Telluride River Restoration & Tailings Remediation
Phase Two
Final Project Report

Before: Reach 6 flowed through unvegetated tailings.

After: The restoration of Reach 6.

Prepared for Colorado Water Plan and Water Supply Reserve Fund Grants
Attn: Chris Strum

June 11, 2021

Valley Floor Preservation Partners
Grant Amounts:
CWP: $215,000 + WSRF: $ 275,000 = Total: $490,000
Prepared by Hilary Cooper, Program Manager

Introduction

Designed to restore a naturally functioning river system by removing toxic mine tailings and rerouting the San Miguel River away from the tailings, the project abandoned and revegetated a 900-foot channelized section of river and created a new 1,300-foot meandering channel with riffles and pools, reconnecting the river to its floodplain, establishing critical habitat for cold-water fish and restoring additional riparian habitat. This was Phase Two of a three-phase project. Phase One included Reach 1 of the San Miguel River as it flows through the Telluride Valley Floor, a 600-acre open-space parcel immediately west of the Town of Telluride. Phase Two included Reach 5 and 6 and the Society Turn Tailings, a Superfund site.

Valley Floor Preservation Partners (VFPP) formed in 2006 to support the acquisition and preservation of the Valley Floor. After successfully raising the funds to assist the Town of Telluride's acquisition and placement into an open-space conservation easement, VFPP now works to foster stewardship and ecological restoration of the property.

Background

The Telluride Valley Floor is the open space meadow at the gateway of a glacially formed box canyon surrounded by 14,000-foot mountain peaks in southwest Colorado. As one travels into the Town of Telluride, they pass three miles of riparian and upland habitat that includes wetlands, fens, clusters of willows, cottonwoods, spruce, fir and aspen. The San Miguel River is one of the last undammed rivers in Colorado, and six perineal tributaries feed the river on the valley floor.

The San Miguel River within the project area was heavily impacted by approximately 23 acres of deposited mine tailings and 900 feet of channelization resulting from the legacy of mining in the Telluride region. These factors degraded water quality, vegetation on and around the tailings, and habitat for aquatic life. The mine tailings contain heavy metals, which pose a threat to human health and the environment. A section of the river was channelized in the early 1900s, which resulted in negative impacts to the surrounding riparian habitat.

In 2001, Pat Willits completed a *San Miguel River Restoration Assessment* (Appendix). It identifies five reaches of the San Miguel River in need of restoration, placing the Telluride Valley Floor as the highest priority. Recommendations for the 3-mile stretch on the valley floor include: 1) analyze metal loading in the channel and in the valley floor tailings; 2) analyze flora within the reach to determine biodiversity; 3) remove tailings; 4) fill drainage trenches; 5) engineer and perform in-channel construction to restore sinuosity and meander.

To plan for this project, the design team—made up of ERC, Town of Telluride and VFPP staff, and Open Space Commission members—used knowledge gained from Phase One and additional river restoration work constructed through the Town of Telluride. The project was divided into three main tasks: 1) Tailings Remediation; 2) River Restoration, Reach 6; and River Restoration, Reach 5. Sediment samples were taken from multiple locations within the project area in order to conduct a thorough tailings analysis and design a safe and effective remediation of the contamination. In addition, sediment samples were taken from manmade berms in the project

area. The soils in the berms were cleared for use as backfill, removing unnatural landforms in the project area and providing critical native soils for the project. Annual monitoring of vegetation, water quality, groundwater levels and wildlife is conducted by Mountain Studies Institute across the property and will be used for baseline monitoring in addition to the project-specific required monitoring.

Project Objectives and Status

1. Reduce the threat to public health and the environment by consolidating and capping in place heavy-metal-laden mine tailings.
   - ⇒ **Completed:** The Town of Telluride has post-project monitoring requirements from the U.S. Army Corp of Engineers and Colorado Division of Reclamation and Mine Safety. Ecological Resource Consultants, Inc. (ERC), the contractor, will monitor for at least a period of three years. In addition, the Town conducts annual monitoring on study plots and water quality throughout the entire valley floor property.

2. Realign the river away from tailings and through clean, native soils.
   - ⇒ **Completed.**

3. Eliminate artificial channelization and reestablish natural channel dimensions, patterns and floodplains.
   - ⇒ **Completed** with expectations for ongoing natural river channel fluctuations.

4. Reestablish instream riffle-pool aquatic habitat, connection with the riparian floodplain and restore ecological functions.
   - ⇒ **Completed** with expectations for ongoing natural river channel fluctuations.

5. Maintain existing mature native vegetation to the greatest extent possible.
   - ⇒ **Completed** with a high rate of success through methodical site consideration before and during construction.

Task Specific Methods & Results

Task 1 – Tailings Remediation

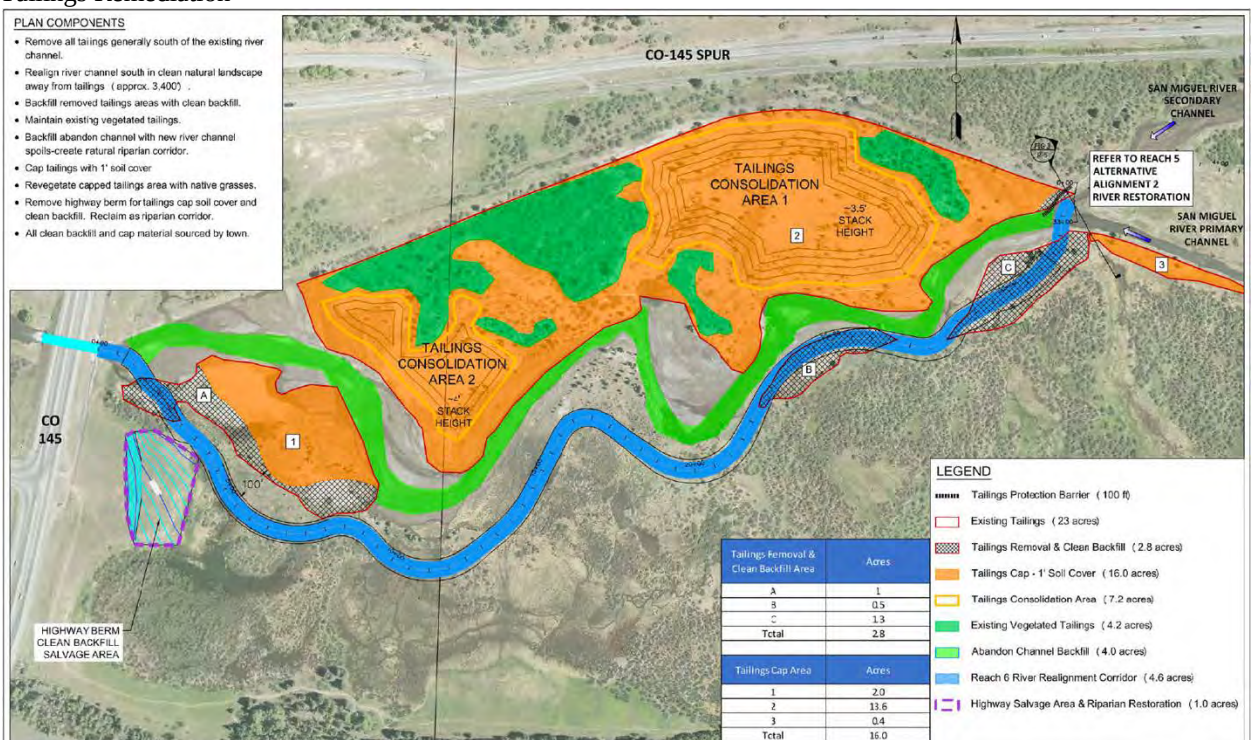
Remediation activities included excavating roughly 23,000 cubic yards of tailings in close contact with the river, hauling them to a consolidation area, constructing a cap made of 1 foot of clean soil (equaling 26,000 cubic yards) to cover all tailings and revegetating 21 acres of the cap with native vegetation. Tailings were excavated to an average depth of 5 feet, transported out of the river corridor and contoured into naturalized landforms. The footprint of the final consolidation areas was reduced in size but increased in height during construction to preserve less-impacted pockets, including areas with native conifer species. The overall footprint of the tailings capped areas remains generally the same as designed. The areas with removed tailings

were backfilled with 3,900 cubic yards of clean soil and revegetated with a custom native seed mix. Precautions were in place to protect onsite personnel, and soil samples were collected to confirm the removal of contamination. Special effort was made to leave select islands of spruce/fir trees and as much riparian vegetation as possible.

Material handling became the biggest challenge for tailings remediation efforts to prevent cross-contaminating tailings with clean soils. Tailings removal excavation was designated to “dirty roads,” and clean backfill was designated to “clean roads.” Tailings were stockpiled and contoured concurrent with excavation and then capped as soon as possible. All clean backfill material was delineated clearly throughout the site.

The project was considered an immediate success. ERC will monitor water quality, aquatic habitat function, stream stability and native vegetation establishment for three years.

