

Butte Area One
Small Restoration Project Submittal
October 16, 2015

This submission is a grant request for the former Bonanza Mine site in Butte, Montana. Below are the identified sections as required by the grant application. Also included are the following appendices:

APPENDIX A: Maps
APPENDIX B: Projects
APPENDIX C: Letters of Support
APPENDIX D: Cost Estimate Spreadsheet

A. Contact Information

Montana State University Bozeman
School of Architecture
160 Cheever Hall
PO Box 173760
Bozeman, MT 59717

Bradford Watson

p: 406-994-3781
e: bradford.watson@montana.edu

Kimball Kaiser

p: 406-600-5540
e: kimball.kaiser@gmail.com

Robin Wilder

p: 207-380-9510
e: rdwilder@gmail.com

Carson Booth

p: 406-212-9742
e: carson.booth@msu.montana.edu

B. Project Summary

MAP

The project site is at the former Bonanza Mine Dump, west of S Excelsior Ave, north of Route 115 (spur of Interstates 90 and 15), and adjacent to West Elementary School.

Please see APPENDIX A for site maps locating the site and denoting the site's boundaries and stream location.

BACKGROUND

The Bonanza site is an 8 acre parcel, owned by Butte-Silver Bow, and a mine dump associated with the underground workings of the Bonanza Mine. Mine waste in Butte includes heavy metals such as lead and arsenic which are harmful to human health above concentrations of 500 UNITS in recreation activities and 1000 UNITS if classified as "open space." Much of Butte's affected land has been remediated as open space, which does not allow for community recreation activities.

In the initial testing to determine sites in need of reclamation, one soil sample from the Bonanza site was identified as being above the safe limit for heavy metals in open space; when averaged with one other sample, the toxicity levels were found to be below that same limit. Based on this evidence, it was decided that the Bonanza site would *not* be reclaimed as part of the Butte Priority Soils Operations Unit (BPSOU) Record of Decision (ROD).

Historic maps show the Bonanza mine reaching a depth of approximately 1000 feet and connecting horizontally to the Travona mine to the East. Historic photographs show evidence of mine waste radiating from the capped Bonanza Mine shaft. Currently, the site is being used as an unsanctioned recreation space for bicycles.

WHAT

This grant request proposes two sequential scopes of work. The first will test soil and surface water located at the former Bonanza mine site in Butte – for presence of heavy metals associated with mining activity and fecal matter associated with illicit sewer connections – to fill a gap in historic data. The second is the redesign of the site to create an officially sanctioned USA Bicycle Motocross (BMX) racing course, a community park, and the continuation of an outdoor trail system, while maintaining the current city snow dumping facility.

WHY

The site is currently being used as a recreational area for community youth, and is within the watershed of the restored Silver Bow Creek. Rhubarb Gulch, the stream running through the site [see APPENDIX A], has been channelized using slag brick – a byproduct of mining operations and an important piece of Butte's historic fabric. Drainage from the Bonanza Mine site contributes directly to the Butte Area One watershed. This project submits that historic data is insufficient to be conclusive regarding soil toxicity, and additional testing is

needed, due to potential risk to residents and to the reclamation efforts of Butte Area One. These testing procedures will be the groundwork that allows for the further development of the site through active, recreational programming: a BMX course, community park, and trail system. It is clear that such programming would be advantageous, as the site is currently being used as an impromptu bike course by neighborhood residents. The Bonanza has potential to become a center of outdoor activity for the west side of Butte, and an economic generator that builds on tourism and recreation in the area.

WHO

Assistant Professor Bradford Watson began a research agenda examining the extraction and reclamation efforts on the Butte Hill in the spring of 2013. Since then he has presented and published numerous papers and journal articles to an international audience with his colleague Assistant Professor Sean Burkholder from the University at Buffalo SUNY. He has also instructed several courses with Montana State University students and worked collaboratively with Full-time Lecturer in Discipline, Masters of Sustainability Management, Lynnette Widder at Columbia University and her students. Within all of these courses students engaged the community in programming discussions and evaluated the EPA criteria and Butte-Silver Bow operations budgets to develop proposals which have been evidenced to Butte-Silver Bow and the community.

During the summer of 2013 eight graduate architecture students engaged sites along the BA&P Hill Trail to propose alternative strategies for reclamation that reduced operations costs and created inhabitable places for the community. This student work was exhibited to the community and has influenced the reclamation efforts. After the student work was exhibited at City Hall in the fall of 2013, the work planned for the summer of 2014 was revised to incorporate strategies developed by the students. During the summer of 2014 ten graduate architecture students developed proposals for the Bonanza Mine site, the same 8 acre parcel that is the subject of this grant. This student work has become the basis for this grant request and will guide the ongoing development and engagement with Butte-Silver Bow and the community.

To date MSU architecture students under the guidance of Professor Watson have contributed over 4,000 hours of time working on projects in Butte over two graduate design studios [see APPENDIX B] and two independent studies. Specifically students Carson Booth and Robin Wilder have contributed over 150 hours each working in collaboration with students from Columbia University's Masters of Sustainability program and Julia Crain, Special Projects Planner for Butte-Silver Bow Planning Department. They along with student Kimball Kaiser will contribute more than 400 hours as a team this fall on the development of this grant and the continued planning and programming with the community for the former Bonanza Mine site.

These students will continue to work with the community to gain feedback on the design to ensure that all elements of the park will best serve the community. The students will also

work with Butte-Silver Bow staff to ensure the coordination of activities and that needs of the short and long term operations are addressed. Additionally, Montana State University students will continue their collaboration with Columbia University in the spring semester of 2016. During this semester students will develop a case study analysis of this project and create a template for Butte-Silver Bow to utilize in future reclamation projects. This report will be delivered to Butte-Silver Bow in May of 2016.

Professor Watson will oversee all of these efforts, utilizing his professional experience as a Project Director for numerous non-profit and government projects, totaling over \$100 million in construction. He will be the point of contact for the project and will ensure that MSU's engagement with Butte-Silver Bow will integrate learning and discovery for all those involved in the project.

PARTNERSHIPS AND ADDITIONAL FUNDING

Considering future development, a number of potential, third party funding sources are available for the development of BMX and related site infrastructure. The American Bicycle Association (ABA) is the world's largest sanctioning body for bicycle motocross (BMX). The ABA currently funds youth outreach and after school BMX-STEM hybrid classes, and also provides grants for communities to construct regulation BMX courses. In addition, a number NGOs, namely the International Mountain Biking Association and People for Bikes, provide grant funding for communities to develop new cycling infrastructure. As part of the deliverables beyond this grant request, this group is committed to identifying funding opportunities from non-profits, government agencies, and corporate partners.

Butte-Silver Bow, as evidenced by Chief Executive Matt Vincent's letter, has agreed to partner in the development of this project through in kind labor and material donations. The site presents an opportunity to share space with snow removal operations, allowing the Bonanza to carry an important function through winter months and to work in conjunction with necessary activity of B-SB Public Works. Part of the Bonanza has already been regraded as a level snow-dump lot – an area which presents itself as a parking lot for BMX events. This group plans to seek further support from B-SB Public Works and Parks and Recreation departments, in acquiring and moving soil for the proposed site organization and grading. Butte-Silver Bow's asphalt plant could become a potential partner and provide asphalt and labor for turns in the BMX course as well as parking.

The redevelopment trust from the Atlantic Richfield Company (ARCO) has done reclamation work and civic projects in the past. It is the intention of this group to seek assistance from this trust in pushing towards creating a unique community amenity.

Restoration ecologist Robert Pal of Montana Tech, the PI of the Native Plant Program will help to design a native seed mix and a suitable species combination of potted native forbs and shrubs for the Bonanza site, and his team will help to perform the planting. The Bonanza will be identified as a targeted site for this program by the BNRC and B-SB. As part

of this designation, the site will receive tree and shrub plantings as part of the larger restoration work.

