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NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

RECEIVED 2280
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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determination for individual properties and districts. See instruction in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Alpine Tunnel Historic District

other names/site number 5CF838/5GN2599

2. Location

street & number along DSP&P railbed from Quartz to Hancock [N/A] not for publication

city or town Pitkin [X] vicinity

state Colorado code CO county Chaffee/Gunnison code 015/051 zip code N/A

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this [X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [X] meets [ ] does not meet the National Register criteria. I recommend that this property be considered significant [X] nationally [ ] statewide [ ] locally.
(See continuation sheet for additional comments [ ].)

James Eduard Hartman State Historic Preservation Officer December 13, 1995
Signature of certifying official/Title Date

State Historic Preservation Office, Colorado Historical Society
State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria.
(See continuation sheet for additional comments [ ].)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

[ ] entered in the National Register
See continuation sheet [ ].
[ ] determined eligible for the National Register
See continuation sheet [ ].
[ ] determined not eligible for the National Register.
[ ] removed from the National Register
[ ] other, explain
See continuation sheet [ ].

Signature of the Keeper Date

Beth Boland 4/1/96

5. Classification

Ownership of Property
(Check as many boxes as apply)

[X] private
[ ] public-local
[ ] public-State
[X] public-Federal

Category of Property
(Check only one box)

[ ] building(s)
[X] district
[ ] site
[ ] structure
[ ] object

Number of Resources within Property
(Do not count previously listed resources.)

Contributing	Noncontributing	
1	0	buildings
9	0	sites
7	2	structures
0	0	objects
17	2	Total

Name of related multiple property listing.
(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register.

0

6. Function or Use

Historic Function
(Enter categories from instructions)

TRANSPORTATION/rail-related
INDUSTRY/communications facility

Current Functions
(Enter categories from instructions)

Outdoor recreation

7. Description

Architectural Classification
(Enter categories from instructions)

Late 19th and Early 20th Century
American Movements
Other: Wood Framed Tunnel
Other: Elevated Wood Framed Tank

Materials
(Enter categories from instructions)

foundation Wood
Stone
walls Wood
Stone
roof Wood
Metal
other

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

[X] **A** Property is associated with events that have made a significant contribution to the broad patterns of our history

[ ] **B** Property is associated with the lives of persons significant in our past.

[X] **C** 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 lack individual distinction.

[X] **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

[ ] **A** owned by a religious institution or used for religious purposes.

[ ] **B** removed from its original location.

[ ] **C** a birthplace or grave.

[ ] **D** a cemetery.

[ ] **E** a reconstructed building, object, or structure.

[ ] **F** a commemorative property.

[ ] **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)
Engineering
Transportation
Archaeology/Historic Non-Aboriginal

Periods of Significance
1880 - 1910

Significant Dates
N/A

Significant Person(s)
(Complete if Criterion B is marked above).
N/A

Cultural Affiliation
Euro-American

Architect/Builder
Evans, James A.
Eicholtz, Leonard H.
Cummings & Company
Fitzgerald, Cushing & Osborne

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographic References

Bibliography
(Cite the books, articles and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

[ ] preliminary determination of individual listing (36 CFR 67) has been requested

[ ] previously listed in the National Register

[ ] previously determined eligible by the National Register

[ ] designated a National Historic Landmark

[ ] recorded by Historic American Buildings Survey

#_____

[ ] recorded by Historic American Engineering Record

#_____

Primary location of additional data:

[X] State Historic Preservation Office

[ ] Other State Agency

[X] Federal Agency

[ ] Local Government

[ ] University

[ ] Other:

Name of repository:
USDA Forest Service

Alpine Tunnel Historic District
Name of Property

Chaffee/Gunnison Counties, CO
County/State

10. Geographical Data

Acreage of Property 475

UTM References
(Place additional UTM references on a continuation sheet.)