Tailings Remediation



Task 2 — River Restoration, Reach 6

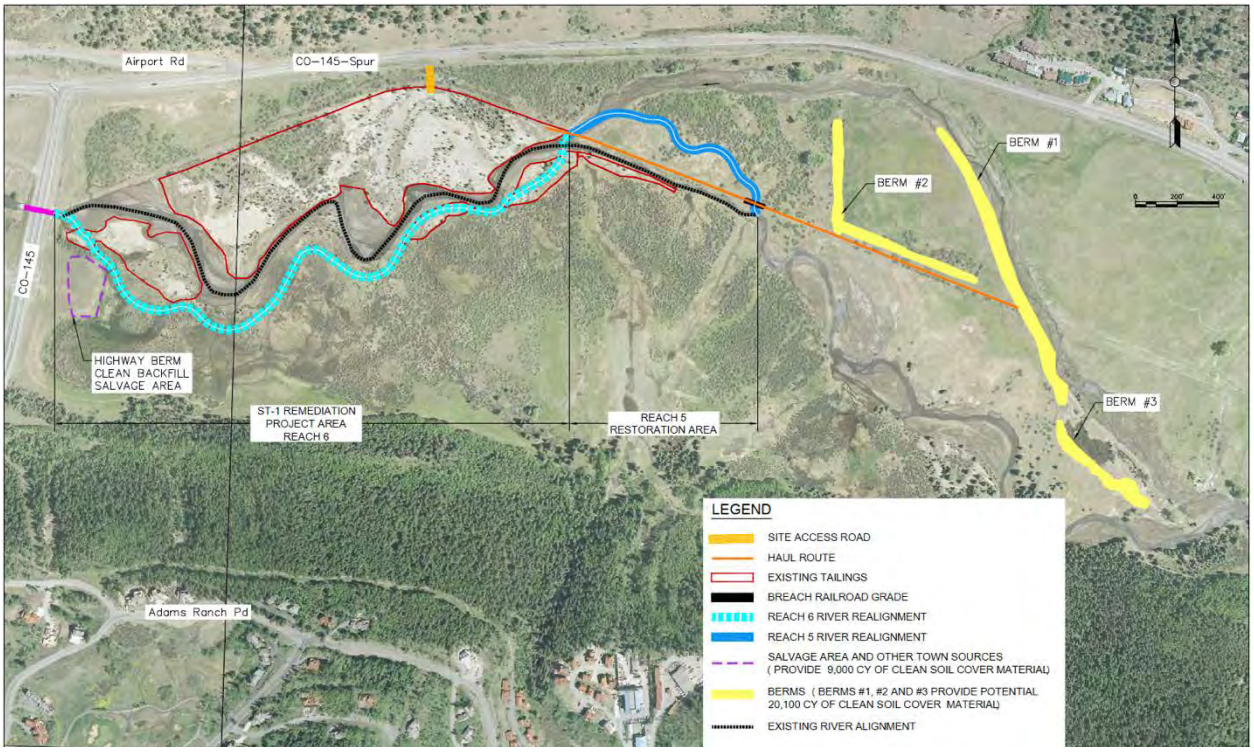
The San Miguel River was realigned toward the south and away from the tailings consolidation area through clean native soils. The alignment was designed to allow natural movement but maintain a riparian corridor away from the tailings to minimize leaching and transport of tailings into the river. ERC excavated 16,000-cubic yards of native materials to create the new 3,300-foot length of river. Excavated material was used to fill the abandoned channel, help shape the new channel and serve as tailings cap material. During construction, a decision was made to excavate additional material used for backfill from abandoned manmade sewer lagoon berms on the property. These berms were removed to form a more natural landform and promote natural

wetland development. Twelve riffle/pool features were designed to maintain minimum flow depth during low-flow periods and establish critical habitat for cold-water fish. Five hundred cubic yards of type M riprap was placed across the abandoned channel to prevent the river from reestablishing in the abandoned channel. The abandoned channel was revegetated using a custom native seed mix, hydrologically applied wood fiber mulch and erosion-control blankets in some areas.

The biggest challenge for this river section was the soft substrate conditions with heavy equipment. The new river channel was partially drained through ditching, and heavy equipment operated on mud matts (all within limits of the new channel). In addition, it was challenging to generate sufficient backfill for the abandon channel, which was addressed with the excavation of the sewer lagoon berms.

The project was considered an immediate success. ERC will monitor aquatic habitat function, stream stability and native vegetation establishment for three years. The Town of Telluride Open Space Commission will monitor water quality and new recreational opportunities, including water activities and increased trail access.

River Restoration, Reach 5 and 6



Task 3 — River Restoration, Reach 5

This heavily impacted 900-foot section of river was realigned into a new 1,300-foot naturally meandering channel, and manmade berms were removed to allow a more functional connection to the floodplain. Nine hundred and fifty cubic yards of gravel and cobbles were salvaged and reused to form the substrate of the new channel. Six thousand four hundred cubic yards of native

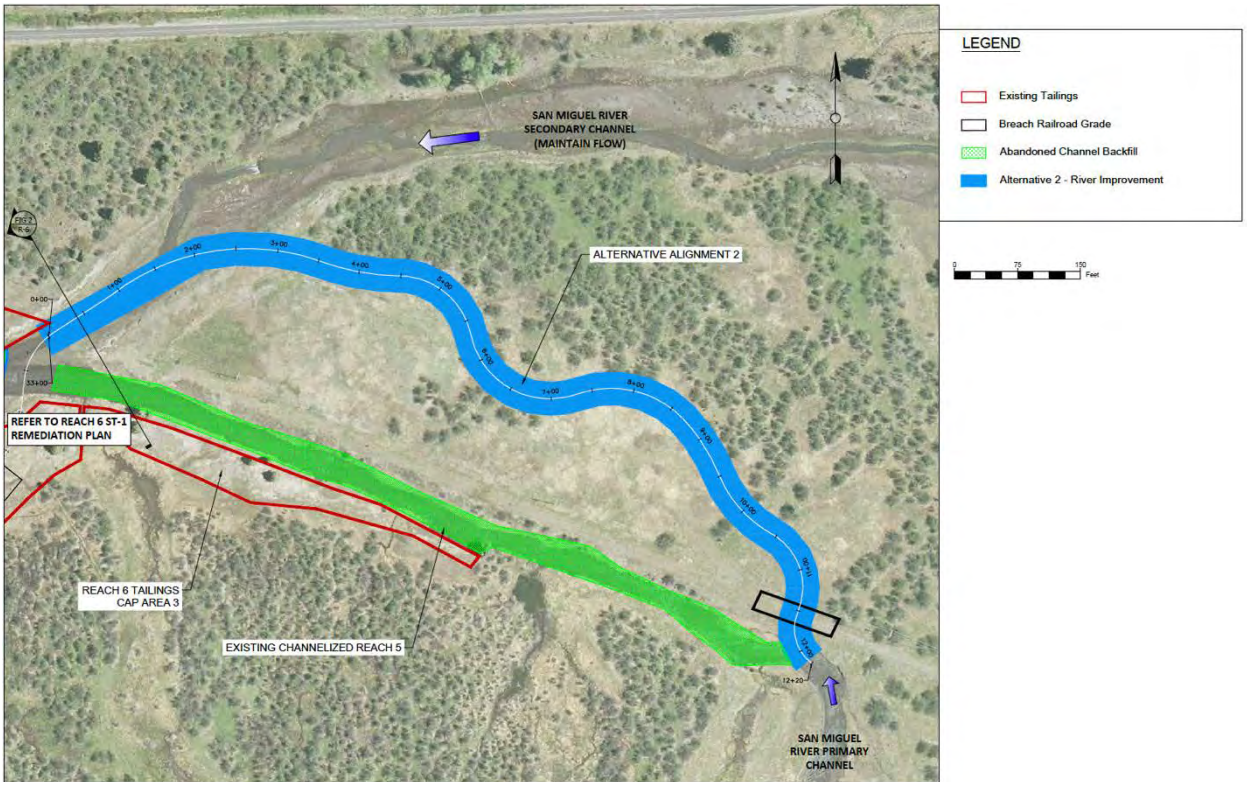
materials were excavated to create the new channel. Five thousand two hundred cubic yards of spoils were used to backfill the abandoned channel, which was contoured into a natural landform and covered with salvaged topsoil material. Five riffle/pool features were created. Two hundred cubic yards of type M riprap were placed across the abandoned channel to prevent the river from reestablishing in the old channel. The old channel area was seeded with a custom native seed mix and stabilized with hydrologically applied wood fiber mulch.

The biggest challenge for this section was breaching the historic railroad grade that travels the length of the property. Efforts were made to create a natural-appearing bank-full channel through the railroad grade while maintaining the integrity of the railroad grade.

The project was considered an immediate success. ERC will monitor, aquatic habitat function, stream stability and native vegetation establishment for three years. The Town of Telluride Open Space Commission will monitor water quality and new recreational opportunities, including water activities and increased trail access.

Immediately following the shift of the river into the new channel, fish populations were observed to rebound, and in the fall post project, fish were spotted in larger numbers than observed pre-construction in the new river channel. In addition, a pair of osprey moved on to the property for the duration of the construction. Osprey had not been seen in the area for years. One theory is that the daily construction activities forced the movement of small animals, and the osprey were attracted to easy prey.

River Restoration, Reach 5



The project was completed on time and on budget in November 2020. At the time of this report, all invoices are submitted to the additional funding partners listed below and payments are confirmed.