DESIGN PRINCIPLES

The schematic design work presented in this report was guided by a set of principles to encourage efficient use of space and material, to lower costs, and to apply relevant programs and uses to the site.

- Wetland development near the stream is a multipurpose feature: to slow water flow through Rhubarb Gulch, increasing moisture retention; to keep pedestrians off steep grades near the stream; to provide habitat space for local wildlife.
- Dry rangeland seed mix will be used on steeper grades to prevent erosion caused by stormwater runoff.
- Tree planting supplies will be strategically placed to screen views and to provide shade to BMX spectators and park users
- Pavement or highly compacted soil will be restricted to high-traffic pathways to ensure that ADA accessibility standards are met.
- Turfgrass, selected to ensure longevity of areas impacted by high pedestrian traffic, will be constrained to those surfaces where it is necessary, the BMX spectator zones and the park area in the northeast corner of the site.
- Program organization will be based on existing site conditions, minimizing the need for expensive and time-consuming regrading, and allowing the new programs to work in conjunction with B-SB Public Works activities.
- Initial site selection was done carefully to address: interests and safety of user groups, connection to the Butte trail system, taking advantage of underutilized space, and benefit to the Butte Area One ecosystem.

C. Project Goals and Objectives

1. To determine soil conditions at the former Bonanza mine site
2. To determine surface water quality at the former Bonanza mine site
3. To document the extent of mine waste either at the surface or insufficiently capped to meet the Record of Decision standard
4. To analyze potential sources of pollution feeding directly into Butte Area One
5. To provide the findings of this report to Butte-Silver Bow Government and the Montana Department of Justice
6. To provide a more formalized BMX amenity for the community and to add a location for Montana's BMX racing circuit
7. To provide a community park and trailhead for the west side neighborhoods
8. To work in conjunction with Butte-Silver Bow Maintenance on snow storage facilities, which will benefit the summer use of this site
9. To improve the community through recreational opportunities for children and adults, made possible by reclamation work
10. To reduce upstream contaminants flowing into the BAO reclamation zone

D. Project Benefits

- Provide information to the Butte-Silver Bow Community about either the safety or potential hazards of occupying the site, associated with waste from mining activity at the Bonanza Mine and with water quality of Rhubarb Gulch.
- The site's proximity to Silver Bow Creek, coupled with its location upstream of existing BAO remediation, means that any unremediated soil or discharge on the site is still polluting BAO. Thus, a major benefit will be an understanding that the site *does* or *does not* require remediation to address soil or water contamination.
- Creation of a recreational opportunity for neighbors of the Bonanza site and the entire Butte-Silver Bow community.
- Strengthening the Montana BMX racing community by providing a third track and completing a "triangle" of sanctioned competition locations between Great Falls and Bozeman.
- Providing an economic generator to the Butte community through race-day activities.

E. Project Implementation

SOIL TESTING

The following procedures are based on *PROTOCOL OF FIELD SURVEY OF UNRECLAIMED AREAS* from Atlantic Richfield Company's *Source Area Sampling and Analysis Plan, Butte Priority Soils Operable Unit*

Pre-Field Work

1. Using historical and aerial maps, develop a set of GIS maps at a scale of 1 inch equals 100 feet that contain the following information:
 - External BPSOU Boundary
 - Property boundaries
 - 10' contour lines
 - Historic shaft coverage
 - Railroad boundaries
 - Surface soil sample locations and I.D. number (see map in APPENDIX A)

2. Plot arsenic and lead concentrations from all previous sampling events on the new GIS maps. These data will be obtained from the Clark Fork Data Management System.

Survey Approach and Criteria

1. Before commencing the Field Study of Unreclaimed Areas (FSUA), the survey team will review the aerial photos and GIS maps to identify areas potentially containing sources and/or receptors. This will help the survey team identify soils potentially containing constituents of concern (COC) in the field, however, all areas within the Butte Priority Soils Operable Unit (BPSOU) need to be field checked and noted in the field log books.
2. A sample will be collected when there is evidence of mine wastes (e.g., jarosite, iron oxide, copper and zinc salts). Samples will not be collected from areas covered under the O&M and the Lead Abatement Programs. Sample areas include vacant lots, areas around mine shafts, alleyways, dirt roads, and open areas that could potentially receive sediment from adjacent source areas. Neither metalliferous nor non-metalliferous bedrock outcrops will be sampled. Depositional areas in which plant growth is nonexistent or severely limited will be examined to determine the source of sediment. If the source appears to be mine waste, samples may be collected in both the unvegetated area and the source areas. **The 11 testing locations chosen by our group are denoted as white, numbered dots on the attached site map in APPENDIX A.** The sampling procedure may be summarized as follows:
 - a. At the location of interest, excavate three random, 12-inch square pits to a depth of about 8 inches. Peel back any organic layers.

- b. Place a stainless steel bowl in each of the three pits. Collect a sample by scraping the pit sidewall at the 0- to 2-inch interval with a stainless steel or plastic spoon and place the soil into the steel bowl.
 - c. Place an equal-sized volume of sample from each of the three samples into a fourth bowl. Remove all coarse fragments greater than 0.5 inches from the bowl. Mix the remaining sample with a stainless steel spoon.
 - d. Transfer the sample directly into an appropriate sample container and place in a cooler for shipment to the analytical laboratory. Complete all chain-of-custody documentation. Retain approximately 30 grams of the sample in a sealable plastic bag for field pH measurements.
 - e. Record all appropriate information in the field logbook and decontaminate bowls and spoons.
3. Samples will be analyzed using the X-ray fluorescence (XRF) procedures specified in the current Clark Fork River Superfund Site Investigations (CFRSSI) Laboratory Analytical Protocol (LAP).
4. Soil sample locations shall be surveyed and all locations and analytical results shall be incorporated in the Clark Fork Data Management System.
5. X-ray fluorescence procedures will take place at Ashe Analytics, located at the following address:
Ashe Analytics
Address: 1309 Kaw Ave, Butte, MT 5970
Phone:(406) 723-2080

WATER TESTING

The Rhubarb Gulch stream, will be tested for biologicals potentially associated with illicit sewer connections. Our report will also include reference to ongoing water testing conducted by ARCO.

DELIVERABLES

A final report will be submitted following the completion of testing

F. Project Schedule

All durations below are based on the award of grant, and a final schedule will be issued with specific dates upon receipt of grant.

Task 1: Testing

5 days from laboratory notification to soils samples taken, weather dependant

10 days from testing to results, weather dependant

10 days from results to final report

Task 2: Construction [*Schedule below contingent upon weather*]

A final construction and billing schedule will be developed and submitted during the contracting phase, should this project be funded. A preliminary schedule is to commence site grading in the spring of 2016, with track installation and planting to occur in the summer of 2016. The proposed scope of work funded in this phase will be complete by fall 2016. Future phases of work may occur, dependent on funding in subsequent years. The track and park will be opened in spring of 2017 for public use.

G. Monitoring Activities

There will be no ongoing monitoring required for task one.

Task two:

- Montana Tech will have monitoring tasks associated with Native Plants and Trees program
- B-SB monitoring and cleanup associated with snow storage
- Rider-driven maintenance of BMX track

H. Project Budget

The budget below is for task one:

- \$440 – 11 soil sample tests for Lead and Arsenic at \$40 per sample.
- \$150 – water sample tests

Task one is \$590.

Estimated cost for task two \$324,000. See attached cost estimate document, Appendix D.

The attached probable cost of construction assumes no in kind donations of labor or material. This project will prioritize funding made available from this grant and the in kind donation from identified partners to make up the difference between the maximum available funds from the grant and the total project cost.

