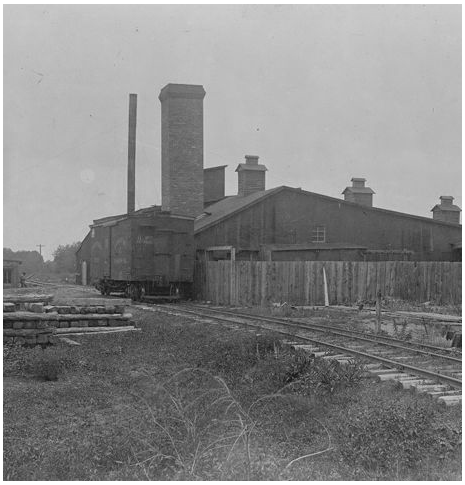

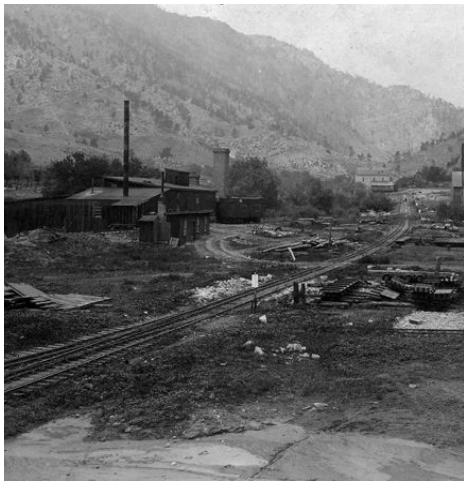

BOYD SMELTER/MILL SITE

MAY 2023

ACKNOWLEDGEMENTS

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History Colorado, State Historical Fund*

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IMAGE CREDITS

Current-day (2020-2022) photographs provided by Mundus Bishop, JVA, and PaleoWest. Historic photographs (pre-2020) provided by the City of Boulder and from online archives at the Carnegie Branch Library for Local History and Boulder Historical Society Collection, unless otherwise noted.

STATEMENT

The report documents the history, significance, integrity and existing condition and provides treatment guidance for the resource. It does not evaluate for listing in the National Register of Historic Places. If the resource has been previously listed or evaluated it is referenced and footnoted.

*This project is / was paid for in part by a History Colorado State Historical Fund grant.
The content and opinions contained herein do not necessarily reflect the views or policies of History Colorado.

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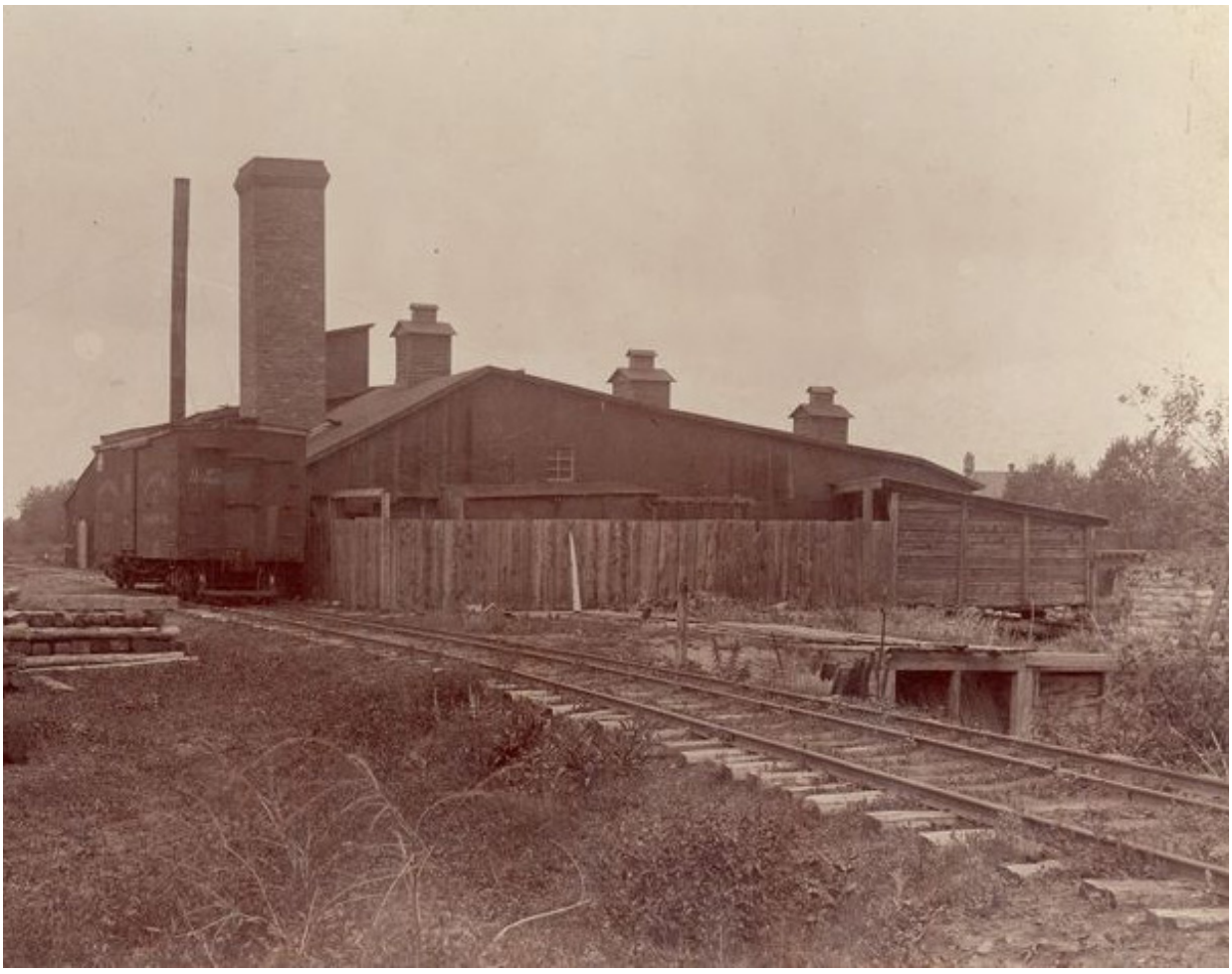

Figure 1-1. Boyd Smelter, circa 1893 (source: Carnegie Library for Local History, BHS 219-1-50)

COMMON TERMINOLOGY

State/National Register Terminology[1] [2]

Area of Significance - an aspect of historic development in which a property made contributions for which it meets the National Register criteria, such as architecture, entertainment or recreation.

