granby Dam and occasional road traffic across the dam on Monarch Lake Road.

*No Action Alternative:* Under the No Action Alternative, no hydropower facilities would be constructed at Granby Dam. There would not be a change in air quality and noise.

*Proposed Action:* Under the proposed action, a hydropower facility would be constructed at Granby Dam.

There would be minor noise impacts during excavation for the power plant and from construction traffic. During operation, the turbines and generators would produce machinery noise, representing a new potential noise source. However, such equipment would be fully enclosed, located a considerable distance from any dwellings or recreation areas, and should have no discernible impact. After construction of the project facilities, the distance from residences and enclosure of equipment would reduce noise generated from hydropower facility operation to below detectable levels.

Excavation work would contribute to short-term dust impacts. Construction and facility operation would include dust abatement Best Management Practices and should have no significant effects. Reclamation would require watering to minimize/control dust from cleared areas and along roadways.

There would be no long-term adverse impacts on air quality due to operation and maintenance of the hydropower facilities. As with other hydropower projects, there would be a beneficial offset of emissions of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases. According the U.S. Energy Information Administration (EIA), in 2012 “the average annual electricity consumption for a U.S. residential customer was 10,837 kWh.” With an average annual energy generation of 5,000 MWh, the Granby hydropower project would provide enough clean energy to power about 461 homes each year. Table 5 has been modified to demonstrate the number of pounds of CO<sub>2</sub> that could be removed annually for the average U.S. household utilizing steam-electric generators in 2012 for the specific fuels identified (EIA 2013). Reclamation estimates that Carbon dioxide emissions would be reduced by 10,400,000 to 10,900,000 pounds per year based on the size of the hydropower project and the Energy Information Administration’s reduction numbers.

**Table 5 - Drop 4 Hydroelectric Development Associated Carbon Reduction**

Fuel Type: Coal	Lbs. of CO <sub>2</sub> per Million Btu	Heat Rate (Btu per kWh)	Lbs. CO <sub>2</sub> per kWh	Lbs. of CO <sub>2</sub> removed when using clean energy
Bituminous	205.300	10,107	2.08	10,400,000
Sub-bituminous	212.700	10,107	2.16	10,800,000
Lignite	215.400	10,107	2.18	10,900,000

Last updated: April 17, 2014 (<http://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11>)

## VISUAL RESOURCES

*Existing Conditions:* The U.S. Forest Service uses a Scenery Management System (SMS) to assess visual resources. The SMS provides a systematic approach for determining the relative importance of scenery in National Forest lands. Amendment No. 9 to the 1997 Revision of the Land and Resource Management Plan (RMP) for the Arapaho and Roosevelt and Pawnee National Grassland dated October 2006 replaced the Visual Management System (VMS) with SMS (USFS 2006). The RMP standards for Visual Resources are as follows:

Standard 154—Prohibit management activities that are inconsistent with the scenic integrity objective unless a decision is made to change from the scenic integrity objective. A decision to change from the scenic integrity objective will be documented in a project level NEPA decision document.

Standard 155—The scenic classes, which are a measure of the relative importance or value of landscape to people, are usually accepted as the base for scenic integrity objectives unless special documented circumstances warrant a change.

Standard 156—A high scenic integrity objective will be met within the foreground for all National Scenic and Recreation Trails.

Standard 168—Requires burial of electrical utility lines of 33 kilovolts or less and telephone lines unless one or more of the following applies:

- a) Scenic integrity objectives of the area can be met using an overhead line.
- b) Burial is not feasible due to geological hazard or unfavorable geologic conditions.
- c) Greater long-term site disturbance will result.
- d) It is not technically feasible.

Guideline 157—Design and implementation management activities to meet the adopted scenic integrity objective for the areas shown on the Scenic Integrity Objectives map.

*No Action Alternative:* Under the No Action Alternative, no hydropower facilities would be constructed at Granby Dam. There would be no changes to visual resources.

*Proposed Action:* Under the proposed action, the power plant and approximately 1,200 feet of new power and fiber optic lines would be constructed across federal lands within the ANRA to connect power generated at the proposed hydropower station to the grid.

The U.S. Forest Service Scenic Integrity Levels for the project area are listed as “Moderate” under the 2006 RMP Amendment. Moderate is defined as “Refers to landscapes where the valued landscape character “appears slightly altered.” Noticeable deviations must remain visually subordinate to the landscape character being viewed.

Below the dam, the visual character has been previously altered by the massive Granby Dam and its concrete spillway. The power plant and buried penstock would be visually subordinate to the dam, but would not be visible from Lake Granby. The planned power line is 25.6 kV which falls under the U.S. Forest Service requirements for buried lines (Standard 168). However, the portion of the lines that ascend the step canyon is very rocky and would meet the buried line exemption in Standard 168(b). The line from the power plant would connect to and utilize the existing overhead power line.

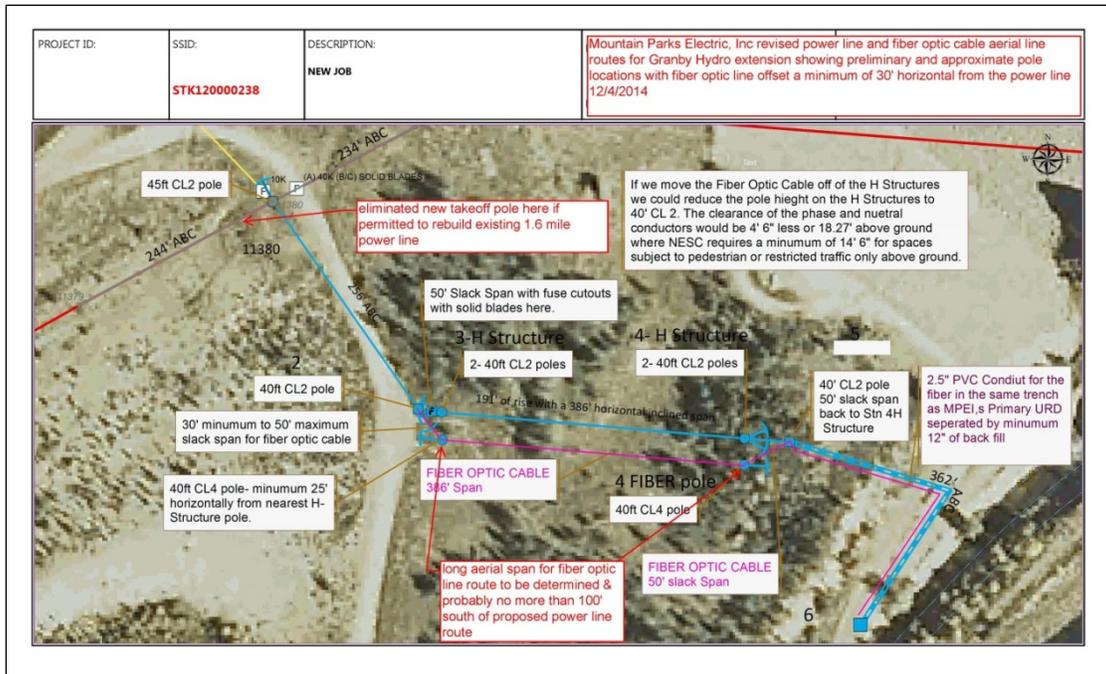
However, as mentioned previously, under a separate action, Mountain Parks has also requested permission to rebuild 1.6 miles of existing aerial power line. Mountain Parks' power line rebuild project is not a connected action, but if processed and approved prior to construction of the hydropower project, can reduce the hydropower project's footprint and project costs by sharing the same poles for power and communication lines. The Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of the Nation Environmental Policy Act (40 CFR §1508.25) defines actions as connected actions if they:

- i) Automatically trigger other actions which may require environmental impact statements.
- ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
- iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

Additional cultural and sensitive plant species inventories may be needed for the U.S. Forest Service's Rebuild Project before the U.S. Forest Service would authorize Mountain Parks to replace the line. The U.S. Forest Service's Rebuild Project would incorporate any additional requirements and may require additional NEPA, if determined appropriate by the U.S. Forest Service. Once the new power line is in service, the old power line would be removed. Figure 5 shows 1,000-foot new power and fiber-optic line that would ascend the canyon from the power plant which would be authorized by the U.S. Forest Service as part of the U.S. Forest Service's Rebuild Project.

Disturbed areas would be contoured and re-vegetated. Construction material and existing debris from previous construction would be disposed of at designated landfills.

The power/fiber-optic alignments would result in minimal effect on visual resources. Because of the existing overhead power lines in the area, these effects are predicted to be insignificant.



**Figure 5-Mountain Parks Proposed Parallel Power and Fiber-Optic Lines ascending the Canyon Wall.**

## CUMULATIVE IMPACTS

Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Any cumulative impacts associated with continued operations of Granby Dam were included in this analysis. In addition, the existing Mountain Parks' power line is reasonably foreseeable and if approved, would reduce the hydropower project's footprint. To the extent existing information is available; Reclamation has analyzed the cumulative effects of U.S. Forest Service's approval of the U.S. Forest Service's Granby Dam Power Line Rebuild Project. It is predicted that these actions would not result in significant environmental effects.

Overall, the construction, operation, and maintenance of the power plant are predicted to not result in significant cumulative impacts.

## SUMMARY AND ENVIRONMENTAL COMMITMENTS

The primary effect of the proposed action would be to develop a renewable energy resource. There would be short-term economic benefits due to construction expenditures and employment. In the long-term, Northern Water would benefit from income generated from the project.

## Mitigation Measures and Environmental Commitments

The following measures would be implemented and followed by Northern Water and its contractors. The LOPP will require that these commitments be followed and met. An environmental commitment plan will be prepared by Reclamation to document how environmental commitments and mitigation measures will be implemented during design, construction, and operation of the Granby Hyrdopower Project.

1. The construction and operation of the Granby Hydropower Project is required to be operated in a manner that does not interfere with the irrigation supplies or maintenance of the C-BT Project.
2. Additional Class III cultural resource inventories for the Granby Hydropower Project not previously inventoried at a Class II level under current Colorado Office of Archaeology and Historic Preservation standards will be completed in the spring of 2015 once the ground is clear of snow if required by the U.S. Forest Service. Inventories may include the parallel fiber-optic line alignment ascending the canyon to the existing power line, as well as, any other changes in the U.S. Forest Service's Granby Dam Power Line Rebuild Project. Any additional NHPA Section 106 consultation regarding inventory results and additional NEPA compliance requirements will be determined by the U.S. Forest Service.
3. No ground-disturbing activities associated with the power line rebuild and fiber-optic line will begin until any additional NHPA Section 106 inventories and consultations, as described above, are completed. Reclamation will notify Northern Water in writing when NHPA compliance is completed.
4. Any person who knows or has reason to know that he/she has inadvertently discovered possible human remains on Federal land, must provide immediate telephone notification of the discovery to Reclamation's Eastern Colorado Area Office archaeologist. Work will stop until the proper authorities are able to assess the situation onsite. This action would promptly be followed by written confirmation to the responsible Federal agency official, with respect to Federal lands. The Colorado SHPO and interested Native American tribal representatives would be promptly notified. Consultation would begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10); and the Archaeological Resources Protection Act of 1979 (16 U.S. C. 470).
5. Additional sensitive plant surveys may be required for proposed Mountain Parks' power line rebuild and new fiber optic line, as determined by the U.S. Forest Service.
6. Existing access roads will be used to access the construction areas. No new access roads will be constructed. No heavy construction access will be allowed from the top of the dam from May 1<sup>st</sup> to September 1<sup>st</sup>. However, the existing gate house may be used by personnel to manually access the outlet tunnel.
7. Erosion-control BMPs for drainage and sediment control will be implemented to prevent or reduce nonpoint source pollution during and following construction. Examples are included in Attachment I.
8. All construction equipment shall be power-washed and free of soil and debris prior to entering the construction site to reduce the spread of noxious and unwanted weeds.
9. Topsoil, where available, will be stockpiled during construction for later use in re-vegetation. Disturbed areas will be contoured to reduce erosion and facilitate re-

vegetation. Disturbed areas will be re-seeded. The plan for re-vegetation and related erosion control/re-contouring will be coordinated with the U.S. Forest Service and require approval by Reclamation.

