Final Environmental Assessment

Lower Diamond Fork

Aquatic Habitat Enhancement Project

Utah Reclamation Mitigation and Conservation Commission

July 2026

Environmental Assessment Contents

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Cover Photo: Diamond Fork channel with near-vertical banks in the project area. Downstream view, July 3, 2024.

cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CUP	Central Utah Project
CUPCA	Central Utah Project Completion Act
CWA	Clean Water Act
CUWCD	Central Utah Water Conservancy District
EA	Environmental Assessment
ITAs	Indian Trust Assets
Mitigation Commission	Utah Reclamation Mitigation and Conservation Commission
NEPA	National Environmental Policy Act
Reclamation	U.S. Bureau of Reclamation
SWPPP	Stormwater Pollution Prevention Plan
UDWR	Utah Division of Wildlife Resources
UDWQ	Utah Division of Water Quality
USFWS	U.S. Fish and Wildlife Service

1.0 PURPOSE AND NEED

The Utah Reclamation Mitigation and Conservation Commission (Mitigation Commission) has prepared this Environmental Assessment (EA) for the Lower Diamond Fork Aquatic Habitat Enhancement Project (project) to meet the requirements of the National Environmental Policy Act (NEPA). The mission of the Mitigation Commission is to formulate and implement policies and objectives to accomplish the mitigation and conservation projects authorized in the Central Utah Project Completion Act (CUPCA; Public Law 102-575, 106 Stat. 4600, 4625, October 30, 1992). The Mitigation Commission does so in coordination with federal and state fish, wildlife, and recreation agencies and with local governmental entities and the general public [43 CFR 10000.5(a)]. The Mitigation Commission's NEPA implementing regulations are specified in the federal code at 43 CFR 10010 et. seq.

1.1 Project Area

The geographic scope of the project encompasses an approximately 1.8-river mile reach of the lower Diamond Fork Creek and its floodplain upstream from where Diamond Fork Creek is crossed by US-6/US-89 (Figure 1). Diamond Fork Canyon is a popular local recreation destination for camping, fishing, hiking, biking, and off-road vehicle travel. The canyon is accessed from US-6 East/US-89 South approximately 6.2 miles southeast of Spanish Fork in Utah County, Utah.

1.2 Project Background, Purpose, and Need

The Diamond Fork watershed has historically been used as a conduit for transbasin water deliveries from the Colorado River drainage basin to the Bonneville Basin. The Strawberry Valley Project, constructed between 1906 and 1922, delivered water from Strawberry Reservoir to agricultural lands in Utah Valley. Delivery was accomplished by sending flows down Sixth Water and Diamond Fork Creeks. During the many decades of operating the Strawberry Valley Project, flows of about 300-500 cubic feet per second (cfs) were delivered as surface flow during the irrigation season. These flows greatly exceeded the natural size and capacity of these streams and caused extensive and damaging channel adjustments and ecological changes.

The Central Utah Project (CUP) is a more recent project that also transfers water from the Colorado River Basin to the Bonneville Basin. The Diamond Fork System of the CUP now conveys both CUP and Strawberry Valley Project water from Strawberry Reservoir to the Bonneville Basin. With the completion of the Syar Tunnel/Sixth Water Aqueduct in 1996 and the remaining Diamond Fork System pipeline components in 2004, most water deliveries are now made via pipelines rather than the natural stream channels.

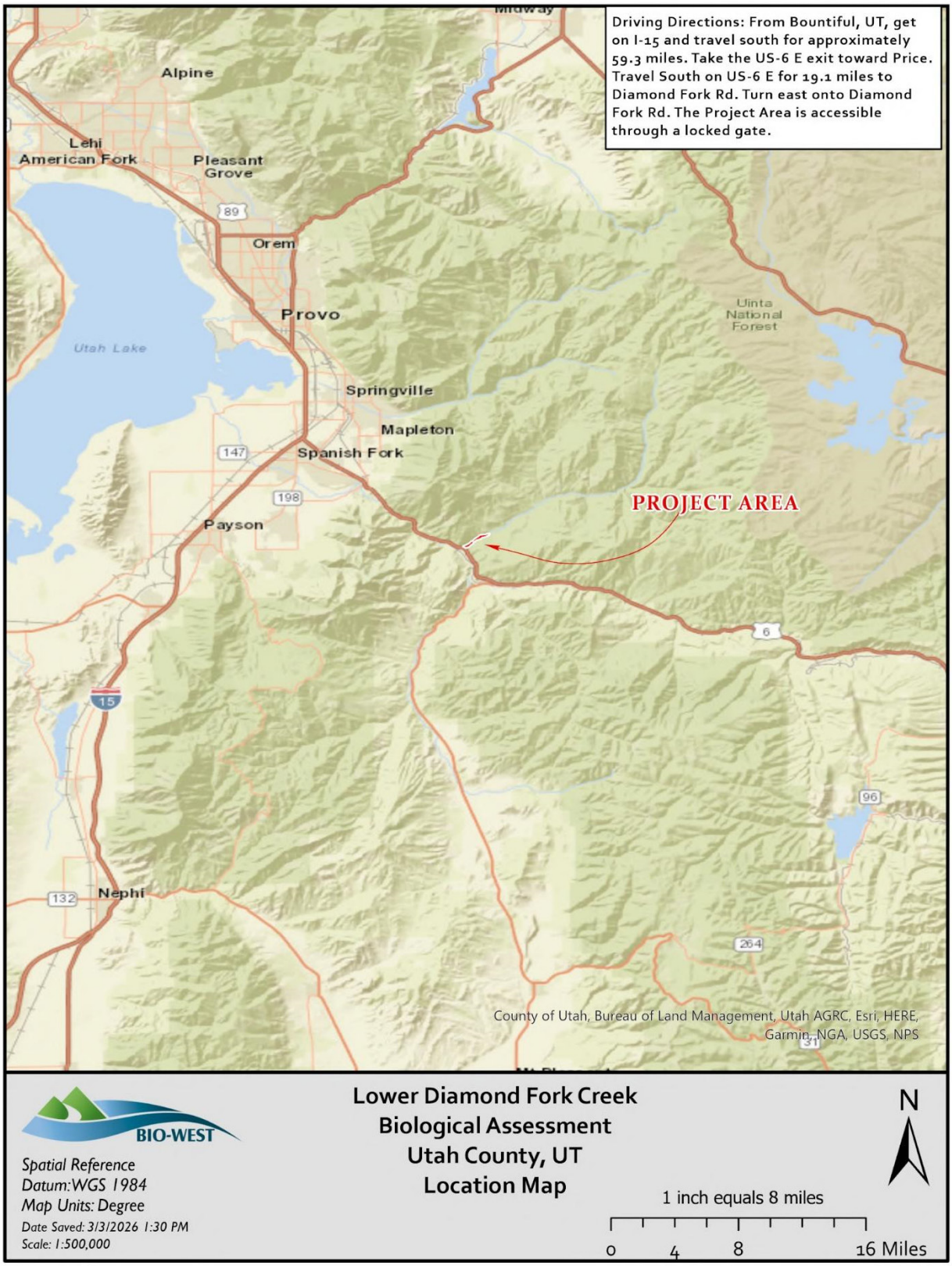

Figure 1. Project location

Section 303(c) of CUPCA mandated minimum stream flows to be provided continuously and in perpetuity in certain sections of Sixth Water and Diamond Fork Creeks. However, ecological monitoring of the ecosystem conducted by the Mitigation Commission between 2005 and 2012 raised concerns that the CUPCA-mandated minimum flows were too high to promote healthy ecological conditions in both Diamond Fork and Sixth Water Creeks. Subsequent research by Utah State University from 2015 to 2019 investigated the hydrology, geomorphology, and ecology of Sixth Water and Diamond Fork Creeks and recommended lowering base flows to improve general ecosystem conditions, to improve the recreational and native trout fishery, and to maintain a "mid-size" fishing experience that is rare along the Wasatch Front (Wilcock et al. 2019).

In 2022, the Central Utah Water Conservancy District (CUWCD), the U.S. Department of the Interior – Central Utah Project Completion Act Office, and the Mitigation Commission completed an Environmental Assessment and FONSI approving reduction of the mandated minimum instream flows (CUWCD 2022). This return to a more natural flow regime has been accompanied by corresponding geomorphic adjustments on lower Diamond Fork, including some reestablishment of riparian vegetation including cottonwood recruitment. Despite these trends toward ecosystem recovery, aquatic habitat quality – specifically, deep pool habitat – remains lacking in lower Diamond Fork Creek. Figure 2 illustrates a typical reach lacking deep pool habitat.

CUPCA also authorized the Mitigation Commission to pursue watershed, riparian, and fish habitat restoration and improvement projects on Sixth Water and Diamond Fork Creeks. Plans for implementing active restoration interventions have proceeded cautiously, given the ongoing adjustments to the flow regime and corresponding channel and floodplain responses. As a step towards identifying appropriate styles and locations for efforts like installation of habitat structures or physical channel manipulation, the Mitigation Commission funded an aquatic habitat evaluation effort; results are available in the *Diamond Fork Aquatic Habitat Evaluation and Enhancement Planning Final Report* (Allred Restoration and BIO-WEST 2018). The report describes the project area portion of the creek as having long, straight stretches without pools. Also of note is the fact that many mature cottonwood trees in the project area burned during the Pole Creek fire in September 2018. Impacts from the Pole Creek fire also contributed to high sediment loads during the high flows of the spring 2019 runoff period. The project area also includes several floodplain areas with ponds and depressions that support Columbia spotted frog (*Rana luteiventris*), a species identified as vulnerable under the Utah Wildlife Action Plan. The riparian area of Diamond Fork Creek is also known to support populations of Ute ladies'-tresses (*Spiranthes diluvialis*), a threatened species under the Endangered Species Act.

The purpose of the project is to enhance the aquatic habitat of Diamond Fork Creek and to mitigate for the effects of the 2018 Pole Creek Fire. The needs for taking action are the lack of deep pool habitat in the channel and sedimentation in the channel as an effect of the fire.

Figure 2. A typical long run of Diamond Fork Creek in the project area illustrating lack of suitable fish habitat. Downstream view, April 30, 2024.

1.3 Proposed Action

The Mitigation Commission proposes to enhance aquatic habitat of 1.8 river miles of the Diamond Fork Creek through active stream restoration, mobilizing heavy equipment to construct in-stream rock and large woody debris structures in order to create pools where these aquatic habitat features are most lacking in the project reach. Additional benefits of active restoration include: the opportunity to stabilize eroding banks that are contributing sediment loads to the channel; the opportunity to create more off channel pond habitat within the floodplain, enhancing habitat for Columbia spotted frog; and to treat invasive plant species and replant upland areas and wetlands with native plants supporting habitat quality for Ute ladies'-tresses and other native flora and fauna.

