# EAST HELENA ASARCO SMELTER

# DRAFT RESTORATION PLAN

# And

# ENVIRONMENTAL ASSESSMENT CHECKLIST

**January 2019**

**Prepared By:**

**THE STATE OF MONTANA**

**NATURAL RESOURCE DAMAGE PROGRAM**

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## List of Acronyms

| | |
|---|---|
| ADA | Americans with Disabilities Act |
| CECRA | Montana Comprehensive Environmental Cleanup and Responsibility Act |
| CERCLA | Comprehensive Environmental Response Compensation and Liability Act |
| CFR | Code of Federal Regulations |
| DEQ | Montana Department of Environmental Quality |
| DNRC | Montana Department of Natural Resources and Conservation |
| DOI | U.S. Department of the Interior |
| EPA | U.S. Environmental Protection Agency |
| FWP | Montana Fish, Wildlife and Parks |
| gpm | gallons per minute |
| MEPA | Montana Environmental Policy Act |
| METG | Montana Environmental Trust Group |
| NPL | National Priorities List |
| NRD | Natural Resource Damage |
| NRDP | Natural Resource Damage Program |
| PPLT | Prickly Pear Land Trust |
| RCRA | Federal Resource Conservation and Recovery Act |
| U.S.C. | United States Code |

## Executive Summary

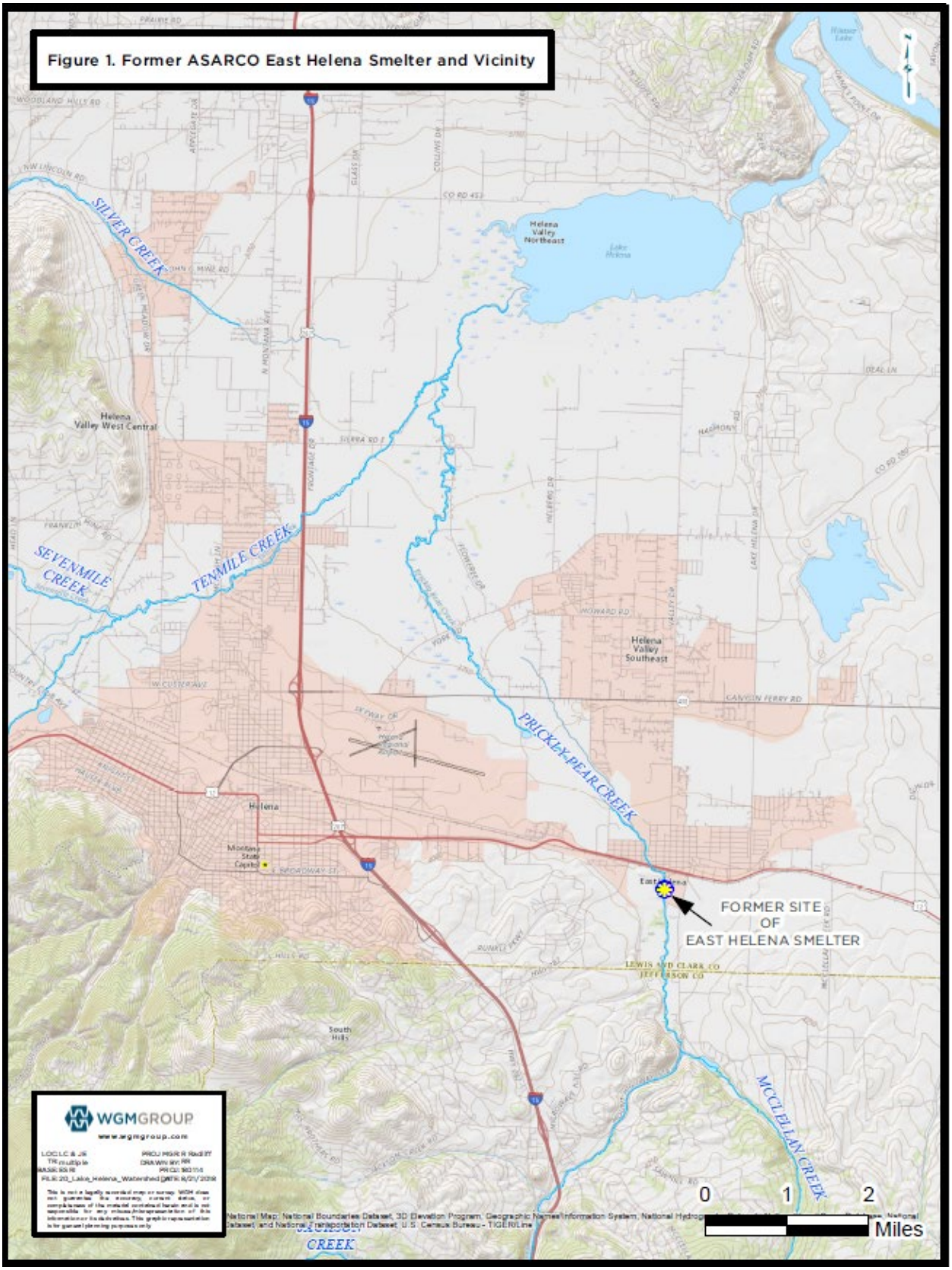
The Montana Department of Justice, Natural Resource Damage Program (NRDP) has prepared this draft restoration plan to address injuries to natural resources from the ASARCO East Helena Smelter (Figure ES-1). In 2006, the State of Montana filed several environmental claims, including remediation and natural resource damages, against ASARCO in the bankruptcy proceeding that had been filed in the federal bankruptcy court in Corpus Christi, Texas in August 2005. The court approved a final settlement of the ASARCO bankruptcy litigation and adopted an ASARCO reorganization plan in December 2009. As part of that settlement, ASARCO separately paid approximately $5.9 million to the State of Montana for restoration of natural resources in the East Helena area to settle the State's compensatory natural resource damage claims, plus, the State was provided an option to acquire at no cost 232 acres of ASARCO-owned land in the East Helena area to be used for public recreation, wildlife habitat, open space, and/or for wetlands. The $5.9 million was placed in an East Helena Natural Resource Damage (NRD) Settlement Restoration Fund, a State of Montana special fund created for the settlement. These restoration funds are in addition to the approximately $115 million ASARCO paid to clean up and restore the former East Helena ASARCO Smelter and other contaminated lands in the East Helena area.

Natural resource damages under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U. S. C. § 9601 *et seq.,* (CERCLA) are designed to compensate trustees for injury to natural resources. The Governor of the State of Montana is a trustee of natural resources within the state (CERCLA Section 107 (f)(l), 42 U.S.C.§ 9607(f)(1)). As Trustee, the State is entitled to "damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from" the release of a hazardous substance (CERCLA Section 107(a)(4)(C), 42 U.S.C.§ 9607(a)(4)(C)). Natural resources include land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the State (CERCLA Section 101(16), 42 U.S.C.§ 9601(16)).

### Purpose and Scope of this Document

Superfund provides that prior to spending NRD funds, a state must prepare a comprehensive restoration plan that provides for the expenditure of such funds on appropriate projects that would restore, rehabilitate, replace or acquire the equivalent of the injured or lost natural resources that were the subject of the NRD claim. Superfund Law, 43 CFR 11.82(a) states that a reasonable number of possible alternatives for the restoration, rehabilitation or replacement of the injured natural resources be developed and considered.

*Figure ES-1: ASARCO East Helena Smelter and Vicinity*



**Restoration Plan Goals and Alternatives**

The overall goal of this restoration plan is to identify actions that singly or in combination restore, rehabilitate, replace, or acquire the equivalent of injured natural resources to a condition where they can provide the level of services available at baseline or to replace and/or acquire the equivalent natural resources capable of providing such services. In addition, the State has included a general plan for disposition of and future uses of the 232 acres of State-allocated land described in the Consent Decree. The specifics of the proposed land-conveyance plan are not part of this restoration plan but will be negotiated separately when the transfer takes place.

The restoration plan goals are:

- Replace injured groundwater resource and associated services
- Restore riparian vegetation, fisheries, and natural stream flow
- Compensate for lost recreational use

The alternatives considered are (see Table ES-1):

- Restoration Alternative 1: No Action
- Restoration Alternative 2: Groundwater Action Weighted
- Restoration Alternative 3: Recreation Action Weighted
- Restoration Alternative 4: Equal Groundwater and Recreation Action Weighted

*Table ES-1: Approximate costs of alternatives*

| Alternative | Groundwater | Surface Water | Recreation | Total |
|---|---|---|---|---|
| No Action | $0 | $0 | $0 | $0 |
| Alternative 2 | $3,850,000 | $160,000 | $1,447,000 | $5,487,000 |
| Alternative 3 | $2,127,000 | $160,000 | $3,200,000 | $5,487,000 |
| Alternative 4 | $2,663,500 | $160,000 | $2,663,500 | $5,487,000 |

The alternatives were evaluated according to Natural Resource Damage Assessment legal and policy criteria as defined in Chapter 1.

**Preferred Alternative**

The Trustee recommends Alternative 3 as the preferred alternative. Alternative 3 achieves the goals of the legal and policy criteria, produces benefits to the injured resources, replaces some of the services lost because of the injury, and aligns with significant priorities of the community.

Following consideration of public comment, the State will recommend a final version of this plan for consideration of the NRD Trustee Restoration Council and approval of the Governor.

# 1 Introduction and Background

The Montana Department of Justice, Natural Resource Damage Program (NRDP) has prepared this draft restoration plan to address injuries to natural resources from the ASARCO East Helena Smelter (Figures 1 and 2).

In 2006, the State of Montana filed several environmental claims, including remediation and natural resource damages, against ASARCO in the bankruptcy proceeding that had been filed in the federal bankruptcy court in Corpus Christi, Texas in August 2005. The court approved a final consent decree and settlement agreement of the ASARCO bankruptcy litigation and adopted an ASARCO reorganization plan in December 2009. As part of that settlement, ASARCO separately paid approximately $5.9 million to the State of Montana for restoration of natural resources in the East Helena area to settle the State's natural resource damage claims, plus, the State was provided an option to acquire at no cost approximately 232 acres of undeveloped ASARCO-owned land in the East Helena area, including approximately 192 acres in the vicinity of Upper Lake, and 40 acres in the vicinity of Prickly Pear Creek in the northern part of East Helena to be used for public recreation, wildlife habitat, open space, and wetlands (Figure 3). The Consent Decree provides that before these lands are conveyed, the precise location and future uses of the land shall be agreed upon and approved in a written agreement between the State and U.S. Environmental Protection Agency (EPA), after consultation with U.S. Department of the Interior (DOI) and the Custodial Trustee (Montana Environmental Trust Group [METG]). The Consent Decree provides that before conveyance of these undeveloped lands to the State, the precise location and future uses of the land shall be agreed upon and approved in a written agreement between the State and U.S. EPA, after consultation with the U.S. Department of the Interior and the METG. A general plan for the conveyance is described in Section 1.2.5. The specifics of the proposed land-conveyance plan are not part of this restoration plan but will be negotiated separately when the transfer takes place.

The $5.9 million for natural resources restoration was placed in an East Helena Natural Resource Damage (NRD) Settlement Restoration Fund, a State of Montana special fund created for the settlement. These restoration funds are in addition to the approximately $115 million ASARCO paid to clean up and restore the former East Helena ASARCO Smelter and other contaminated lands in the East Helena area.

Natural resource damages under the Comprehensive Environmental Response, Compensation and Liability Act, 42 United States Code (U.S.C.) § 9601 *et seq.,* (CERCLA) are designed to compensate trustees for injury to natural resources. The Governor of the State of Montana is a trustee of natural resources within the state (CERCLA Section 107 (f)(l), 42 U.S.C.§ 9607(f)(1)).