10. Dust abatement BMPs will be undertaken in all areas disturbed during construction.
11. Fuel storage, equipment maintenance, and fueling procedures will be developed to minimize the risk of spills and the impacts from these incidents. No fuel storage, equipment maintenance, or fueling will occur within 100 feet of wetlands or waters of the U.S. A Spill Prevention Control and Countermeasure Plan will be prepared prior to construction.
12. Northern Water will be responsible for obtaining any required Federal, state, or local permits to construct and operate the project, including permits under the Clean Water Act (Section 402 and 404 permits) which may be needed for dewatering or other activities.
13. In the event of discovery of threatened or endangered species, Northern Water will immediately cease all ground-disturbing activities in the vicinity and notify Reclamation. Work will not be resumed until approved by Reclamation.
14. All new power lines and power poles will follow the recommended standards as outlined in the *Avian Protection Plan Guidelines* developed by the U.S. Fish and Wildlife Service and Industry (Edison Electric Institute 2005).
15. If the power and fiber option line construction is delayed until after September 1<sup>st</sup>, the nearby osprey nest should be revisited. If active, all construction activities within 1/4 mile of the nest should be avoided until after the nest fledges as determine by the U.S. Forest Service.
16. In the event that evidence of possible cultural or paleontological resources is discovered during construction activities, Northern Water will immediately cease all ground-disturbing activities in the vicinity and notify Reclamation. Work will not resume until approved by Reclamation.
17. If any additional areas of impact (for example: access roads, borrow pits, or waste areas) are identified during the course of the Proposed Action, Class III cultural resource and any other appropriate resource inventories and consultations will be completed prior to approving any additional ground-disturbing activities.
18. Powerhouses and substations will be non-reflective and painted to blend with the project area background and meet Grand County and U.S. Forest Service requirements.
19. There will be no changes in releases from the Granby Dam solely for hydropower uses permitted under the LOPP. The hydropower facility will be operated based on existing release requirements and dam operations.
20. Irrigation supplies, dam releases and dam maintenance access will be maintained during construction at all times.
21. Northern Water will be responsible for noxious weed control within the limits of the facility for the life of the project. Northern Water is responsible for consultation with Reclamation for acceptable weed control methods, including pesticides/herbicides approved for use on public land. Use of herbicides will comply with the applicable Federal and state laws. Herbicides will be used only in accordance with their registered uses and within limitations imposed by the Secretaries of the Interior and Agriculture. Disturbance to nearby shrubs and other ground cover will be kept to a minimum, with disturbance occurring only in those areas which are absolutely necessary for project construction.

22. In the event that the U.S. Forest Service does not approve the proposed fiber-optic line route associated with U.S. Forest Service's Granby Dam Power Line Rebuild Project, Northern Water would operate the power plant manually or provide for communications between power plant and substation through other means mutually approved by Reclamation, U.S. Forest Service and Mountain Parks.
23. Promises and covenants detailed in the Intergovernmental Agreement between Northern Water and Grand County dated December 16, 2014 are incorporated as environmental commitments. These commitments include:
  - a) Professional engineer certification that the final Granby Hydropower Plant building design meets all applicable provisions of the Grand County Building Code.
  - b) Outlet releases will not be altered for benefit of power production.
  - c) The power plant's tailrace will discharge upstream of the flume downstream of Granby Dam.
  - d) The power plant will not cause any elevation of water temperature in the Colorado River downstream of Granby Dam that will exceed applicable standards for cold water aquatic species.
24. Northern Water will request and receive permission from Reclamation a minimum of five working days prior to any earth disturbing activities to insure that all environmental commitments have been met or are in compliance.

# CHAPTER 4 – CONSULTATION & COORDINATION

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## GENERAL

Reclamation and Northern Water conducted informal discussions with local, state and federal agencies to identify issues and concerns associated with the proposed action (See Agency Coordination).

Northern Water and Grand County have also entered into an Intergovernmental Agreement for the Granby Hydropower Project dated December 16, 2014 (Attachment E).

Reclamation also relied on issues identified previously during planning, and NEPA compliance completed for the Carter Lake Hydroelectric Project (Reclamation 2010).

Reclamation has conducted consultations with the U.S. Army Corps of Engineers under Section 404 of the CWA and consulted with the U.S. Fish and Wildlife Service under the ESA and Fish and Wildlife Coordination Act. Results of these consultations are included in project analysis and discussions in Chapter 3.

Reclamation completed NHPA Section 106 consultation regarding Reclamation's NRHP eligibility and effect determinations with the Colorado State Historic Preservation Office (SHPO), the Grand County Historic Preservation Board, the Advisory Council on Historic Preservation (ACHP), the Arapaho Tribe of the Wind River Reservation, the Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, the Cheyenne and Arapaho Tribes, the Comanche Nation, the Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, the Shoshone Tribe of the Wind River Reservation, the Southern Ute Indian Tribe of the Southern Ute Reservation, the Ute Indian Tribe of the Uintah & Ouray Reservation, and the Ute Mountain Tribe of the Ute Mountain Reservation in December 2014. The Arapaho Tribe of the Wind River Reservation and the Colorado SHPO concurred with Reclamation's determinations in letters dated January 5, 2015 and January 21, 2015, respectively (See Attachment F and G). No other responses were received.

Reclamation also accessed the U.S. Fish and Wildlife Service website to develop a trust resource list on December 3, 2014 (Attachment D). The Service identified listed species, national refuges, migratory birds of concern, and potential wetlands via the National Wetlands Inventory. Listed species, migratory birds and wetlands are discussed in Chapter 3.

Correspondence dated February 12, 2015 from the U.S. Forest Service regarding the relationship between the Granby Hydropower Project and Mountain Parks' Granby Dam Power Line Reconstruction Project is included as Attachment H. The document requests a revised proposal from Mountain Parks that addresses options in providing communication services needed between the hydropower facility and Granby Substation. Reclamation and U.S. Forest Service would continue to communicate and coordinate regarding these two projects.

## **AGENCY COORDINATION**

### **Federal Agencies**

Susan Nall, Army Corps of Engineers, Grand Junction, CO.  
Leslie McWhirter, Army Corps of Engineers, Grand Junction, CO.  
Deanna Bartlett, Forest Service, Granby, CO.  
Dan Matthews, Forest Service, Granby, CO.

### **State Agencies**

John Ewert, Colorado Parks and Wildlife, Hot Sulphur Springs, CO  
Sherman Hebein, Colorado Parks and Wildlife, Grand Junction, CO  
John Hranac, Colorado Department of Public Health and Environment, Denver, CO

### **Local Agencies**

Lurline Underbrink Curran, Grand County, Granby, CO  
Jean Johnston, Mountain Parks Electric, Inc., Granby, CO  
Les Shankland, Mountain Parks Electric Inc., Granby, CO  
Carl Brouwer, Northern Colorado Water Conservancy District, Berthoud, CO

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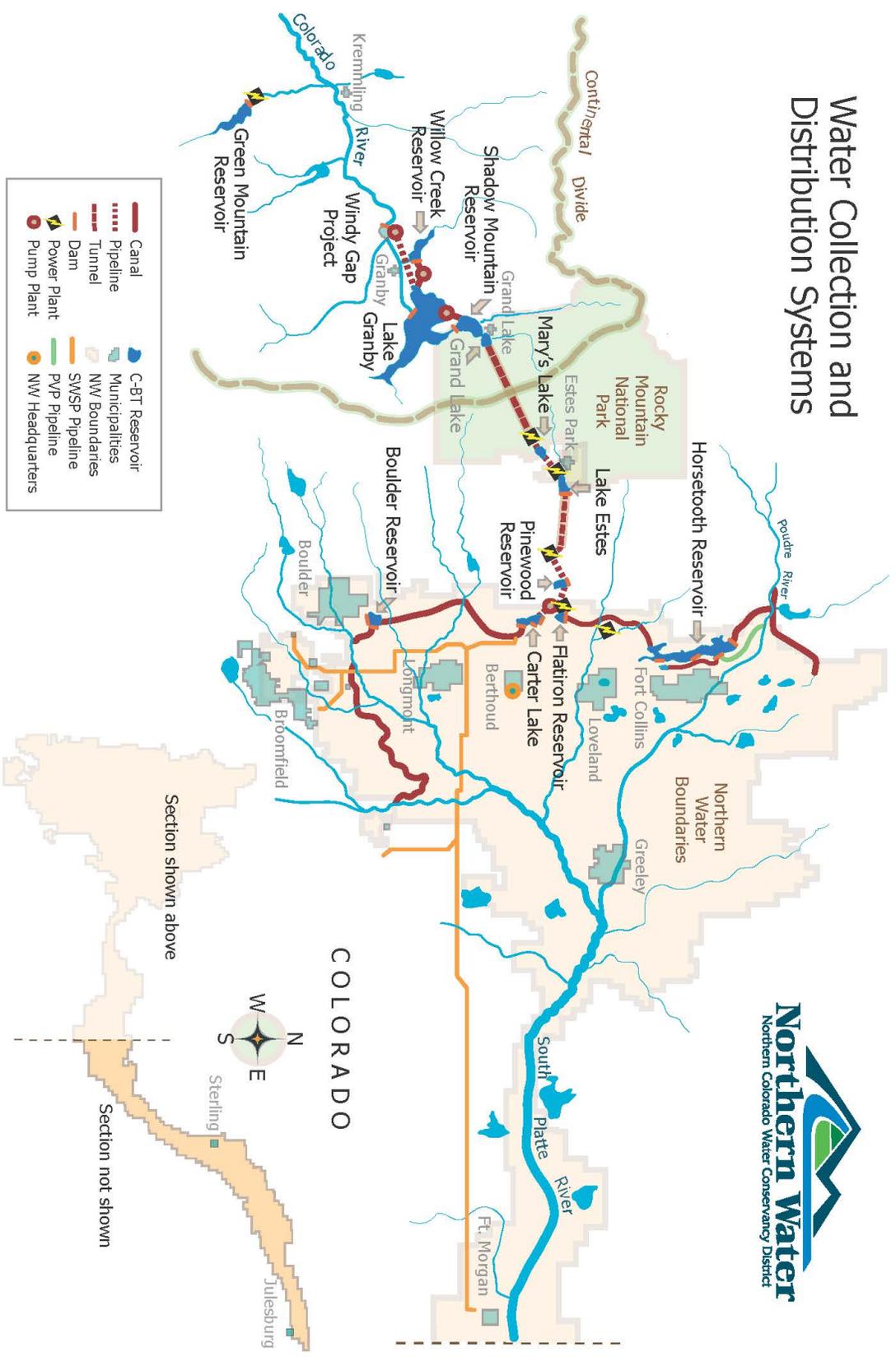
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**ATTACHMENT A**

**Colorado-Big Thompson Project Map**

# Water Collection and Distribution Systems



**ATTACHMENT B**

**Preliminary Lease of Power Privilege**

**UNITED STATES OF AMERICA  
DEPARTMENT OF INTERIOR  
BUREAU OF RECLAMATION  
GREAT PLAINS REGION**

**PRELIMINARY PERMIT  
GRANBY DAM OUTLET  
COLORADO-BIG THOMPSON PROJECT**

On April 20, 2011, the Bureau of Reclamation (Reclamation) published a request in the Federal Register for proposals for hydropower generation at Granby Dam Outlet. Proposals were due and received on or before August 19, 2011, and subsequently evaluated. Based upon this evaluation process, Northern Colorado Water Conservancy District (NCWCD) has been issued this Preliminary Permit to plan and study the proposed project.

