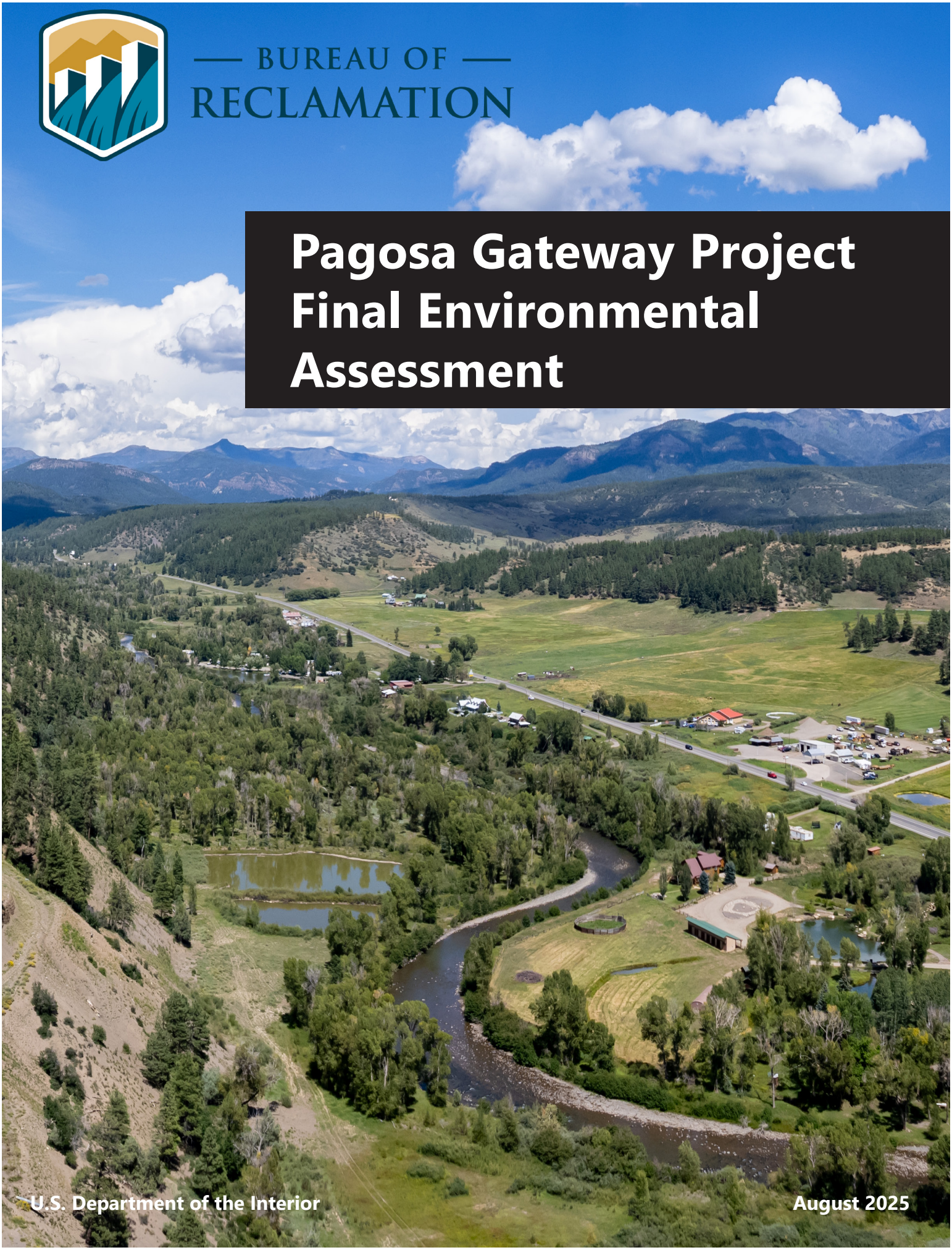
BUREAU OF RECLAMATION

Pagosa Gateway Project Final Environmental Assessment



U.S. Department of the Interior

August 2025

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

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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Pagosa Gateway Project Final Environmental Assessment

WaterSMART Program
Upper Colorado Basin: Interior Region 7
Western Colorado Area Office

August 2025

Prepared for Reclamation by DHM Design Corporation

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FINDING OF NO SIGNIFICANT IMPACT

United States Department of the Interior
Bureau of Reclamation
Interior Region 7: Upper Colorado Basin
Western Colorado Area Office
Grand Junction, Colorado

Pagosa Gateway Project

Introduction

In compliance with the National Environmental Policy Act of 1969[1] and the Department of the Interior's NEPA regulations at 43 C.F.R. §§ 46.10-46.450, the Bureau of Reclamation (Reclamation) has completed an environmental assessment (EA) for the Proposed Action of providing funding assistance through a WaterSMART Program grant to improve approximately 1.7 miles of the San Juan River immediately upstream of the Town of Pagosa Springs for the purpose of preserving aquatic habitat and recreation opportunities in the face of declining flows and warming temperatures.. See 42 U.S.C. § 4336 ("An agency shall prepare an environmental assessment with respect to a proposed agency action that does not have a reasonably foreseeable significant effect on the quality of the human environment, … Such environmental assessment shall be a concise public document prepared by a Federal agency to set forth the basis of such agency's finding of no significant impact or determination that an environmental impact statement is necessary."); see also 43 C.F.R. § 46.300. Under the authority of the WaterSMART Program, Reclamation will fund the Pagosa Gateway Project, and is the lead agency for purposes of compliance with the NEPA for this Proposed Action.

The EA was prepared by Reclamation to address the potential impacts to the human environment due to implementation of the Proposed Action. The EA is attached to this Finding of No Significant Impact (FONSI) and is incorporated by reference.

Alternatives

The EA analyzes the No Action Alternative and the Proposed Action Alternative to implement the Pagosa Gateway Project.

Decision and Finding of No Significant Impact

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[1] Executive Order 14154, Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. Reclamation verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum. Reclamation has also voluntarily considered the Council on Environmental Quality's rescinded regulations implementing NEPA, previously found at 40 C.F.R. Parts 1500–1508, as guidance to the extent appropriate and consistent with the requirements of NEPA and Executive Order 14154.

Reclamation's decision is to implement the Proposed Action Alternative. Based upon a review of the EA, Reclamation has determined that implementing the Proposed Action will not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not required for this proposed action. This finding is based on consideration of the degree of effects of the Proposed Action on the potentially affected environment, as analyzed in the EA.

Potentially Affected Environment

The project is located on the east side of the Town of Pagosa Springs in Archuleta County, Colorado. The affected locality is the 1.7 mile stretch of the San Juan River beginning on the east side of the Town of Pagosa Springs, extending northeast. Affected interests include Reclamation and adjacent landowners. The EA evaluates the effects on the potentially affected environment, which includes physical, ecological, and socioeconomic factors.

Summary of Effects

Table 1 provides a summary of environmental impacts, including cumulative impacts, for each of the resources evaluated in this EA

Resource	Proposed Action Impact Description	Impact Duration	Impact Intensity	Significance
Air Quality	Construction equipment emissions, dust/particulate matter generation	Short-term	Negligible	Insignificant
Transportation, Access, and Public Safety	Traffic delays due to increased traffic from delivery trucks, restricted access to the San Juan River during and pos-construction, long-term improved boater safety	Short-term Long-term	Negligible, Beneficial	Insignificant
Cultural Resources	No Impact	NA	NA	Insignificant
Noise	Construction equipment, people, and traffic noise	Short-term	Negligible	Insignificant
Vegetation	Permanent vegetation removal from excavation, grading, and other activities, temporary disturbance in peripheral areas of staging and access roads, and improved vegetation following restoration efforts	Short-term Long-term	Minor, Beneficial	Insignificant
Noxious Weeds	Spread of noxious weeds from construction, improved vegetation following restoration efforts	Short-term Long-term	Negligible, Beneficial	Insignificant
Wetlands	Temporary vegetation removal from restoration, excavation, grading, and other activities and improved vegetation following restoration efforts	Short-term Long-term	Negligible, Beneficial	Insignificant
Water Quality	Temporary impacts from erosion and sedimentation	Short-term	Minor	Insignificant

Resource	Proposed Action Impact Description	Impact Duration	Impact Intensity	Significance
Fish and Wildlife Resources	Temporary reduction in aquatic and terrestrial habitat availability, temporary direct impacts from chemical control of noxious weeds, temporary noise impacts, improved fish and wildlife habitat	Short-term Long-term	Negligible, Beneficial	Insignificant
Threatened and Endangered Species and Their Critical Habitats	Temporary reduction in aquatic and terrestrial habitat availability, temporary direct impacts from chemical control of noxious weeds, temporary noise impacts, improved fish and wildlife habitat	Short-term Long-term	Negligible, Beneficial	Insignificant
Recreational Resources	Temporary disruption of recreational access during construction, improved boater safety and recreational experience	Short-term Long-term	Negligible, Beneficial	Insignificant
Soils	Ground disturbance, soil compaction, erosion from construction, long-term soil stability improvements	Short-term Long-term	Negligible, Beneficial	Insignificant
Visual Resources	Presence of equipment and disturbance, improvement of scenic quality	Short-term Long-term	Negligible, Beneficial	Insignificant

Degree of the Effects

In determining the degree of effects of the Proposed Action, Reclamation has considered the following criteria. These criteria were incorporated into the resource issues and analyses described in the EA. See 43 C.F.R. § 46.310 ("The level of detail and depth of impact analysis should normally be limited to the minimum needed to determine whether there would be significant environmental effects.").

1. **Short and Long Term Effects.** The Proposed Action would have minor impacts on resources as described in Chapter 3 of the EA. Environmental commitments were incorporated into the design of the Proposed Action to reduce impacts. The predicted short-term and long-term effects of the Proposed Action are fully analyzed in Chapter 3 of the EA and are incorporated by reference here.

2. **Beneficial and Adverse Effects.** The Proposed Action would have a minor impact on resources as described and analyzed in the EA. Environmental commitments were incorporated into the design of the Proposed Action to reduce impacts. The beneficial and adverse effects of the Proposed Action are fully analyzed in Chapter 3 of the EA, and incorporated by reference here.

3. **Effects on Public Health and Safety.** The Proposed Action will have beneficial impacts on public health or safety. A full analysis can be found in section 3.2 of the EA, and is incorporated by reference.

4. **Effects that would violate Federal, State, Tribal, and local law protecting the environment.** The Proposed Action does not violate any federal, state, local, or tribal law, regulation, or policy imposed for the protection of the environment. In addition, the Proposed Action is consistent with applicable land management plans, policies, and programs. Federal, State, and local agencies and stakeholders were provided an opportunity to comment on the environmental analysis.

Environmental Commitments

The environmental commitments located in Chapter 4 of the Final EA will be implemented to further reduce the insignificant effects of the Proposed Action. Chapter 4 also states the authority for any environmental commitments adopted and any applicable monitoring or enforcement provisions. Chapter 4 of the Final EA is incorporated by reference.

Approved by:

Digitally signed by BART DEMING
Date: 2025.08.22 14:14:13 -06'00'

Bart Deming
Acting Area Manager, Western Colorado Area Office

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Acronyms and Abbreviations	
APE	Area of Potential Effect
AQI	Air Quality Index
BA	Biological Assessment
BMPs	Best Management Practices
Bureau	Bureau of Reclamation
CAA	Clean Air Act
CDPHE	Colorado Department of Public Health and Environment
CPW	Colorado Parks and Wildlife
cm	Centimeters
CMs	Conservation Measures
CWA	Clean Water Act
CWCB	Colorado Water Conservation Board
dB	Decibels
DPS	Distinct Population Segment
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
IPAC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLCD	National Landcover Dataset
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High-water Mark
PCEs	Primary Constituent Elements
ppm	Parts per million
SHPA	State Historic Preservation Office
SIP	State Implementation Plan
SSA	Species Status Assessment
SWFL	Southwestern willow flycatcher
TDS	Total dissolved solids
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VFRR	Void Fill Rip-rap
WEP	Upper San Juan Watershed Enhancement Partnership
YBCU	Yellow-billed cuckoo

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1 INTRODUCTION

This Environmental Assessment (EA) evaluates the potential environmental effects of the Town of Pagosa Springs' proposed Pagosa Gateway Project ("Proposed Action") and assesses its compliance with the National Environmental Policy Act (NEPA). The EA determines whether the Bureau of Reclamation (Reclamation), under their WaterSMART Program, should provide funding assistance for this Proposed Action, which aims to improve approximately 1.7 miles of the San Juan River immediately upstream of the Town of Pagosa Springs to preserve aquatic habitat and recreation opportunities in the face of declining flows and warming temperatures.

As the lead federal agency, Reclamation prepared this EA in compliance with NEPA and the Department of the Interior's NEPA regulations at 43 C.F.R. §§ 46.10-46.450. Following the public review period, Reclamation would decide on a Finding of No Significant Impact (FONSI) for the Proposed Action.

1.1 LOCATION AND LEGAL DESCRIPTION

The Proposed Action is located within Archuleta County, Colorado along the San Juan River at 7,140-7,170 ft in elevation (Figure 1). The stretch of river included in the Proposed Action spans approximately 1.7 miles, beginning on the east side of the Town of Pagosa Springs, extending northeast, towards Wolf Creek Pass. The San Juan River is located northwest of US-160 W and north of US-84 E. Private land and U.S. Forest Service (USFS) lands, San Juan Wilderness and San Juan National Forest, surround the Proposed Action. The Proposed Action is primarily located within the Jackson Mountain (22294) U.S. Geological Survey (USGS) 7.5-minute topographic quadrant with a small portion crossing into the Pagosa Springs (33908) quadrant.

1.2 PURPOSE AND NEED

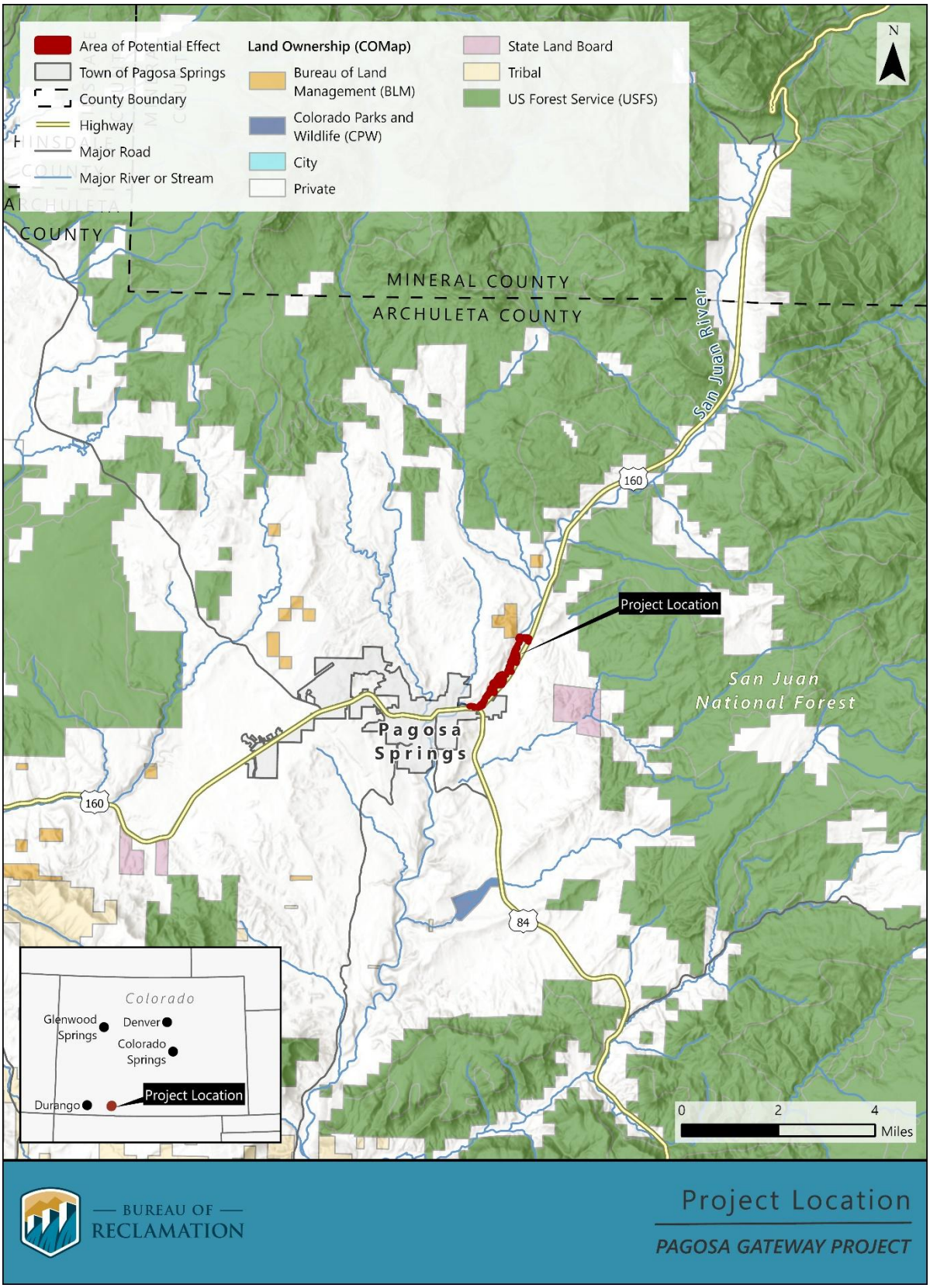
The purpose of the Proposed Action is to contribute to the WaterSMART Environmental Water Resources Projects objective of providing "benefits to ecological values or watershed health… as part of a collaborative process to… increase the reliability of water resources".

The need for the Proposed Action is to enhance the ecological health, resilience, and recreational value of the San Juan River while safeguarding its aquatic habitats and recreational opportunities in the face of changing climate conditions. A recent Upper San Juan River Watershed Partnership's (WEP) environmental and recreation (E&R) water supply needs assessment identified potentially significant changes in hydrology and limiting conditions for aquatic life in the section of the San Juan River included in the Proposed Action. Assessment results suggest late summer and fall flows may restrict the availability and quality of aquatic habitat for fish and other aquatic species, as well as the number of days in a year when recreational craft can successfully navigate this segment of the San Juan mainstem (Lotic 2021). Therefore, the Proposed Action objectives include the implementation of a series of interventions, including the creation of low-flow channels, promotion of bank stabilization, riparian vegetation enhancements, and fish passage improvements, as well as the removal of hazardous streambank materials to increase the resiliency of the San Juan River and its ability to support aquatic life and diverse water users. The mechanical and biological interventions proposed by the Proposed Action would respond to

the results of the E&R assessment and seek to offset the negative impacts of changing stream flows on environmental and recreational water needs. The Proposed Action includes the following goals:

1. Strengthen the San Juan River's resiliency for improved ecological health and recreation.
2. Safeguard aquatic habitats and recreational opportunities in the face of changing climate conditions.
3. Address hydrological shifts impacting aquatic and riparian life and recreational activities, including the creation of low flow channels to allow greater connectivity during late summer low flow periods.
4. Establish riffle and pool habitats to benefit native and recreational fish populations.
5. Reestablish riparian vegetation to provide shade and therefore reduce summertime stream temperature.
6. Reinforce riverbanks by promoting native vegetation to mitigate erosion.
7. To the extent feasible, minimize streambank hazards, enhancing safety for recreation.
8. Support Pagosa Springs' tourism-based economy linked to the river's well-being.
9. Enhance the aesthetic, ecological and recreational values of the San Juan River.

Figure 1. Project Location Map.



1.3 DECISION TO BE MADE

1.3.1 Background

1.3.1.1 Funding

Reclamation's WaterSMART Program is a primary source of funding for the Proposed Action. Through WaterSMART Water and Energy Efficiency Grants (formerly Challenge Grants), Reclamation provides 50/50 cost share funding to irrigation and water districts, tribes, states and other entities with water or power delivery authority. Projects conserve and use water more efficiently; increase the production of hydropower; mitigate conflict risk in areas at a high risk of future water conflict; and accomplish other benefits that contribute to water supply reliability in the western United States. Projects are selected through a competitive process and the focus is on projects that can be completed within two or three years.

A total of $1.25M has been awarded for this transformative project, through a combination of sources primarily from the Colorado Water Conservation Board (CWCB) Water Plan Grant Program and Reclamation's WaterSMART Program. Additionally, the Town of Pagosa Springs, Pagosa Springs Area Tourism Board (lodging tax funds), Southwestern Water Conservation District, The Nature Conservancy, San Juan Water Conservancy District, Trout Unlimited, and Friends of the Upper San Juan have contributed as local funding partners.

1.3.1.2 Relationship to Other Projects

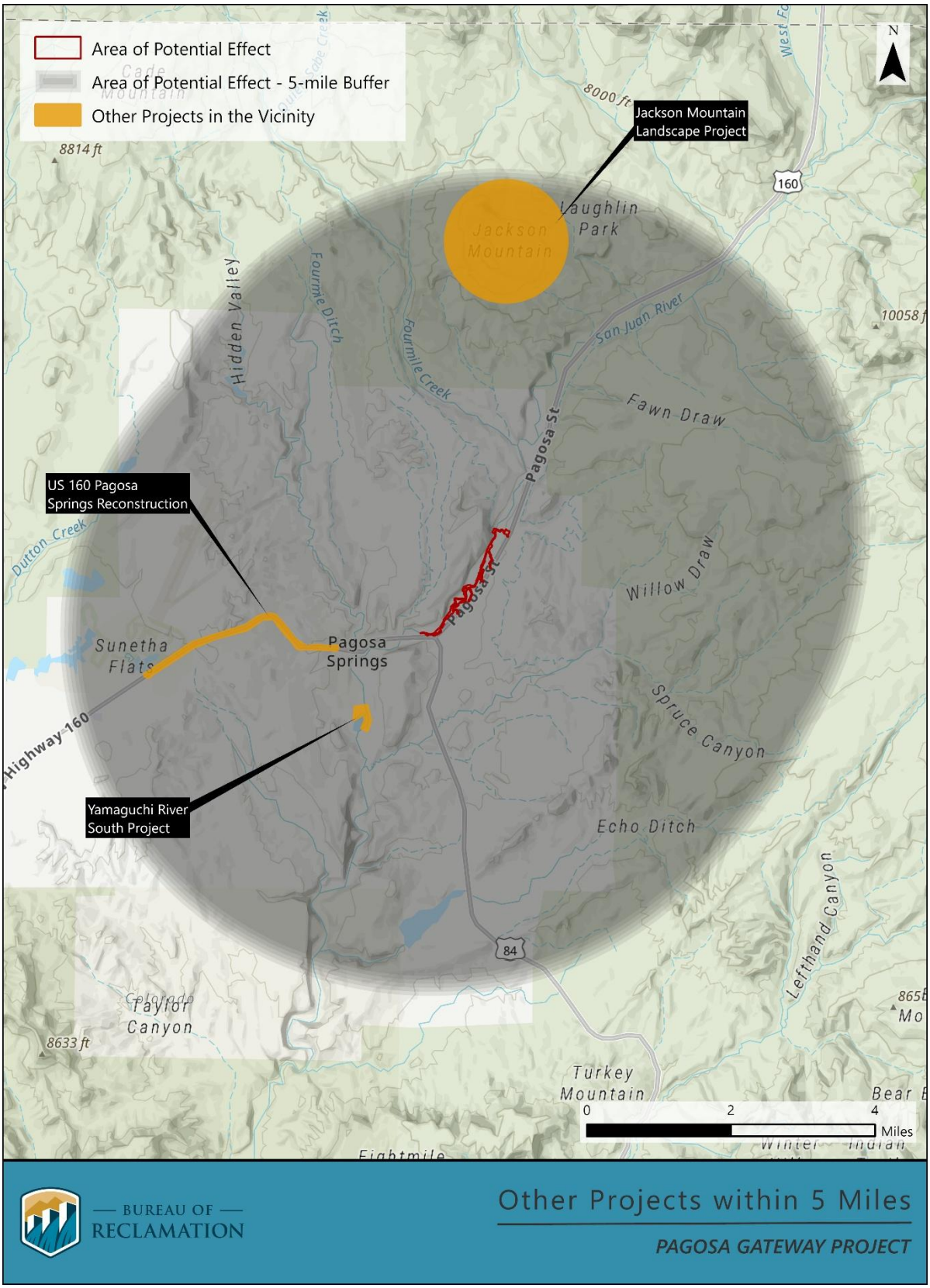
A review of nearby projects was conducted, including those managed by the USFS, Reclamation's WaterSMART Program, Colorado Department of Transportation, and local Archuleta County initiatives. These projects were evaluated to determine their potential interaction with the Proposed Action and to identify opportunities for collaboration. While some of these projects may contribute to broader regional environmental changes, none were identified as having the potential to create cumulative impacts in combination with the Proposed Action. Table 1 provides an overview of relevant projects considered in this analysis and Figure 2 displays their locations.