Character-Defining Features - the elements that account for the overall shape of the building, its materials, craftsmanship, decorative details, interior spaces and features, as well as the various aspects of its site and environment.

Compatible Feature - a prominent or distinctive aspect, quality, or characteristic of a cultural landscape that contributes significantly to its physical character. Land use patterns, vegetation, furnishings, decorative details and materials may be such features.

Contributing Resource - a building, site, structure, object, or feature adding to the significance of a property.

Designation Boundary - the boundary defined by the Landmarks Board and City Council that encompasses a historic property. This boundary represents a physical area in which any future alterations have historic preservation review associated with them.

Eligibility - ability of a property to meet the State/National Register criteria.

Evaluation Criteria - the established criteria for evaluating the eligibility of properties for inclusion in the State Register and National Register of Historic Places and its level of significance—local, state, or national.

Historic Context - information about historic properties based on a shared theme, specific time period and geographical area.

Landscape Characteristics - the tangible and intangible aspects of a landscape from a historic period; these aspects individually and collectively give a space its historic character and aid in understanding its historical importance.

Local Landmark - a local area or building that has been determined to have a special character and historic, architectural, or aesthetic or value to the city.

Period of Significance - the span of time in which a property attained the significance for which it meets the State and/or National Register criteria, and/or Local Landmarks criteria.

Property Type - a grouping of properties defined by common physical and associative attributes.

Integrity[3]

Integrity is the ability of a property to convey its significance. It is assessed to determine if the characteristics that shaped the property during the period of significance are present as they were historically.

Location is the place where the historic property was constructed or the place where the historic event occurred.

Setting is the physical environment of a historic property.

Design is the combination of elements that create the form, plan, space, structure, and style of a property.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.

Association is the direct link between an important historic event or person and a historic property.

1 United States Department of the Interior, National Park Service, "National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation" (Washington DC: Department of the Interior, National Park Service, 1997); Office of Archaeology and Historic Preservation, History Colorado. "How to Nominate a Property to the State Register." (Denver, CO: History Colorado, 2018).

2 Charles A. Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington DC: Department of the Interior, National Park Service, 1996).

3 Ibid.

PROPERTY OVERVIEW

Property Name:	Boyd Smelter/Mill Site
Location:	South of Canyon Blvd; West of Justice Center
Property Address:	0 Canyon Blvd
Latitude/ Longitude:	40.0050 / -105.1728
Legal Property Description:	Tract 422-A less part in NE 1/ 4 BO 36-1N-71 and that part of TR 422A that lies in NE 1/4 36-1N-71
Parcel Tag(s):	146136200045 and 146136100070
Acreage / Square Footage:	2.08 Acres / 90,556 SF
Date of Construction:	First Smelter (1874); Boulder Creek Greenway (1985)
Designer(s):	N/A

DESIGNATION, ELIGIBILITY, & CLASSIFICATION SUMMARY

Current Designation Level

x Local Landmark
__ State Register of Historic Places (SRHP)
__ National Register of Historic Places (NRHP)

State & National Register Eligibility [4]

State Register of Historic Places	National Register of Historic Places
x Determined Eligible	x Determined Eligible
__ Delisted	__ Delisted

Recommended Period of Significance

Date Range: 1874 to 1918

Property Types

__ District(s)	x Structure(s)
x Sites(s)	__ Object(s)
__ Buildings(s)	__ Feature(s)

Individual Character-Defining Features of Property Types

District(s)	Structure(s)
_____	Water Line Pylons
_____	Steel Girders
Site(s)	**Object(s)**
Boyd Smelter/Mill	_____
_____	_____
Building(s)	**Feature(s)**
_____	_____
_____	_____

Ordinance & Listing Information

City of Boulder
Local Landmark No: 98-2
Ordinance No: 6003
Ordinance Date: August 4, 1998
State ID: 5BL.7094
National Historic Landmark No: _____

Areas of Significance

Industry
Archeology

Property Integrity: Aspects

x Location	__ Workmanship
__ Setting	x Feeling
__ Design	__ Association
x Materials	

NRHP Evaluation Criterion [5]

x Criterion A: The property is associated with event that have made a significant contribution to the broad patterns of our history
__ Criterion B: The property is associated with the lives of persons significant in our past
__ Criterion C: The property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction
x Criterion D: The property has yielded, or may be likely to yield, information important in prehistory or history

4 "Public Hearing, Review, and Consideration Agenda and Attachments of Information Presented to City Council, August 5, 1998," (Boulder, CO: City of Boulder Parks and Recreation Advisory Board), 3; Paleowest,"5BL.7094 Boyd Smelter Data Management Form," Boulder, CO: Office of Archaeology and Historic Preservation, 2023.

5 Ibid., 3. Evaluation is based on this document.

DESIGNATION BOUNDARY

The designated boundary for the Boyd Smelter/ Mill Site is the area included in the City of Boulder local landmark designation, Ordinance 6003. The designation boundary includes exposed building foundations, railroad bridge footings, waterline supports, a dam and headgate, other artifacts, and the site's location along Boulder Creek and Sunshine Creek.