The proposed hydroelectric powerplant would be located on the Granby Dam Outlet. NCWCD proposes to locate a powerhouse at the downstream end of the existing outlet works that supplies water to the Colorado River and to use the dam's releases which are made for authorized Reclamation purposes.

The Granby Dam was authorized by Public Law 75-249, 50 Stat. 564 (August 9, 1937) as part of the Colorado-Big Thompson Project (Project), as described by the Act of Congress of August 9, 1937 (50 Stat. 595). The Colorado-Big Thompson Project was authorized by a finding of feasibility by the Secretary of the Interior, approved by the President on December 21, 1937, pursuant to section 4 of the Act of June 25, 1910, and subsection B of section 4 of the Act of December 5, 1924 (Fact Finders' Act). The Project is a multipurpose project which diverts, stores and regulates water from the Colorado River Basin in western Colorado and conveys it through the Continental Divide to the Big Thompson River on the east slope. The Project, completed in 1956, was constructed for the purpose of providing water for irrigation, power, industrial development and other purposes. Reclamation and the Northern Colorado Water Conservancy District (Northern Water) jointly operate and maintain the multipurpose features of the Project. Granby Dam and Reservoir is a multipurpose feature of the Project pursuant to the authorizing legislation.

The purpose of this preliminary permit is to formally recognize NCWCD's (Permittee) priority for a lease of power privilege (LOPP) while the Permittee conducts investigations and secures data necessary to determine the feasibility of the proposed project, and if the project is found to be feasible, prepares an acceptable development application. This permit confers no authority on the Permittee to undertake construction of the proposed project or any part thereof, or to occupy or use lands or other property of the United States or of any other entity or individual.

A preliminary permit is not transferable. The named permittee is the only entity entitled to the rights afforded by this preliminary permit. The maximum term for this preliminary

permit is 2 years, from the date it was signed by the Regional Director, Bureau of Reclamation. This permit is subject to Articles 1 through 3, listed below.

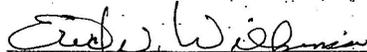
**TERMS AND CONDITIONS OF  
PRELIMINARY PERMIT**

**Article 1.** The purpose of this preliminary permit is to formally recognize NCWCD's priority for a LOPP while the Permittee conducts investigations and secures data necessary to determine the feasibility of the proposed project, and if the project is found to be feasible, prepares an acceptable development application. In the course of whatever field studies the Permittee undertakes, the Permittee shall at all times, exercise appropriate measures to prevent irreparable damage to the environment of the proposed project. All test sites shall be approved in advance and shall be restored as closely as possible to their original condition and the satisfaction of Reclamation's Eastern Colorado Area Manager.

**Article 2.** This permit is not transferable and may, after notice and opportunity for hearing, be canceled by the order of Reclamation's Great Plains Regional Director upon failure of the Permittee to prosecute diligently the activities for which the permit is issued, or for any other good cause shown.

**Article 3.** At the close of each six-month period from the effective date of this permit, the Permittee shall file a progress report with the Bureau of Reclamation, Great Plains Regional Office (ATTN: LOPP Coordinator), P.O. Box 36900, Billings, Montana 59107-6900. The report shall describe, in detail, for that report period, the nature and timing of what the Permittee has completed and the anticipated activities for the upcoming reporting period.

**NORTHERN COLORADO WATER CONSERVANCY DISTRICT**

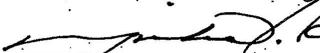
  
Eric Wilkinson, General Manager

10/6/11  
Date

**UNITED STATES  
BUREAU OF RECLAMATION**

  
Eastern Colorado Area Manager

10/13/2011  
Date

  
Great Plains Regional Director

OCTOBER 19, 2011  
Date

**UNITED STATES OF AMERICA  
DEPARTMENT OF THE INTERIOR  
BUREAU OF RECLAMATION  
GREAT PLAINS REGION**

**AMENDED PRELIMINARY PERMIT  
GRANBY DAM OUTLET  
COLORADO-BIG THOMPSON PROJECT**

On April 20, 2011, the Bureau of Reclamation published a request in the Federal Register for proposals for hydropower generation at Granby Dam Outlet. Proposals were due and received on or before August 19, 2011, and subsequently evaluated. Based upon this evaluation process, Northern Colorado Water Conservancy District (Permittee) has been issued this Preliminary Permit to plan and study the proposed hydroelectric powerplant project (project).

The project would be located on the Granby Dam Outlet. The Permittee proposes to locate a powerhouse at the downstream end of the existing outlet works that supplies water to the Colorado River and to use the dam's releases which are made for authorized Reclamation purposes.

The Granby Dam was authorized by Public Law 75-249, 50 Stat. 564 (August 9, 1937) as part of the Colorado-Big Thompson Project (C-BT), as described by the Act of Congress of August 9, 1937 (50 Stat. 595). The C-BT was authorized by a finding of feasibility by the Secretary of the Interior, approved by the President on December 21, 1937, pursuant to section 4 of the Act of June 25, 1910, and subsection B of section 4 of the Act of December 5, 1924 (Fact Finders' Act). The C-BT is a multipurpose project which diverts, stores, and regulates water from the Colorado River Basin in western Colorado and conveys it through the Continental Divide to the Big Thompson River on the east slope. The C-BT, completed in 1956, was constructed for the purpose of providing water for irrigation, power, industrial development, and other purposes. Reclamation and the Permittee jointly operate and maintain the multipurpose features of the C-BT. Granby Dam and Reservoir is a multipurpose feature of the C-BT pursuant to the authorizing legislation.

The original Preliminary Permit was signed on October 19, 2011. Reclamation is currently evaluating potential safety of dam issues at Granby Dam that could affect the development of hydropower. Therefore, Reclamation is granting a 2-year extension to the original Preliminary Permit. The 2-year time extension will allow Reclamation to complete the evaluation of Granby Dam and determine if any remedial measures are required. The original Preliminary Permit, and all rights and obligations created by it, is hereby terminated, superseded, and replaced in its entirety by this amended Preliminary Permit.

The purpose of this amended Preliminary Permit is to formally recognize the Permittee's priority for a lease of power privilege (LOPP) while the Permittee conducts investigations and secures data necessary to determine the feasibility of the project, and if the project is found to be feasible, prepares an acceptable development application. This Preliminary Permit confers no authority on the Permittee to undertake construction of the project or any part thereof, or to occupy or use lands or other property of the United States or of any other entity or individual.

A Preliminary Permit is not transferable. The named Permittee is the only entity entitled to the rights afforded by this Preliminary Permit. This amended Preliminary Permit is valid until October 19, 2015. This Preliminary Permit is subject to Articles 1 through 3, listed below.

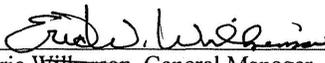
**TERMS AND CONDITIONS OF  
PRELIMINARY PERMIT**

**Article 1.** The purpose of this Preliminary Permit is to formally recognize the Permittee's priority for an LOPP while the Permittee conducts investigations and secures data necessary to determine the feasibility of the project, and if the project is found to be feasible, prepares an acceptable development application. In the course of whatever field studies the Permittee undertakes, the Permittee shall at all times exercise appropriate measures to prevent irreparable damage to the environment of the project. All test sites shall be approved in advance and shall be restored as closely as possible to their original condition and to the satisfaction of Reclamation's Eastern Colorado Area Manager.

**Article 2.** This Preliminary Permit is not transferable and may, after notice and opportunity for hearing, be canceled by the order of Reclamation's Great Plains Regional Director upon failure of the Permittee to prosecute diligently the activities for which the Preliminary Permit is issued, or for any other good cause shown.

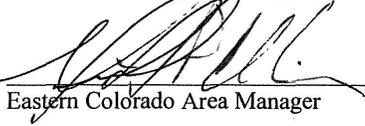
**Article 3.** At the close of each 6-month period from the effective date of this Preliminary Permit, the Permittee shall file a progress report with the Bureau of Reclamation, Great Plains Regional Office, Attention: LOPP Coordinator, P.O. Box 36900, Billings, Montana 59107-6900. The report shall describe, in detail for that report period, the nature and timing of what the Permittee has completed and the anticipated activities for the upcoming reporting period.