Table 1. Other Known Projects within 5-Miles.

Project Name	Project Description	Distance
Jackson Mountain Landscape Project – San Juan National Forest	Landscape level analysis of fuels reduction and vegetation management opportunities in the Jackson Mountain area.	4 miles
Yamaguchi South Project	Grant funding will be used for designing and installing various new and/or improved river access points (graded/gravel boat ramps, wading/swimming holes), channel features (sandbars, riffles, and pools) along the banks of the San Juan River that runs through Yamaguchi South, a town-owned public park.	1.3 miles
US 160 Pagosa Springs Reconstruction	The project occurs between MP 140.7 to MP 143.97 and will include: • Replace the current asphalt roadway with a new concrete road surface through the Pagosa Springs downtown business district.	1.2 miles

Project Name	Project Description	Distance
	• Concrete road surface between North 8th Street and North 1st Street • Pedestrian crosswalks with flashing signs installed near 3rd Street, 2nd Street and 6th Street • ADA improvements to sidewalk ramps • Additional pedestrian safety improvements at US 160 and Piedra Road intersection	

Figure 2. Other Projects within 5-miles.



1.3.1.3 Scoping

The Proposed Action scoping process was conducted to identify key issues, concerns, and potential impacts associated with the Proposed Action. Scoping involved early coordination with federal, state, and local agencies, as well as outreach to stakeholders, including tribal representatives, conservation organizations, and the public. Agencies such as Reclamation, USFS, U.S. Army Corps of Engineers (USACE), and Colorado Parks and Wildlife (CPW) were consulted to ensure regulatory compliance and integration with ongoing resource management efforts.

The scoping process also provided an opportunity for the public to submit comments, identify potential project concerns, and suggest project modifications to the project plans. Two (2) public meetings were conducted as part of the scoping process. The first public meeting was held May 23, 2024, and the second was held October 16, 2024. Project components including project goals, analysis and design and permitting were presented to the public. Issues raised during scoping included improved recreational access, riverine hydraulics, recreational opportunities, construction access and instream and riparian habitat improvements. Feedback received during this phase helped refine the project design, shape the range of alternatives considered, and inform the development of measures to avoid and minimize potential adverse effects.

1.3.1.4 Resources Considered But Not Carried Forward

An initial evaluation was conducted to determine which resources could be affected by the Proposed Action. Some resources were considered but ultimately not carried forward for detailed analysis because they are either not present within the Area of Potential Effect (APE) or would not be impacted by the Proposed Action or No Action Alternative. Table 2 provides a summary of these resources and the rationale for their exclusion from further analysis.

Table 2. Resources Considered But Not Carried Forward[2].

Resource	Reason for Elimination
Agricultural Resources	No agricultural resources overlap with the APE.
Land Use	Land Use would not change as a result of the Proposed Action.
Livestock Grazing	No livestock grazing occurs within the APE.
Water Rights	Water rights would not be affected as a result of the Proposed Action.
Indian Trust Assets	The APE does not contain any identified Indian trust assets or Native American sacred sites. Neither the Proposed Action or No Action Alternative would affect Indian trust assets or Native American sacred sites. Reclamation provided the Southern Ute Tribe with a description of the Project and a written request for comments regarding any potential effects on Indian trust assets or Native American sacred sites as a result of the Proposed Action Alternative, but no comments were received after a 30-day comment period.

[2] Executive Order 14154, Unleashing American Energy (Jan. 20, 2025), and a Presidential Memorandum, Ending Illegal Discrimination and Restoring Merit-Based Opportunity (Jan. 21, 2025), require the Department to strictly adhere to the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq. Further, such Order and Memorandum repeal Executive Orders 12898 (Feb. 11, 1994) and 14096 (Apr. 21, 2023). Because Executive Orders 12898 and 14096 have been repealed, complying with such Orders is a legal impossibility. Reclamation verifies that it has complied with the requirements of NEPA, including the Department's regulations and procedures implementing NEPA at 43 C.F.R. Part 46 and Part 516 of the Departmental Manual, consistent with the President's January 2025 Order and Memorandum.

1.3.1.5 Alternatives Considered But Not Carried Forward

As part of the NEPA process, a range of alternatives was considered to achieve the Proposed Action's purpose and need while minimizing environmental impacts. The development of alternatives was an iterative process, informed by stakeholder engagement, public input, and technical feasibility considerations. As the Proposed Action progressed toward the 100% design phase, several modifications were made to refine the Proposed Action, incorporating feedback from regulatory agencies, resource specialists, and community members. Some alternatives were initially evaluated but ultimately not carried forward for detailed analysis because they were determined to be technically infeasible, did not meet project objectives, or were more costly than the selected approach.

One option considered was a large bank stabilization effort, which would have required significant resources and was estimated to cost $500,000 more than the available budget. This improvement was deemed misaligned with the Proposed Action's overall goals, so a more ecologically-driven stabilization approach was incorporated instead.

Additionally, there are numerous pipes embedded in high-pull banks along the San Juan River. Removing these pipes would have been prohibitively expensive and would have required extensive bank reclamation, with a high likelihood of failure due to the disruption. Given these challenges, the decision was made to leave the pipes in place to avoid excessive costs.

Early design concepts also included enhanced deep-water aquatic refuge features. However, after further analysis and stakeholder input, some of these deep pools were eliminated from the designs due to cost and lower priority level compared to other improvements.

1.4 RELEVANT STATUTES, REGULATIONS, AND OTHER PLANS

The Proposed Action does not conflict with any known state or local planning or zoning ordinances. The Proposed Action is required to conform to the provisions of Section 7 of the Endangered Species Act (ESA) and the Migratory Bird Treaty Act (MBTA) as administered by the U.S. Fish and Wildlife Service (USFWS); Section 106 of the National Historic Preservation Act (NHPA) as administered by the Colorado State Historic Preservation Office (SHPO); Sections 401, 402, and 404 of the Clean Water Act (CWA); and Floodplain Management (Executive Order [EO] 11988). Environmental commitments and best management practices are incorporated in the Proposed Action and identified in Section 4, Environmental Commitments. This EA also reflects compliance with applicable regulations and statutes, as well as the following relevant statutes, regulations, and other plans:

- American Indian Religious Freedom Act of 1978 (42 United States Code [USC] 1996)
- Archaeological Resources Protection Act of 1979 (16 USC 470)
- Clean Air Act (CAA) of 1972, as amended (42 USC 7401 et seq.)
- CWA of 1972, as amended (33 USC 1251 et seq.)
- ESA of 1973 as amended (16 USC 1531 et seq.)
- Fish and Wildlife Coordination Act of 1958, as amended (16 USC 661 et seq.)
- Floodplain Management (EO 11988)

- NEPA of 1969, as amended (42 USC 4321 et seq.)
- Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500 et seq.)
- MBTA of 1918, as amended (16 USC 703–712)
- NHPA of 1966, as amended (16 USC 470 et seq.)
- National Pollutant Discharge Elimination System (NPDES), as amended (33 USC 1251 et seq.)
- Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.)
- Protection and Enhancement of the Cultural Environment (EO 11593)
- Protection of Wetlands (EO 11990)
- Procedures for Implementing NEPA (33 CFR 230; Engineer Regulation 200-2-2)
- Secretarial Order 3206, American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the ESA

2 ALTERNATIVES

Two alternatives are analyzed in this EA: the Action Alternative (Proposed Action) and the No Action Alternative. A discussion of the alternatives considered but not carried forth for analysis in this EA are also presented below with rationale for dismissal.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no river restoration activities would be implemented within the APE along the San Juan River in Pagosa Springs, Colorado. The existing conditions of the river, riparian shrublands, and associated habitats would remain unchanged. This alternative serves as a baseline for comparison with the Proposed Action and other alternatives.

2.2 PROPOSED ACTION

The proposed APE extends from approximately 37.2701° N, -106.9972° W to 37.2915° N, -106.9788° W and includes approximately 1.7 miles of the San Juan River (see Figure 1). The Proposed Action consists of the implementation of design elements for both instream and riparian vegetation interventions including the physical manipulation of the riverbed and stream banks to create low-flow channels, promote bank stabilization, enhance riparian vegetation, and improve fish habitat, as well as remove past infrastructure debris from the San Juan River.

2.2.1 Project Reaches

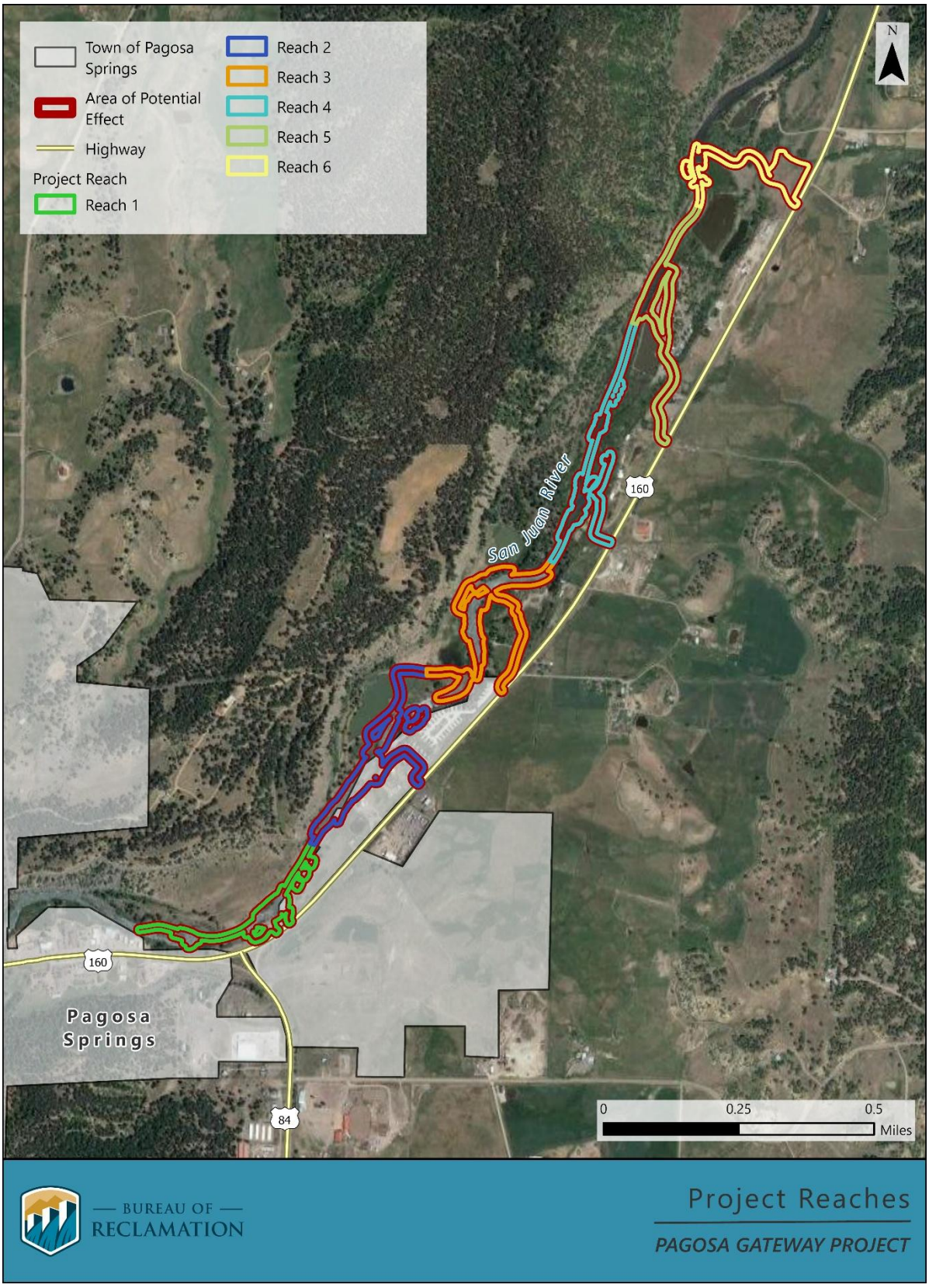
For this assessment, the 1.7 miles of river were broken into individual reaches and each reach was assigned a station range. There are six restoration reaches proposed within the APE. The APE includes restoration features, temporary access roads, staging areas, and a 25-foot buffer for all features. The total acreage of the APE for the six restoration sites is approximately 41.59 acres.

Total direct temporary and permanent impacts resulting from the Proposed Action below the ordinary high-water mark (OHWM) total 4.95 acres and above the OHWM total 0.29 acres. Table 3 provides an overview of the acres of disturbance associated with each reach based on the 100 percent designs. See full descriptions of the Proposed Actions within each reach described below under each reach heading. The terms "right" and "left" are used as a reference for either side of the river where right is the right bank and left is left bank looking downstream.

Table 3. Proposed Action components and acreages.

Reach	Total Area of Potential Effect (acres)	Total Area of Direct Impacts Below the OHWM (acres)	Total Area of Direct Impacts Above the OHWM (acres)
1 (3+00 to 24+00)	5.97	1.03	0.14
2 (24+00 to 43+00)	8.67	1.41	0.01
3 (43+00 to 66+00)	9.21	0.99	0.08
4 (66+00 to 86+00)	6.72	0.87	0.01
5 (91+00 to 99+00)	5.72	0.50	0.01
6 (105+00 to 113+00)	5.30	0.15	0.03
Total Acreage	**41.59**	**4.95**	**0.29**

Figure 3. Proposed Action and Project Reaches Map.



Reach 1 (3+00 to 24+00)

The following proposed interventions, described in more detail in Section 2.2.2 through 2.2.8, are included in this section of river:

- Boulders would be repurposed from another location and placed in channel
- Thalweg grading
- Placement of rock spurs
- Fill grading
- Vegetation restoration - includes willow harvesting from the right bank of the river in this area to improve the existing vegetative health and provide materials for other areas of the Proposed Action.
- Access for heavy and light equipment
- A staging area totaling 0.08 acres is planned for an existing parking lot

Reach 2 (24+00 to 43+00)

The following proposed interventions, described in more detail in Section 2.2.2 through 2.2.8, are included in this section of river with a goal of improving low flow conditions, improve low flow boat passage, improve fishery connectivity and aquatic habitat, improve hydrological function, and improve the stability of the river banks:

- Void fill rip-rap (VFRR) and habitat bank stabilization
- Fill grading
- Placement of rock/habitat structures
- Placement of rock spurs
- Pool grading
- Vegetation restoration and creation of riparian viewshed access
- Access for heavy and light equipment

Reach 3 (43+00 to 66+00)

The following proposed interventions, described in more detail in Section 2.2.2 through 2.2.8, are included in this section of river with the goal of improving boater passage, aquatic habitat, and fishery connectivity:

- Vegetation restoration and creation of riparian viewshed access
- Debris removal revegetation
- Rock structure/habitat
- Fill grading
- Pool grading
- Thalweg grading
- Access for heavy and light equipment
- Access for heavy and light equipment to the left bank of the river would be provided between 58+50, through a private parcel of land.

Reach 4 (66+00 to 91+00)

The following proposed interventions, described in more detail in Section 2.2.2 through 2.2.8, are included in this section of river with the goal of improving boater passage, aquatic habitat, hydraulic structures, and riparian vegetative health:

- Rock structure/habitat
- Fill grading
- Pool grading
- Thalweg grading
- Vegetation restoration
- Addition of rock spurs
- Light equipment access

Reach 5 (91+00 to 105+00)

The following proposed interventions, described in more detail in Section 2.2.2 through 2.2.8, are included in this section of river, with the goal of improving low-flow boat passage, fishery connectivity, aquatic habitat and riverside resilience:

- Fill grading
- Thalweg grading
- Vegetation restoration
- Light equipment access

Reach 6 (105+00 to 113+00)

The following proposed interventions, described in more detail in Section 2.2.2 through 2.2.8, are included in this section of river with the goal of improving bank stabilization, hydraulic structure, aquatic habitat, and river resilience and benefitting the geomorphic trajectory of the river flow:

- Fill grading
- Thalweg grading
- Vegetation restoration
- Rock structure/habitat
- Pool grading
- Addition of rock spurs
- Access for heavy and light equipment
- A staging area totaling 1.5 acres

Figure 4. PGP Proposed Action - Reach 1.

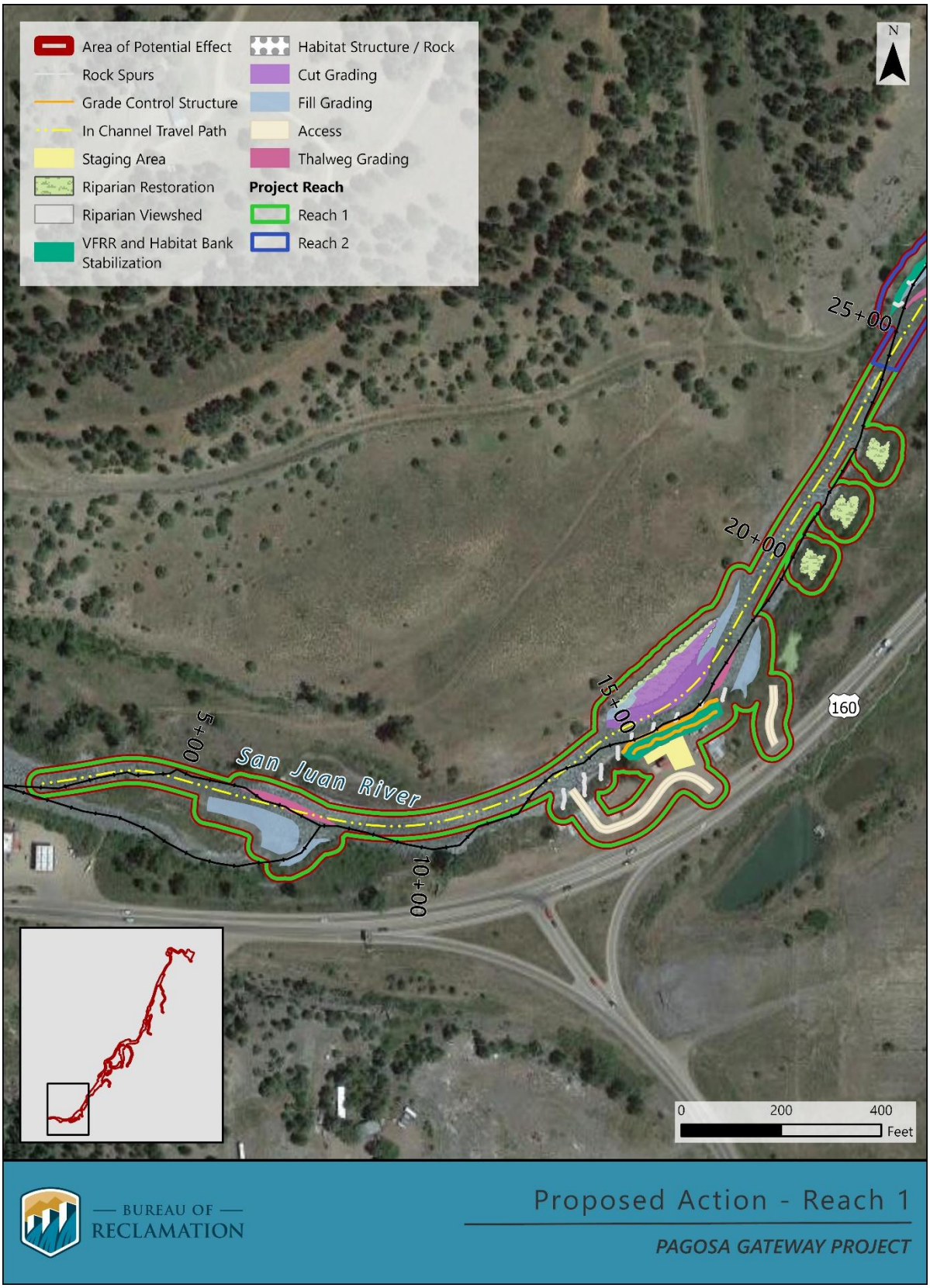


Figure 5. PGP Proposed Action - Reach 2.

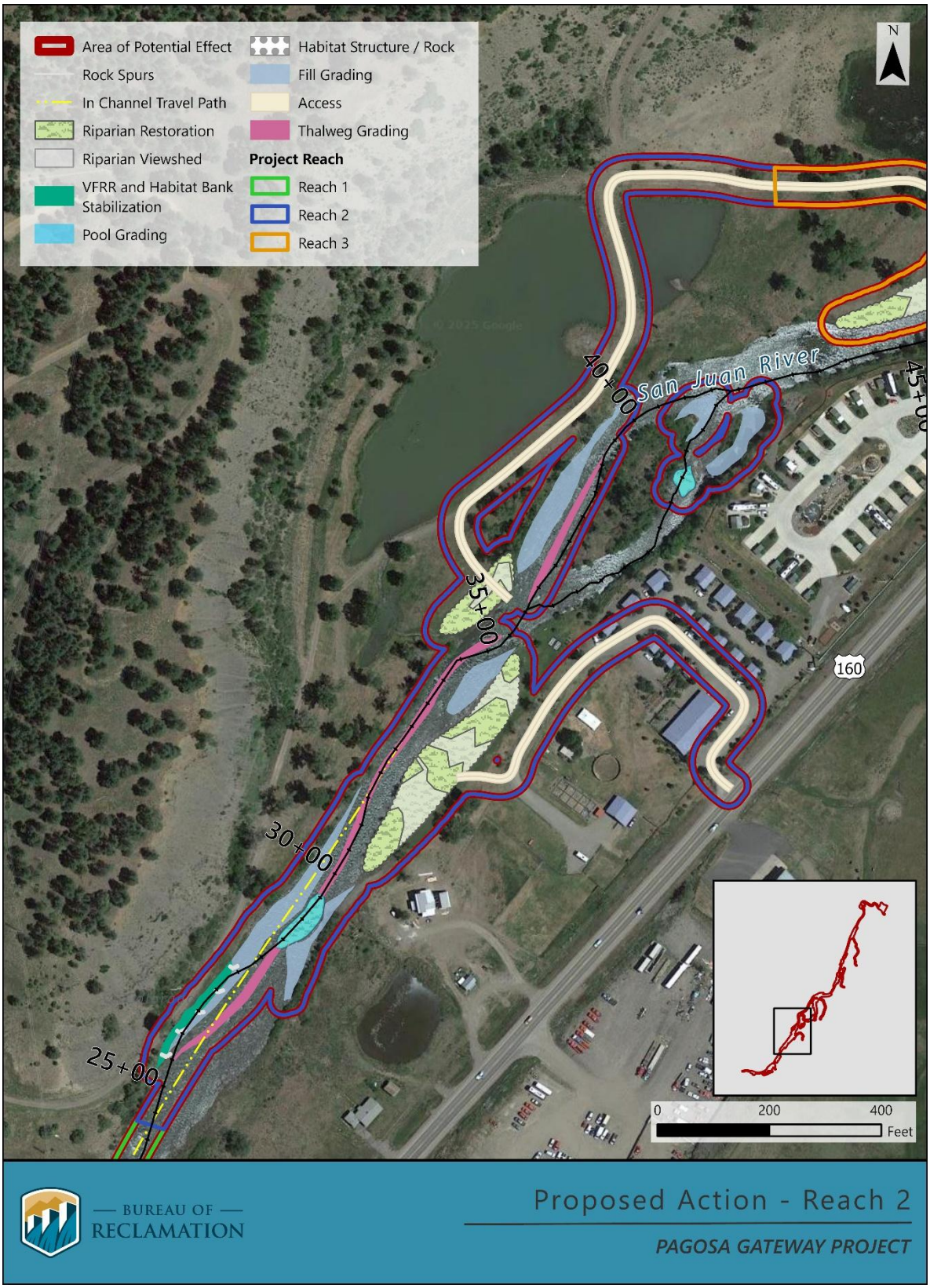


Figure 6. PGP Proposed Action - Reach 3.