Total requested funds: \$100,000

Crossroads BMX

At Bonanza Park

The incorporation of a professional BMX track in the active community of Butte promotes the development of supportive programmatic needs. The benefits of these programs serve both the community and visitors alike. By connecting multiple facets of outdoor recreation, we have created an economic generator that promotes community interaction through the integration of supportive programs.

Planting Scheme

Hybrid Poplar:

The use of green plants and associated microorganisms to stabilize or reduce contamination in soils. Poplar trees are recommended for this process due to their ability to absorb heavy metal contaminants within the soil and ground water. Also, their ability to grow at a rapid pace will reduce the time needed to achieve the desired aesthetic of the bonanza park.



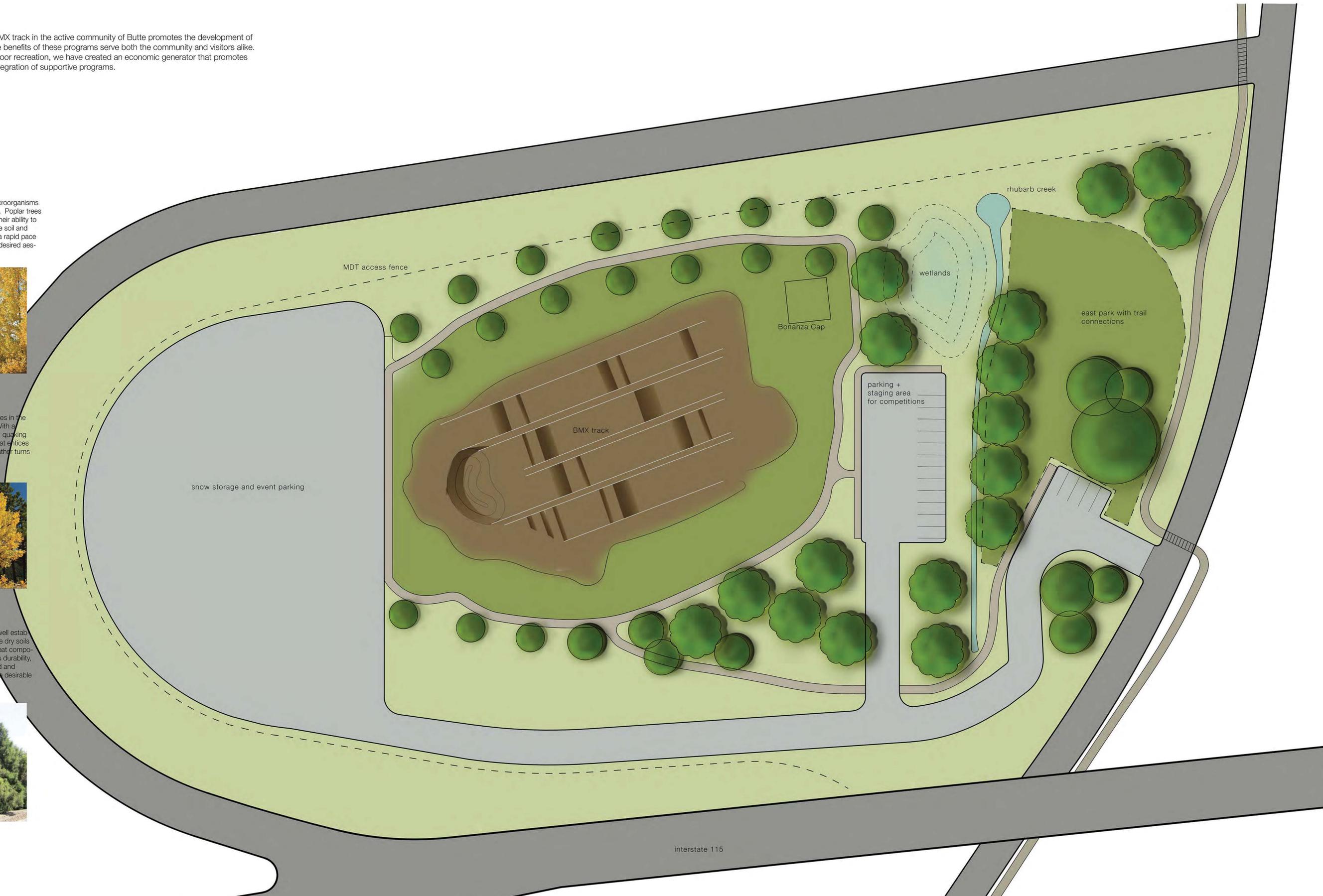
Quaking Aspen:

Quaking aspens are an iconic tree that thrives in the upper elevations of the rocky mountains. With a beautiful golden hue in the autumn months, quaking aspens will provide a desirable character that entices people to visit the bonanza park as the weather turns colder.



Rocky Mountain Juniper:

The rocky mountain juniper is a tree that is well established in our ecosystem. Its ability to survive dry soils and resist insect and disease makes it a great component for the bonanza park. In addition to its durability, the rocky mountain juniper will enhance bird and mammal habitat on the site, creating a more desirable environment for outdoor recreation.