*Figure 1: Former East Helena Smelter and Vicinity*

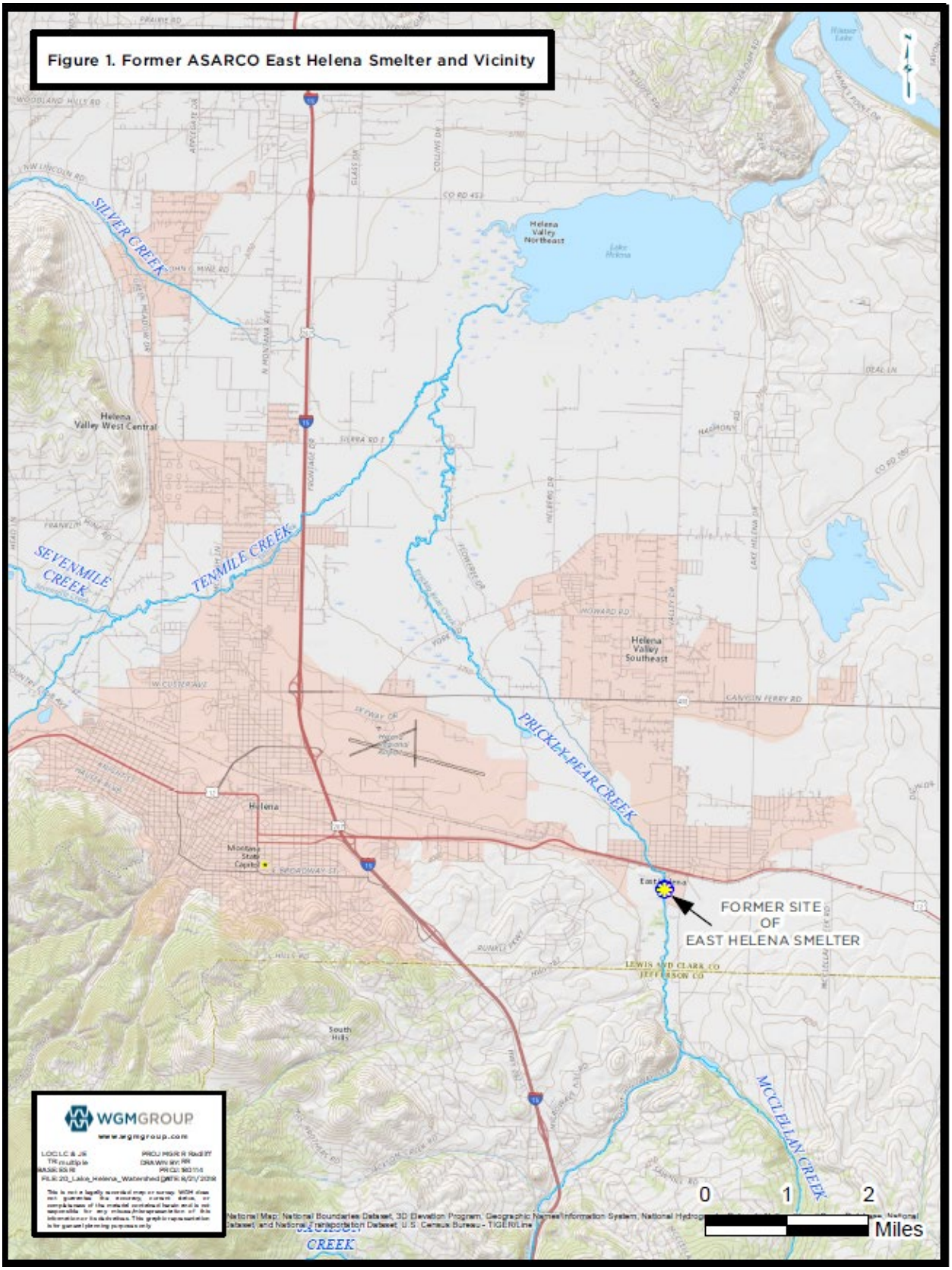


*Figure 2: Geographic Boundaries of the Corrective Measures Study*

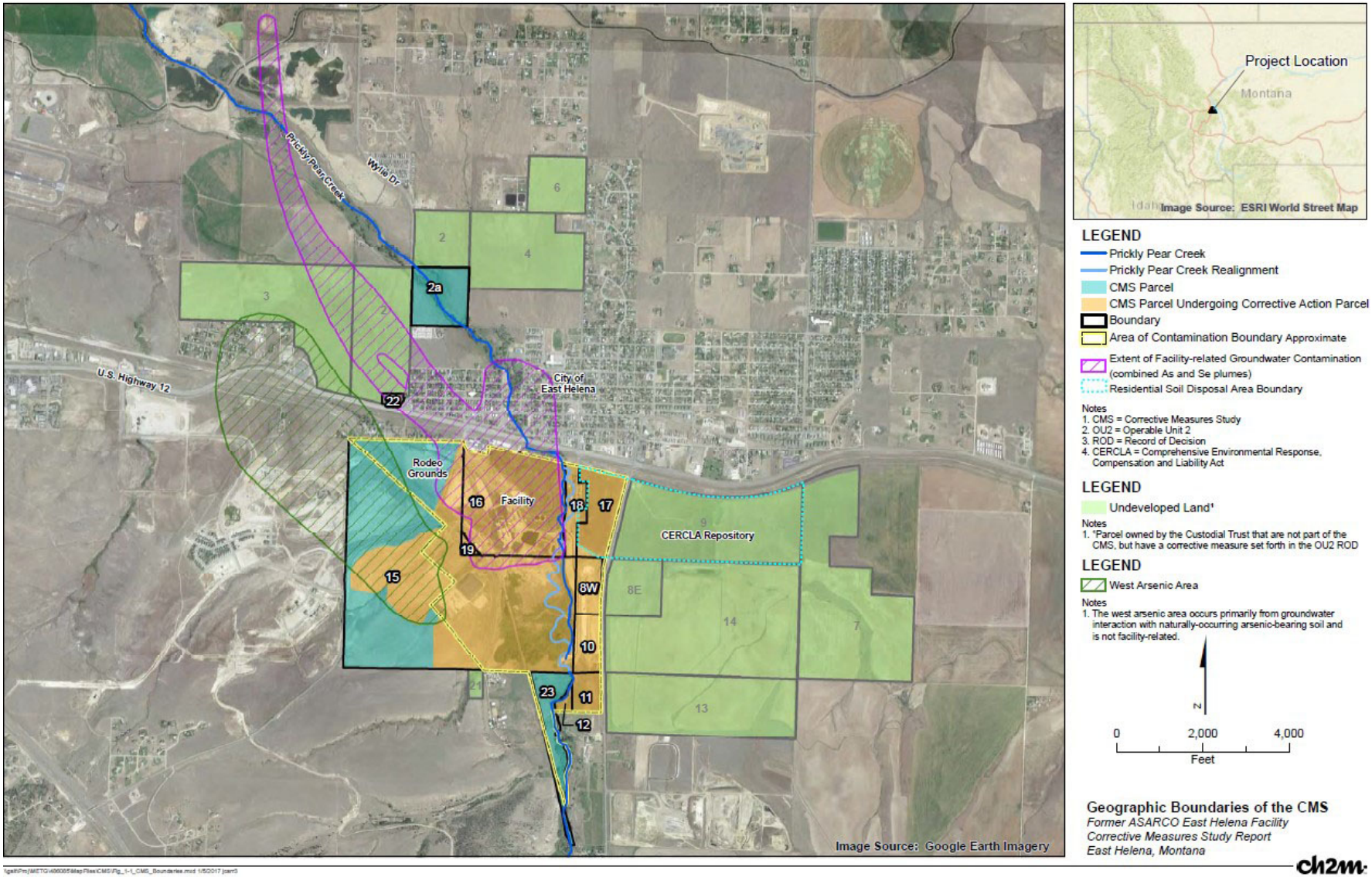
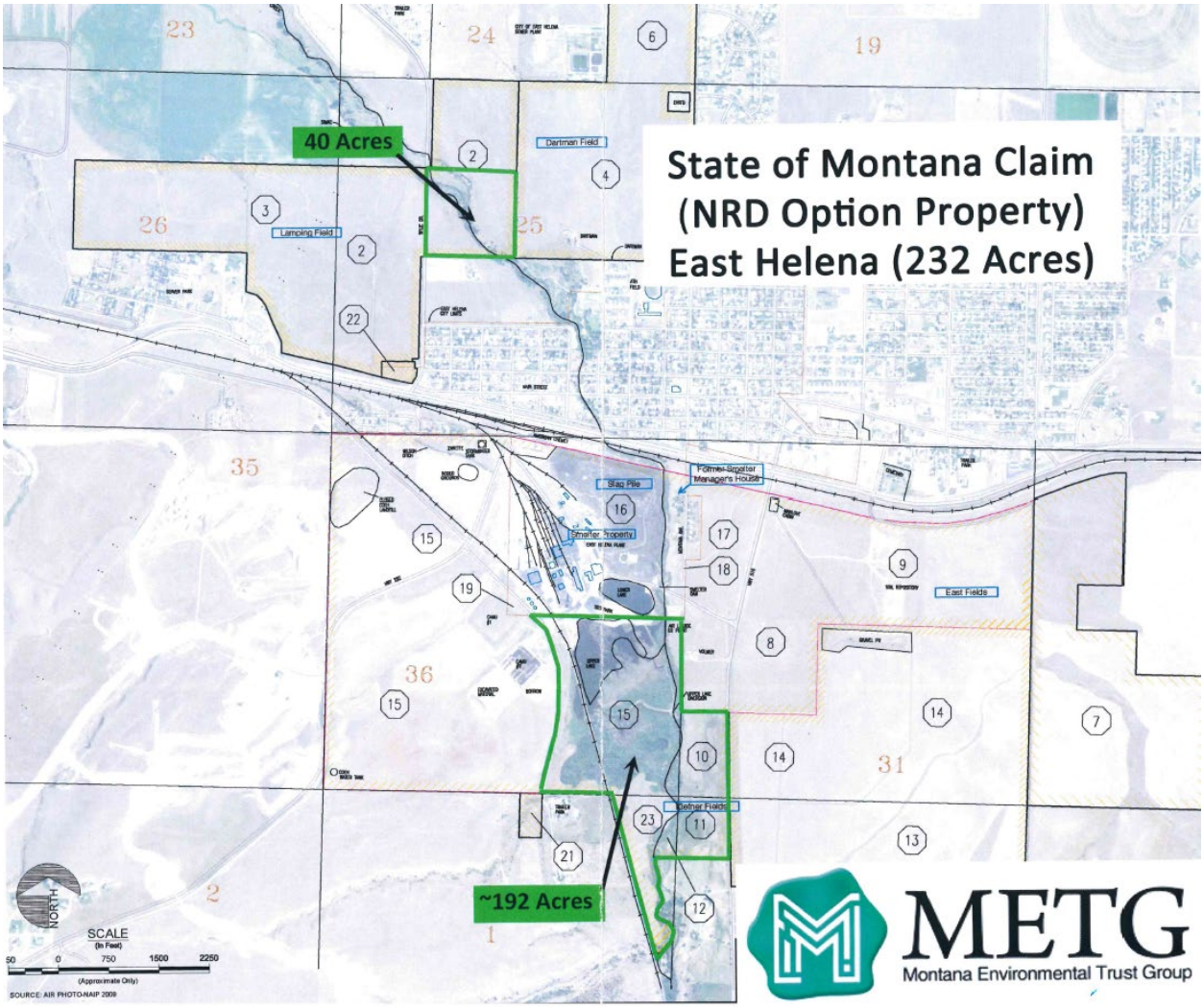


*Figure 3: State-allocated Land*



As trustee, the State is entitled to "damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from" the release of a hazardous substance (CERCLA Section 107(a)(4)(C), 42 U.S.C.§ 9607(a)(4)(C)). Natural resources include land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the State (CERCLA Section 101(16), 42 U.S.C.§ 9601(16)).

## 1.1 Purpose and Scope of this Document

Under Superfund, prior to spending NRD funds, a state must prepare a comprehensive restoration plan that provides for the expenditure of such funds on appropriate projects that would restore, rehabilitate, replace or acquire the equivalent of the injured or lost natural resources that were the subject of the NRD claim. Superfund Law, 43 Code of Federal Regulations (CFR) 11.82(a) provides that a reasonable number of possible alternatives for the restoration, rehabilitation or replacement of the injured natural resources be developed and considered. The overall goal of this restoration plan is to identify actions that singly or in combination restore, rehabilitate, replace, or acquire the equivalent of injured natural resources to a condition where they can provide the level of services available at baseline or to replace and/or acquire the equivalent natural resources capable of providing such services.

This draft restoration plan describes the restoration actions the State of Montana will implement to restore, rehabilitate, replace, or acquire the equivalent of the injured resources at the ASARCO East Helena Smelter. Restoration funds will be allocated to the restoration alternatives up to the amount of approximately $5.487 million. Following consideration of public comment, the State will recommend a final version of this plan for consideration of the NRD Trustee Restoration Council and approval of the Governor.

This draft restoration plan is organized as follows:

- Chapter 1 describes the purpose and scope of this draft document, provides background on the ASARCO East Helena Smelter, describes the restoration planning steps that led to the development of this draft plan, including public involvement, outlines the criteria for decision making, and describes the environmental review process. In addition, the State has included a general proposed plan for disposition of and future uses of the 232 acres of State-allocated land described in the Consent Decree, but the details of this plan are not included in this restoration plan and will be negotiated when the transfer takes place.

- Chapter 2 describes the restoration project categories and restoration action ideas the NRDP developed in consultation with local resource managers, and the public scoping process.
- Chapter 3 describes the proposed restoration alternatives.
- Chapter 4 provides a comparative analysis of the proposed restoration alternatives.
- Chapter 5 is a summary of the restoration plan implementation process.
- Attachment A provides definitions for natural resource damage terminology.
- Attachment B is an environmental review narrative and checklist.
- Attachment C is a summary of additional proposed restoration action ideas and criteria screening for projects not included in the alternatives.

## 1.2 Site Background

The former ASARCO East Helena Smelter is located in East Helena, in Lewis and Clark County, Montana. The site includes a 140-acre former lead smelter that operated from 1888 until 2001, and about 2,000 acres including the town of East Helena, several residential subdivisions, and surrounding rural agricultural lands (U.S. EPA, 2018). Prickly Pear Creek flows along the east and north boundary of the site. Groundwater flows north-northwest from the former smelter toward East Helena.

For more than 100 years, lead and zinc smelting operations deposited lead, arsenic, copper, zinc, cadmium, and other hazardous substances into the air, soil, surface water, and groundwater of the Helena Valley (U.S. EPA, 2018; U.S. EPA, 2016). The sources of this contamination included the smelter stack, fugitive emissions from plant operations, process ponds, and direct surface water discharges. Historically, the mode of transport for the contaminants was air and surface water. Contamination affected an area over 100 square miles. Cleanup at the site is ongoing (U.S. EPA, 2018).

In September 1984, the U.S. Environmental Protection Agency (EPA) listed the ASARCO East Helena Smelter on the National Priorities List (NPL) pursuant to Section 105 of CERCLA. From 1984 through 1997, the limited investigations and remedial actions conducted at the site by ASARCO consisted of either voluntary actions or actions implemented as part of settlement agreements between EPA and ASARCO under CERCLA.

ASARCO filed for Chapter 11 bankruptcy in August 2005. In 2009, the Bankruptcy Court approved a consent decree and settlement agreement regarding ASARCO's Montana sites. ASARCO transferred title to the East Helena Smelter to the METG as Trustee of the Custodial Trust on December 9, 2009. The State of Montana is a beneficiary of the Custodial Trust and together with other beneficiaries has final approval authority over funding, expenditures and contractors, consultants, and other professionals retained by the METG. The ASARCO East

Helena remediation funds ($94million) were earmarked for treatment of arsenic- and selenium-contaminated groundwater migrating off the former smelter site northwest toward the Helena Valley and for stabilizing, controlling, and/or removing lead- and arsenic-contaminated soils on the 1,500 acres of the former ASARCO land. These lands also include ranches and farmland that encircle three-quarters of the smelter property that were purchased because of concerns that contamination might be impacting the growing and grazing uses of the property (METG, 2018).

Through the federal Resource Conservation and Recovery Act (RCRA) and CERCLA programs, EPA is the lead agency responsible for enforcement and oversight of METG for the remediation being implemented at the ASARCO East Helena Smelter. EPA consults with the U.S. Department of Justice, U.S. Fish and Wildlife Service, Montana Department of Environmental Quality, and Montana Department of Justice on Montana Custodial Trust environmental actions. METG has been conducting interim actions to clean up the site (Figure 4). These actions consist of multiple elements that work together to protect human health and the environment. The main remedial actions are 1) construction of an evapotranspiration cover (a soil cover over the old smelter site); 2) South Plant hydraulic controls; 3) source removals; 4) slag pile cover (to be implemented); and 5) institutional controls.

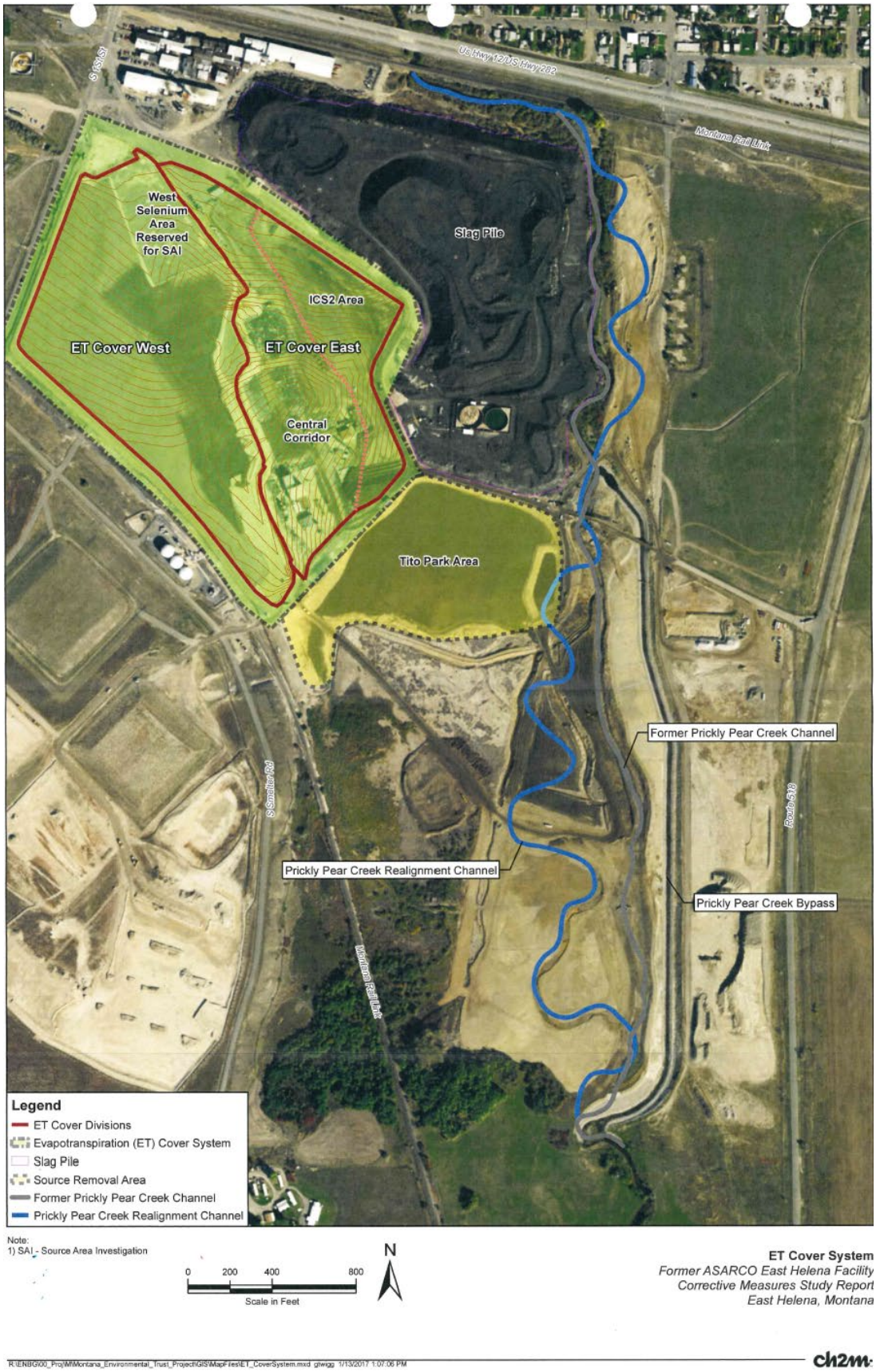
1) Evapotranspiration cover (ET): elements consisted of building demolition at the plant site, subgrade fill, and final ET cover system to mitigate infiltration of precipitation at the facility and control erosion and surface water runoff.

2) South Plant hydraulic controls: elements consisted of Upper and Lower Lake removal, Prickly Pear Creek Dam removal, and Prickly Pear Creek realignment. Wetlands were developed to reduce surface water loading to groundwater by removing Upper Lake and Lower Lake. Establishment of a natural stream channel flow reduced the hydraulic profile lowering groundwater elevations beneath the site to reduce the amount of contaminated soils in contact with groundwater thus reducing groundwater contaminate concentrations. These remedial actions also developed more natural geomorphic condition for Prickly Pear Creek within the former Smelter reach and established natural wetland/riparian conditions along the Prickly Pear Creek riparian corridor.

3) Source removal actions: removal actions consisted of excavation and removal of impacted soils at former acid plant and Upper Lake marsh. These actions reduced areas of impacted soil and sediment that were or could leach to groundwater or surface water.

4) Slag pile future action: planned actions are to cover portions of the slag pile once a design is approved. This action is expected to reduce infiltration through the unfumed

*Figure 4: ET Cover System*



slag which effect groundwater. The cover could eliminate the potential future reuse of slag. The slag pile covers approximately 45 acres and contains 3.5 million cubic yards of material.

5) Institutional controls: the Corrective Measures Study (METG, 2018) describes the existing controls and future actions to be implemented by the METG. Institutional controls include:

   - Zoning: The City of East Helena Zoning Commission adopted the proposed land uses for the METG parcels. Current uses of METG land, such as agricultural, are legal, nonconforming uses until a property changes hands.

   - Well abandonment program with residents with existing supply wells were contacted to abandon existing residential well or provide alternative water supply.

   - Restrict any modifications to groundwater use within the City of East Helena until cleanup standards are met. Groundwater monitoring will be conducted to evaluate the performance of the proposed corrective actions over time.

### 1.2.1 Injury Overview

In 2006, the State's Proof of Claim described the natural resources that were the subject of the claim as the "air, groundwater, surface water, and soils" which were injured from releases of hazardous substances from the ASARCO East Helena Smelter. The State's claim also makes explicit reference to the contaminated "groundwater plume" and "river bed." In the Consent Decree the State resolved, subject to certain reservations of rights, all of its natural resource damage claims against ASARCO. Accordingly, the natural resources that may be funded for restoration or replacement using funds from the ASARCO East Helena Smelter natural resource damage settlement include the groundwater, surface water and soils, including the groundwater aquifer and river bed in the vicinity of the site. The State has jurisdiction, as a natural resource trustee, of these natural resources that were injured as a result of the release of hazardous substances from the former smelter. Furthermore, funds from the natural resource damage settlement can be used to replace lost services these natural resources would have provided but for the release of the hazardous substances, such as lost drinking water, fishing, water fowl hunting, bird watching, hiking, and other services normally associated with groundwater and surface water, and the river and lake beds, floodplain, riparian zones, and wetland areas.

Groundwater

Based on many investigations, arsenic and selenium have been identified as the primary chemicals of concern in groundwater. However, aluminum, antimony, cadmium, lead, manganese, mercury, thallium, vanadium, zinc, and the primary chemicals of concern (arsenic and selenium) were all identified in groundwater at concentrations above relevant State and federal drinking water standards (METG, 2018). These chemicals of concern are responsible for three contaminant plumes associated with the former smelter. An arsenic plume originates at the former smelter and extends north-northwest. Another lower concentration arsenic plume is located north of the slag pile. A selenium plume also originates at the former smelter and extends north almost to Canyon Ferry Road. All three plumes are migrating along the general direction of groundwater flow. Baseline water quality was potable absent the releases of the primary chemicals of concern associated with the former smelter. Impacted groundwater exceeds relevant State and Federal drinking water standards. Therefore, under U.S. Department of the Interior regulations for natural resource damages, the groundwater at the ASARCO East Helena Smelter is considered injured (43 CFR 11, Section 11.62(c)) (Maest, Stratus Consulting, 2007).

The Corrective Measures Study report released by METG and EPA in April 2018 identifies the highest potential future use of groundwater at and downgradient of the site is as a drinking water source (METG, 2018). The EPA and METG are implementing cleanup measures to improve groundwater quality. The Corrective Measures Study states that samples collected from facility wells have shown a decrease in selenium concentrations since the implementation of corrective measures but that concentrations in samples collected from down gradient wells are variable. Arsenic concentrations from samples collected at the facility wells have generally remained stable and concentrations collected in wells downgradient are variable (METG, 2018). East Helena is located north of the smelter with much of the main business and residential areas overlying the groundwater plumes (DNRC, 2014). As part of remediation of the site, the METG has proposed to drill a new well for the community of East Helena to replace the Wylie Well #3 that is downgradient of the plumes. The project is described in Attachment C as “New Production Well to Replace Wylie Well #3.” The METG has also proposed protecting the caisson at the McClelland water source and improving access to the McClellan radial wells as part of remediation. These projects are also described in Attachment C. The projects are estimated to cost just over $2.5 million and are pending U.S. EPA approval.

East Valley Controlled Ground Water Area: In 2016, the Montana Department of Natural Resources and Conservation (DNRC) established the East Valley Controlled Ground Water Area to prevent exposure to contaminated groundwater and to protect public water supplies. The East Valley Controlled Ground Water Area establishes restrictions on well construction and

groundwater use to protect humans and livestock from exposure to contaminated groundwater and control groundwater pumping that could cause further migration of contaminated groundwater. The East Valley Controlled Ground Water Area further defines land areas over and around the arsenic and selenium groundwater plumes where drilling wells is prohibited or restricted until groundwater quality meets required drinking water standards.