**NORTHERN COLORADO WATER CONSERVANCY DISTRICT**

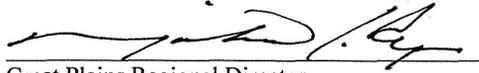
  
Eric Wilkerson, General Manager  
Wilkinson

05/30/12  
Date

**UNITED STATES  
BUREAU OF RECLAMATION**

  
Eastern Colorado Area Manager

6/12/2012  
Date

  
Great Plains Regional Director

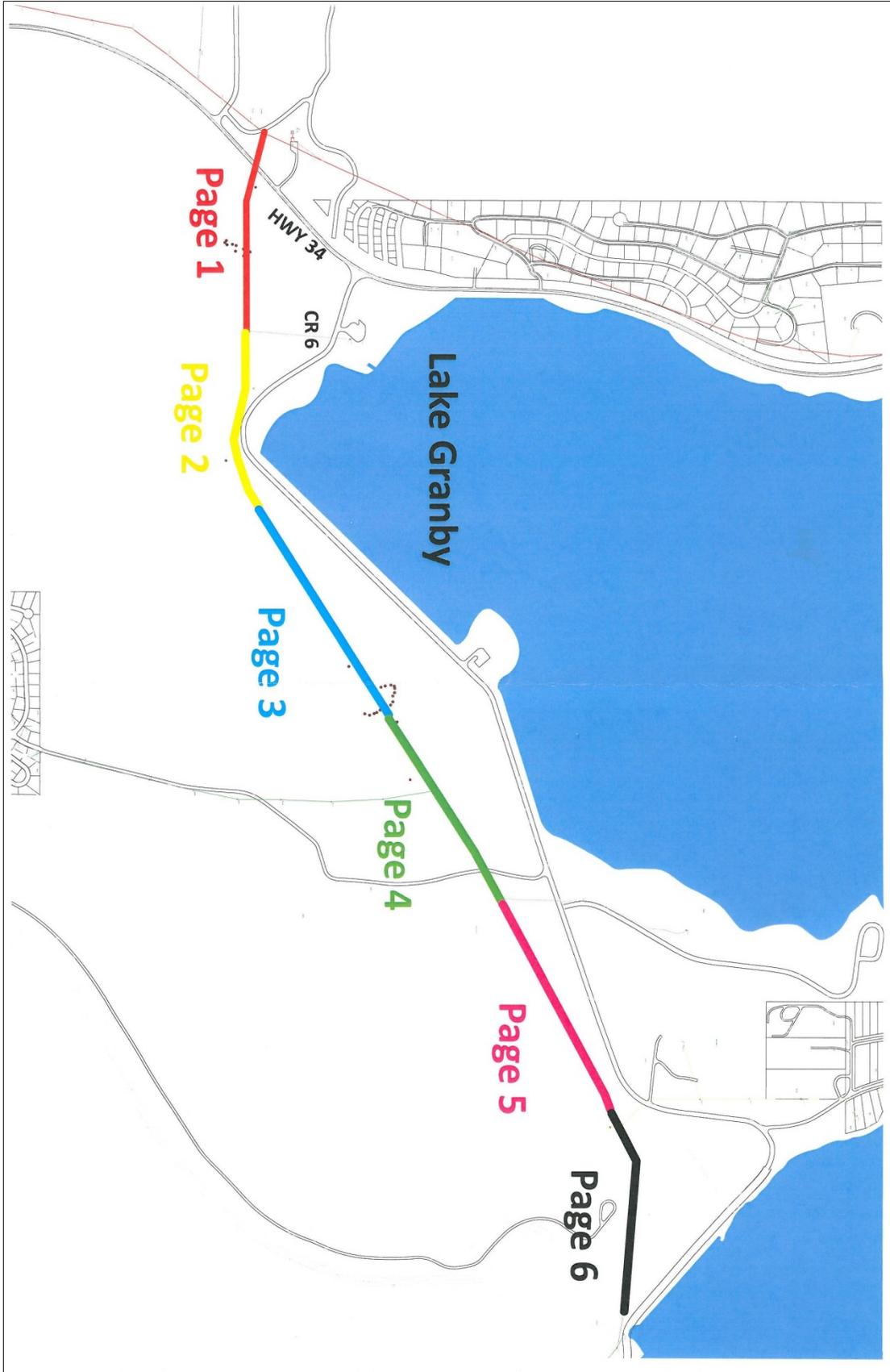
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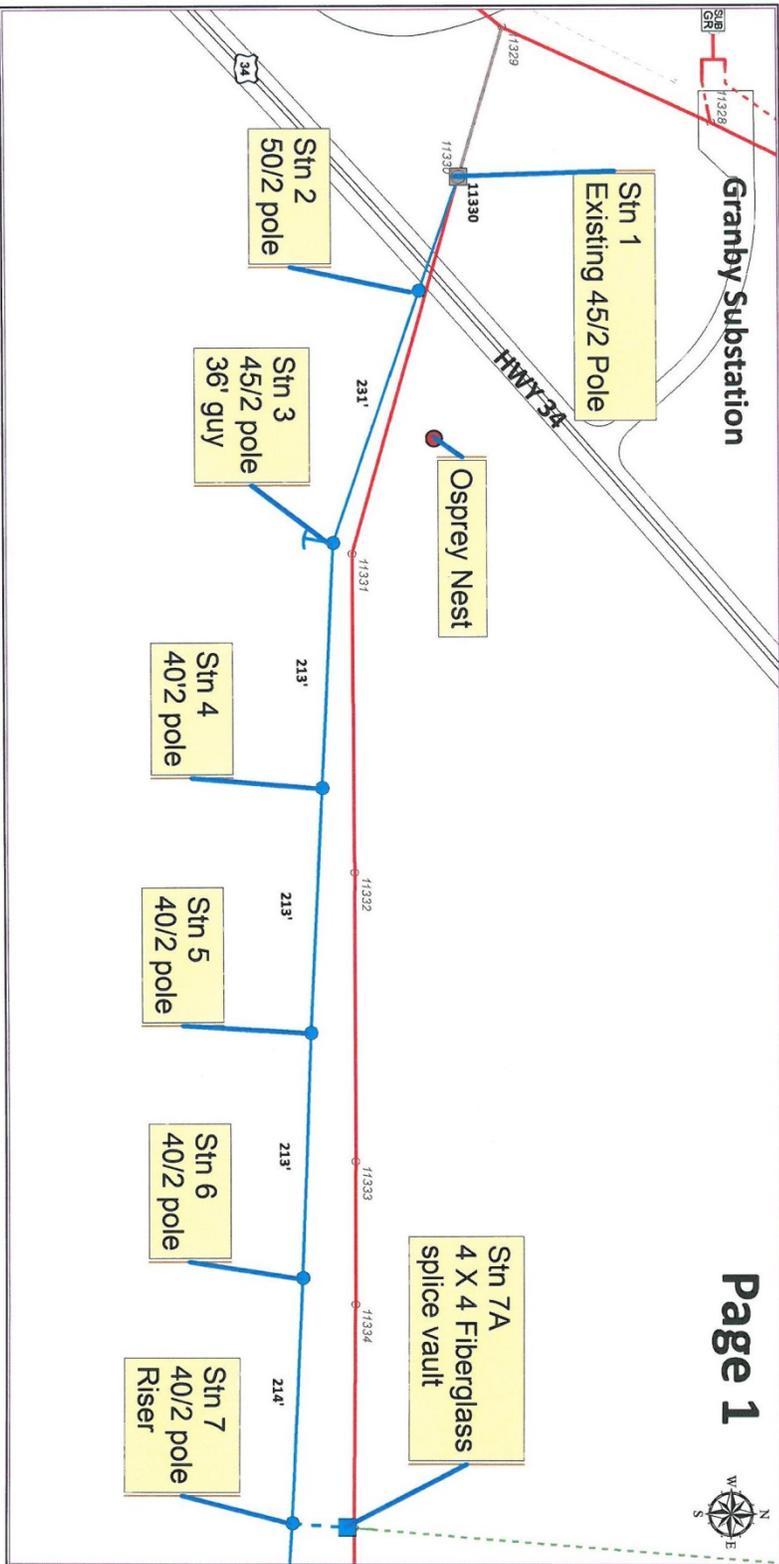
**ATTACHMENT C**

**U.S. Forest Service's Granby Dam Power Line Rebuild Project**

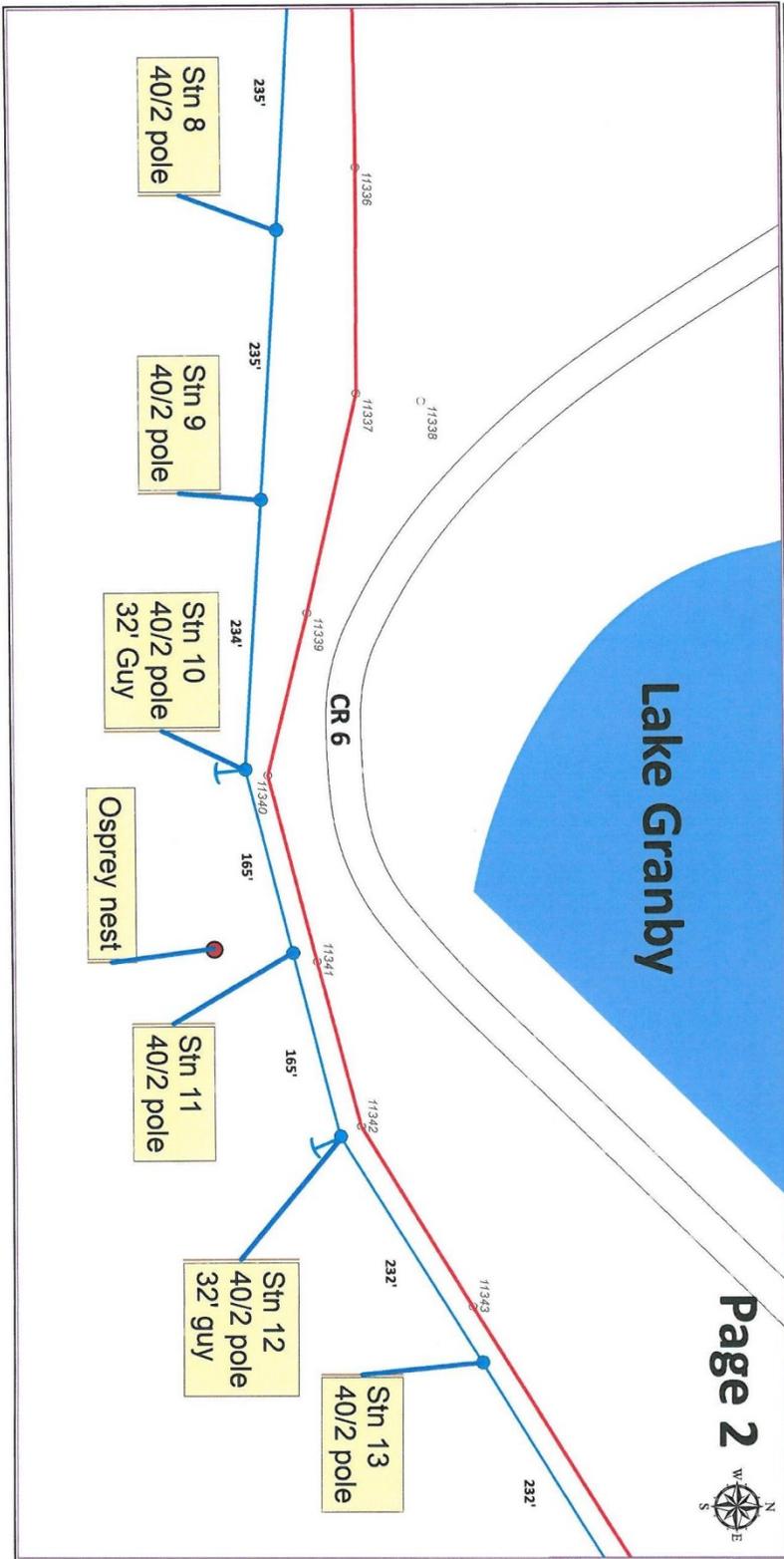
**Mountain Parks Preliminary Power Line Rebuild Design**