- ⇒ State of Colorado Natural Resource Damages Program
- ⇒ Valley Floor Preservation Partners
- ⇒ Town of Telluride
- ⇒ Trout Unlimited

Appendix

Attachment 1. San Miguel River Restoration Assessment
Attachment 2. Final Map
Attachment 3. Final Detailed Budget

San Miguel River Restoration

[Following is an abridged version of the two-volume San Miguel River Restoration Assessment, with emphasis given to information that pertains to the Valley Floor. Sections of Vol. I have been omitted, as have detailed examinations of the other four "priority restoration reaches" in Vol. II. The complete texts are available in the Wilkinson Public Library or online at The Trust for Land Restoration website. This assessment and the subsequent San Miguel Watershed Plan are documents that were spearheaded by the San Miguel Watershed Coalition, and they continue to be guiding documents for County government and organizations such as The Nature Conservancy.

In recent years, some restoration has been undertaken on the Valley Floor. As part of its consent decree with the U.S. Environmental Protection Agency for violating wetlands regulations, Telluride Ski & Golf Co. negotiated with San Miguel Valley Corporation for a mitigation site located on SMVC's Valley Floor property. Now under a conservation easement, the site is approximately 20 acres on the alluvial fan of Prospect Creek, a wetland area that was dewatered when Idarado Mining Company cut 17-foot trenches through it. In spring 2001, Telski began refilling the trenches, reconstructing stream channels and revegetating with native plants. The site will be monitored for the next four years to see if it recovers and meets EPA standards.]

San Miguel River Restoration Assessment
SUMMARY

Submitted to San Miguel County, Colorado
March 5, 2001

The Assessment was compiled by:

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P.O. Box 743
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I. San Miguel River Restoration Assessment Summary

The San Miguel River Restoration Assessment was conceived to merge scientific information with stakeholder consensus to analyze and prioritize possible restoration sites on the main stem of the San Miguel, and on major tributaries.

From its alpine headwaters to its desert confluence with the Dolores River eighty miles downriver, the San Miguel is one of Colorado's, indeed one of the West's, few remaining hydrologically-intact watersheds. Although there are some impoundments on tributaries, and one major diversion on the main stem downstream of Horsefly Creek, seasonal high flows remain sufficient to efficiently move sediment through the system, to form and maintain channel and floodplain, and to provide habitat for riparian plant regeneration.

The San Miguel River harbors one of the longest and highest quality stretches of deciduous and evergreen forests and shrublands (about 80 miles) in the western United States (Neely). Riparian areas are of great importance to biodiversity. Healthy riparian areas stabilize stream banks, maintain water quality and quantity, and provide habitat for wildlife species, including fish, neo-tropical migratory birds, and raptor bird species.

Riparian habitat in the United States has been severely impacted by human activity. Over 80% of America's riparian areas have disappeared (Neely). Still, the high-quality riparian communities found along the San Miguel survive, despite a variety of human activities that have degraded specific sites that alter hydrology, and impact and fragment riparian and aquatic habitat. This restoration assessment identifies those specific sites and the reaches

they lie within, and prioritizes them based on projected benefits of restoration to biodiversity.

In all, seventeen potential restoration sites were identified. Five reaches were selected as highest priority, though restoration of any of the sites identified is valuable and each should be pursued subject to local interest and opportunity.

A number of studies have documented the relative health and importance of the riparian communities within the San Miguel watershed, beginning with Bill Baker's 1986 *Riparian Vegetation of the Montane and Subalpine Zones in Westcentral and Southwestern Colorado.* Subsequent work by the Nature Conservancy and the Colorado Natural Heritage Program has confirmed the rarity of the San Miguel's riparian communities at the global scale (Kittel and Lederer; Lyon and Sovell). Intact hydrologic processes, particularly seasonal high flows, are critical for maintaining biodiversity values in the San Miguel watershed (Friedman).

Also interesting from an ecological perspective is that the river begins in the alpine zone of the Southern Rockies Eco-regional Province and flows into the high desert zone of the Colorado Plateau Eco-regional Province.

Assessment Objectives

The objectives of this assessment are to:

1) Identify elements of biodiversity and their condition, and the ecological and hydrological processes that sustain them;
2) Identify and prioritize restoration reaches and activities that will help restore and maintain these elements and processes.

To accomplish these goals, the assessment management team convened a science team to 1) consolidate and analyze biodiversity information; and 2) develop a list of disturbed sites; and 3) prioritize those sites according to projected benefits to the targeted biodiversity values.

The assessment management team sought to merge the priorities of the science team with those of local citizens via a program of facilitated stakeholder outreach. Watershed stakeholders were interviewed and/or participated in facilitated meetings, and generated a list of prioritized restoration reaches.

Restoration Goals

Syntheses of the science team and stakeholders meetings yielded the following general restoration goals for the San Miguel River:

1) Restore healthy and diverse native habitat and populations, including: native, regenerating riparian plant habitat and communities; aquatic fish and insect habitat and communities; and native bird habitat;
2) Restore and maintain water quality;
3) Re-establish hydrologic processes, including channel migration and re-establishing the hydrologic connection between channel and floodplain.

To help meet these restoration goals, four general conservation recommendations are made for the entire watershed. They are:

1) Maintain seasonal high flows;
2) Re-connect river channel to floodplain where practical, removing dikes and other artificial impediments to flooding, and to natural channel migration;
3) Prohibit cows from accessing the river channel, and limit grazing in the riparian floodplain to ecologically appropriate times;
4) Control invasive weeds in the riparian zone.

One additional recommendation, specific to the upper watershed, is to study ice floes originating on the South Fork and scouring the channel and banks of the South Fork and mainstem for over twenty miles. Ice floes are a major impact to the health of the river. The intensity of ice releases and ice floes appear to be increasing, and may be related to winter water releases from the Ames Power Plant. If studies prove such to be the case, controlling or at least lessening the impact of ice floes may be possible by altering water releases from the Ames plant at critical times of the year (Groeneveld, personal communication).

It is the considered opinion of the science team that these recommendations will allow the San Miguel to regenerate and restore itself in all but the most extremely disturbed locations.

Protecting natural high flows, that is, allowing high flows to continue as a functioning process, is the single most important conservation recommendation of this report. It is also the most cost-effective. In reaches of the San Miguel requiring restoration, the river channel will restore itself, for the most part, if the natural hydrograph is respected and high flows are maintained (Andrews).

Reconnecting channel to floodplain is important because natural flooding improves riparian plant habitat, enables cottonwood regeneration (Fleener), redistributes nutrients, creates and recharges backwater habitat for native fish rearing. Reconnecting channel to floodplain also provides for lateral channel migration, which allows the channel to absorb energy, drop sediment, and to create and maintain riparian plant and aquatic habitat.

The impacts of degraded water quality often migrate downstream and are difficult to completely assess. They affect the health of the riparian plant and aquatic, particularly native fish, communities.

Priority Restoration Reaches

The three highest priority reaches, in order of greatest projected benefits to biodiversity, are:

1) San Miguel River, Dry Creek to Tabeguache Creek;
2) San Miguel River, Horsefly Creek to Cottonwood Creek;
3) Deep Creek and its tributaries;

The next highest priority reaches, with additional information needed, are:

4) Howard Fork of the San Miguel, Swamp Creek to Lake Fork;
5) Telluride Valley Floor, mainstem of the San Miguel, Butcher Creek to Prospect Creek.

II. **Prioritized Reaches**

Telluride Valley Floor
San Miguel River, Butcher Creek to Prospect Creek
Reach Description

This reach is the #5 highest priority for restoration, with important information needed to determine value of restoration to biodiversity.

Location:
USGS 7.5 minute quadrangles: Telluride
Property Ownership: Most of the Telluride Valley Floor reach is in private ownership, an 800-acre parcel of private land held by one party, the San Miguel Valley Corporation, a subsidiary of a Denver company, Cordillera Corporation. About 70 acres and several hundred yards of river corridor, upstream of the confluence of Mill Creek and the San Miguel River, is owned and managed by the U.S. Forest Service. Telluride Ski and Golf Company holds an easement on 20 acres of land on the Prospect Creek alluvial fan for the purpose of restoring wetlands.

Known locally as "the Valley Floor," the property has long been the subject of local debate and controversy surrounding potential development, culminating in the Town of Telluride's current contemplation of condemnation. It is not the intent of the river restoration assessment to comment on, attempt to influence, or otherwise be involved in any of the controversy surrounding the Valley Floor. Rather, stakeholders participating in the assessment emphasized that all parties in the Valley Floor conflict generally agree the San Miguel River has been altered and impacted by past human activity, and that restoration is required. It bears repeating here that stakeholders as a group feel strongly that restoration activities anywhere in the San Miguel watershed should be undertaken only with the consent and cooperation of the landowner.

General Description: The Telluride Valley Floor, San Miguel River, Butcher Creek to Prospect Creek is an approximately three mile segment of the San Miguel River west and adjacent to the Town of Telluride.

Among the impacts to the river in this reach are: a built-up railroad grade that forces the river channel to the south side of the property for a distance of about 1.5 miles; trenches cut into the wetlands; grazing; and more than 20 acres of mine tailings left behind in the floodplain by a shallow reservoir that once inundated the west end of the site.

When river restoration on the Valley Floor will occur and by whom is not clear. Stakeholders felt that, regardless of who owns the property or what the use of the property is, river restoration is needed and will someday need to be undertaken. Because of this, and because the Valley Floor is the largest wetland complex in the watershed, the stakeholders regarded restoration of this reach as a high priority. The science team noted that, aside from the political controversies surrounding the property, scientific questions remain. What is the biodiversity significance of the property? Are water quality impacts from the tailings on the property migrating downstream, and if so, what is the affect of those impacts to downstream flora and fauna?