There are two designated "subareas" within the East Valley Controlled Ground Water Area. Subarea 1 conforms to the arsenic and selenium plume boundaries with a buffer zone to account for uncertainty in the exact plume boundaries. Drilling new wells is prohibited in Subarea 1 that extends vertically to a depth of 200 feet in the southern portion and 300 feet in the northern portion. Subarea 2 extends beyond the arsenic and selenium plume boundaries, where concentrations of arsenic and selenium are lower than safe drinking water standards although high enough to warrant controls, and is vertically below the depths established for Subarea 1. The East Valley Controlled Ground Water Area requires testing of all new wells for possible contamination in Subarea 2. Permits are also required for new wells within Subarea 2 as excessive pumping could cause contaminants to migrate beyond the current plume boundaries. Property within the limits of the City of East Helena are not affected by the East Valley Controlled Ground Water Area because of the City's ban on drilling water wells in areas served by the City's water system.

More information and maps of the East Valley Controlled Ground Water Area can currently be found at the following website:

http://dnrc.mt.gov/divisions/water/water-rights/controlled-ground-water-areas/east-valley

Surface Water

Prickly Pear Creek flows along the east and north boundaries of the ASARCO East Helena Smelter site. The creek flows northwestward from the smelter, through East Helena, and into the Helena Valley. The creek is a losing stream through most of this reach, meaning it leaks water to the underlying groundwater system, resulting in groundwater mounding. Prickly Pear Creek has a wild reproducing resident population of brown trout. Migratory rainbow and brown trout are also found in the system (FWP, 2017). EPA completed streambed reconstruction of 1.25 miles of Prickly Pear Creek in November 2016, adjacent to the smelter. The Prickly Pear Creek headwaters are in the Elkhorn and Boulder mountains about 30 miles south and west of the former smelter. The creek drains into Lake Helena approximately seven miles north of the site.

Prickly Pear Creek condition within site: The METG's remedial goal has been to reduce site groundwater elevation levels to keep contaminated soils from contacting groundwater. In 2014,

METG removed saturated sediments next to and within the Upper and Lower Lake complex. As of fall 2016, both Upper and Lower Lakes were dewatered. In 2016, to further lower the groundwater levels at the site, the smelter dam was removed, and a new Prickly Pear Creek stream channel was constructed east of the slag pile. The length of the reconstructed channel is 1.25 miles (METG, 2018).

### 1.2.2 Overview of Settlement Agreement

The 2009 Consent Decree specifically allocated approximately $5.9 million in natural resource damages, plus interest, to restore, rehabilitate, replace, or acquire the equivalent of injured natural resources at the ASARCO East Helena Smelter. The requirements of the Consent Decree are consistent with the natural resource damage provisions of the federal Superfund law and associated regulations which specify that any damages recovered from natural resource damage lawsuits may only be used to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources that were the subject of the lawsuit (42 U.S.C. 9607). Attachment A provides the general definitions and examples of these terms.

The Governor, as trustee of the natural resources, will approve a final restoration plan, after considering public input and the recommendations of the NRDP and NRD Trustee Restoration Council.

### 1.2.3 Overview of the Restoration Planning Process

Restoration typically follows remedy and is the residual of the remedial actions. Restoration is an effort to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources. The State of Montana NRDP developed this draft restoration plan in consultation with the Montana Department of Fish, Wildlife and Parks (FWP), the City of East Helena, the Lewis and Clark County Water Quality Protection District, the Lake Helena Watershed Group, Prickly Pear Land Trust, U.S. EPA, U.S. Fish and Wildlife Service, METG, and the public. NRDP gathered restoration action ideas from all these entities from their planning documents, meetings, and a public solicitation for projects.

NRDP assigned each restoration action idea from the City of East Helena Water Master Plan, the Lake Helena Watershed Plan, the Prickly Pear Creek Greenway trail study, FWP resource managers, the Lewis and Clark Water Quality Protection District, Prickly Pear Land Trust, and the public into broad restoration categories: groundwater replacement, Prickly Pear Creek restoration, and recreation. The proposed restoration actions that are included in the alternatives analysis are presented in Chapter 2, organized by these restoration categories. Other proposed restoration action ideas are included in Attachment C but were not included in the restoration alternatives described in Chapter 3.

43 CFR 11.82(a) provides that a reasonable number of possible alternatives for the restoration, replacement, rehabilitation, or acquiring the equivalent of the injured natural resources be developed and considered. NRDP developed three alternatives, in addition to the no action alternative, based on the natural resource injuries included in the State's claim and recommendations from city and resource managers. An emphasis was given to projects already vetted in existing plans prepared by the City of East Helena, the Water Quality Protection District, and the Prickly Pear Land Trust. Each alternative is a selected suite of technically feasible restoration actions chosen for how well they restore, rehabilitate, replace, or acquire the equivalent of the injured resources and meet the required legal and policy criteria.

In addition, the NRDP solicited early restoration proposals for the ASARCO East Helena Smelter site in 2013. The early restoration projects are described below in Section 1.2.4.

### 1.2.4 Early Restoration at ASARCO East Helena Smelter

Superfund allows for what is referred to as "early restoration." While waiting for the determination of the final clean-up actions at the former ASARCO East Helena Smelter site, including Prickly Pear Creek as it runs along that site, the State established a process under which relatively small, but time critical, early restoration projects, which met certain criteria, were reviewed and funded prior to the development of this comprehensive restoration plan.

NRDP released an Early Restoration Funding Process Proposal for a 30-day public comment period at the beginning of May 2013 (there was not an end date to this period). The NRDP posted the proposal on the Montana Department of Justice website and placed display ads in the Helena Independent Record. Also, on May 22, 2013, a front-page article in the Independent Record was published that described the proposed solicitation process in detail. The State received three emails and one letter commenting on the early restoration process proposal.

The NRDP solicited early restoration proposals in June 2014. Governmental entities, private individuals, and private entities were all eligible to submit early restoration proposals. Early restoration proposals were required to be located in the vicinity of the former ASARCO East Helena Smelter, the area in and around the site that contained natural resources that suffered injury as a result of releases of hazardous substances from the smelter.

One proposal from Prickly Pear Land Trust was received, reviewed, and funded. Using ASARCO East Helena Smelter restoration funds, Prickly Pear Land Trust conducted a planning and visioning process for a proposed Prickly Pear Creek Greenway trail system. Prickly Pear Creek is an important amenity for the communities through which it flows. Currently, there is little access to the stream itself, and there are areas in need of restoration to provide a healthier stream and riparian corridor. Without easy ways to reach the creek, the public is unable to

enjoy the riparian area. The trail, or Greenway, envisioned in the Prickly Pear Land Trust feasibility study would provide access to the creek for recreation and education. In addition, it would serve as a non-motorized transportation corridor for area communities that are currently only connected by highways that are unsafe for bicycle and pedestrian traffic.

The Prickly Pear Creek Greenway trail plan and feasibility study involved significant public outreach effort to engage area stakeholders, private developers, and the public, creating a common vision for the connectivity of three communities: Helena, East Helena, and Montana City.

Prickly Pear Creek Greenway Trail Plan and Trails Feasibility Study 2016:

Using ASARCO East Helena Smelter restoration funds for early restoration, Prickly Pear Land Trust prepared a feasibility study for developing a non-motorized transportation corridor from East Helena to Montana City that would provide public access to Prickly Pear Creek for recreational purposes. The feasibility study looked at environmental constraints, land ownership, existing land use, permitting, construction barriers, funding opportunities, and public-private partnerships. The final report included conceptual trail alignments, design options, and signage options throughout the trail system.

The Greenway trail feasibility study proposed 11.4 miles of total trail that would extend from the Helena Regional Airport to Montana City. The feasibility study analyzed four segments, each with stretches along Prickly Pear Creek (Figure 5).

Greenway Trail Feasibility Study Construction Cost Estimates 2016:

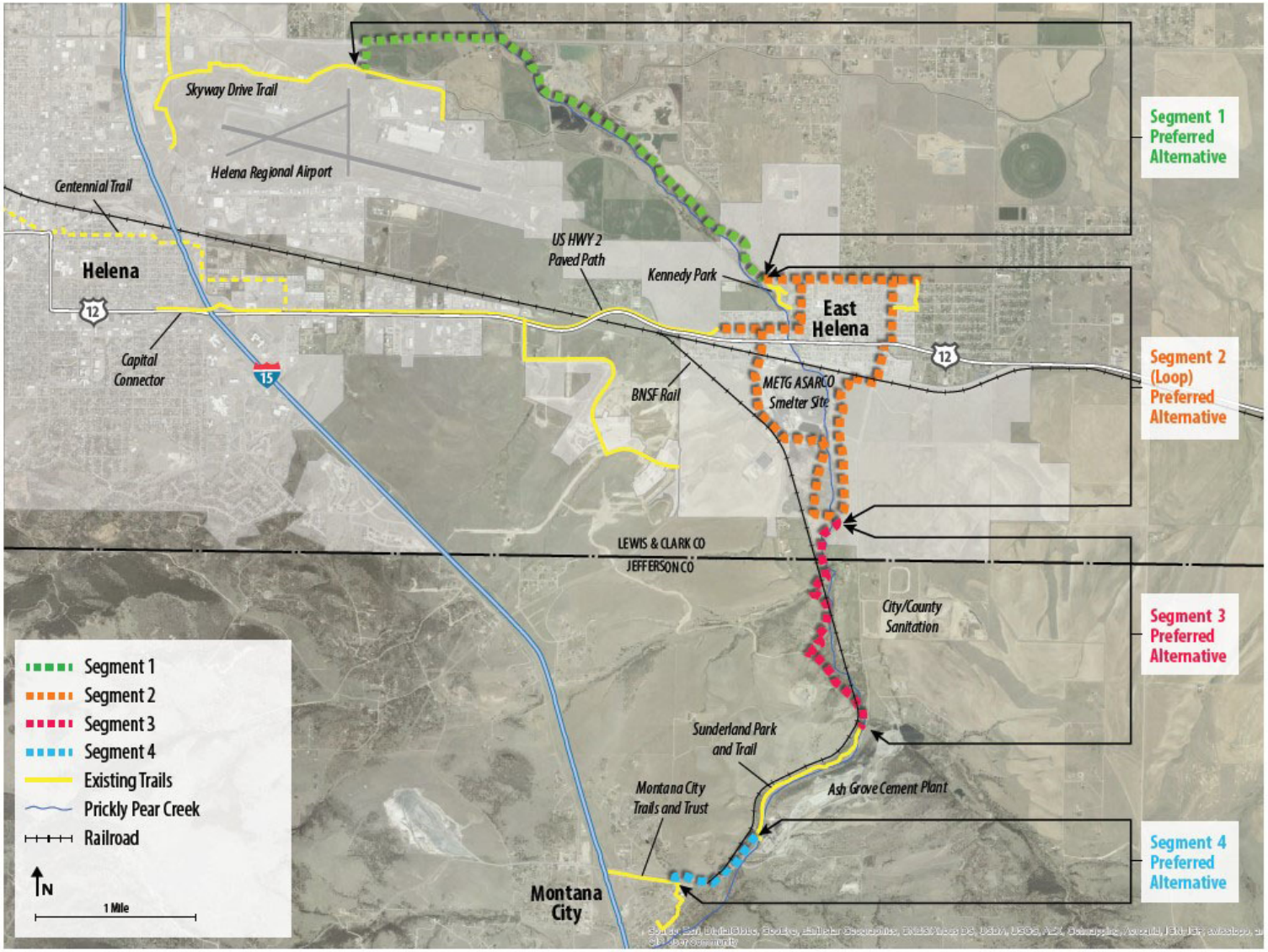
- Segment 1 Airport to East Helena, runs through 40-acre State NRDP parcel (2.9 miles) $916,360
- Segment 2 East Helena and NRDP parcel, looping around smelter site (5.2 miles) $1,561,023
- Segment 3 Prickly Pear Creek south to canyon (2.1 miles) $750,828
- Segment 4 Ash Grove to Montana City (.7 miles) $184,178

Construction Cost estimate: $3,412,389

The METG prepared updated cost estimates for the Greenway trail, discussed in Section 3.2.1.1.

The 2016 Greenway trail feasibility study, prepared under the early restoration process, referred to the 232 acres of State-allocated land that the Prickly Pear Creek Greenway trail would potentially cross, but did not address the ownership of the State-allocated lands. Furthermore, the feasibility study did not address the long-term operations and maintenance of

*Figure 5: Early Restoration Feasibility Study Proposed Greenway Trail Segments (note: these segments are conceptual only).*




*The full preferred alignment connects Helena to Montana City via East Helena and includes four segments, one of which is a loop. The proposed greenway trail route has several connection points to the existing trail networks. See the specific segments section for detailed ownership and alternatives information.*

the Greenway trail system. These costs could be substantial, on the order of millions of dollars.

### 1.2.5 General Proposed Plan for State-Option Land Conveyance

The METG has been managing all of the former ASARCO lands conveyed in the Consent Decree as part of the environmental cleanup. The State is considering the best alternative for future use of the State-option land for public recreation, wildlife habitat, open space, and wetlands. Part of the State's consideration is identifying the exact acreage and future owners for the land. Since the Greenway trail feasibility study was prepared, METG, NRDP, Prickly Pear Land Trust, and other entities have discussed conveyance of ownership of State-option land. Prickly Pear Land Trust has tentatively agreed to take ownership of State-option and other ASARCO land, but the details of this transfer such as the exact acreage, stewardship costs, and timing of transfer have not yet been agreed upon. Prickly Pear Land Trust has stated that they would tentatively hold the property title for approximately 10 to 15 years and help transition the property to public- or private-ownership with public access, as an interim owner, along with sufficient funds to operate and maintain the lands. The State-option land is tentatively an important component of the Greenway trail proposal because a large portion of the trail crosses the State-option land.

METG has been in discussion with Prickly Pear Land Trust and the City of East Helena and other entities about conveyance of ownership of other ASARCO land. This land is not part of the State-allocated land identified in the Consent Decree but might be adjacent to or near the State-allocated land. Other ASARCO land could be conveyed to Prickly Pear Land Trust, the City of East Helena, or other entities and would not be subject to the same restrictions that the Consent Decree places on the State-allocated land. The details of any possible transfers such as the potential owner, exact acreage, stewardship costs, future uses, and timing of transfer have not yet been agreed upon and are not part of this restoration plan. The possible conveyance of any additional lands related to the State-option land would be negotiated separately, but may be included in the discussions about the transfer of State-option land.

METG has stated that because of liability, the Greenway trail cannot be constructed on METG-controlled land. Therefore, this restoration plan anticipates that the transfer of some or all of the State-option land to other private or public owners would be a component of the Greenway trail project, but the land conveyance approval process is not part of this plan. According to the Consent Decree, prior to the conveyance of the State-option land, the precise location and future uses of the land shall be agreed upon and approved in a written agreement between the State and U.S. EPA, after consultation with DOI and the METG. If the land title transfer to Prickly Pear Land Trust or other entities cannot be completed, the State will work with EPA, DOI, the Trust, and other stakeholders to find a suitable owner.

For planning purposes, the METG has prepared cost estimates for long-term land stewardship of the State-option land identified in the Consent Decree (192 acres south of the smelter and the 40 acres along Prickly Pear Creek north of East Helena), plus an additional two parcels (40 acres and 55 acres for an additional 95 acres) for a total of 327 acres, adjacent to the State-option land (Figure 6). The METG land stewardship cost estimate is $2,345,278 for 25 years of stewardship for the 327 acres. These costs reflect the stewardship of those lands that the METG would otherwise be incurring if the land was not transferred. If the details of a land ownership transfer are different (for example, different acreage or different time frame), these costs may vary. However, these stewardship cost estimates reflect the METG's anticipated future costs for those acres and what future stewards of the land could expect to receive if they take ownership.

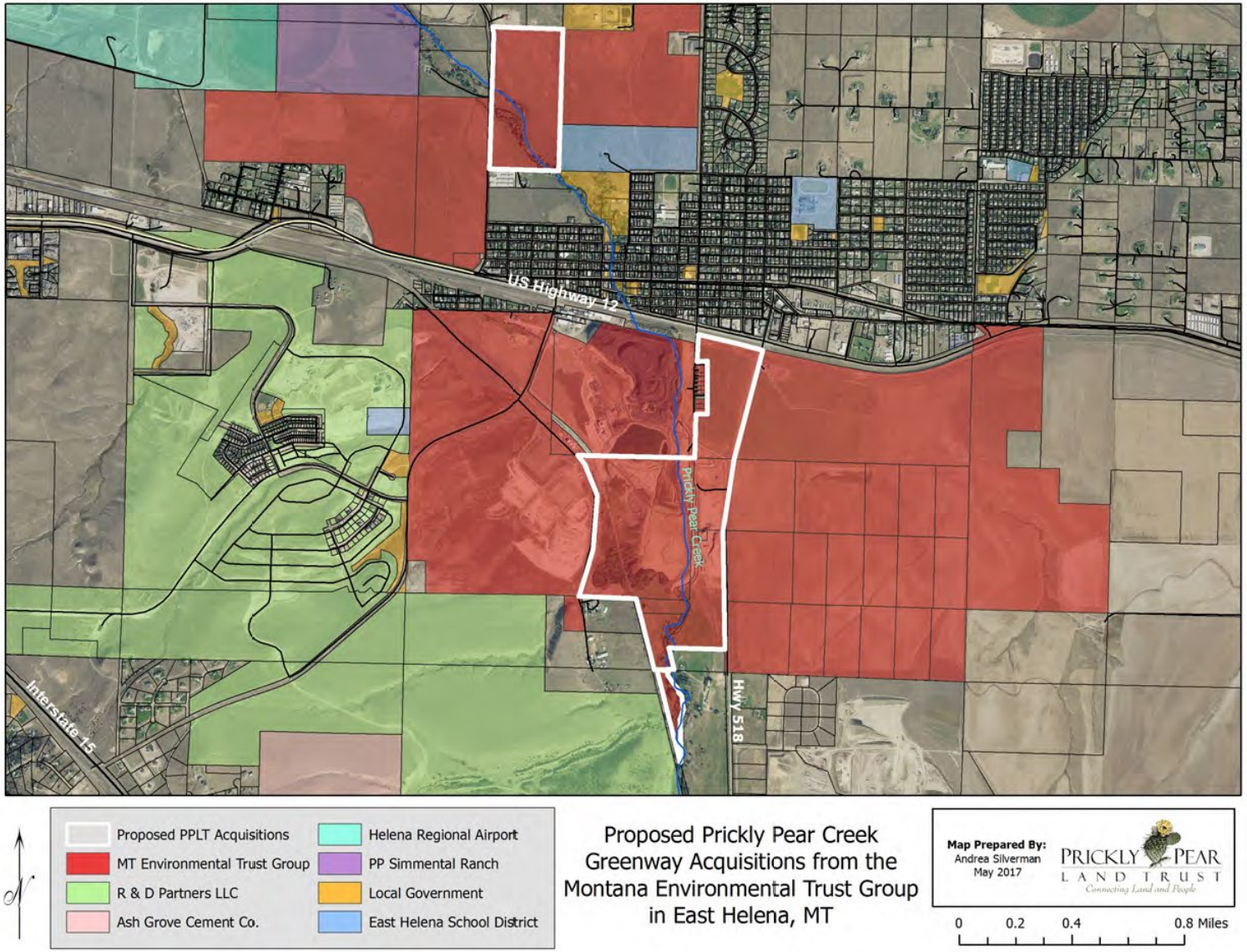
## 1.3 Public Participation

NRDP recognizes the importance of public input and participation in the restoration planning process, and this input promotes better decision making. NRDP has engaged the public, local governments, local groups and organizations, and State and Federal agencies since starting to prepare this restoration plan.