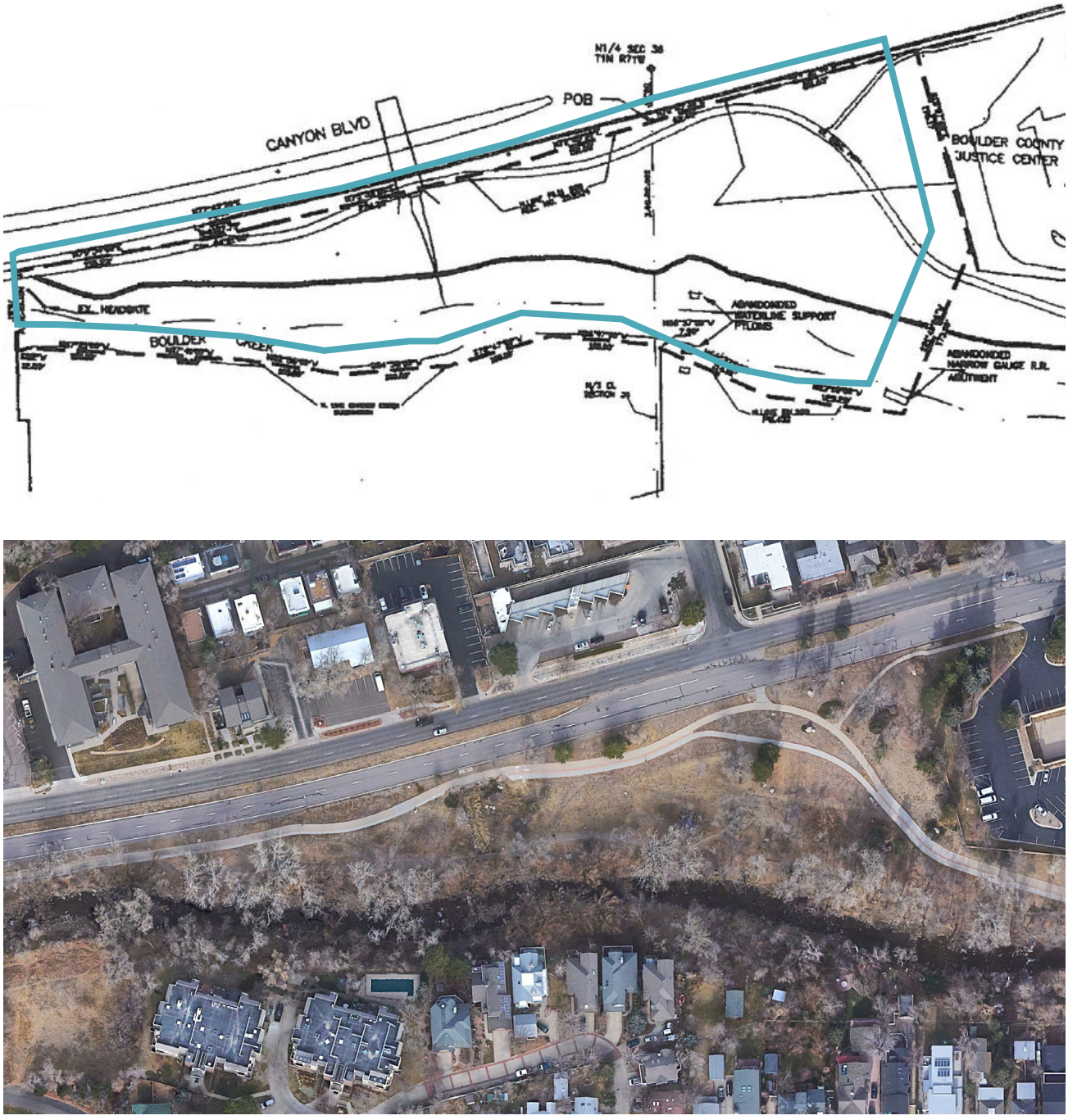

Figure 1-2. Designation boundary for the Boyd Smelter/Mill Site (blue), 2020 (Source: City of Boulder Ordinance 6003)

HISTORY & SIGNIFICANCE

Historic Context

Statement of Context

Boyd Smelter/Mill Site is a two-acre public open space and archeological site owned by the City of Boulder. Boyd Smelter/Mill Site is associated with late 19th and early 20th century mining, engineering, and industry. The recommended period of significance is from 1874 to 1918 and captures the period of active smelting and milling operations, which begins when James Boyd's first mill became operational and ends when the tungsten market collapsed and operations ceased. The site was designated a local archeological landmark by the City of Boulder Landmarks Board and City of Boulder City Council in 1998. Boyd Smelter/Mill Site includes above and below-grade archeological resources, including buried foundations of the main smelter building and ancillary buildings, buried concrete dams with headgates, and water pylons along Boulder Creek. The site is locally significant as one of the last remaining vestiges of the smelting and mining industry within Boulder. The site contains archeological features that could yield future information on the history of mining and milling within Boulder.

Background History

James Boyd purchased land along Boulder Creek to build a smelter in 1873, and began to process gold, silver, and iron in 1874. By 1876, the smelter processed nearly fifteen tons of ore per day. Boyd leased the smelter to Frank Goff in 1880, who processed twenty to thirty tons per day. Boyd eventually sold the smelter site in 1885. The site operated under multiple owners between 1893 and 1918. During World War I, between 1914 and 1918, Boulder County was the leading producer of tungsten in the country. Operations ceased with the collapse of the tungsten market after World War I.

In the early 1900s the City of Boulder commissioned the renown landscape architectural firm the Olmsted Brothers to assess the Boulder foothills and mountains for scenic resources. The Olmsted Brothers recommended creating a series of park reserves and improvements to make Boulder Creek a natural stream. The location of Boyd/Smelter Mill Site was identified as a potential natural area.

Following the closure of the smelter and mill in 1918, the land remained largely unchanged. Over time buildings were dismantled, while concrete footings, concrete headgates, and reservoirs remained through the 1950s. In the 1960s Canyon Boulevard was built adjacent to the site. Excavated waste material was spoiled onto Boyd Smelter/Mill Site. The fill material buried many of the extant remnants of the smelter and mill. In the mid-1980s Boulder Creek Greenway was built on the north and east edges of the site. During construction, remnants of the smelter building were discovered, and construction of the trail was shifted north to minimize impact to below-grade features. Construction included the Boulder Creek Greenway, a soft surface trail, and two small bridges.

Boyd Smelter/Mill Site has remained largely unchanged since being designated a Boulder Historic Archeological Landmark by the City of Boulder in 1998. Between 2001 and 2002, a series of surveys and reports were developed to determine future uses for the site. In 2017 Boulder Creek Greenway was widened. During site excavations several archeological features from the smelter site were uncovered, but were reburied.[6]

Definition of the Context

Boyd Smelter/Mill is associated with the theme of late 19th and early 20th century mining, engineering, and industry. Smelters in Colorado were significant for their advancements in metallurgical engineering, in particular for developing advanced methods for mining gold, silver, and industrial metal ore. While large regional smelters made most contributions, smaller local smelters like Boyd Smelter/Mill Site would have played a significant role in identifying, defining, and demonstrating these technologies and methods for ores in a specific region. The Boyd Smelter is significant for its contribution to industrial development in Boulder's industrial geography. Smelters helped bring the railroad industry into a town, which in turn fostered the growth of, and reinforced, the mining industry within a developing city.[7]

6 Mundus Bishop, *Boyd Smelter Site Preservation and Interpretation Plan* (Boulder, CO: Historic Boulder, Inc. and City of Boulder Parks and Recreation, 2002), 5.
7 Abigail Sanocki, "Boulder Creek Improvements at Boyd Smelter Technical Memorandum" (Boulder County, CO: ERO Resources Corporation), 2017.