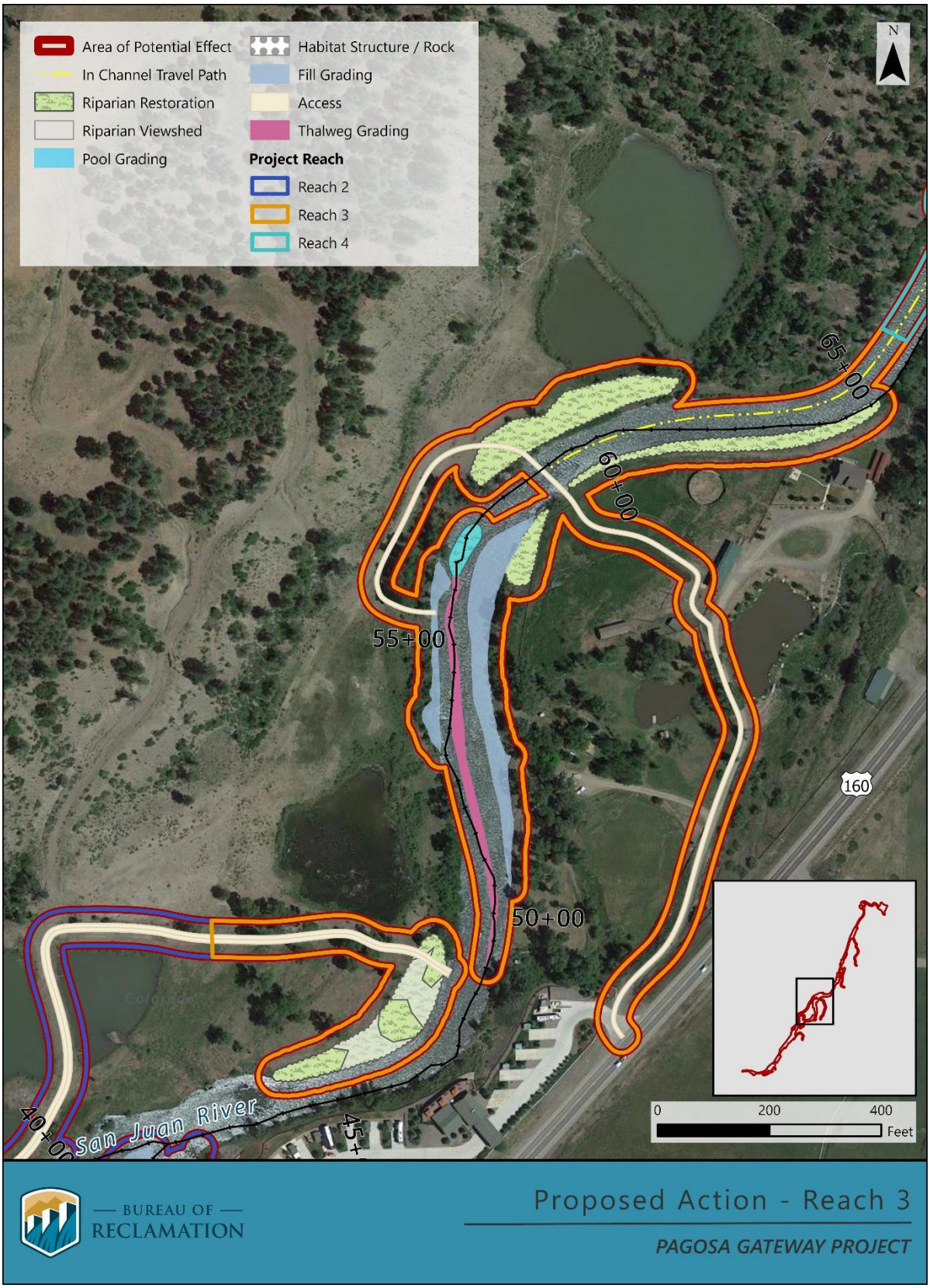


Figure 7. PGP Proposed Action - Reach 4.

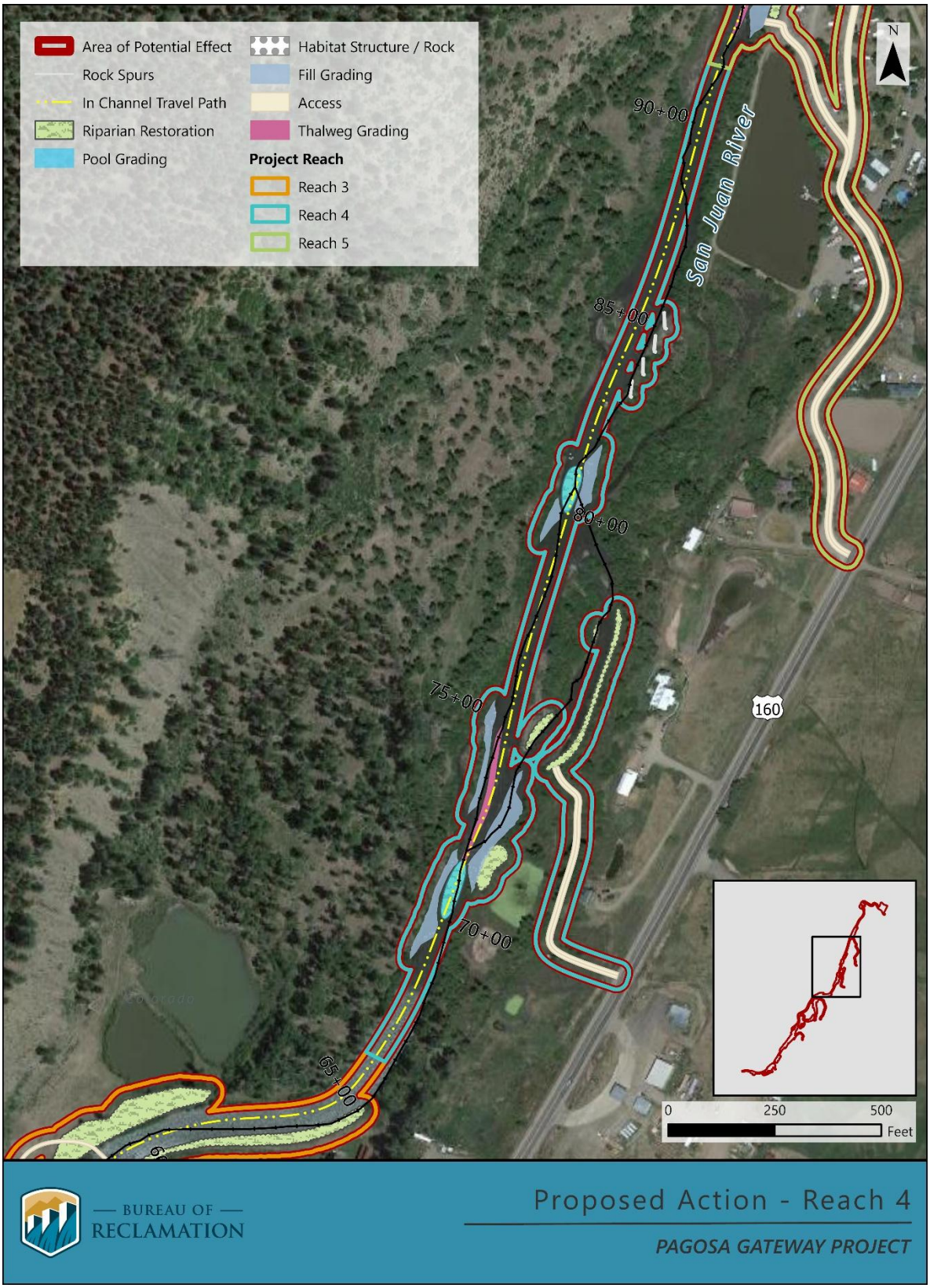


Figure 8. PGP Proposed Action - Reach 5.

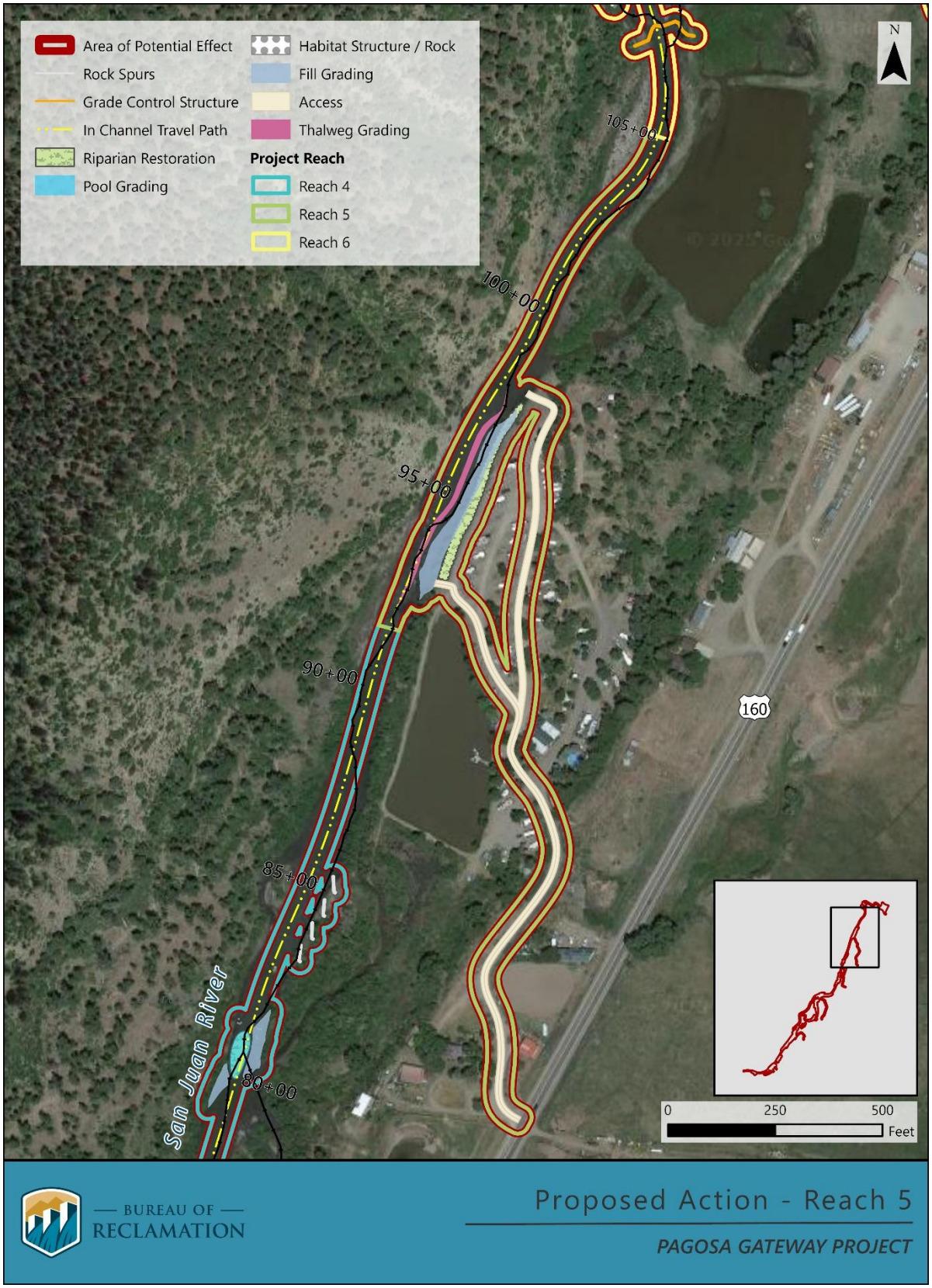
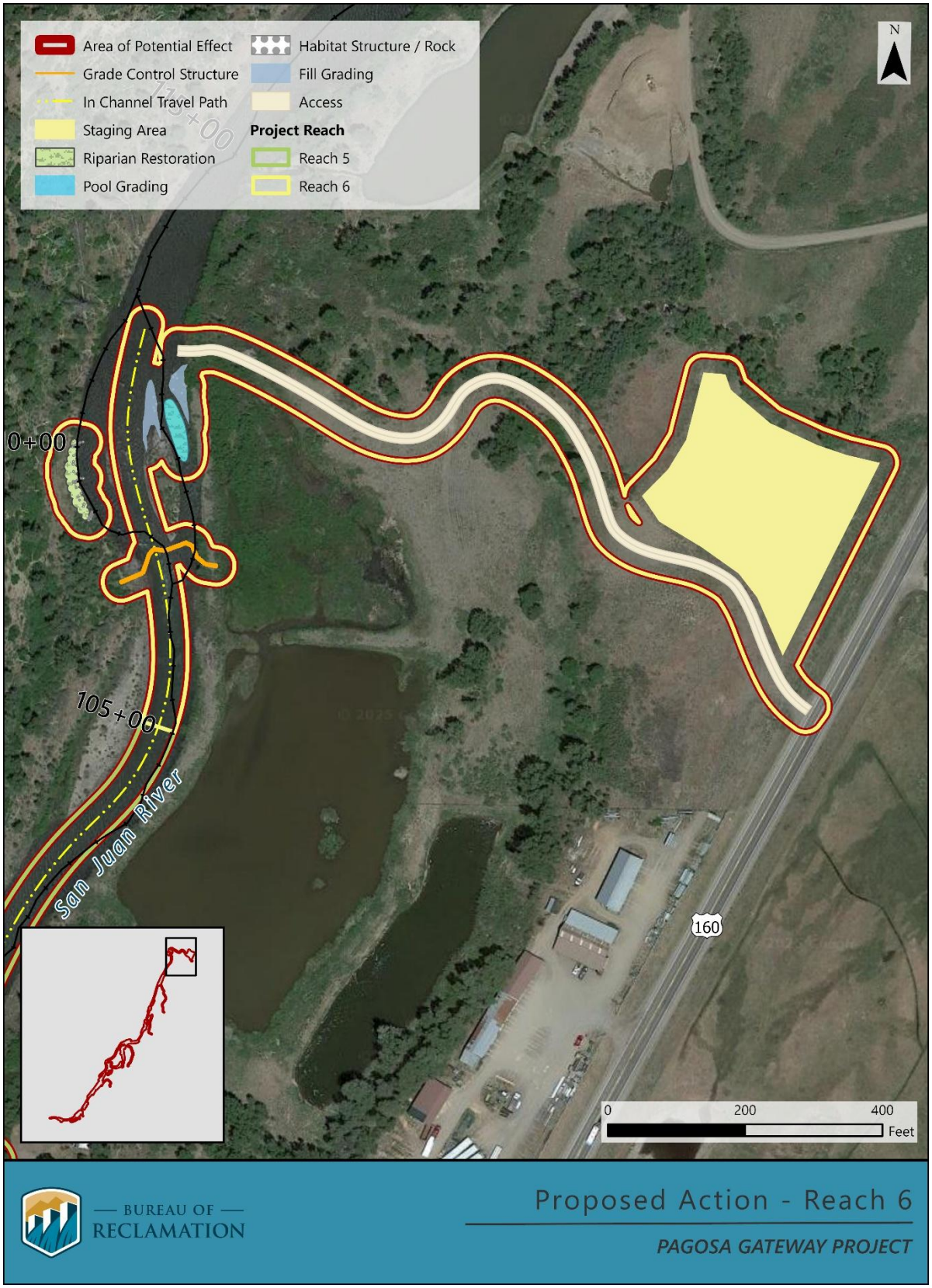


Figure 9. PGP Proposed Action - Reach 6.



2.2.2 Materials and Construction

2.2.2.1 Construction Plan

The initial construction actions for the Project would begin September 1 and include the creation of a primary staging yard within Reach 6 (Figure 9). After receiving equipment and installing erosion control measures, materials would begin to arrive via semi-trucks. These materials would then be loaded into tandems and delivered to the other two downstream access points. Construction activities would occur concurrently, while this material is distributed into the channel via rubber tracked haul trucks for use in specific treatments at the designated locations and cached as described below. Bank revetment treatments in Reaches 1 and 2 would be the first primary build focus after material import and staging are completed.

Channel grading associated with the bank treatments would be performed in the immediate areas creating a completed section to facilitate a clean tie-in point for the next Project phase. Channel grading consists of stripping the existing bed armor and underlying substrate from the river channel in layers and then placing those materials in their most beneficial locations associated with the proposed design. After the channel is graded, the bank stabilizations treatments are built by first constructing an irregular rock toe, with void filled rip rap layered with tubed willow stakes to follow. These treatments are then blended into the surrounding environment with seeded, native soils placed above the ordinary high water mark.

The next phase is the overall benthic reshaping of the stream bed with two excavators, each addressing treatments in Reaches 5 and 6 and Reaches 3 and 4. These machines would continue to leapfrog, progressing downstream until the design has been implemented. Riparian revegetation efforts follow this build progression and would be completed per the design in downstream progression. The overall Project schedule is listed below, in Table 4.

Table 4. Construction Schedule.

Description	Dates
Transport of materials, use of heavy equipment, river work, and vegetative restoration	September 1 – December 1
Vegetative restoration	March 1 – May 1

2.2.2.2 Equipment Access and Material Stockpile Areas

Primary access would be at three locations. The upstream of Reach 6 (Figure 9) would contain a primary access point for Reaches 5 and 6 in addition to the primary staging yard for the Proposed Action, located in the upland area adjacent to Highway 160. This location has the spatial ability to receive semi-trucks delivering materials. This imported rock would be moved to the other two access points at Reach 3 (Figure 6) and Reach 1 (Figure 4) via tandem dump trucks. Materials delivered to Reach 3 access would immediately be distributed in Reaches 3 and 4. Materials delivered to Reach 1 would be immediately distributed to Reaches 1 and 2. All materials would be distributed to their respective installation points via the river channel utilizing track trucks to minimize the ecological impact to the stream bed. Temporary river stockpiles would occupy these locations as narrow windrows placed in line regarding river flow within the OHWM. Some construction equipment expected to be used include hydraulic excavators, track trucks, front-end loaders, tractor trailer end dumps, tandems, mini excavators, and skid steers.

2.2.2.3 Material Description

Primary construction materials for the Proposed Action would consist of rock and aggregate materials, and vegetation. Imported rock in the form of large boulders and more angular riprap would be used in conjunction with cobble, silts, and sands, either imported or sourced onsite from channel grading.

Native vegetation would consist of nursery grown container stock, cuttings and whole transplants, and seed and possible soil amendments. In addition to natural materials, manufactured geotextile, erosion control fabric, biologs, and weed free mulch would be imported and used in bank stabilization areas and to provide temporary erosion control.

2.2.2.4 Monitoring and Reporting

Monitoring and reporting would focus on three main Proposed Action objectives: survival of vegetation, increase in recreational opportunities, and aquatic health. Monitoring of vegetation would be performed by a private third-party consultant who would conduct green-line surveys and determine percent survival and recruitment rates of installed vegetation. Surveys among the boating community would be conducted to evaluate improvements in low-flow navigability and increases in floatable days. Fish counts would be conducted by CPW or an approved third-party consultant to monitor post-project aquatic health.

2.2.3 Vegetation Removal

Vegetation clearing would be necessary for access, staging, vegetation improvements, and installation of river improvement features. Vegetation within the APE consists of a variety of vegetative communities, ranging from ruderal disturbed riparian vegetation and Kentucky bluegrass (*Poa pratensis*) lawns (uplands) to native willow carr habitats in the riparian floodplain of the San Juan River. All vegetation removal would be restored following methods outlined in the next section.

Vegetation removal would include the removal of vegetation within the construction site with some subsurface disturbance of the vegetation roots dependent on the extent of construction. Due to the various extents of ecological and river degradation on-site, vegetation removal would vary alongside the required treatments. Levels of vegetation removal and impacts are included below:

- **Access routes and staging**: Herbaceous vegetation degradation and soil compaction via equipment access and materials storage. Mid-canopy vegetation would not be impacted to the extent practical. Minor impacts may occur when accessing restoration and staging areas. When accessing the riverbank zone, restructuring and total vegetation removal would occur. Where practical, mats, logs, or other structures would be placed over vegetation to avoid excess disturbance.
- **Bank restructuring**: In areas where bank restructuring is required, all present vegetation would be removed prior to treatment installation. This includes herbaceous through upper canopy vegetation removal for grading, intensive bioengineering (toe-wood, log jams, etc.), rip rap installation, infrastructure removal (Detroit rip rap), and bank slope stabilization.
- **Noxious species removal**: Vegetation removal would vary based on the extent of non-native vegetation present. For monocultures of non-native species (i.e. Kentucky bluegrass), all vegetation would be treated immediately prior to revegetation activities. In less dense areas, noxious species would be treated based on species and population .

- **Canopy opening**: Vegetation and structural diversification are recommended in areas of dense willow stands. Mid-canopy willow pockets would be removed at the root ball to be saved as transplants and replanted on-site elsewhere. To do this, an approximately 3' x 3' root ball would be excavated with a few feet depth of soil and subsequently revegetated with diverse vegetation.

No native trees would be removed as part of the Proposed Action. Some large, non-native trees (i.e. Russian olives [*Elaeagnus angustifolia*], crack willow [*Salix fragilis*]) would be removed and may be used for large woody debris or mulch within the APE.

2.2.4 Vegetative Restoration (Revegetation)

The Proposed Action includes areas of disturbance that require restoration, and existing areas where vegetation is in poor condition and restoration efforts target the areas to enhance vegetative health.

Targeted vegetative restoration aims to enhance the recovery, diversity, and long-term sustainability of native plant communities in the APE. The proposed methods prioritize ecological integrity, climate and habitat resilience, and the support of habitat requirements for sensitive wildlife species. The approach includes a combination of mechanical site preparation, use of native species for revegetation, soil surface protection, and adaptive management practices to achieve restoration goals.

2.2.4.1 Site Preparation

Mechanical site preparation would be conducted to deter invasive plant species presence and promote site specific soil conditions for native vegetation. Techniques that would be used in identified revegetation zones include:

- **Removal of biomass**: This action would occur on a treatment-specific basis to remove non-native species, grade the site, and during other activities that would require groundwork. Mulch would be used to reduce erosion and maintain organic content, depending on the specific site conditions. Native species removal would be stockpiled and stored so that it can be re-used as topsoil, mulch, or transplant material.
- **Soil amending**: With additional soil sampling and assessment, soils would be amended with the proper nutrients, microbes, and soil organic matter suitable for native restoration in the various areas (i.e. riparian, upland) of the APE. Granular soil amendments and nutrients are tailored to the site, using minimal nitrogen as to not promote weed germination. In upland areas, a soil amendment similar to Richlawn 7-2-1 at 300 lbs./ac would be used. To the extent practical salvaged wetland or riparian soil would be used in wetland and riparian areas (maintaining hydric soil properties) with minimal amendments. In areas low in soil organic matter, compost would be incorporated to 6" at a rate of 60 – 130 cy/ac.
- **Soil decompaction and scarification**: Overly compact soils would be ripped to a depth of 12" to ensure proper soil tilth and increase germination. All seeded areas would be disced to prepare the surface immediately prior to seeding. To avoid loss of nutrients and excessive evaporation from soils, seeding would occur within 24 hours of ripping/discing. Seed would then be sown, the soil would be roller packed to ensure good seed to soil contact, and soil surface protection would be installed.

- **Temporary erosion control**: Temporary disturbances, such as soil displacement and increased erosion risk, would occur during the site preparation phase. Proper measures such as straw waddles and rock socks would be utilized to prohibit excessive erosion.

2.2.4.2 Revegetation

Following all grading, infrastructure installation, and site/soil preparation, a variety of revegetation methods would be utilized. Native seed mixes and plant palettes for riparian, wetland, and upland areas were selected specifically for this site. Local ecotype plant sources would be prioritized to ensure genetic compatibility when available.

Various levels of container plantings and cuttings would be included to increase species and structural diversity on-site. Depending on the restoration area, the extent and canopy levels of plantings would vary. For example, where full bank restructuring would occur, a diverse mix of herbaceous (10 ci) forb and grass containers, shrubs (D60/D180/cuttings), and trees (D180/cuttings) would be installed in the appropriate locations. For many restoration areas where only structural diversity and bank stability improvements are needed, a variety of cuttings, shrubs, and tree container plants would be installed. Location specific plantings are based on the current composition of the site and hydrologic conditions. Appendix A extensive lists of species that may be used in the identified revegetation efforts.