NRDP designed the restoration plan with numerous opportunities for public comment in order to ensure that all viewpoints were considered to the fullest possible extent. The public comment on this draft restoration plan is just one of the several opportunities that have been provided to the public for participating in the restoration planning for the former ASARCO East Helena Smelter site.

Specific to the development of this restoration plan, NRDP started meeting with members of the public, local government, State agencies, and federal agencies as the EPA's Corrective Measures Study (METG, 2018) was nearing completion. NRDP met with the City of East Helena on April 4, 2018, to discuss technical memoranda prepared by the City's engineering consultant regarding proposed projects to address groundwater injury and recreation. On April 23, 2018, the NRDP met with the Lewis and Clark Water Quality Protection District to discuss proposed projects on Prickly Pear Creek that were identified as part of the Lake Helena Watershed Restoration Plan. On May 3, 2018, the NRDP met with Prickly Pear Land Trust to discuss their proposed Greenway trail project. NRDP considered comments and additional input from these entities as well as from the public during a public meeting attended by 25 members of the public on June 13, 2018. Considering this input, and with the CERCLA, Montana Comprehensive Environmental Cleanup and Responsibility Act (CECRA), and Montana Environmental Policy Act (MEPA) considerations outlined above, NRDP developed goals for each of the smelter area natural resources that was injured by the facility's release of hazardous substances.

*Figure 6: Proposed Prickly Pear Creek Greenway Trail Project - Acquisitions*



These goals will guide the future restoration actions and selection of alternatives.

On June 13, 2018, the NRDP held a public scoping meeting in the City of East Helena at the Fireman's Hall, East Pacific Street. The meeting was announced at the City of East Helena council meeting on June 6, 2018. The meeting was advertised in the Helena Independent Record legal ads on May 31 and June 7, 2018. Twenty-five people attended the public scoping meeting. The NRDP presented a summary of the ASARCO bankruptcy settlement, explained Natural Resource Damage Assessment laws, the purpose and scope of the restoration plan, ideas already scoped, and criteria for restoration alternative selection. The NRDP also explained how the public can be involved in the restoration plan preparation by submitting a restoration action idea and by conveying issues with the implementation of the proposed actions.

During the public scoping process, the following restoration action were proposed:

- Creation of an outdoor classroom near the East Helena Public Schools
- Creation of a curriculum for high school students about what happened to the stream during the years of operation of the smelter or how normal streams should function
- Removal of slag from Prickly Pear Creek in town, especially in town but railroad bridge to Burnham's diversion
- A planning study and restoration of 1,800 linear feet of Prickly Pear Creek from Kennedy Park to the Prickly Pear Water Users irrigation diversion

Issues raised during scoping included:

- Considering incorporation of floodplain in trail development. Consideration should be given to development of vegetative strips that could act as flood plain for the stream where the trail is constructed.
- Considering incorporation of floodplain in land sales
- Flooding at bridges in East Helena

Support was offered for the following restoration actions:

- Greenway trail
- Prickly Pear Creek re-watering project
- Improvements to East Helena Water system

Four emails/letters were received during the scoping period (Kathie Moore, Prickly Pear Land Trust, Brian Obert, and Water Quality Protection District). Four support letters were also submitted by Prickly Pear Land Trust for the Greenway trail (City of East Helena, East Helena

Public Schools, Representative Mary Ann Dunwell, and a letter signed by nine civic and community leaders).

Groundwater Replacement Restoration Actions:

The City of East Helena prepared an updated Water Master Plan in spring 2018. The draft was released in March 2018. The City held two public meetings on the preparation of the master plan. The first meeting on February 27, 2018, was held to discuss the water system master plan efforts and seek public comment. The City held a second public meeting on the draft water master plan on April 5, 2018. The City prepared and published a checklist environmental assessment for the proposed East Helena water system improvements on March 12, 2018. Comments on the environmental assessment were due on April 10, 2018.

The City of East Helena Capital Improvements and Water Master plans also provided background for actions that would take place as part of groundwater replacement projects. The Capital Improvement Plan was vetted in the community with a public hearing on September 28, 2016. The Water Master Plan was finalized in April 2018.

Surface Water Restoration Actions:

Projects in the Lake Helena Watershed Plan were vetted in the community during the development of the watershed restoration plan. The plan was developed by the Lewis and Clark County Water Quality Protection District, the Lake Helena Watershed Group, and an advisory committee that included local natural resource managers and private consultants. The advisory committee reviewed input and guided the plan development process. Between 2012 and 2014, interested parties were engaged with a restoration plan website page, a fact sheet, a letter sent to the watershed group mailing list of over 750 members, nineteen stakeholder interviews, four presentations to community organizations, a public meeting in 2013, surveys located on the website and available at public meetings, and news media coverage. Details on public involvement can be found here: https://www.lccountymt.gov/health/water/lake-helena-watershed-group.html. Some of the projects identified in the watershed plan could be used as restoration actions to meet the goals of this draft restoration plan.

Recreation Services Replacement Actions:

The NRDP solicited the public for restoration actions to be considered for inclusion in alternatives for the expenditure of ASARCO East Helena Smelter restoration funds in 2013. The early restoration process discussed in Section 1.2.4 identified one recreation project that would be a restoration action to meet restoration plan goals, the Greenway trail project.

Under the early restoration process, the development of the Greenway trail project included several opportunities for public participation. Prickly Pear Land Trust held two open houses during which the project team members present information about the concept and receive feedback about the planning process. One meeting was held at the Montana City School Library in Clancy on March 2, 2016. The second meeting was held at the East Valley Middle School on March 3, 2016. Prickly Pear Land Trust also asked the community to take an on-line survey on the Greenway trail project feasibility study. Fifty-three survey responses were received either online or in hardcopy format. The Prickly Pear Land Trust maintains a website to keep the community informed about the development on the Greenway trail plan: http://pricklypearlt.org/project/centennial-trail/

On March 26, 2018, the City of East Helena provided the NRDP with projects that would assist the community in connecting their existing City parks with the proposed Greenway trail.

Other Community Involvement in East Helena:

METG engages the community on remediation by engaging stakeholders through its website located here: http://www.mtenvironmentaltrust.org/east-helena/east-helena-community-involvement/. The METG posts cleanup documents, fact sheets, and links to media coverage of activities at the former ASARCO East Helena Smelter. The METG also hosts periodic meetings in the community to keep the citizens informed and to accept comments on work plans.

Most recently, EPA and METG sponsored a public meeting and open house on April 11, 2018, to review the draft Corrective Measures Study report (METG, 2018) for the ASARCO East Helena Smelter site. The draft Corrective Measures Study describes the remedial action alternatives for addressing contamination in soil, groundwater, surface water and sediments from the former ASARCO East Helena Smelter. The public comment period on the draft Corrective Measures Study report closed on May 29, 2018.

## 1.4 Criteria for Decision Making

Under the Federal NRD regulations, NRD settlement funds can only be spent to restore, rehabilitate, replace, or acquire the equivalent of injured natural resources, and natural resource trustees must complete a restoration plan and consider public input before NRD settlement funds can be spent (42 U.S.C. Section 9607 and 9611). The restoration plan must specify how funds will be spent and include an evaluation of various restoration alternatives according to criteria specified in federal NRD regulations (43 CFR Section 11.81).

The criteria that were used to analyze restoration alternatives and to decide on the preferred alternative are grouped into two sets reflecting their derivation from two different sources:

legal and policy. The "Legal Criteria" are derived primarily from the criteria set forth in the U.S. Department of the Interior natural resource damage assessment regulations, which trustees are to use when selecting restoration alternatives. The "Policy Criteria" have been developed by the State to promote State of Montana goals.

The criteria descriptions provided below indicate the basis for how the NRDP qualitatively analyzed the restoration action ideas and restoration alternatives for each criterion. In applying these criteria to evaluate proposed restoration alternatives, the criteria were evaluated qualitatively rather than quantitatively. The importance of each criterion as applied to individual alternatives will vary depending upon the nature of the alternatives.

These criteria were also applied to a screening of the restoration action ideas to determine if they were eligible for inclusion in the restoration alternatives. If the restoration actions ideas were determined to be eligible, the actions are summarized in Chapter 3. If the restoration action ideas were determined not to be eligible, the proposed restoration actions and criteria evaluations are summarized in Attachment C. An evaluation of the restoration alternatives that include eligible actions, based on these criteria is found in Chapter 4.

### 1.4.1 Legal Criteria

Technical Feasibility: This criterion evaluates the degree to which a restoration action employs well-known and accepted technologies and the likelihood that the action will achieve its objectives. Actions that are technologically infeasible will be rejected. However, actions that are innovative or that have some element of uncertainty as to their results may be approved. Different actions will use different methodologies with varying degrees of feasibility. Accordingly, application of this criterion will focus on an evaluation of an action's relative technological feasibility.

Relationship of Expected Costs to Expected Benefits: This criterion examines whether an action's costs are commensurate with the benefits provided. In doing so, the costs associated with a restoration action, including costs other than those needed simply to implement the action, and the benefits that would result from an action, will be determined. Application of this criterion is not a straight cost-benefit analysis, nor does it establish a cost-benefit ratio that is by definition unacceptable. While it is possible to quantify costs, quantifying benefits is more difficult. Requiring a restoration action to meet some established cost-benefit ratio would likely result in the rejection of many worthwhile actions because of the difficulty in quantifying the benefits to resources and services resulting from their implementation.

Cost-effectiveness: This criterion evaluates whether a particular restoration action accomplishes its goal in the least costly way possible. As outlined in the natural resource

damage regulations, cost-effectiveness means that when two or more activities provide the same or a similar level of benefits, the least costly activity providing that level of benefits will be selected (43 CFR 11.14(j)). To apply this criterion in a meaningful fashion, all of the benefits restoration action would produce must be considered, not just cost; otherwise the focus would be too narrow. Take the example of a restoration action that would fully restore a given resource in a short period of time compared to another restoration action that would restore the same resource at less cost but over a longer period of time. Considering only that the second action is less expensive than the first action ignores the benefits resulting from a relatively shorter recovery period. In this example, since an accelerated recovery time is a benefit, it would need to be factored into a determination of cost-effectiveness.

Results of Response Actions: This criterion considers the results or anticipated results of response actions underway, or anticipated, in the ASARCO East Helena Smelter area. Major response actions, described above in Chapter 1, have been completed, but additional response actions are scheduled in the next couple of years. Application of this criterion will require assessment of response actions at an adequate level of detail in order to make projections as to their effects on the natural resources and services. Consideration of response actions will occur in two principal contexts:

- Evaluating what is necessary in the way of restoration of resources and services in light of the ongoing and planned response actions.
- Evaluating the degree of consistency between a restoration action and a response action looking at whether a project builds on a response action or, at the other end of the spectrum, seeks to undo a response action. Those restoration actions that do the former as opposed to the latter will generally be favored.

Adverse Environmental Impacts: This criterion weighs whether, and to what degree, a restoration action will result in adverse human or physical environmental impacts. Specifically, the State will evaluate significant adverse impacts, which could arise from the restoration action, short term or long term, direct or indirect, including those that involve resources that are not the focus of the project. To do so, the dynamics of a restoration action and how that action will interact with the environment must be understood.

Recovery Period and Potential for Natural Recovery: This criterion evaluates the merits of a restoration action in light of whether the resource is able to recover naturally and, if a resource can recover naturally (i.e., without human intervention), how long that will take. This will place a restoration action's benefits in perspective by comparing the length of time it will take for the resource to recover if the action were implemented, with the length of time for natural recovery. (The term "recovery" refers to the time it will take an injured natural resource to

recover to its "baseline," i.e., pre-injury condition.) If a resource will not recover without some action or if natural recovery will take a long time, a restoration action may very well be justified. Conversely, if a resource is expected to recover on its own in a short period of time, a restoration action may not be justified.

Human Health and Safety: This criterion evaluates the potential for a restoration action to have adverse effects on human health and safety. Such a review will be undertaken not only to judge a particular action but also to determine if protective measures should be added to the restoration action to ensure safety.

Federal, State, and Tribal Policies, Rules and Laws: This criterion considers the degree to which a restoration action is consistent with applicable policies of the State of Montana and applicable policies of the federal government and Tribes (to the extent the State is aware of those policies and believes them to be applicable and meritorious). In addition, a restoration action must be implemented in compliance with applicable laws and rules, including the consent decree.

### 1.4.2 Policy Criteria

In addition to the legal criteria, the following policy criteria will be applied when considering prospective restoration projects.

Normal Government Function: This criterion evaluates whether a restoration action involves activities for which a governmental agency would normally be responsible or that would receive funding in the normal course of events and would be implemented if recovered natural resource damages were not available. Settlement funds may be used to augment funds available to government agencies, if such cost sharing would result in the implementation of a restoration action that would not otherwise occur through normal government function. Based strictly on this criterion, a project involving activities that would fall within normal government responsibilities may be ranked lower than a restoration action that does not fall within this category.

Price: The State will evaluate whether the land, easements, water rights, or other property interests proposed to be acquired are being offered for sale at or below fair market value. Consideration of this criterion will likely require the State to conduct its own appraisal of the property. If the appraisal process for an acquisition was not subject to initial State review and approval, the State will, at a minimum, conduct a review appraisal and may conduct a full appraisal.

Location: Restoration actions will be considered in the Prickly Pear Creek drainage downstream approximately to Lake Helena, and upstream as far as Montana City. Actions will also be considered in the major tributaries to Prickly Pear Creek, such as Ten Mile Creek, McClellan Creek, and Jackson Creek.

## 1.5 Environmental Review

An environmental review of the implementation of the restoration plan is provided in Attachment B. This checklist is a standard checklist used by State of Montana agencies to evaluate impacts of proposed State action on the physical and human environment pursuant to the requirements of the Montana Environmental Policy Act (MEPA). This checklist covers impacts to the environment and human health and safety, two of the required Department of the Interior Natural Resource Damage criteria (43 CFR §11.82), plus it covers additional impacts to the human environment required to be analyzed under the Montana Environmental Quality Act (see "A Guide to the Montana Environmental Policy Act," prepared by the Montana Environmental Quality Council, 2017). As part of its analysis of impacts to human health and safety, the State will determine if protective measures should be added to the restoration plan alternatives to ensure safety. The City of East Helena has already prepared and published a checklist environmental assessment for the proposed East Helena water system improvements on March 12. Comments on the environmental assessment were due on April 10, 2018.

# 2 Restoration Actions – Categories

The development of restoration alternatives is intended to identify restoration actions that address the natural resource injuries caused by the ASARCO East Helena Smelter. In addition, a general proposed plan is identified for future uses of the 232 acres of State-allocated land in the Consent Decree for public recreation, wildlife habitat, open space, and/or wetlands (Section 1.2.5).

Restoration action ideas were gathered from the public, the City of East Helena Capital Improvements Plan, the City of East Helena Water Master Plan, the Lake Helena Watershed Plan, the Prickly Pear Creek Greenway trail study, and conversations with local resource managers from the City of East Helena public works department, FWP, the Lewis and Clark Water Quality Protection District, Prickly Pear Land Trust, and the public. These restoration projects were identified as priority actions or action types by local resource managers to address the natural resource injuries at the site. Each restoration action idea was assigned into a broad restoration category: groundwater replacement, surface water restoration; and recreation replacement.

Some of the proposed restoration actions were less developed than others or had other components that did not allow them to be carried forward into the restoration alternatives. Actions that were determined to be ineligible based on not meeting Superfund legal or policy criteria are included in Attachment C, with a summary of the criteria analysis. The State of Montana, as Trustee for the natural resources, used the following eligible action ideas to develop the restoration alternatives described in Chapter 3. A detailed criteria evaluation for restoration actions included in the restoration alternatives is included in Chapter 4.

## 2.1 Groundwater replacement

**Goals:** Replace injured groundwater resource and associated services

**Objectives:**

- Improve the City of East Helena water system components to reduce the loss of treated water from the existing system and to improve collection of water to replace the loss of use of the injured groundwater resources.

Water system improvements in East Helena constitute replacement of the injured groundwater resources and associated lost use services in and near the ASARCO East Helena Smelter area. The water system improvements constitute replacement of the injured groundwater resources and associated services in the Helena Valley that response actions have not returned to

suitability for drinking water. The Corrective Measures Study estimated that removal of all saturated soil exceeding 40 parts per million of arsenic, would require excavation of a minimum of approximately 1.5 million cubic yards of overburden to remove 600,000 cubic yards of contaminated saturated soil in the plant site area. This remedial action removal alternative would result in an estimated additional 8% reduction in total arsenic mass at an estimated cost of $162 million. The East Valley Controlled Groundwater Area petition stated the time required to implement all corrective measures and for the full benefits or extent of benefits of the corrective measures on groundwater quality to be realized cannot be quantified at this time, but is on the order of hundreds to thousands of years (DNRC, 2014).

The proposed restoration actions outlined in this section all conserve existing sources of water, and allow East Helena to more reliably provide drinking water, and not require East Helena to find new sources of water that have not been contaminated by the ASARCO East Helena Smelter. The City of East Helena owns and operates the water treatment system that provides drinking water to residents of the city. The East Helena water system is supplied by two general sources, the McClellan groundwater source and the Wylie Drive groundwater source. The McClellan source is an infiltration gallery with two radial wells. Each radial well has two laterals approximately 12 feet below ground surface. Water is collected in these laterals and flows into a caisson that serves as a pumping basin. Water is pumped from the caisson, chlorinated, and stored in two concrete storage tanks. The Wylie Drive source is a system of three deep groundwater wells north of the city along Wylie Drive.

The two sources service a network of transmission and distribution pipes. The two radial wells at the McClellan source have a combined capacity of approximately 1,000 gallons per minute (gpm). The wells for the Wylie Drive source have a combined capacity of approximately 1,350 gpm, giving the total system a capacity of 2,350 gpm.

The City of East Helena's existing water system has excess capacity and the ability to accommodate future growth. Based on historical usage records, in conjunction with Montana Department of Environmental Quality (DEQ) requirements for water supply and storage capacity, the City estimates that the existing water system could serve an additional 300-500 residential connections, or an equivalent combination of residential and commercial. The number of additional water system connections would largely depend on the location of future annexations and the fire flow requirements needed for any larger structures within those annexations.

In 2017, the City of East Helena prepared a Capital Improvements Plan to evaluate long-term needs for maintaining, improving, and building new public facilities, including the community water system. Anticipated needs are based in part on the 2014 Growth Policy (East Helena

2014). The Capital Improvements Plan identified nine priority actions to upgrade the City of East Helena water system.

In 2018, the City of East Helena prepared a Water Master Plan (East Helena, 2018). This plan states that groundwater evaluations in the area indicate that dissolved arsenic and selenium plumes originating from the ASARCO East Helena Smelter have migrated generally northward creating a potential vulnerability for Wylie Well #3. The selenium plume originating from the site is approximately 1,250 feet from the well. The Wylie Well #3 creates a cone of depression when pumping at its rate of 500+ gpm in the unconfined aquifer that could induce groundwater flow from a significant radial distance. In addition, operations at Helena Sand and Gravel's gravel pit near Wylie Well #3 could also create an even greater cone of depression which would contaminate the well with the selenium plume. If Wylie Well #3 becomes contaminated the City's water supply well would be unusable without expensive treatment.