interstate 115

APPENDIX A: MAPS - Butte Area One Comparison



APPENDIX A: MAPS - Aerial Photos



USGB Aerial Map 1960

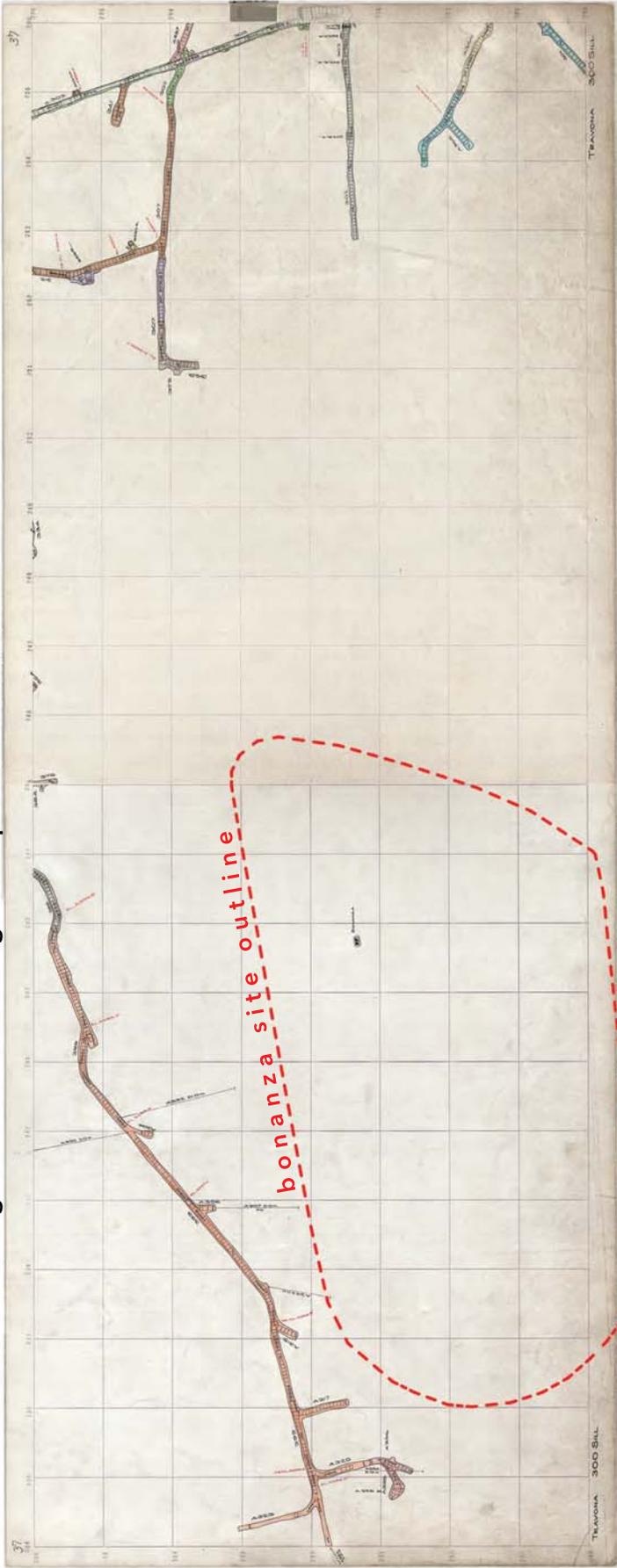


USGB Aerial Map Present Day

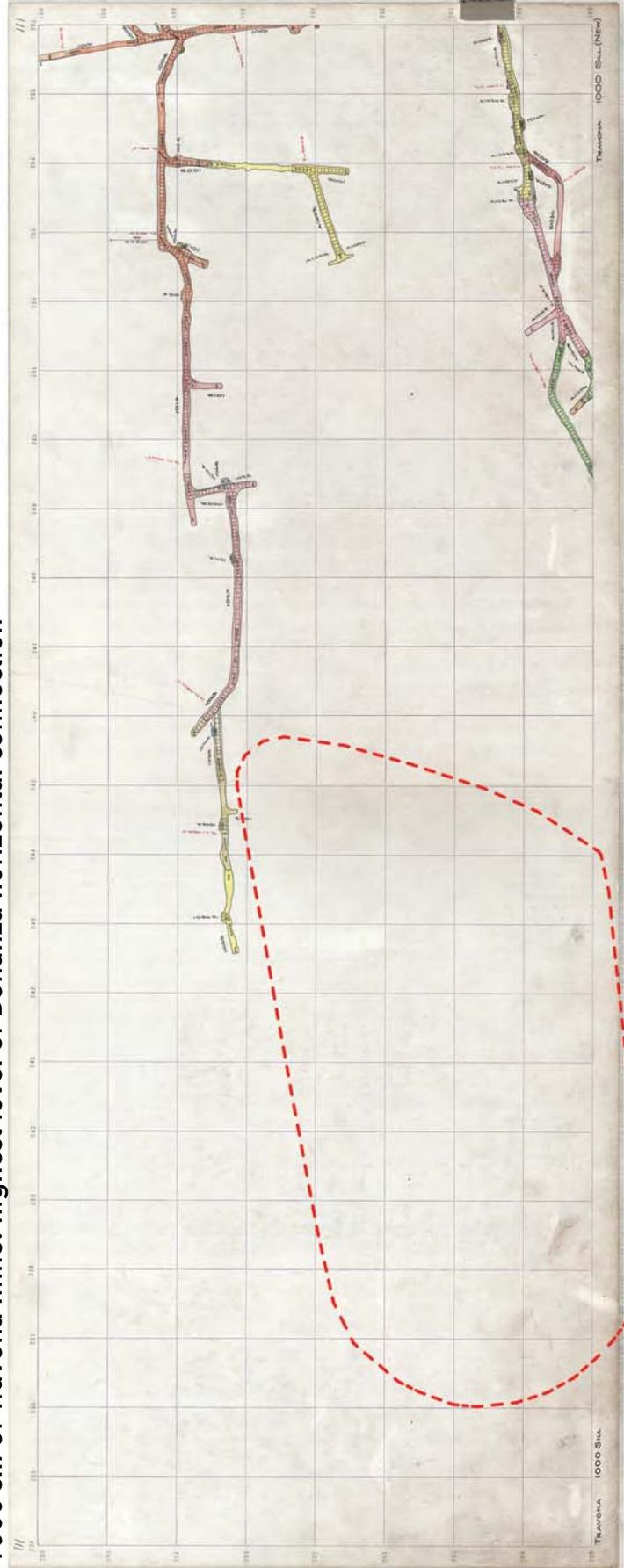
APPENDIX A: MAPS

stope book selections showing Travona and Bonanza mines

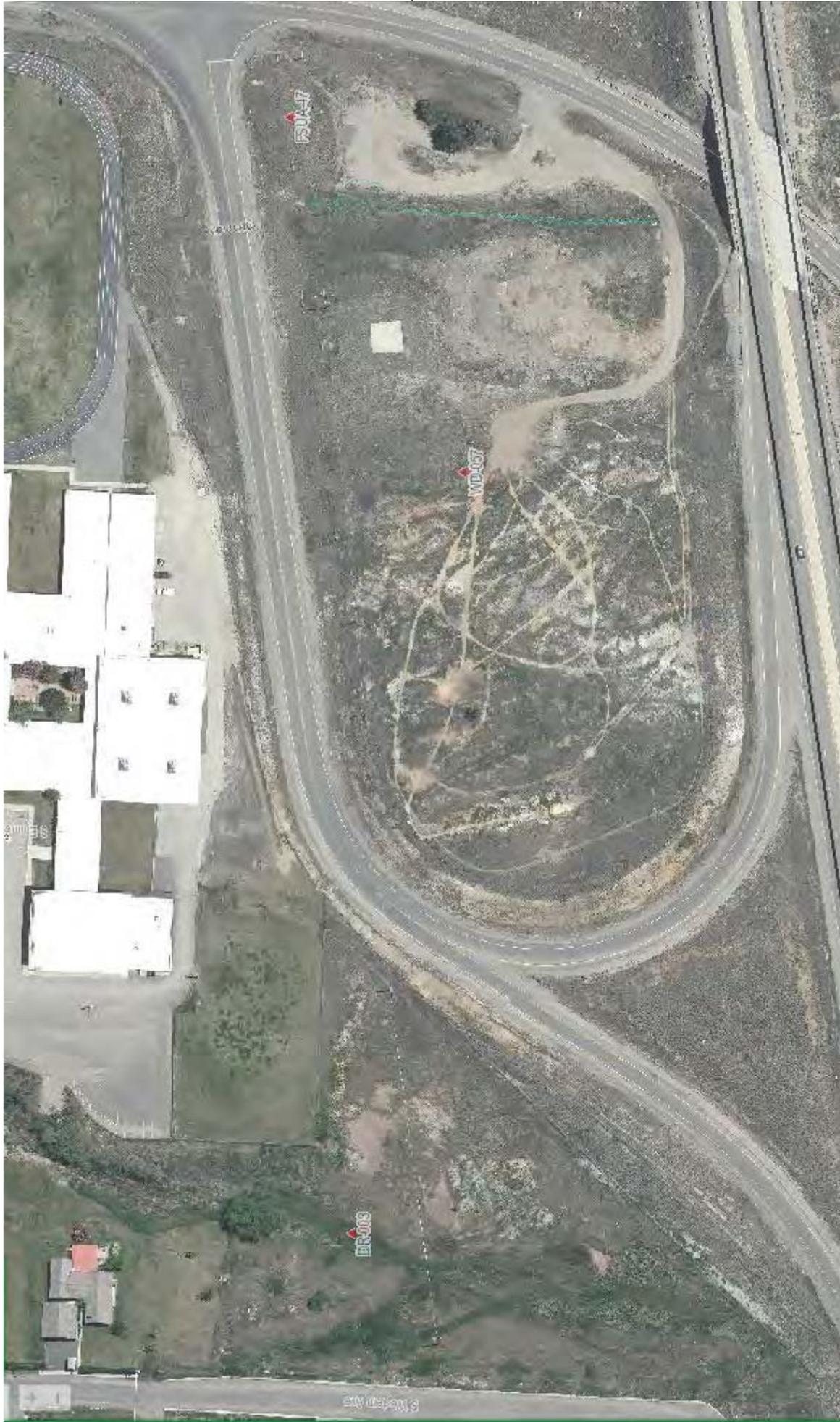
300 sill of Travona Mine: highest level of workings in stope book