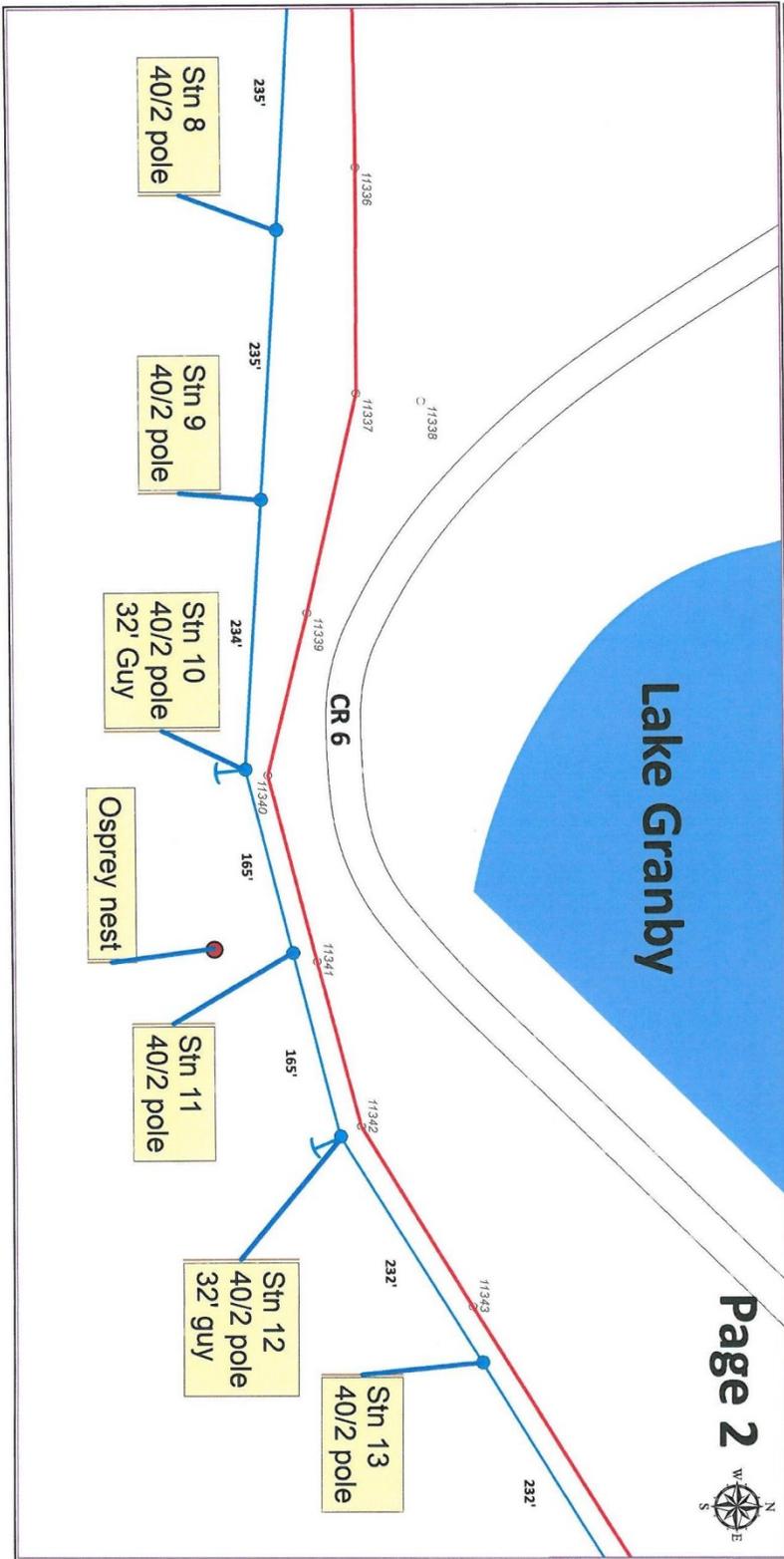
PROJECT ID:	SSID:	DESCRIPTION:	DESIGNED BY:	STAKING SHEET COMMENTS:
	<b>STK3008</b>		<b>GWB</b>	
			DATE STAKED:	

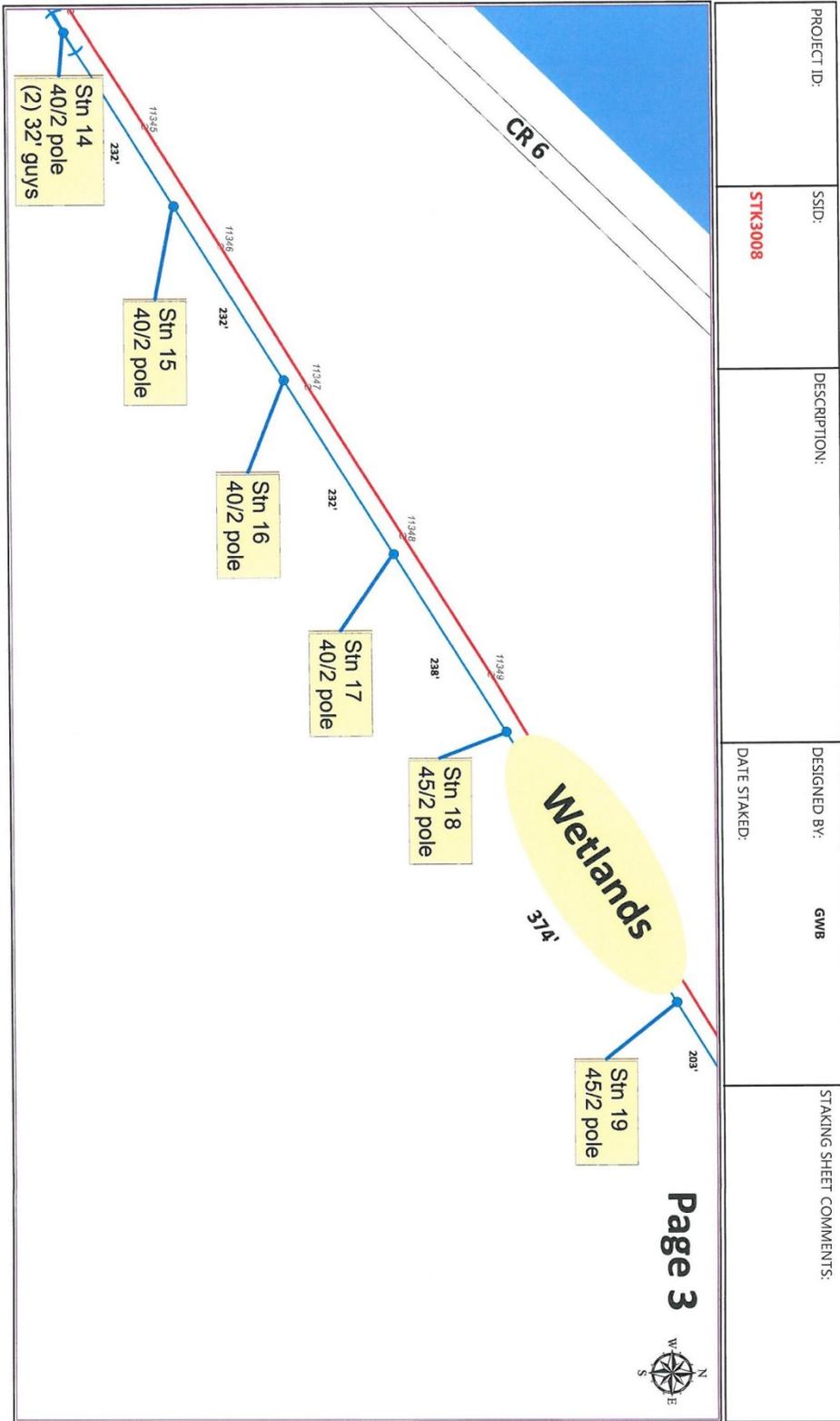


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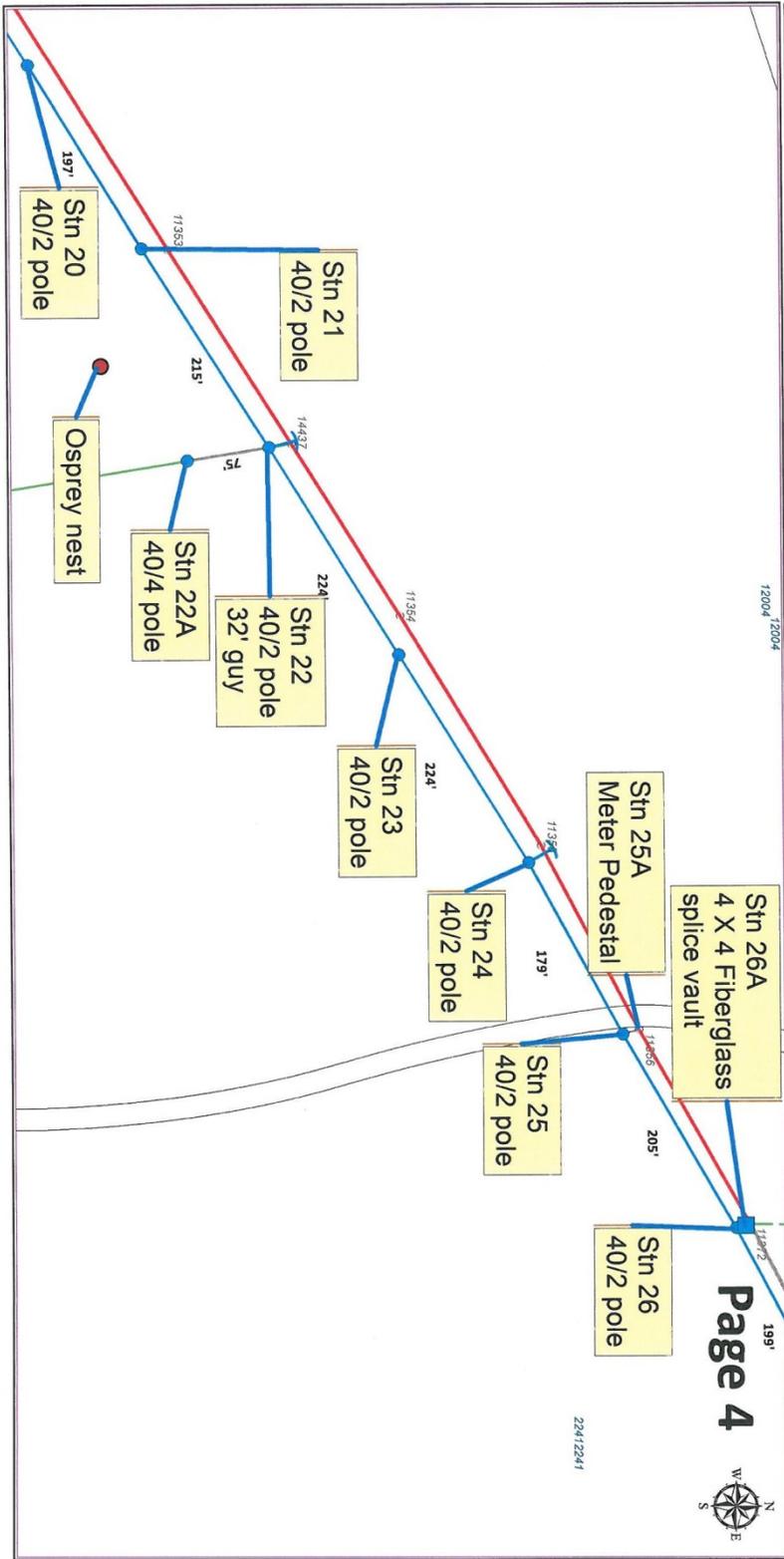