1.	13 Zone	371550 Easting	4275981 Northing	Quartz
2.	13 Zone	371628 Easting	4275964 Northing	Culvert

[X] See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Ray V. Rossman/East Zone Heritage Resource Manager

organization U.S.D.A. U.S. Forest Service date April 29, 1994

street & number 216 N. Colorado telephone 970-641-0471

city or town Gunnison state CO zip code 81230

Additional Documentation
Submit the following items with the completed form:

Continuation Sheets

Maps
A **USGS map** (7.5 or 15 minute series) indicating the property's location.
A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs
Representative **black and white photographs** of the property.

Additional Items
(Check with the SHPO or FPO for any additional items)

Property Owner
(Complete this item at the request of SHPO or FPO.)

name See continuation sheet

street & number _____ telephone _____

city or town _____ state _____ zip code _____

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this [X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [X] meets [ ] does not meet the National Register criteria. I recommend that this property be considered significant [X] nationally [ ] statewide [ ] locally.
(See continuation sheet for additional comments [ ].)

Evan D. DeBloois Historic Preservation Officer 2-14-96
Signature of certifying official/Title Date

USDA Forest Service
State or Federal agency and bureau

NARRATIVE DESCRIPTION

The **Alpine Tunnel Historic District** is located primarily in Gunnison County, Colorado, with a small portion in Chaffee County, Colorado. The district boundary follows the original railbed and right-of-way of the Denver, South Park and Pacific Railroad (DSP&P). It runs 13.3 contiguous miles to a width of 30 meters on either side of the railbed centerline. The district also includes features such as the Alpine Tunnel, the Alpine Tunnel Station complex, the Sherrod townsite, portions of the townsites of Hancock and Quartz, three construction camps, one water tank, a telegraph line, a wagon road and the Palisades. The Denver, South Park and Pacific Railroad and its successors (the Denver, Leadville and Gunnison Railway and the Colorado and Southern Railway) were in use for only 30 years. The railroad and its associated features slowly deteriorated following their abandonment in 1910.

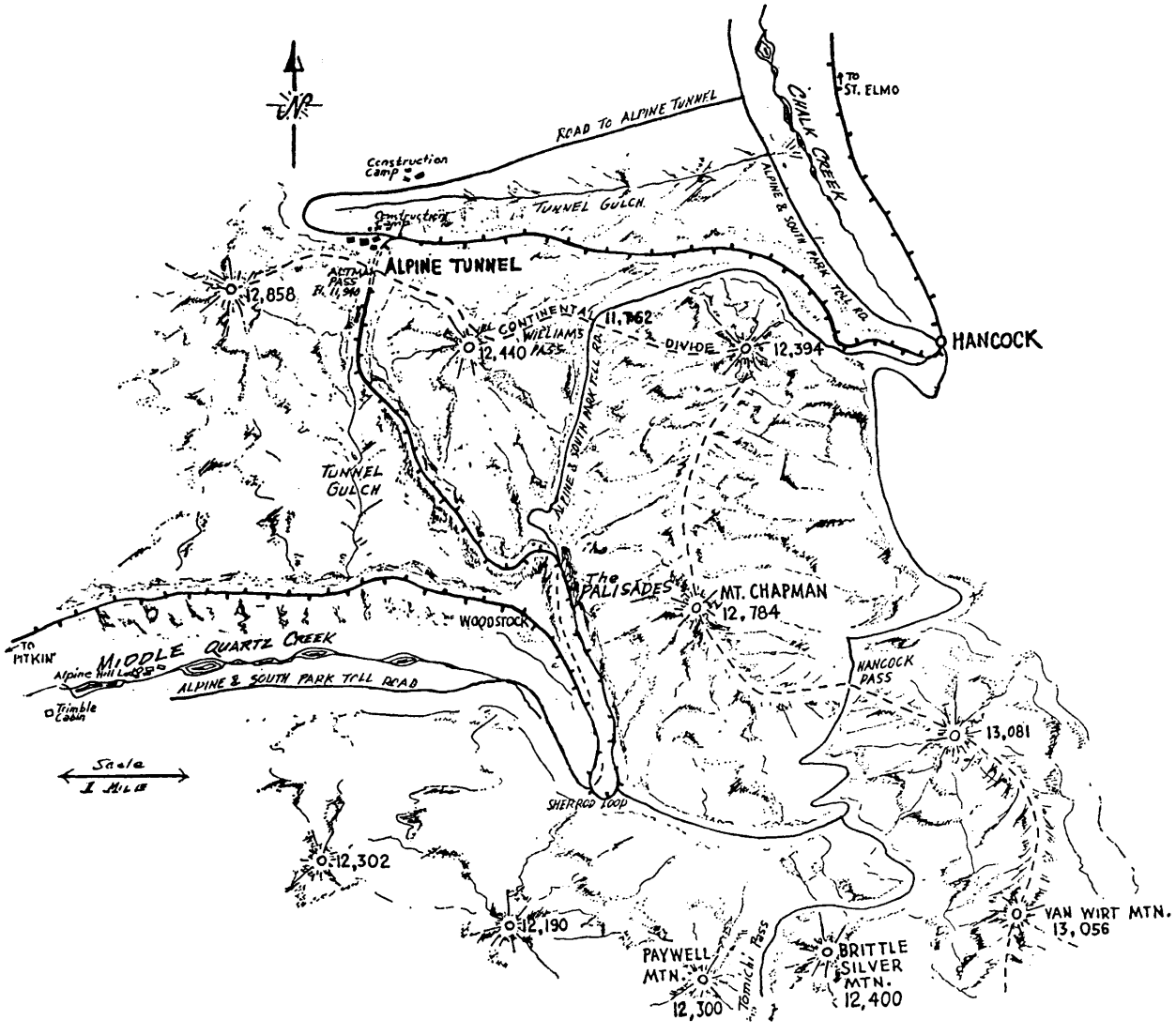
The culvert over Chalk Creek at Hancock townsite forms the eastern terminus of the Alpine Tunnel Historic District. Hancock was a boom town that based its economy on the railroad, mining and logging. The town at its height included two sawmills, five stores, several restaurants and saloons (Poor, 1976). Little remains of the town except a stripped cabin, an unstable ore bin, saw dust piles and decayed railroad ties (Hemphill, 1992). The town served as the western end-of-the-line for the railroad after the tunnel was abandoned in 1910.