1000 sill of Travona Mine: highest level of Bonanza horizontal connection



APPENDIX A: MAPS - Surface Soil Samples



Soil Sample WD-057

As	170
Cd	4
CU	349
Pb	184
Zn	377

Soil Sample FSUA-47

As	398
Cd	0
CU	2250
Pb	930
Zn	4830

APPENDIX A: MAPS - Proposed Soil Sample Locations



APPENDIX B: PROJECT EXAMPLES



BMX



Camping



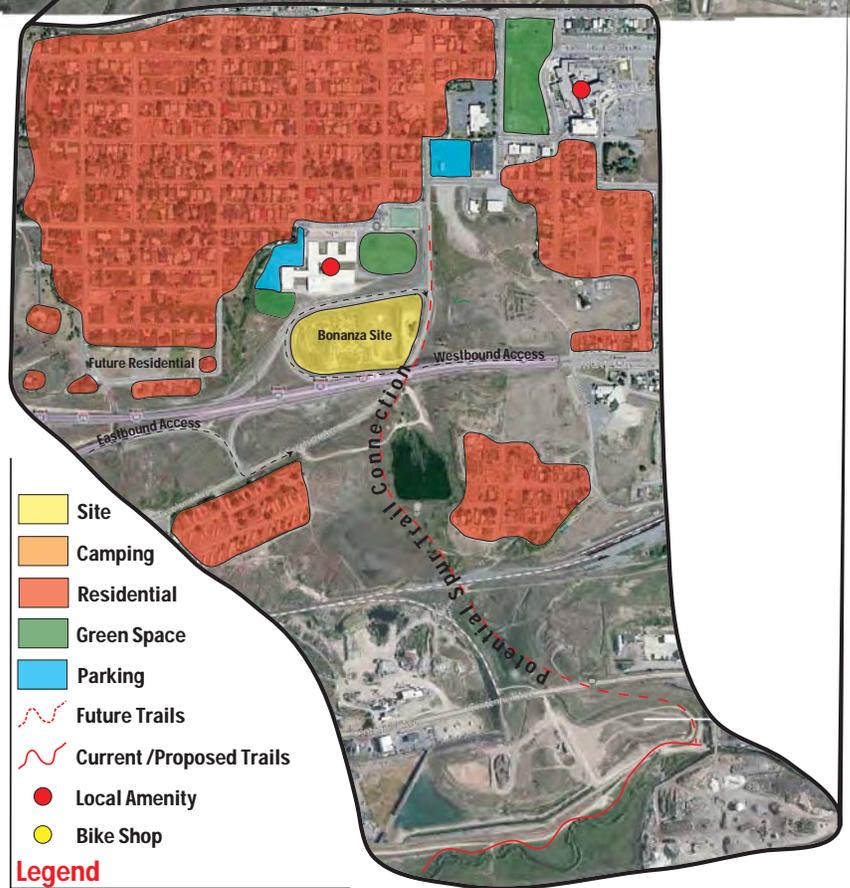
Dog Park



Walking/Biking Trails

ReBranding Westside Butte Bonanza Site

Montana has an outdoor presence in every city, Butte carries that same characteristic. This outdoor mentality allows for an opportunity to create a unique identity for the westside access to Butte. With the other exits to the city operating as pit-stops for passing tourists, westside Butte and specifically the Bonanza site can brand itself as a destination for individuals who enjoy the outdoors. With easy access to vast amounts of trails, the Bonanza site can become an outdoor amenity for all people to enjoy Butte.



- Legend**
- Site
 - Camping
 - Residential
 - Green Space
 - Parking
 - Future Trails
 - Current / Proposed Trails
 - Local Amenity
 - Bike Shop

CROSSROADS BMX AT THE BONANZA PARK

THE INCORPORATION OF A PROFESSIONAL BMX TRACK INTO THE ACTIVE COMMUNITY OF BUTTE PROMOTES THE DEVELOPMENT OF SUPPORTIVE PROGRAMMATIC NEEDS. THE BENEFITS OF THESE PROGRAMS SERVE BOTH THE COMMUNITY AND VISITORS ALIKE. BY CONNECTING MULTIPLE FACETS OF OUTDOOR RECREATION, WE HAVE CREATED AN ECONOMIC GENERATOR THAT PROMOTES COMMUNITY INTERACTION THROUGH THE INTEGRATION OF SUPPORTIVE PROGRAMS.

PLANTING SCHEME

1. HYBRID POP-LAR



PHYTOREMEDIATION
The use of green plants and associated microorganisms to stabilize or reduce the concentration of pollutants in soil is recommended for this process due to their ability to absorb heavy metal contaminants within the soil and ground water. Also their ability to grow at a rapid pace will reduce the time needed to achieve the desired aesthetic of the Bonanza Park.

2. QUAKING ASPEN

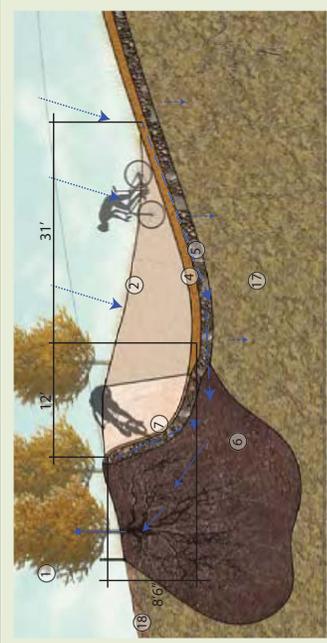


Quaking Aspen are an iconic tree that thrives in the upper elevations of the Rocky Mountains. The quaking aspen in the site is a desirable character that entices people to visit the Bonanza Park as the weather turns colder.

3. ROCKY MOUNTAIN JUNIPER



The Rocky Mountain Juniper tree has the ability to survive in our ecosystem. Its ability to survive dry soils and resist insect and disease issues makes it the great component to the Bonanza Park. In addition to its ability to survive in our ecosystem, it will enhance bird and mammal life in the site, creating a more desirable environment for outdoor recreation.





Phase 1 : 5 Years

The site has been graded and the 18" EPA top-soil mixture has capped the existing mine waste rock. A few of the compost zones are beginning to fill up, and small vegetation has begun growing.

At this point, engaging the community to establish healthy composting and recycling habits will be crucial for the development of the site. Education in the schools can greatly increase family recycling activity, as has been researched by Harris Poll.



Phase 2 : 10 Years

At the 10 year mark, the site has begun to establish itself, with some of the zones full composted and the vegetation is maturing.

Education through West Ridge Elementary will involve students with a remediation project, and how it can create a unique place in their neighborhood.

Buffer zones in between the highway and the site will begin maturing.



Phase 3 : 25 Years

Most of the site has been composted, and the earlier planted vegetation is well on its way to maturity.

Recycling has room to expand on site if the southwest neighborhoods expand.



Phase 4 : 50 Years

The 50-year program is complete, and the site should be full of healthy, fertile dirt. This growing medium supports a complex ecosystem that is unique to the surrounding area.