Development of the Theme or Area of Significance

In the late 19th century, a trend developed in Colorado of small local smelters being built within Colorado towns and cities in response to the success of smelters bringing the gold industry back to life after the decline of the initial gold rush.[8] Boyd Smelter/Mill Site was constructed and operated during this period, which corresponds with this trend, and which included development of the railroad system within Boulder. Smelters were key in treating various ores on a local level during this period.

Associated Property Types

Similar smelter sites in the western United States have been listed in National Register of Historic Places. The Ohio-Colorado Smelting and Refining Company Smokestack in Salida is the only smelting site listed in the National Register of Historic Places in Colorado.[9] Some listed sites consist of only smelter remnants, e.g., the Grand Encampment Mining Region: Boston Wyoming Smelter Site in Carbon, Wyoming. The integrity of many sites varies with the former being a visual landmark located just outside the periphery of the city to the latter that has become a refuse dump, largely devoid of its original visual character.[10]

A multiple property resource nomination for "The Mining Industry in Colorado" was proposed in 2008, which outlines the requirements for mining property types and their eligibility for the national register. The nomination includes smelters as a property type and outlines the types of structures or archeological materials that must be extant to qualify for listing in the national register. These include extant building foundations or extant features associated with areas of non-extant building, e.g., blowers, furnaces, or coal bins.[11]

Physical Characteristics and Integrity

Boyd Smelter/Mill Site remains in its original location and retains above-grade features, including remnants of stone water line pylons, a concrete dam and headgate, and an earthen berm. Numerous extant small-scale features indicative of industry practices remain. They include steel elements on the banks of Boulder Creek and a boulder with iron rings drilled into it.

Although many extant structures were covered by fill material in the 1960s, portions were unearthed in 2017 confirming these features remain in their original locations. The development of downtown Boulder and the removal of most of the smelting equipment has changed the setting but the extant features on site continue to illustrate the extent of a larger industrial complex.

Relationship to the National Register Criteria

The Colorado Historical Society, State Historic Preservation Office reviewed the Cultural Resource Inventory Form for the site in 1998 and determined the site to be eligible for the State and National Registers, meeting Criterion A and D.[12]

8 James E. Fell, "The Mining Industry in Colorado," National Register of Historic Places Multiple Property Documentation Form (Washington, DC: U.S. Department of the Interior, National Park Service, 2008), 209-210.

9 "Ores to Metals – The Rocky Mountain Smelting Industry," Western Mining History Online, accessed February 24, 2021, https://westernmininghistory.com/655/ores-to-metals-the-rocky-mountain-smelting-industry/.

10 Mark Junge, "Grand Encampment Mining Region: The Boston-Wyoming Smelter Site," National Register of Historic Places Nomination Form (Washington, DC: U.S. Department of the Interior, National Park Service, 1973), 3.

11 Fell, "The Mining Industry," 207.

12 "Public Hearing," 6-7.

Statement of Significance

Boyd Smelter/Mill Site is historically significant as the location of Boulder's first smelter, built in 1874. The site is historically significant for its association with smelting and milling industries that occurred along Boulder Creek and with the railroad that served these industries. Boyd Smelter/Mill Site is exceptional as one of the last remaining vestiges of the industry within the city of Boulder.[13] The site is environmentally significant as one of the last remaining vestiges of Boulder's smelting and milling industries that once proliferated along Boulder Creek. Boyd Smelter/Mill Site contains features that provide important information on the history of mining and milling in Boulder.[14] The Colorado Historical Society, State Historic Preservation Office reviewed the Cultural Resource Inventory Form for the site in 1998 and determined the site to be eligible for the State and National Registers.[15]

During the height of the mining industry, multiple smelting sites occurred along Boulder Creek. [16]

Boyd Smelter/Mill Site contains features that "provide important information about the history of mining and milling in Boulder."[17] Excavations as recent as 2017 yielded information about the building that once existed on site.[18] The discovery of industrial and domestic remnants may yield more information of the history of Boulder and of the smelting/milling industry of the late 19th and early 20th centuries.

Period of Significance

The recommended period of significance corresponds to the site's use as both a smelting and a milling site from 1874 to 1918. This begins with James Boyd's establishment of smelting operation in 1874 and ends in 1918 when the tungsten market collapsed and operations in Boulder were shutdown.[19]

13 Jack E. Smith, *Cultural Resource Survey of Boyd Smelter Site (5BL7094)* (Boulder, CO: Historic Boulder Inc., 2001), 4-5.
14 City of Boulder, *Ordinance No. 6003: Boyd Smelter/Mill Site* (Boulder, CO: City of Boulder, 1998), 2.
15 "Public Hearing,"3.
16 City of Boulder, Ordinance No. 6003, 2.
17 City of Boulder, Ordinance No. 6003, 2.
18 Abigail Sanocki, "Boulder Creek Improvements."
19 "Public Hearing,"2.

Summary of Use

Historic Use

Boyd Smelter/Mill Site is the historic location of smelting and milling operations on Boulder Creek.

Date	Event
1874 to 1880	James A. Boyd owned the property and processed gold, silver, and iron ore
1880 to 1918	Smelting and milling operations

Current Use

Boyd Smelter/Mill Site is a public open space and archeological site that provides passive recreation with some limited programming. Boulder Creek Greenway, on the site's northern and western edges provides biking, walking, and running. A soft surface trail adjacent to Boulder Creek provides access to Boulder Creek. Water-based recreational activities include swimming, floating, and fishing.

INTEGRITY

The integrity of Boyd Smelter/Mill Site has been assessed to determine if the characteristics that shaped the original construction within its period of significance (1874 to 1918) are present as they were historically. Integrity is evaluated according to seven aspects or qualities: location, design, setting, materials, workmanship, feeling, and association. Boyd Smelter/Mill Site retains integrity in location and setting, and in materials and workmanship for its extant features. Boyd Smelter/Mill Site has diminished integrity in feeling and association as most above-grade features no longer exist.

Although many extant structures were covered by fill material in the 1960s, portions were unearthed in 2017 confirming these features remain in original locations. The development of downtown Boulder and the removal of most of the smelting equipment changed the setting. Extant features include remnants of the original industrial complex. Remnants of the original water line pylons remain and retain integrity in workmanship and materials. Although the integrity of feeling is diminished.

Location

Boyd Smelter/Mill Site remains in its original location and retains integrity in location.