The project will occur on federal lands, with 1.4 river miles occurring on lands administered by the Mitigation Commission and the remaining 0.4 miles on Forest Service lands within the administrative boundaries of the Spanish Fork Ranger District of the Uinta-Wasatch-Cache National Forest.

1.4 Applicable NEPA Documentation

The recently completed *Diamond Fork System Environmental Update Project Final Environmental Assessment* (CUWCD 2022) evaluated effects of reducing minimum required instream flows in Sixth Water and Diamond Fork Creeks among other actions. Information from the affected environment and analysis section in that prior EA that are specific to Diamond Fork Creek were incorporated into this EA.

Previous related environmental documents and planning processes for the Diamond Fork System have been:

- Diamond Fork Power System Final Environmental Impact Statement (Reclamation 1984)
- Diamond Fork System Final Supplement to the Final Environmental Impact Statement (Reclamation 1990)
- Diamond Fork System Final Supplement to the Final Environmental Impact Statement (CUWCD 1999)
- Final Environmental Assessment for the Diamond Fork System Proposed Action Modifications (CUWCD 2000)
- Diamond Fork System 2002 Final Environmental Assessment for the Proposed Action Modifications (CUWCD 2002)
- Supplement to the Bonneville Unit Definite Plan Report (CUWCD 2004b)
- Utah Lake Drainage Basin Water Delivery System Final Environmental Impact Statement (CUWCD 2004a)
- Temporary Change to Winter In-stream Flows in Diamond Fork Creek Categorical Exclusion (CUWCD 2011)
- Winter Instream Flows and Flow Studies Categorical Exclusion Checklist (CUWCD 2015)

1.5 Permits, Contracts, and Authorizations

The project will require the following permits/authorizations prior to mobilizing on site:

- Regional General Permit 16 from U.S. Army Corps of Engineers
- Stream Alteration Permit from the Utah Division of Water Rights
- Clean Water Act Section 401 Water Quality Certification (or waiver) from the Utah Division of Water Quality
- Clean Water Act Section 402 Utah Pollution Discharge Elimination System, Construction General Permit from the Utah Division of Water Quality
- Biological Opinion from the U.S. Fish and Wildlife Service
- Special Use Permit from Uinta-Wasatch-Cache National Forest
- Access Permit from Utah County (Diamond Fork Road construction accesses)

2.0 ALTERNATIVES

In this section of the EA, the Mitigation Commission provides a detailed description of the Proposed Action Alternative and the No Action Alternative. Design features for avoiding and minimizing adverse impacts of the Proposed Action Alternative are also described, as are alternatives that have been considered but not carried forward.

2.1 Proposed Action Alternative

Under the Proposed Action Alternative, the Mitigation Commission would enhance aquatic habitat of 1.8 river miles of the Diamond Fork Creek through active stream restoration. The map series in Appendix A illustrates proposed design features. Constructed aquatic features will include cross-channel rock structures, in-stream boulders, and bank-anchored large woody debris. Examples of these structures that have been created in other rivers are illustrated in Figures 3, 4, and 5. Additionally, off-channel ponds with wetland and riparian fringes will be created to enhance wetland diversity and to create aquatic habitats suited for Columbia spotted frogs. The planned numbers of aquatic habitat features include:

- 34 cross-channel rock structures
- Over 700 boulders
- 150-200 large woody debris features (both in the channel and in excavated wetland ponds)
- 12 excavated off-channel wetland ponds

Figure 3. Example cross-channel rock structure, Strawberry River

Figure 4. Example of in-stream boulders, Strawberry River

Figure 5. Example of bank-anchored large woody debris, Strawberry River

Bank protection is also planned for three areas of erosion that are currently contributing to high sediment loads. The largest of these is near river mile 0.5 of the project reach as illustrated on map page 4 in Appendix A. On river right, the bank has eroded up to 35-40 feet high for a length of about 220 feet. The second location is a smaller eroding bank upstream near river mile point 0.2 (map page 5), on river left. These two eroding banks would be stabilized using boulders, anchored large woody debris, and revegetation with native streamside vegetation to provide long-term stability and reduce sediment loading. The third eroding bank location is downstream of the other two, between river mile points 1.4 and 1.6 (map page 2). There are two places at this location where the channel has moved south and is eroding the bank on river left. The proposed solution here is different from the other bank hardening locations; channel plugs/mounds would be constructed near river mile point 1.4 and 1.5, and a new meandering channel would be excavated between river mile 1.5 and 1.6 for a total length of approximately 400 feet. Together, the plugs/mounds and channel realignment would direct velocity away from the eroding bank areas. Revegetation of disturbed soils and stabilized banks involves 33.6 acres of seeding and mulching, and nearly 45,000 plantings.

Currently there is an open ditch taking water from Diamond Fork Creek, near the upper end of the project area, to a series of constructed ponds on river left. The ditch then returns the unconsumed water to Diamond Fork Creek. The upper portion of the open ditch is leaky and subject to beaver damming, and a portion of the diverted water does not make it to the constructed ponds. While equipment is on-site for the mitigation project, a pipe will be installed to replace the open ditch between the diversion and first pond, and a short section further downstream, to increase the amount of water going through the series of ponds (see Appendix A pages 4-5).

2.1.1 Construction

Constructing the proposed aquatic habitat features will require mobilizing heavy equipment on site and importing to the site large boulders and large woody debris. Equipment needed will include:

- Cat 320, 329 and/or 336 trackhoe (or equivalent)
- Cat 740, 735, 725 articulating 6-wheel drive trucks (or equivalent)
- Cat 950 front-end wheeled loader (or equivalent)
- Cat D8 Bulldozer (or equivalent)
- Water truck

Project work areas can be accessed from either Diamond Fork Road (river right) or from the Property Access Road and an existing two-track road (river left). When presented with an early conceptual design (30 percent), resource agencies voiced a preference for reducing the number of access points on the floodplain by using the river channel for upstream and downstream access within localized river sections where work is being performed. This recommendation was

prompted by a desire to minimize impacts to known Ute ladies'-tresses and Columbia spotted frog habitats and occurrences. Incorporating this recommendation into the design, several temporary access routes (spurs) were identified utilizing upland routes as much as possible. Access routes are identified in the Appendix A map series. Access routes will be flagged to avoid impacting sensitive habitats, indicating where equipment can operate and where they would not be allowed access, and equipment operators will receive instruction to understand the flagging prior to beginning work and as work progresses.

Channel work would generally progress from downstream to upstream. Below the Property Access Bridge, the river channel would be accessed from two upland routes, one directly from where the Access Road is parallel to the channel on river left and from an upland route to river left. Once in the channel, construction equipment would move up and down the channel to create in-channel habitat structures and anchored woody debris extending into the channel. This work would be done primarily using a trackhoe. Excavated wetland ponds can be completed at any time during the construction process and would be somewhat dependent on available manpower. Excavated fill from the wetland ponds would be relocated into designated upland areas and then spread out/contoured into the existing topography for seeding, mulching, and planting in the fall.

Staging areas (equipment parking, material stockpiling) would occur in upland areas. An existing parking area adjacent to the Property Access Road will be used for construction staging for river-left access points. Other staging will need to occur in upland areas along access routes. All temporary impacts to vegetation from staging activities and accesses will be followed by seeding, mulching, and planting in the fall with native species. Vegetation mapping was performed to develop appropriate native seed mixes and planting plans for upland, riparian, and wetland vegetation communities.

Equipment cleaning will be required prior to mobilization on site. Weed control that can be implemented prior to mobilization includes treating dense areas of white top and thistle. Weed treatments will be conducted by Utah Division of Wildlife Resources staff and/or BIO-WEST under coordination with the Mitigation Commission. In the fall after construction, all disturbed areas will be seeded and planted with native species, and hydromulched to protect bare soils and improve seeding and planting success. A small number of native plant species will be installed in spring 2027 to better comply with timing of plant growth for nursery stocks.

2.1.2 Design Features

The following design features (e.g., best management practices, standard operating procedures) to avoid and minimize environmental impacts are incorporated into the Proposed Action:

- Flagging will be placed along designated access routes and equipment work areas to direct equipment operators to the appropriate locations where disturbance is allowed and

not allowed, preventing unintended equipment movement or stockpiling in suitable habitat and locations of known Ute ladies'-tresses occurrences.

- The construction crew will receive instructions regarding how work areas have been flagged, indicating areas where equipment can and cannot operate and where material can and cannot be placed.
- Where equipment would be operating in close proximity to 2021-2026 Ute ladies'-tresses recorded occurrences and the terrain (such as a high riverbank), or other features (trees, shrubs) would not prevent inadvertent impact or trampling, the area of occurrences will be flagged to prevent equipment and workers from impacting the area.
- If it is determined that an area of 2021-2026 Ute ladies'-tresses occurrences cannot be avoided, the sod mat (upper 12-18 inches of soil) from the occupied surfaces will be carefully moved and placed into nearby restored areas of suitable habitat. A map will be developed showing polygons of the original and new locations of any occupied sod moved during construction, if transplanting occupied sod is needed.
- Log mats may be used along portions of access routes where ground is soft (wetlands) to minimize ground disturbance and post-construction restoration.
- Equipment cleaning will be required prior to mobilization on site. Revegetation of disturbed areas with native species after construction will limit invasive species introduction and spread in disturbed areas. Monitoring will occur for five years following construction to adaptively treat invasive and noxious species and to complete replanting if necessary.
- Sources of dust during construction that could affect flowering plants would primarily be due to equipment operating on access roads and staging areas, and any stockpiling that may be necessary in upland areas. Fugitive dust will be minimized by watering regularly in areas that could affect Ute ladies'-tresses. A water truck will be kept on-site as needed.
- If construction begins before August 15, nest clearance surveys would commence no more than one week before any construction activities commence. Nest clearance surveys will be conducted by flagging teams led by qualified avian biologists. Occupied nests will be flagged and documented using high-accuracy GPS units. Once nest locations are documented, appropriate buffer areas (e.g. 50 feet for passerine birds) will be established and these areas will be avoided until the nesting period ends.
- If work crews were to encounter any suspected cultural artifacts or evidence of human remains, work activity would stop immediately. The crew leader would inform the Mitigation Commission project manager who would then consult with Reclamation's cultural resources specialist to determine the appropriate course of action prior to resuming project work in the affected area.