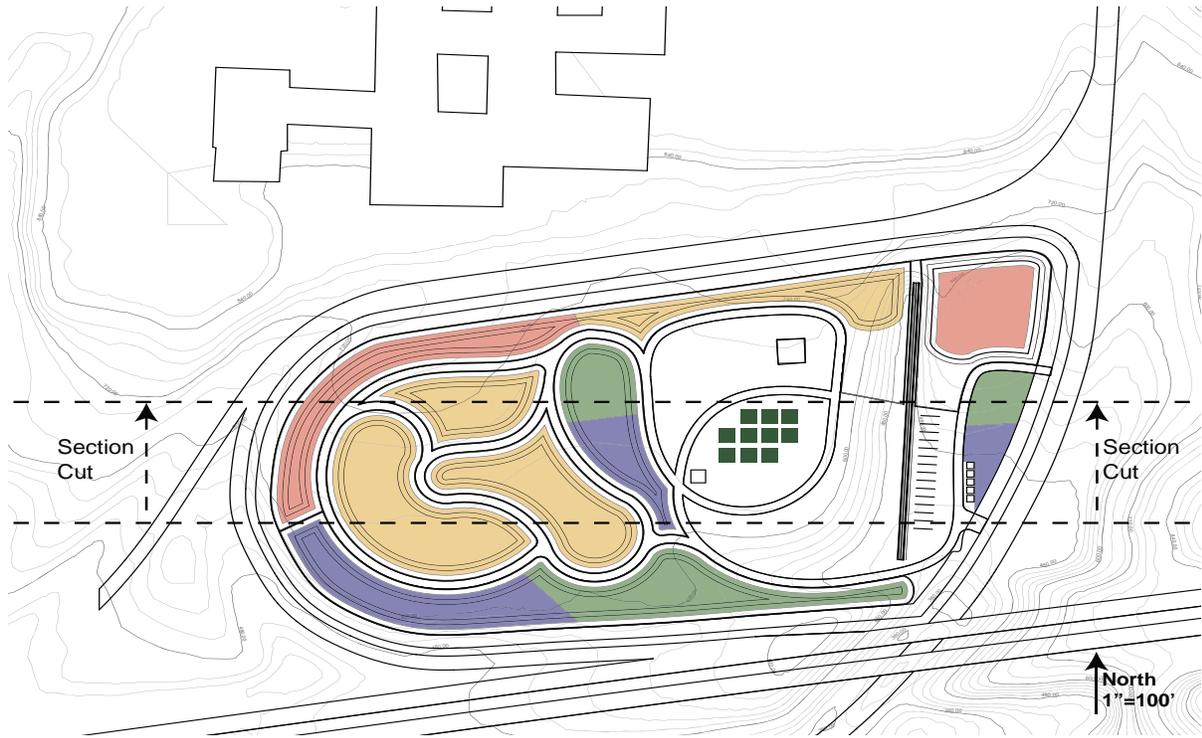
The late Columbia Gardens begin to be seen as an obvious precedent, as a fantastical forest in town matures.



Phase 5 : 100 Years

The site is fully matured, and plant cycles are beginning to regulate themselves. Roads are slowly being over-grown by the vegetation, narrowing into a more intimate walking or biking path.

The site can now continue its life as a community powered dirt machine, generating fertile dirt for various projects in the community, whether it is a personal garden, or another EPA remediation site.



- Phase 1
0-5 Year Development
- Phase 2
5-10 Year Development
- Phase 3
10-25 Year Development
- Phase 4
25-50 Year Development

Compost, EPA soil

This topsoil mixture will slowly become more and more fertile, as the community contributes organic sources. The EPA topsoil mixture is a good place to start, but ecosystems need more growing medium.

Cut

Throughout the site manipulation, a large amount of soil was removed from the existing conditions, only to be relocated elsewhere on site.

Fill

The material that was removed from the higher locations on site have been moved to the lower locations, closer to Excelsior street.

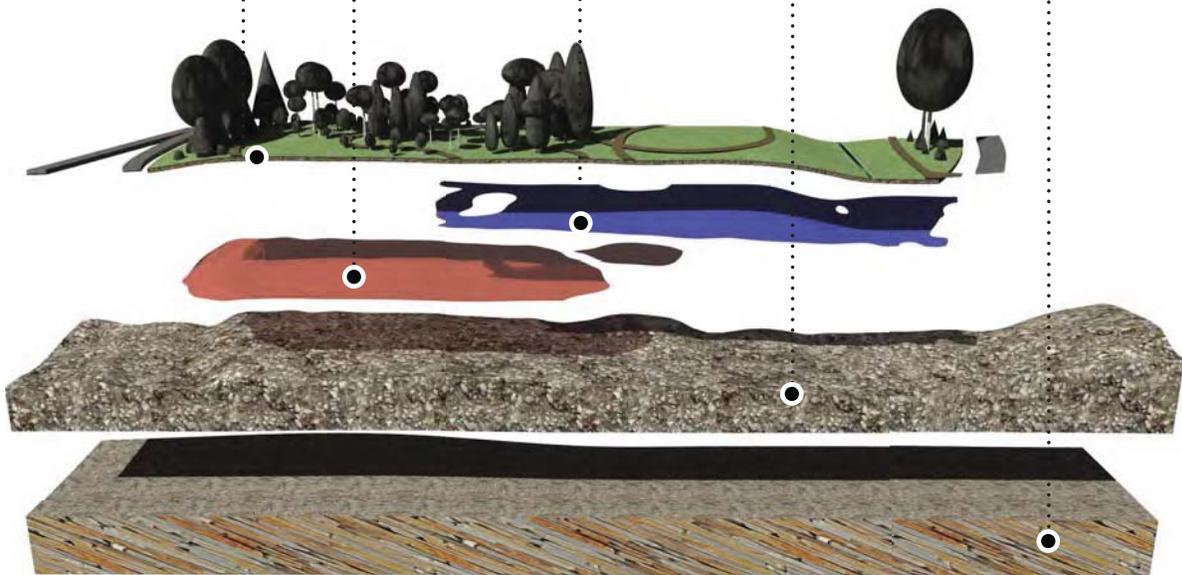
Mine Waste Rock

The original surface located on the Bonanza mine site is about 50' below the current surface, covered by mine waste rock.

Pre-mining Surface

This surface represents the pre-existing topography. Although Butte soil is not an ideal growing medium, the existing soil on site would probably have been more fertile than the crushed mine rock currently on site.

Sectional Diagram



REMEDIATION

UTILIZING SELECT PLANTING TO REVITALIZE A BARREN LANDSCAPE

PLANTING PLAN

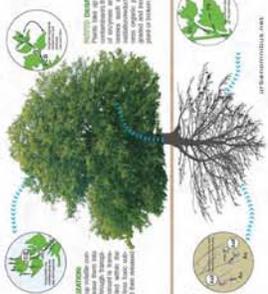


- 1. HIGHLAND BENT GRASS
- 2. AUTUMN BLAZE
- 3. BEAR GRASS
- 4. SILVER MAPLE
- 5. DOUBLE WHITE DAISY
- 6. ALPINE DENNY-CRESS
- 7. WILD SUNFLOWER
- 8. EYE GRASS
- 9. CATTAIL
- 10. WILLOW
- 11. CRAB APPLE
- 12. SEA PINK THRIFT
- 13. ROSEY SPIREA
- 14. HERB BOTTLER
- 15. BLUE SHEEP FESCUE
- 16. MOUNTAIN GREEN

