

**Prototype Restoration of Mine Covers
for Shields Street**

A Grant request to the BNRDC

December 1, 2014

For an amount of \$ 100,000.00

**Submitted by:
Landscapes of Montana
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Prototype Restoration of Mine Waste Cover

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The idea: A prototypical native restoration of a mine cover to illustrate what a mine cover could naturally look like 50-100 years from now.

Location: The 2.71 acre site on the north side of Shields St immediately west of the Berkeley Pit Interpretive Area going west about 715 feet along Shields St. (see attached map, pg 2). The property is wholly owned by Montana Resources and has no zoning. The land is part of a greenway that was proposed through an agreement between BSB and Montana Resources (MR) in an exchange of MR not being responsible for reclamation costs north of the Granite Mountain Memorial site. Though only about 6 trees remain on this land from the greenway effort, MR did complete the project to the letter of the agreement .

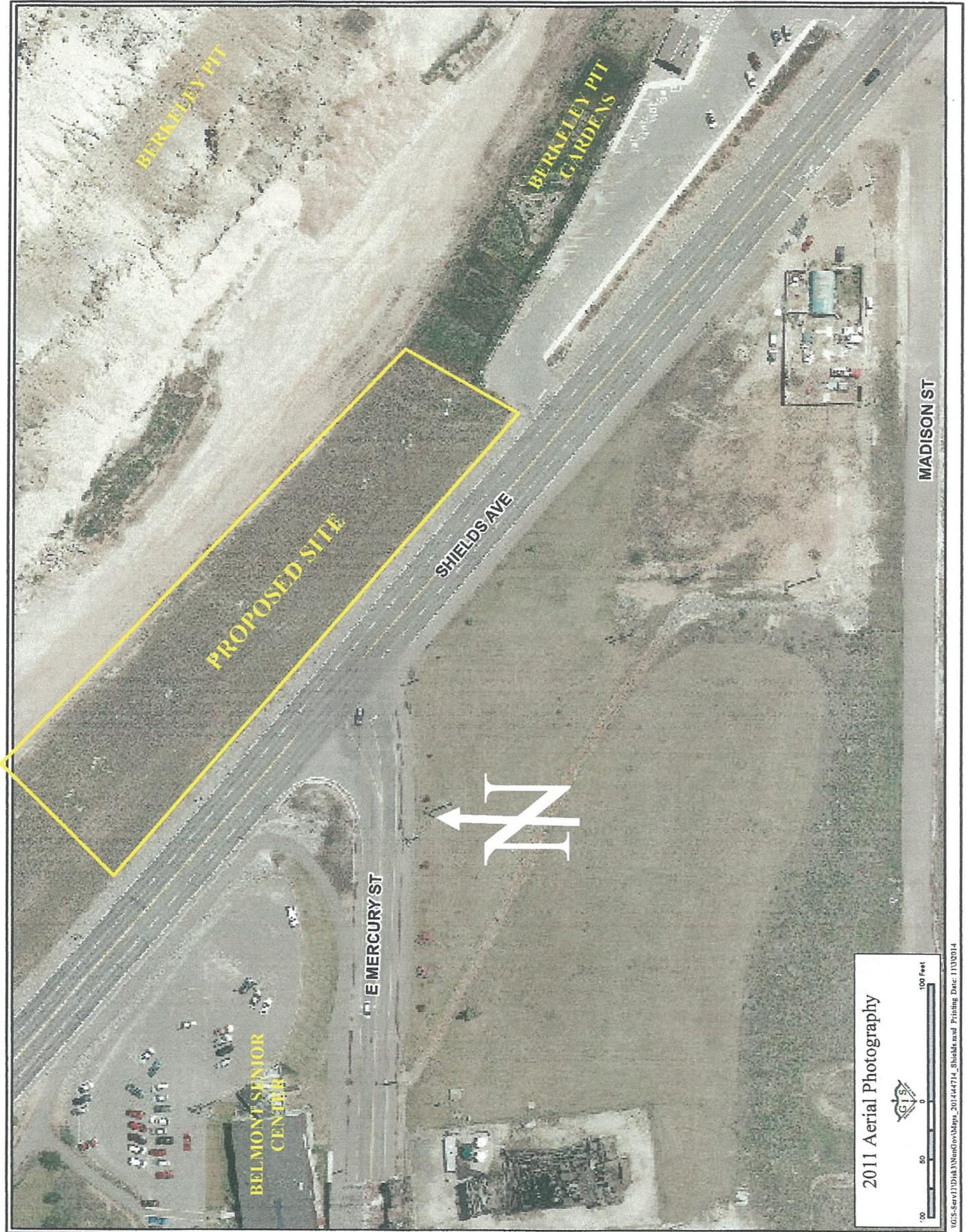
Project type: Waste cap second generation of plant growth improvement, soil retention improvement, storm water control, and possible later recreation, and historic interpretation. This would be an 8 year project