2.1.3 Schedule

Construction is proposed to start late June and end late November 2026. Revegetation will occur in fall 2026 and spring 2027. Some additional construction may be needed in 2027 in this area if not completed in 2026.

2.2 No Action Alternative

Under the No Action Alternative, the Mitigation Commission would not implement active stream restoration in the lower 1.8 river miles of Diamond Fork Creek. Lower creek flows would continue to have benefits, addressing some of the sediment loading problems of the past, but would not address the on-going eroding bank problems occurring within the project area. Post fire riparian vegetation conditions would continue to improve with recent cottonwood recruitment and willow habitats likely continuing to expand and over the long-term developing wooded riparian habitat supporting migratory bird nesting. The reduction in suitable habitat for Ute ladies'-tresses due to expansion of woody vegetation and a drying trend within the floodplain due to channelization of the stream channel would likely continue in the direction of having less area of suitable habitat for Ute ladies'-tresses and declining population trends. Invasive perennial grasses and weeds such as white top and thistle would likely continue to expand. The Mitigation Commission could pursue weed control efforts to address this problem and could continue to monitor Ute ladies'-tresses populations but would not have the opportunity to more proactively address invasive species through reseeding and replanting areas with native species. Low aquatic habitat quality for fish due to the lack of deep pool habitat would likely not improve with the channel and floodplain lacking structural elements (large boulders, large woody debris) to create natural channel complexity.

2.3 Alternatives Considered but Eliminated

Besides no action, other potential alternatives to the proposed action would be to implement less intensive river restoration strategies, or conversely, to implement even more intensive proactive river reconstruction efforts.

The lack of deep pool habitat within the channel could potentially be approached through smaller-scale actions such as installing post-assisted log structures (PALS) or similar structures but may not succeed as a long-term solution as these features would be more susceptible to high flows during wetter years and on-going effects of high sediment loads in the channel. The Mitigation Commission concluded that active intervention to create channel structures would be a more effective long-term solution for meeting the objective of improving aquatic habitat in the project reach of Diamond Fork Creek.

The Mitigation Commission also considered a larger intervention for a portion of the project reach, realigning a longer segment of the existing channel between project river mile 0.4 and 0.6. The purpose of this channel reconstruction would have been to move the river away from the large eroding bank near river mile 0.5. Realignment would also help to increase flow in the floodplain where a large number of Ute ladies'-tresses occurrences were observed in the past, with fewer occurrences in more recent years. However, digging a new channel through this area would have the potential to directly affect Ute ladies'-tresses occurrences and would add substantially to project disturbance and cost. Furthermore, the channel would have the possibility of shifting back toward the eroding bank in future years and continuing the erosion problem. Based on these considerations, the Mitigation Commission decided it would be more effective to focus efforts on stabilizing the large eroding bank with the channel remaining in its current location.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

In this section of the EA, the Mitigation Commission provides a detailed description of the existing environmental conditions and presents analysis of the effects of the No Action and Proposed Action Alternatives.

3.1 Issues Considered in Brief or Dismissed

Table 1 lists resource issues and topics that have been considered in brief or dismissed from consideration, along with an explanation of effects or the rationale for dismissal from detailed analysis.

Table 1. Issues considered in brief or dismissed

Resource/Issue	Explanation of Effects or Rationale for Dismissal from Detailed Analysis
Air quality	The project area is outside of all Utah nonattainment and maintenance areas. Construction equipment would emit criteria pollutants when operating but would not cause emissions that contribute to an exceedance of air quality standards. Fugitive dust emissions would also occur but would be minimized through design criteria.
Cumulative impacts	Past actions that have affected the environmental quality of the project area are primarily associated with trans basin water deliveries using the stream channel, as described in the Project Background (Section 1.2). The environmental effects of high flows and subsequent reduced flows are described in the affected environment section of each resource topic that has been advanced for detailed analysis. The environmental effects of the Proposed Action Alternative are evaluated in the context of the environmental baseline as well as the reasonably foreseeable future condition of the project area under the No Action Alternative.

Resource/Issue	Explanation of Effects or Rationale for Dismissal from Detailed Analysis
	Mitigation Commission lands may be transferred to the Forest Service in the future, but in such case would be preserved with on-going capacity to support existing recreational and wildlife habitat land uses. There are no other reasonably foreseeable state, private, or federal actions that would occur in the project area.
Energy	Construction activity would consume energy; however, the project would not have long-term effects on energy use or energy resource availability.
Hazardous materials and hazardous waste	No known hazardous material or waste facilities, spills, or other issues are in Diamond Fork Canyon. Potentially hazardous materials used during construction of the project (e.g., fuels) would be properly handled according to county, state, and federal regulations.
Land use	The project is located entirely on federal lands with 1.4 river miles occurring on Mitigation Commission lands and 0.4 miles on the Uinta-Wasatch-Cache National Forest. The project would not require changes to the Forest Plan. In addition to conveying water delivered by the Central Utah Project and Strawberry Valley Project, the project area has been primarily used by recreational anglers and serves as wildlife habitat. Fishing and wildlife habitat would be the primary land uses following project completion, with water deliveries now being made via the Diamond Fork System pipeline components. Grazing also occurs within the National Forest boundary but is not a designated use on Mitigation Commission lands. During project planning, the Mitigation Commission became aware that livestock loading and unloading has been occurring at a pullout location along Diamond Fork Road that is within Mitigation Commission lands. The Mitigation Commission may coordinate with the Forest Service to determine if livestock loading and unloading can be moved to a location within the National Forest.
Noise and vibration	Construction noise could disturb wildlife and recreation users in adjacent areas; however, these impacts would be temporary. The type of construction work that would occur (land disturbance, excavation, contouring) would have minimal vibration effects.
Prime, unique, and statewide important farmland	The project does not intersect any designated prime, unique, or statewide important farmland and as such does not require preparation of a Farmland Impact Rating under the Farmland Protection Policy Act.
Public health and safety	The project area is accessible to the public by foot traffic only from pullouts along Diamond Fork Road or from the Forest Service boundary on the north end. Construction staging and active work areas may be temporarily posted as closed to public access. Areas where construction work is complete will be made accessible to the public, except that reseeded and planted portions of these areas may be fenced or flagged until vegetation becomes established. Work within the National Forest boundary would be confined to the channel; as such, public access to Forest lands would not need to be restricted except within the portion of the channel where work is occurring. The Mitigation Commission will coordinate closely with the Bureau of Reclamation work crew chief to determine when and where a flagging crew may be needed on Diamond Fork Road.
Recreation	Construction would have short-term effects on angler access to Diamond Fork Creek where active construction is occurring. As work is completed and equipment moves into new work areas, completed portions of the project area would become available for fishing access. Recreational users of Diamond Fork Canyon above the project area may experience temporary delays from construction equipment

Resource/Issue	Explanation of Effects or Rationale for Dismissal from Detailed Analysis
	accessing work areas from Diamond Fork Road but would not experience closures or detours. Construction staging will occur in non-public areas. The project is expected to create long-term improvements in angling success and quality of experience.
Roadless areas	The project would not occur within any Uintah-Wasatch-Cache National Forest designated roadless areas.
Socioeconomics	The project would not impact socioeconomics, with the exception of temporary spending related to construction activities. The project would not affect water deliveries required by existing contracts and water rights. Although the project is expected to improve ecosystem conditions, it is not likely to contribute to a noticeable change in recreation demand or use in Diamond Fork Canyon beyond what would otherwise occur.
Soils	The project would affect soils through surface disturbance during construction. Potential impacts would include the mixing of soil horizons, soil compaction, and increased susceptibility to wind and water erosion. Topsoil would be conserved during construction activities for reuse in disturbed areas. Disturbed areas would be revegetated and restored. As such, the project would not have long-term adverse effects on soil resources.
Transportation	Some work areas will require access from Diamond Fork Road. Brief stoppage of traffic may be necessary as equipment is mobilized to and from the work areas, but no road closures or detours would be necessary. There would be no permanent impact to transportation.
Utilities	No new utilities would be constructed for the project, and no existing utilities would be impacted.
Visual Resources	The project would have minimal to moderate temporary visual impacts, primarily from active construction equipment being present in a natural setting. No structures or other developed features would be added to the project area; as such, the project would have no long-term adverse visual effects.
Wild and scenic rivers	Diamond Fork Creek is not designated as a wild and scenic river and therefore the project would have no effects on these designated natural resources. The project will have beneficial effects to Diamond Fork Creek as a natural stream providing recreational angling experiences.
Wilderness	The project would not occur within any designated wilderness areas or wilderness study areas.

3.2 Water Resources and Water Quality

Water resources and water quality are focal topics for the Proposed Action as the purpose of the project is to improve the functioning of Diamond Fork Creek as an aquatic resource. Changes to the channel structure (channel morphology) and water quality are addressed in this section of the EA; related topics are addressed in other sections including aquatic habitat and fisheries (Section 3.3 and wetlands (Section 3.4).

3.2.1 Affected Environment

The analysis area for water resources is the project area, with larger geographical areas considered for understanding the context, such as locations of downstream water rights and water quality assessment unit extents.

3.2.1.1 Channel Morphology

A stream channel's morphological function is defined by the stream's ability to transport the sediment delivered to it and the hydrologic connection it has with the floodplain. The formation and maintenance of stream channels are generally considered to be a function of the higher flood flows in the channel that occur during spring snowmelt and summer thunderstorms, because these flows maintain channel capacity and transport the supplied sediment, and to supply water to the river's floodplain wetlands and off-channel oxbow ponds.

The very large irrigation flow releases that were delivered for decades following development of the Strawberry Valley Project and prior to operation of the Diamond Fork System substantially changed the morphology of the Sixth Water Creek and Diamond Fork Creek channels. Sixth Water Creek widened and incised by an average depth of 12–15 feet (BIO-WEST 2009). The partially confined reaches of Diamond Fork Creek also incised by about 2–4 feet, and the lower unconfined and lower slope reaches of Diamond Fork Creek (inclusive of the project area) became braided in response to the high irrigation water transport flows and the very high sediment loads delivered from the upstream erosion and incision (BIO-WEST 2009).