Seed mixes in Appendix A include a diversity of grasses and forbs that provide structural and functional diversity. Species percentages are chosen with plant ecology succession in mind, such that "workhorse" species provide quick establishment and allow other species to germinate over time. All seeding would be completed between October 1 and April 1 with the priority being in the fall – early winter.

Seed would be hand broadcast at the rates listed on the seed mixes above. Immediately following seeding, all seed would be incorporated into the soil at the appropriate depth. Upland seed would be harrowed, and wetland/riparian seed mixes would be hand raked to ensure it is not buried too deep as sunlight is needed for some species to germinate. All seeded areas would be roller packed to firm the soil so that proper seed to soil contact is ensured.

All species are subject to change based on availability, weed content, and cost during the time of materials sourcing.

2.2.4.3 Soil Surface Protection

All revegetation areas would be covered with the proper erosion control measures to ensure soil surface protection. The chosen methods would also increase soil moisture content, reduce temperatures, and add organic matter so that native plant survivorship increases. All D180 container plants and larger would be protected with a layer of mulch around the stem and wildlife protection to increase survivorship. Seeded areas would have the measures implemented as outlined in Table 5.

Table 5. Soil Surface Protection Specifications in Seeded Areas.

Item	Rate	Depth	Location
Weed-free Ag straw (crimp). Guar @ 60 lbs./ac	3,000 lbs./ac	3-5" crimp	All seeded areas <30% slopes

Item	Rate	Depth	Location
CC4 Erosion control blankets (8″ ecostakes)	N/A	N/A	Upland seeded areas >30% slopes
Koir 700 (on top of straw, 18-24″ wedge stakes) OR Koir 1000	N/A	N/A	0.5′ below OHWM to 8′ above OHWM in all full riparian restoration areas

2.2.5 Adaptive Management / Noxious Weed Control

An adaptive management plan would outline specific approaches, strategies, and protocols related to the post-restoration care. The plan would outline the process of the determined site monitoring strategy, designed to inform weed management, site protection, and other maintenance treatments (e.g., reseeding, planting, bank protection, erosion control, etc.) necessary to accomplish the Proposed Action's restoration goals.

2.2.5.1 Monitoring

A monitoring program would evaluate the success of vegetation establishment and identify emerging threats such as invasive species reinvasion. Monitoring would use subjective (i.e., qualitative) or objective (i.e., quantitative) methods to help identify failures due to potential stressors, such as drought, insect damage, flooding, and herbivory, and to inform maintenance needs. Subjective methods, such as repeat photography or categorical monitoring forms, would effectively document site changes and quickly inform maintenance activities necessary to correct problems. Conversely, quantitative monitoring is more data-driven and aims to measure outcomes through science-based methods designed to minimize observer bias. Methods such as line-point-intercept and survivorship counts would provide data that can be analyzed accurately over time.

A combination of subjective and objective methods is proposed to balance cost effectiveness with objectivity. To strike this balance, the monitoring strategy would integrate some categorical observations (i.e., high, moderate, low, none; or scoring 0-5 for various element conditions) into rapid assessments. Repeatable and consistent methods would be employed during the monitoring period. As personal and management circumstances change over time, data would be collected and managed in a way that can be easily understood and interpreted by a variety of future land managers and practitioners.

A variety of metrics including vegetation cover, species composition, revegetation survivorship, noxious weed assessments, and soil stability assessments would be utilized. Subsequent treatment strategies would be implemented as needed, such as supplementary seeding, erosion control, spot treatments for invasive species, or additional soil amendments.

2.2.5.2 Noxious Weed Control

Noxious weed control would occur as part of the Proposed Action to reduce the spread of invasive plant species, promote the recovery of native vegetation, and support overall ecosystem health. An initial assessment would identify the type, extent, and density of noxious weed infestations. Surveys would be conducted during the peak growing season to ensure accurate identification. GIS tools would be used to map species density and phenology and prioritize management areas based on ecological risk and proximity to sensitive habitats.

A combination of methods would be employed based on species-specific conditions, site constraints, and permission from landowners. Preventative, cultural, mechanical, chemical, and

biological controls would be considered for control efforts. To prevent the introduction or spread of noxious weeds, environmental commitments would be adhered to, as outlined in Section 4.

2.2.6 Debris Removal

The Proposed Action APE contains several embedded large objects within the APE including concrete rubble and sections of metal pipe. Methods to remove the objects aim to minimize ecological disturbances.

- **Manual Removal:** Small items would be removed by hand or using basic tools to minimize habitat disturbance.
- **Mechanical Extraction:** Larger debris, such as concrete debris and metal pipe, would be removed using excavators and loaded into haul trucks or loaders to be disposed of off-site.
- **Capping and Covering:** In order to avoid inadvertently releasing any potential pollutants into flowing or standing water, there is no plan to remove entire auto bodies or mechanical debris which was historically used to stabilize banks. Banks which have been stabilized using crushed auto bodies would be covered with void filled riprap and planted to establish vegetation**.**

Areas disturbed during removal activities would be restored to pre-removal conditions or improved. Restoration efforts include replanting riparian vegetation to stabilize banks and reintroducing natural substrate materials to restore riverbed structure.

2.2.7 Dust Abatement

Dust abatement typically occurs on access routes and in APEs during implementation when there is not sufficient moisture in the soil to inhibit the formation of dust. Dust abatement involves the distribution of water onto an earthen surface. Vehicle tracking pads would be installed at the junction of dirt to pavement surface leaving the staging yard on Reach 6 to remove any loose soil or mud from truck tires minimizing the spread of dust source. Additionally, if dust becomes a concern while hauling spoils and construction materials to and from the site, roads would be wetted with water obtained from the San Juan River Basin.

2.2.8 Access Roads and Staging Areas

If necessary to ensure safe and convenient access, road improvements (e.g., clearing, trimming, blading, widening, , etc.) would be made to the dirt roads designated as access routes at each site (see Figure 4 - Figure 9). Vegetation impact on the site is minimal in the chosen heavy equipment access points. Upstream access on Reach 6 is already established and is currently in use for an irrigation diversion. The mid-point access on Reach 3 vegetation is a light mix of willows and grasses as the landowners on river right and river left banks regularly mow their respective properties in this area right to the water's edge. The access point on Reach 1 is from a streamside parking lot and is less than 50 linear feet from the river. Any clearing necessary would be minimal and these willows would be salvaged for transplant. Access points would be kept to those called out in the plans and would contain a minimal footprint of 15-foot width. All access points would be reclaimed after use. Two staging areas would be used to temporarily store construction materials and equipment (Figure 3). The southernmost staging area is located in what is currently an un-vegetated gravel parking lot. The larger northern staging yard is located in an area cleared for sensitive resources and currently contains low quality vegetation. Staging areas and access roads would be reseeded where necessary after construction with an approved weed-free, upland seed mix.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes the current condition of resources in the study area that may be affected by the Proposed Action. Resources and related topics include air quality, transportation, access, and public safety, climate change, cultural resources, noise, vegetative resources, noxious weeds, wetlands, water quality, fish and wildlife, threatened and endangered species, recreational resources, soils and farmlands, and visual resources. This section of the EA also evaluates direct, indirect, and cumulative impacts to all resources evaluated. Both the Proposed Action and No Action Alternative are evaluated.

Potential impacts are described in terms of duration (short-term or long-term) and intensity. Short-term impacts generally last between one and five years, while long-term impacts last beyond five years. The thresholds of change for the intensity of a potential impact are defined as follows:

- No Impact – There is no detectable impact.
- Negligible – The impact is at the lowest level of detection.
- Minor – The impact is slight, but detectable.
- Moderate – The impact is readily apparent.
- Major – The impact is a severe or adverse impact or benefit.

This chapter also analyzes the potential cumulative impacts that would result from the Proposed Action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions.

3.1 AIR QUALITY

3.1.1 Affected Environment

The CAA requires each state to maintain a State Implementation Plan (SIP) for achieving compliance with the National Ambient Air Quality Standards (NAAQS) (EPA 2013). It also requires the Environmental Protection Agency (EPA) to designate areas (counties or air basins) as being in attainment or nonattainment with respect to each criteria pollutant, depending on whether the area meets the NAAQS (EPA 2013). Colorado has been divided into eight multi-county air quality monitoring areas that are generally based on topography and have similar airshed characteristics (CDPHE 2022). Archuleta County and the APE fall within the southwestern region within the state, along with La Plata, San Juan, and Montezuma Counties (CDPHE 2022).

A PM_{10} monitor is located in Pagosa Springs at the middle school. An O_3 monitor is also present in the southwestern region, in Cortez. As of 2022, the southwestern region was found to comply with federal air quality standards (CDPHE 2022).

EPA 2023 air quality data for Archuleta County, including information about the county's air quality rating (AQI) and days out of compliance for CO, NO_2, O_3, $PM_{2.5}$, and PM_{10} are provided below in Table 6 (EPA 2023). Based on data, Archuleta County has been out of compliance with O_3 EPA standards 280 days out of the year. The EPA's air quality standard for O_3 is 0.070 parts per million (ppm) (EPA 2014). Archuleta County is also out of compliance for PM_{10} 85 days out of the year. The EPA's air quality standard for PM_{10} is 150 micrograms (µg)/ meters $(m)^3$. The County was not out of compliance for air quality standards for CO, NO_2, or $PM_{2.5}$ at all throughout the year.

Table 6. Archuleta County air quality data (EPA 2023).

Index	Count
#Days with Good AQI	349
#Days with Moderate AQI	15
#Days with Unhealthy AQI for Sensitive Groups	1
#Days Unhealthy	0
#Days Very Unhealthy	0
#Days CO	0
#Days NO_2	0
#Days O_3	280
#Days $PM_{2.5}$	0
#Days PM_{10}	85
Source: (EPA 2023) *A daily index value is calculated for each air pollutant measured.*	

The APE runs parallel to US highway 160 and is within 100 feet of the roadway in some areas. The proximity of the busy roadway contributes to air pollution in the vicinity of the APE. Additionally, several access roads would be used by construction equipment. The access roads are all dirt roads, can become dry and dusty during periods of low precipitation, thereby acting as a potential source of fugitive dust.

3.1.2 Environmental Consequences

3.1.2.1 No Action Alternative

Under the No Action Alternative, there would be no effects on air quality from emissions from construction equipment. There would be short-term localized decreases in air quality from emissions from heavy equipment and dust generated by annual routine maintenance (grading) of the dirt roads present in the vicinity and from the regular use of US highway 160. However, these effects on air quality would be negligible and would not be different than current conditions.

3.1.2.2 Action Alternative

The Proposed Action would result in short-term, negligible impacts to air quality. Temporary and localized impacts to air quality due to construction-related activities, would occur as a result of the Proposed Action. Emissions from construction equipment, vehicles, and ground-disturbing

activities would generate pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and volatile organic compounds (VOCs). Fugitive dust from excavation, grading, and vehicle travel on unpaved roads would also contribute to short-term increases in particulate matter, particularly during dry conditions. While these activities would lead to temporary, localized air quality impacts, emissions would not exceed NAAQS. The local air quality monitor for PM_{10} and O_3 have had readings in 2022 that are compliant with federal regulations (CDPHE 2022). Additionally, Archuleta County readings for CO, NO_2, and $PM_{2.5}$ have been compliant with federal regulations as of 2023 (EPA 2023). However, the County has been out of compliance for O_3 and PM_{10}. The Proposed Action may contribute to out of compliance days for PM_{10} but impacts would be negligible and insignificant considering the size and duration of the Proposed Action.

The implementation of BMPs, including dust control measures, distributing tracking pads to reduce the spread of dirt and mud, limiting equipment idling times, and ensuring proper maintenance of construction vehicles would be implemented. These measures would further reduce the insignificant impacts of the Proposed Action. Additionally, impacts would be temporary, ceasing once construction is complete, and therefore no long-term changes to air quality would occur. Post-construction air quality conditions would return to pre-project levels, with no permanent sources of emissions introduced.

Additionally, the potential exists for other project activities, listed in Section 1.3.1.2, to occur concurrently with the Proposed Action. Activities of the Jackson Lake Mountain Project involving fuels reduction conducted concurrently with construction activities for the Proposed Action would result in air quality impacts from operating equipment concurrently. However, the project is located approximately 4-miles from the Proposed Action. The potential exists for activities of the Yamaguchi South Project involving construction to be conducted concurrently with construction activities for the Proposed Action, which would result in air quality impacts from operating equipment concurrently. Impacts would be negligible and insignificant considering the size and duration of the Proposed Action.

3.2 TRANSPORTATION, ACCESS, AND PUBLIC SAFETY

3.2.1 *Affected Environment*

The area surrounding the Proposed Action includes U.S. Highway 160, a major transportation corridor that experiences consistent traffic from both local residents and visitors traveling to and from Pagosa Springs. Traffic volumes fluctuate seasonally, with higher congestion during peak tourist periods, particularly in summer. Several businesses, restaurants, hotels, and rental properties are located near the Proposed Action, contributing to pedestrian activity and vehicle movements, including parking lot traffic and delivery trucks. Public safety concerns in the area include vehicle-pedestrian conflicts, particularly near popular river access points, as well as potential hazards associated with informal roadside parking and crossing. Additionally, boater safety is a concern within the river corridor, due to the presence of rip-rap and old vehicles embedded in the banks of the San Juan River.

Existing access to the Proposed Action area includes private driveways accessing properties, public parking lots and drives accessing tourist destinations, and access to gas stations and other businesses.

Vehicular access and foot access to the San Juan River is limited within the APE due to private land ownership. River access through private commercial camping and vacation rentals currently exists within the APE.

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

Under the No Action Alternative, no construction activities, improved access or public safety improvements would occur.

3.2.2.2 Action Alternative

The Proposed Action would result in short-term, negligible impacts to transportation, access, and public safety. Under the Proposed Action, temporary transportation delays or increased heavy truck traffic on Highway 160 would occur during construction. Delays would be temporary and be related to construction traffic turning on and off Highway 160. Public access to the San Juan River and areas immediately adjacent to the river through private commercial properties would be temporarily restricted during construction and post construction to allow for establishment of installed vegetation and seeding. Although access would be limited in the vicinity of the Proposed Action, other access routes along the river would remain open and business access would be maintained. Therefore, access to adjacent private land and businesses would still be possible but in limited areas, and access restrictions would not rise to the level of significant. Construction and temporary closures would be coordinated directly with private landowners. Traffic safety control measures including construction signage would be utilized at construction access points from Highway 160. Impacts from the Proposed Action to access, transportation, and public safety are not significantly different from current conditions and are therefore considered negligible .

The Proposed Action would have long-term, beneficial impacts to boater safety by restoring current riverbanks that are comprised of rip-rap and old vehicles. Softening techniques including the installation of riparian vegetation in these locations would promote riparian growth and decrease opportunities for boater incidents or injury. Additionally, instream structures would re-direct flow and traffic away from these potentially dangerous structures. Because all impacts to public safety would be beneficial, there would be no significant adverse effect to public safety as a result of implementing the Proposed Action.

Additionally, the potential exists for other project activities, listed in Section 1.3.1.2, to occur concurrently with the Proposed Action. The potential exists for activities of the Yamaguchi South Project involving construction to be conducted concurrently with construction activities for the Proposed Action, which would result in traffic/transportation impacts from construction and reduced overall access to the San Juan River. Impacts would be negligible and insignificant considering the size and duration of the Proposed Action.

3.3 CULTURAL RESOURCES

3.3.1 Affected Environment

Cultural resources are often defined as physical or other expressions of human activity or occupation, and can include culturally significant landscapes, prehistoric and historic archaeological

sites, isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historical significance.

Section 106 of the NHPA requires that any federal or federally assisted project and any project requiring federal licensing or permitting must take into account the effects of their undertakings on historic properties. In order to satisfy the Section 106 process, federal agencies must take the following steps: initiate consultation with regulatory agencies and identify concerned Native American tribes and other interested parties; identify (inventory) and evaluate historic properties; identify project effects; and consult with affected parties to resolve adverse effects to historic properties. Properties are evaluated in consultation with the relevant SHPO.

As part of the Proposed Action, a Class III cultural resource inventory for the Proposed Action was completed within the APE (Appendix B) (Metcalf Archaeological Consultants 2025). The inventory resulted in the recording of four new archaeological and historic sites (Table 7) and seven isolated finds of artifacts (Table 8).

The new sites consist of a segment of historic U.S. Highway 160 (5AA.3803.20), a precontact open camp (5AA.5712), a multicomponent precontact and historic open camp / artifact scatter (5AA.5713), and a protohistoric/Ute culturally peeled tree (5AA.5751). The isolated finds include six that are historic and consist of a truck frame, two exposed water pipelines, two concrete water diversion structures, and one stone wall; and one that is a precontact chert biface fragment (Metcalf Archaeological Consultants 2025).

Table 7. Newly recorded cultural resources within the APE (Metcalf Archaeological Consultants 2025).

State Site No.	Time Period	Site Type	NRHP Evaluation
5AA.3803.20	Historic	U.S. Highway 160 segment	Eligible, supporting
5AA.5712	Precontact	Open Camp	Eligible
5AA.5713	Multicomponent	Precontact Open Camp and Historic Artifact Scatter	Eligible
5AA.5751	Protohistoric/Ute	Culturally Peeled Tree	Eligible

Table 8. Isolated finds recorded within the APE (Metcalf Archaeological Consultants 2025).

Site No.	Temp. No	Period	Description
5AA.5705	PG-IF01	Historic	Abandoned truck frame, likely used as rip rap
5AA.5706	PG-IF02	Historic	Water or sewage pipe exposures (3) along river
5AA.5707	PG-IF03	Historic	Water or sewage pipe pile
5AA.5708	PG-IF04	Precontact	Chert biface fragment

Site No.	Temp. No	Period	Description
5AA.5709	PG-IF05	Historic / Early Modern	Stone wall
5AA.5710	PG-IF06	Historic / Early Modern	Concrete water diversion structure
5AA.5711	PG-IF07	Historic / Early Modern	Concrete water diversion structure

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

Under the No Action Alternative, no construction activities or restoration efforts would take place, meaning there would be no impacts to cultural resources present within the APE.

3.3.2.2 Action Alternative

The Proposed Action would have no effect on the four newly documented NRHP eligible sites in the APE. Site 5AA.3803.20 is the modern in-use highway and would not be changed or affected by the Proposed Action. Sites 5AA.5712 and 5AA.5713 would be avoided by project construction and would not be affected. No future construction or ground disturbance would be permitted near sites 5AA.5712 and 5AA.5713. Lastly, site 5AA.5751, a probable Ute culturally peeled tree, is located on a Ponderosa pine (*Pinus ponderosa*) tree on the edge of the planned staging area on the northern end of the APE. The staging area would be used to store equipment and materials; no ground disturbance is planned. Site 5AA.5751 would be completely avoided and preserved. There are currently no plans to remove native tree species from the APE, only invasive species; therefore, it would not be affected.

To support compliance with Section 106 of NHPA, Reclamation coordinated with the Colorado SHPO regarding the potential effects of the Proposed Action on historic properties. Four newly documented NRHP-eligible sites were identified within the APE. The project was determined to have no effect on any of these resources. Based on these findings, the Proposed Action was determined to have no effect on historic properties, and SHPO concurrence was obtained (Appendix B).

3.4 NOISE

3.4.1 Affected Environment

The existing noise environment in the APE is influenced by both natural and human-generated sounds. Background noise levels are relatively low in undeveloped portions of the APE but increase near roads, businesses, and recreational access points. U.S. Highway 160 is located nearby and contributes to the ambient noise environment. Vehicle traffic generates consistent noise, particularly during peak travel times. Noise levels near highways can vary depending on traffic volume, speed, and vehicle types. For instance, at a distance of 50 feet from a highway, noise levels can range between 70 to 80 decibels (dB(A)) (FHWA 2018). Additionally, several restaurants, businesses, and hotels or rental properties in the vicinity contribute to the baseline noise levels through activities such as outdoor dining, deliveries, parking lot traffic, and guest movement. Recreational noise sources, including conversations, vehicles, and watercrafts such as kayaks, further shape the acoustic

environment. While noise levels generally remain moderate, localized increases occur during high-use periods, potentially affecting visitor experience, wildlife presence, and the overall soundscape quality in the APE.

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

Under the No Action Alternative, existing noise conditions would remain unchanged. Ambient noise levels would continue to be influenced by natural sounds from the San Juan River, as well as human-generated noise from Highway 160, nearby businesses, and recreational activities. Periodic noise increases from traffic, visitor use, and maintenance activities would persist, but no additional temporary or long-term noise impacts would result from project-related construction or restoration efforts.

3.4.2.2 Action Alternative

The Proposed Action would result in short-term, negligible noise impacts during implementation. Construction would result in temporary increases in noise levels due to the presence of heavy machinery, equipment operation, and construction-related vehicle traffic. Noise sources would include excavation, grading, and material transport, with levels varying depending on the type of equipment used and the proximity to noise-sensitive areas such as nearby businesses, hotels, and recreational spaces. Noise levels would return to baseline levels following the completion of construction. No significant short-term or long-term noise impacts would occur because noise associated with construction of the Proposed Action would be short-term and would not raise the noise level of the area above the moderate noise baseline.

Additionally, the potential exists for other project activities, listed in Section 1.3.1.2, to occur concurrently with the Proposed Action. Activities of the Jackson Lake Mountain Project and Yamaguchi South Project involving construction equipment conducted concurrently with construction activities for the Proposed Action could result in noise impacts from operating equipment concurrently. Impacts would be negligible and insignificant considering the size and duration of the Proposed Action.

3.5 VEGETATIVE RESOURCES

3.5.1 Affected Environment

The APE lies in a developed area that overlaps with portions of the city limits of Pagosa Springs. The west side of the river is more naturally vegetated and contains coniferous forests and upland shrublands. The river corridor itself is highly vegetated with riparian shrublands and woodlands, and pockets of wetlands. Vegetation communities observed are described in more detail below.

3.5.1.1 Upland Shrublands

The upland shrubland community occupies southern and southwestern facing slopes in the APE and generally is dry to mesic. Vegetation coverage and composition are variable, but the dominant shrubs include rubber rabbitbrush (*Ericameria nauseosa*), big sagebrush (*Artemisia tridentata*), and snowberry (*Symphoricarpos* sp.). The density of the herbaceous stratum varies throughout the site, and is sparse in most areas but highly diverse (DHM Design 2025). Patches where big sagebrush

dominates are present with less plant diversity in the APE. The majority of areas are covered by scattered rubber rabbitbrush and a variety of forbs and graminoids. Common plants of this vegetation community type within the APE include western yarrow (*Achillea millefolium*), wild onion (*Allium* sp.), Crandall's penstemon (*Penstemon crandallii*), lupine (*Lupinus* sp.), fringed sage (*Artemisia frigida*), green needlegrass (*Nassella viridula*), Indian ricegrass (*Oryzopsis hymenoides*), woolly cinquefoil (*Potentilla hippiana*), western wheatgrass (*Pascopyrum smithii*), hairy false golden aster (*Heterotheca villosa*), and alyssum (*Alyssum simplex*). Scattered Rocky Mountain juniper (*Juniperus scopulorum*) shrubs are also present occasionally.

3.5.1.2 Coniferous Forests

The coniferous forest community is primarily composed of ponderosa pine with occasional Rocky Mountain juniper and Gambel oak (*Quercus gambleii*) occurring in the understory. The forests range in density from open to somewhat dense, depending on the microsite conditions. Common plants found in this community include western snowberry (*Symphoricarpos occidentalis*), wax currant (*Ribes cereum*), Wood's rose (*Rosa woodsii*), Oregon grape (*Mahonia aquifolium*), western yarrow, sulfur buckwheat (*Eriogonum umbellatum*), and western wheatgrass.