As part of the remedial action, the METG is funding some of the actions identified in the Water Master Plan, such as a replacement well, north radial well improvements, and McClellan tanks caisson repairs. See Attachment C for a description of these projects.

### 2.1.1 Proposed Groundwater Restoration Actions

The City of East Helena identified $7,357,659 in priority actions in its 2018 Water Master Plan, including a new drinking water well and improvements in water distribution and transmission, telemetry, and storage (City of East Helena, 2018). As part of the remedial action, METG has proposed to fund, contingent on EPA approval, $1,812,238 for a new drinking water well and $779,488 for the north radial well improvements, leaving $4,806,200 in priority actions to be potentially funded with ASARCO East Helena Smelter restoration funds. The City of East Helena, using its Water Master Plan, would be the project sponsor for groundwater replacement actions. The City prepared detailed descriptions and cost estimates for the groundwater restoration actions described in the City's Water Master Plan.

#### *2.1.1.1 Telemetry Equipment (SCADA)*

The existing telemetry equipment was designed to control all the pumps for the system, allowing any of the pumps to be turned on and off from the wastewater treatment facility. Water levels at the tanks are also monitored at the treatment facility with the telemetry equipment.

The existing telemetry equipment for the City's water system is, at times, not communicating from the radial wells properly. During these periods no data is received and operators are not certain of the status from the McClellan Radial Wells. Technology has improved a great deal

since the late 1990s and an improved system would conserve water and provide more reliable communication.

Cost estimate: $474,090

#### *2.1.1.2 Storage Actions*

Water storage for the City of East Helena is provided by three storage tanks. In 1999, a 1-million gallon buried pre-stressed concrete tank was constructed southwest of the city along Highway 282 and two side-by-side cast-in-place concrete storage tanks, commonly known as the McClellan Tanks, are located southeast of town above the McClellan Creek radial wells. The older of the two McClellan tanks was constructed in 1928 (McClellan Tank #2) and the other constructed in 1948 (McClellan Tank #1). Hydraulically, the McClellan Tanks operate as a single tank due to a direct connection between them. Currently, the City has a total of 1,550,000 gallons of storage available.

<u>McClellan Storage Tanks</u>

In October 2017, Robert Peccia & Associates (RPA) personnel tested the McClellan storage tanks for leakage over a 24-hour period (tested together as one unit including the connecting piping). According to the American Concrete Institute (ACI), the allowable leakage rate for an unlined concrete water-containment structure with a side water depth of less than 25 feet is 0.1 percent of the water volume in 24 hours. The allowable leakage rate for each tank would be:

Tank #1 – 250,000 gallons x 0.001 = 250 gallons/24 hours

Tank #2 – 300,000 gallons x 0.001 = 300 gallons/24 hours

Water levels were read over a 24-hour period and determined there was a loss of 17,110 gallons in Tank #1 and 26,734 gallons lost in Tank #2 for a total of 43,844 gallons of water lost within a 24-hour period (approximately 16 million gallons per year). This amount is much greater than the allowable leakage rate suggested by ACI.

In 2002, the lid on the McClellan Tank #2 was replaced and surface rehabilitation was done on McClellan Tank #1. New hatches and ladders were installed on both tanks to meet Montana Department of Environmental Quality's requirements. The concrete is showing its age however, particularly on the exposed portions of McClellan Tank #1. There is spalling concrete and, in places, gaps are forming large enough to be concerning, due to the lost concrete. If not addressed, these gaps could allow surface water, insects, or rodents to enter the tank.

Additionally, the valves and piping that connect these tanks have been constructed and repaired, as needed, and do not provide the operators methods for control or isolation.

Cost estimate: $3,383,010

## 2.2 Prickly Pear Creek Restoration

**Goals:** Restore riparian vegetation, fisheries, and natural stream flow.

**Objectives:**

- Increase or maintain flow in Prickly Pear Creek
- Improve riparian vegetation and fish and wildlife habitat

### 2.2.1 Proposed Restoration Actions

The Water Quality Protection District and NRDP identified restoration action ideas for Prickly Pear Creek, described below. These restoration projects are included as restoration strategies in the Lake Helena Watershed Restoration Plan (Lewis & Clark Co Water Quality Protection District & Lake Helena Watershed Group 2015). The Watershed Restoration Plan identifies the following goals for this stretch of the Lower Prickly Pear watershed: ensure that water continues to flow throughout this reach; provide for cooler temperatures; improve fish and wildlife habitat; and reduce sediment, nutrients, arsenic, cadmium, copper, lead, and zinc from the slag piles and permitted discharges of the ASARCO East Helena Lead Smelter (Lewis & Clark Co Water Quality Protection District & Lake Helena Watershed Group, 2015). Some of these goals overlap with the goal outlined above in this restoration plan. The Water Quality Protection District and State will implement the projects they proposed.

#### *2.2.1.1 Increase or maintain Prickly Pear In-stream Flow*

<u>Prickly Pear Creek Re-watering Project</u>

Since 2009, the Water Quality Protection District, Lake Helena Watershed Group, Prickly Pear Water Users Association, and Helena Valley Irrigation District have participated in a Prickly Pear Creek re-watering project. The goal of this action is to maintain in-stream flows in Prickly Pear Creek in a reach directly below the Prickly Pear Water Users diversion during the irrigation season. In the past, this reach has been completely dewatered for about two to three miles during the irrigation season (north edge of City of East Helena almost to York Road). When flows in Prickly Pear Creek fall below 20 cubic feet per second, the Prickly Pear Water Users agree to stop diverting water from Prickly Pear Creek, and water is purchased from Bureau of Reclamation by the Helena Valley Irrigation District to provide water to the Prickly Pear Creek

Water Users Association. This exchange provides a reliable source of irrigation water for the water users, while preserving summer flows in Prickly Pear Creek.

The Prickly Pear Creek fishery has responded positively to this project. Brown trout have increased in abundance 196% from pre-project numbers, 137 fish per mile to 405 fish per mile in 2016. The re-watering project is a priority in the Lake Helena Watershed Restoration Plan.

An ongoing stable source of funding to purchase water is necessary to establish a long-term agreement between Helena Valley Irrigation District and the Prickly Pear Creek Water Users Association to maintain Prickly Pear Creek as a suitable fishery. The cost to purchase the water is $15,220 annually at present value. The Water Quality Protection District has applied annually for and received funding for this project via a number of sources like Northwestern Energy and the Bonneville Environmental Foundation. In order to support this re-watering project for at least 10 years, the cost would be approximately $150,000.

Cost estimate: $150,000

#### *2.2.1.2 Improve riparian vegetation/ riparian health*

Plantings on New Prickly Pear Creek Channel

The NRDP proposes to augment riparian vegetation and health and improve fish and wildlife habitat along the newly reclaimed Prickly Pear Creek by planting large cottonwoods. These additional plantings decrease the recovery time of the reclaimed area and improve fish and wildlife habitat in the area shown on Figure 7. Approximately 125 large cottonwoods would be planted near Prickly Pear Creek as determined by METG's revegetation specialist.

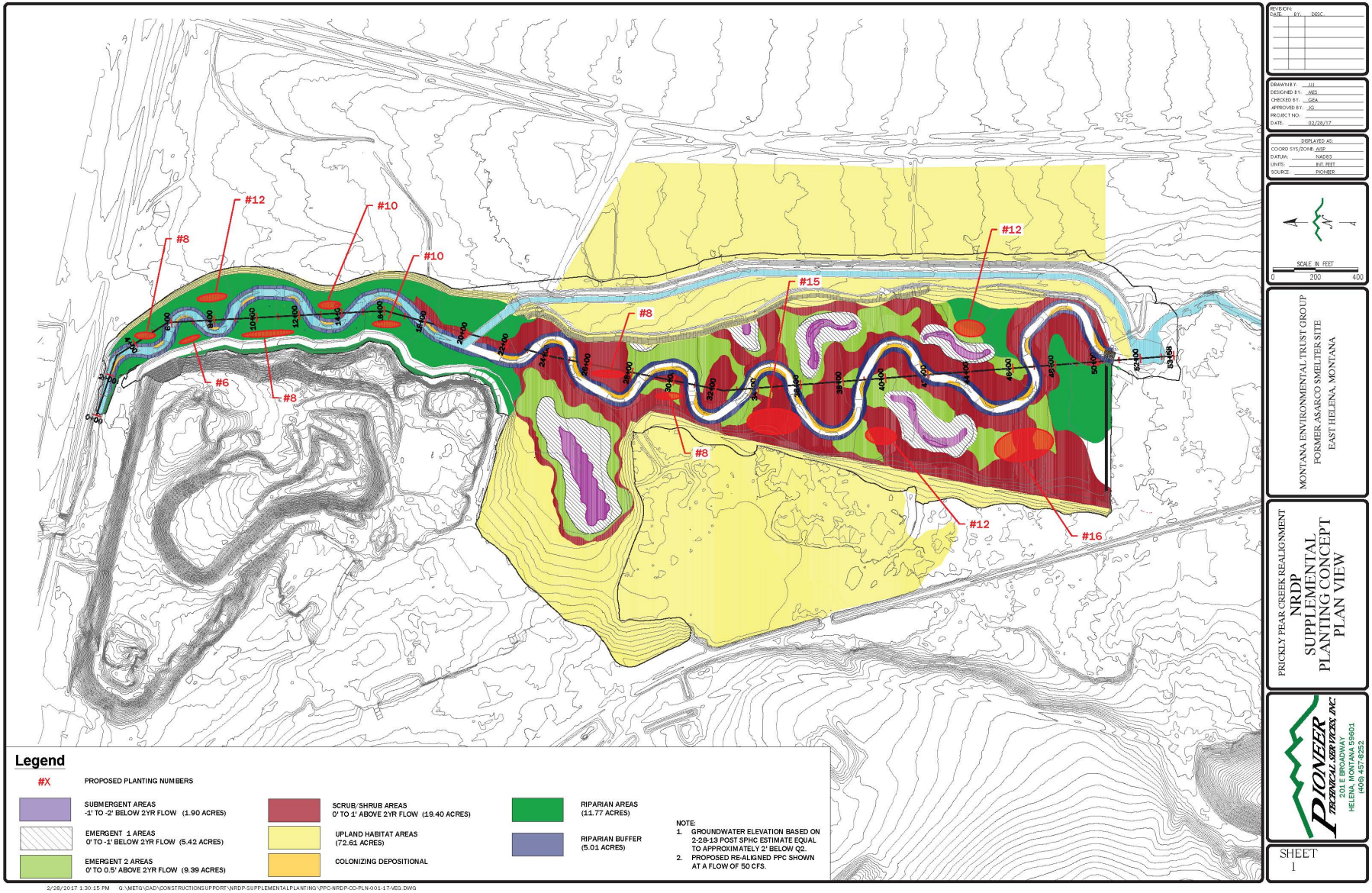
Cost Estimate: $40,000

## 2.3 Recreation Replacement

**Goals:** Compensate for lost recreational use.
**Objectives:**

- Build trails
- Increase recreational access

*Figure 7: New Prickly Pear Creek Channel*



### 2.3.1 Proposed Restoration Actions

Recreation projects were proposed by Prickly Pear Land Trust (see Section 1.2.4) and the City of East Helena. At this stage of planning, the State assumes that Prickly Pear Land Trust and the City would be the project sponsors for the projects they proposed. If that is not possible, the State would implement the projects or seek other suitable sponsors.

#### *2.3.1.1 Greenway Trail Project*

The Prickly Pear Creek Greenway trail feasibility study proposed 11.4 miles of total trail that would extend from the Helena Regional Airport to Montana City (see Section 1.2.4). The feasibility study analyzed four segments, each with stretches along Prickly Pear Creek. The METG prepared construction estimates for the entire 11.4 miles of Greenway trail as $4,309,933.

Segments 2, 3, and 4 include overall about 8 miles of trail, some of which would be paved and some gravel. The METG-estimated cost for construction of 8 miles of segments 2, 3 and 4 is $3,225,414, including construction and trailhead/parking, signs, fending, and other components.

This restoration plan anticipates that the conveyance of some or all of the State-option land to private or public owners would be an essential component of the Greenway trail project (see Section 1.2.5), but the land conveyance is not part of this plan. Prior to the conveyance of the State-option land, the precise location, acreage, and future uses of the land shall be agreed upon and approved in a written agreement between the State and U.S. EPA, after consultation with DOI and the METG.

#### *2.3.1.2 East Helena Connection to Greenway Trail System*

<u>Main Street Pedestrian Route</u>

The City of East Helena proposed to connect to the Greenway trail by providing a designated pedestrian route down Main Street allowing pedestrians safe access to the Main Street City Park and the Kennedy Park. Connecting to the Greenway trail is expected to increase the number of visitors to the City's parks and buildings and will therefore require updates to City streets to manage this increase in pedestrian traffic.

Designating a pedestrian route through the City of East Helena in order to enhance recreation within the City limits would require upgrades to Main Street including:

- Interpretive signage to direct visitors to the City's attractions including Main Street Park, Kennedy Park, and the City of East Helena Public Library
- ADA bus stop improvements for pedestrian access to the trail
- Crosswalk at Main Street and Lane Avenue, and
- Mid-block crosswalk at Main Street Park from the City Library

Cost estimate: $424,430

Upgrades to Main Street Park and Kennedy Park

East Helena proposed improvements to the Main Street Park and Kennedy Park to enhance them for the public and prepare for the increase in visitors that would occur with the connection to the Greenway trail. Improvements that are needed include:

- ADA upgrades at Kennedy Park including:
    - ADA picnic table with concrete slab and sidewalk.
    - Bathroom ADA Assessment and upgrades to existing facility.
- Security upgrades at Kennedy Park.
- ADA restroom upgrades at Main Street Park.

Cost estimate: $155,260.

# 3 Restoration Alternatives

Restoration alternatives discussed in this Chapter are a combination of the eligible restoration actions discussed in Chapter 2. Each alternative represents a restoration plan based on technically feasible restoration actions, which restore, rehabilitate, replace, or acquire the equivalent of injured natural resources or services associated with those resources within and near the ASARCO East Helena Smelter site, but with a greater amount of funds or a lesser amount of funds allocated to different resources. The "no action" alternative, Alternative 1, is discussed to provide the baseline against which restoration alternatives are evaluated. Alternative 2 is weighted to groundwater replacement actions, Alternative 3 is weighted to recreation replacement actions, and Alternative 4 divides funding resources evenly between groundwater and recreation replacement.

All of the groundwater replacement actions were proposed by the City of East Helena. The recreation actions were proposed both by Prickly Pear Land Trust and the City of East Helena. The Water Quality Protection District proposed the Prickly Pear Creek re-watering project. NRDP has determined, based on available cost estimates and limited funding available, that all of the eligible restoration actions proposed by each sponsor cannot be funded. The allocation of funds identifies specific components of the proposed restoration actions that the funds could be used for, so as best to meet restoration plan goals.

Chapter 4 provides a comparative analysis of alternatives according to the legal and policy criteria outlined in Section 1.4. The preferred alternative delivers the most benefit to the injured resources in a cost-effective manner while incorporating the public participation process. Project implementation is discussed in Chapter 5.

## 3.1 Restoration Alternative 1 - No Action Alternative

U.S. Department of the Interior regulations outline that a "no action" alternative be considered. The no action alternative is the basis against which other restoration alternatives are compared. The no action alternative would leave the injured resources in their current condition, allowing only natural processes to restore them and providing for no additional restoration, rehabilitation, replacement, rehabilitation or acquisition of equivalent resources to take place. The no action alternative would not result in compensation for lost groundwater services, surface water services, or recreation services.

Because no additional restoration would take place, the cost of the no action alternative would be $0. The no action alternative is not preferable because it does not meet the restoration plan goals of restoring, replacing, rehabilitating, or acquiring the equivalent of the injured or lost natural resources that were the subject of the natural resource damage claim, and it does not

comply with the legal and policy criteria for the use of restoration dollars described in Chapter 1 of this plan.

## 3.2 Restoration Alternative 2 – Groundwater replacement actions weighted

Alternative 2 would allocate available funding as follows:

Groundwater replacement actions: $3,850,000 or approximately 70% of available funds.

- The McClellan tanks replacement project and telemetry upgrades project would be 100% funded. Priority groundwater projects that are not approved by the U.S. EPA (proposed by the METG and discussed in Attachment C) could also be substituted.

Prickly Pear Creek restoration actions: $160,000 or approximately 3% of available funds.

- The Prickly Pear Creek re-watering project would be funded up to $125,000.
- $35,000 would be used to add structural diversity to the newly re-aligned portion of Prickly Pear Creek immediately east of the smelter slag pile.

Recreation replacement actions: $1,477,000 or approximately 27% of available funds.

- The Prickly Pear Creek Greenway trail project would be allocated $1,352,000 for construction of the Greenway trail. If all the funds are used for construction, approximately 3.35 miles of trail (42% of total) could be constructed.
- City park upgrades that connect to the Greenway trail would receive $125,000.

## 3.3 Restoration Alternative 3 – Recreation replacement actions weighted

Alternative 3 would allocate available funding as follows:

Groundwater replacement actions: $2,127,000 or approximately 39% of available funds.

- The McClellan tanks project would receive 63% of estimated construction costs. Priority groundwater projects that are not approved by the U.S. EPA (proposed by the METG and discussed in Attachment C) could also be substituted.

Prickly Pear Creek restoration actions: $160,000 or approximately 3% of available funds.

- The Prickly Pear Creek re-watering project would be funded up to $125,000.
- $35,000 would be used to add structural diversity to the newly re-aligned portion of Prickly Pear Creek immediately east of the smelter slag pile.

Recreation replacement actions: $3,200,000 or approximately 58% of available funds.

- The Greenway trail project would receive $3,200,000 for construction of the trail. Eight miles of the Greenway trail project could be constructed with the available funds.

## 3.4 Restoration Alternative 4 – Equal weighted for groundwater and recreation restoration actions

Alternative 4 would allocate available funding as follows:

Groundwater replacement actions: $2,663,500 or approximately 48.5% of available funds.

- The McClellan tanks project would receive approximately 79% of estimated construction costs. Priority groundwater projects that are not approved by the U.S. EPA (proposed by the METG and discussed in Attachment C) could also be substituted.

Prickly Pear Creek restoration actions: $160,000 or approximately 3% of available funds.

- The Prickly Pear Creek re-watering project would be funded up to $125,000.
- $35,000 would be used to add structural diversity to the newly re-aligned portion of Prickly Pear Creek immediately east of the smelter slag pile.

Recreation replacement actions: $2,663,500 or approximately 48.5% of available funds.

- The Prickly Pear Creek Greenway trail project would receive $2,663,500 for construction of the trail. If all the funds are used for the estimated construction, approximately 6.61 miles of trail could be constructed. Table 1 summarizes the approximate costs of alternatives.