Are flora and fauna in the reach being impacted by the tailings? How should the tailings be remediated?

The abandoned railroad grade confines the channel, eliminating natural flooding and lateral channel migration. Hampering any attempt to remove the railroad grade is the fact that the Town of Telluride's sewer line, connecting the town to the waste treatment plant west of Highway 145, lies in the grade. If the railroad grade is removed someday, in-channel construction would likely be required to re-create sinuosity and channel meander. Unlike other reaches with steeper gradient, the San Miguel through the Valley Floor is a low gradient, lower volume river. Whereas seasonal high flows will allow the channel to restore itself in other stretches of the San Miguel in 10 to 20 years, natural recovery within the Valley Floor reach will require 50 to 60 years or longer (Andrews, personal communication).

Remediation of the Valley Floor tailings is addressed in the Idarado consent decree that settled the lawsuit brought by the State of Colorado against Newmont Mining Company, the owners of the Idarado Mill and mine complex, east of Telluride. The decree gave Newmont and the property owners until December 31, 2000, to either remove tailings or to stabilize and cap them. However, no remediation has been undertaken to date. The landowner has not given Newmont access to the property to perform the remediation, nor has the landowner submitted its own plan (Price, personal communication).

A fundamental question regarding the tailings in the floodplain is: if the tailings are left in place, stabilized and capped, what flooding or lateral channel movement allow renewed metals loading into the river? Likewise, a corollary question is: will restoration-related construction and disturbance in the channel result in releasing metals stored in the channel bottom, renewing loading?

Unrelated to the Idarado consent decree is the proposed restoration of 20 acres of wetlands on the Prospect Creek alluvial fan and the filling of 3 trenches that were cut across the fan in 1970, in preparation for additional tailings disposal by Idarado. Telluride Ski and Golf Company has acquired an easement to allow the company to perform the restoration as part of its wetlands remediation plan (Hazen, personal communication). Work is expected to begin in 2001.

The San Miguel River, from Marshall Creek (just west of the Idarado Mill) to the South Fork confluence, including the Valley Floor reach, is listed by the State of Colorado as a Section 303(d) river, exceeding Total Maximum Daily Load (TMDL) guidelines, and it is not expected to meet applicable water quality standards with technology-based controls alone.

The San Miguel was included on the Colorado 303(d) List, as partially supporting aquatic life, due to high levels of dissolved cadmium, manganese, zinc and sediment. High siltation from urban runoff is identified as a primary contributing non-point source. During the period of late winter/early spring runoff, high siltation from urban street runoff and low flow in the San Miguel River causes a buildup of silt that covers the streambed. When the problem was first identified, it was suspected that sediment was filling the interstices of the gravel bed and likely smothering benthic macroinvertebrates and trout fry (Colorado Water Quality Control Division).

The Town of Telluride has begun to implement a plan to control and reduce sediment load in the river, including: designing a stormwater retention system utilizing a constructed wetland; managing snowmelt from the Town of Telluride snow storage facility located on the west side by directing collected snowmelt through a series of managed wetlands to filter the water prior to entering the river; and restoring a 0.7 mile stretch of the river from below the confluence with Bear Creek to Fir Street, adjacent to Town Park. The goals of the river restoration project are to restore aquatic, wetland and riparian habitat; improve river hydraulics; and balance sediment movement throughout the channel. River restoration and construction began in September, 2000, and has met unanticipated public criticism and complaints related to construction-related increased turbidity.

Restoration Recommendation

1) Cooperate with the Colorado Department of Public Health and Environment to analyze: metal loading in the channel and in the Valley Floor tailings; potential for metals release from in-channel mechanical manipulation; impacts of metals contamination to flora and fauna in the Valley Floor reach; impacts of metals contamination to flora and fauna downstream of Valley Floor reach.
2) Analyze flora within the reach to determine biodi-

versity value.
3) Cooperate with the Colorado Department of Public Health and Environment and landowner to remove tailings.
4) Encourage filling drainage trenches.
5) Cooperate with landowner and Town of Telluride to relocate sewer line and remove railroad grade.
6) Engineer and perform in-channel construction to restore sinuosity and meander.

Biodiversity Targets: Valley Floor

Element, Common Name	G rank	S rank
Populus angustifolia-Picea Montane riparian forest	G3	S3
pungens/Alnus incana		
Salix geyeriana-Salix Montane riparian willow carr	GU	S3
monticola/mesic graminoid		

Local Considerations

Stakeholders emphasized the following point:

It is not the intent of the river restoration assessment to comment on, attempt to influence, or otherwise be involved in any of the controversy surrounding the Valley Floor. Almost all of the land in this reach is privately owned. Any conservation actions on private property must be undertaken with the willing consent of the landowner, and the landowner must be fairly compensated for the use of the property.

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IV. Conservation Targets

Identifying elements of biodiversity as the conservation targets and the processes that sustain them is critical to evaluate potential environmental benefits of restoration activities. Several studies were relied on to understand conservation targets in the San Miguel watershed.

The Nature Conservancy's *San Miguel River Site Conservation Plan* (Neely et al., July 1999) compiles data of terrestrial and aquatic plants and animals. This conservation plan relies upon information and biodiversity rankings compiled by the Colorado Natural Heritage Program, and served as the primary source/summary of biodiversity information for the river restoration assessment.

The Colorado Natural Heritage Program's *A Natural Heritage Assessment: San Miguel and Western Montrose Counties, Colorado* (Lyon and Sovell, 2000) identifies the localities of rare, threatened, or endangered species and the locations of significant natural plant communities. The three highest priority reaches in this assessment were each identified by the Lyon and Sovell study as "Potential Conservation Areas."

TNC's conservation plan incorporates information on aquatic species compiled by the *Aquatic Community Classification Pilot for the San Miguel Watershed* (Reed et al, 1998). The river restoration assessment ordered this study. It researched and analyzed original fish sampling records data, though fish sampling has not been conducted in the watershed in a systematic and regular manner, and has most often been targeted at non-native, cold-water game species such as rainbow trout. The pilot project combined the limited fish data with other ecological and geological characteristics to describe the variety and distribution of aquatic macrohabitats in the watershed.

To address the scarcity of fish data, the river restoration assessment team commissioned an electrofish sampling at five locations on the main stem of the San Miguel. The Colorado Division of Wildlife conducted this sampling October 1999. Results are reported in the CDOW's *San Miguel River Fisheries Inventory, Creel Census and Shocking History* (Hebein, 1999).

The USGS report, *Hydrology, Geomorphology, and Sediment Transport of the San Miguel River, Southwest Colorado* (Allred and Andrews, 2000) assembled baseline hydrologic data, and documents the timing and magnitude of flood events during historic times.

The USGS report, *High Flow and Riparian Vegetation Along the San Miguel River, Colorado* (Friedman and Auble, 2000) relates variables in hydrologic regime with riparian health.

Richard Madole's study, *Preliminary Report on the Geology and Recent Geologic History of the San Miguel River Valley, Southwestern Colorado*, analyzed four study reaches selected by the restoration assessment science team. It identifies and maps changes in the river channel, flood plain, low terraces and valley-floor deposits over the past half-century. This study was funded, in part, by the San Miguel River Restoration Assessment grant.

Together, these studies recognize the San Miguel as harboring one of the longest and highest-quality stretches of high-quality deciduous and evergreen riparian forests and shrublands in the western United States. These studies also establish the ecological process, and the hydrologic and geomorphologic context in which these riparian communities exist.

The watershed supports at least eleven known globally rare riparian plant communities, 9 high-quality examples of more common plant communities, 6 globally rare animals (including 2 fish), 16 globally rare plants, and 12 declining species (including 2 fish). Declining species are species declining through all or a significant part of their ranges (Neely).

VI. Human Context

The 1,550 square mile San Miguel watershed lies within parts of two counties, San Miguel and Montrose. An estimated 7,000 people live in the watershed. People are organized geographically, politically and economically in ways that somewhat resemble the changes taking place throughout the western United States.

Communities in the upper watershed such as Telluride and Mountain Village have developed with significant cultural and philosophical differences compared to communities in the lower watershed, including Nucla and Naturita. The community of Norwood lies in between, geographically, economically, and philosophically.

The towns of Telluride and Mountain Village dominate the upper watershed. Telluride is the county seat for San Miguel County. The economy of the upper watershed can be described as a resort and a resort construction economy. Residents tend to embrace more urban and more liberal values compared to residents in the lower watershed. The economy is driven by resort, recreation and construction-associated activities. About 4,000 people live in the upper watershed. Over 50% of the residential dwelling units are lived in part-time.

The watershed becomes more rural as one travels downstream. Norwood lies on the northern edge of San Miguel County. Redvale, Nucla and Naturita are in western Montrose County, separated from the rest of Montrose County and the county seat (Montrose) by the Uncompahgre Plateau. People tend to be more conservative. Agriculture, including ranching and farming, is a higher percentage of the economic activity, though many residents commute to Telluride to work, mostly in construction and in the service sector. Mining dominated the economy of Naturita until the early 1980's. Current mining-related activity is focused on clean up and remediation, as opposed to actual mining.