Project benefits: (More details on page 4)

1. Restoration of the native landscape that existed before mining in Butte
2. This area is probably the most visible section of reclaimed land on the Butte Mining Hill along the highly travelled section of Continental Drive that links to Uptown Butte via Park Street.
3. This would have only native plantings that would be done on a mine cover that needs six inches of additional soils that would be donated by Montana Resources.
4. A refuge for browsing animals that move through the corridor from the Pilot of Butte Mine through to Montana Resources (presently there are deer, moose and fox that travel this corridor, most poached, though a few legally hunted)
5. This is a prototype of how other mines covers could be further vegetated at less than 10% of the cost of other planting schemes on the Butte Mining Hill.
6. When established the landscape would provide better water retention and less runoff than the present (though largely successful) grass cover.
7. Ensured success in that plantings would be done over a 3 year period. One third of the area would be left untouched for pathways. The experience of restoration at the Cellar Dirt Dump shows a guaranteed success on this site.
8. This location could possibly later be used to interpret the ethnic legacy of Butte's Eastside (a mixed ethnic community that was largely Italian) which was in this exact area.
9. Though this is proposed as an 8 year project with the use of city water, at the end of the 8 years the additional water will not be needed. The landscape would be self sustaining as is the native landscape north of Walkerville

Matching money: Montana Resources had agreed to provide an additional 6 inches of soil (1457 cu. yds.) to 2/3rds of this land at a cost of \$23,312 (\$16.00/cu yd). Thus this would be a matching cost of **23.3%** of the requested grant

Estimated cost: \$ 100,000 or \$123,312 with the matching money



2011 Aerial Photography

100 Feet

GIS

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PROJECT NARRATIVE

Again, this site is the most visible reclamation project in Butte. And though it was earlier planted as a greenway, that effort did not have much visible impact. There is no reasonable anticipation that a true future greenway would ever result on this grassed land without the appropriation of this grant.

Planted would only be native trees (2,000 aspen), native shrubs (Wood's rose, currants, and rabbit rubber brush) along with ornamental native flowering plants (lupin, blue flax, sunflowers, Rocky Mountain bee plants, purple coneflowers, fireweed, etc.). In the planting areas the present grasses would be eliminated to prevent competition to the newly planted trees, shrubs, and flowers. Once the newly planted material is firmly established, the grasses would be allowed to grow back. City water would be provided through a poly pipe dispersal system. The irrigation system would be removed at the end of this 8 year contract period. The area would be protected from deer predation for its first 5 years with a deer fence. Aspen would only cover 2/3rds of the site leaving fields of grass for broad pathways. This is similar to the way any native landscape would look like after a recovery from a natural disaster such as a forest fire (or in this case mine reclamation). What is proposed here is basically how the Butte reclaimed landscape would look if Nature were to reclaim the land in 50-100 years. The project is very similar to the very successful reclamation effort at the Cellar Dirt Dump begun in 2012.

The area is large enough (2.71 acres) to be an actual self-sustaining ecosystem unlike smaller trees pods and native forb islands presently planted on the Butte Mining Hill that cannot possibly be a self contained ecosystem because of their small size.

BUDGET SHIELDS STREET RECLAMATION PROJECT 2015-2022

Category	Cost
1 Topsoil	23,312
2 Soil prep and amendmets	0
3 Tree stock and plant material	4,500
4 Temporary irrigation system	14,400
5 Supplies, materials & rental equipment	3,600
6 Labor	36,100
7 Deer fence	5,400
8 Evaluation	2,500
9 Irrigation water	33,500

TOTAL

123,312

PROJECT TIMETABLE
SHIELDS STREET RECLAMATION PROJECT 2015-2022

	Task	Time period
1	Moving new soils	Apr-May 2015
2	Install temp. irrigation system	June - July 2015
3	Deer fence installation	June - July 2015
4	Tree, shrub, flower planting	Apr-May 2016
5	Evaluation	July, 2018
6	Remove deer fence	June 30 2020
7	Remove Temp irrigation system	October 31 2023