PROJECT ID:	SSID:	DESCRIPTION:	DESIGNED BY:	GWB	STAKING SHEET COMMENTS:
	STK3008		DATE STAKED:		

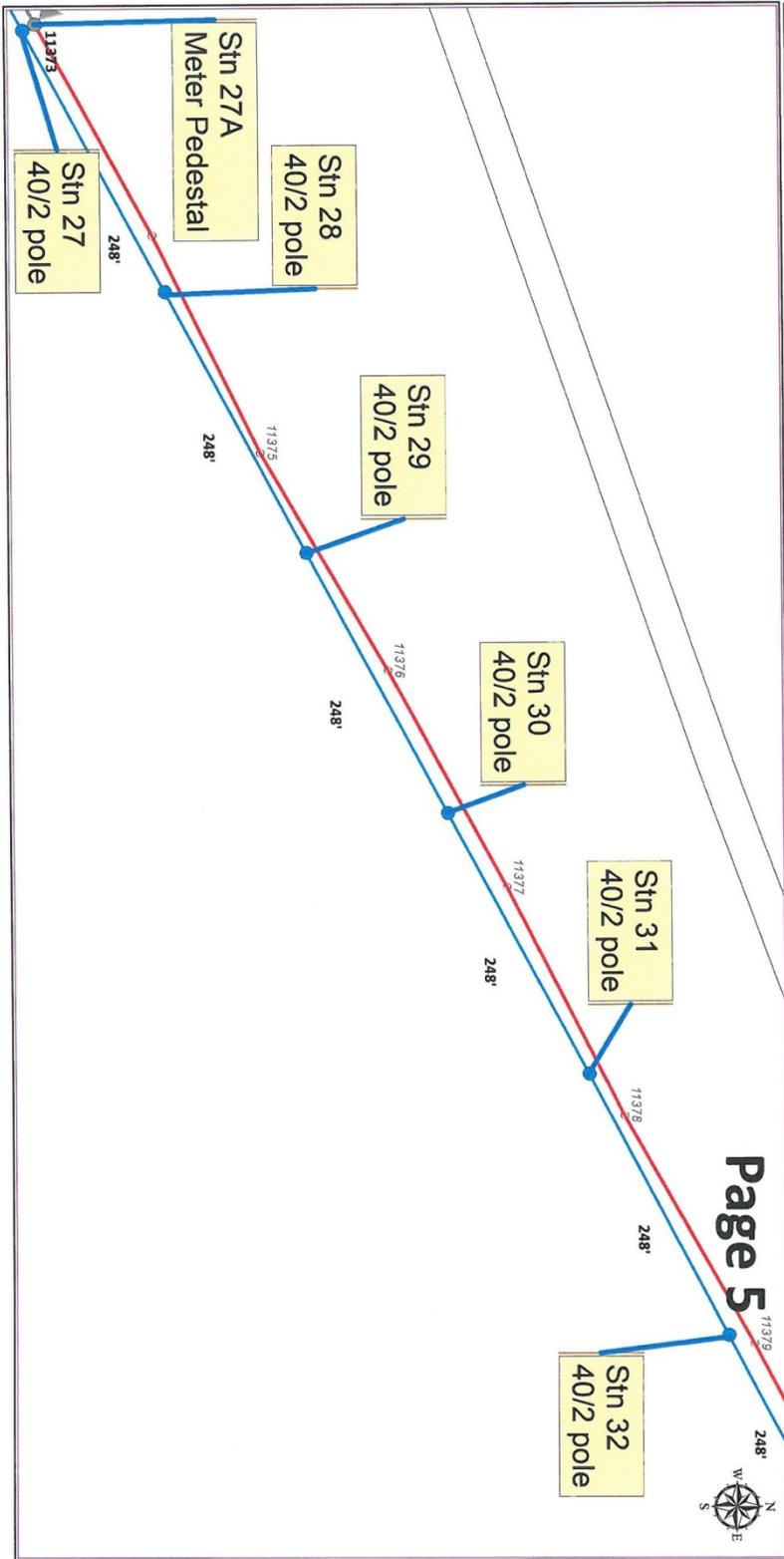




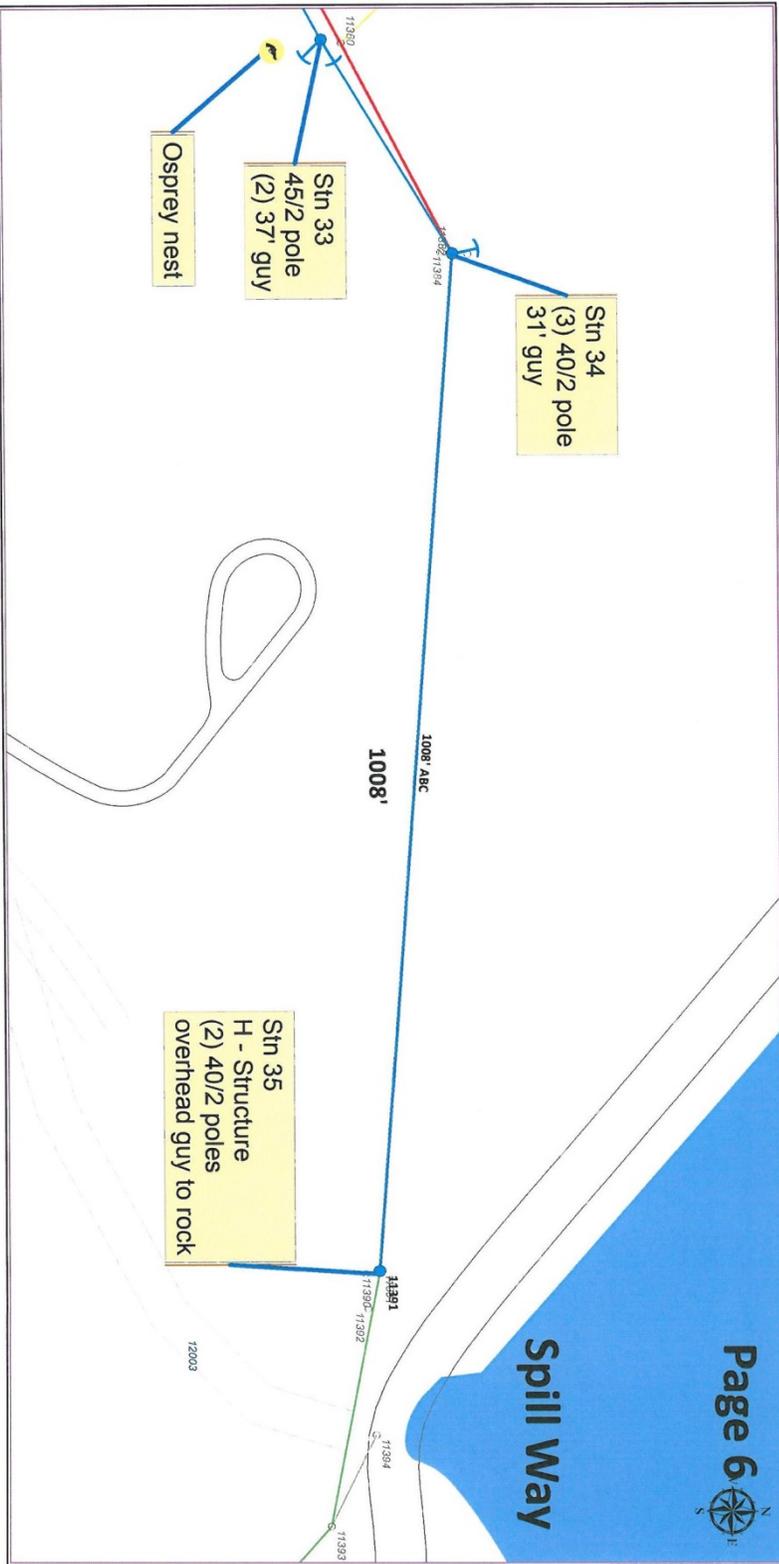
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	STK3008		GWB	
			DATE STAKED:	



PROJECT ID:	SSID:	DESCRIPTION:	DESIGNED BY:	GWB	STAKING SHEET COMMENTS:
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**ATTACHMENT D**

**U.S. Fish and Wildlife Service Trust Resource List**



U.S. Fish and Wildlife Service

## Trust Resources List

**This resource list is to be used for planning purposes only — it is not an official species list.**

Endangered Species Act species list information for your project is available online and listed below for the following FWS Field Offices:

**Western Colorado Ecological Services Field Office**  
445 WEST GUNNISON AVENUE, SUITE 240  
GRAND JUNCTION, CO 81501  
(970) 243-2778  
<http://www.fws.gov/mountain-prairie/es/Colorado/>  
<http://www.fws.gov/platteriver/>

***Project Name:***

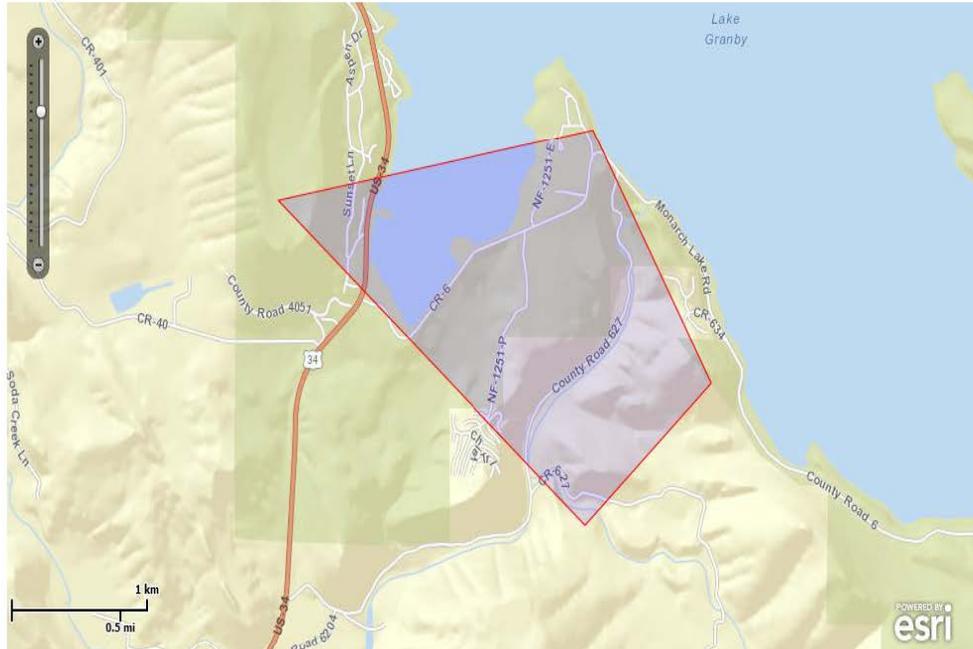
Granby Hydropower



U.S. Fish and Wildlife Service

## Trust Resources List

### *Project Location Map:*



### *Project Counties:*

Grand, CO

### *Geographic coordinates (Open Geospatial Consortium Well-Known Text, NAD83):*

MULTIPOLYGON (((-105.8980843 40.1478055, -105.8706185 40.1514795, -105.8603188 40.1383574, -105.8713052 40.1310079, -105.8980843 40.1478055)))

### *Project Type:*

Power Generation



## Trust Resources List

### ***Endangered Species Act Species List (USFWS Endangered Species Program).***

There are a total of **10** threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fishes may appear on the species list because a project could cause downstream effects on the species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section below for critical habitat that lies within your project area. Please contact the designated FWS office if you have questions.