Conservation Activities

The Nature Conservancy established its first nature preserve along the San Miguel River in 1987, thanks to a gift of land to TNC from Umetco Minerals Corporation. TNC has since expanded its initial San Miguel River preserve and established two additional preserves along the river. Today, the three TNC San Miguel River preserves total about 1,000 acres and comprise nearly 10 miles of river corridor. These three preserves, together, harbor highly ranked occurrences of rare riparian plant communities; including New Mexico privet foothills riparian shrubland, Fremont's cottonwood/Skunkbrush/ Coyote willow riparian shrubland, Narrowleaf cottonwood/Blue Spruce/Alder montane riparian forest, and Western river birch/mesic graminoid lower montane riparian communities (Lyon and Sovell). TNC first staffed the preserves in 1990 with a seasonal preserve manager. TNC currently staffs an office in Telluride year round with a full-time program manager and a full-time stewardship coordinator.

The Bureau of Land Management's Resource Area Office is in Montrose. The BLM designated 33,000 acres as an Area of Critical Environmental Concern (ACEC) and Special Recreation Management Area (SRMA) in 1992. 65% of the land in the San Miguel watershed is publicly owned (35.2% U.S. Forest Service; 26.9% BLM; 2.4% State). The Forest Service's District Ranger Station is in Norwood.

The San Miguel Watershed Coalition

In 1993, the Telluride Institute convened the first meeting of stakeholders in the upper watershed, and helped form what was then called the San Miguel River Coalition.

Beginning the following year, the National Park Service Rivers and Trails Program facilitated a series of meetings of stakeholders from the entire watershed, leading to the broadening of the River Coalition into the San Miguel Watershed Coalition. Members of the Watershed Coalition then embarked upon a two-year collaborative process to write and distribute the 1998 *San Miguel Watershed Plan*. The U.S. Environmental Protection Agency contributed funds to partially pay

for the plan's publication. The Watershed Coalition has non-profit, 501(c) 3 status.

The San Miguel Watershed Plan is not, nor was it ever meant to be, a regulatory document. Mostly, the plan is a tool to facilitate stakeholder collaboration. The mission statement of the coalition states: "Through a process of collaborative planning and substantive public involvement, the San Miguel Watershed Coalition will help identify, prioritize, and facilitate action that will conserve and enhance the natural, cultural, and recreational resources and the social and economic vitality of our communities. The Coalition will provide a forum for agencies, jurisdictions, interest groups and individuals to discuss issues and opportunities on an ongoing basis" (*San Miguel Watershed Plan*, p. 8). It is in this spirit that this river restoration assessment was undertaken, hence the inclusion of the stakeholder outreach component in this river restoration assessment.

The San Miguel Watershed Plan divides issues into five themes: Growth and Community Preservation; Water; Natural Resources; Recreation; and Education and Stewardship. Several objectives and potential actions under the themes of Water and Natural Resources provide the context for a river restoration assessment, including the following:

Objective: *Achieve a sustainable condition to the Basin's river, riparian and wetland environments, and the uplands surrounding them (San Miguel Watershed Plan*, p. 31).

Potential Action: *Support the development of restoration plans on high priority sites, based on condition, threat and importance, to re-establish stable channel geometry and healthy riparian vegetation, and to prevent future stream channelization* (*Plan*, p. 31).

Objective: *Protect the ecological as well as human health and safety values of floodplains* (*Plan*, p. 32).

Potential Action: *Support the restoration and maintenance of floodplains as well as explore options and incentives to reduce risk to property* (*Plan*, p. 32).

Objective: *Maintain and where possible restore natural plant and animal communities in ways that are consistent with watershed objectives* (*Plan*, p. 34).

Potential Action: *Support and undertake appropriate restoration efforts (e.g. Colorado River cutthroat trout and Gunnison sage grouse). Identify high priority areas for reintroduction* (*Plan*, p. 34).

Objective: *Minimize non-point source pollution of surface and ground water from sediment, biological pathogens, excess nutrients, urban pollutants, heavy metals and hazardous wastes…*(*Plan*, p. 27).

Potential Action: *Support restoration of unstable river reaches to reduce sediment loading and/or promote healthy riparian areas* (*Plan*, p. 27).

VII. Disturbed Sites

Human Impacts

One hundred and twenty years of intense human use, including mining, road building, logging, agriculture, and, in more recent times, intensifying recreational use and resort development have taken a toll on the diverse, native riparian plant communities and on aquatic communities throughout the watershed. Fragmentation, sedimentation, competition, pollution, and altered hydrology are consequences of this human activity.

In the upper watershed, hard rock mining remnants, including tailings and waste rock piles, and open adits continue to degrade water quality, although most mining activity ended a half century ago. Road building, use and maintenance contributes to sedimentation, and in places, contributes to straightening and widening of the stream channel. Gravel mining, though now mostly discontinued, has severely impacted the river channel in places. Catastrophic ice floes events, perhaps enabled by altered winter stream flows related to hydroelectric power generation, scour the stream channel. Snowmaking depletes water tables, and reduces wintertime base flows. Non-native fish species, including rainbow trout, compete with native species for food and habitat.

In the lower watershed, dikes and riprap, in places, prevent flooding and inhibit channel migration. Livestock grazing along portions of the river is harming native vegetation, increasing stream-bank erosion and contributing to straightening and widening of the stream channel, and warming of the water. Invasive exotic weeds, brought into the watershed by people and livestock, crowd out native plants, and, during the growing season, transpire tens of thousands of gallons of water a day out of the aquifer. Agricultural diversions below Horsefly Creek, in low water years, nearly dewater sections of the mainstem.

Remediation and mine clean up has occurred at some sites within the watershed, most notably at the

Vancorum site downstream of Naturita, and at the Umetco Mill site at Uravan. At Uravan, mill tailings were relocated out of the floodplain to an upland hilltop in 1989, removing what some biologists have called a "biological dam" that deterred native fish migration to and from the Dolores River. The Dolores itself continues to improve as native fish habitat, due to salinity control projects and summer-long water releases from McPhee Dam, over 100 miles upstream on the Dolores from its confluence with the San Miguel.

Throughout the watershed, impacts from development are potentially a threat to biodiversity values. Road building and road maintenance, home building (including septic system operation), golf course building and operation, fire suppression, ground water pumping and stocking of ponds with non-native fish are all threats related to development.

Taking into account the conservation targets and variety of impacts to those targets, a list of disturbed sites was developed. The list was initially compiled at a meeting of the assessment science team in December 1998. It was then refined by considerable effort, including exhaustive on-site investigation by Willits, Andrews, and Groeneveld (April 1998-September, 1999), aerial reconnaissance (Groeneveld; September, 1999 and October, 2000), personal interview, and stakeholder outreach workshops (Willits; May 2000-July 2000).

The stakeholders prioritized the disturbed site list at a workshop held near Norwood on July 13, 2000. The prioritized list became the substance of the final prioritized list for the restoration assessment after it was reviewed by the science team and evaluated based on restoration targets, expected benefits to biodiversity, and information needs.

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Results of Stakeholder prioritization:

PRIORITY (10=HIGHEST)	SITE NAME
10	Howard Fork
9	Valley Floor
8	Deep Creek Horsefly Creek to Pinyon Bridge Calamity Creek to Tabeguache Creek
7	Vanadium/Big Bear Creek San Miguel Canyon Naturita Vancorum
6	Down Valley (Placerville and Mesa Development)
5	Keystone Hill Cascabel Fishing Club Uravan
4	Telluride Gravel Sawpit BLM Tram Site Applebaugh County/BLM Leopard Creek/Omega Mine

Table 6: Disturbed and Degraded Sites:	Biodiversity Values	Key Questions
1) Howard Fork **Acid mine drainage, draining adits** **Mine waste** **Water quality impacts** **Mix of public and private property**	High biodiversity value downstream Water quality, impacting river corridor many miles downstream Wetlands Riparian plant communities Aquatic communities	What are the impacts to the river and how far downstream do those impacts migrate? Multiple owners of acid draining mines Not a Superfund site, but on National Priorities List Complex site to successfully remediate with major environmental liability issues. Where would funding come? Who would lead and coordinate?
2) South Fork **Ice flow events** **Scour banks, increase erosion**	**High quality riparian plant communities, bird & fish habitat** Channel integrity Hydrologic processes Fish habitat	Are these events occurring recently? Are human activities causing these events? How far downstream are the impacts migrating?
3) Telluride Gravel **Confluence of South Fork and Mainstem** **Privately-owned gravel mine**	Hydrologic processes Recreational fishery Public education opportunity	Are impacts still migrating upstream and/or downstream? USFS enforcement action done USFS required remediation done Company recently sold to United Gravel Restoration would put back "hard" river "park"
4) Valley Floor **Mainstem of the San Miguel** **West of Town of Telluride** **Dikes, channelization** **Overgrazing** **Town of Telluride River Restoration**	Wetlands Hydrologic processes: Re-establish channel to floodplain Riparian plant communities Recreational fishery Included Telluride's 303(d) TMDL strategy. Work to begin Fall, 2000	Conflict between landowner & Town of Telluride over development plans Do impacts migrate downstream? Restoration would need to balance recreational use & development Developer is committed to some restoration Community committed to restore w/recreational Not included in San Miguel River Restoration Assessment
5) Keystone **Mainstem of San Miguel** **West of Society Turn to S. Fk. Confluence** **Mine tailings in floodplain**	Hydrologic Processes Recreational fishery Riparian plant communities Water quality	Impacts unknown Tailings reclamation still being negotiated Hydro-electric facility proposed
6) Deep Creek **Tributary to San Miguel** **Remnant population of A- Cutthroat** Mix of public and private property	**Native cutthroat trout** Riparian plant communities Water quality	Heavy ORV & other recreational use Mix of public land with multiple private Increasing residential development Source water for Aldasoro residential development Draining mine adit on East Fork