The channel width of Sixth Water Creek has remained quite static since 1996, when imported Strawberry Valley Project irrigation water began to be delivered via the Syar Tunnel instead of the Strawberry Tunnel. Sixth Water Creek is a relatively steep mountain stream. The bed and bank material consists of coarse cobbles and boulders that remain largely immobile during common 2 to 5–year floods. Very few finer grained bars or channel margin deposits are present (Wilcock et al. 2019). However, Sixth Water has an active slow-moving landslide delivering a constant source of fine-grained sediments to lower Sixth Water and Diamond Fork Creeks. In contrast, Diamond Fork Creek is less confined and has more mobile bed material. Since completion of the Syar Tunnel and the Diamond Fork System, the channel has adjusted from a braided to a single-thread channel planform and has narrowed by about 45 percent. The extent of narrowing has been greatest in the most-downstream, least-confined reaches of the creek that were initially the widest under Strawberry Valley Project hydrology conditions (Wilcock et al. 2019). Gravel bedload is mobilized by common 2 to 5–year floods, and transport rates are adequate to cause some scour and bar deposition; however, observed transport rates during common flood events do not appear large enough to generate large-scale channel shifts as was common before the Diamond Fork System. The floodplain has become vegetated, and the

channel has become stable with few areas of active meander migration and new bar development. Many channel reaches are straight with uniform bed topography, and pools only occupy about 14 percent of the total channel area (Wilcock et al. 2019).

The original CUPCA-mandated minimum flows of 80 cfs on Diamond Fork Creek exceeded the estimated bedload transport threshold of 40–50 cfs, meaning that fine sediment has been in transport year-round at those flows, which is thought to have contributed to unnaturally turbid conditions and high levels of gravel embeddedness affecting the fishery (BIO-WEST 2012). The summertime mandated minimum flow of 80 cfs also limited encroachment of vegetation along channel margins, limiting further channel narrowing.

Approval to adjust the mandated minimum instream flow to 40 cfs in 2022 was aimed at reestablishing a more natural ratio between base flow and flood flow magnitudes, reducing the loading of fines caused by year-round fine sediment transport and addressing associated turbidity and embeddedness concerns (CUWCD 2021). Return to a more natural flow regime has been accompanied by corresponding geomorphic adjustments on lower Diamond Fork, including some reestablishment of riparian vegetation.

A remaining problem in the lower river channel is the lack of deep pool habitat within the channel supporting fish and aquatic organisms. Additionally, there are locations of eroding banks within the project reach of the river contributing high sediment loads to Lower Diamond Fork Creek and the Spanish Fork River.

3.2.1.2 Water Quality

The approximately 156-square-mile watershed of Diamond Fork Creek includes the tributary Sixth Water Creek, which has received supplemental trans-basin flow inputs from the Strawberry Reservoir since the early 1900s. Other than the installation of the water conveyance infrastructure (including access roads) that makes up the Diamond Fork System, very little development has occurred within the Diamond Fork watershed, and water quality has historically met State water quality standards, except for a short reach of Diamond Fork Creek which is impacted by inflows from a series of sulfur-rich springs (upstream of the project area). An additional water quality concern is related to selenium in groundwater seepage into the Strawberry Tunnel that enters Sixth Water Creek. Selenium concentrations are generally diluted below numeric criteria thresholds by flow deliveries from the Strawberry Tunnel. The sources of sulfur and selenium are associated with the natural geology of the watershed (CUWCD 2021).

According to Utah Division of Water Quality (UDWQ) monitoring protocol, Diamond Fork Creek is broken up into three assessment units (Diamond Fork-1, -2, and -3), Sixth Water Creek into a single assessment unit, and the Spanish Fork River into two assessment units (Spanish Fork River-1 and -2). The project area is within the Diamond Fork-1 unit, with the two Spanish Fork River units occurring downstream of the project area.

All six assessment units are designated by UDWQ for the following beneficial uses per the CWA in UAC R317-2:

- Class 2B: Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water.
- Class 3A: Protected for cold-water species of game fish and other cold-water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4: Protected for agricultural uses including irrigation of crops and stock watering.

Assessment unit Spanish Fork River-1 is also designated by UDWQ for the following beneficial uses per the CWA in UAC R317-2:

- Class 3B: Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 3D: Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.

Water quality data from monitoring locations within each assessment unit are compared to numeric criteria associated with each of the beneficial uses in UAC R317-2 to identify exceedances. If repeated exceedances are documented for a given assessment unit, it may be listed as impaired on the Clean Water Act 303(d) list of impaired waterbodies, which triggers the need for a total maximum daily load analysis. A total maximum daily load establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality.

Water quality monitoring has been completed by CUWCD, and the data are stored for public use in the UDWQ Ambient Water Quality Data Management System database. No exceedances have been documented in the database for dissolved oxygen or temperature, although monitoring data from the District, Mitigation Commission, and Wilcock et al. (2019) indicate that exceedances occasionally occur at some monitoring locations. Additionally, monitoring data indicate that concentrations of total sulfides average roughly 80 micrograms per liter in Diamond Fork Creek just downstream of the sulfur springs. When converted to undissociated hydrogen sulfide, this average concentration is roughly 4.8 micrograms per liter which is more than double the numeric criteria value for the beneficial use of aquatic wildlife. As the creek water travels downstream, concentrations of undissociated hydrogen sulfide appear to decrease rapidly to 1.6 micrograms per liter (a 66 percent decrease) within 0.2 mile downstream and to 1.05 micrograms per liter (78 percent decrease) within 0.4 mile downstream. This indicates that the sulfides are oxidized rapidly within the creek and that water quality in Diamond Fork Creek returns to upstream (above sulfur springs) conditions rapidly (CUWCD 2021).

In short, the project area segment of Diamond Fork Creek appears to have generally good water quality supporting beneficial uses, as do the segments of the Spanish Fork River downstream of the project area based on the numeric criteria. However, at times visual observation of the Diamond Fork watershed and eroding banks can be seen to produce high sediment loads and turbidity persisting beyond the runoff season. This impairs water quality and substrate conditions over what would be possible water quality benefits to aquatic organisms in absence of these high sediment sources.

3.2.2 Environmental Consequences

Water resource issues are:

- How will stream morphological functions such as base flow channel geometry, channel variability/heterogeneity, and sediment transport change under the No Action and Proposed Action Alternatives?
- How will water quality be affected by the alternatives?
- Would the Proposed Action Alternative affect evaporative water losses? Would these changes affect water right deliveries to downstream water users?

Indicators used to assess the issues are as follows:

- Qualitative assessment of channel structure feature effects on channel geometry, variability, sediment transport, and water quality based on similar projects.
- Structured assessment of evaporative water losses and water deliveries using accepted calculation methods.

3.2.2.1 No Action Alternative

The channel morphology under the No Action Alternative would remain similar to existing conditions for decades. This condition would persist until riparian vegetation encroaches, narrowing the channel under the new base flow regime, and trees mature to provide sufficient large woody debris to create more pools in the channel. The riparian vegetation across the floodplain would continue to become more woody, providing better conditions for beaver and sticks for beaver dams. Over time, more beaver dams would increase the number and quality of pool habitats, which will also benefit water quality by filtering sediments. Water quality would remain in a similar condition for decades, except more beaver dams would eventually increase water depths and keep water temperatures cooler, and reduce sediment loads and turbid conditions. Watershed and bank erosion sediment supplies would continue to remain high for decades. Consumptive water uses would remain the same.

3.2.2.2 Proposed Action Alternative

In-stream project work under the Proposed Action Alternative would reduce the time frame from decades to a few months for improving channel morphology, specifically increasing pool quantity and quality. Importing and placing root wads, logs, and boulders in the channel increases channel roughness and water stage during low flow, reducing depth to groundwater across the floodplain during the growing season, which improves conditions for existing Ute ladies'-tresses populations. In-stream project work will create deeper pools and have an immediate improvement in water temperature and fish habitat and force more pool development in the future as the channel and floodplain vegetation evolve. The added in-channel structure will provide more anchor points for beaver dams, accelerating their ability to build dams that filter sediments and improve water quality. Installing the pipe in the open ditch would increase the amount of water going through the series of ponds on river left, stabilizing water levels and improving riparian vegetation conditions around the ponds (see Appendix A pages 4-5). Conversion of various habitat types to others would cause a net increase in consumptive water use of 0.04 acre-feet annually throughout the project area. This increase would be accounted for using the Mitigation Commission's existing water rights and no impacts to downstream water users would occur.

In-stream project work will have short-term adverse effects on water quality as sediments get stirred up during construction. The stream already has high turbidity levels due to high upstream erosion rates and numerous sediment sources in the project area; construction of in-stream structures involving excavation of banks might add short term pulses of sediment to the stream, though not large quantities, and only for some of the days within one construction season. Stabilization of three major eroding banks will reduce sediment loading long-term and improve water quality over existing conditions in lower Diamond Fork and Spanish Fork River.

3.3 Aquatic Habitat and Fishery Resources

The Diamond Fork Creek fishery is managed and monitored by the Utah Division of Wildlife Resources (UDWR). Improvement of the fishery and its supporting aquatic habitat is integral to the project purpose.

3.3.1 Affected Environment

The analysis area for aquatic habitat and fishery resources is the project area, with consideration of potential downstream effects of sedimentation at the Diamond Fork/Spanish Fork River confluence.

Diamond Fork aquatic habitat was evaluated for the 2022 Diamond Fork System EA and FONSI (CUWCD 2022). As noted in the 2021 EA, The historic manipulation of flows in Diamond Fork and Sixth Water Creeks as part of the Strawberry Valley Project and, more recently, the Diamond Fork System and CUPCA-mandated minimum flows have resulted in habitat and fisheries in the streams that are highly altered from their predevelopment (or more natural) conditions (Crockett and Slater 2019; UDWR 2019). Fires and sediment plumes are additional factors that affect aquatic habitat in the Diamond Fork and Sixth Water Creeks (Crockett and Slater 2019).

Historically, Diamond Fork Creek and its tributaries have been regarded as a brown trout (*Salmo trutta*) fishery with limited opportunities for Bonneville cutthroat trout (*Oncorhynchus clarki Utah*) and rainbow trout (*Oncorhynchus mykiss gairdneri*) (Nielson and Wiley 2013). Fish surveys of Diamond Fork Creek conducted in 2002, 2003, 2010, 2011, 2012, 2016, and 2017 (Crockett and Slater 2019) found mottled sculpin (*Cottus bairdii*) and mountain sucker (*Catostomus platyrhynchus*) in addition to brown trout and Bonneville cutthroat trout. Brown trout densities in 2011 ranged from 692 ± 54 per mile near Diamond Fork Creek's confluence with the Spanish Fork River to 591 ± 17 per mile near Three Forks (the most upstream reach sampled). Brown trout densities were reduced in 2012 surveys of Diamond Fork Creek (Nielson and Wiley 2013). Additional surveys in 2016 and 2017 showed no clear trend in brown trout abundance or size between 2002 and 2016, though there were significantly fewer fish in 2017 compared to 2016 (Crockett and Slater 2019), likely due to fish kills as a result of post-fire debris flows.