3.5.1.3 Riparian Woodlands

Riparian woodlands are found along the San Juan River and extend onto the floodplain and river terrace in some areas. These forests are primarily composed of large narrowleaf cottonwood (*Populus angustifolia*) trees with moderately open canopies. The shrub layer is mostly absent, but contains chokecherry (*Prunus virginiana*), golden currant (*Ribes aureum*), and wax currant when present. The herbaceous layer is primarily dominated by the introduced perennial grass smooth brome (*Bromus inermis*). Other dominant species documented in this community includes Kentucky bluegrass, yellow sweetclover (*Melilotus officinalis*), curly dock (*Rumex crispus*), and common dandelion (*Taraxacum officinale*).

3.5.1.4 Riparian Shrublands

Riparian shrublands are found along the San Juan River, lining the transitional zones from the river to the uplands. Dominant vegetative species and vegetative cover varies in this community throughout the site. Some areas contain dense stands of sandbar willow (*Salix exigua*) with plants up to three meters tall with a sparse herbaceous layer, composed primarily of smooth brome or saltgrass (*Distichlis spicata*). Sandbar willow also dominates areas within the flood zone of the San Juan River, where a thick layer of cobble and sand is present, preventing the growth of an understory layer. More diverse and dense riparian shrublands are present throughout the site, containing gray alder (*Alnus incana*), river birch (*Betula nigra*), river hawthorn (*Crataegus rivularis*), and sandbar willow intermixed. The shrub and herbaceous strata are very dense. Other species documented in this vegetation community include Wood's rose, horsetail (*Equisetum* sp.), willowherb (*Epilobium* sp.), common spikerush (*Eleocharis palustris*), smooth brome, oxeye daisy (*Leucanthemum vulgare*), and Russian olive.

3.5.1.5 Wetlands

Wetland communities are found along the San Juan River in pockets throughout the APE. The communities contain an overstory dominated by narrowleaf cottonwood with a mid- and under-story dominance of thinleaf alder (*Alnus incana* subsp. *tenuifolia*) and sandbar willow with a lesser native shrub presence of shining willow (*Salix lasiandra v. caudata*) and park willow (*Salix monticola*) (Aloterra 2024). Herbaceous vegetation is primarily comprised of black bent (*Agrostis gigantea*), Baltic

rush (*Juncus balticus*), reed canarygrass (*Phalaris arundinaceae*), Canada thistle (*Cirsium arvense*), and various *Carex* (sedge) species (Aloterra 2024).

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

Under the No Action Alternative, no restoration or enhancement efforts would occur, and existing vegetation communities within the APE would remain in their current condition. Ongoing streambank erosion and sedimentation would lead to gradual vegetation loss along the river corridor, particularly in riparian shrublands and woodlands and wetland areas. In upland shrubland and coniferous forest communities, vegetation conditions would remain stable. No new disturbance would occur as a result of creating new access roads and a staging area. Wetlands within the APE would be negatively affected by continued habitat degradation. Wetland plant communities would be impacted by altered water flow patterns, increased sediment deposition, and the encroachment of invasive species.

3.5.2.2 Action Alternative

Implementation of the Proposed Action would result in short- and long-term, minor impacts to vegetation within the APE. Construction activities, including excavation and grading, would permanently disturb vegetation in upland shrublands, riparian shrublands and woodlands, and wetland areas. Coniferous forests would not be impacted by the Proposed Action. In particular, vegetation along the San Juan River would experience direct impacts from streambank stabilization efforts, improvements to river access, and improvements to vegetation condition. Although direct, permanent disturbance would occur, only 0.21 acres of vegetation within the 41.59-acre APE, is expected to be impacted, as a result of Proposed Action activities. This area of impact includes upland shrublands, riparian shrublands and woodlands, and wetland areas. The majority of disturbance would occur in-stream and would not affect vegetation. It is therefore determined that impacts to vegetation are minor and insignificant when considering the overall APE acreage.

Upland vegetation communities would experience short-term, minor disturbances in areas designated for access routes and staging areas. The majority of the access routes used for the Proposed Action would utilize existing roadways, so new disturbance would be minimal and largely would be limited to adjacent, disturbed roadside vegetation. One staging area is located in an existing parking lot and the second staging area (Reach 6) would temporarily impact existing vegetation in the area. Impacts include temporary vegetation trampling and soil compaction due to increased human activity and heavy equipment use. Temporary impacts to upland vegetation communities due to access and staging activities would be minor and insignificant due to the majority of areas identified for use already being disturbed.

The implementation of BMPs, including reseeding temporarily disturbed areas with native seed, would be implemented. These measures would further reduce the insignificant impacts of the Proposed Action.

Overall, while short-term vegetation impacts would occur, the Proposed Action is would result in long-term beneficial effects to riparian, wetland, and upland plant communities. Habitat restoration efforts would enhance native vegetation diversity, increase streambank stability, and improve overall ecosystem health within the APE.

3.6 NOXIOUS WEEDS

3.6.1 Affected Environment

Noxious weeds and other non-native plants are present in the APE. Non-native plants have likely been introduced through past land management, visitation by recreationists and pets, and the location of the APE near a roadway. A noxious weed management plan has not been created for the APE, but a species list of Colorado State-listed noxious weeds present within the APE was developed during field surveys conducted in 2024, and is included in Table 9 (CDA 2025)). Colorado state-listed noxious weeds are designated as List A, B, C, or watch-listed.

Table 9. Colorado listed noxious weeds documented during 2024 surveys.

Common Name	Scientific Name	Colorado Noxious Weed List
Canada thistle	*Cirsium arvense*	List B
Cheatgrass	*Bromus tectorum*	List C
Common mullein	*Verbascum thapsus*	List C
Dame's rocket	*Hesperis matronalis*	List B
Field bindweed	*Convolvulus arvensis*	List C
Musk thistle	*Carduus nutans*	List B
Hoary cress	*Lepidium draba*	List B
Russian olive	*Elaeagnus angustifolia*	List B
Plumeless thistle	*Carduus acanthoides*	List B
Oxeye daisy	*Leucanthemum vulgare*	List B
Red-stem filaree	*Erodium cicutarium*	List C
Russian thistle	*Salsola tragus*	List B
Siberian elm	*Ulmus pumila*	List C

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

Under the No Action Alternative, no restoration or ground-disturbing activities would occur, and existing noxious weed populations within the APE would remain unmanaged. Without intervention, invasive species such as Canada thistle (*Cirsium arvense*), cheatgrass (*Bromus tectorum*), and Russian olive (*Elaeagnus angustifolia*) would continue to spread, outcompeting native vegetation and degrading habitat quality.

3.6.2.2 Action Alternative

The Proposed Action would result in short-term, negligible noxious weed impacts during implementation. Implementation of the Proposed Action would result in temporary ground disturbance within the APE, creating favorable conditions for the spread of noxious weeds. Construction activities, including excavation, grading, and vegetation removal, would increase soil exposure and disrupt existing plant communities, potentially allowing invasive species to spread. Measures to avoid and minimize these impacts are included as components of the Proposed Action, and therefore the impacts would be insignificant. After construction, monitoring and adaptive management strategies would be applied to identify and control existing weed populations. Disturbed areas would be revegetated with native seed mixes to prevent the establishment of

noxious weed species. To further minimize the potential for noxious weed proliferation, BMPs would be implemented throughout the duration of the Proposed Action. These measures would include washing construction equipment before entering and leaving the site to prevent the spread of weed seeds, using certified weed-free mulch and seed for revegetation efforts, and promptly reseeding disturbed areas with native plant species to outcompete invasive vegetation. It is therefore determined that impacts to noxious weeds are negligible and insignificant when considering the implementation of adaptive management and BMPs.

The long-term benefits of the Proposed Action include improved riparian and wetland habitat health, which would support native plant communities and reduce the prevalence of invasive species. Overall, impacts due to noxious weeds would be negligible and insignificant. Additionally, the application of BMPs and ongoing monitoring would further reduce already insignificant long-term impacts from noxious weeds.

3.7 WETLANDS

3.7.1 Affected Environment

Wetland boundaries were delineated where all three fundamental characteristics of hydrophytic vegetation, hydric soils, and hydrology were present (Aloterra 2024). The wetlands and other special aquatic sites were delineated during a pedestrian survey of the APE in July and August of 2024 according to the USACE May 2010 Regional Supplement to 1987 Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0 (using 2016 Indicator Status List) (Aloterra 2024). An OHWM survey was conducted following USACE guidelines in the 2005 USACE Regulatory Guidance Letter 05-05, Ordinary High Water Mark Identification where the Proposed Action limits are expected to intersect waters within the OHWM (e.g., creeks, ditches, rivers). All wetland and non-wetland waters of the US that contained the possibility of being disturbed through Proposed Action activities were properly identified and fully accounted for. This includes all access, staging, grading, installation, and revegetation work. Data was not collected for areas outside of areas where disturbance would not occur (Aloterra 2024).

A total of three wetlands were delineated in the APE, totaling 1.7 acres (Aloterra 2024). Wetland communities contain an overstory dominated by narrowleaf cottonwood (Facultative wetland [FACW]) with a mid- and under-story dominance of thinleaf alder (FACW) and coyote willow (FACW). Herbaceous vegetation is primarily comprised of black bent (Facultative [FAC]), Baltic rush (FACW), reed canarygrass (FACW), Canada thistle (FAC), and various sedge species among a diverse wetland community (Aloterra 2024).

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

Under the No Action Alternative, wetlands within the APE would remain in their current condition, with no restoration efforts to stabilize streambanks, improve hydrology, or enhance wetland vegetation. Ongoing streambank erosion and sedimentation would negatively impact wetland hydrology and water quality, altering the extent and function of wetland habitats over time.

Increased sedimentation would affect wetland vegetation and disrupt the natural processes that support wetland plant communities.

Wetland areas would not benefit from enhanced connectivity with the river system that in turn improves hydrological function and habitat quality. Wetland-dependent wildlife species, including amphibians, waterfowl, and aquatic invertebrates, would not experience the potential benefits of improved wetland vegetation diversity and hydrologic conditions. In the long term, the No Action Alternative would contribute to continued habitat degradation and a decline in wetland function, reducing the capacity of these areas to support the local plant and wildlife communities.

3.7.2.2 Action Alternative

Implementation of the Proposed Action would result in short-term, negligible impacts to wetlands within the APE. A total of 0.13 acre of wetlands within the 41.59-acre APE would be temporarily impacted as a result of the Proposed Action. Temporary impacts to wetlands in this area would result from revegetation activities and construction activities, including excavation and grading, which would disturb wetland soils, hydrology, and vegetation. Temporary disturbances would alter wetland vegetation structure and soil conditions but would not result in a permanent loss or conversion of wetland areas. It is therefore determined that direct impacts to wetlands are insignificant when considering the overall APE acreage and the short-term nature of the impacts.

Indirect impacts to wetlands adjacent to the APE, such as sedimentation and the introduction of invasive species, would be avoided due to the implementation of BMPs, which have been incorporated as components of the Proposed Action. Erosion control measures, limiting equipment access, and revegetation with native species, would eliminate these potential indirect effects and support the long-term health of adjacent wetlands. It is therefore determined that indirect impacts to wetland are negligible and insignificant due to the implementation of BMPs.

Following restoration activities, disturbed wetland areas would be revegetated with native wetland and riparian species to promote recovery and enhance habitat quality. Given that no permanent changes to wetland hydrology or soil conditions would occur, and restoration efforts are designed to improve overall ecological function, the Proposed Action would have no long-term impacts on wetlands in the APE.

Consultation and permitting for the Proposed Action with the USACE was completed in May 2025. The USACE verified that the project is authorized under Nationwide Permit (NWP) 27 – Aquatic Habitat Restoration, Enhancement, and Establishment Activities (Action No. SPA-2024-00485). The permit authorization was based on the 60% design plans, which detailed proposed in-stream habitat enhancements and channel shaping activities. These actions will result in permanent impacts to approximately 10,800 linear feet (5.88 acres) of the San Juan River and temporary impacts to 0.23 acre of palustrine wetland. This EA analyzes the final 100% design, which refines the scope and layout of the project but does not substantially change the permitted impacts. The USACE determined that the project meets the terms and conditions of NWP 27 and imposed a special condition requiring submission of as-built drawings within 90 days of construction completion (Appendix D). The NWP verification is valid through March 14, 2026.

3.8 WATER QUALITY

3.8.1 Affected Environment

Water quality in the San Juan River is influenced by both natural and anthropogenic factors. In some sections of the river, elevated levels of total dissolved solids (TDS), nitrates, and salts have been recorded, primarily due to agricultural runoff, wastewater discharges, and urban development along the riverbanks. There have been periodic reports (USGS) of water quality impairments, particularly after significant storm events that lead to increased runoff, carrying pollutants from agricultural fields and urban areas. The water quality monitoring locations along the San Juan River near the Proposed Action do not monitor for turbidity, and estimates of this variable are therefore unavailable.

Jurisdictional waters, including other waters of the U.S. such as the San Juan River, are regulated under Section 404 of the CWA and require permitting through the USACE. Any project activities that result in the discharge of dredged or fill material into jurisdictional waters would require a Section 404 permit, with the level of permitting (e.g., Nationwide Permit or Individual Permit) depending on the extent of the impacts. The San Juan River is a jurisdictional water under the CWA. Coordination with USACE will be necessary to ensure compliance with federal regulations and to avoid and minimize impacts to aquatic resources.

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

Under the No Action Alternative, no temporary or permanent impacts to water quality would occur. There would be no change in water quality.

3.8.2.2 Action Alternative

Implementation of the Proposed Action would result in short-term, minor impacts to water quality within the APE. Under the Proposed Action, temporary impacts to water quality would result from construction activities within the river channel. In-channel operation of heavy equipment and excavation activities would temporarily alter water quality through increased turbidity and sedimentation. Disturbed soils from construction would also be more vulnerable to wind and water erosion, which would result in sediment transport to adjacent water bodies, potentially affecting water quality. The implementation of BMPs would further reduce the insignificant impacts of the Proposed Action. Sediment control measures such as straw wattles or erosion control logs would be installed outside of the river channel prior to in-stream work. These measures would help prevent disturbed soil from entering the river, reducing the potential for increased turbidity that could negatively affect water quality. Due to the short-term nature of the impacts and the implementation of BMPs to reduce erosion and sedimentation, impacts to water quality would be minor and insignificant.

3.9 FISH AND WILDLIFE RESOURCES

3.9.1 Affected Environment

The APE, encompassing the river, riparian areas, and wetlands, provides diverse habitats that support a wide range of fish and wildlife species. Common wildlife in the area includes raptors, waterfowl, songbirds, bats, reptiles, amphibians, and small mammals such as bobcats (*Lynx rufus*), rabbits (*Sylvilagus spp.*), raccoons (*Procyon lotor*), mice (*Peromyscus spp.*), and squirrels (*Sciuridae*). Large mammals known to occur in the region include mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), mountain lions (*Puma concolor*), and black bear (*Ursus americanus*). The riparian corridor serves as a vital habitat for numerous bird species, including neotropical migratory songbirds and waterfowl, many of which are protected under the Migratory Bird Treaty Act (MBTA) or are designated as sensitive by state and federal agencies. Species such as Lewis' woodpecker (*Melanerpes lewis*), dusky flycatcher (*Empidonax oberholseri*), house wren (*Troglodytes aedon*), song sparrow (*Melospiza melodia*), and red-winged blackbird (*Agelaius phoeniceus*) have been documented in the APE (DHM Design 2025). No active raptor nests were documented within the APE or within CPW raptor nest buffer zones during surveys (DHM Design 2025). Amphibians and reptiles, such as western chorus frogs (*Pseudacris triseriata*) and garter snakes (*Thamnophis spp.*), also rely on riparian and wetland environments for foraging and reproduction.

The river and its associated wetlands provide important aquatic habitat for both native and non-native fish species. Brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) are present and support recreational fishing in the area. Brown trout spawn from September through November annually, but the species is known to have a difficult time spawning in the Proposed Action corridor due to habitat conditions (Pers. Communication CPW 2024). Native fish species, including bluehead sucker (*Catostomus discobolus*) and flannelmouth sucker (*Catostomus latipinnis*), are also found in the river and play an essential role in maintaining ecological balance. These species rely on the river's flow regime, water quality, and substrate composition for spawning and feeding.

In addition to supporting fish and wildlife, the riparian corridor provides essential habitat for pollinators such as bees and butterflies, which contribute to the reproduction of native plants and overall ecosystem health. The diverse plant communities in wetland and riparian areas offer nectar and pollen resources, while sheltered areas provide nesting and overwintering habitat for pollinator species.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

Under the No Action Alternative, the river corridor would remain in its current condition, with no restoration or enhancement activities undertaken. Over time, continued streambank erosion would occur, leading to increased sedimentation within the river channel. Excess sediment would degrade water quality, smother fish spawning substrates, and reduce the availability of habitat for aquatic invertebrates, which are a critical food source for fish and other wildlife. Without intervention, unstable banks would continue to erode, potentially widening the river channel and altering flow patterns, further degrading aquatic and riparian habitats.

Additionally, the absence of vegetative restoration efforts would mean that degraded in-stream and riparian habitats would not be improved. The lack of riparian vegetation enhancement would lead to

reduced shading, contributing to higher water temperatures that would further stress aquatic organisms. Wildlife species that rely on healthy riparian areas, including birds, amphibians, and mammals, would not benefit from improved habitat connectivity and increased vegetation diversity. In summary, the No Action Alternative would allow ongoing habitat degradation to persist, potentially leading to long-term declines in fish and wildlife resources and associated habitats.

3.9.2.2 Action Alternative

The Proposed Action would result in short-term, negligible impacts to fish and wildlife habitats within the APE, including riparian areas, wetlands, and aquatic environments. Construction activities, such as in-stream work, bank stabilization, and vegetation removal, would temporarily disrupt habitat availability and alter water quality through increased turbidity and sedimentation. Fish species would experience short-term impacts from sedimentation and localized changes in water flow. Brown trout would be impacted during their spawning, as construction is planned from September through December. However, impacts would be insignificant, as the species is known to have a difficult time spawning in the Proposed Action corridor due to habitat conditions (Pers. Communication CPW 2024). Additionally, the Proposed Action would have a net beneficial impact to spawning habitat. Riparian and wetland-dependent species, including birds, mammals, amphibians, and pollinators, may experience temporary displacement due to vegetation disturbance and increased human activity. The removal or alteration of riparian vegetation would temporarily reduce available foraging, and over wintering habitat for migratory birds (including raptors), amphibians, reptiles, and small mammals. Pollinators, including native bees and butterflies, would be affected by temporary removal of vegetation used for cover and over wintering. However, a large amount of alternative habitat space is available in surrounding areas, including the San Juan National Forest. Overall, impacts to wildlife species resulting from habitat availability would be short-term, negligible and insignificant when considering the amount of habitat available in the vicinity of the project and the short duration of the construction period during winter months.

The Proposed Action would have direct, short-term impacts to wildlife as a result of weed control measures. Wildlife would be affected by the application of pesticides for noxious weed control, including reducing potential invertebrate prey base. Invertebrates would be directly impacted by the application of pesticides in the APE. Impacts to wildlife species resulting from chemical control of weed species would be short-term, negligible and insignificant when considering the amount of habitat available in the vicinity of the project and the short duration of weed control efforts.

The Proposed Action would have direct, short-term impacts to wildlife as a result of noise and visual disturbances. Wildlife would be affected by the presence of people and construction equipment within the APE during construction and revegetation efforts. This would cause wildlife to avoid using habitat availability in the APE temporarily. However, impacts to wildlife species resulting from noise and visual disturbances would be short-term, negligible and insignificant when considering the amount of habitat available in the vicinity of the project and the short duration of construction activities.

The Proposed Action would have long-term beneficial impacts to fish and wildlife resources. Revegetation efforts using native species are expected to restore fish and wildlife habitat, resulting in the beneficial effect of improving overall vegetative diversity. In the long term, the Proposed Action would have the beneficial effect of enhancing habitat conditions by improving streambank stability,

increasing the condition and complexity of native vegetation cover, and restoring natural hydrologic processes, thereby benefiting fish, wildlife, and pollinator populations.

BMPs would be implemented to further minimize the insignificant impacts to in-stream habitats and species during Proposed Action activities. To reduce sedimentation and maintain water quality, sediment control measures such as sedimentation logs and straw wattles would be installed prior to in-stream work. These measures would help prevent disturbed soil from entering the river, reducing the potential for increased turbidity that would negatively affect wildlife species. Additionally, construction activities within the river channel would be scheduled to occur during low-flow conditions to limit habitat disturbance. To further protect fish and wildlife, all equipment would be inspected and cleaned to prevent the introduction of invasive species and subsequent habitat degradation. Following construction, disturbed banks and in-stream habitats would be stabilized using bioengineering techniques such as willow staking, coir logs, and native vegetation plantings to restore natural channel structure and improve long-term habitat quality for fish and other aquatic organisms.

3.10 THREATENED AND ENDANGERED SPECIES AND THEIR CRITICAL HABITAT

3.10.1 Affected Environment

Five endangered species, four threatened species, one experimental population, one candidate, one proposed threatened, and one proposed endangered species have historical records or potential of occurring in or near the APE according to a list generated using the USFWS Information, Planning, and Consultation Tool (IPAC) (Table 10). Of the 13 federally listed species, one species, Pagosa skyrocket, has critical habitat within the APE.

Table 10. Threatened, endangered, candidate/proposed species with the potential to occur within the APE and critical habitat.

Species	Status[1]	Critical Habitat
Canada lynx (*Lynx canadensis*)	T	Designated; does not include APE
Gray wolf (*Canis lupus*)	EXPN	Designated; does not include APE
New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)	E	Designated; does not include APE
Mexican spotted owl (*Strix occidentalis lucida*)	T	Designated; does not include APE
Southwestern willow flycatcher (*Empidonax trailii extimus*)	E	Designated; does not include APE
Yellow-billed cuckoo (*Coccyzus americanus*)	T	Designated; does not include APE
Colorado pikeminnow (*Ptychocheilus lucius*)	E	Designated; does not include APE
Razorback sucker (*Xyrauchen texanus*)	E	Designated; does not include APE

Species	Status[1]	Critical Habitat
Rio Grande cutthroat trout (*Oncorhynchus clarkia virginalis*)	C	Not designated
Monarch butterfly (*Danaus plexippus*)	PT	Not designated
Silverspot (*Speyeria nokomis nokomis*)	T	Not designated
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	PE	Not designated
Pagosa skyrocket (*Ipomopsis polyantha*)	E	Designated; includes APE
[1]**Status Codes**: **E**=federally listed endangered; **T**=federally listed threatened; **C**=federal candidate for listing; **P**=federally proposed for listing; **EXPN**=experimental population; and **CH**=designated critical habitat.		

The list of threatened and endangered species from IPAC was consulted to determine listed species that may be present in the APE. Based on initial spatial habitat, population, and range data, several species were excluded from further analysis. These species include Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), Mexican spotted owl (*Strix occidentalis lucida*), Colorado pikeminnow (*Ptychocheilus lucius*), razorback sucker (*Xyrauchen texanus*), silverspot (*Speyeria nokomis nokomis*), Suckley's cuckoo bumble bee (*Bombus suckleyi*), monarch (*Danaus plexippus*), and Rio Grande cutthroat trout (*Oncorhynchus clarkia virginalis*). Surveys of the APE were conducted in June and September 2024 to review the habitat and spatial characteristics of the APE and to evaluate presence of habitat for southwestern willow flycatcher (SWFL) (*Empidonax trailii extimus*), yellow-billed cuckoo (YBCU) (*Coccyzus americanus*), and New Mexico meadow jumping mouse (*Zapus hudsonius luteus*). It was determined at that time that no habitat was present for New Mexico meadow jumping mouse, but habitat was present for the two bird species. Additionally, transect surveys were conducted in the APE for Pagosa skyrocket and the silverspot butterfly's host plant, bog violet, in June and September 2024. Surveys discovered a population of Pagosa skyrocket within the APE. Pagosa skyrocket, SWFL, and YBCU were therefore analyzed in the Biological Assessment prepared for the Proposed Action (DHM Design 2025) and are presented in the discussion below (Appendix C).

3.10.1.1 Southwestern Willow Flycatcher

SWFL is a small, neotropical migratory bird in the Family *Tyrannidae* (tyrant flycatchers) (Sedgwick 2020). The SWFL is one of four subspecies of willow flycatchers that is found in the southwestern U.S., in southern California, Arizona, New Mexico, southwest Utah, southern Nevada, and southwestern Colorado. The SWFL subspecies range generated by the USFWS includes the APE (USFWS 2024a).