Disturbed Site	Resource values/benefit	Socio-political factors
7) Vanadium- **Confluence, Big Bear Creek & San Miguel mainstem** **Vanadium millsite** **Mostly private property**	Water quality **Native plant communities** Recreational fishery	Impacts unknown Mix of public & private Mine tailings dispersed Tailings along Silver Pick Rd Information on impacts of tailings needed
8) Sawpit Tram Site: **BLM** **Mine Waste**	Water quality	Impacts unknown BLM ownership May be easily remediated

9) Applebaugh **55 acre site downstream of Fall Creek** **Proposed regional park, now owned by San Miguel County and BLM**	Hydrologic processes: Re-establish channel migration Recreational fishery Recreation Public education potential	Now under County/BLM ownership Multiple recreation demands Limited restoration benefit
10) Down Valley **Fall Creek to Placerville** **All private property**	Water quality Riparian plant communities	Concentrated use of septic systems Heavy development pressure Concern of downstream water users Road building and weed issues Do impacts migrate downstream?
11) Leopard Creek Omega Mine Site **Site acquired by BLM 1999.** **Upstream from confluence w/San Miguel**	**Unique aquatic macrohabitat** Water quality Aquatic communities	Limited restoration benefit Site now owned by BLM Need to get info from BLM
12) San Miguel Canyon **Placerville to Norwood Bridge** **Mostly BLM, w/some private, TNC** **Dikes, diversions, berms,** **Debris**	**High quality riparian communities** Hydrologic processes: Re-establish channel migration Recreational fishery, boating Native plant communities	Multiple sites w/variety of small problems in river corridor (dikes, dams, debris, diversions), unclear of cumulative impacts Need a site by site evaluation
13) Cascabel Fishing Club **Downstream of Norwood Bridge**	Re-establish channel migration Recreational fishery Native plant communities	Channelization, construction of off channel reservoir w/ warm water exotic fish species New 35 acre parcel subdivision
14) Horsefly Ck to Pinyon Bridge (Cottonwood Ck) **3 miles private, 4 miles BLM**	**Native fish habitat restoration potential** **Riparian restoration potential** Hydrologic processes Native plant communities Recreational fishery Aquatic communities	Overgrazing on private land Broadening channel Stream braiding Exotic plant invasion Uninterested private landowner
15) Naturita **Naturita Creek to Dry Creek** **All private property**	**Rare aquatic macrohabitat** **Native fish restoration potential** **High Quality riparian plant communities**	Tamarisk & other exotic plants Current & future gravel mining Heavy development
16) Dry Creek to Calamity Creek **AKA Vancorum** **All private property** **Recently reclaimed vanadium mill**	**Rare aquatic macrohabitat** **Native fish restoration potential** **High Quality riparian plant communities** Hydrologic processes: Re-connect channel to floodplain	UMTRA clean up site Multiple mining companies owned Interest in recreational acquisition by Naturita for golf course
17) Calamity Creek to Tabeguache Creek **All private, incl. TNC**	**Rare aquatic macrohabitat** **Native fish restoration potential** **High Quality riparian plant communities** Hydrologic processes: Re-connect channel to floodplain	3 miles owned by unwilling private landowner 7 miles owned by TNC Unsupportive County Commissioner Tamarisk Dikes
18) Uravan Superfund Remediation in Progress **All private: Owned by Umetco Minerals** **Uravan was not evaluated as a potential restoration site because of current remediation activities.**	**Rare aquatic macrohabitat** **Native fish restoration potential** **Rare Plant occurrences** Hydrologic processes Water quality issues	Superfund site Numerous abandoned uranium mines Tamarisk County in line for title to ball field (2003) Proposed RV Campground

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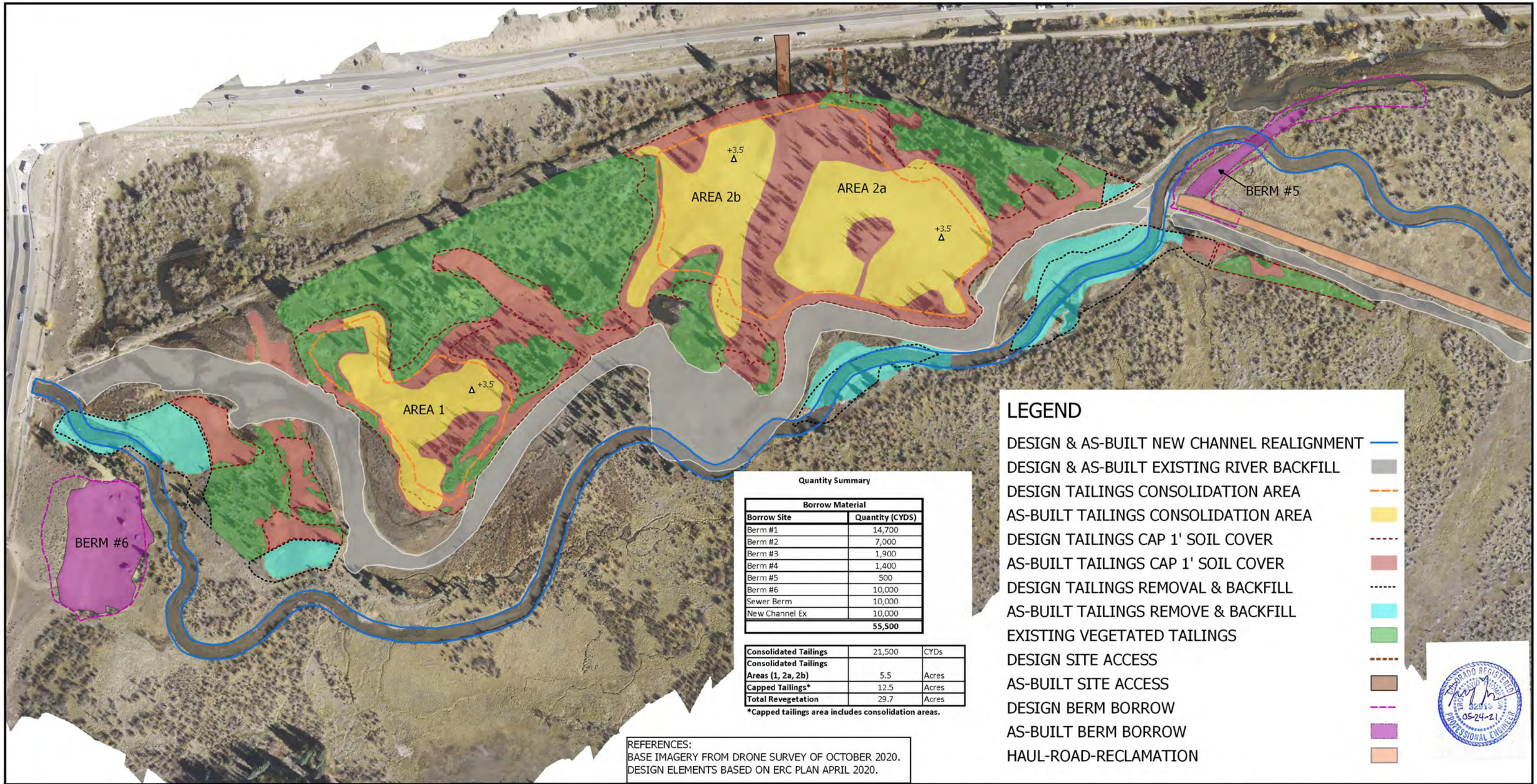
The San Miguel Watershed Coalition prides itself as being an organization that facilitates discussion between citizens and agencies. SMWC's work commonly provides easy-to-read scientific studies and opportunities to meet scientists and experts on important issues affecting the health of the San Miguel Basin. Pat Willits is Mayor of Ridgway and executive director of The Trust for Land Restoration.

ATTACHMENT 1.a



Quantity Summary

Borrow Material	
Borrow Site	**Quantity (CYDS)**
Berm #1	14,700
Berm #2	7,000
Berm #3	1,900
Berm #4	1,400
Berm #5	500
Berm #6	10,000
Sewer Berm	10,000
New Channel Ex	10,000
	55,500

Consolidated Tailings	21,500	CYDs
Consolidated Tailings Areas (1, 2a, 2b)	5.5	Acres
Capped Tailings*	12.5	Acres
Total Revegetation	29.7	Acres

***Capped tailings area includes consolidation areas.**

REFERENCES:
BASE IMAGERY FROM DRONE SURVEY OF OCTOBER 2020.
DESIGN ELEMENTS BASED ON ERC PLAN APRIL 2020.