Aquatic Species of Greatest Conservation Need (SGCN) observations in lower Diamond Fork Canyon are southern leatherside (*Lepidomeda aliciae*), giant salmonfly (*Pteronarcys californica*), and Columbia spotted frog (UDWR 2026a).

Southern leatherside is a small chub species (adult size: 55 millimeters) endemic to Utah with a very limited range and highly fragmented habitat due to human activities. Introduced brown trout diminish populations and force individuals to seek suboptimal habitat, limiting populations (NatureServe 2025). The species prefers creeks and rivers with moderate gradient and steady flow. It is typically found in slow-moving pools and quiet backwater in cooler water temperatures. Spawning typically occurs in late spring to early summer over small cobble in slow-flowing pool and riffle habitat (UDWR 2026b).

Giant salmonfly is a species of giant stonefly widely distributed in mountain streams and rivers of Western North America. They are susceptible to high temperature, exacerbated by other stressors including hypoxia, low flows, and heavy metals; as such they are widely used as indicators of water quality. Nymph densities are positively associated with substrate size, with individuals typically occupying sites with median particle diameters of at least 8 cm and substrates composed of less than 10 percent fine sediment (UDWR 2026c).

Columbia spotted frog occurs in scattered locations in the Bonneville Basin of western Utah. Populations are tied to aquatic habitat with perennial sources of water; the species is vulnerable to the loss and degradation of these habitats (UDWR 2026d). Columbia Spotted Frogs are found in the project area. UDWR surveys from 2008-2024 documented egg masses, largely concentrated in or near ponds and oxbows (UDWR 2024). A concentration of occurrences is in a large oxbow pond complex located centrally and river-left within the project area and also in a second ponded wetland oxbow located river-left downstream of the larger oxbow, and in a wetland river-right between the two river-left oxbows. A few have been found in other vegetated, slow-moving water upstream of the large oxbow. Rapid moving water, predators, and vegetation type and density may be limiting factors for the suitability of habitat for frogs in the remainder of the project area.

More common species such as boreal chorus frog (*Pseudacris maculata*) have also been observed in Diamond Fork Canyon, as have several common species of freshwater snails including tadpole physa (*Physa gyrina*), marsh pondsnail (*Stagnicola elodes*), big-ear radix (*Radix auricularia*), ash gyro (*Gyraulus parvus*), and golden fossaria (*Galba obrussa*) (UDWR 2026a).

3.3.2 Environmental Consequences

Issues for aquatic habitat and fishery resources are:

- How would short-term changes to the channel and water quality under the No Action and Proposed Action Alternatives affect aquatic habitat and fish?
- What long term effects would the project have for aquatic habitat and fish?

Impact indicators/assessment methods are:

- Qualitative assessment of project construction impacts and future channel structure and water quality conditions on aquatic organisms including fish.

3.3.2.1 No Action Alternative

Under the No Action Alternative, aquatic habitat quality would likely continue to be constrained by lack of structure (pools) in the channel and high turbidity due to eroding banks. Fish density and size would likely be lower than what the channel could support with better habitat quality. Habitat for southern leatherside chub would remain limited, with greater exposure to predation. Giant salmonfly populations are not likely to be large due to less than desirable habitat quality and substrate with more than 10 percent fines. Columbia spotted frog populations would likely continue to persist within the constraints of the existing off-channel habitat, which does support a relatively large population of this species, unless floodplain wetland conditions were to continue toward a drying trend that has been observed in recent years.

3.3.2.2 Proposed Action Alternative

In-stream project work under the Proposed Action Alternative would have short-term adverse effects on aquatic organisms and fish. The stream already has high turbidity due to high erosion sediment sources in the project area; construction of in-stream structures involving excavation of banks will add additional pulses of sediment to the stream, though not large quantities, and only for the one construction season. Stabilization of eroding banks and construction of in-stream structures will reduce sediment loading long-term, substantially improving aquatic habitat quality over existing conditions. The creation of deep pool habitat within the channel will greatly benefit trout species sought by anglers and improve food sources for trout, likely contributing to increased density and size of fish over the long-term.

In-stream project work would be concentrated in areas currently lacking the aquatic habitat preferred by southern leatherside chub, while completion of the project will create much more of this type of habitat (slow moving pools and quiet backwater) than the project area currently has, as well as improving habitat quality by reducing sediment loading. This reduction in sediment loading will also benefit aquatic invertebrates including giant salmonfly, as will the introduction of woody debris and boulder clusters to the channel.

Occurrence data for Columbia spotted frog egg masses enabled the project team to avoid the most concentrated occurrence areas in designing project features; however, egg masses tend to occur in higher quality existing wetland habitats where project construction would not be focused anyway. As such, the project is likely to have minimal short-term mortality effects on Columbia spotted frogs. Creation of additional backwater areas with in-stream aquatic habitat features and particularly the constructed new off-channel ponds will create new suitable habitats for supporting Columbia spotted frogs following project completion.

3.4 Wetlands

Among provisions of the federal Clean Water Act (CWA) are procedures governing discharge and dredging activities in jurisdictional “Waters of the U.S.” including wetlands (33 U.S.C. 1344, commonly known as Section 404 of the CWA). The regulatory program is overseen by the U.S. Army Corps of Engineers (Corps). Section 401 of the CWA created a parallel state and Tribal water quality certification program. Under Section 401, a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into Waters of the U.S. unless a Section 401 water quality certification is issued, or certification is waived (USEPA 2026). Utah’s 401 program is overseen by UDWQ.

The Mitigation Commission obtained a delineation of potentially jurisdictional Waters of the U.S. for the project area and consulted with the Corps and UDWQ regarding Section 404 permitting requirements for the Proposed Action. This included determining the appropriate

permitting method under Section 404, as well as determining whether the project would require water quality certification under Section 401.

3.4.1 Affected Environment

The analysis area for wetlands is the project area. The Mitigation Commission contracted with BIO-WEST, Inc. to obtain a delineation of potentially jurisdictional Waters of the U.S. in the project area. BIO-WEST personnel performed the aquatic resources investigation in spring, 2024. Wetland boundaries were identified in accordance with the Corps' Wetlands Delineation Manual (Corps 1987) and regional supplement (Corps 2008). Determining wetland boundaries requires investigation of vegetation, soils, and hydrology within any areas thought to be wetlands; criteria for all three of these indicators must meet predefined qualifications to be classified as a potentially jurisdictional aquatic feature (Corps 1987).

Five potentially jurisdictional waters were delineated along with thirty-five independent wetland areas. Ordinary High Water Mark (OHWM) polygons of waters were delineated which included Diamond Fork Creek (7.97 acres), an unnamed intermittent stream (0.01 acres), and three ditch segments totaling 0.23 acres. Palustrine scrub-shrub wetlands were the most common wetland type, totaling 30.25 acres. Palustrine emergent wetlands totaled 6.61 acres, and palustrine forested wetlands accounted for 0.63 acres. All wetland types exhibited the characteristics required to meet hydrophytic vegetation, hydric soil, and hydrology indicators of wetlands; however, problematic soils (red parent material) and riverine hydrology conditions required professional judgement in a few cases.

Diamond Fork Creek flows into the Spanish Fork River, which ultimately flows into the Great Salt Lake by way of Utah Lake. The three ditch segments that run east to west in the southeastern portion of the project area obtain flow from Diamond Fork Creek upstream of the project area. Wetlands within the project area appear to be connected to and directly associated with Diamond Fork Creek, with two of the ditch sections connecting three of these wetlands. Therefore, Diamond Fork Creek and the project area wetlands and ditches are likely to be considered jurisdictional Waters of the U.S.

3.4.2 Environmental Consequences

Analysis issues related to wetlands are:

- How would construction activities affect potentially jurisdictional Waters of the U.S?
- How would waters and wetlands change in response to future environmental conditions under the respective alternatives?

Impact indicators are:

- Qualitative assessment of likely changes in surface flows, local water tables, and indirect effects on waters and wetlands.

- Coordination with resource agencies to determine wetland permitting requirements.

3.4.2.1 No Action Alternative

Under the No Action Alternative, Diamond Fork Creek would continue to erode and downcut, further disconnecting the stream from its historic floodplain and wetlands. Successive years of surveys for Ute ladies'-tresses, a wetland and floodplain species, have evidenced a drying trend as Diamond Fork Creek erodes and changes surface flow regimes. Under the no-action alternative, this trend would likely continue, reducing overall wetland habitat size, quality, and ecological function. Invasive plant species present in the project area may also degrade the quality of wetlands over time, if active management were not implemented.

3.4.2.2 Proposed Action Alternative

Under the Proposed Action Alternative, construction would cause temporary disturbance along construction access routes within wetlands and to wetlands along the banks of the channel where boulders or large woody debris would be anchored into the bank. Construction access routes would be located in uplands as much as possible to reduce the temporary impacts. Areas excavated to create off-channel ponds would convert some uplands and wetlands to open water. However, fringes of these ponds and wetland areas between the ponds and the stream channel would be enhanced by having improved hydrology and, where disturbed, by being replanted with native wetland and riparian plant species. Altered or disturbed areas will be revegetated using ecologically appropriate native species in the form of seed, cuttings, and containerized plantings.

In-channel features and off-channel ponds are expected to slightly raise the local water table and increase the wetted perimeter along the banks, which would maintain wetland and riparian habitats along Diamond Fork Creek, as well as potentially creating new wetland areas or returning wetland hydrology to areas that have become drier as a result of downcutting and erosion.

Through consultation with the Corps, the Mitigation Commission determined that the Proposed Action Alternative qualifies for the Corps of Engineers Sacramento District's Regional General Permit 16 (RGP 16), which is for aquatic habitat restoration and enhancement activities. The permit application will require review and approval by the Corp's Intermountain Regulatory Branch, Sacramento District-Layton Utah Field Office prior to construction. The Mitigation Commission will also determine through consultation with the Corps and UDWQ whether Water Quality Certification must be obtained or waived. Because work would occur within the channel and banks of a natural stream, the Proposed Action Alternative will also require a Stream Alteration Permit from the Utah Division of Water Rights. The Mitigation Commission will obtain the required permits prior to start of construction.

3.5 Vegetation Communities

Since the project would involve ground disturbance and environmental restoration is a focus of the project, establishing the baseline condition of vegetation communities and plans for replanting, weed control, and monitoring are important environmental considerations.

3.5.1 Affected Environment

The analysis area for vegetation is the project area with consideration of a 300-foot buffer for potential indirect effects. Vegetation communities within the analysis area were mapped by BIO-WEST in 2024. Three primary habitat types are present: upland, riparian, and herbaceous wetland.