Setting

Boyd Smelter/Mill Site has diminished integrity of setting due to the development of the surrounding residential and commercial neighborhood. The original smelter/mill was an open site with few trees.

Design, Materials, & Workmanship

Boyd Smelter/ Mill Site has diminished integrity in design. Extant above-grade features associated with milling and the smelter include remnant features, topography, and an earthen berm remain. Foundations of the smelter building buried during the construction of Canyon Boulevard in the 1960s remain and are largely unchanged since the 1920s. The below-grade features remain in original locations with some being unearthed as recently as 2017.

Feeling

The integrity of feeling is diminished due to the lack of extant buildings and structures from the period of significance. Extant remnants of contributing features evoke a sense of mill and smelter operations.

Association

Boyd Smelter/Mill Site has diminished integrity in association with smelting or mining as most above-grade features no longer exist. However, remnants of mining and smelting operations are evident in extant structures and topographical features.

Construction & Alteration History

Date	Event	Source
1873	James H. Boyd purchased six acres along Boulder Creek from John Brierly.	Preservation and Interpretation Plan, 8
1874	Boyd built Boulder's first smelter. It did not immediately open as ore smelting was still in an experimental phase.	Landmark Public Hearing, 2-3
1876	Boyd Smelter became operational and processed fifteen tons of ore per day – primarily gold and silver with some iron and lime.	Preservation and Interpretation Plan, 8
1880	James Boyd leased the smelter to Frank C. Goff who prepared ores for Golden Smelting Works.	Landmark Public Hearing, 3
1883	Narrow gauge railroad tracks were used to bring materials from the mines to downtown Boulder. Goff processed 20 to 30 tons per day and added a new crusher. Boyd leased the site to Col. Teeters in July.	Landmark Public Meeting, 4 Preservation and Interpretation Plan, 8
1885	Boyd sold the smelter to John E. Lord who planned to overhaul it into a mill using cyanide to process low grade ore (gold-telluride).	Landmark Public Hearing, 3
1893 to 1898	Site operated as Spier Gold Works–operations gradually shift into tungsten.	Landmark Public Hearing, 3
1894	A massive flood wiped out the Greeley, Salt Lake and Pacific Railroad and the railroad was abandoned.	Landmark Designation Public Hearing, 4
1905	Colorado Tungsten Corporation used the mill to process tungsten from the Nederland area.	Landmark Public Meeting, 3
1910	The Olmsted Brothers recommended creating a series of park reserves along Boulder Creek. The smelter site was identified as a potential natural area.	Preservation and Interpretation Plan, 5
1914 to 1918	During World War I, Boulder County was the leading tungsten producer in the United States.	Landmark Public Hearing, 3
1916	Vasco Mining Company expands smelter building	Preservation and Interpretation Plan, 8
1919	Switzerland Trail of America railroad was abandoned after a cloudburst incident damaged the tracks beyond repair.	Landmark Public Hearing, 4
1920	Vasco sold the property.	Preservation and Interpretation Plan, 8
1920s to 1950s	The reservoirs used to hold water for mill operation were used as sand collection pits.	Landmark Public Hearing, 3, 5
1933	City of Boulder purchased the Boyd Smelter/Mill site.	Landmark Public Hearing, 5
1960s	Canyon Boulevard was built and fill material from construction was spoiled on-site, burying extant structures and reservoirs.	Landmark Public Hearing, 5
1985	Boulder Creek Greenway was built.	Preservation and Interpretation Plan, 8
1997	An environmental analysis study found the soil contained low levels of contamination from uranium mine tailings.	Bernhardt Memo
1998	Boyd Smelter/Mill site was designated a Boulder Historic Archaeological Landmark by the City of Boulder.	Landmark Ordinance no. 6003
2000 to 2002	Historic Boulder, Inc. received a grant from Colorado Historical Society's State Historical Fund and City of Boulder for a cultural resource survey and the *Boyd Smelter Site: Preservation and Interpretation Plan.*	Preservation and Interpretation Plan, 8
2017	ERO Resource Corporation surveyed and excavated the Boulder Creek Path. Multiple artifacts were identified and eventually reburied at the completion of the survey.	Technical Memorandum

EXISTING CONDITION

Landscape Condition

Summary of Landscape Characteristics

Boyd Smelter/ Mill Site is a two-acre archeological site and public open space on Boulder Creek, located adjacent to Canyon Boulevard and west of Boulder Municipal Court. The site is owned and operated by the City of Boulder and is designated as a local historic archeological landmark.

Boyd Smelter/ Mill Site is on the north bank of Boulder Creek. Its embankments are covered with riparian species including cottonwoods, willows, and dense multi-stemmed shrubs. The majority of the site is a large open level area with trees and covered in tall grasses where smelter operations and reservoirs were located.[20] During construction of Canyon Boulevard in the 1960s, excess material from roadway construction was deposited on the smelter site. As a result many features associated with smelting and milling, including the buildings foundations and reservoirs, were buried under fill material.

Natural Systems

Boulder Creek was historically, and continues to be, the major stream in the Boulder area. Beginning high in the Rocky Mountains, this segment of Boulder Creek was an ecologically diverse stream with riparian and wetland vegetation that supported a wide range of wildlife. By 1873, the banks of Boulder Creek resembled an industrial site more than a stream.[21] Boulder Creek was the ideal location for smelting and milling operations in the late 19th and early 20th century due to the abundance of fresh water needed for industrial operations. Portions of Boulder Creek's banks were altered for smelting and mining operations. Sunshine Creek is a stream flowing into Boulder Creek. It was diverted into a canal to accommodate these operations.[22] The canal was eventually removed and Sunshine Creek returned to its approximate original channel.[23]

The appearances of Boulder Creek and Sunshine Creek have changed since the period of significance. Although the river channels have changed, both waterways retain historic qualities and are character-defining features of Boyd Smelter/ Mill Site.

Topography

The site topography north of Boulder Creek is man-made, having been altered by smelting and mining operations historically and by Canyon Boulevard construction and changes to the river channels. Many original features and landforms were buried under fill material that was spread across the site during the 1960s.[24] Historic photographs of the site indicate the area was open with two reservoirs located west of the smelter building during the mining operations. Reservoir No. 1 and Reservoir No. 2 were enclosed by earthen berms on the south side and concrete dam/headgates at the east and west ends. The reservoirs were filled in the 1960s. Portions of the earthen berms remain visible, but are obscured by dense vegetation.[25]

Figure 1-3. Boulder Creek, 2020 (source: Mundus Bishop)

20 Smith, *Cultural Resource Survey*, 4.
21 Mundus Bishop, *Boyd Smelter Site*, 5.
22 Ibid., 7.
23 Smith, *Cultural Resource Survey*, 4.
24 Mundus Bishop, *Boyd Smelter Site*, 9.
25 Smith, *Cultural Resource Survey*, 9.