*Table 1: Approximate costs of alternatives*

| Alternative | Groundwater | Surface Water | Recreation | Total |
|---|---|---|---|---|
| No Action | $0 | $0 | $0 | $0 |
| Alternative 2 | $3,850,000 | $160,000 | $1,447,000 | $5,487,000 |
| Alternative 3 | $2,127,000 | $160,000 | $3,200,000 | $5,487,000 |
| Alternative 4 | $2,663,500 | $160,000 | $2,663,500 | $5,487,000 |

# 4 Comparative Analysis of Restoration Alternatives

The purpose of this Chapter is to compare the relative merits of each restoration alternative presented in this plan to determine their potential to meet the restoration plan goals. The restoration plan goals are:

- Replace injured groundwater resource and associated services
- Restore riparian vegetation, fisheries, and natural stream flow
- Compensate for lost recreational use

The alternatives are compared to both legal criteria and policy criteria as defined in Chapter 1. The alternatives considered in this analysis are:

- Restoration Alternative 1: No Action
- Restoration Alternative 2: Groundwater Action Weighted
- Restoration Alternative 3: Recreation Action Weighted
- Restoration Alternative 4: Equal Groundwater and Recreation Action Weighted

## 4.1 Legal Criteria

### 4.1.1 Technical Feasibility

The no action alternative is technically feasible; however, it would not meet the restoration plan goals of replacing the groundwater and associated services, restoring riparian vegetation, fisheries, and natural stream flow, nor would it compensate for lost recreational use or any other services that could have been provided by the injured natural resources.

Alternatives 2, 3, and 4 are approximately equivalent in terms of technical feasibility. Each alternative includes projects that use proven technologies, construction methods, and scientific principles, but each alternative would result in a different suite of projects, depending on funding awarded.

The groundwater replacement projects are described in Chapter 2 and would be implemented by the City of East Helena. All of the groundwater replacement projects are technically feasible, were identified in the East Helena Water Master Plan, and were preliminarily costed out by a professional engineering firm under contract with the City of East Helena, in consultation with the City Public Works Department.

The re-watering project on Prickly Pear Creek is technically feasible. It is an ongoing project with proven success of significantly increasing fish populations and enhancing vegetation along

Prickly Pear Creek and would continue to be implemented by the Water Quality Protection District. Additional plantings on the new Prickly Pear Creek channel are technically feasible and would enhance existing riparian vegetation by adding structural diversity and would be implemented by the State in cooperation with the METG revegetation specialist.

The construction of the Greenway trail would use proven construction methods. The Greenway trail construction cost estimates break the costs into segments, each of which could be a stand-alone project. Recreation tie-in projects proposed by East Helena are also technically feasible.

### 4.1.2 Relationship of Expected Costs to Expected Benefits

The no action alternative would not cost anything but would also not result in any natural resource benefits for groundwater and associated services replacement, would not restore riparian vegetation, fisheries, and natural stream flow, nor would it provide benefits for lost recreational use or any other services that could have been provided by the injured natural resources.

None of the action alternatives (Alternatives 2, 3, and 4) would address all the needs for groundwater, surface water, and recreational services replacement. Each of the action alternatives has the same overall total costs when an evaluation of benefits is applied, but would address different injuries in different amounts with commensurate benefits.

**Groundwater replacement**: Injury to groundwater was the primary basis for the claim that the State of Montana made for natural resource damage at the ASARCO East Helena Smelter. The amount of funding allocated under any of the alternatives to groundwater replacement would not be enough to construct all of the priority projects identified in the 2018 East Helena Water Master Plan, nor replace all the injured groundwater resources. The City's 2018 Water Master Plan was developed by an engineering firm, in consultation with the City Public Works Department, and vetted in the community. A new storage tank would have high net benefit by conserving the water resource and benefit the City of East Helena by providing the reliable storage the City requires to meet their average daily demands, as well as needed fire flow demand, and eliminate the substantial water loss to the City's water system. The tank would hold and protect the water from outside contaminants such as surface water, insects, and rodents. Storage is needed to use the McClellan Creek radial well source water. If there is no reliable storage, this source becomes less viable for the City. A new telemetry system would allow for effective management of the water supply, which would conserve water and save on the operation and maintenance costs of the system.

The engineer has provided cost estimates for the construction of the McClellan tanks and the telemetry system. The City of East Helena has submitted grant applications to the Treasure

State Endowment and the Montana Renewable Resources Grant and Loan Program. The cost estimates are preliminary and could be reduced with further development. The benefits are assumed to be commensurate with the costs, since water projects similar to the ones proposed are typical for projects that other Montana cities construct to provide clean, safe drinking water.

Alternative 2 actions would result in the highest cost/benefit to groundwater replacement compared to alternatives 3 or 4, because 100% of McClellan Creek tank replacement costs would be met; however, no alternative will replace all the injury to groundwater. Alternative 3, the recreation weighted alternative, would result in the least benefit to groundwater replacement and would consist of 42% of the cost of the McClellan Creek tank replacement. Alternative 4, equal groundwater and recreation weighting, would provide funds for some groundwater replacement, would be considered commensurate as per cost/benefits, and provide for 79% of the McClellan Creek tank replacement.

**Surface water restoration**: The same amount of restoration for surface water is proposed in all three action alternatives. The actions would result in high net cost/benefit.

The Prickly Pear Creek fishery has responded positively to the ongoing re-watering project implemented under the Lake Helena Watershed Restoration Plan. Brown trout have increased in abundance almost twofold from pre-project numbers, 137 fish per mile to 405 fish per mile in 2016. The re-watering project is a priority in the Lake Helena Watershed Restoration Plan. The proven success of the Prickly Pear Creek re-watering project provides a large benefit to the fishery resource and the riparian area for a very small amount of funding.

The additional plantings proposed within the reclaimed section of Prickly Pear Creek would decrease the time to restore Prickly Pear Creek to baseline conditions at a reasonable cost. The re-watering and revegetation actions are considered to have high net benefit.

**Recreation replacement**: The benefits of the Greenway trail are that it would provide needed access to Prickly Pear Creek for public recreation and provide open space. The benefits of the East Helena proposed recreation projects to tie in to the Greenway trail are that the Greenway trail would be more visible and connected to the urban Main Street and City parks.

METG provided cost estimates for Greenway trail construction. According to METG construction cost estimates, the amount of funding allocated under any of the alternatives would not be enough to construct all of the Greenway trail sections proposed. For example, the METG cost estimate provided for the construction 8 miles of the Greenway trail and other trail components such as fencing, ADA devices, signs, and trailhead parking, is $3,225,414.

NRDP did an independent analysis of the construction costs for the trail and determined that the construction costs are reasonable. Because the design of the trail is at an early stage of development, there is likely to be flexibility in costs as the project is further developed and costs refined. The estimated cost to construct the trail could be reduced, and the project would have a higher cost/benefit.

The construction funds for the Greenway trail would be made available as part of an NRDP-approved work plan. Because the design of the trail is at an early stage of development, there is likely to be flexibility in costs as the project is further developed and costs are refined.

Alternative 2 would result in construction of fewer miles of Greenway trail (3.35 miles of trail), but the exact impact on the trail project is not known because of the early stage of development and the widely variable average costs to construct trails of this type and to maintain them. Alternative 3 would provide the highest benefit for replacing lost recreational services. The Greenway trail would receive enough funding to build 7.69 miles. Alternative 4 would provide the Greenway trail enough funding to build 6.61 miles of trail. Segment 2 of the trail is estimated to be 5.2 miles long and could be fully constructed with the available funds. Alternative 4 is considered to have commensurate cost/benefits compared to Alternatives 2 and 3.

### 4.1.3 Cost-effectiveness

The no action alternative is cost-effective, as no costs would be incurred. However, the no action alternative would not meet the restoration plan goals. In addition, the ability to accomplish more restoration through the use of matching funds and in-kind contributions from East Helena, Prickly Pear Land Trust, and the Water Quality Protection District is lost under this alternative. Alternatives 2, 3 and 4 would accomplish the restoration plan goals to varying degrees depending on the funding allocated to each project category. All action alternatives are considered to have the same overall cost effectiveness.

**Groundwater replacement**: The 2018 City of East Helena Water Master Plan reviewed multiple alternatives to address the City's water system and issues, including a no action alternative, and used a selection process that considered cost to help select the most cost-effective alternative. The costs of the groundwater replacement actions proposed for Alternatives 2, 3, and 4 were developed by engineers who design and oversee the construction of water projects throughout Montana, thus the costs for all alternatives are assumed to be cost-effective. In addition, the groundwater projects would be cost effective with the match contribution of East Helena to the construction of the water system components, both in-kind and via grant or other funding sources. The potential for securing that match is the same for all alternatives, but Alternatives 3 and 4 would require the City to provide greater match to accomplish the same projects.

In order to complete the projects in the Water Master Plan and make the projects more cost-effective, the City has pursued other match sources of funding. In spring 2018, the City of East Helena submitted grant applications to the Montana Renewable Resource Grant and Loan Program and the Montana Treasure State Endowment grant program. The City of East Helena has also informed the State of Montana Water Project Revolving Loan Fund of their potential interest in a loan to complete the projects. If the City chooses to pursue a loan, additional approvals would be needed locally and at the State.

**Surface water restoration**: All three action alternatives are considered cost-effective since the same amount of restoration for surface water is proposed in each alternative.

Re-watering of Prickly Pear Creek has been ongoing since 2009. The Water Quality Protection District has a commitment for $5,000 for the next ten years by the Bonneville Environmental Foundation to fund this project. Based on past and projected costs, the Water Quality Protection District is proposing to fund the re-watering project for a longer term. The funds allocated to this very successful project are cost effective based on past costs and the matching funds already committed. The project would meet restoration plan goal of restoring riparian vegetation and fisheries.

Based on the cost to implement similar revegetation projects, the additional plantings proposed to improve riparian vegetation in the reclaimed Prickly Creek corridor are consider cost effective.

**Recreation replacement**: Each alternative would result in the construction of various lengths of the Greenway trail, meeting the restoration plan goals for replacing recreational services. NRDP did an independent analysis of the trail construction costs and determined that the costs are reasonable. Although routing alternatives were included, the Greenway trail feasibility study did not provide a range of alternatives (for example various widths of trail, various trail surfaces). The estimated linear per foot cost of the trail is approximately $32 per linear foot for the asphalt parts of the trail. Because the design of the trail is at an early stage of development, there are likely to be opportunities to reduce costs as the project is further developed and costs refined and as opportunities to make the trail more cost-effective are considered. NRDP is not aware of efforts by Prickly Pear Land Trust to pursue match funding. For the Greenway trail, alternatives 2 and 3 would require a greater amount of match to accomplish the construction of the proposed project. Although transfer of the State-allocated land would be addressed separately, Prickly Pear Land Trust's management of the land and construction of the Greenway trail could provide a cost-effective way to help transition the ownership of the land from the METG and allow for public recreation, wildlife habitat, open space, and/or for wetlands.

### 4.1.4 Results of Response Actions

The no action alternative would not interfere with planned ongoing interim corrective measures or planned future remedial actions. Alternatives 2, 3, and 4 would enhance these actions equally.

### 4.1.5 Adverse Environmental Impacts

Adverse environmental impacts from the implementation of Alternatives 2, 3, and 4 would be similar. The environmental impacts resulting from the proposed actions include both short-term transient impacts associated with construction and long-term benefits resulting from completion of the actions. Potential short-term impacts, except Alternative 1, to the environment during construction, would be effectively mitigated by compliance with permitting and best management practices to protect the environment. Long-term, the restoration alternatives, except Alternative 1, would benefit the environment by providing safe drinking water and improved riparian and recreation areas where the public can safely participate in outdoor recreation. The City of East Helena has already prepared and published a checklist environmental assessment for the proposed East Helena water system improvements on March 12, 2018. Comments on the environmental assessment were due on April 10, 2018. Additional review would be completed for certain aspects of the proposed Greenway trail, such as cultural resources, when the exact route is determined. See Attachment B for more information.

### 4.1.6 Recovery Period and Potential for Natural Recovery

Natural recovery to baseline under all alternatives, including the no action alternative, would be anticipated to take hundreds to thousands of years (Montana DNRC, 2014) for the groundwater injury. Alternatives 2, and 3, and 4 would result in replacement of water system components, increased water for fish and vegetation in Prickly Pear Creek, and public access to State-allocated land along Prickly Pear Creek in the vicinity of the smelter and downstream, although the exact acreage is not yet known.

### 4.1.7 Human Health and Safety

The human health and safety impacts resulting from the proposed actions include both short-term transient impacts associated with construction and long-term benefits resulting from completion of the actions. Potential short-term impacts, except Alternative 1, to human health and safety during construction would be effectively mitigated by compliance with permitting and proper best management practices to protect the public and workers against hazards. Long-term, the restoration alternatives, except Alternative 1, would benefit human health and

safety by providing safe drinking water, and improved riparian and recreation areas where the public can safely participate in outdoor recreation.

### 4.1.8 Federal, State, and Tribal Policies, Rules and Laws

All alternatives are compliant with applicable law. The State would require that the project sponsors obtain all needed permits and authorizations.

## 4.2 Policy Criteria

### 4.2.1 Normal Government Function

Improvements to publicly owned municipal water systems are typically the responsibility of the local government. The NRDP considers the various water system improvement projects proposed in the alternatives in this plan to augment, not replace, normal government function because communities typically rely on a combination of grant funds, debt (including State and federal sources of low interest and forgivable loans), and user fees to fund such projects. The Prickly Pear Creek re-watering project that is included in all action alternatives is funded only through grant funds. The project would augment normal government function but is not otherwise funded. The Greenway trail proposal would be managed by a private nonprofit entity and would not affect normal government function. The criterion is inapplicable to the no action alternative.

### 4.2.2 Price

At this time, no private properties are proposed for acquisition or easement. If this were to become necessary to accomplish the restoration plan, the State will evaluate whether the land, easements, water rights, or other property interests proposed to be acquired are being offered for sale at or below fair market value.

### 4.2.3 Preferred Alternative

Of the four alternatives considered, the Trustee recommends Alternative 3 as the preferred alternative. Alternative 3 achieves the goals of the legal and policy criteria, produces benefits to the injured resources, replaces some of the services lost because of the injury, and aligns with significant priorities of the community.

# 5 Restoration Plan Implementation

As provided for in the 2009 Consent Decree, administrative costs incurred by the State related to the implementation of the East Helena Restoration Plan shall continue to be funded by the ASACRO East Helena Smelter Restoration Fund. Those costs shall include, without limitation, in appropriate instances: costs of contracting and overseeing design and construction; accounting and auditing costs; cost of preparing annual reports; costs of obtaining independent technical review; costs of assuring that restoration funds are spent per this restoration plan; and providing for public participation and the State's costs related thereto. As of Winter, 2019, the approximate balance of the East Helena Restoration Fund was $5.9 million. The NRDP is reserving 7% (approximately $413,000) of the overall balance for administration of the restoration projects and to implement its responsibilities as Beneficiary of the Custodial Trust for the foreseeable future. Future interest on the restoration fund will also be reserved until the NRDP's responsibilities as Beneficiary are completed.

The restoration action sponsors/partners, if possible, will implement the projects that they proposed and are approved in the plan, pursuant to terms of a contractual agreement with NRDP. The NRDP will be responsible for overseeing implementation of the plan, including design and construction oversight, and ensuring the proper accounting of all expended funds. NRDP will strive to contract with the project sponsors to complete the projects, but if necessary, NRDP will be the sponsor for the projects, or portions of the projects, for the purposes of contracting the funds to complete the project.

Funding of sponsors for project development, design, and implementation of restoration actions will be on a reimbursement basis. Reimbursement will occur following the submittal of a completed and correct invoice, with proper cost documentation of, and a progress report on, the activities covered under the invoice, pursuant to provisions of the applicable contractual arrangement with the NRDP.

Upon approval of a restoration plan, the restoration project sponsor will be required to enter into a contract agreement with NRDP before any funds can be expended or received. The contracting must be in compliance with applicable State procurement requirements. NRDP can provide a model contract agreement upon request. Detailed scopes of work, budgets, and project schedules are required in all agreements, and must be approved by NRDP before any work paid for by restoration funds can begin. Expenses incurred by project sponsors before the contract agreement becomes effective will not be reimbursed.

The NRDP will ensure that all approved restoration projects implemented by the project sponsors are consistent with scope and budget, as approved. NRDP may terminate funding if it

finds that the project is not consistent with the approved contract. The implementation will include necessary oversight and review by NRDP, with funds distributed to project partners on a reimbursement basis.

Greenway Trail Operations and Maintenance as a Part of the Project

The funds allocated to the Greenway trail may be used for construction or operations and maintenance for a reasonable period of time, with NRDP approval, and with an NRDP-approved work plan. The METG calculated that Greenway trail operations and maintenance of segments 2, 3, and 4 for a total of 8 miles would require a set aside of $1,361,791, assuming a 25-year project life. NRDP considers the METG-calculated trail operation and maintenance costs reasonable when considered over the 25-year life of the project. The State considers funding operation and maintenance for 10 years a more reasonable and manageable period of time. Based on the cost estimates provided for a 25-year project plan, estimated costs for 10 years of operations and maintenance for 8 miles of trail would be approximately $544,716.

Transfer of State-Option land

This restoration plan anticipates that the conveyance of some or all of the State-option land to private or public owners would be an essential component of the Greenway trail project (see Section 1.2.5), but the land conveyance is not part of this plan. Prior to the conveyance of the State-option land, the precise location, acreage, and future uses of the land shall be agreed upon and approved in a written agreement between the State and U.S. EPA, after consultation with DOI and the METG. The State and EPA will seek suitable owners for the purposes of constructing the Greenway.

**Other Information for Project Sponsors**

- Project sponsor costs for project administration activities will be capped at 5% of the total estimated project development and design costs.
- As part of the project development efforts, project sponsors should pursue opportunities to obtain matching funds or in-kind services for the full project to increase the project's cost- effectiveness.
- Procurement for all projects must be consistent with the project sponsor's contract with NRDP and must meet or exceed State procurement requirements, including legal procurement for all environmental consulting, engineering, and design activities.
- If a project is completed under budget, the remainder funds will be used for the same

restoration project type. Some projects may not reach implementation phase, depending on the results of the project development phase.

- All restoration work on private land will require landowner agreement to protect projects for a specific length of time.
- Specific projects, such as the Greenway trail, may require additional MEPA review and public participation during project development and implementation.
- Entities contracted for project implementation must obtain all required permits and complete the project in compliance with all applicable laws and regulations.
- Projects selected will be required to initiate implementation within two years of the plan finalization. The implementation would take place over a period not to exceed 10 years.

The Governor shall make the final decision on the Restoration Plan following consideration of the input of the NRD Trustee Restoration Council, the NRDP, and the public.

**Restoration Plan Revisions and Updates**

The Restoration Plan will be revised, as needed, specifically to re-allocate any unused restoration funds. If it is necessary to make significant, substantial changes to this plan, these changes would be subject to the same review and public comment steps prior to a final decision by the Governor.

## References


East Helena, City of. 2014. City of East Helena Growth Policy, Adopted October 7, 2014, Resolution No. 466.

East Helena, City of. 2017. Capital Improvements Plan, Adopted by East Helena City Council April 18, 2017.

East Helena. 2018. Draft Environmental Assessment. http://easthelenamt.us/PDF/20180312_COEH_DraftEA.pdf. Accessed on July 19, 2018.