Surveys for SWFL habitat were completed within the APE in May 2024. Four patches of habitat were identified near the APE and two patches overlap with the APE. All four patches are located along the east side of the San Juan River, adjacent to Proposed Action Reaches 4, 5, and 6. The areas identified as providing suitable habitat for the species contain dense riparian vegetation and are located along the northern upstream portion of the APE. Within the four habitat patches, dense stands of willows and other native shrubs necessary for breeding SWFL were observed. The vegetation height varies but averaged greater than three meters and at least 0.25 acres, providing the necessary canopy cover and structure to support breeding individuals (Zahratka 2024). No individuals were documented during habitat surveys in the APE.

3.10.1.2 Yellow-billed Cuckoo

The YBCU is a member of the cuckoo family (*Cuculidae*). The USFWS recognizes the population west of the Rocky Mountains as the western DPS. This is due to the sharp decline of this range of the species due to a loss of suitable riparian habitats and the disappearance of many smaller sub-populations in the Pacific Northwest and Nevada (CPW 2020; NatureServe 2025; USFWS 2025).

Surveys for YBCU habitat were completed within the APE in May 2024. One patch of habitat was identified near the APE and is located along the west side of the San Juan River, adjacent to Proposed Action Reach 4 and on opposite side of the river from the Pagosa Riverside Campground. The patch of habitat is approximately 21.2 acres in size, and measures approximately 330 feet wide at its widest point. The patch is dominated by cottonwoods (with some willows, as well as a variety of grasses and forbs (Zahratka 2024). The understory in some areas is open, yet the presence of continuous sections of canopy cover suggests potential habitat suitability. There were some breaks in the habitat where dirt cliff walls rose directly from the edge of the water. Other patches of cottonwood-riparian habitat in the APE are present, but are small and vary in size (Zahratka 2024). No individuals were documented during habitat surveys in the APE.

3.10.1.3 Pagosa Skyrocket

The Pagosa skyrocket is a rare, federally endangered plant species belonging to the phlox family (*Polemoniaceae*) (USFWS 2020, 2022). The plant is endemic to the Pagosa Springs area, and is found exclusively in Archuleta County, Colorado.

The USFWS designated critical habitat for the Pagosa skyrocket on July 27, 2011 (76 FR 45078 45128), and a revised designation to the critical habitat was published on August 8, 2012 (77 FR 48367 48418) (USFWS 2024b). Overall, approximately 9,641 acres of land within four geographical units was designated as critical habitat for the species (USFWS 2012). The APE lies within designated critical habitat for Pagosa skyrocket (CHU-3 Pagosa Springs, 6,456 acres) (USFWS 2012). Based on data research of occurrence records, habitat requirements, field observations, and personal communications, it was established some of these primary constituent elements (PCEs) for the species' critical habitat are located within portions of the APE. However, not all of the 21.7 acres of critical habitat that overlaps with the APE meet the criteria for critical habitat.

Surveys for Pagosa skyrocket individuals were conducted in June and September of 2024. The entire Survey Area was reviewed for the species with transect surveys being conducted in areas with a higher likelihood of the species occurring. These areas included disturbed roadsides and areas with shale soil components. One soil type with shale components is found in the APE (C0-F - Abeyta-Carracas complex, 30 to 60 percent slopes). Additionally, populations of Pagosa skyrocket have been found south of the APE in C2-V - Herm family, clay loam, cool, 3 to 12 percent slopes, which is also present in the APE . Ponderosa pine forests with a grassland understory were not prevalent throughout the APE but were surveyed when encountered.

A population of Pagosa skyrocket was identified adjacent to and within Reach 1 and Reach 2 of the Proposed Action. The identified population is also completely within designated critical habitat. The primary area of occurrence was previously planned to be a staging area for the Proposed Action but utilizing the area as a staging area was removed from consideration once the presence of Pagosa skyrocket was discovered. The population contains 65 individual points that document rosettes and flowering plants within a one-foot radius of the point. Based on collected data, it is estimated that a

total of approximately 255 plants are present at the documented points. Three occurrence points are within the APE, but do not overlap with any planned Proposed Action activities. The majority of occurrences overlap with C2-V Herm family clay loam soils. Common plant species associated with the occurrence of Pagosa skyrocket included blue grama (*Bouteloua gracilis*), western wheatgrass, fringed sage, rubber rabbitbrush, alyssum, wild onion, Crandall's penstemon, hairy false goldenaster, and green needlegrass. Two points were also taken in a transition area between a riparian willow shrubland and upland area in Reach 2 and overlap with the A2W-B Fluvaquents soil type. The area looked recently disturbed.

3.10.2 Environmental Consequences

3.10.2.1 No Action Alternative

Under the No Action Alternative, no construction or restoration activities would take place, and the APE would remain in its current condition. While this alternative would avoid temporary construction-related disturbances such as noise, vibration, and human activity, it would also forgo the long-term benefits of habitat enhancement efforts. Without intervention, habitat degradation due to streambank erosion, invasive species spread, and altered hydrological conditions would continue, potentially affecting the long-term viability of habitat for federally listed species, including the SWFL, YBCU, and Pagosa skyrocket. Additionally, the Proposed Action would have no effect on other listed species reviewed but not further analyzed.

3.10.2.2 Action Alternative

The Proposed Action would have no effect on other listed species reviewed but not further analyzed, provided in Table 10 (DHM Design 2025).

To support compliance with ESA, the Bureau initiated informal consultation with USFWS for the Pagosa Gateway Project. A Biological Assessment (BA) was submitted along with a request for concurrence with determinations of "may affect, not likely to adversely affect" for three federally listed species: the southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Pagosa skyrocket (*Ipomopsis polyantha*), as well as for designated critical habitat for the Pagosa skyrocket. The BA evaluated both direct and indirect effects of the project, including timing of construction, noise, dust, vegetation removal, and invasive species control, and identified conservation measures to minimize potential impacts. These measures include construction timing restrictions, avoidance of occupied habitat, fencing of sensitive areas, and habitat enhancement through native revegetation. The USFWS concurred with Reclamation's determinations in April 2025, completing ESA consultation (Appendix C). The consultation and BA were based on the 60% design, while this EA evaluates the final 100% design, which remains consistent with the scope and avoidance measures outlined in the original analysis.

Southwestern Willow Flycatcher

Construction would occur primarily outside the species' breeding season, with heavy construction activities limited to September 1 through December 1, overlapping with a maximum of one month of SWFL's potential presence before migration. No identified SWFL habitat would be removed, and construction within 100 meters of suitable breeding habitat would be restricted during the breeding season to avoid disturbance. While noise from construction activities would temporarily disrupt foraging or migration, ambient noise levels from Highway 160 suggest the species is already accustomed to elevated noise conditions. Vehicular traffic would be limited and managed at low

speeds, reducing the risk of direct take. Additionally, no SWFL have been documented in the APE, further minimizing the potential for any impacts.

Indirect effects, such as sedimentation or herbicide use for invasive species management, would be minimized through the implementation of conservation measures. The Proposed Action also includes habitat restoration efforts such as enhancing willow patches, improving floodplain connectivity, and controlling invasive species, all of which would result in a long-term beneficial effect on SWFL. Given the avoidance of direct impacts, the implementation of conservation measures as components of the Proposed Action, and planned habitat improvements, the Proposed Action *may affect, but is not likely to adversely affect* the SWFL. Overall, impacts to SWFL resulting from the Proposed Action would be insignificant considering the amount of habitat affected by the project, the timing of the construction being outside of when the species is present and breeding, and with the implementation of conservation measures.

Yellow-billed Cuckoo

Heavy construction activities would occur from September 1 through December 1, overlapping with a maximum of one month of the species' potential presence before migration and one month of the breeding season. To minimize impacts, construction within 300 meters of suitable breeding habitat would be restricted during the breeding season. While noise, vibration, and increased human activity would temporarily disrupt foraging or migratory behaviors, the effects are expected to be minimal given the ambient noise from Highway 160 and the limited nature of Proposed Action activities near identified habitat. Additionally, construction vehicles would operate at low speeds and within the APE, reducing the risk of direct take. No YBCU have been documented in the APE, further minimizing the likelihood of adverse effects.

Indirect effects, such as habitat degradation from sedimentation or herbicide use for invasive species management, would be minimized through the implementation of conservation measures. Additionally, the Proposed Action includes habitat restoration efforts such as improving floodplain connectivity, controlling invasive species, and restoring riparian vegetation, which would provide long-term benefits for YBCU. Given these conservation measures being implemented as components of the Proposed Action, the Proposed Action *may affect, but is not likely to adversely affect* YBCU. Overall, impacts to YBCU resulting from the Proposed Action would be insignificant considering the amount of habitat affected by the project, the timing of the construction being outside of when the species is present and breeding, and with the implementation of conservation measures.

Pagosa Skyrocket and Critical Habitat

The Proposed Action would not directly impact the Pagosa skyrocket, as construction activities such as channel reshaping and bank stabilization would avoid known populations. Protective measures, including fencing, would prevent disturbance from personnel and equipment. While dust generation from grading and excavation would reduce photosynthetic efficiency or interfere with pollination, these effects would be negligible since most construction would occur outside the plant's active growth and flowering periods. Construction is planned from September through May, overlapping only briefly with the beginning of the Pagosa skyrocket's life cycle in late April and early May. Indirect impacts, such as invasive species spread, pollinator disruption, and potential herbicide exposure, would be minimized through the implementation of conservation measures, including limiting herbicide use near known populations and implementing native plant restoration. Given these considerations, the Proposed Action *may affect, but is not likely to adversely affect* Pagosa skyrocket.

Overall, impacts to Pagosa skyrocket resulting from the Proposed Action would be insignificant with the implementation of conservation measures and the complete avoidance of populations present.

The APE overlaps with designated critical habitat for the Pagosa skyrocket, but direct impacts would be minimal. Approximately 0.1 acres of habitat potentially meeting the species' PCEs within the 41.59-acre APE would be affected, though these areas are riparian or wetland habitats that do not typically support the species. Indirect effects, such as invasive species establishment and pollinator disruption, would degrade critical habitat conditions, but conservation measures would reduce these risks. Construction would occur outside of key pollination periods, and invasive species management would follow strict protocols, including restricting herbicide use within 100 feet of known populations. Given these considerations, the Proposed Action *may affect, but is not likely to adversely affect* Pagosa skyrocket critical habitat. Overall, impacts to Pagosa skyrocket critical habitat resulting from the Proposed Action would be insignificant considering the size of the overall impacts and the APE.

3.11 RECREATIONAL RESOURCES

3.11.1 Affected Environment

The APE provides a range of recreational opportunities centered around the San Juan River, including fishing, kayaking, tubing, paddleboarding, boating, and wildlife viewing, as well as land-based activities such as walking and picnicking along the river corridor. Public access to the river is facilitated by designated access points, trails, and informal pathways created by frequent visitor use. Several tourist-based businesses, such as campgrounds and restaurants, are located along the river and allow visitors to access the river. The natural setting and scenic quality of the area enhance the recreational experience, attracting both residents and tourists. However, non-designated access has caused erosion in some areas, affecting vegetation condition, bank stability, and overall user safety. River hydrology and the presence of buried debris create safety hazards for boaters and other river users, increasing the risk of injury or accident during high flows or low-visibility conditions.

3.11.2 Environmental Consequences

3.11.2.1 No Action Alternative

Under the No Action Alternative, recreational resources in the APE would remain in their current condition. No improvements to access, safety, or infrastructure would be made and existing issues, such as bank erosion and non-designated trails, would persist, leading to further degradation of river access points and reduced user safety. Additionally, buried debris and hazardous river hydrology would remain unaddressed, posing ongoing safety risks for boaters and floaters, particularly during high-flow events. Without intervention, the overall quality of the recreational experience would decline over time as environmental degradation and safety concerns impact visitor enjoyment and accessibility.

3.11.2.2 Action Alternative

The Proposed Action would result in short-term, negligible impacts by causing disruptions to recreational use may occur during construction due to equipment presence and access restrictions, but these impacts would be short-term and occur during low use fall and winter months and

therefore would not rise to the level of significant. Implementation of the Proposed Action would enhance recreational opportunities in the APE by improving access, river hydrogeomorphology, and safety. Designated access trails would help reduce erosion and vegetation trampling, improving long-term user experience. Additionally, addressing safety hazards by removing buried debris and modifying problematic river hydrology features would reduce risks for river-users, creating a safer and more enjoyable experience. In the long run, the Proposed Action would result in the beneficial effect of enhancing the quality, safety, and sustainability of recreational resources, ensuring continued enjoyment of the San Juan River while protecting the surrounding natural environment.

Additionally, the potential exists for other project activities, listed in Section 1.3.1.2, to occur concurrently with the Proposed Action. The potential exists for activities of the Jackson Mountain Landscape Project and the Yamaguchi South Project involving construction to be conducted concurrently with construction activities for the Proposed Action, which would result in recreational opportunity impacts from reduced overall access to the San Juan River. Impacts would be negligible and insignificant considering the size and duration of the Proposed Action.

3.12 SOILS

3.12.1 Affected Environment

The most recent Natural Resources Conservation Service (NRCS) Soil Survey for the APE was reviewed and identified a wide variety of soil types. Among these, Tefton loam, predominantly found on floodplain steps, consists of deep loam layers and is moderately drained, with a water table typically present 24 to 36 inches below the surface. Although this soil is not hydric, it contains minor components like Fluvaquents, which are hydric-rated and contribute to riparian habitat features (NRCS 2025).

Fluvaquents, located primarily on floodplains, are poorly drained soils with frequent flooding. These characteristics make them significant for supporting wetland ecosystems. These hydrologic and soil properties are critical for evaluating potential Proposed Action impacts and ensuring the conservation of sensitive species and their environments (NRCS 2025).

Table 11. Soil types within the APE.

Map Unit Symbol	Map Unit Name	Acres in APE	Percentage of the APE
12	Tefton loam, 1 to 3 percent slopes	1.7	3.9%
A2W-B	Fluvaquents, 0 to 3 percent slopes	16.9	39.6%
C0-F	Abeyta-Carracas complex, 30 to 60 percent slopes	0.8	1.8%
C2-V	Herm family, clay loam, cool, 3 to 12 percent slopes	4.3	10.0%
GP	Pits, gravel	0.5	1.2%
T6-B	Pastorius cobbly loam, 1 to 3 percent slopes	2.7	6.3%
W	Water	15.9	37.2%
Source: (NRCS 2025)			

3.12.2 Environmental Consequences

3.12.2.1 No Action Alternative

Under the No Action Alternative, no restoration or stabilization efforts would be implemented, and existing soil conditions in the APE would remain unchanged. Without intervention, ongoing streambank erosion and sedimentation would likely continue, leading to further soil degradation. As streambanks erode, increased sediment deposition in the river may reduce soil stability in adjacent riparian areas, potentially leading to additional loss of topsoil and vegetation. Without stabilization measures, eroded soils may contribute to increased turbidity in the river, negatively impacting water quality and aquatic habitat. In upland areas, no soil compaction and degradation would occur as a result of the creation of new access roads and a staging area.

3.12.2.2 Action Alternative

The Proposed Action would result in negligible short- and long-term impacts to soils within the APE. Temporary impacts would occur during construction due to ground disturbance from excavation, grading, and the movement of heavy equipment. These activities would lead to soil compaction, reduced infiltration rates, and increased susceptibility to erosion, particularly in areas with loose or fine-grained soils. Disturbed soils would also be more vulnerable to wind and water erosion, which would result in sediment transport to adjacent water bodies, potentially affecting water quality. A total of 6.31 acres out of the overall 41.59-acre APE area would be disturbed as a result of the Proposed Action. Due to the size of the disturbance area and the short-term nature of the construction, impacts would be insignificant.

Permanent impacts to soils would not occur, as restoration activities, including bank stabilization and native vegetation plantings, would improve soil stability, resulting in a long-term beneficial effect. In areas where vegetation is removed, natural recovery would take several seasons, but re-seeding with native species would occur and would help restore soil functions and prevent long-term degradation (Section 3.5). Overall, while the Proposed Action would cause short-term disturbances, the implementation of BMPs and restoration efforts would result in insignificant long-term impacts.

The implementation of BMPs, such as silt fencing, erosion control blankets, and revegetation efforts, would be implemented. These measures would further reduce the insignificant impacts of the Proposed Action to soil resources in the APE.

3.13 VISUAL RESOURCES

3.13.1 Affected Environment

The visual character of the Proposed Action is defined by its natural landscape, riverine environment, and surrounding infrastructure. Located along the San Juan River, the APE features a mix of riparian vegetation, planted and native grasslands, and adjacent developed areas, including roadways, parking lots, tourism-based residences and hotels, and private properties. The scenic quality of the river corridor is a key component of the local visual environment, attracting residents and visitors for outdoor recreation, including fishing, hiking, and wildlife viewing. The riparian corridor consists of cottonwood trees, willows, and native grasses that provide seasonal variation in color and texture. Views from the riverbanks include natural rock formations and distant mountainous backdrops characteristic of the Southern Rocky Mountains.

The visual sensitivity of the APE is heightened by its role as a gateway to Pagosa Springs, where maintaining scenic quality is an important consideration for local tourism and community identity.

3.13.2 Environmental Consequences

3.13.2.1 No Action Alternative

Under the No Action Alternative, the existing visual conditions of the APE would remain unchanged. There would be no temporary visual disturbances associated with construction activities, such as the presence of heavy equipment, material stockpiles, or soil disturbance, which would otherwise create short-term impacts during restoration. No improvements would be made that would assist with ongoing erosion, vegetation loss, and sedimentation contributing to a gradual decline in scenic quality. Without restoration efforts, opportunities to enhance the visual character of the river through native vegetation plantings or bank stabilization would occur.

3.13.2.2 Action Alternative

Implementation of the Proposed action would result in negligible, short- and long-term impacts to the visual resources within the APE. In the short-term, construction activities would introduce visual disturbances, including the presence of heavy equipment, material stockpiles, and temporary soil disturbance. These impacts would be most noticeable from public vantage points such as trails, roads, and river access areas but would be temporary, lasting only for the duration of construction. Because these impacts are temporary, they would not rise to the level of significant.

In the long-term, the Proposed Action would have a beneficial effect on the overall scenic quality of the river corridor by stabilizing eroded banks and restoring native vegetation. Revegetation efforts would reduce exposed soil and improve the natural appearance of riparian areas, while strategic placement of access points and trails would help minimize visual impacts from recreational use.

Additionally, the potential exists for other project activities, listed in Section 1.3.1.2, to occur concurrently with the Proposed Action. Activities of the Jackson Lake Mountain Project involving vegetation clearing conducted concurrently with construction activities for the Proposed Action would result in visual resource impacts. Vegetation clearing intended to assist with wildfire mitigation would affect visual resources, and the Proposed Action would have similar impacts until revegetation is accomplished. Because impacts to vegetation would not lead to visible changes significantly different or more dominant in the long-term than what is already present on the landscape, impacts would be negligible and insignificant.

4 ENVIRONMENTAL COMMITMENTS

This section summarizes the design features, BMPs, conservation measures, and other requirements (collectively, "Environmental Commitments") developed to lessen the potential adverse insignificant effects of the Proposed Action. The actions in the following environmental commitment list would be implemented as an integral part of the Proposed Action and shall be included in any contractor bid specifications.

Note that in the event there is a change in the Proposed Action description, or any construction activities are proposed outside of the inventoried Proposed Action Area or the planned timeframes outlined in this EA, additional environmental review by Reclamation would be required to determine if the existing surveys and information are adequate to evaluate the changed project scope. Additional NEPA documentation may be required.

Table 12. Environmental Commitments.

Type	Environmental Commitment	Affected Resource	Authority
Construction Contractor Plan or Certification Requirement	A Spill Response Plan shall be prepared in advance of construction by the contractor for areas of work where spilled contaminants could flow into water bodies.	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	A Stormwater Management Plan shall be prepared and submitted to CDPHE by the construction contractor prior to construction disturbance.	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	A CWA Section 402 Storm Water Discharge Permit compliant with the National Pollutant Discharge Elimination System (NPDES) shall be obtained from CDPHE by the construction contractor prior to construction disturbance (regardless of whether dewatering would take place during construction).	Water Quality	Clean Water Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	Certification under CDPHE Water Quality Division Construction Dewatering Discharges Permit COG070000 shall be obtained by the construction contractor prior to any dewatering activities related to construction.	Water Quality	Clean Water Act of 1972 as amended

Type	Environmental Commitment	Affected Resource	Authority
Construction Contractor Plan or Certification Requirement	If dust becomes a concern while hauling spoils and construction materials to and from the site, roads would be wetted with water obtained from the San Juan River Basin.	Air Quality	Clean Air Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	Vehicle tracking pads would be installed at the junction of dirt to pavement surface leaving the staging yard on Reach 6 to remove any loose soil or mud from truck tires minimizing the spread of dust source.	Air Quality	Clean Air Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	Limit vehicle idling time to reduce vehicle emissions. Conduct regular inspections and maintenance of construction vehicles, such as keeping engines tuned and filters clean.	Air Quality	Clean Air Act of 1972 as amended
Construction Contractor Plan or Certification Requirement	Equipment fueling, maintenance, and storage operations will be conducted at least 50 feet from any wetland or stream system.	Water Quality	Clean Water Act of 1972 as amended
General NEPA Compliance	To satisfy the requirements of NWP-27, submit the following package to the USACE at least 30 days in advance of construction: (1) documentation for compliance with the ESA and NHPA and/or the lead Federal Agency NEPA document containing the same, (2) a project description, (3) project plans, and (4) a location map."	Wetlands	NWP-27, Section 404, Clean Water Act of 1972 as amended
General BMP	All equipment shall be power washed before it is brought to the construction area, to minimize transport of new weed species to the construction area.	Vegetation, Weeds, Habitat, Wildlife	Archuleta County Integrated Weed Management Plan (Archuleta County 2024)
General BMP	Vegetation removal shall be confined to the smallest portion of the Proposed Action Area necessary for completion of the work.	Soil, Vegetation, Weeds, Habitat	Archuleta County Integrated Weed Management Plan (Archuleta County 2024)

Type	Environmental Commitment	Affected Resource	Authority
General NEPA Requirement	Tree grubbing and vegetation removal in all APEs shall avoid the primary nesting season of migratory birds (April 1 – July 15). This timing restriction shall be noted on Proposed Action construction drawings.	Wildlife	Migratory Bird Treaty Act of 1918
Conservation Measure	Heavy construction equipment and major construction activities that may adversely affect migrating and breeding SWFL will not occur within 100 meters of identified potential habitat during the breeding season (May 1 – August 15). Handwork may be conducted within these areas and buffer zones during this time.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Heavy construction equipment and major construction activities that may adversely affect migrating and breeding YBCU will not occur within 300 meters of identified potential habitat during the breeding season (May 25 – September 30). Handwork may be conducted within these areas and buffer zones during this time.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Prior to any ground disturbance in Reach 1 and 2 of the Proposed Action the boundary of plant populations will be clearly marked with construction fence by a qualified biologist. If Proposed Action plans change, the biologist will be notified, and a new survey will be conducted.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	If soil in the APE is to be disturbed or removed as part of Proposed Action activities, topsoil will be stockpiled in non-habitat areas and replaced after construction to preserve the seed bank.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Native plant species that support large pollinators, which can help to sustain the identified population of Pagosa skyrocket, will be incorporated into planting plans.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended

Type	Environmental Commitment	Affected Resource	Authority
Conservation Measure	Erosion control logs, manufactured textiles, dirt beams, erosion control blankets or weed free mulch, and other BMPs will be used to prevent sedimentation and soil movement into occupied Pagosa Skyrocket habitats.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Dust suppression measures will be implemented to reduce the transport of dust into occupied Pagosa skyrocket habitats, such as watering exposed soils and limiting vehicle speeds.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Avoid herbicide application within 100 feet of identified Pagosa Skyrocket populations	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	The access road added within Reach 3, following the Pagosa skyrocket survey period, will be surveyed in the spring/summer, during appropriate survey windows, for the species. If any Pagosa skyrocket individuals are found, the road will be rerouted at least 25 feet away from mapped occurrences. Pagosa skyrocket populations found will be clearly marked with construction fence by a qualified biologist.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	To the extent feasible, no nectar feeding plants or host plant species for monarch butterflies or caterpillars would be removed during Proposed Action activities.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Native milkweed plant species that support monarch butterfly life events will be incorporated into planting plans.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended

Type	Environmental Commitment	Affected Resource	Authority
Conservation Measure	In the event that previously undocumented threatened or endangered species are encountered during construction, the contractor shall stop construction activities until Reclamation has consulted with USFWS to ensure that adequate measures are in place to avoid or reduce impacts to the species.	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
Conservation Measure	Proactive conservation actions to protect and conserve pollinators and pollinator habitat will be taken, such as retaining suitable foraging (diversity and abundance of native floral resources), nesting (suitable host colony above or below ground), and overwintering habitat (loose substrates such as leaf litter, duff, rotting logs); maintaining habitat for host bumble bees by avoiding impacts to abandoned underground holes (rodent burrows); and revegetation efforts that include native seed mixes to promote an abundance and diversity of native floral resources	Threatened and Endangered Species	Endangered Species Act of 1973 as amended
General BMP and Design Feature	Temporarily disturbed areas will be revegetated using native vegetation to stabilize soils and reduce the potential for invasive species establishment	Soil, Vegetation, Weeds, Habitat	Archuleta County Integrated Weed Management Plan (Archuleta County 2024)
General BMP	Weed control shall be implemented by the Applicant or its contractor in accordance with the most current Archuleta County weed control standards and public lands permit stipulations. Noxious weed presence shall be monitored subject to agreements between the Applicant and Reclamation.	Soil, Vegetation, Weeds, Habitat	Archuleta County Integrated Weed Management Plan (Archuleta County 2024)

Type	Environmental Commitment	Affected Resource	Authority
General BMP	Straw wattles, silt curtains, cofferdams, dikes, straw bales, or other suitable erosion control measures shall be used to prevent erosion from entering water bodies during construction.	Water Quality	Clean Water Act of 1972 as amended
General BMP	The construction contractor shall transport, handle, and store any fuels, lubricants, or other hazardous substances involved with the Proposed Action in an appropriate manner that prevents them from contaminating soil and water resources.	Water Quality, Soil	Clean Water Act of 1972 as amended
General BMP	Equipment shall be inspected daily and immediately repaired as necessary to ensure equipment is free of petrochemical leaks.	Water Quality, Soil	Clean Water Act of 1972 as amended
General BMP	Ground disturbances and construction areas shall be limited to only those areas necessary to safely implement the Proposed Action.	Soil, Vegetation, Weeds, Habitat, Wildlife	Archaeological Resources Protection Act of 1979; Paleontological Resources Preservation Act of 2009
General BMP	Where practical, mats, logs, or other structures shall be placed over vegetation to avoid excess disturbance.	Soil, Vegetation, Habitat	
General BMP	Native species removal shall be stockpiled and stored so that it can be re-used as topsoil, mulch, or transplant material.	Soil, Vegetation, Habitat	
General BMP	To the extent practical salvaged wetland or riparian soil shall be used in wetland and riparian areas (maintaining hydric soil properties) with minimal amendments.	Soil, Vegetation, Habitat	

Type	Environmental Commitment	Affected Resource	Authority
General NEPA Compliance	If previously undiscovered cultural or paleontological resources are discovered during construction, construction activities must immediately cease in the vicinity of the discovery and Reclamation must be notified. In this event, the SHPO shall be consulted, and work shall not be resumed until consultation has been completed. Additional surveys shall be required for cultural resources if construction plans, or proposed disturbance areas are changed.	Cultural Resources	National Historic Preservation Act of 1966 Archaeological Resources Protection Act of 1979 Paleontological Resources Preservation Act of 2009
General NEPA Compliance	Construction activities shall take place only in accordance with the schedule restrictions summarized in Biological Assessment (Appendix C). These schedule restrictions and their spatial extents shall be clearly marked on the Proposed Action construction drawings.	Wildlife	Endangered Species Act of 1973 as amended
General NEPA Compliance	If a previously undocumented active raptor nest is discovered within ½ miles of the Proposed Action Area during construction, construction shall cease until Reclamation can complete consultations with CPW and USFWS as appropriate.	Wildlife	Migratory Bird Treaty Act of 1918 Bald and Golden Eagle Protection Act of 1940

5 SUMMARY OF IMPACTS

A summary of the impacts of the Proposed Action across various resources, detailing the nature, duration, intensity, and significance of each impact is presented in Table 13. Resources evaluated in this EA are listed, with impact descriptions ranging from temporary construction-related disturbances to long-term benefits from habitat restoration and improved access management. While most impacts are expected to be short-term and negligible during construction, long-term effects are largely beneficial, contributing to ecosystem resilience, enhanced recreational experiences, and improved public safety, with no significant adverse impacts identified

Table 13. Proposed Action Impact Summary.

Resource	Proposed Action Impact Description	Impact Duration	Impact Intensity	Significance
Air Quality	Construction equipment emissions, dust/particulate matter generation	Short-term	Negligible	Insignificant
Transportation, Access, and Public Safety	Traffic delays due to increased traffic from delivery trucks, restricted access to the San Juan River during and pos-construction, long-term improved boater safety	Short-term Long-term	Negligible, Beneficial	Insignificant
Cultural Resources	No Impact	NA	NA	Insignificant
Noise	Construction equipment, people, and traffic noise	Short-term	Negligible	Insignificant
Vegetation	Permanent vegetation removal from excavation, grading, and other activities, temporary disturbance in peripheral areas of staging and access roads, and improved vegetation following restoration efforts	Short-term Long-term	Minor, Beneficial	Insignificant
Noxious Weeds	Spread of noxious weeds from construction, improved vegetation following restoration efforts	Short-term Long-term	Negligible, Beneficial	Insignificant
Wetlands	Temporary vegetation removal from restoration, excavation, grading, and other activities and improved vegetation following restoration efforts	Short-term Long-term	Negligible, Beneficial	Insignificant
Water Quality	Temporary impacts from erosion and sedimentation	Short-term	Minor	Insignificant

Resource	Proposed Action Impact Description	Impact Duration	Impact Intensity	Significance
Fish and Wildlife Resources	Temporary reduction in aquatic and terrestrial habitat availability, temporary direct impacts from chemical control of noxious weeds, temporary noise impacts, improved fish and wildlife habitat	Short-term Long-term	Negligible, Beneficial	Insignificant
Threatened and Endangered Species and Their Critical Habitats	Temporary reduction in aquatic and terrestrial habitat availability, temporary direct impacts from chemical control of noxious weeds, temporary noise impacts, improved fish and wildlife habitat	Short-term Long-term	Negligible, Beneficial	Insignificant
Recreational Resources	Temporary disruption of recreational access during construction, improved boater safety and recreational experience	Short-term Long-term	Negligible, Beneficial	Insignificant
Soils	Ground disturbance, soil compaction, erosion from construction, long-term soil stability improvements	Short-term Long-term	Negligible, Beneficial	Insignificant
Visual Resources	Presence of equipment and disturbance, improvement of scenic quality	Short-term Long-term	Negligible, Beneficial	Insignificant

6 CONSULTATION AND COORDINATION

Agencies and other entities contacted formally or informally to coordinate efforts in preparation of this EA include:

- CPW
- USACE
- USFWS
- SHPO

Notice of a public review period and availability of the Draft EA will be distributed to private landowners adjacent to the Proposed Action, and the organizations and agencies listed in Table 19. The publicly available electronic version of the Draft EA will meet the technical standards of Section 508 of the Rehabilitation Act of 1973, so that the document can be accessed by people with disabilities using accessibility software tools.

Table 14. Environmental Assessment Distribution List.

Agency / Individual
USFWS
USACE
NRCS
CPW
Colorado Department of Archaeology and Historic Preservation
Colorado Water Conservation Board
Colorado River Water Conservation District
Archuleta County Planning and Development
Archuleta County Road and Bridge
Archuleta County Commissioners
The Southern Ute Tribe
The Pagosa Springs Sun
The Durango Herald
22 Landowners

7 PREPARERS AND CONTRIBUTORS

Melissa Belmar – Senior Ecologist and Environmental Planner, DHM Design

Jeremy Allinson – Environmental Planner, Associate Principal, DHM Design

Al Pfister – Biologist, Board Member of Upper San Juan Watershed Enhancement Partnership

Jennifer Ward – Environmental Group Chief, Bureau of Reclamation

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Appendix A –Plant and Seed Lists

Woody Container Plant List		
Scientific Name	**Common Name**	**Type**
Alnus incana ssp. tenuifolia	Thinleaf alder	D60 / D180
Cornus sericea	Redosier dogwood	D60 / D180
Prunus virginiana var. melanocarpa	Black chokecherry	D60 / D180
Rhus trilobata	Skunkbush sumac	D60 / D180
Ribes aureum	Golden currant	D60 / D180
Ribes inerme	Whitestem gooseberry	D60 / D180
Ribes wolfii	Wolf's currant	D60 / D180
Rosa woodsii	Wood's rose	D60 / D180
Salix lucida ssp caudata	Shining willow	D60 / D180
Salix monticola	Park willow	D60 / D180
Shepherdia argentea	Silver buffaloberry	D60 / D180
Symphoricarpos occidentalis	Western snowberry	D60 / D180
Symphoricarpos rotundifolius	Roundleaf snowberry	D60 / D180
Populus angustifolia	Narrowleaf cottonwood	D60 / D180

Woody Cutting Plant List		
Scientific Name	**Common Name**	**Type**
Salix lucida ssp caudata	Shining willow	4-7″ cutting
Salix monticola	Park willow	4-7″ cutting
Salix exigua	Narrowleaf willow	4-7″ cutting
Salix amygdaloides	Peachleaf willow	4-7″ cutting
Salix geyeriana	Geyer willow	4-7″ cutting
Populus angustifolia	Narrowleaf cottonwood	10-12″ cutting

Herbaceous Container Plant List		
Scientific Name	**Common Name**	**Type**
Asclepius speciosa	Showy milkweed	10 ci
Beckmannia syzigachne	American sloughgrass	10 ci
Bolboschoenus maritimus	Cosmopolitan bulrush	10 ci
Bromus cilatus	Fringed brome	10 ci
Carex aquatilis	Water sedge	10 ci
Carex microptera	Small-winged sedge	10 ci
Carex pellita	Woolly sedge	10 ci
Carex praegracilis	Clustered field sedge	10 ci
Eleocharis palustris	Common spikerush	10 ci
Geum macrophyllum	Largeleaf avens	10 ci
Glyceria striata	Fowl mannagrass	10 ci
Helianthus nuttallii	Nuttall’s sunflower	10 ci
Juncus arcticus	Arctic rush	10 ci
Juncus ensifolius	Swordleaf rush	10 ci
Juncus torreyi	Torrey’s rush	10 ci
Mimulus guttatus	Seep monkeyflower	10 ci
Scirpus microcarpus	Panicled bulrush	10 ci

Herbaceous Container Plant List		
Scientific Name	**Common Name**	**Type**
Solidago canadensis	Canada goldenrod	10 ci
Solidago missouriensis	Missouri goldenrod	10 ci

Project Wetland Seed Mix (90 seeds per square foot broadcast / 1 acre [with 10% overage]).			
Scientific Name	**Common Name**	**% Mix**	**Pounds PLS Needed**
Asclepius speciosa	Showy milkweed	1	0.54
Bolboschoenus maritimus	Cosmopolitan bulrush	5	1.75
Carex microptera	Small-winged sedge	5	0.23
Carex nebrascensis	Nebraska sedge	6	0.44
Carex utriculata	Northwest territory sedge	7	1.10
Deschampsia cespitosa	Tufted hairgrass	11	0.22
Eleocharis palustris	Common spikerush	5	0.28
Geum macrophyllum	Largeleaf avens	2	0.10
Glyceria grandis	American mannagrass	8	0.25
Helianthus nuttallii	Nuttall's sunflower	3	0.78
Juncus balticus	Wire rush	10	0.04
Juncus ensifolius	Swordleaf rush	5	0.07
Juncus torreyi	Torrey's rush	5	0.02
Mentha arvensis	Wild mint	3	0.02
Mimulus guttatus	Seep monkeyflower	3	0.03
Muhlenbergia asperifolia	Scratchgrass	8	0.21
Puccinellia nuttalliana	Nuttal alkalaigrass	6	0.08
Sporobolus airoides	Alkali sacaton	7	0.17
Totals		**100**	**6.33**

Project Riparian Seed Mix (100 seeds per square foot broadcast / 1 acre [with 10% overage]).			
Scientific Name	**Common Name**	**% Mix**	**Pounds PLS Needed**
Achillea lanulosa var. occidentalis	Western yarrow	3	0.05
Asclepius speciosa	Showy milkweed	3	1.82
Bromus marginatus	Mountain brome	12	6.22
Deschampsia cespitosa	Tufted hairgrass	8	0.17
Elymus canadensis	Canada wildrye	9	3.44
Elymus trachycaulus	Slender wheatgrass	8	2.40
Helianthus nuttallii	Nuttall's sunflower	3	0.87
Heliomeris multiflora	Showy goldeneye	3	0.11
Leymus cinereus	Basin wildrye	6	1.80
Mimulus guttatus	Seep monkeyflower	1	0.01
Monarda fistulosa	Wild bergamont	3	0.09
Pascopyrum smithii	Western wheatgrass	10	3.83
Poa secunda	Sandberg bluegrass	8	0.33
Ratibia columnifera	Upright prairie coneflower	3	0.17
Solidago canadensis	Canada goldenrod	3	0.03

Project Riparian Seed Mix (100 seeds per square foot broadcast / 1 acre [with 10% overage]).			
Scientific Name	**Common Name**	**% Mix**	**Pounds PLS Needed**
Sporobolus airoides	Alkali sacaton	4	0.11
Sporobolus cryptandrus	Sand dropseed	10	0.08
Symphyotrichum laeve	Smooth blue aster	3	0.15
Totals		**100**	**21.68**

Project Upland Seed Mix (110 seeds per square foot broadcast / 1 acre [with 10% overage]).			
Scientific Name	**Common Name**	**% Mix**	**Pounds PLS Needed**
Achillea lanulosa var. occidentalis	Western yarrow	1	0.02
Achnatherum hymenoides	Indian ricegrass	4	1.36
Adenolinum lewisii	Lewis flax	2	0.32
Artemisia frigida	Prairie sagewort	3	0.03
Bouteloua gracilis	Blue grama	8	0.52
Bromus marginatus	Mountain brome	9	5.13
Elymus canadensis	Canada wildrye	6	2.52
Elymus elymoides	Squirreltail	7	1.75
Elymus trachycaulus	Slender wheatgrass	8	2.64
Festuca arizonica	Arizona fescue	4	0.40
Festuca saximontana	Rocky Mountain fescue	5	0.20
Gaillardia aristata	Blanketflower	2	0.51
Grindelia squarrosa	Curly cup gumweed	2	0.24
Helianthus annuus	Common sunflower	1	0.42
Heliomeris multiflora	Showy goldeneye	3	0.12
Hesperostipa comata	Needle-n-thread grass	4	1.40
Ipomopsis aggregata	Scarlet gilia	2	0.27
Koeleria macrantha	Prairie junegrass	4	0.08
Monarda fistulosa	Wild bergamont	2	0.07
Pascopyrum smithii	Western wheatgrass	7	2.95
Penstemon strictus	Rocky Mountain penstemon	1	0.11
Penstemon virgatus	Front Range beardtongue	2	0.18
Poa secunda	Sandberg bluegrass	3	0.14
Pseudoroegneria spicata	Bluebunch wheatgrass	3	1.23
Ratibia columnifera	Upright prairie coneflower	3	0.18
Sporobolus cryptandrus	Sand dropseed	4	0.04
Totals		**100**	**22.83**

Project Seed Mix Alternatives List		
Scientific Name	**Common Name**	**Mix**
Festuca idahoensis	Idaho fescue	Upland
Monarda pectinata	Bergamont	Upland
Nassella viridula	Green needlegrass	Upland
Penstemon secundiflorus	Sidebells penstemon	Upland

Project Seed Mix Alternatives List		
Scientific Name	**Common Name**	**Mix**
Poa fendleriana	Muttongrass	Upland
Solidago missouriensis	Missouri goldenrod	Upland
Leymus cinereus	Basin wildrye	Upland
Artemisia dracunculus	Wild tarragon	Upland
Muhlenbergia montana	Mountain muhly	Upland
Schizachyrum scoparium var. scoparium	Little bluestem	Upland
Symphyotrichum laeve	Smooth blue aster	Upland
Solidago missouriensis	Missouri goldenrod	Riparian
Muhlenbergia asperifolia	Scratchgrass	Wetland
Carex practicola	Northern meadow sedge	Wetland
Carex pellita	Woolly sedge	Wetland
Carex scoparia	Broom sedge	Wetland
Eleocharis acicularis	Needle spikerush	Wetland
Glyceria striata	Fowl mannagrass	Wetland
Juncus longistylis	Long-styled rush	Wetland

Appendix B – Cultural Resource Consultation

History Colorado

August 7, 2025

Bart Deming
Acting Area Manager
Bureau of Reclamation
Western Colorado Area Office
445 West Gunnison Avenue, Suite 221
Grand Junction, CO 81501
Email: ZNelson@usbr.gov

RE: Determination of Eligibility and Effect; Cultural Resources Inventory for the Pagosa Gateway San Juan River Restoration Project, WaterSMART Program, Colorado (AA.R.R28) (HC #86439)

Dear Mr. Deming:

We received your recent correspondence on July 1, 2025, requesting review of the above referenced undertaking under Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations 36 CFR part 800. Information requested by email on July 11, 2025 was received August 5, 2025. Our office has reviewed the submitted materials, and we offer the following comment.

Identification of Historic Properties

We agree with the defined area of potential effects. We concur with your determination that sites 5AA5712, 5AA5713, and 5AA5751 are eligible for the National Register of Historic Places (NRHP) under criterion D. We concur with your determination that linear segment 5AA3803.20 retains sufficient integrity to support the property's NRHP eligibility under criteria A and C. We concur with your finding of **no historic properties affected**, 36 CFR 800.4(d)(1), to 5AA3803.

Assessment of Adverse Effects

We concur with your finding of **no adverse effect**, 36 CFR 800.5(b), to sites 5AA5712, 5AA5713, and 5AA5751, for the undertaking as currently described.

Should unidentified historic properties or unanticipated effects to historic properties be discovered in the course of the undertaking, work must be interrupted in order to complete consultation with our office and other consulting parties pursuant to 36 CFR 800.13. Also, should the consulted-upon scope of the work change please contact our office for continued consultation under Section 106 of the NHPA.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or other consulting parties might cause our office to re-

evaluate our eligibility and potential effect findings. Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Mark Tobias, Intergovernmental Services Manager, at (303) 866-4674 or mark.tobias@state.co.us.

Sincerely,

(for) Dawn DiPrince
State Historic Preservation Officer

Appendix C – ESA Compliance Documentation

United States Department of the Interior

BUREAU OF RECLAMATION
Durango Field Division
185 Suttle Street, Suite 2
Durango, CO 81303-7911

IN REPLY REFER TO:

WCG-JWard
2.2.1.06

VIA ELECTRONIC MAIL ONLY

Colorado Field Office
445 W. Gunnison Ave, Ste 240
Grand Junction, CO 81501

Project Code: 2025-0048549

The U.S. Fish and Wildlife Service concurs with your determinations that the described project is not likely to adversely affect listed species or critical habitat listed under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). Contact this office if the project changes, new information becomes available about effects to listed species, or if new species or critical habitat are listed.

Western Colorado Supervisor

Memorandum

To: Nathan Darnall
Western Colorado Supervisor, Fish and Wildlife Service
nathan_darnall@fws.gov

From: Ed Warner
Area Manager

Ed Warner
2025.03.05
07:08:53 -07'00'

Subject: Request for Consultation under Section 7 of the Endangered Species Act for the Pagosa Gateway Project, WaterSMART Program, Colorado

The Town of Pagosa Springs (Town) applied for a WaterSMART grant from the Bureau of Reclamation (Reclamation) to partially fund the Pagosa Springs Project (project). Reclamation is requesting informal consultation pursuant to Section 7 of the Endangered Species Act for a proposed riparian restoration project on the San Juan River located at the eastside of the Town. A project location map is included in Appendix A in the attached Biological Assessment (BA). We have previously discussed this project with Terry Ireland and Kathie Gissing of your office.

Background

The Upper San Juan River Watershed Partnership's (WEP) conducted an environmental and recreation (E&R) water supply needs assessment in 2021. The assessment identified potentially significant changes in hydrology and limiting conditions for aquatic life in the 1.7 mile section of the San Juan River beginning on the eastside of Town and extending east. The assessment results suggest late summer and fall flows may restrict the availability and quality of aquatic habitat for fish and other aquatic species, as well as the number of days in a year when recreational crafts can successfully navigate this segment of the San Juan mainstem. In response to this assessment, a project was developed that includes the implementation of a series of interventions, including the creation of low-flow channels, promotion of bank stabilization, riparian vegetation enhancements, and fish passage improvements, as well as the removal of hazardous streambank materials to increase the resiliency of the San Juan River and its ability to support aquatic life and diverse water users. The mechanical and biological interventions proposed by the Project would respond to the results of the assessment and seek to offset the negative impacts of changing streamflows on environmental and recreational water needs.

The Project includes the following goals:

1. Strengthen the San Juan River's resiliency for improved ecological health and recreation.
2. Safeguard aquatic habitats and recreational opportunities in the face of changing climate conditions.
3. Address hydrological shifts impacting aquatic and riparian life and recreational activities, including the creation of low flow channels to allow greater connectivity during late summer low flow periods.
4. Establish riffle and pool habitats to benefit native and recreational fish populations.
5. Reestablish riparian vegetation to provide shade and therefore reduce summertime stream temperature.
6. Reinforce riverbanks by promoting native vegetation to mitigate erosion.
7. To the extent feasible, minimize streambank hazards, enhancing safety for recreation.
8. Support Pagosa Springs' tourism-based economy linked to the river's well-being.
9. Enhance the aesthetic, ecological and recreational values of the San Juan River.

Project Description

Restoration activities would be conducted within six reaches throughout the 1.7 mile segment of the San Juan River. An overview map of the six reaches as well as maps outlining planned restoration actions in each reach are included in Appendix A of the attached BA.

Proposed work that would occur in each of the six reaches is outlined below, followed by a narrative of how the work would be implemented.

Reach 1 (3+00 to 24+00)
The following proposed interventions are included in this section of river:

- Boulders would be repurposed from another location and placed in channel
- Thalweg grading
- Placement of rock spurs
- Fill grading
- Vegetation restoration - includes willow harvesting from the right bank of the river in this area to improve the existing vegetative health and provide materials for other areas of the Project.
- Access for heavy and light equipment
- A staging area totaling 0.1 acres is planned for an existing parking lot

Reach 2 (24+00 to 43+00)
The following proposed interventions are included in this section of river with a goal of improving low flow conditions, improve low flow boat passage, improve fishery connectivity and aquatic habitat, improve hydrological function, and improve the stability of the river banks:

- Void fill rip-rap (VFRR) and habitat bank stabilization
- Fill grading
- Placement of rock/habitat structures
- Placement of rock spurs
- Pool grading
- Vegetation restoration
- Access for heavy and light equipment

Reach 3 (43+00 to 66+00)
The following proposed interventions are included in this section of river with the goal of improving boater passage, aquatic habitat, and fishery connectivity:

- Vegetation restoration
- Debris removal revegetation
- Rock structure/habitat
- Fill grading
- Pool grading
- Thalweg grading
- Access for heavy and light equipment
- Access for heavy and light equipment to the left bank of the river would be provided between 58+50, through a private parcel of land.