Upland habitats have large areas dominated by smooth brome (*Bromus inermis*), an aggressive introduced grass that tends toward monoculture patches. Other upland areas are characterized by native species including basin big sagebrush (*Artemisia tridentata ssp. tridentata*), rubber rabbitbrush (*Ericameria nauseosa*), and basin wildrye (*Leymus cinereus*) with small areas of Gambel oak (*Quercus gambelii*) and skunkbush sumac (*Rhus trilobata*) woodland.

Riparian habitats are dominated by narrowleaf cottonwood (*Populus angustifolia*), boxelder (*Acer negundo*), narrowleaf willow (*Salix exigua*), park willow (*Salix monticola*), Booth's willow (*Salix boothii*), Wood's rose (*Rosa woodsii*), and golden currant (*Ribes aureum*) with an understory of native and introduced forbs and grasses. One riparian area was co-dominated by narrowleaf cottonwood and water birch (*Betula occidentalis*). Some riparian habitats also exhibited wetland characteristics and may be considered jurisdictional Waters of the U.S. Herbaceous wetland habitats consist of wet meadows dominated by common spikerush (*Eleocharis palustris*), or Baltic rush (*Juncus arctic ssp. littoralis*). Emergent marsh habitats are dominated by broadleaf cattails (*Typha latifolia*).

Vegetation communities have changed and shifted in the years since surveys began in 2006. Past wildfires and high flows changed the cover and structure of cottonwood dominated riparian forest as some of the large cottonwoods were burned in 2018. Frequent high flow pulses have created exceptional conditions for cottonwood recruitment in areas that were typically dominated by willow shrubland vegetation communities during previous years' surveys. Many areas that previously contained hydrophytic vegetation have been on a drying trend in recent years, which has allowed smooth brome to colonize these spaces.

3.5.2 Environmental Consequences

Impact analysis issues for vegetation are:

- What are the impacts to vegetation communities from project construction?
- How would vegetation communities change in response to future environmental conditions under the respective alternatives?

The impact indicators for vegetation communities are:

- Composition of the existing vegetation communities in the project area
- Area of vegetation affected by surface disturbance
- Revegetation and monitoring planning

3.5.2.1 No Action Alternative

The No Action Alternative would allow areas that have been on a drying trend to continue drying as Diamond Fork Creek continues to incise and becomes further disconnected from its historic floodplain. This would reduce wetland habitat size and quality, thus creating new openings for introduced monoculture-creating species (such as smooth brome) and other noxious weed species to expand their populations within the project area. Smooth brome has been invading wetland areas that are exhibiting drier conditions over previous years, such as in the understory of cottonwood dominated riparian woodlands. Allowing Diamond Fork Creek to continue downcutting and eroding may reduce the wetted perimeter that is produced by Diamond Fork Creek and may continue lowering the water table in adjacent wetland habitats. Water stressed vegetation and reduced wetland habitat may increase fire risk if large areas of formerly wetted habitat are disconnected from consistent hydrology throughout the growing season.

3.5.2.2 Proposed Action Alternative

The Proposed Action Alternative is expected to raise the local water table and increase the wetted perimeter along the banks, which would maintain wetland and riparian habitats along Diamond Fork Creek, as well as potentially creating new wetland areas and/or returning wetland hydrology to areas that have become drier as a result of current erosional patterns. Habitat enhancement construction activities will create new canopy openings for various shade-intolerant forbs that support native pollinator species including the federally listed monarch butterfly. The proposed construction activities would increase aquatic vegetation habitat which would result in healthier aquatic ecosystems to support species of greatest conservation need, including the Columbia spotted frog.

All temporarily impacted areas will be revegetated with native species and monitored and adaptively managed for a period of five years following construction. Monitoring will be conducted for seeding and planting success, as well as for noxious weed emergence post-disturbance. Areas with weedy monocultural species will be treated appropriately (mechanically or chemically if needed) and revegetated with highly competitive native species to increase overall biodiversity within the project area. Additional supplemental seeding and planting may occur in future years if low success rates are observed during post-construction monitoring.

3.6 Terrestrial Wildlife

Short-term construction activities and long-term changes to the project area under the No Action and Proposed Action Alternatives may affect terrestrial wildlife as well as aquatic species. Potential effects to birds are addressed in Section 3.7. Species listed under the federal Endangered Species Act are addressed in Section 3.8.

3.6.1 Affected Environment

The analysis area for terrestrial wildlife is the project area with consideration of indirect impacts to the broader area of lower Diamond Fork Canyon due to noise or similar wildlife-disturbance factors.

In addition to supporting aquatic species, the riparian corridor of lower Diamond Fork Canyon provides suitable habitat for large mammals including mule deer, elk, moose, black bear, and mountain lion; small mammals including beaver, coyote, and fox; and reptiles including western milksnake, common gartersnake, smooth greensnake, and rubber boa. Upland game bird species potentially occurring in Diamond Fork Canyon include California quail, chukar, dusky grouse, ruffed grouse, and ring-necked pheasant (UDWR 2026a).

North American Wolverine (*Gulo gulo luscus*) is a federally listed threatened species and Utah SGCN species. Wolverines prefer high elevation habitats, particularly areas with persistent spring snow (USFWS 2023). The species range as identified by the U.S. Fish and Wildlife Service (USFWS) includes the Wasatch and Uinta Mountain Ranges (USFWS 2026a). This includes portions of the upper Diamond Fork watershed above 7,000 feet in elevation. The project area occurs at lower elevation (5,000 feet), close to US Highway 6 with frequent human disturbance. The project area lacks suitable habitat for supporting wolverines, though individuals could occur incidentally, such as when dispersing offspring are seeking new habitat.

UDWR identifies the project area as having low use as a mule deer migration corridor, though the project area overlaps a crucial winter and winter/spring habitat for mule deer. It also overlaps year-long crucial habitat for black bear, crucial winter range for elk, substantial winter and year-long habitat for moose, and crucial summer range for moose as calving habitat (UDWR 2026a).

3.6.2 Environmental Consequences

Impact analysis issues for terrestrial wildlife are:

- How would project alternatives affect big game migration?
- How would project alternatives affect upland wildlife habitat?

Impact indicators are:

- Construction activities with potential to directly impact wildlife
- Construction activities with potential to indirectly impact or displace wildlife
- Terrestrial wildlife occurrences and habitat in the project area

- UDWR-identified migration corridors and habitat values

3.6.2.1 No Action Alternative

Under the No Action Alternative, terrestrial wildlife may be subject to degradation of habitat quality and diversity. Diamond Fork Creek continuing to downcut may directly impact terrestrial wildlife by reducing access to watering holes for large and small mammals and may make conditions more difficult for beaver to become established in this section of the creek. Reduced wetted stream perimeter and degraded wetland habitat can have cascading negative effects throughout the food web. The no-action alternative may have fewer immediate temporary impacts on wildlife, but overall habitat diversity and quality are likely to degrade in future years. The No Action Alternative would not affect big game habitat use or migration.

3.6.2.2 Proposed Action Alternative

The Proposed Action Alternative is expected to increase the wetted perimeter of Diamond Fork Creek, return wetland hydrology to adjacent wetlands, create new open water ponds, and return a more natural elevation gradient to some of the more severely eroded banks. These changes could be expected to have direct positive effects on terrestrial wildlife in the analysis area through increasing accessible open water habitat and improving overall biodiversity and habitat quality. Proposed construction activities may have temporary negative effects on terrestrial wildlife through construction noise, vibrations, equipment mobilization, and habitat disturbance. Project construction would temporarily affect habitat use by big game including mule deer, elk, and moose, but would not affect migration patterns. Project construction is not likely to affect black bear or wolverine as these species would rarely occur in the project area. Small mammals and reptiles may be displaced by construction access and staging as well as by excavation and placement of boulders and large woody debris along the banks of Diamond Fork Creek. These features will have long-term benefits for terrestrial wildlife by enhancing habitat, creating new spaces for burrows and revegetation with native plant species.

3.7 Avian Wildlife

Similar to terrestrial wildlife, work in the project area has the potential to affect avian wildlife, including protected migratory birds, raptors, and eagles. Two federally listed bird species, Mexican spotted owl and yellow-billed cuckoo, are considered in the Section 3.8 of this EA.

3.7.1 Affected Environment

The analysis area for avian wildlife is the project area and a one half-mile buffer for potential occurrences of eagle and raptor nests. The Mitigation Commission contracted with BIO-WEST to conduct a nest clearance assessment within the analysis area in January 2026. Conditions for this assessment were ideal as virtually all leaves were absent from trees and shrubs. Golden eagle

(*Aquila chrysaetos*) has been observed in Diamond Fork Canyon (UDWR 2026a) and one golden eagle nest is present at the edge of the half-mile buffer. Personal communication with UDWR confirmed that their biologists are aware of this nest and concurred there is no concern for impacts from the project as the nest is more than 800 meters from the construction footprint. This nest is located within the only suitable golden eagle nest habitat within the analysis area. No evidence of bald eagles or bald eagle nests were observed within the analysis area, although suitable nesting habitat is present in the form of large cottonwood trees and snags.

No other raptor nests were found within the analysis area, and only one raptor, a male American kestrel, was observed during the nest clearance assessment. However, potential raptor nesting habitat does exist within the project area. Large cottonwood trees and snags could potentially act as nesting sites for buteos (e.g., red-tailed hawks, Swainson's hawks), osprey, and accipiters (e.g., Cooper's hawks, sharp-shinned hawks) as well as great horned owls. A few thick stands of box elders and Gambel's oaks could provide nesting habitat for accipiters. Large cottonwoods and box elders could also provide nest cavities for American kestrels and small owls (e.g., western screech-owls).

Open water ponds may provide habitat for green-wing teal, as well as other migratory waterfowl. Lewis' woodpecker (*Melanerpes lewis*) is a SGCN species and has been observed in the Diamond Fork Creek riparian corridor as recently as January 2026 (UDWR 2026a). This species nests in excavated cavities in dead branches and snags, and feeds on a variety of insects through gleaning and hawking, as well as fruits and nuts from a variety of flowering plants.

Other migratory birds observed in the Diamond Fork riparian corridor include Virginia rail, great blue heron, red-naped sapsucker, lazuli bunting, and American white pelican among others (Cornell 2026). Pinyon jays are a Utah SGCN, and there is an eBird observation in Diamond Fork Canyon, but this nomadic species is unlikely to be a resident species or to nest in the project area due to the lack of pinyon-juniper habitat.