TRAIL REST AREA & VIEWING POINT

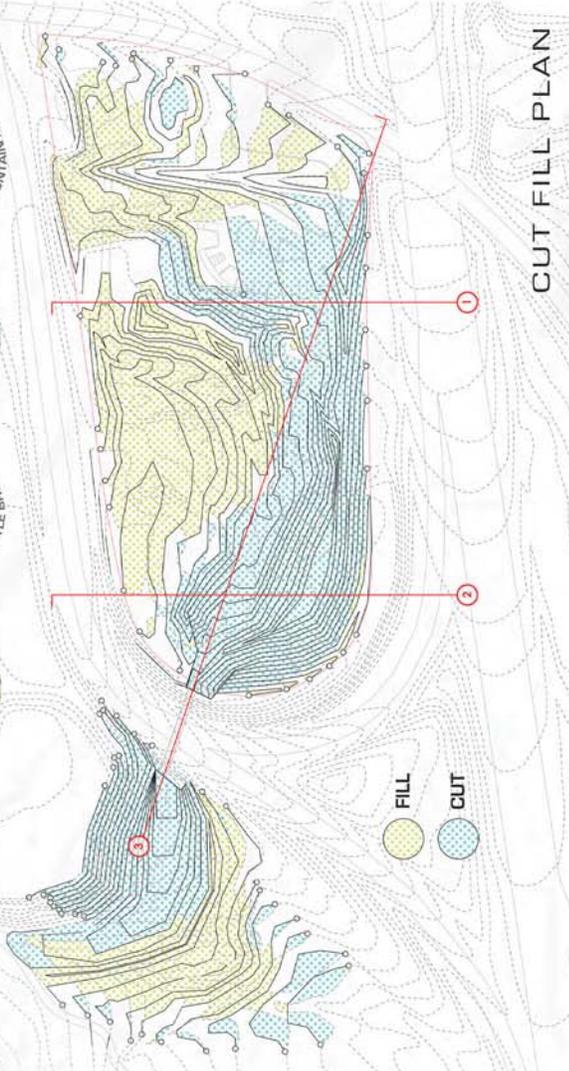


TRAIL REST AREA'S TO BE LOCATED EVERY 500 FEET ALONG THE TRAIL TO BE DIRECTED AT EXISTING MINE SITE'S



PHYTOREMEDIATION is the direct use of living green plants for in situ or ex situ remediation. It is a natural process of contaminants in soils, sediments, surface water and groundwater.

Rhizofiltration is a type of phytoremediation, which refers to the approach of using hydroponically cultivated plant roots to remediate contaminated water. The roots of plants absorb and filter out pollutants from precipitation of pollutants. It also filters through water and dirt.



CUT FILL PLAN

APPENDIX C: LETTERS OF SUPPORT



BUTTE-SILVER BOW
OFFICE OF THE CHIEF EXECUTIVE

Courthouse, 155 W. Granite Street, Suite 106
Butte, Montana 59701-9256

October 15, 2015

Natural Resource Damage Program
Butte Natural Resource Damage Restoration Council
Small Projects Program
65 E Broadway
Butte, MT 59701

RE: Project Proposal of Bradford Watson

Dear Council Members,

Please accept this letter as support for Bradford Watson's Butte Natural Resource Damage Restoration Council Small Project application. Mr. Watson's concept to utilize small project funds for the development of a BMX Park and recreation area at the location of the Bonanza Dump not only promotes long term protectiveness of Butte and area streams for mining contamination, it promotes the beneficial reuse of this highly visible site in Butte's lower west side.

Butte-Silver Bow Planning Department and its Reclamation Division have participated in the development of this idea from its conceptualization to its development into a funding proposal. We are excited about the opportunity to restore this area to replace lost recreational opportunities from centuries of Mining and Smelting in Butte. We look forward to the development of this amenity for the benefit of Butte residents and visitors. Butte-Silver Bow is committed to serving as a project's partner in the long term, and look forward to this project's fruition and the enhancement to the quality of life we enjoy in Butte and Silver Bow County.

Thank you for your time and attention.

Sincerely,

Matt S. Vincent
Chief Executive
Butte-Silver Bow

To: Montana Natural Resource Damage Program

I strongly support the construction of a USABMX sanctioned BMX Race track in Butte, Montana. There are already programs with tracks in Bozeman and Great Falls. Adding a third track would benefit the entire Montana BMX program. The additional races on the schedule would bring the Montana program up a level. Butte is located centrally so as to be a reasonable distance from both the other tracks in the state, lots of racers from Bozeman and Great Falls would travel to Butte to race.

Our track in Bozeman was opened in June 1981 and has been in continuous operation since then. We offer a popular alternative to one of the "ball sports" in the summer. We attract riders from 3yrs old to 60 yrs old with a strong family oriented program that involves the whole family. Many of our participants are also involved in other bicycle sports (mountain and road bike riders) and we have developed a network of all the local bike organizations to co-operate on bike related projects around town including rather extensive "bike lanes" in town.

Our local club is a "non-profit" located on Westlake Park (part of the City Parks Dept). We pay a small (\$500) annual user fee to the City and they collect the garbage and maintain green grass areas with watering and mowing. Our club is responsible for the track area and the maintenance of it. We have about thirty local business that give support both with donated equipment and services as well as money.

I became the track operator in Bozeman in 2002. Call me if I can provide more specific information or help to move this worthy project forward.

Thank you,
Bill Drysdale
Gallatin Valley BMX
406-580-9284

THE EARTH INSTITUTE
COLUMBIA UNIVERSITY

Lynnette Widder
Masters of Sustainability Management Program
Columbia University
lw268@columbia.edu

re: Letter of Support,
Butte Area One
Small Restoration Project Submittal
Bradford Watson

October 13, 2015

To the Montana Natural Resource Damage Program:

I am writing in support of the application made to you by Prof. Bradford Watson of Montana State University in Bozeman, with whom I collaborated on student projects in Butte, Montana, in Fall 2014 and Spring 2015. My introduction to Prof. Watson came through the county government, where his prior work had been recognized for its relevance, quality and innovation. Since August of 2014, I have become familiar with the work Prof. Watson has done with his students to develop a new approach to open land remediation within the Butte Priority Soils Operations Unit, specifically for the Bonanza Mine Site, and strongly support the project's potential to provide a prototype of civically meaningful open space for that city's damaged landscape.

I am a professor in Columbia University's Sustainability Management program; from 1997-2012, I was an Associate Professor and for the last five of those years, Department Head in Architecture at the Rhode Island School of Design. My mandate at Columbia is to teach students from diverse professional backgrounds who aspire to public and private sector managerial roles in sustainability management about the built environment. During the last academic year (2014-15), my students and I worked with the county government of Butte-Silver Bow on two separate projects. The first was the development of integrative economic development, environmental and civic strategies for the city; the other was a targeted feasibility study and white paper to support the consideration of sustainability factors in relocating several county infrastructure facilities. Prof. Watson and his students were our collaborators in both cases.

Should Prof. Watson's application be successful, I pledge to continue our collaboration with support for this project, working with my Sustainability Management students to develop a more broadly applicable methodology which Butte-Silver Bow County could apply, based upon this project, to the remediation, reclamation and creation of civic space under consideration of environmental and sustainability factors. The value of such a study, comparable in scope and quality to the feasibility study and white paper produced last spring, is estimated at \$20,000, assuming an hourly rate for graduate student work of \$25. Please bear in mind that a consulting rate, like those, which many of my students earn during and after their studies, is considerably more.

I would value greatly the opportunity to work again with Prof. Watson and his students in Butte, and to support the city and county in developing a new model for land redevelopment that will compliment and expand upon the excellent progress already made there.

Please feel free to contact me with any question.