East Helena, City of. 2018. East Helena Water Master Plan. Prepared by Robert Peccia & Associates, Helena, MT.

Fish, Wildlife and Parks. 2017. Prickly Pear Creek Tryan Fish Passage Future Fisheries Application.

Hydrometrics. 2014. Supporting Information for the East Valley Controlled Groundwater Area Petition – Lewis and Clark County, Montana. Prepared for Montana Environmental Trust Group, LLC and Lewis and Clark County. August.

Hydrometrics, Inc. 2010. Phase II RCRA Facility Investigation Site Characterization Work Plan East Helena Facility. Prepared for: Montana Environmental Trust Group, LLC. Trustee of the Montana Environmental Custodial Trust. May.

Lewis & Clark Co Water Quality Protection District & Lake Helena Watershed Group. 2015. *Lake Helena Watershed Restoration Plan 2016-2023*. December.

Montana Environmental Trust Group (METG). 2018. http://www.mtenvironmentaltrust.org/east-helena/site-history-and-custodial-trust-involvement/. Accessed on August 6.

METG. 2015. Former ASARCO East Helena Facility Interim Measures Work Plan – 2015-2016. Prepared by CH2MHill. February.

METG. 2016. Final Addendum to Former ASARCO East Helena Facility Interim Measures Work Plan – 2015-2016. Prepared by CH2MHill. March.

METG. 2018. Former ASARCO East Helena Facility Corrective Measures Study Report. Prepared by CH2MHill. March. http://www.mtenvironmentaltrust.org/east-helena/cercla-activities/

Montana DNRC. 2014. Application #30070516. Petition for Controlled Groundwater Area. http://dnrc.mt.gov/divisions/water/water-rights/docs/cgwa/east-valley-cgwa-petition.pdf. August 24. Accessed on July 18, 2018.

Montana Natural Heritage Program. 2018. Species of Concern Report – Helena Area. Accessed on August 14.

Prickly Pear Land Trust. 2016. *Prickly Pear Creek Greenway Feasibility Study*. Prepared by CTA Architects Engineers.

Stratus Consulting, 2007. Groundwater Injury and Restoration Alternatives to Address Off-Site Contamination. East Helena Site, Montana.

U.S. EPA. 2018. https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0800377). Accessed August 7.

U.S. EPA. 2016. Five Year Review Report, Fourth Five Year Review Report for East Helena Superfund Site, EPA ID MTD006230346, East Helena, Lewis and Clark County, Montana. September.

U.S. Fish and Wildlife Service. 2018. https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf. Accessed August 14.

# Attachment A: Definitions

The short definitions that follow are intended to help applicants identify the types of projects that will restore, rehabilitate, replace, and/or acquire the equivalent of injured natural resources and/or lost services.

**Natural Resources:** "Natural resources" that may be addressed through East Helena Restoration Fund projects include the groundwater, surface water, and recreational resources.

**Services:** "Services" are the physical and biological functions, including the human use of those functions, performed by the natural resource, or that would have been performed by the natural resource had it not been injured by the release of hazardous substances. These services are the result of the physical, chemical, or biological quality of the resource. Services include ecological services such as flood control and erosion control, habitat, and food chains, as well as human services such as recreation and drinking water consumption.

**Injury:** "Injury" to a natural resource is the measurable adverse change in the chemical, physical, or biological quality or the viability of a natural resource resulting directly or indirectly from exposure to a release of a hazardous substance. Injury can be a measurable adverse change in either the long- or short-term.

**Baseline:** "Baseline" refers to the condition of a natural resource and the services it provided that would have existed had the discharge of the hazardous substance not occurred.

**No Action-Natural Recovery Period:** "No Action-Natural Recovery Period" refers to the time needed for recovery of an injured resource to baseline conditions if no restoration efforts are undertaken beyond response actions. This time period depends on many factors, including the extent of the injury, the persistence in the environment of the hazardous substance to which the natural resource is exposed, and the extent of response actions or other human intervention.

**Remedial Actions/Remediation:** "Remedial actions," also referred to as response actions, are those measures undertaken by the EPA or the State of Montana at contaminated sites that are deemed necessary to clean up a site under State or Federal Superfund, including those actions needed to protect public health or the environment and comply with environmental laws. Although response actions are not designed to restore injured natural resources or services, they may have this effect to some extent. They may reduce or eliminate the length of time for natural recovery of an injured natural resource. Generally, and

collectively, remedial, removal, or response actions are also commonly referred to as "remediation."

**Restoration:** The term "restoration" is used in both a general sense and specific sense in this document. Used in a general sense, "restoration" generally refers to the four types of actions authorized under federal law to address injuries to natural resources (i.e., restoration, rehabilitation, replacement, and acquisition of the equivalent natural resources). Used in the specific sense, "restoration" refers to actions undertaken to return an injured resource to its baseline condition, as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided, when such actions are in addition to resource actions completed or anticipated. For example, in a situation where numerous sources are contaminating groundwater, removing the most significant sources would lessen the injury and result in the groundwater's recovery, or "restoration," to baseline sooner than would otherwise occur.

**Rehabilitation:** Actions constituting "rehabilitation" attempt to return the injured resources and services to a state different than their baseline condition but still beneficial to the environment and the public. For example, where injury to a conifer forest resulted in a loss of upland big game habitat, planting grasses and shrubs would create upland bird habitat while only beginning the process of restoring upland big game habitat.

**Acquisition of Equivalent Resources or Replacement**: Actions constituting acquisition of equivalent resources or replacement means the substitution for an injured resource with a resource that provides the same or substantially similar services, when such substitutions are in addition to any substitutions made or anticipated as part of response actions and when such substitutions exceed the level of response actions determined appropriate to the site pursuant to the NCP. Actions constituting "replacement" seek to create or enhance resources and services equivalent or very similar to those that have been injured, but away from the immediate site of the injury. For example, where an injury to a trout fishery has occurred, improvements to a nearby stream would enhance its trout fishery and would, in effect, constitute "replacement" of the injured fishery. Actions constituting "acquisition of equivalent resources" involve acquiring unimpaired resources comparable to those that are injured. Acquisition of equivalent resources can hasten recovery or protect the injured natural resources. For example, acquiring healthy land adjacent to injured land can relieve pressure on the injured land and hasten its recovery. Or acquisition of equivalent resources may compensate the public for its diminished ability to use the injured resources. For example, although acquiring unimpaired land for public use does not restore the land that has been injured, it does make other land available for public use.

# Attachment B: Environmental Review Narrative and Checklist

The purpose of this attachment is to briefly describe the physical, biological, and human environment resources that are potentially affected by the implementation of the restoration plan. Groundwater, surface water, and recreational resources are discussed in more detail in Chapter 2 of the restoration plan.

**Geology**

East Helena is in the Northern Rocky Mountains physiographic province. The Continental Divide, separating the Columbia and Missouri River drainages, is 15 miles west of the valley. Quaternary-age sediments up to 6,000 feet thick fill the valley and form a northeast-sloping alluvial plain measuring roughly 64 square miles. The Tertiary valley fill consists mostly of interbedded silt and clay with lenses of sand and gravel ranging from a few inches to a few feet. Lake Helena is the lowest point in valley at 3,650 feet. The sedimentary plain is bounded by broad erosional surfaces called pediments and alluvial fans of the Elkhorn Mountains, the Boulder Batholith, the Scratchgravel Hills, and the Big Belt Mountains.

**Landscape**

The former ASARCO East Helena Smelter is located in Lewis and Clark County, just north of the Jefferson county border, within the Prickly Pear Creek drainage. Prickly Pear Creek originates in the Elkhorn Mountains and flows north along Interstate 15, through the small towns of Clancy, Montana City, and East Helena, continues through agricultural farmlands, pastures and small rural subdivisions in the Helena Valley, and finally enters Lake Helena. Major tributaries to Prickly Pear Creek include Ten Mile Creek, McClellan Creek, and Jackson Creek.

Average annual precipitation in the drainage ranges from 30 inches along the Continental Divide to 10 inches in the lower parts of the valley (Water Quality Protection District and Lake Helena Watershed Group, 2015). Soils range from sand and gravels to loam to silty clay loam and are subject to erosion when vegetation is removed (Water Quality Protection District and Lake Helena Watershed Group, 2015).

Timber harvest, mining, smelting, industrial activity, transportation systems, and water withdrawal for agriculture and other uses have impacted Prickly Pear Creek. Legacy mining continues to contaminate groundwater. Prickly Pear Creek has also been chronically dewatered due to over-allocation of surface water rights.

Storm water runoff from East Helena streets and lawns flows into Prickly Pear Creek. Wastewater effluent from the Helena and East Helena treatment plants is released under

permit into Prickly Pear Creek. Segments of all the main stem creeks have been channelized in the upper and lower reaches, with channelization in the lower reaches causing adverse impacts to riparian vegetation within the Helena Valley.

Biological Resources

Common wildlife species found in the vicinity of the restoration plan include white-tailed and mule deer, pronghorn, black bear, mountain lion, fox, coyote, badger, beaver, muskrat, American mink, raccoon, skunk, and a variety of small mammals. A wide variety of resident and migratory bird species use or travel through the area on a seasonal basis, including Canada geese, sandhill crane, golden eagle, osprey, Hungarian partridge, ruffed grouse, and a variety of other raptors, waterfowl, and songbirds. The creek is home to a variety of fish species including brook, brown, rainbow, and westslope cutthroat trout.

Threatened and Endangered Species and Montana Species of Special Concern

Searches of US FWS databases and FWP databases show the following species in Lewis and Clark County and Jefferson County and in the Helena Area. None of these species are in the immediate vicinity of the proposed projects. The lists are attached.

Demographics, Economics, and Land Use

Montana's capital city, Helena, is the center of the watershed (Water Quality Protection District and Lake Helena Watershed Group, 2015). The population of the watershed is estimated to be 55,000 people. The area termed the Helena Valley and the area along the I-15 corridor have population densities ranging from 100 to over 5,000 persons per square mile. The Helena Valley is the primary population center and economic hub for Lewis and Clark County and northern Jefferson County. The Helena Valley continues to encompass the largest percentage of the Lewis and Clark County's population and growth (Lewis and Clark County Growth Policy Plan, 2004). According to the forecast, the population of the greater Helena Valley will increase to approximately 70,000 by 2020 (Lewis & Clark Growth Policy, 2004). Northern Jefferson County has grown at rates similar to the Helena Valley and this trend is predicted to continue due to the close proximity (6 miles) to the City of Helena and Helena Valley businesses.

Land use historically changed and continues to change, both geographically and over time, from mining and logging to areas of irrigated agriculture (hay, alfalfa, and other grasses), livestock grazing, industrial use, and residential and commercial development in the cities of Helena and East Helena, the Helena Valley, and northern Jefferson County.

Historical and Cultural Resources

As part of the remediation at the ASARCO East Helena Smelter, the METG conducted cultural research surveys, studies, and recordation under the National Historic Preservation Act. The former manager's house was eligible for listing on the National Register of Historic Places but was since lost to fire.

The proposed route of the Greenway trail passes through areas of archeological interest. There are teepee rings, a lithic quarry, and the historic railroad grade.

Human Use Services

Prickly Pear Creek flows through the Helena Valley within a few miles of the City of Helena. There are five fishing access sites (FAS) managed by FWP in the Helena Valley, including Olsen Road FAS (north of York Road in the Helena Valley), Valley Reservoir FAS (8 miles east of Helena on the Helena Valley Regulating Reservoir); Lake Helena FAS (7 miles north of Helena on Lake Helena); Causeway FAS (7 miles north of Helena on Hauser Reservoir); and York Bridge FAS (13 miles northeast of Helena on Hauser Reservoir). Public access to Prickly Pear Creek is also available in isolated locations off old Highway 15 near Montana City and the Ash Grove Cement Plant, on unmarked DNRC school trust land, and the Montana Law Enforcement Academy grounds.

# EA CHECKLIST

Project Title East Helena ASARCO Smelter Restoration Plan

Project Description The ASARCO East Helena Smelter Restoration Plan would fund projects from the City of East Helena Water Master Plan, the Prickly Pear Creek Rewatering Project, the addition of mature vegetation to the reclaimed Prickly Pear Creek corridor, and the Greenway trail

Person Preparing Checklist Alicia Stickney Phone 406-444-1346

The public scoping process is discussed in Section 1.3, including a discussion of the comments received. The evaluation of the impacts of the alternatives, including direct, secondary, and cumulative impacts on the physical environment follows.

## POTENTIAL IMPACTS ON THE PHYSICAL AND HUMAN ENVIRONMENT

(Check the appropriate column. State whether the impact is adverse or beneficial.)

| | MAJOR | MODERATE | MINOR | NONE | UNKNOWN | COMMENTS |
|---|---|---|---|---|---|---|
| Topography | | | | X | | |
| Geology: Stability | | | | X | | |
| Soils: quality, quantity, distribution | | | | X | | Construction of the trail would result in soil disturbance. Use of best management practices would minimize disturbance. |
| Water: quality, quantity, distribution | | | X beneficial and adverse | | | Water distribution impacts were addressed in the City of East Helena checklist EAs for the water master plan projects. Water quality may be affected during the trail construction in areas that are close to Prickly Pear |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Creek. Use of best management practices would minimize impacts. |
| Air: quality | | | | X | | Minor and temporary dust and vehicle emissions would be created by equipment during construction, but would end after completion. |
| Terrestrial, avian, and aquatic: species and habitats | | | | X | | |
| Vegetation: quantity, quality, species | | | X adverse | | | Vegetation may be disturbed during trail construction. Disturbed areas would be reseeded. Weed-free seed would be required for any reseeding. |
| Agriculture, grazing, crops, production | | | | X | | |
| Unique, endangered, fragile or limited environmental resources | | | | X | | |
| Demands on environmental resources of land, water, air, and energy | | | | X | | |
| Historical and archaeological sites | | | X potential for adverse | | X | For the water projects, paving of trails and parking areas would occur primarily over existing disturbed areas. Due to the previous alteration of these areas, there is a low likelihood that cultural properties would be affected. During development of the Greenway trail, the State Historic Preservation Office would be consulted to help with routing to avoid archeological and |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | historical features and a clearance would be obtained. |
| Aesthetics | | | X beneficial | | | The Greenway trail with associated open space would improve the aesthetics of the East Helena Community |
| Social Structures & more | | | | X | | |
| Cultural uniqueness, diversity | | | | X | | |
| Population: quantity and distribution | | | | X | | |
| Housing: quantity and distribution | | | | X | | |
| Human health and safety | | | | x | | . |
| Community and personal income | | | | X | | |
| Employment: quantity, and distribution | | | | X | | |
| Tax base: local and state | | | | X | | If the land is transferred to a private entity, they would pay taxes. |
| Government services: demand on | | | | X | | |
| Industrial, commercial, and agricultural activities | | | | X | | |
| Recreation and wilderness | | | X beneficial | | | Recreational access to Prickly Pear Creek would be improved. |
| Environmental plans and goals, local and regional | | | | X | | |
| Demands for energy | | | | X | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Transportation networks and traffic flows | | | X beneficial | | | This new trail would facilitate pedestrian and non-motorized use along Prickly Pear Creek. |

List all groups or agencies contacted.

Water distribution impacts were addressed in the City of East Helena checklist EAs for the water master plan projects.
Brad Koenig, Peccia Engineering
City of East Helena
Damon Murdo , Montana State Historic Preservation Office
Montana FWP
Montana Natural Heritage Program
Jennifer McBroom, Lake Helena Water Quality Protection District
U.S. Fish and Wildlife Service

References:

City of East Helena, 2018. Uniform Environmental Checklist – East Helena Water System Improvements, East Helena, Montana. March 12.

Montana Natural Heritage Program. 2018. Species of Concern Report – Helena Area. Accessed on August 14.

U.S. Fish and Wildlife Service. 2018. https://www.fws.gov/montanafieldoffice/Endangered_Species/Listed_Species/countylist.pdf. Accessed August 14.

Montana Natural Heritage Program List of Species of Special Concern – Helena area

Black-tailed Prairie Dog
Spotted Bat
Wolverine
Hoary Bat
Canada Lynx
Little Brown Myotis
Pygmy Shrew
Northern Goshawk
Clark's Grebe
Great Blue Heron
Veery
Brown Creeper
Evening Grosbeak
Bobolink
Pileated Woodpecker
Pinyon Jay
Cassin's Finch
Black-necked Stilt
Lewis's Woodpecker
Clark's Nutcracker
Long-billed Curlew
Sage Thrasher
Green-tailed Towhee
Flammulated Owl
Brewer's Sparrow
Forster's Tern
Great Gray Owl
Western Toad
Plains Spadefoot
Westslope Cutthroat Trout

U.S. Fish and Wildlife Service list of endangered and threatened species for Lewis and Clark and Jefferson counties

Grizzly bear
Canada Lynx
Bull Trout
Red Knot
Wolverine
Whitebark Pine
Ute Ladies' Tresses

# Attachment C: Summary of Restoration Action Ideas and Criteria Screening for Projects not Included in the Restoration Alternatives

The following restoration action ideas were identified during scoping and considered in relation to the Superfund legal and policy criteria. These criteria are described in detail in Section 1.4 of the restoration plan. The legal criteria are:

- Technical Feasibility
- Relationship of Expected Costs to Expected Benefits
- Cost-effectiveness
- Results of Response Actions
- Adverse Environmental Impacts
- Human Health and Safety
- Federal, State, and Tribal Policies, Rules, and Laws

The policy criteria are:

- Normal Government Functions
- Price
- Location

The proposed restoration action ideas described in this attachment were not selected to be included in the restoration alternatives because they did not meet one or more of the legal or policy criteria or are proposed to be paid for by the Montana Environmental Trust Group.

**Groundwater Projects**

The City's distribution system is a network of mains ranging in size from 4 to 8 inches. In 1999, the City replaced approximately 16,760 feet of water main within the City due to age and condition. This $3.8 million project included new copper services to the property line and curb-stop where mains were replaced. However, the City still has several thousand feet of older 4-inch water mains and valves that do not meet Montana Department of Environmental Quality current design standards. The City of East Helena routinely uses maintenance funds to replace these 4-inch mains as budgets allow, and as issues arise, and is not seeking restoration funds for this work.

The City gets water from two main sources, the McClellan Creek system and the Wylie Wells. Water from the McClellan tanks flows by gravity to the City through a 10-inch transmission main constructed in 1928. A small 57-foot section of this transmission main was rerouted with 10-inch polyvinylchloride (PVC) pipe in 2013. The transmission main along Wylie Drive that conveys water from the Wylie Wells was replaced in 1999 and consists primarily of 10-inch PVC.

Water is pumped south through this transmission main to the City distribution system and the storage tank along Highway 282. A new transmission main will be required as part of the new well that METG has proposed to drill for the City.

Main Street Stream Crossing

The City of East Helena's distribution system is divided by Prickly Pear Creek, which flows through the center of the city. In 2012, the City of East Helena was forced to disconnect the water main on Main Street that ran below Prickly Pear Creek due to its exposure in the stream and its condition. This main was a critical piece of infrastructure in that it provided a crossing to convey water from one side of town to the other. There are only three places where mains cross the stream. Those crossings allow Wylie water to get to the east side of the City and McClellan water to the west side. The stream crossing at Main Street is critical to maintaining reliable service if one of these others sources is lost or out of service. Replacement of the main on Main Street main below Prickly Pear Creek would replace a critical conveyance of water from one side of town to the other. The Water Master Plan shows the location of the Main Street stream crossing improvements.