LEGEND

- DESIGN & AS-BUILT NEW CHANNEL REALIGNMENT
- DESIGN & AS-BUILT EXISTING RIVER BACKFILL
- DESIGN TAILINGS CONSOLIDATION AREA
- AS-BUILT TAILINGS CONSOLIDATION AREA
- DESIGN TAILINGS CAP 1' SOIL COVER
- AS-BUILT TAILINGS CAP 1' SOIL COVER
- DESIGN TAILINGS REMOVAL & BACKFILL
- AS-BUILT TAILINGS REMOVE & BACKFILL
- EXISTING VEGETATED TAILINGS
- DESIGN SITE ACCESS
- AS-BUILT SITE ACCESS
- DESIGN BERM BORROW
- AS-BUILT BERM BORROW
- HAUL-ROAD-RECLAMATION

COLORADO REGISTERED 32915 PROFESSIONAL ENGINEER 05-24-21

Prepared By:

ERC

225 Union Blvd, Suite 325
Lakewood, CO 80228

ERC# 340-2006

CLIENT:

TOWN OF TELLURDE

0 250 500 ft

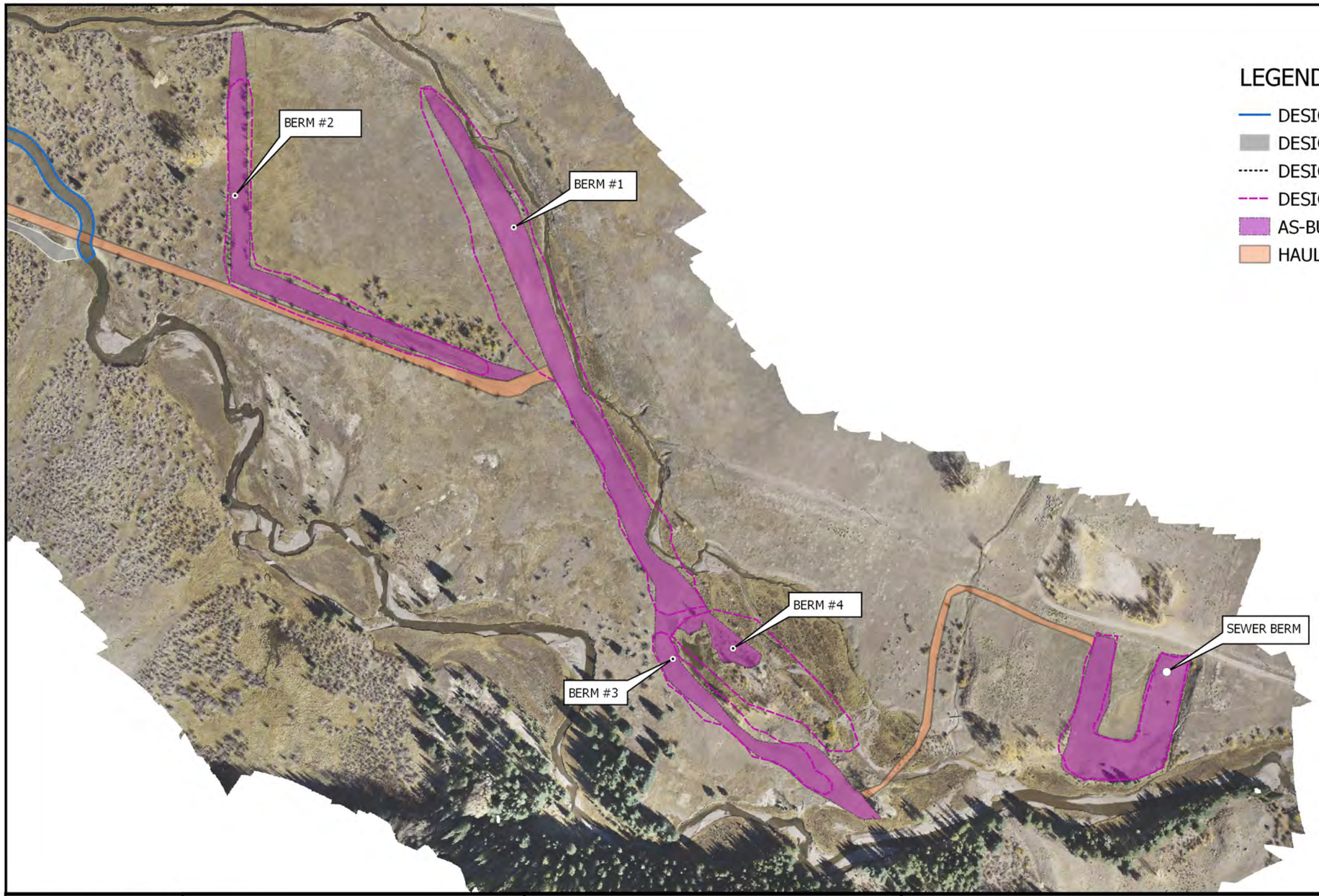
ST-1 TAILINGS REMEDIATION
REACH 4, 5, AND 6 RESTORATION
PLANVIEW
DESIGN PLAN AND AS-BUILT COMPARISON AS OF OCTOBER 29, 2020

SHEET 01

AS-BUILT

2020

ATTACHMENT 1.a



LEGEND

- DESIGN & AS-BUILT NEW CHANNEL REALIGNMENT
- DESIGN & AS-BUILT EXISTING RIVER BACKFILL
- DESIGN TAILINGS REMOVAL & BACKFILL
- DESIGN BERM BORROW
- AS-BUILT BERM BORROW
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COLORADO REGISTERED PROFESSIONAL ENGINEER 05-24-21

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ST-1 TAILINGS REMEDIATION
REACH 4, 5, AND 6 RESTORATION
PLANVIEW
DESIGN PLAN AND AS-BUILT COMPARISON AS OF OCTOBER 29, 2020

SHEET 02

AS-BUILT

2020

5/22/2021

Attachment 2.a

	TAILINGS COMPONENT	Budget	ERC Invoices 1/22/2020 9875	7/6/2020 10376	8/4/2020 10473	9/6/2020 10563	10/5/2020 10678	11/5/2020 10814	YR. 2019 (9199, 9279, 9368, 9541)	
Task No. 1a	Tailings excavation (removal areas) to Consolidation Areas 1, 2a and 2b	$460,000.00			$299,000.00	$161,000.00				$460,000.00
Task No. 1b	Provide Tailings Cap Material from Town Sources (Excavate, Haul, Place, Contour)	$624,000.00		$124,800.00	$312,000.00	$49,920.00	$137,280.00			$624,000.00
Task No. 1c	Provide Tailings Excavation Areas Clean Backfill from Town Sources (Excavate, Haul, Place, Contour)	$93,600.00			$60,840.00	$32,760.00				$93,600.00
Task No. 1d	Tailngs Cap Revegetation (includes soil amendments, seeding and stabilization of cap, haul roads and borrow areas)	$155,400.00					$101,010.00	$54,390.00		$155,400.00
Task No. 1e	Tailings handling (equipment cleaning, personnel)	$25,000.00		$6,250.00	$6,250.00	$8,750.00	$2,500.00	$1,250.00		$25,000.00
Task No. 1f	Soil/tailings testing (soil-metals)	$4,000.00			$600.00		$3,400.00			$4,000.00
Task No. 1g	Construction Operations, Water Control, BMPs, Mob/Demob, Expenses, Construction Management	$406,298.47	$20,314.92	$142,204.46	$40,629.85	$142,204.46	$40,629.85	$20,314.92		$406,298.46
Task No. 1h	Final Design and Permitting Billed Complete as Phase I	$44,449.02							$44,449.02	$44,449.02
Task No. 1j	Project Bond	$16,932.96		$16,932.96						$16,932.96
		$1,829,680.45	**$20,314.92**	**$290,187.42**	**$719,319.85**	**$394,634.46**	**$284,819.85**	**$75,954.92**	**$44,449.02**	**$1,829,680.44**
To completed over next 3 years										
Task No. 1i	Annual monitoring program (3-year, no maintenance)	$19,049.58								$19,049.58
RR - Task No. 5b	Annual monitoring program (3 year, no maintenance) from River Restoration Component	$16,950.42								$16,950.42
		$36,000.00								**$1,865,680.44**

color key

split between sources

STATE	Approved Budget [inc. Task 1h and Tailings & RR Monitoring]	Expended	Expended % of Task No. 1g (mob/bmp/CM)	Total Expended	Balance to Finish	
Final Design	$44,449.02	$44,449.02		$44,449.02	$0.00	
Tailings Handling	$793,674.03	$598,708.64	$178,917.59	$777,626.23	$16,047.80	monitoring
Cap Material Handling	$793,674.03	$596,758.23	$178,917.59	$775,675.82	$17,998.21	monitoring
Construction Operations	$16,932.96	$16,932.96		$16,932.96	$0.00	
CWCB	$215,000.00	$166,533.13	$48,467.34	$215,000.47	($0.47)	
TOTAL	**$1,863,730.04**	**$1,423,381.98**	**$406,302.52**	**$1,829,684.50**	**$34,045.54**	monitoring, Town to contribute $1954.46 for RR monitoring

Notes:

CWCB funds were used for Task No. 1d and $65,523.13 of Task No. 1b (10/05/2020 ERC Invoice 10678), and prorata expenses ($48,467.34) associated with Task No. 1h (ERC Invoices 9875, 10376, 10473, 10678, 10814)