Yours



Lynnette Widder

APPENDIX D: Cost Estimate Spreadsheet

MATERIALS					LABOR + EQUIPMENT					TOTAL			
BMX Track	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	10 days	
	Decomposed Granite	42 yd.	\$26/yard	\$ 1,092.00	1 Labor Foreman	Group 3	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
	Non Expansive Clay	126 yd.	\$30/yard	\$ 3,780.00	5 Laborers	Group 2	\$ 18.86	\$ 754.40	n.a	\$ 754.40			
	Road Subgrade	63 yd.	\$14/yard	\$ 882.00	3 Operators	Group 3	\$ 19.58	\$ 469.92	n.a	\$ 469.92			
					1 Excavator	n.a	\$ 27.40	\$ 219.20	\$ 570.00	\$ 789.20			
					2 Skidsteers	n.a	\$ 10.50	\$ 168.00	\$ 394.00	\$ 562.00			
					2 Walk Behind Compactors	n.a	\$ 4.85	\$ 77.60	\$ 126.00	\$ 203.60			
					2 Vibrator Plates	n.a	\$ 4.85	\$ 77.60	\$ 126.00	\$ 203.60			
				TOTAL			72 L.H.,		Task Cost				
							Daily Total:	\$ 3,217.92	\$ 32,179.20		TOTAL COST	\$ 37,933.20	
Site Fill	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	6 days	
	EPA Fill	8,121 yd.	\$8 yd.	\$ 64,968.00	1 Labor Foreman	Group 3	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
					2 Operators	Group 3	\$ 19.58	\$ 313.28	n.a	\$ 313.28			
					3 Skidsteers	Group 3	\$ 10.50	\$ 252.00	\$ 591.00	\$ 843.00			
				TOTAL			32 L.H.,		Task Cost				
							Daily Total:	\$ 1,391.48	\$ 8,348.88		TOTAL COST	\$ 73,316.88	
Turfgrass	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	3 days	
	Topsoil, 4 inch Depth	108 yards	\$12 yard	\$ 1,296.00	1 Labor Foreman	Group 3	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
	Sod	34,773 s.f.	\$.20/sf	\$ 6,954.00	6 Laborers	Group 2	\$ 18.86	\$ 905.28	n.a	\$ 905.28			
				TOTAL			56 L.H.,		Task Cost				
							Daily Total:	\$ 1,140.48	\$ 3,421.44		TOTAL COST	\$ 11,671.44	
Seed Area	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	1 Day	
	Topsoil, 2 inch Depth	550 yards	\$12 yard	\$ 6,600.00	1 Labor Foreman	Group 3	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
	Seed	33.4 lb	\$4.75/lb	\$ 158.65	3 Laborers	Group 2	\$ 18.86	\$ 452.64	n.a	\$ 452.64			
					3 Broadcast Seeders	n.a			\$ 40.35	\$ 121.05			
				TOTAL			32 L.H.,		Task Cost				
							Daily Total:	\$ 808.89	\$ 808.89		TOTAL COST	\$ 7,567.54	
Features	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	1.5	
	Bike Repair Bench	1	\$ 250.00	\$ 250.00	1 Labor Foreman	Carpenters	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
	Site Seating (Benches)	8	\$ 400.00	\$ 3,200.00	2 Carpenters	Group 2	\$ 18.86	\$ 301.76	n.a	\$ 301.76			
	Trash + Recycle Bins	3	\$ 500.00	\$ 1,500.00	2 Laborers	Group 2	\$ 18.86	\$ 301.76	n.a	\$ 301.76			
	Water Station	1	\$ 3,200.00	\$ 3,200.00	1 Plumber	Plumbers	\$ 28.17	\$ 225.36	n.a	\$ 225.36			
	Picnic Tables	4	\$ 500.00	\$ 2,000.00									
				TOTAL			48 L.H.,		Task Cost				
							Daily Total:	\$ 1,064.08	\$ 1,596.12		TOTAL COST	\$ 11,746.12	
Trees	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	1.5 Days	
	Deciduous Trees	40	\$ 200.00	\$ 8,000.00	1 Labor Foreman	Group 2	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
	Coniferous Trees	20	\$ 200.00	\$ 4,000.00	2 Laborers	Group 2	\$ 18.86	\$ 301.76	n.a	\$ 301.76			
					1 Excavator	n.a	\$ 27.40	\$ 219.20	\$ 570.00	\$ 789.20			
				TOTAL			24 L.H.,		Task Cost				
							Daily Total:	\$ 1,326.16	\$ 1,989.24		TOTAL COST	\$ 13,989.24	
Irrigation	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	5 Days	
	1.5" Poly Pipe	8000 l.f.	\$ 1,800.00	\$ 1,800.00	2 Skilled Worker Foremen	Group 2	\$ 35.50	\$ 568.00	n.a	\$ 568.00			
	Spray Heads	50	\$ 15.00	\$ 750.00	8 Skilled Workers	Group 2	\$ 22.18	\$ 1,419.52	n.a	\$ 1,419.52			
	Rotator Heads	25	\$ 30.00	\$ 750.00	Ditch Digger	n.a	n.a	\$ 12.35	\$ 165.00	\$ 177.35			
	Valve Assembly	5	\$ 200.00	\$ 1,000.00									
	Control Assembly	1	\$ 500.00	\$ 500.00									
				TOTAL			80 L.H.,		Task Cost				
							Daily Total:	\$ 2,164.87	\$ 10,824.35		TOTAL COST	\$ 15,624.35	
Power	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	2 Days	
	PVC 2" Diameter Conduit	1000 lf	\$ 2.80/lf	\$ 2,800.00	2 Electricians	Electrician	\$ 29.06	\$ 464.96	n.a	\$ 464.96			
	Weatherproof Electrical Box	1	\$ 350.00	\$ 350.00									
	4 wire, 20 circuit weatherproof distribution panel	1	\$ 550.00	\$ 550.00									
	NOTE: Connection and utility fees are not included in this estimate			TOTAL			16 L.H.,		Task Cost				
							Daily Total:	\$ 464.96	\$ 929.92		TOTAL COST	\$ 4,629.92	
Water	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	1 day	
	PVC 4" Diameter Pipe	300	\$ 3.85/lf	\$ 1,155.00	1 Labor Foreman	Group 2	\$ 22.18	\$ 177.44	n.a	\$ 177.44			
	Iron to PVC Fitting	1	\$ 50.35	\$ 50.35	1 Laborer	Group 2	\$ 22.18	\$ 177.44	n.a	\$ 177.44			
	Backflow Preventer	1	\$ 980.00	\$ 980.00	1 Plumber	Plumbers	\$ 18.86	\$ 150.88	n.a	\$ 150.88			
	NOTE: Connection and utility fees are not included in this estimate			TOTAL			24 L.H.,		Task Cost				
							Daily Total:	\$ 505.76	\$ 505.76		TOTAL COST	\$ 2,691.29	
Asphalt	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	3 Days	
	Asphalt (Road and Parking)	10,000 s.f.	\$ 4/s.f.	\$ 40,000.00									
	Road Subgrade (R&P)	140 y.d.	\$ 14/y.d.	\$ 1,960.00									
	Asphalt (Trails)	2000 l.f.	\$ 12/l.f.	\$ 24,000.00									
	Road Subgrade (Trails)	30 y.d.	\$ 14/yd	\$ 420.00									
				TOTAL									
												TOTAL COST	\$ 66,380.00
Wetlands	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	3 Days	
	Demo + Documentation	1	\$ 6,000.00	\$ 6,000.00									
	Wetland Installation	1	\$ 9,000.00	\$ 9,000.00									
				TOTAL									
												TOTAL COST	\$ 15,000.00
Snow Storage	Material	Quantity	Cost	SUM	Item	Wage Group	Hr.	Daily Cost	Daily Rental	Total Daily	Total Time	3 Days	
	Road Subgrade, 6in depth	1,100 y.d	\$ 14/y.d.	\$ 15,400.00	1 Labor Foreman	Group 3	\$ 29.40	\$ 235.20	n.a	\$ 235.20			
					2 Operators	Group 3	\$ 19.58	\$ 313.28	n.a	\$ 313.28			
					3 Skidsteers	Group 3	\$ 10.50	\$ 252.00	\$ 591.00	\$ 843.00			
				TOTAL			32 L.H.,		Task Cost				
							Daily Total:	\$ 1,391.48	\$ 4,174.44		TOTAL COST	\$ 19,574.44	

TOTAL: Materials and Labor: \$ 280,124.42

5% Construction Administration: \$ 14,006.22

10% Contingency: \$ 29,413.06

TOTAL COST \$ 323,543.71