Cost estimate: $214,830

Loop Distribution at Manlove

The 4-inch main on Manlove dead-ends at the American Chemet Complex and is the only source of water for this area. In addition, the City reports inadequate fire flows at this location. Installing a 6-inch main underneath Highway 12 would eliminate the dead-end main at Manlove, provide a backup connection of water to this area, and increase the inadequate fire flows. The water master plan shows the location of the Manlove looping. The area south of highway 12 is currently supplied by only one connection. If this connection was lost, all of the 29 residents in the area would be without water. Looping the distribution system at Manlove would benefit the City by providing a second connection to the City's water distribution system to ensure these residents have reliable water service and eliminating a "lollipop" connection that supplies the area.

Cost estimate: $589,380

Eliminate Dead-End at 1st Street and West Groschell

Dead-end water mains can lead to low pressure, inadequate fire flow, and stagnant water that allow inorganic sediments to deposit, organic matter to accumulate, and allow biofilm and other organisms to grow. These organisms can deplete the available oxygen which in turn

causes anaerobic conditions. Anaerobic conditions cause corrosion issues in mains and potentially serious odor problems. DEQ Circular DEQ 1 recommends minimizing dead-end mains to increase the reliability of the service and reduce head loss in the system.

The City of East Helena has a dead-end main located on 1st Street between Gail Street and West Groschell. This dead-end main would be eliminated by extending the existing 6" main on 1st Street from West Groschell to Gail Street. The water master plan shows the location of the dead-end on 1st Street.

Cost estimate: $144,890

Cost estimate for all three distribution and transmission main actions: $949,100. These projects do not conserve water, but only provide greater conveyance and fire protection.

**Surface Water Projects**

<u>Prickly Pear Creek - Stream restoration between Elliott and Montana Law Enforcement Academy</u>

In December 2015, the Water Quality Protection District and the Lake Helena Watershed Group developed a DEQ-approved watershed restoration plan that identifies several stretches of Prickly Pear Creek as a priority area for addressing Prickly Pear Creek impairments (Lewis & Clark Co Water Quality Protection District & Lake Helena Watershed Group 2015). Stream banks along lower Prickly Pear Creek have little or no riparian vegetation, eroding banks due to grazing by livestock and other land practices. Lowered water table has led to stream channel incising and restricted access to the channel's historic floodplain. Sediment is the most cited non-point source pollutant leading to more impaired stream segments within the Lake Helena watershed. Prickly Pear Creek is listed by DEQ as an impaired water body.

As part of implementing the Lake Helena watershed restoration plan, the Water Quality Protection District has completed or is working on two segments of Prickly Pear Creek in the priority area. The Water Quality Protection District completed a restoration project in the segment of the creek just north of York Road in 2016. In 2018, the Water Quality Protection District is working on a similar project upstream from the law enforcement academy. The goals of these projects have been to minimize erosion, lower stream water temperature, improve stream function, and increase channel flood storage capacity and nutrients by conducting stream bank restoration work. Combined, these projects have addressed these goals on approximately over 10,000 linear feet of Prickly Pear Creek.

These projects have reduced sediment loads by re-establishing natural stream channel function, creating channel point bars and sloped streambanks, adding flood capacity within the stream channel, and increasing stream riparian woody vegetation. The stream restoration was designed to address instability, prevent avulsion areas, reduce excessive erosion from previous agricultural and land use practices, reduce stream incision, and improve floodplain access. Methods to include stream channel reconfiguration and bank modifications using tree revetments, rock, and root wads and re-vegetation with woody riparian vegetation. A grazing management plan has been implemented.

The Water Quality Protection District has identified a third area for restoration in the area of the Tryan irrigation diversion. This project could be split into two separate projects. The Water Quality Protection District estimates that an additional 4,000 linear feet of Prickly Pear Creek could be restored.

The landowner in this reach of Prickly Pear Creek is not interested in pursuing a restoration project on his property. Therefore, this project is technically infeasible.

Cost estimate: $250,000

<u>Stream restoration downstream from Wylie Drive to York Road</u>

Because of historic mining, the stretch of Prickly Pear Creek between Wylie Drive and York Road is the most impaired reach of Prickly Pear Creek between East Helena and Lake Helena and sees the most benefit from the re-watering project described above. The stretch from Burnham's diversion to past Canyon Ferry Road used to be dry every year, now receiving water via the Water Quality Protection District project. There is very little overhanging vegetation in this stretch. The area is primarily owned by a single land-owner. Prickly Pear Water Users diversion has a fish ladder. Fish also are known to use the braided channel at times to bypass the diversion. A stream restoration project in this area would be compatible with the Lake Helena Watershed Restoration Plan (see Section 5.2).

The area is now leased to a sand and gravel operation. It is unknown what the sand and gravel operation and the property owners are planning for future management of the area, so the technical feasibility is unknown. Other options in this area would be a conservation easement to preserve open space. It is impossible to determine the relationship of expected costs to expected benefits or the cost effectiveness of this project.

Cost estimate: unknown. In order to determine the costs for a project in this area, a stream assessment and engineering analysis would be required. This project is not developed enough to determine a cost.

Restoration of upstream Prickly Pear Creek and Upstream tributaries

McClellan Creek and Jackson Creek are both upstream tributaries that are within the location criteria. The Lake Helena Watershed Plan does not identify possible projects in McClellan Creek, but projects are identified in Jackson Creek. Jackson Creek has high zinc levels from upstream abandoned mines.

There are populations of Westslope cutthroat trout (a Montana species of special concern) in McClellan Creek, Warm Springs, Kady Gulch, and other tributaries. McClellan Creek is close enough to the ASARCO East Helena Smelter site that there may be some cutthroat that pioneer their way down to the restored reach. Aerial photos show that there may be some restoration opportunity in the Prickly Pear canyon, but there is a patchwork of land ownership downstream of the Ash Grove Cement property. Potential projects would need substantial more development. Because these projects are not identified, it is impossible to determine the technical feasibility, the relationship of expected costs to expected benefits, or the cost effectiveness of this project.

Cost estimate: Unknown.

Acquisition or Conservation Easement opportunities with larger landowners.

No specific acquisitions or conservation easement projects have been identified along Prickly Pear Creek north of the smelter. However, acquisitions and conservation easements would likely be compatible with the Lake Helena Watershed Restoration Plan (see Table 5-1 of the Lake Helena Watershed Restoration Plan). There are several landowners with large acreages. Because these properties are not identified, it is impossible to determine the technical feasibility, the relationship of expected costs to expected benefits, or the cost effectiveness of this project.

Cost estimate: Unknown

Build on restoration opportunities up Ten Mile Creek

Ten Mile Creek is a tributary to Prickly Pear Creek and is within the area defined in the location criteria. Prickly Pear Land Trust is presently working on projects on Ten Mile Creek. Improved fish habitat and fish abundance in Ten Mile Creek would also carry over to Prickly Pear Creek as migratory fish from Lake Helena would use both streams throughout their life history. Lower Ten Mile Creek (Montana Ave to Sierra Rd) is chronically dewatered, but there may not be a remedy as surface flows are lost in the alluvium of the Helena valley. Additional groundwater studies would be needed to evaluate the feasibility of restoring flow. There may also be

opportunities for conservation easements and fencing to improve vegetation growth in riparian areas.

Ten Mile Creek is in the restoration area, but no specific projects have been proposed. It is impossible to determine the technical feasibility, the relationship of expected costs to expected benefits, or the cost-effectiveness of this project.

Cost estimate: Unknown

Restoration of Prickly Pear Creek – removal of slag in town

Slag would be removed from Prickly Pear Creek downstream from the smelter and replaced by natural stream bedload. A detailed engineering analysis would have to be completed for any alternative that would address habitat enhancement in town. Any project that might include chances of increased flooding may not be socially acceptable in East Helena. With the ongoing risk of flooding there may be some additional sources of funding to look at ways to reduce flood risk and improve stream function (e.g., US Corps of Engineers). Because of physical space limitations, the stretch of Prickly Pear Creek through East Helena will never likely be a fully functioning stream. FWP fisheries biologists believe the slag may not be negatively impacting stream function, and slag removal may be more disruptive to stream function than leaving it in place.

Since Prickly Pear Creek has been realigned away from the slag pile, new slag should no longer be eroding into the creek and will eventually work its way out of the system. Furthermore, it is impossible to determine the relationship of expected costs to expected benefits or the cost effectiveness of this project. This restoration action idea was screened out because of the physical constraints of completing a habitat project in the urban area and the relationship of expected costs (high) with low benefits (never likely to be a fully functioning stream).

Cost estimate: Unknown

Habitat enhancement on Prickly Pear Creek in urban East Helena.

The stretch of Prickly Pear Creek that runs through East Helena is channelized with concrete banks. In its present configuration, the channel has no habitat values. The creek also has a major sedimentation problem. Enhancing habitat through the East Helena urban area without doing stream realignment would be difficult. Adding habitat structures to the existing channel in town could substantially increase flood risk (both in open water and through ice jams in the winter). A detailed engineering analysis would have to be completed for any alternatives that would address habitat enhancement in town. Any projects that might include chances of

increased flooding may not be socially acceptable in East Helena. With the ongoing risk of flooding there may be some additional sources of funding to look at ways to reduce flood risk and improve stream function (e.g., US Corps of Engineers). Because of physical space limitations, the stretch of Prickly Pear Creek through East Helena will never likely be a fully functioning stream. This restoration action idea was screened out because of the physical constraints of completing a habitat project in the urban area and the relationship of expected costs (high) with low benefits (never likely to be a fully functioning stream).

Cost estimate: Unknown

Restoration Prickly Pear Creek along RR ROW and Hwy 12.

The stretch of Prickly Pear Creek that runs between the railroad right of way and Highway 12 and the smelter, just north of East Helena and downstream of the newly constructed channel, runs in a straight channel between the two linear features. In its present configuration, it is just a channel and has no habitat values. As with the stretch that goes through town, the creek has a major sedimentation problem. Because of the limitations on space in this narrow right of way, any stream restoration would be difficult, if not impossible (technical feasibility is uncertain). Adding habitat structures to the existing channel in town could substantially increase flood risk (both in open water and through ice jams in the winter). A detailed engineering analysis would have to be completed for any alternatives that would address habitat enhancement in town. This restoration action idea was screened out because of the physical constraints of completing a habitat project in the tight space between the railroad and the smelter and the relationship of expected costs (high) with low benefits (never likely to be a fully functioning stream).

Cost estimate: Unknown

Prickly Pear Creek – change of use to instream flow water rights

The water rights used in the project described above could be changed permanently to instream flow use. It is unclear what the process for this change of use would be. Therefore, it is hard to know what the cost or timeframe would be. The water rights users are not supportive of a change of use project. The water users would not like to pursue this water rights change of use. Therefore, the project is technically infeasible.

Cost estimate: Unknown

Remove Tryan irrigation diversion

The Tryan irrigation diversion structure approximately six miles above the confluence of Prickly Pear Creek with Lake Helena that acts as a fish barrier. It is the only fish barrier remaining

between Lake Helena and the ASARCO East Helena Smelter area and the headwaters beyond. FWP has identified removal as a high priority, but in 2017, FWP received funding to build a fish passage at the Tryan irrigation diversion structure. FWP would be interested in pursuing removal of Tryan Dam, but it will require an engineering feasibility study. A first step in this process would be to hire contracted services to prepare the engineering feasibility study. The landowner has indicated he is not interested in pursuing this project. Therefore, this project is technically infeasible.

Cost estimate: $50,000 for study

Prickly Pear Creek – Planning for restoration project between Kennedy Park and Burnham diversion project

The Water Quality Protection District identified a 1,800-foot reach of Prickly Pear Creek with several resource concerns. Prickly Pear Creek breeches at the ditch and runs across walking trails and infiltrates into sewer lines at times. There are car bodies, 55-gallon drums, and concrete structures in the creek that could be removed. The banks could be stabilized with vegetation. This project was not specifically identified in the Lake Helena watershed restoration plan but is likely compatible with the overall goals of the watershed restoration plan. The Water Quality Protection District requested planning funds to study the Wildcat ditch and creek in this reach.

This project is not well developed so it is impossible to determine the relationship of expected costs to expected benefits of this project. Other projects are already designed and could be more easily implemented.

Cost estimate: $15,000 for planning and $25,000 for restoration

Many smaller restoration opportunities

These projects would likely be landowner-driven and would include actions such as installing fencing in the riparian area. These smaller projects would be compatible with the Lake Helena Watershed Restoration Plan (see Table 5-1). The Water Quality Protection District would identify landowners and make contact with landowners they have not yet reached out to. Projects would include riparian fencing with livestock water gaps where appropriate. Priority area would be on the stretch of Prickly Pear Creek below Canyon Ferry Road.

Although these smaller restoration opportunities have not yet been identified, smaller projects like these are easier to develop and implement than larger-scale projects. In sum, they can

make a significant contribution to restoration, but smaller projects have not been identified at this time.

Cost estimate: $15,000

Grazing management plan on NRDP 40-acre parcel

FWP identified the need for riparian fencing and a water gap for about 2 miles of Prickly Pear stream front on the 40 acre State-allocated land. Riparian fence could promote riparian vegetation growth and improve the riparian corridor. Fencing provides better grazing management flexibility while promoting streamside vegetation development. Grazing management plans that include riparian fencing and water gaps are compatible with the Lake Helena Watershed Restoration Plan (see Sections 4.1.2 and 5.2). METG or a future property owner could build wildlife-friendly riparian fence and limit the number of animals on this parcel. About two miles of fence are needed. This property may be transferred to Prickly Pear Land Trust under the proposed Greenway trail project, but the details of the transfer have yet to be negotiated. The grazing management would be addressed at that time.

Cost estimate: Unknown

Minor restoration on NRDP 40-acre parcel

The lead-contaminated soil and a riparian berm on south end of property could be removed, and some planting could be done. Restoration work could be implemented with a grazing management plan to protect the work. The U.S. EPA and U.S. Fish and Wildlife Service considering doing a restoration project for upland birds on this parcel.

Cost estimate: Unknown

**Recreation Projects**

Montana Fish Wildlife and Parks Fishing Access Site on 192-acre parcel

The concept is that FWP could take ownership of the land allocated to the State in the Consent Decree. In discussions with the FWP fishing access program, they would not want to administer a parcel of this size. In addition, the site does not fit in well with State Park's priorities. FWP has also said that this potential project would need substantial more development. FWP has also said that they are not interested in taking on ownership of this property and developing a formal fishing access site at that location. It is impossible to determine the relationship of expected costs to expected benefits or the cost effectiveness of this project. FWP has a long-term fishing access site priority plan.

Cost estimate: FAS development costs, endowment

Park and Education center on 192-acre parcel plus restored PPC area east of slag pile

The concept of an outdoor classroom or education center and a curriculum for high school students to learn about the ASARCO East Helena Smelter was proposed as part of the scoping process. No specific plans have been developed. The concept of an outdoor classroom and a curriculum would not be precluded if the State-allocated land is transferred to an entity allowing public access and interested in working with the School District to build such a facility. The concept does not have a project sponsor and is not developed enough to consider further but would not be precluded in the future with other funding sources.

Cost estimate: Unknown. There would be planning costs as well as construction costs, plus a need for funds to operate an education center or outdoor classroom.

FAS on property immediately east of the slag by former plant manager house location

The area in this project concept is included in the land that may be transferred to Prickly Pear Land Trust under the Greenway trail proposal. Dispersed access to the creek would be available at this location, without developing a formal fishing access location. FWP has said that this potential project would need substantial more development. FWP has also said that they are not interested in taking on ownership of this property and developing a formal fishing access site at that location. FWP views this site as a good location for dispersed, informal access to Prickly Pear Creek. It is impossible to determine the relationship of expected costs to expected benefits or the cost effectiveness of this project.

Cost estimate: Fishing access site development costs would need to be prepared.

Access improvement in canyon and other easement opportunities for access (may be smaller parcels)

In the environmental assessment FWP prepared for the new Prickly Pear Creek Fishing Access Site near York Road in the Helena valley, FWP said that public recreational opportunities to streams in the Helena Valley are limited. Access opportunities could be pursued with private landowners in the area. No specific properties have been identified. Because these properties are not identified, it is impossible to determine the relationship of expected costs to expected benefits or the cost effectiveness of this project.

Cost estimate: Unknown

**Groundwater Replacement Projects that are proposed to be paid for by METG, pending U.S. EPA Approval**

New Production Well to Replace Wylie Well #3

A new production well is needed to replace Wylie Well #3 to maintain consistent service over the long-term in East Helena. The new production well should be located away from any potential contamination from the plumes as well as other possible pollutants and out of the East Valley Groundwater Controlled Area. The East Valley Groundwater Controlled Area has been established in the area to prevent the drilling of new wells that may expose the public to specific contaminants in the groundwater as well as prevent groundwater withdrawal that may alter or induce contaminant migration. If a new production well was to be sited within this controlled groundwater area, the City would need to get approval from the Lewis and Clark County Board of Health.

The proposed location, as well as plans and specifications for the new production well, would need to be approved by DEQ and must be constructed by a licensed water well contractor in accordance with Title 37, Chapter 43, MCA and ARM Title 36, Chapter 21 along with requirements in Circular DEQ 1, Standards for Waterworks. Continued protection for a radius of at least 100 feet around the well from potential sources of contamination must be provided either through deed notice, zoning, easements, leasin, or other means accepted by DEQ.

Cost for the development of a new well would be $1,812,238.

Caisson Protection and Level Monitoring Improvements

The City relies on the McClellan source consisting of two radial wells, caissons, and submersible pumps to supply water to the McClellan tanks and eventually to the City's distribution system. A water shortage in Radial Well #1 as well as high water levels constituting a health risk at both Radial Well #1 and Radial Well #2 have been noted by City personnel.

This improvement includes measures to improve sanitary conditions and continuously monitor caisson water levels. Improvements would include removing the existing subfloor and installing a new floor slightly above finished grade. A small building would be constructed over the caisson to better protect the water collected therein. The pumps currently utilized at the radial wells are the original pumps and would be replaced concurrently with this work. This project is proposed to be completed by the METG, contingent on EPA approval.

Cost estimate: $649,178

Radial Wells Access

Access to the radial wells is poor. The access road consists of a 2-track dirt road that is impassable during much of the winter. City personnel must drive or walk through McClellan Creek to access Radial Well #2 as shown in the photo below. This is unsafe for the City's personnel and causes damage to the creek. These wells are located in a remote area and are not inspected on a regular basis. The construction of a new pedestrian bridge across McClellan Creek between Radial Wells #1 and #2 would allow City personnel to access Radial Well #2 without having to drive through, or walk through, the Creek during routine maintenance.

Road improvements are needed to safely access the two radial wells. The City of East Helena will be improving the road using maintenance funds and will be working with the adjacent landowner to gain improved access across private property for an emergency or large-scale maintenance event. This project is proposed to be completed by the METG, contingent on EPA approval.

Cost Estimate: $107,607