#### **Species that should be considered in an effects analysis for your project:**

Birds	Status		Has Critical Habitat	Contact
Greater sage-grouse ( <i>Centrocercus urophasianus</i> ) Population: entire	Candidate	<a href="#">species info</a>		Western Colorado Ecological Services Field Office
Yellow-Billed Cuckoo ( <i>Coccyzus americanus</i> ) Population: Western U.S. DPS	Threatened	<a href="#">species info</a>	<a href="#">Proposed critical habitat</a>	Western Colorado Ecological Services Field Office
<b>Fishes</b>				
Bonytail chub ( <i>Gila elegans</i> ) Population: Entire	Endangered	<a href="#">species info</a>	<a href="#">Final designated critical habitat</a>	Western Colorado Ecological Services Field Office
Colorado pikeminnow ( <i>Ptychocheilus lucius</i> ) Population: Entire, except EXPN	Endangered	<a href="#">species info</a>	<a href="#">Final designated critical habitat</a>	Western Colorado Ecological Services Field Office
Greenback Cutthroat trout ( <i>Oncorhynchus clarkii stomias</i> ) Population: Entire	Threatened	<a href="#">species info</a>		Western Colorado Ecological Services Field Office
Humpback chub ( <i>Gila cypha</i> ) Population: Entire	Endangered	<a href="#">species info</a>	<a href="#">Final designated critical habitat</a>	Western Colorado Ecological Services Field Office
Razorback sucker ( <i>Xyrauchen texanus</i> ) Population: Entire	Endangered	<a href="#">species info</a>	<a href="#">Final designated critical habitat</a>	Western Colorado Ecological Services Field Office
<b>Flowering Plants</b>				



U.S. Fish and Wildlife Service

## Trust Resources List

Osterhout milkvetch ( <i>Astragalus osterhoutii</i> )	Endangered	<a href="#">species</a> <a href="#">info</a>		Western Colorado Ecological Services Field Office
Penland beardtongue ( <i>Penstemon penlandii</i> )	Endangered	<a href="#">species</a> <a href="#">info</a>		Western Colorado Ecological Services Field Office
Mammals				
Canada Lynx ( <i>Lynx canadensis</i> ) Population: (Contiguous U.S. DPS)	Threatened	<a href="#">species</a> <a href="#">info</a>		Western Colorado Ecological Services Field Office

### Critical habitats within your project area:

*There are no critical habitats within your project area.*

### ***FWS National Wildlife Refuges (USFWS National Wildlife Refuges Program).***

*There are no refuges found within the vicinity of your project.*

### ***FWS Migratory Birds (USFWS Migratory Bird Program).***

The protection of birds is regulated by the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. For more information regarding these Acts see: <http://www.fws.gov/migratorybirds/RegulationsandPolicies.html>

All project proponents are responsible for complying with the appropriate regulations protecting birds when planning and developing a project. To meet these conservation obligations, proponents should identify potential or existing project-related impacts to migratory birds and their habitat and develop and implement conservation measures that avoid, minimize, or compensate for these impacts. The Service's Birds of Conservation Concern (2008) report identifies species, subspecies, and populations of all migratory nongame birds that, without



## Trust Resources List

additional conservation actions, are likely to become listed under the Endangered Species Act as amended (16 U.S.C 1531 et seq.).

For information about Birds of Conservation Concern, go to:  
<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html>.

To search and view summaries of year-round bird occurrence data within your project area, go to the Avian Knowledge Network Histogram Tool links in the Bird Conservation Tools section at: <http://www.fws.gov/migratorybirds/CCMB2.htm>.

For information about conservation measures that help avoid or minimize impacts to birds, please visit: <http://www.fws.gov/migratorybirds/CCMB2.htm>.

### **Migratory birds of concern that may be affected by your project:**

There are **20** birds on your Migratory birds of concern list. The underlying data layers used to generate the migratory bird list of concern will continue to be updated regularly as new and better information is obtained. User feedback is one method of identifying any needed improvements. Therefore, users are encouraged to submit comments about any questions regarding species ranges (e.g., a bird on the USFWS BCC list you know does not occur in the specified location appears on the list, or a BCC species that you know does occur there is not appearing on the list). Comments should be sent to [the ECOS Help Desk](#).

Species Name	Bird of Conservation Concern (BCC)	Species Profile	Seasonal Occurrence in Project Area
American bittern ( <i>Botaurus lentiginosus</i> )	Yes	<a href="#">species info</a>	Breeding
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	Yes	<a href="#">species info</a>	Year-round
Brewer's Sparrow ( <i>Spizella breweri</i> )	Yes	<a href="#">species info</a>	Breeding
Brown-capped Rosy-Finch ( <i>Leucosticte australis</i> )	Yes	<a href="#">species info</a>	Wintering
Burrowing Owl ( <i>Athene cucularia</i> )	Yes	<a href="#">species info</a>	Breeding
Cassin's Finch ( <i>Carpodacus cassinii</i> )	Yes	<a href="#">species info</a>	Year-round
Ferruginous hawk ( <i>Buteo regalis</i> )	Yes	<a href="#">species info</a>	Wintering
Fox Sparrow ( <i>Passerella iliaca</i> )	Yes	<a href="#">species info</a>	Breeding



U.S. Fish and Wildlife Service

## Trust Resources List

Golden eagle ( <i>Aquila chrysaetos</i> )	Yes	<a href="#">species info</a>	Year-round
Greater sage-grouse ( <i>Centrocercus urophasianus</i> )	Yes	<a href="#">species info</a>	Year-round
Loggerhead Shrike ( <i>Lanius ludovicianus</i> )	Yes	<a href="#">species info</a>	Breeding
Olive-Sided flycatcher ( <i>Contopus cooperi</i> )	Yes	<a href="#">species info</a>	Breeding
Peregrine Falcon ( <i>Falco peregrinus</i> )	Yes	<a href="#">species info</a>	Breeding
Prairie Falcon ( <i>Falco mexicanus</i> )	Yes	<a href="#">species info</a>	Year-round
Sage Thrasher ( <i>Oreoscoptes montanus</i> )	Yes	<a href="#">species info</a>	Breeding
Short-eared Owl ( <i>Asio flammeus</i> )	Yes	<a href="#">species info</a>	Wintering
Swainson's hawk ( <i>Buteo swainsoni</i> )	Yes	<a href="#">species info</a>	Breeding
Veery ( <i>Catharus fuscescens</i> )	Yes	<a href="#">species info</a>	Breeding
Williamson's Sapsucker ( <i>Sphyrapicus thyroideus</i> )	Yes	<a href="#">species info</a>	Breeding
Willow Flycatcher ( <i>Empidonax traillii</i> )	Yes	<a href="#">species info</a>	Breeding

### **NWI Wetlands (USFWS National Wetlands Inventory).**

The U.S. Fish and Wildlife Service is the principal Federal agency that provides information on the extent and status of wetlands in the U.S., via the National Wetlands Inventory Program (NWI). In addition to impacts to wetlands within your immediate project area, wetlands outside of your project area may need to be considered in any evaluation of project impacts, due to the hydrologic nature of wetlands (for example, project activities may affect local hydrology within, and outside of, your immediate project area). It may be helpful to refer to the USFWS National Wetland Inventory website. The designated FWS office can also assist you. Impacts to wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes. Project Proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate [U.S. Army Corps of Engineers District](#).



U.S. Fish and Wildlife Service

## Trust Resources List

### Data Limitations, Exclusions and Precautions

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery and/or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Exclusions** - Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Precautions** - Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

*IPaC is unable to display wetland information at this time.*

**ATTACHMENT E**  
**Intergovernmental Agreement**  
**between Northern Water and Grand County**

**INTERGOVERNMENTAL AGREEMENT  
GRANBY HYDROPOWER PROJECT**

THIS INTERGOVERNMENTAL AGREEMENT is made and entered into effective December 16, 2014, by and between Grand County Board of County Commissioners ("Grand County") and Northern Colorado Water Conservancy District ("Northern Water").

**RECITALS**

WHEREAS, Grand County and Northern Water (referred to collectively as the "Parties") are political subdivisions of the State of Colorado; and

WHEREAS, Section 29-1-203, Colorado Revised Statutes, as amended, authorizes political subdivisions to enter into agreements which may be of mutual benefit to the parties; and

WHEREAS, the Parties desire to work in comity for the mutually beneficial Granby Hydropower Project located at Lake Granby in Grand County; and

WHEREAS, the proposed Granby Hydropower Project will include modifying the existing Granby Dam outlet tunnel to include a new penstock. Future dam releases will be conveyed through the penstock and discharged through a new outlet structure (located adjacent to the existing outlet) and 1,200 kilowatt power plant; and

WHEREAS, the Granby Hydropower Project will be permitted under the Bureau of Reclamation's Lease of Power Privilege policy, which allows for development of hydroelectric projects at Reclamation facilities. Northern Water is working with the Bureau of Reclamation to complete the required environmental and design review process. The final Lease of Power Privilege permit will be for a term of 40 years from the time power is generated.

NOW THEREFORE, in consideration of the premises and mutual promises and covenants set forth herein:

1. Northern Water will provide to Grand County a certification from a professional engineer (a member of the hydropower plant design team), registered in the State of Colorado, stating that the design and construction of the Granby hydropower plant building meets all applicable provisions of the Grand County

Building Code.

2. The Granby hydropower plant will produce power from water released through the Granby Reservoir. Outlet releases will be made, as required, to meet operational criteria and water delivery requirements dictated by existing agreements. Outlet releases will not be altered for the benefit of power production.

3. The tailrace from the hydropower plant will discharge upstream of the flow measuring device (flume) located in the Colorado River channel downstream of Granby Dam.

4. The hydropower plant will not be operated if the operation of the hydropower plant causes the elevation of water temperature in the Colorado River downstream of Granby Dam that would exceed applicable stream temperature standards for the aquatic fish species found in the Colorado River downstream of Granby Dam.

5. **AMENDMENTS.** This Agreement contains the entire agreement between the Parties relating to the subject matter hereof and may not be altered or amended except by written amendment approved and signed by all parties.

6. **MODIFICATION AND WAIVER.** No modification or waiver of this Agreement or any covenant, condition or provision contained herein shall be valid unless in writing and duly executed by all parties.

7. **BINDING AGREEMENT.** This Agreement shall be binding upon the parties hereto, the respective successors or assigns, and may not be assigned by any party without the express written consent of the other parties.

8. **TERMINATION.** Any party may terminate their participation in this agreement upon provision of thirty (30) days written notice to the other parties.