The primary circulation route is the multiple-use Boulder Creek Greenway on the site's north edges. A secondary soft surface trail is adjacent to Boulder Creek. Boulder Creek Greenway's trail connects multiple park units and is heavily used within the Boulder public park system. Boulder Creek Greenway was widened in 2017 to accommodate pedestrian traffic. A spur pathway was built near the original Ore House. The soft surface trail provides direct access to Boulder Creek, near extant archeological features including remnants of water line pylons and a portion of the concrete dam.

Remnant small-scale features are along the soft surface trail. The soft surface trail varies in width and is rutted in some locations. This trail does not meet ADA accessibility requirements.

Boulder Creek Greenway is a multiple-use concrete pathway that connects Boyd Smelter/Mill Site to other City of Boulder park properties. The open field where the smelter and mill were located is adjacent to this trail.

Structures

Waterline Supports - Three stone pylons are remnants of a waterline support that historically crossed Boulder Creek. Two pylons are on the south bank of Boulder Creek on private property. The northernmost pylon has steel girders and is accessible from the soft surface trail. The northernmost pylon has been vandalized. Refer to structural condition for additional analysis.

Concrete Dam with Headgate - Several dams and headgates diverted water from Boulder Creek into Boyd Smelter/Mill Site's reservoirs. The westernmost dam and headgate provided direct egress into Boulder Creek. Previous studies indicate that other dams and headgates still remain in their original locations. The concrete dam with headgate has been vandalized. Refer to structural conditions for additional analysis.

Archeological Features

Boyd Smelter/Mill Site is a significant archeological site. Archeological features associated with smelting and milling operations remain above and below-grade including ruins of a narrow-gauge railroad that once serviced industrial operations on site, dam headwalls that controlled water entering the site through the reservoirs, and remnants of the historic water line. Building foundations are extant below-grade.

The 2017 excavation during the expansion of the Boulder Creek Greenway uncovered foundation walls, a concrete floor, building materials, and industrial and domestic refuse.[26]

Figure 1-4. Boulder Creek Greenway, 2020 (source: Mundus Bishop)

Figure 1-5. Soft surface trail, 2020 (source: Mundus Bishop)

26 Abigail Sanocki, "Boulder Creek Improvements," 1-2.

Figure 1-6. North pylon with steel support girder, 2020 (source: Mundus Bishop)

Figure 1-7. Concrete dam and headgate, recent and previous vandalism (source: Mundus Bishop)

Figure 1-8. Boulders with landmark plaque and rusted iron hooks (source: Mundus Bishop)

Small-Scale Features

Boulder with Iron Rings - Two boulders are adjacent to the soft surface trail in the southeast corner of the site. The larger boulder has two rusted iron rings fixed to it. The other boulder includes a plaque describing the significance of Boyd Smelter/Mill Site. The origin of the iron rings is unknown, but assumed to be associated with the site's milling and smelter operations.

Interpretive Sign - The sign provides a brief history of the site and industrial operations along Boulder Creek.

Xeriscape Garden and Flagstone Pavers - Stone pavers arranged in three large circles that defined a previous xeriscape garden were installed after the construction of Boulder Creek Greenway. Little is known about the garden or the stone pavers. The pavers and garden are in poor condition.

Vegetation

Riparian vegetation on the banks of Boulder Creek defines the southern edge of the site. The vegetation provides a visual barrier that separates the site from the residential community on the southern bank. The vegetation on Boulder Creek's banks is typical of riparian areas in the region. Two prominent trees date from the period of significance remain—a Plains Cottonwood (80-inch DBH) and a large willow (60-inch DBH).[27] These trees contribute to the significance of Boyd Smelter/ Mill Site. Chokecherry shrubs may be a historic vegetation type, but no groupings were identified as contributing.[28]

The open level space between Boulder Creek and Canyon Boulevard is covered in tall native grasses interspersed with fruit trees (crabapple and apple), evergreens trees (pinyon and ponderosa), and deciduous trees (box elder, elm and cottonwood). The open, level space and embankments of Boulder Creek historically had less vegetation due to smelting and mining operations. The existing vegetation has changed in the open level area and does not contribute to the significance of the site.

Views and Viewsheds

The site features a prominent view to Boulder Canyon, which has become less prominent due to growth of trees on the site. The view between the upper level area of the site to Boulder Creek has changed due to understory and tree growth.

Figure 1-9. Boyd Smelter's smoke stack (left of the railroad tracks), Boulder Canyon beyond, BHS 219-1-52 (source: Carnegie Library for Local History)

Figure 1-10. Boyd Smelter/Mill Site, no date (source: Carnegie Branch Library for Local History)

Figure 1-11. Boyd Smelter/Mill Site, 2020 (source: Mundus Bishop)

27 Mundus Bishop, *Boyd Smelter Site*, 7.
28 Smith, *Cultural Resource Survey*, 4.

Contributing and Non-Contributing Features

Table 1-1: Contributing and Non-Contributing Features

Feature	Condition	Contributing/ Non-Contributing
Natural Systems		
Boulder Creek	Good	Contributing
Sunshine Creek	Good	Contributing
Topography		
Reservoir No. 1 and Reservoir No. 2	Fair	Contributing
Earthen berm	Fair	Contributing
Open level area	Fair	Contributing
Circulation		
Soft surface trail with bridges	Fair	Non-Contributing
Boulder Creek Greenway	Good	Non-Contributing
Structures		
Waterline support - north pylon with steel girder	Fair	Contributing
Waterline support - south pylons	Fair	Contributing
Concrete Dam with Headgate	Fair	Contributing
Archeological Features		
Holding ponds (Reservoir No. 1 and Reservoir No. 2)	Not Observed	Contributing
Smelter building foundations	Not Observed	Contributing
Small Scale Features		
Boulder with iron rings	Good	Contributing
Interpretive sign	Good	Non-Contributing
Xeriscape Garden and flagstone pavers	Poor	Non-Contributing
Vegetation		
Plains Cottonwood (80-inch DBH)	Fair	Contributing
Large Willow (60-inch DBH)	Fair	Contributing
Riparian vegetation on Boulder Creek embankments	Good	Non-Contributing
Vegetation - fruit trees, evergreen trees, deciduous trees, and native grasses	Fair	Non-Contributing
Views and Viewsheds		
View of Boulder Canyon	Fair	Contributing
View to Boulder Creek	Fair	Contributing

Figure 1-12. Boyd Smelter/Mill Existing Condition, 2022 (source: Mundus Bishop).