State Tailings Handling funds were used for Task No. 1e (07/06/20 ERC Invoice 10376); Tasks No. 1a, 1c,1e, and 1f (08/04/20 ERC Invoice 10473); Tasks No. 1a, $16,108.64 of 1c, and 1e (09/06/20 ERC Invoice 10563); Tasks No. 1e and 1f (10/05/20 ERC Invoice 10678); Task No. 1e (11/05/20 ERC Invoice 10814), and prorata expenses ($178,917.59) associated with Task No. 1h (ERC Invoices 9875, 10376, 10473, 10678, 10814)

State Cap Material Handling funds were used for Task No. 1b (07/06/20 ERC Invoice 10376); Task No.1b (08/04/20 ERC Invoice 10473); Tasks No. 1b, and $16,108.64 of 1c (09/06/20 ERC Invoice 10563); $71,756.87 of Task No. 1b (10/05/20 ERC Invoice 10678); Task No. 1d (11/05/20 ERC Invoice 10814), and prorata expenses ($178,917.59) associated with Task No. 1h (ERC Invoices 9875, 10376, 10473, 10678, 10814)

State Plans funds were used for Task No. 1h ($44,449.02 of ERC Invoices 9199, 9279, 9368, 9541 [2019])

State Construction Operations funds were used for Task No. 1j (07/06/2020 ERC Invoice 10376)

	RIVER RESTORATION COMPONENT	Budget	ERC Invoices 1/22/2020 9875	7/6/2020 10376	8/4/2020 10473	9/6/2020 10563	10/5/2020 10678	11/5/2020 10814	YR. 2019 (9199, 9279, 9368, 9541)	
Task No. 2	**RIVER CORRIDOR RESTORATION REACH 6**									
Task No. 2a	Salvage abandon channel substrate and material sorting	$34,500.00				$34,500.00				$34,500.00
Task No. 2b	New channel-clear and grub (salvage/separate topsoil)	$225,250.00		$56,312.50	$56,312.50	$112,625.00				$225,250.00
Task No. 2c	New channel excavation	$166,250.00		$16,625.00	$66,500.00	$58,187.50	$24,937.50			$166,250.00
Task No. 2d	Spoils placement (backfill) in abandon channel	$171,000.00				$70,110.00	$100,890.00			$171,000.00
Task No. 2e	Construct riffle-pool features in new channel	$30,000.00			$15,000.00	$15,000.00				$30,000.00
Task No. 2f	Import and place riprap for abandon channel grade controls (Type M, purchase, haul and place from outside source)	$100,000.00				$35,000.00	$65,000.00			$100,000.00
Task No. 2g	Revegetate tailings removal backfill Area A, B, C (soil amendments, native seeding, 25% ECB-75/75% hydromulch)	$24,000.00					$15,600.00	$8,400.00		$24,000.00
Task No. 2h	Revegetate abandon channel backfill (soil amendments, native seeding and hydromulch)	$29,600.00					$19,240.00	$10,360.00		$29,600.00
Task No. 2i	Aquatic habitat diversity feature (large woody debris, cut bank, and/or log spur)	$18,750.00			$9,375.00	$9,375.00				$18,750.00
Task no. 2j	Riparian vegetation diversity (tree/shrub transplant, sod mat and/or plantings)	$9,126.50			$4,563.25	$4,563.25				$9,126.50
		$808,476.50		$72,937.50	$151,750.75	$339,360.75	$225,667.50	$18,760.00		$808,476.50
Task No. 3	**RIVER CORRIDOR RESTORATION REACH 5**									
Task No. 3a	Salvage abandon channel substrate and material sorting	$10,925.00		$2,731.25	$1,638.75	$6,008.75	$546.25			$10,925.00
Task No. 3b	New Channel-Clear and Grub (salvage/separate topsoil)	$31,800.00		$31,800.00						$31,800.00
Task No. 3c	New Channel-Excavation	$78,750.00		$74,812.50				$3,937.50		$78,750.00
Task No. 3d	Improve existing secondary channel (Dimension shaping)	$13,300.00		$11,970.00		$665.00		$665.00		$13,300.00
Task No. 3e	Spoils placement (Backfill) to Reach 5 abandon channel	$49,400.00				$19,760.00	$27,170.00	$2,470.00		$49,400.00
Task No. 3f	Construct Rifle/Pool features (with salvaged abandon channel substrate)	$12,500.00		$11,875.00		$625.00				$12,500.00
Task No. 3g	Spoils placement (Backfill) to Reach 6 abandon channel	$11,400.00				$4,560.00	$6,840.00			$11,400.00
Task No. 3h	Import and place riprap for abandon channel grade controls (Type M, purchase, haul and place from outside source)	$36,000.00				$12,600.00	$23,400.00			$36,000.00
Task No. 3i	New channel tie-in bank stabilization	$20,000.00						$20,000.00		$20,000.00
Task No. 3j	Reclamation of abandon channel and access staging areas	$7,400.00					$3,700.00	$3,700.00		$7,400.00
Task No. 3k	Aquatic Habitat Diversity Feature (Large woody debris, cut bank or log spurs)	$3,750.00		$3,750.00						$3,750.00
Task No. 3l	Riparian vegetation diversity (tree/shrub, transplant, sod mat and/or plantings)	$4,563.25		$4,563.25						$4,563.25
		$279,788.25		$141,502.00	$1,638.75	$44,218.75	$61,656.25	$30,772.50		$279,788.25
Task No. 4	**CONSTRUCTION OPERATIONS AND PROJECT MANAGEMENT (River Corridor Component Only)**									
	Construction operations, Water Control, BMP's Mob/Demob, Expenses, Construction Management, and Contingency	$361,526.53	$18,076.33	$144,610.61	$54,228.98	$90,381.63	$36,152.65	$18,076.33		$361,526.53
Task No. 5	**MISCELLANEOUS PROJECT EXPENSES (River Corridor Component Only)**									
Task No. 5a	Final design and permitting (Corps 404 with Cultural, Town Floodplain, and Wetland)	$39,550.98							$39,532.25	$39,532.25 ($18.73)
Task No. 5b	Annual monitoring program (3 year, no maintenance) moved to Tailings Componet									
Task No. 5c	Project Bond	$15,067.04		$15,067.04						$15,067.04
	Subtotal Tasks 4 & 5	$416,144.55	$18,076.33	$159,677.65	$54,228.98	$90,381.63	$36,152.65	$18,076.33	$39,532.25	$416,125.82
	TOTAL	**$1,504,409.30**	**$18,076.33**	**$374,117.15**	**$207,618.48**	**$473,961.13**	**$323,476.40**	**$67,608.83**	**$39,532.25**	**$1,504,390.57**

color key

split between sources

		Approved	Expended	Remaining Funds	
TOWN OF TELLURIDE		$702,560.71	$700,590.57	$1,970.14	$1954.46 to be used for RR Monitoring in the Tailings Budget
STATE-NRDS					
	Reach 5	$59,400.00	$59,400.00	$0.00	
	Reach 6	$59,400.00	$59,400.00	$0.00	
CWCB				$0.00	
	Reach 5	$47,800.00	$47,800.00	$0.00	
	Reach 6	$227,200.00	$227,200.00	$0.00	
VFPP		$400,000.00	$400,000.00	$0.00	
TU		$10,000.00	$10,000.00	$0.00	
	TOTAL	$1,506,360.71	$1,504,390.57	$1,970.14	

Notes:

CWCB funds for Reach 6 were used for Task No. 2c, $70,052.50 of Task No. 2d, Tasks No. 2f, 2g, and 2h (10/05/20 ERC Invoice 10678); and Tasks No. 2g, 2h, and $13,610 of Task No. 3i (11/05/20 ERC Invoice 10814). CWCB funds for Reach 5 were used for Tasks No. 3e, 3g, and 3j (10/05/20 ERC Invoice 10678); $6,390 of Task No. 3i, and Task No. 3j (11/05/20 ERC Invoice 10814).

STATE - NRDS funds for Reach 6 were used for $31,523.50 of Task No. 2c, Tasks No. 2i and 2j (08/04/20 ERC Invoice 10473); and Tasks No. 2i and 2j (09/06/20 ERC Invoice 10563). STATE - NRDS funds for Reach 5 were used for $39,211.75 of Task No. 3c, 3f, 3k and 3l (07/06/20 ERC Invoice 10376).

Trout Unlimited funds were used for $10,000 of Task No. 2e (08/04/20 ERC Invoice 10473)

VFPP funds were used for Tasks No. 2a, 2b, 2c, 2d, 2e, 2f, 3a, 3d, 3e, 3g, and 3h (09/06/20 ERC Invoice 10563); and $30,358.75 of Task No. 2d (10/05/20 ERC Invoice 10678)

TOT funds were used for Tasks No. 2b, 2c, 3a, 3b, $35,600.75 of Task 3c, and 3d (07/06/20 ERC Invoice 10376); Task No. 2b, $34,976.50 of Task No. 2c, $5000 of Task No. 2e, and Task No.3a (08/04/20 ERC Invoice 10473); $478.75 of Task No. 2d, Tasks No. 3a and 3h (10/05/20 ERC Invoice 10678); Tasks No. 3c, 3d, and 3f (11/05/20 ERC Invoice 10814); all of Task 4 (ERC Invoices 9875, 10376, 10473, 10678, 10814); and Tasks 5a (portions of ERC Invoices 9199, 9279, 9368, 9451 [2019]) and 5c (7/6/20 ERC Invoice 10376)