9. **NOTICES.** All notices that may be required or given pursuant to this Agreement shall be deemed to have been fully given when made in writing and deposited in the United States first class mail, postage prepaid, and addressed as follows:

Grand County  
Lurline Underbrink Curran  
County Manager

308 Byers Ave.  
P.O. Box 264  
Hot Sulphur Springs, CO 80451

Northern Colorado Water Conservancy  
District Eric Wilkinson, P.E.  
General  
Manager  
220 Water  
Avenue  
Berthoud, CO 80513

10. **SEVERABILITY.** If any portion of this Agreement is held by a court in a final, non-appealable decision to be per se invalid or unenforceable as to any of the parties, the entire Agreement shall be terminated, it being the understanding and intent of the Parties that every portion of the Agreement is essential to and not severable from the remainder.

11. **AUTHORITY TO ENTER INTO AGREEMENT.** The signatories to this Agreement affirm and warrant that they are authorized to enter into and execute this Agreement, and all necessary actions, notices, meetings and/or hearings pursuant to any law required to authorize its execution of this Agreement have been made.

THIS INTERGOVERNMENTAL AGREEMENT, made and entered into is to be effective on the date first set forth above.

SIGNATURES ON FOLLOWING PAGE

COUNTY OF GRAND, STATE OF  
COLORADO, by and through its Board of  
County Commissioners

By: *Gary Rungner*

ATTEST

By: *Jana K. Torane*

NORTHERN COLORADO WATER  
CONSERVANCY DISTRICT, by and  
through its Board of Directors

By: *Steve L. Larson*

ATTEST

By: *[Signature]*

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**ATTACHMENT F**

**Colorado State Historic Preservation Officer**

**Concurrence Letter**



21 January 2015

Anthony C. Curtis  
Supervisor, Environmental Resources Group  
Bureau of Reclamation  
Great Plains Region  
Eastern Colorado Area Office  
11056 West County Road 18L  
Loveland, Colorado 80537

Title:	PHS Copy
File Code:	ENV 8.00
Project:	245-16T
Control No.:	15002467
Folder ID:	1310174

OFFICIAL FILE COPY RECLAMATION E040	
DATE: JAN 26 2015	
ROUTE TO:	DEPT
B. Grant	BID
ROUTE COPY TO:	
T. Curtis	BID

AW 1/26/2014

RE Granby Hydropower Project, Grand County, Colorado (HC 467095)

Dear Mr. Curtis,

Thank you for the additional construction plans for the above named project provided via e-mail on 13 January by Carl Drouwer of the Northern Colorado Water Conservancy District. As the proposed construction has been minimized by building the powerhouse into the bank, as well as the effort to choose colors and materials of the building that will blend into the landscape, we concur that this project will result in *no adverse effect* to the Granby Dam.

Thank you for the opportunity to comment on this project. If you have any further questions please do not hesitate to contact Holly Norton, our Section 106 Compliance Manager, at 303-866-2680 or [holly.norton@state.co.us](mailto:holly.norton@state.co.us).

Sincerely,

for Edward C. Nichols  
State Historic Preservation Officer  
ECN/HKN



**ATTACHMENT G**

**Arapaho Tribe of the Wind River Reservation**

**Concurrence Letter**

# Hoinon'ainino'

Northern Arapaho Tribe  
TRIBAL HISTORIC PRESERVATION OFFICE

P.O. Box 67 - St. Stephens, Wyoming 82524 - PH: 307.856.1628 - narapahothpo\_2009@ymail.com

January 5, 2015  
Attention of:

United States Dept. of Interior  
Bureau of Reclamation  
Great Plains Region  
Eastern Colorado Area Office  
11056 West County Road 18E  
Loveland, CO 80537-9711  
Jacklynn Gould  
Brian Joseph  
[bjoseph@usbr.gov](mailto:bjoseph@usbr.gov)

Official File Copy	
File Code	ENV 3.00
Project	245-CBT
Control No.	15000742
Folder I.D.	1310174

OFFICIAL FILE COPY · RECLAMATION ECAO	
DATE: JAN 06 2015	
ROUTE TO:	DEPT
Bjoseph	1310
ROUTE COPY TO:	
TCurtis	310

Subject: "Granby Hydropower Project, Grand County, Colorado-Colorado-Big Thompson Project"

The office of the Northern Arapaho Tribal Historic Preservation Office has reviewed this project.

Project for review: Construction of hydroelectric plant, and ancillary facilities.

Our office would like to concur with the report/letter received from the Bureau of Reclamation (BOR) that of which "No Adverse Effect". At this time the Northern Arapaho THPO office believes there is currently there are no cultural resources significant to our tribe. This project can move forward; however if there are any inadvertent discoveries found, human remains, etc. please contact our office and provide a report.

Sincerely,

Yufna Soldier Wolf  
Cell Tower and Cultural Researcher  
[nathpotens@gmail.com](mailto:nathpotens@gmail.com)  
For  
*Darlene Contad*  
Tribal Historic Preservation Officer

**ATTACHMENT I**  
**U.S. Forest Service Letter**  
**dated February 12, 2015**

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**File Code:** 2720  
**Date:** February 12, 2015

Jean Johnston  
Mountain Parks Electric, Inc.  
PO Box 170  
Granby, CO 80446

Tara Piper  
Bureau of Reclamation  
11056 West County Road 18E  
Loveland, CO 80537

As we continue to coordinate with Mountain Parks Electric, Inc. (MPEI) on the Granby Dam Line Reconstruction Project, we are also continuing to coordinate with both MPEI and the Bureau of Reclamation (BOR) on the Hydropower Project.

**Granby Dam Power Line Reconstruction Project**

The Forest Service is continuing to move forward with the Granby Dam Power Line Reconstruction Project, including the environmental analysis and authorization process. There are some outstanding items that need to be resolved prior to executing a decision on the project. These include:

- Determining the final layout of the new power line
- USFS review and approval of the wetlands survey and report when provided by MPEI
- USFS review and approval of project work in or near wetlands when proposed by MPEI

Although it will not prevent a decision on this project, the USFS will conduct botany and archaeology surveys (additional archaeology survey may not be necessary depending on final power line location) prior to implementation of the project. This project remains on track for implementation in September 2015.

**BOR Hydropower Project and USFS Authorization of Electrical Service**

The BOR has requested that the USFS review and provide comments on their draft Environmental Assessment for the hydropower project. The USFS will provide comments by February 26, 2015. During the review process, the USFS has identified several project issues that I want to address in an effort to keep an open line of communication with MPEI and BOR.

As previously identified, the USFS is responsible for the environmental analysis and authorization of the new electrical distribution service for the hydropower project. We will use applicable information from BOR's environmental assessment for the USFS' environmental analysis and complete additional analysis as necessary. MPEI previously submitted a proposal for this project; however changes related to installation of the fiber optic cable from the Granby Substation to the new hydropower facility proposal have emerged.

Although we are aware of the proposed dedicated fiber optic line (located parallel to the electrical distribution line) from the USFS gravel pit down to the hydropower plant and potential fiber optic



route options near wetlands south of Lake Granby, a complete scope of work has not been submitted to the USFS nor have these changes been authorized. Dee Bartlett, Lands Staff, has shared with MPEI and BOR that until a complete scope of work is provided, we are not actively moving forward with authorizing MPEI to install electrical service or fiber optic cable to the hydropower plant.

I am also requesting that when the revised proposal is submitted that options in providing the communication service needed between the hydropower facility and Granby Substation be addressed. Options could include underground routes, use of wireless technology, and alternate access route options (i.e. provide service along the road leading to the dam). This will insure that adequate consideration is given to visual resources in the ANRA as outlined in the Arapaho and Roosevelt National Forests and Pawnee National Grassland 1997 Revision of the Land and Resource Management Plan.

Once a revised proposal, including fiber optic route options, is received, I will proceed with processing the proposal by conducting the appropriate level of environmental analysis, including any necessary field surveys, and issuance of a permit. When the proposal is received, I will also address whether the time frame for completing the environmental analysis and subsequent permit issuance allows for implementation of this part of the project in 2015.

In summary, even though these projects can be completed separate from each other and we are continuing to move forward with the power line reconstruction project, coordination on both projects will contribute to a more efficient process. Again, this letter is being sent to both MPEI and BOR to keep both entities informed of our position and continue open communications. If you have any questions or wish to discuss this further, please contact Dee at 970-887-4122 or [dkbartlett@fs.fed.us](mailto:dkbartlett@fs.fed.us).

Sincerely,

  
CRAIG MAGWIRE  
District Ranger

cc: Terry Stroh



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**ATTACHMENT I**  
**U.S. Forest Service**  
**Suggested Best Management Practices**

## Suggested Best Management Practices for BOR Hydroelectric Project

1. Obtain CWA 404 permit coverage from the U.S. Army Corps of Engineers when dredge or fill material will be discharged to waters of the United States.
2. Use the following measures, when applicable, to protect streams and riparian areas when preparing the site for construction or maintenance activities
  - a. Clearly delineate the work zone. Establish and maintain construction area limits to the minimum area necessary for completing the project and confine disturbance to within this area
  - b. Locate access and staging areas outside of work area boundaries, aquatic management zones, wetlands, and sensitive soil areas.
  - c. Refuel and service equipment only in designated staging areas and/or in construction
  - d. Maintain the natural drainage pattern of the area wherever practicable.
3. Develop and implement an erosion control and sediment plan that covers all disturbed areas, including borrow, stockpile, fueling, and staging areas used during construction activities.
  - a. Erosion control products must be made from 100% biodegradable non-plastic materials that either does not contain netting, or netting is non-plastic and loose-weave. Erosion control blankets and wattles must be manufactured of wood fiber.
  - b. Erosion and sediment control plan must include measures for removal of erosion control/sediment products upon successful revegetation
4. Provide for solid waste disposal and worksite sanitation.
5. Use the following measures to avoid or minimize impacts to sensitive aquatic management zones during construction:
  - a. Install sediment and stormwater controls before initiating surface-disturbing activities to the extent practicable
  - b. Maintain erosion and stormwater controls as necessary to ensure proper and effective functioning
  - c. Prepare for unexpected failures of erosion control measures; implement corrective actions without delay when failures are discovered to prevent pollutant discharge to nearby waterbodies
  - d. Routinely inspect construction sites to verify that erosion and stormwater controls are implemented and functioning as designed
  - e. Apply soil protective cover on disturbed areas where natural revegetation is inadequate to prevent accelerated erosion during construction or before the next growing season.
  - f. Promptly install and appropriately maintain spill prevention and containment measures
  - g. Minimize bank and riparian area excavation during construction to the extent practicable

- h. Limit operation of equipment when ground conditions could result in excessive rutting, soil puddling, or runoff of sediments directly into waterbodies
- i. Keep excavated materials out of streams and riparian areas
- j. Properly compact fills to avoid or minimize erosion
- k. Divert surface runoff around bare areas with appropriate energy dissipation and sediment filters.
- l. Control, collect, detain, treat, and disperse stormwater runoff from the site.
- m. Stabilize steep excavated slopes
- n. Balance cuts and fills to minimize disposal needs
- o. Remove all project debris from streams and riparian areas in a manner that will cause the least disturbance
- p. Identify suitable areas offsite or away from streams and riparian areas for disposal site before beginning operations
- q. Contour site to disperse runoff, minimize erosion, stabilize slopes, and provide a favorable environment for plant growth
- r. Establish designated areas for equipment staging, stockpiling materials, and parking to minimize the area of ground disturbance