Structural Condition

North and South Pylons (Waterline Supports)

Three masonry pylons are the remaining extant features of a waterline support constructed of a mixture of local sandstone, tumbled field stones from the creek, and salvaged blocks of early concrete. The masonry has been repointed with a hard, cementitious mortar. The structures generally taper from the base to the top and there are some remnants of metal components embedded into the masonry structures, such as the metal bar atop the northernmost pylon. The northernmost pylon is on the north bank of Boulder Creek, while the southern two pylons are on the south bank of Boulder Creek. The two on the south bank were inaccessible at the time of the observation visit since they require access through private property.

Overall, the masonry pylons are in fair condition. Although there are no signs of major failure or displacement, there are several issues that could be improved to increase the longevity of the pylons. Most of the following were identified at the north pylon due to access, but likely occur at the other pylons as well. Several of the masonry units, primarily the reused concrete, have cracked. Some stones are missing. In some areas, mortar is missing between the stones. Additionally, the mortar is quite hard or cementitious for direct contact with the softer stones (i.e. the sandstone). The parge coat cap atop the masonry pylon is cracked and does not cover all elements. Biogrowth on the masonry is abundant in shady areas of the pylons. The pylons directly adjacent to the banks of Boulder Creek are slightly undercut due to scour from the moving creek water.

Steel Girders

Extending north from the northernmost pylon are two built-up girders. These elements consist of a vertical plate riveted to a channel at the top and bottom. The open side is faced with a lattice of thin steel strips. At the south end, they bear on the masonry pylon while at the north end they now bear on grade.

The girders are in fair condition. Although they are structurally stable, the north ends of the girders are currently buried in the earth. If there is no substantial foundation element below these ends, the soil could settle and cause the north end of the girders to settle as well. Also, there are areas of the girders where rust has started to form due to exposure to the elements. Lastly, there are trees and other plants growing in close proximity to the steel girders that could cause the steel girders to displace if the plants grow larger.

Figure 1-13. Biogrowth and areas of missing mortar, 2020 (source: JVA)

Figure 1-14. Southern pylons on south side of Boulder Creek, 2020 (source: JVA)

Figure 1-15. Steel girders extending from northernmost pylon, 2020 (source: Mundus Bishop)

Figure 1-16. Base of north pylon. Note the scour at the creek bank's edge, 2020 (source: JVA)

Figure 1-17. South face of north pylon, 2020 (source: JVA)

Structural Condition Definitions

This structural condition assessment makes use of terms concerning the condition of building components which are defined as follows:

Good - A structural element, component or system is considered in good condition when it is undamaged, structurally sound or functionally operational, and performing as intended. No specific repairs are required, and only minor or routine maintenance is needed.

Fair - An element, component or system is considered in fair condition when there are signs of wear or deterioration, such as freeze-thaw deterioration, corrosion, or wood decay exceeding expectations based on the age and use of the element, that may be reducing the structural capacity of the member. Replacement or repair of the element may be required.

Poor - An element, component, or system is considered in poor condition when it no longer performs its intended structural purpose. Deterioration or damage reduced the load carrying capacity of the element and simple repairs cannot be justified or are not expected to be effective. The element may show signs of imminent failure. Major repair or replacement will be required.

Condition ratings reported are based upon visual observations only.
No material testing or exploratory observations have been made.
NOTE: Further investigation could result in modification to condition ratings.

Table 1-2: Condition Assessment of Structural Features

Primary Features	Description of Primary Materials	Condition
Waterline Supports	Masonry Pylons - Local stacked sandstone with Steel Girders	Fair

ADDITIONAL IMAGES

Figure 1-18. Flagstone pavers and xeriscape garden, 2020 (source: Mundus Bishop)

Figure 1-19. Interpretive sign, 2020 (source: Mundus Bishop)

Figure 1-20. South water pylon on private property (source: Mundus Bishop)

Figure 1-21. Rail line above ground, adjacent to the creek (source: Mundus Bishop)

TREATMENT

Rehabilitation is the selected treatment approach for Boyd Smelter/ Mill Site as this will provide for its preservation and repair, and will allow for addition of compatible improvements. This treatment guidance provides actions and recommendations to guide the holistic stewardship of Boyd Smelter/ Mill Site and its significance as a historic smelting and mining site within Boulder.

Treatment guidance is based upon review of historic documentation, assessment of condition and integrity, and in support of current and futures uses. This section provides actions to protect significant cultural resources, and repair contributing features and the setting. Treatment recommendations identify where repair is needed to reveal historic features, retain character, and maintain integrity. Future work planned for Boyd Smelter/ Mill Site shall be guided by *The Secretary of the Interior's Standards for the Treatment of Historic Properties, and accomplished by using accepted preservation methods detailed by the National Park Service, and Chapter 9-11 (Historic Preseration) of the Boulder Revised Municipal Code.*

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, or additions if those portions or features that convey its historic, cultural, or architectural values are preserved. Rehabilitation allows for new additions to be integrated within the study area in a manner that preserves established patterns and features. Additional actions include those that preserve, repair, and retain contributing features and qualities that contribute to the historic character.

Guiding Principles

Boyd Smelter/ Mill Site is the site of Boulder's first smelter and one of the last remaining vestiges of the mining/ smelting industry within the City of Boulder. Boyd Smelter/ Mill Site contains above-grade and below-grade archeological features from the late 19th and early 20th century mining and milling industries in Boulder. Most of the site is a large flat open space with trees and tall grasses where smelting operations occurred. The Boulder Creek Greenway and a native surface trail extend across the site and connect it to adjacent park-owned lands. Boyd Smelter/ Mill Site is bordered by Canyon Boulevard to the north, the Municipal Court grounds to the east and Boulder Creek to the south. The site is primarily used for passive recreation and is a designated local historic archeological landmark.