3.7.2 Environmental Consequences

Analysis issues for avian wildlife are:

- How would resident bird species be affected by the No Action and Proposed Action Alternatives?
- How would the alternatives affect federally protected migratory birds, eagles, and raptors?
- Do any SGCN bird species have potential to occur in the project area, and how would these species be affected by alternatives?

Impact indicators/assessment methods are:

- Bird occurrences from available data sources (UDWR Wildlife Habitat Analysis Tool report, eBird)

- Field reconnaissance/site visit to assess bird nesting habitat in the project area and evidence of eagle and raptor nesting within one-half mile.

3.7.2.1 No Action Alternative

Under the No Action Alternative, habitat quality of the project area for avian species may gradually improve as riparian corridor trees such as cottonwoods begin to expand as a result of the reduced flow regime of Diamond Fork Creek over past flow management. In-stream habitat diversity, which provides more fish and insects for foraging birds, would also improve over time, but very gradually if not assisted by actively adding structure and large woody debris to the riparian corridor. Existing large cottonwood trees and snags, as well as mature box elders, if retained, will continue to provide cavities and nesting structures for Lewis' woodpecker, bald eagles, and a variety of raptors. Conversely, the diversity of habitat for avian species may decline because the No Action Alternative is likely to result in fewer wetlands and wet meadows as well as reduced areas of open fields, meadows, and other open-canopy habitat types that many birds use for foraging.

3.7.2.2 Proposed Action Alternative

The Proposed Action Alternative is expected to improve riverine habitat for fish, macro invertebrates, and insects, thus improving habitat quality and food availability for waterbirds, foraging raptors, and a variety of migratory birds. Construction activities will selectively reduce cover of woody plants in important meadow and field habitats, improving the likelihood of a diverse range of insect supporting grasses and forbs growing which support the food web in this ecosystem. New wetland ponds are planned to be excavated during construction, and will support a variety of waterbirds, amphibians, and reptiles which in turn support foraging avian species. All disturbance areas will be revegetated with native plants, which support a healthy food web by providing seeds, fruits, and nesting materials, as well as supporting native insect populations which many species of birds feed on.

As with the No Action Alternative, habitat quality of the project area for avian species may gradually improve as riparian corridor trees such as cottonwoods begin to expand as a result of the reduced flow regime of Diamond Fork Creek over past flow management. Beyond this, revegetation planning for the project area will improve the diversity of habitat types including enhanced wetlands as well as open fields, meadows, and other open-canopy habitat types. The project design avoids removal of mature trees as much as possible as well as preserving snags providing cavities and nesting structures for a variety of species.

Construction activities will likely begin prior to the August 15th cutoff for the active nesting season, and thorough clearance surveys are planned to be conducted no more than one week before any construction activities commence. Nest clearance surveys will be conducted by flagging teams led by qualified avian biologists. Occupied nests will be flagged and documented using high-accuracy GPS units. Once nest locations are documented, appropriate buffer areas (e.g. 50 feet for passerine birds) will be established and these areas will be avoided until the

nesting period ends.

3.8 Threatened and Endangered Species

Section 7 of the Endangered Species Act (ESA) requires federal agencies to consult with the USFWS or National Marine Fisheries Service when proposed actions may affect listed species. The project area has known occurrences of one threatened plant species and may have occurrences of two species proposed for listing under the ESA. Two other species that may occur in the greater project vicinity have been determined to be unlikely to occur or be affected by the project. As summarized in this section of the EA, the Mitigation Commission has initiated consultation with the USFWS regarding effects to these species.

3.8.1 Affected Environment

The analysis area for threatened and endangered species is a 300-foot buffer of project work areas, with consideration of greater spatial extents to evaluate suitable habitat for individual species having larger extents of potential effects.

Table 2 lists five species that may be present based on the official species list obtained for the analysis area (USFWS 2026b). Mexican Spotted Owl (*Strix occidentalis lucida*) and Yellow-billed Cuckoo (*Coccyzus americanus*) are not likely to occur due to lack of suitable habitat within a 0.5-mile radius.

Table 2. Federally listed species that may be present.

COMMON NAME	SCIENTIFIC NAME	STATUS	CRITICAL HABITAT	POTENTIAL TO OCCUR
Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened	Final critical habitat has been designated for this species. The project area is outside the critical habitat.	**Not likely to occur**. There is no suitable habitat in the project area or within a 0.5-mile radius.
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	Final critical habitat has been designated for this species. The project area is outside the critical habitat.	**Not likely to occur**. There is no suitable habitat in the project area or within a 0.5-mile radius. Existing riparian vegetation does not meet habitat size requirements.
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	Critical habitat has not been designated for this species.	**Known to occur**. Based on surveys discussed in this Biological Assessment, occupied habitat is present in the project area.

Monarch butterfly	*Danaus plexippus*	Proposed Threatened	There is proposed critical habitat for this species. The project area is outside the critical habitat.	**Likely to occur**. Suitable habitat is present in the project area, with recorded nearby occurrences.
Suckley's cuckoo bumble bee	*Bombus suckleyi*	Proposed Endangered	Critical habitat has not been designated for this species.	**May occur**. Suitable habitat is present in the project area. No recorded nearby occurrences.

Ute ladies'-tresses (*Spiranthes diluvialis*) is known to occur in the Diamond Fork watershed and occupied habitat is present in the analysis area. Suitable habitats for monarch butterfly (*Danaus plexippus*) and Suckley's cuckoo bumble bee (*Bombus suckleyi*) are also present. Monarch butterflies are expected to occur within the analysis area as there are a diversity of flowering plants that adult monarchs use for food and habitat. Two species of milkweed (*Asclepias asperula* and *Asclepias speciosa*) have been observed in Diamond Fork Canyon, which may be used by monarch butterflies to lay eggs and support larval development during the summer breeding period, increasing the likelihood of their occurrence within the analysis area. Suitable habitat for Suckley's cuckoo bumble is also present, with a diversity of nectar producing flowering plants occurring within the analysis area. Two host species, the western bumble bee (*Bombus occidentalis*) and the Nevada bumble bee (*Bombus nevadensis*), have potential to nest in Diamond Fork Canyon. No critical habitat or proposed critical habitat is present.

3.8.2 Environmental Consequences

Impact analysis issues for threatened and endangered species are:

- How would project alternatives affect federally listed threatened and endangered species?
- Does the project require consultation with the USFWS?

Impact indicators/assessment methods are:

- Assessment of habitat to determine suitability for any listed, proposed, or candidate species.
- Review of available data for known populations/occurrences of species.
- Spatial overlay of suitable habitat and species occurrences to assess direct impacts.
- Site visit to assess suitability of habitat for listed species
- Qualitative assessment of effects to known and potentially occurring species.
- Specification of design criteria/conservation measures to avoid and minimize impacts.

3.8.2.1 No Action Alternative

Under the No Action Alternative, monocultural species such as smooth brome are expected to continue expanding their existing colonies and producing new colonies as areas dry up as a result

of the erosion of Diamond Fork Creek. This aggressive habit reduces overall plant biodiversity with cascading effects across the entire food web, especially among nectar producing flowering plants that monarch butterflies and bumble bees forage among. Ute ladies'-tresses would be negatively affected by the erosion and drying trends exhibited by the current state of Diamond Fork Creek and ongoing drying of wetland habitats under the No Action Alternative.

3.8.2.2 Proposed Action Alternative

The Proposed Action Alternative is expected to increase wetland habitat and maintain or expand current Ute ladies'-tresses suitable habitat. Construction activities would temporarily impact areas of suitable habitat, but plant occurrences from previous surveys completed by the Utah Rare Plant Program have been avoided.

Because work would occur in suitable habitat and in close proximity to plant occurrences, the Mitigation Commission consulted the Service and prepared a Biological Assessment (BA). Based on analysis in the BA, the Mitigation Commission concluded that the project may affect and is likely to adversely affect Ute Ladies'-tresses occurrences. While mapping of plant occurrences has enabled avoidance of plants and adjustments to the exact locations of project work can be made, adverse impact to some occurrences remains a possibility given the amount of disturbance in the vicinity of known occurrences and the possibility of new occurrences from a planned 2026 survey to take place during project construction. Avoidance may not be possible in some limited situations; in such cases, the sod mat and soil from the occupied surfaces will be moved into nearby restored areas of suitable habitat and mapped to show existing and new locations. Even with this conservation measure, occurrences moved to new locations may not survive.

The project is likely to have long-term benefits to Ute ladies'-tresses populations by slowing movement of water through the project area with the in-channel design features, raising stage and helping to reverse an evident drying trend of the active floodplain where suitable habitat occurs. Off channel ponds will enhance the hydrologic diversity of wetlands on the floodplain by helping to capture and recharge the groundwater in the vicinity of the pond creation, helping to support Ute ladies'-tresses and associated native wetland species over the long-term. Finally, disturbed wetland areas will be revegetated with Ute ladies'-tresses-associated native species.

The project will not jeopardize the continued existence of monarch butterfly because the project would have only short-term adverse effects on habitat, long-term benefits for habitat quality, and the project occurs outside of proposed critical habitat for the species.

The project will not jeopardize the continued existence of Suckley's cuckoo bumble bee because the project would have only short-term adverse effects on suitable habitat and any host bumble bee species potentially occurring in the project area. The project will have long-term benefits for bumble bee habitat quality.

Suitable habitats for monarch butterfly and Suckley's cuckoo bumblebee are expected to be increased and improved through treatment of monocultural weeds and revegetation with native flowering plants. Increased wetland habitat will also improve habitat for these species by improving the likelihood of a greater diversity of flowering plants throughout the growing season.

The Mitigation Commission will complete consultation with the USFWS to obtain a Biological Opinion prior to initiating project construction activities in Ute ladies'-tresses suitable habitat.

3.9 Cultural Resources and Indian Trust Assets

Cultural resources include archaeological and architectural features and properties that may be of historic importance. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect of undertakings on properties determined to have eligible historic resources present. Section 106 also has consultation requirements for discussing and considering the views of consulting parties; such parties may include State Historic Preservation Officers (SHPOs), Tribal Historic Preservation Officers (THPOs), Native American Tribes, local governments, and others with interests in historic preservation (ACHP 2026).

Indian Trust Assets (ITAs) are legal interests in property held in trust by the United States for federally recognized Indian tribes or individuals. Assets can be real property, physical assets, or intangible property rights, such as lands, minerals, hunting and fishing rights, and water rights. The U.S. Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of federally recognized Indian tribes and tribal members and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal safety. Under this policy, the federal government is committed to carrying out its activities in a manner that avoids adverse impacts to ITAs when possible and to mitigate or compensate for such impacts when it cannot. All impacts to ITAs, even those considered insignificant, must be discussed in the trust analyses in NEPA compliance documents, and appropriate compensation or mitigation must be implemented.