Reach 4 (66+00 to 91+00)
The following proposed interventions are included in this section of river with the goal of improving boater passage, aquatic habitat, hydraulic structures, and riparian vegetative health:

- Rock structure/habitat
- Fill grading
- Pool grading
- Thalweg grading
- Riparian vegetation restoration
- Addition of rock spurs
- Light equipment access

Reach 5 (91+00 to 105+00)
The following proposed interventions are included in this section of river, with the goal of improving low-flow boat passage, fishery connectivity, aquatic habitat and riverside resilience:

- Fill grading
- Thalweg grading
- Riparian vegetation restoration
- Light equipment access

Reach 6 (105+00 to 113+00)
The following proposed interventions are included in this section of river with the goal of improving bank stabilization, hydraulic structure, aquatic habitat, and river resilience and benefitting the geomorphic trajectory of the river flow:

- Fill grading
- Thalweg grading
- Riparian vegetation restoration

- Rock structure/habitat
- Pool grading
- Addition of rock spurs
- Access for heavy and light equipment
- A staging area totaling 1.5 acres

Construction Plan

The initial construction actions for the Project would begin September 1 and include the creation of a primary staging yard within Reach 6. After receiving equipment and installing erosion control measures, materials would begin to arrive via semi-trucks. These materials would then be loaded into tandems and delivered to the other two downstream access points. Activities would overlap while this material is distributed into the channel via rubber tracked haul trucks for use in specific treatments at the designated locations and cached as described below. Bank revetment treatments in Reaches 1 and 2 would be the first primary build focus after material import and staging are completed. Channel grading associated with the bank treatments would be performed in the immediate areas creating a completed section to facilitate a clean tie-in point for the next Project phase. The next phase is the overall benthic reshaping of the stream bed with two excavators each addressing treatments in Reaches 5 and 6 and Reaches 3 and 4. These machines would continue to leapfrog progressing downstream until the design has been implemented. Riparian revegetation efforts follow this build progression and would be completed per the design in downstream progression. The overall Project schedule is listed below, in Table 1.

Table 1. Project Construction Schedule.

Description	Dates
Transport of materials, use of heavy equipment, river work, and vegetative restoration	September 1 – December 1
Vegetative restoration	March 1 – May 1

Equipment Access and Material Stockpile Areas

Primary access would be at three locations. The upstream of Reach 6 would contain a primary access point for Reaches 5 and 6 in addition to the primary staging yard for the Project, located in the upland area adjacent to Highway 160. This location has the spatial ability to receive semi-trucks delivering materials. This imported rock would be moved to the other two access points at Reach 3 and Reach 1 via tandem dump trucks. Materials delivered to Reach 3 access would immediately be distributed in Reaches 3 and 4. Materials delivered to Reach 1 would be immediately distributed to Reaches 1 and 2. All materials would be distributed to their respective installation points via the river channel utilizing track trucks to minimize the ecological impact to the stream bed. Temporary river stockpiles would occupy these locations as narrow windrows placed in line regarding river flow within the OHWM. Some construction equipment expected to be used include hydraulic excavators, track trucks, front-end loaders, tractor trailer end dumps, tandems, mini excavators, and skid steers.

Material Description

Primary construction materials for the Project would consist of rock and aggregate materials, and vegetation. Imported rock in the form of large boulders and more angular riprap would be used in conjunction with cobble, silts, and sands, either imported or sourced onsite from channel grading.

Native vegetation would consist of nursery grown container stock, cuttings and whole transplants, and seed and possible soil amendments. In addition to natural materials, manufactured geotextile, erosion control fabric, biologs, and weed free mulch would be imported and used in bank stabilization areas and to provide temporary erosion control.

Project Monitoring and Reporting

Monitoring and reporting would focus on three main Project objectives: survival of vegetation, increase in recreational opportunities, and aquatic health. Monitoring of vegetation would be performed by a private third-party consultant who would conduct green-line surveys and determine percent survival and recruitment rates of installed vegetation. Surveys among the boating community would be conducted to evaluate improvements in low-flow navigability and increases in floatable days. Fish counts would be conducted by CPW or an approved third-party consultant to monitor post-project aquatic health.

Vegetation Removal

Vegetation clearing would be necessary for access, staging, vegetation improvements, and installation of river improvement features. Vegetation within the project area consists of a variety of vegetative communities, ranging from ruderal disturbed riparian vegetation and Kentucky bluegrass (*Poa pratensis*) lawns (uplands) to native willow carr habitats in the riparian floodplain of the San Juan River. All vegetation removal would be restored.

Vegetation removal would include the removal of vegetation within the construction site with some subsurface disturbance of the vegetation roots dependent on the extent of construction. Due to the various extents of ecological and river degradation on-site, vegetation removal would vary alongside the required treatments. Levels of vegetation removal and impacts are included below:

- Access routes and staging: Herbaceous vegetation degradation and soil compaction via equipment access and materials storage. Mid-canopy vegetation would not be impacted to the extent practical. Minor impacts may occur when accessing restoration and staging areas. When accessing the riverbank zone, restructuring and total vegetation removal would occur. Where practical, mats, logs, or other structures would be placed over vegetation to avoid excess disturbance.
- Bank restructuring: In areas where bank restructuring is required, all present vegetation would be removed prior to treatment installation. This includes herbaceous through upper canopy vegetation removal for grading, intensive bioengineering (toe-wood, log jams, etc.), rip rap installation, infrastructure removal (Detroit rip rap), and bank slope stabilization.
- Noxious species removal: Vegetation removal would vary based on the extent of non-native vegetation present. For monocultures of non-native species (i.e.. Kentucky bluegrass), all vegetation would be treated immediately prior to revegetation activities. In less dense areas, noxious species would be treated as later detailed.
- Canopy opening: Vegetation and structural diversification are recommended in areas of dense willow stands. Mid-canopy willow pockets would be removed at the root ball to be saved as transplants and replanted on-site elsewhere. To do this, an approximately 3' x 3' root ball would be excavated with a few feet depth of soil, and subsequently revegetated with diverse vegetation.

No native trees would be removed as part of the Project. Some large, non-native trees (ie. Russian olives [*Elaeagnus angustifolia*], crack willow [*Salix fragilis*]) would be removed and may be used for large woody debris or mulch within the project area.

Revegetation

Mechanical site preparation would be conducted to deter invasive plant species presence and promote site specific soil conditions for native vegetation. Techniques that would be used in identified revegetation zones include:

- Removal of biomass: This action would occur on a treatment-specific basis to remove non-native species, grade the site, and during other activities that would require groundwork. Mulch would be used to reduce erosion and maintain organic content, depending on the specific site conditions. Native species removal would be stockpiled and stored so that it can be re-used as topsoil, mulch, or transplant material.
- Soil amending: With additional soil sampling and assessment, soils would be amended with the proper nutrients, microbes, and soil organic matter suitable for native restoration in the various areas (ie. riparian, upland) of the overall project area. Granular soil amendments and nutrients are tailored to the site, using minimal nitrogen as to not promote weed germination. In upland areas, a soil amendment similar to Richlawn 7-2-1 at 300 lbs/ac would be used. To the extent practical salvaged wetland or riparian soil would be used in wetland and riparian areas (maintaining hydric soil properties) with minimal amendments. In areas low in soil organic matter, compost would be incorporated to 6" at a rate of 60 – 130 cy/ac.
- Soil decompaction and scarification: Overly compact soils would be ripped to a depth of 12" to ensure proper soil tilth and increase germination. All seeded areas would be disced to prepare the surface immediately prior to seeding. To avoid loss of nutrients and excessive evaporation from soils, seeding would occur within 24 hours of ripping/discing. Seed would then be sown, the soil would be roller packed to ensure good seed to soil contact, and soil surface protection would be installed.
- Temporary erosion control: Temporary disturbances, such as soil displacement and increased erosion risk, would occur during the site preparation phase. Proper measures such as straw waddles and rock socks would be utilized to prohibit excessive erosion.

Following all grading, infrastructure installation, and site/soil preparation, a variety of revegetation methods would be utilized. Native seed mixes and plant palettes for riparian, wetland, and upland areas were selected specifically for this site. Local ecotype plant sources would be prioritized to ensure genetic compatibility when available.

Various levels of container plantings and cuttings would be included to increase species and structural diversity on-site. Dependent on the restoration area, the extent and canopy levels of plantings would vary. For example, where full bank restructuring would occur, a diverse mix of herbaceous (10 ci) forb and grass containers, shrubs (D60/D180/cuttings), and trees (D180/cuttings) would be installed in the appropriate locations. For many restoration areas where only structural diversity and bank stability

improvements are needed, a variety of cuttings, shrub, and tree container plants would be installed. Location specific plantings are based on the current composition of the site and hydrologic conditions.

Seed would be hand broadcast at the rates listed on the seed mixes above. Immediately following seeding, all seed would be incorporated into the soil at the appropriate depth. Upland seed would be harrowed, and wetland/riparian seed mixes would be hand raked to ensure it is not buried too deep as sunlight is needed for some species to germinate. All seeded areas would be roller packed to firm the soil so that proper seed to soil contact is ensured.

All revegetation areas would be covered with the proper erosion control measures to ensure soil surface protection. The chosen methods would also increase soil moisture content, reduce temperatures, and add organic matter so that native plant survivorship increases. All D180 container plants and larger would be protected with a layer of mulch around the stem and wildlife protection to increase survivorship. Seeded areas would have the measures implemented as outlined in Table 2.

Table 1. Soil Surface Protection Specifications in Seeded Areas.

Item	Rate	Depth	Location
Weed-free Ag straw (crimp). Guar @ 60 lbs/ac	3,000 lbs/ac	3-5" crimp	All seeded areas <30% slopes
CC4 Erosion control blankets (8" ecostakes)	N/A	N/A	Upland seeded areas >30% slopes
Koir 700 (on top of straw, 18-24" wedge stakes) OR Koir 1000	N/A	N/A	0.5' below OHWM to 8' above OHWM in all full riparian restoration areas

Adaptive Management

An adaptive management plan would outline specific approaches, strategies, and protocols related to the post-restoration care. The plan would outline the process of the determined site monitoring strategy, designed to inform weed management, site protection, and other maintenance treatments (e.g., reseeding, planting, bank protection, erosion control, etc.) necessary to accomplish the Project's restoration goals.

A monitoring program would evaluate the success of vegetation establishment and identify emerging threats such as invasive species reinvasion. Monitoring would use subjective (i.e., qualitative) or objective (i.e., quantitative) methods to help identify Project failures due to potential stressors, such as drought, insect damage, flooding, and herbivory, and to inform maintenance needs. Subjective methods, such as repeat photography or categorical monitoring forms, would effectively document site changes and quickly inform maintenance activities necessary to correct problems. Conversely, quantitative monitoring is more data-driven and aims to measure Project outcomes through science-based methods designed to minimize observer bias. Methods such as line-point-intercept and survivorship counts would provide data that can be analyzed accurately over time.

A combination of subjective and objective methods is proposed to balance cost effectiveness with objectivity. To strike this balance, the monitoring strategy would integrate some categorical observations (i.e., high, moderate, low, none; or scoring 0-5 for various element conditions) into rapid assessments. Repeatable and consistent methods would be employed during the monitoring period. As personal and management circumstances change over time, data would be collected and managed in a way that can be easily understood and interpreted by a variety of future land managers and practitioners.

A variety of metrics including vegetation cover, species composition, revegetation survivorship, noxious weed assessments, and soil stability assessments would be utilized. Subsequent treatment strategies would be implemented as needed, such as supplementary seeding, erosion control, spot treatments for invasive species, or additional soil amendments.

Noxious Weed Control

Noxious weed control would occur as part of the Proposed Action to reduce the spread of invasive plant species, promote the recovery of native vegetation, and support overall ecosystem health. An initial assessment would identify the type, extent, and density of noxious weed infestations. Surveys would be conducted during the peak growing season to ensure accurate identification. GIS tools would be used to map species density and phenology and prioritize management areas based on ecological risk and proximity to sensitive habitats.

A combination of methods would be employed based on species-specific conditions, site constraints, and permission from landowners. There are five primary approaches to treating noxious weeds. While using only one method to treat weeds can yield some success, it is often most effective to use multiple treatment approaches in conjunction. Each of these would be assessed following monitoring to treat the noxious population in question:

- Prevention – Ensuring that weeds are not introduced to or allowed to become established at the site as much as possible. This would be done during construction by cleaning equipment used at the site, using weed free mulches, straw, seed, and monitoring any work sites for the appearance of noxious weeds.
- Cultural – The establishment of competitive and desired native vegetation during initial construction and after weed eradication efforts. This is a critical element of weed management without which weed control efforts often prove futile.
- Mechanical – Consists of physical methods to remove, damage, or destroy weedy plants. These methods include hand pulling, digging, seed head/flower removal, discing, and mowing.
- Herbicide – Application of herbicide to weedy vegetation. Often the most effective and time-efficient method of managing weeds. Herbicides can be selective to a certain class of plants such as broad leaves or grasses or can be broad-spectrum meaning that they injure most plants which they contact. Thus, species specific herbicides would be chosen during treatment planning. When combining mechanical and herbicide application, use a treatment pattern of mechanical-regrow-herbicide.
- Biological – The use of grazing or highly species-specific arthropod predators or disease-causing agents to suppress and weaken a dense population of a particular species of weed. It is important to note that biological control does not eradicate a target weed from a site, but reduces large, dense, and otherwise intractable populations to a state where other methods of control are more feasible. It is also important to note that biological control is not a quick process; it typically requires three to five years to see any results.

Debris Removal

The project area contains several embedded large objects including concrete rubble and sections of metal pipe. Methods to remove the objects aim to minimize ecological disturbances.

- Manual Removal: Small items would be removed by hand or using basic tools to minimize habitat disturbance.
- Mechanical Extraction: Larger debris, such as concrete debris and metal pipe, would be removed using excavators and loaded into haul trucks or loaders to be disposed of off-site.
- Capping and Covering: In order to avoid inadvertently releasing any potential pollutants into flowing or standing water, there is no plan to remove entire auto bodies or mechanical debris which was historically used to stabilize banks. Banks which have been stabilized using crushed auto bodies would be covered with void filled riprap and planted to establish vegetation**.**

Areas disturbed during removal activities would be restored to pre-removal conditions or improved. Restoration efforts include replanting riparian vegetation to stabilize banks and reintroducing natural substrate materials to restore riverbed structure.

Effects Determinations and Proposed Mitigation Measures

Based on the information described above, Reclamation requests the Service's concurrence with the following effects determinations for the proposed action:

1) The proposed action **may affect, but is not likely to adversely affect**, the southwestern willow flycatcher (*Empidonax trailii extimus*) (SWFL).

   Direct and indirect effects to SWFL are identified in the attached BA.

   Construction will occur primarily outside the species' breeding season, with heavy construction activities limited to September 1 through December 1, overlapping with a maximum of one month of SWFL's potential presence before migration. No identified SWFL habitat will be removed, and construction within 100 meters of suitable breeding habitat will be restricted during the breeding season to avoid disturbance. While noise from construction activities could temporarily disrupt foraging or migration, ambient noise levels from Highway 160 suggest the species is already accustomed to elevated noise conditions. Vehicular traffic will be limited and managed at low speeds, reducing the risk of direct take. Additionally, no SWFL have been documented in the project area, further minimizing potential impacts.

   Indirect effects, such as sedimentation or herbicide use for invasive species management, will be mitigated through conservation measures (CM). The project also includes habitat restoration efforts such as enhancing willow patches, improving floodplain connectivity, and controlling invasive species, all of which will provide long-term benefits for SWFL. Given the avoidance of direct impacts, the implementation of conservation measures, and planned habitat improvements, the project may affect, but is not likely to adversely affect the SWFL.

2) The proposed action **may affect, but is not likely to adversely affect**, the yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (YBCU).

   Direct and indirect effects to YBCU are identified in the attached BA.

   Heavy construction activities will occur from September 1 through December 1, overlapping with a maximum of one month of the species' potential presence before migration and one month of the breeding season. To minimize impacts, construction within 300 meters of suitable breeding habitat will be restricted during the breeding season. While noise, vibration, and increased human activity could temporarily disrupt foraging or migratory behaviors, the effects are expected to be minimal given the ambient noise from Highway 160 and the limited nature of project activities near identified habitat. Additionally, construction vehicles will operate at low speeds and within the APE, reducing the risk of direct take. No YBCU have been documented in the project area, further minimizing the likelihood of adverse effects.

   Indirect effects, such as habitat degradation from sedimentation or herbicide use for invasive species management, will be mitigated through CMs. Additionally, the project includes habitat restoration efforts such as improving floodplain connectivity, controlling invasive species, and restoring riparian vegetation, which will provide long-term benefits for YBCU. Given these conservation measures, the project may affect, but is not likely to adversely affect YBCU.

3) The proposed action **may affect, but is not likely to adversely affect**, the Pagosa skyrocket (*Ipomopsis polyantha*).

   Direct and indirect effects to Pagosa skyrocket are identified in the attached BA.

   The proposed project is not expected to directly impact the Pagosa skyrocket, as construction activities such as channel reshaping and bank stabilization will avoid known populations. Protective measures, including fencing, will prevent disturbance from personnel and equipment. While dust generation from grading and excavation could reduce photosynthetic efficiency or interfere with pollination, these effects are expected to be negligible since most construction will occur outside the plant's active growth and flowering periods. Construction is planned from September through May, overlapping only briefly with the beginning of the Pagosa skyrocket's life cycle in late April and early May. Indirect impacts, such as invasive species spread, pollinator disruption, and potential herbicide exposure, will be minimized through CMs, including limiting herbicide use near known populations and implementing native plant restoration. Given these considerations, the project may affect, but is not likely to adversely affect Pagosa skyrocket.

4) The proposed action **may affect, but is not likely to adversely affect**, Pagosa skyrocket designated critical habitat.

   Effects to Pagosa skyrocket designated critical habitat are identified in the attached BA.

   The project area overlaps with designated critical habitat for the Pagosa skyrocket, but direct impacts are minimal. Approximately 0.1 acres of habitat potentially meeting the species' PCEs will be affected, though these areas are riparian or wetland habitats that do not typically support the species. Indirect effects, such as invasive species establishment and pollinator disruption, could degrade critical habitat conditions, but mitigation measures will reduce these risks. Construction will occur outside of key pollination periods, and invasive species management will follow strict protocols, including restricting herbicide use within 100 feet of known populations. Given these considerations, the project may affect, but is not likely to adversely affect Pagosa skyrocket critical habitat.

The project does not include a predator management program and the project area does not include suitable habitat for any other federally listed species. No bog violet is present within the project area. The Suckley's cuckoo bumble bee is considered to be extirpated from Colorado. The project would not result in any water depletions. Reclamation has determined that the proposed action will have **no effect** on the Canada lynx, gray wolf, New Mexico meadow jumping mouse, Mexican spotted owl, Rio Grande cutthroat trout, Monarch butterfly, silverspot, or Suckley's cuckoo bumble bee.

If you have any questions or need additional information, please contact Jenny Ward at (970) 248-0651 or by email at JWard@usbr.gov. For the hearing impaired please call the Federal Relay System at (800) 877-8339 (TTY).

Attachments - 1

Appendix D – CWA Compliance Documentation

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS ALBUQUERQUE DISTRICT REGULATORY DIVISION
SOUTHERN COLORADO BRANCH, DURANGO OFFICE
1970 EAST 3RD AVENUE, SUITE 109
DURANGO, COLORADO 81301-5025

May 20, 2025

Regulatory Division

SUBJECT: Nationwide Permit Verification (SPA-2024-00485)

Upper San Juan Watershed Enhancement Partnership
Attn: Al Pfister
P.O. Box 3238
Pagosa Springs, Colorado 81147
westernwildscapes@gmail.com

Dear Mr. Pfister:

The U.S. Army Corps of Engineers (Corps), Albuquerque District, is responding to your pre-construction notification (PCN) submitted to us for verification of authorization under Nationwide Permit (NWP) for the *Pagosa Gateway* project. The approximately 10,800-linear foot project site is located in the San Juan River, just upstream of the Town of Pagosa Springs, approximately centered at latitude 37.27936°, longitude -106.98606°, Archuleta County, Colorado.

Based on the information provided, we have determined that the *Pagosa Gateway* project involves the discharge of dredged and/or fill material into waters of the United States for the purpose of improving ecological function, enhancing fish habitat, and stabilizing the streambank within this reach of the San Juan River, subject to Section 404 of the Clean Water Act. The specific activity that requires Department of Army authorization is the placement of approximately 2,087 cubic yards of earthen materials (rocks/boulders) to construct aquatic habitat features such as habitat rocks, rock deflectors, and cross vanes to increase available aquatic habitat. Additionally, some channel shaping will occur to rearrange the river alluvium to create deeper pool habitats. In total, these activities will result in permanent impacts to 10,800 linear feet (5.88-acre) of perennial stream (i.e., San Juan River) and temporary impacts to 0.23 acre of palustrine wetland. The project would be conducted as described in the PCN submittal dated April 28, 2025.

The Corps has determined that activities associated with the project are authorized by 2021 NWP 27- *Aquatic Habitat Restoration, Enhancement, and Establishment Activities*. A summary of this NWP and the 2021 Colorado Regional Conditions are available on our website at www.spa.usace.army.mil/reg/nwp. Failure to comply with all terms and conditions of this NWP may result in the suspension or revocation of this authorization. As required by General Condition 30, you shall sign the enclosed Compliance Certification (Enclosure 1) and return it to this office within 30 days after completion of the authorized work. For specific information regarding compliance with water quality certification (WQC) requirements, please

refer to our website at www.spa.usace.army.mil/reg/wqc. In addition, the work must comply with the following **special condition:**

1. **In accordance with Colorado Regional Condition 7(d), you shall submit a complete set of as-built drawings to the Corps within 90 days following completion of the activities authorized by this verification. The drawings shall include the following:**

    a) **The Department of the Army Permit number.**

    b) **A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings. The drawing should show all "earth disturbance" and structures.**

    c) **Ground and aerial photographs of the completed work. The camera positions and view-angles of the ground photographs shall be identified on a map, aerial photograph, or project drawing.**

    d) **A description and list of all minor deviations between the work as authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings the location of any deviations that have been listed.**

Our review of this project identified the U.S. Bureau of Reclamation (USBR) as the lead federal agency for addressing this project's potential effects on threatened and endangered species and historic properties, in accordance with General Conditions 18 and 20. Based on the information provided, the USBR has determined that this project may affect, but is not likely to adversely affect federally listed species or their critical habitat. Additionally, there will be no adverse effect to historic properties as a result of the project. The Corps concurs with these determinations. However, these determinations may be invalidated if the project is not completed as authorized or you did not provide accurate information in your PCN.

This permit verification is valid until March 14, 2026, unless the NWP is modified, suspended, reissued, or revoked prior to that date. Continued confirmation that an activity complies with the terms and conditions, and any changes to the NWP, is the responsibility of the permittee. Activities that have commenced, or are under contract to commence, in reliance on an NWP will remain authorized provided the activity is completed within 12 months of the date of the NWP's expiration, modification, or revocation.

This letter does not constitute approval of the project design features, nor does it imply that the construction is adequate for its intended purpose. This permit does not authorize any injury to property or invasion of rights or any infringement of federal, state, local, or tribal laws or regulations. The permittee and/or any contractors acting on behalf of the permittee must

possess the authority, and any other approvals required by law, including property rights, to undertake the proposed work.

The landowner must allow Corps representatives to inspect the authorized activity at any time deemed necessary to ensure that it is being, or has been, accomplished in accordance with the terms and conditions of the permit.

We would appreciate your feedback on this permit action including your interaction with our staff or suggestions for improving our program. For more information about our program or to complete our Regulatory Program national customer service survey, visit our website at https://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/.

Please refer to identification number SPA-2024-00485 in any correspondence concerning this project. If you have any questions, please contact the Southern Colorado Branch by email at SPA-RD-CO@usace.army.mil, or telephone at (970) 259-1764.

Sincerely,

Tucker J. Feyder
Sr. Project Manager
Southern Colorado Branch

Enclosures

cc:

Corey Engen, Flywater Inc., corey@flywater.com
Jim White, Colorado Parks & Wildlife, j.white@state.co.us
Jenny Ward, U.S. Bureau of Reclamation, jward@usbr.gov

COMPLIANCE CERTIFICATION

Action Number: SPA-2024-00485

Name of Permittee: Upper San Juan Watershed Enhancement Partnership, Attn: Al Pfister

Permit: NWP 27 – *Aquatic Habitat Restoration, Enhancement, and Establishment Activities*

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers, Albuquerque District
Southern Colorado Branch
1970 East 3rd Avenue, Suite 109
Durango, Colorado 81301
spa-rd-co@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit.

Date Work Started _____

Date Work Completed _____

_____ _____
Signature of Permittee Date

Encl 1