Guiding Principles

- Protect Boyd Smelter/ Mill Site as a significant cultural landscape associated with Boulder's smelting and milling industries.
- Preserve, protect, and repair Boyd Smelter/ Mill Site's contributing features and those characteristics that contribute to its historic character including natural systems and features, topography, views, small scale features, archeological features, and vegetation.
- Maintain and enhance the variety of park and recreational uses and experiences offered with Boyd Smelter/ Mill Site.
- Allow compatible additions to provide recreational and interpretive experiences in keeping with Boyd Smelter/Mill Site's role as a historic and recreational property.
- Consider further archeological investigations to determing the presence, location, frequency and condition of subsurface materials.

Treatment Guidance

Treatment guidance provides recommendations for the preservation and repair of individual landscape characteristics of Boyd Smelter/ Mill Site. Treatment guidance is presented according to seven landscape characteristics - natural systems, topography, views, circulation, structures, small-scale features and vegetation. Treatment guidance also covers proposals for new development within the landmark boundary.

Natural Systems
Boyd Smelter/ Mill Site was built on Boulder Creek to access fresh water for industrial smelting and mining operations. Boulder Creek was modified to accommodate these operations.

- Preserve characteristics associated with the site's historic use and retain it as an important part of the natural system.

Topography
Historic topography consists of the open level area and two reservoirs defined by earthen berms and a concrete dam/ headgate on the east and west sides. The reservoirs were covered with fill material, but portions remain visible.

- Protect the open level area and earthen berm.

Circulation
Pedestrian circulation consists of contemporary features including Boulder Creek Greenway and a soft surface trail adjacent to Boulder Creek. Both trails are built over archeological features and are non-contributing features.

- Provide access to Boulder Creek, picnicking areas, and archeological features, where appropriate.

Structures
Original structures are associated with smelting and milling operations - the north and south pylons (waterline supports) and concrete dam and headgate.

- Protect contributing structures in original locations.
- Preserve and repair the north and south pylons extant structural features.
    - Inject cracks in the masonry units using a mortar and/or epoxy appropriate for the base material.
    - Replace missing stones with appropriate replacement stones if the originals cannot be found.
    - Deeply rake mortar joints and replace with a soft mortar to match the properties of the original mortar to be compatible with the softest stones (based on a mortar analysis of a sample to be taken from the pylons). Provide periodic maintenance of mortar.
    - Apply a parge coat to the horizontal top surfaces of the pylons using an appropriate parging material.
    - Remove biogrowth with an appropriate cleaner based on a cleaning trial.
    - Monitor the streambank for under cutting near the bases of the pylons and coordinate with other agencies on actions to prevent erosion and to mitigate potential loss of structure.
- Preserve and repair the steel girders' extant structural features.
    - Conduct further investigations to verify concrete foundation element at the north end of the steel elements. If a new foundation is necessary, etch the construction date into the concrete so that the new foundation is discernible from the historic resource.
    - Remove rust from steel elements with a wire brush and/or chemical cleaners (to be determined by a cleaning trial prior to construction). Paint surfaces of with a galvanizing paint. Provide periodic maintenance of paint.
    - Remove biomass growth and trees from around steel elements.

Archeological Features

Archeological features associated with smelting and milling operations remain above and below-grade including remnants of the narrow-gauge railroad, dam headwalls, and water line. Building foundations and holding ponds are extant below-grade.

- Protect Boyd Smelter/Mill Site's above and below grade archaeological features.
- Consider conducting further non-intrusive investigations for archeology and environmental conditions.
- Consider employing qualified archaeologist(s) to conduct or oversee archival, surface, and geophysical survey (i.e., ground-penetrating radar) to accurately determine the extent of smelter building and site features. Document findings according to professional archaeological standards.
- Conduct further environmental investigations into the extent of contaminated soil to assist with planned projects.
    - Studies conducted by City of Boulder in 1997 indicated the presence of low-level contamination from uranium mill tailings. This study recommended further environmental investigation in the form of soil sampling and radiation surveys prior to any archeological investigations or site disturbance, including any work within the building footprint or any revegetation.
- Consider conducting a property survey to accurately locate above-ground features, including building footings, stone water pylons, boulder with iron rings, concrete dam, and vegetation.
- Consider extant below-grade and above-grade features when planning new improvements to avoid extant feature.

Vegetation

Riparian vegetation, mature trees, and tall grasses comprise the site's vegetation.

- Preserve mature trees and riparian vegetation along Boulder Creek.
    - Perform pruning and thinning to maintain tree form and health. Replace mature trees when they become hazardous or die with appropriate species.
- Consider measures to reveal Boyd Smelter/Mill Site’s historic spaces and topographic features.
    - Consider thinning pockets of dense vegetation and trees to open views to the site, Boulder Creek, and historic structures.
- Consider selectively removing vegetation along Boulder Creek's banks to reveal portions of the extant features.
- Consider views or spatial patterns when replacing or determining locations for new plantings.

Small-Scale Features

Small-scale features include the xeriscape garden and boulder with iron rings. Site furnishings include benches, picnic tables, and an interpretive sign.

- Protect the boulder with iron rings in-pace as a character-defining feature.
- Remove the xeriscape garden and stone pavers.
- Allow new small-scale features to accommodate programming, use and health and safety within Boyd Smelter/Mill Site, where appropriate.

Top Priorities

The following actions to improve or repair physical features or landscape characteristics are the top recommended priorities. These actions meet the following criteria: impact for safety / stabilization; threat of loss of integrity; poor condition; potential impact due to enhancement; critical path / adjacency to other planned work; relevancy to other current plans.

1 - Conduct repairs for the safety and stabilization of contributing features and those that contribute to the historic character.

- North and South Pylons (Waterline Supports) - Monitor the streambank for under cutting near the bases of the pylons and coordinate with other agencies or actions to prevent erosion and to mitigate potential loss of the structures. Verify the foundation under the steel elements; if no foundation exists, consider providing one and etch the date of its installation in a discreet area.
- Consider additional archaeological testing to determine the presence, location, frequency and condition of subsurface materials.
- Conduct a topographic and boundary survey to confirm / verify contributing features are on city-owned or on private property.
- Conduct an environmental analysis.

2 - Conduct repairs to improve the condition of contributing features and those that contribute to the historic character.

- North and South Pylons (Waterline Supports) - Remove biomass growth and trees from around the steel elements. Repair or replace masonry and mortar joints where missing or deteriorated. Remove corrosion from steel elements and coat with protective coating.

3 - Programming

- Develop an interpretive exhibit and signage to place the history of Boyd Smelter / Mill Site in context with the history of telluride and tungsten mining in Boulder.

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