In Winters v. United States, the Supreme Court held that the establishment of an Indian reservation implicitly reserved the amount of water necessary to fulfill the purposes of the reservation [207 U.S. 564 (1908), also known as the Winters Doctrine]. Federal reserved water rights are quantified based on what is needed to accomplish the reservation's purposes both for present and future needs, and Indian tribes with reserved water rights under the Winters Doctrine enjoy a priority date no later than the date of their reservation's establishment.

Water rights associated with the Uintah and Ouray Reservation for the Ute Indian Tribe and its members have been addressed in part in two federal court decrees and a 1965 deferral agreement

between the Ute Indian Tribe, the United States, and the CUWCD (1965 deferral agreement). At the request of the Ute Indian Tribe and the State of Utah, Congress enacted the Ute Indian Rights Settlement in 1992, Title V of CUPCA, to quantify the Ute Indian Tribe's water rights, allow increased beneficial use of waters, and provide economic benefits to the Ute Indian Tribe in lieu of the storage projects envisioned in the 1965 deferral agreement. The Ute Indian Tribe's Winters Doctrine–reserved water rights have priority dates no later than 1861 and 1882, corresponding to two executive orders dated October 3, 1861, and January 5, 1882, establishing the Uintah Valley Reservation and the Uncompahgre Reservation, respectively.

3.9.1 Affected Environment

The Area of Potential Effects (APE) for cultural resources and ITAs is the project area. Reclamation is assisting the Mitigation Commission in obtaining a cultural resources survey of the APE and in conducting consultations with interested parties, including the Utah SHPO and Native American Tribes with potential interests in the APE.

3.9.2 Environmental Consequences

The following cultural resources and ITA issues were identified:

- How would proposed ground-disturbing activity affect eligible cultural resources?
- Would proposed ground-disturbing activity affect any ITAs?

The impact indicators used to assess these issues are as follows:

- Presence or absence of eligible cultural resources
- Presence or absence of ITAs

3.9.2.1 No Action Alternative

The No Action Alternative would not involve ground-disturbing activities that would affect any eligible cultural resources that may be present in the project area.

3.9.2.2 Proposed Action Alternative

Reclamation assisted the Mitigation Commission with sending scoping letters to tribes. Letters were sent to the Shoshone-Bannock Tribes of the Fort Hall Reservation, the Northwestern Band of the Shoshone Nation, and the Ute Indian Tribe of the Uintah & Ouray Reservation and no comments were received.

The APE was surveyed by Reclamation prior to project construction. A homestead site was identified within the APE at a location near one of the proposed off-channel ponds. The proposed location of the pond was modified to avoid the homestead site by a buffer distance of 30 meters to avoid any potential impact to the site.

Based on the Class I and III inventory data and according to 36 CFR 800.4(d)(2), Reclamation has determined a finding of No Historic Properties Affected for the project, with USFS archaeologist's agreement.

If work crews were to encounter any suspected artifacts or evidence of human remains, work activity would stop immediately. The crew leader would inform the Mitigation Commission project manager who would then consult with Reclamation's cultural resources specialist to determine the appropriate course of action prior to resuming project work in the affected area.

The Proposed Action Alternative would have no impacts on ITAs or federal reserved water rights.

4.0 CONSULTATION AND COORDINATION

Planning environmental restoration for Diamond Fork has involved extensive interagency coordination for many years. Key agency partners for the current project include Reclamation, Central Utah Water Conservancy District, the Utah Division of Wildlife Resources, U.S. Forest Service, Trout Unlimited, and the U.S. Department of Interior CUPCA Office.

Planning specific to the lower Diamond Fork restoration project has included the following agency coordination meetings to obtain input on the project:

- Consultation coordination meeting September 30, 2024 to review Diamond Fork design with USFWS, species likely to occur in the project area, and discuss likely Section 7 consultation path.
- Agency coordination meeting August 19, 2025 with stakeholders listed above to discuss project background, permitting needs, and to obtain comments on a preliminary project design concept.
- Consultation coordination meeting January 12, 2026 to review updated design with USFWS, species likely to occur in the project area, and discuss likely Section 7 consultation path.
- Consultation coordination meeting January 15, 2026 to review updated design and NEPA requirements with the Spanish Fork Ranger District of the Uinta-Wasatch-Cache National Forest.

Additionally, the Mitigation Commission has coordinated with multiple agencies regarding permitting needs for the project. This included discussions with the Corps and UDWQ regarding wetland and water quality permits and coordination with Utah County to determine permitting needs including floodplains, stormwater permits.

5.0 PREPARERS

Utah Reclamation Mitigation and Conservation Commission

- Paul Abate, Project Coordinator - project effects analysis, regulatory compliance lead

Allred Restoration

- Tyler Allred, President - concept and final designs, design feature illustrations, hydraulic modeling and change assessments

BIO-WEST, Inc.

- Darren Olsen, Senior Hydrologist - existing condition assessments, concept designs, revegetation plans, impact assessments, and permitting coordination
- Travis Taylor, Ecologist - Ute ladies'-tresses suitable habitat mapping and impact assessment, wetland delineation and vegetation mapping, revegetation and weed control plans, and permitting coordination
- Frank Howe, Senior Ornithologist/Wildlife Biologist - suitable habitat assessments for Mexican spotted owl, yellow-billed cuckoo, raptors, eagles, and migratory birds
- Patrick McGuire, Ecologist - suitable habitat assessments for Mexican spotted owl, yellow-billed cuckoo, monarch butterfly and Suckley's cuckoo bumble bee
- Harv Day, Native Vegetation Restoration Technician - wetlands, vegetation, and wildlife affected environment and impact analysis
- Sean Keenan, Environmental Planner/NEPA Specialist - document preparation

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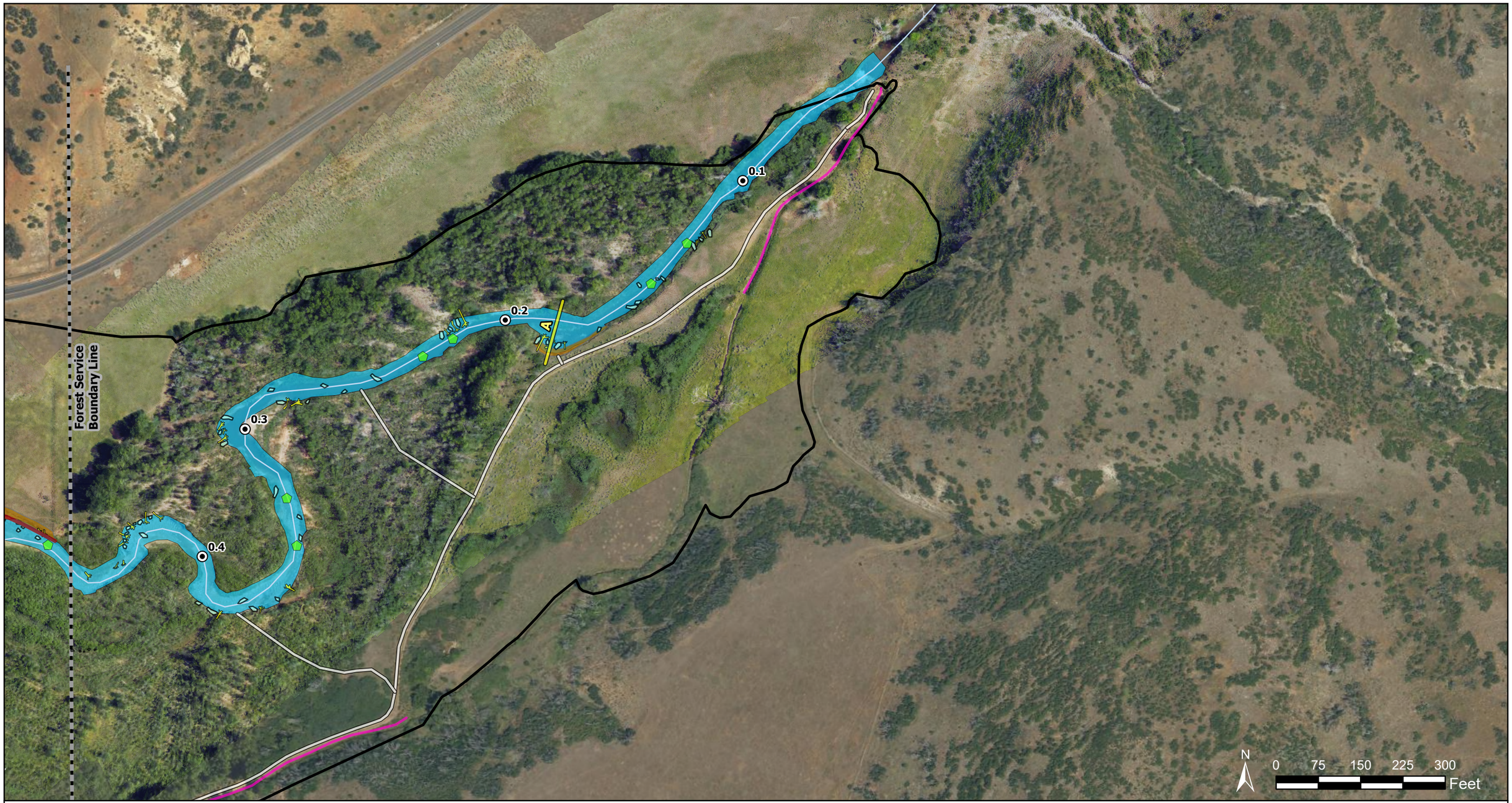
Appendix A: Map Series Illustrating the Proposed Action



Base map is a mix of 2 inch resolution drone imagery was flown by USU on 4/23/23 and Hexagon 15 cm resolution dated 7/8/2024 acquired from the Utah Geospatial Resource Center

Scale: 1:2,000
1 inch equals 167 feet
Map Date: 7/9/2026

- Diamond Fork Project Area
- Diamond Fork Creek Centerline
- Tenth Mile Marker
- Diamond Fork Creek OHWM
- Irrigation Pipeline Locations
- Rock Toe Protection
- Temporary Construction Access
- Habitat Structures
- Placed Boulders
- Large Woody Debris
- Slope Banks
- Channel Plugs
- Excavated Channel
- Excavated Ponds
- Heavy Truck Crossing 15ft Wide
- Forest Service Boundary Line
- XS Locations Typicals

Lower Diamond Fork Aquatic Habitat Enhancement Project Restoration Design

ALLRED RESTORATION

BIO-WEST

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