The Atlantic construction camp is located 2.8 miles further west along the railbed and immediately northeast of the east portal of the Alpine Tunnel. This construction camp was used during the excavation of the tunnel from 1879 to 1881. Only the simple terracing of the cabin sites, several notched logs and scattered tin identifies the site today. The site contributes to the district.

The Alpine Tunnel is the next structure located along the railbed, stretching 1772 feet under Altman Pass. The railbed completes a 24 degree curve 159 feet inside the eastern portal and continues on a straight line through the Continental Divide to the western portal. The tunnel was constructed with a slight incline(0.96%-1.04%) to provide natural drainage to both portals. The tunnel apex, located approximately 600 feet from the west portal, is at an elevation of 11,612 feet above sea level.

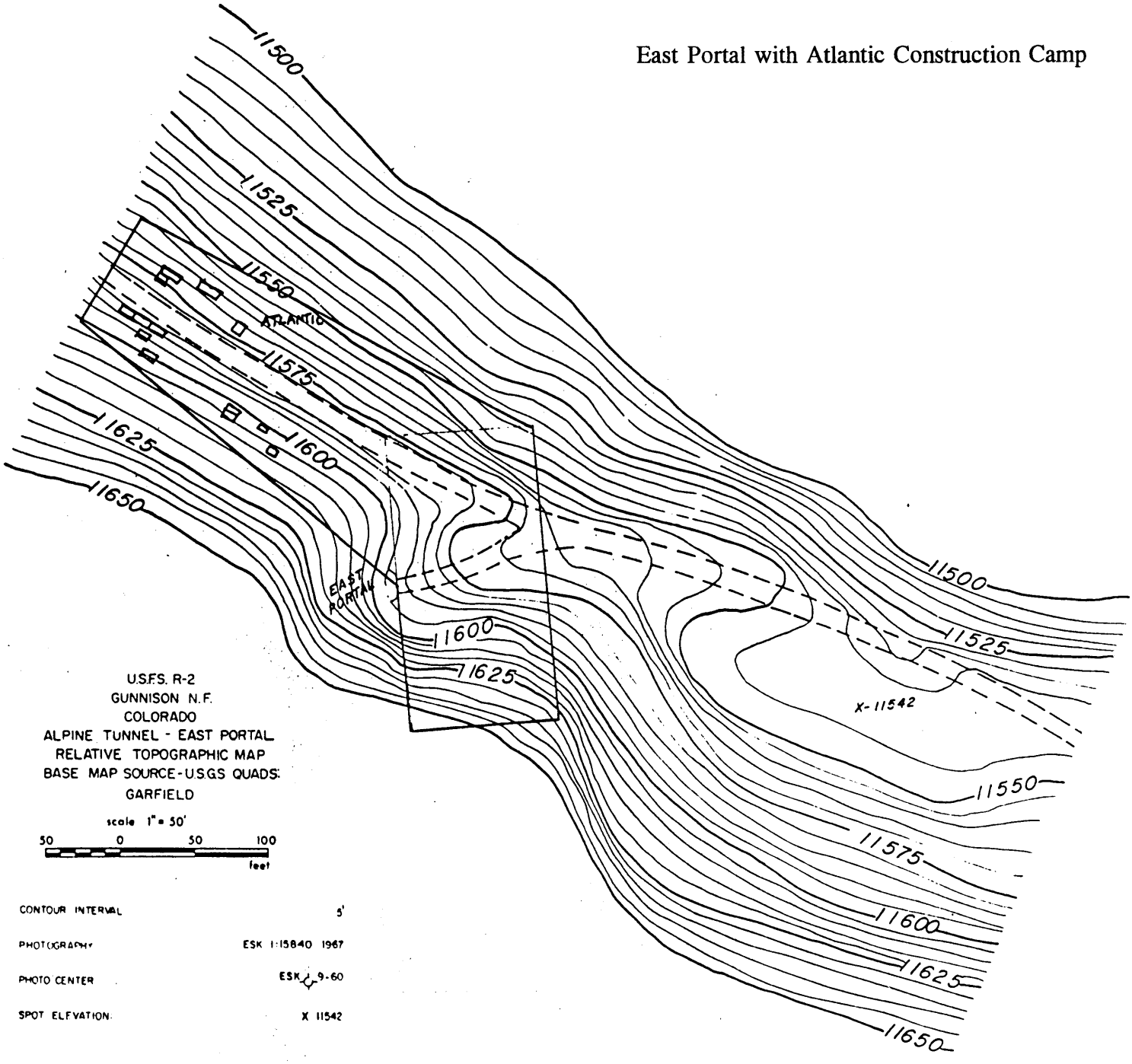
The tunnel is lined throughout by a series of redwood arches supporting plank cribbing. A seven-segmented arch system is utilized. The foundation for these arches consists of 12"x 12" redwood timbers running parallel to both sides of the railbed. The arches are tied together by 12"x 12" horizontal beams placed between the first and second segments of each arch. Tunnel cribbing is attached to the rock side arches to apply an even distribution of the tunnel weight. Tunnel debris fills the space between the 4"x 12" redwood planking and the interior tunnel surface. The arch system is contiguous throughout the tunnel, except for a segment 100 feet long near the west portal.

The interior, though not easily accessible, remains in moderately good condition. There are two minor rock falls and a major tunnel collapse within the tunnel. The most significant is a 300-350 foot section which collapsed and completely sealed off the eastern portal. The western portal, faced with locally



Source: Helmers, Dow, Historic Alpine Tunnel. Sage Press, Denver, Colorado, 1963.

East Portal with Atlantic Construction Camp



quarried hand-cut granite stones, has been covered by talus debris and has suffered only minor damage. Several support beams throughout the tunnel have also collapsed. In addition, a white mold covers some of the interior redwood timbers. The original rails and ties extend the length of the tunnel. These rails represent the only portion of the entire DSP&P rail system that remains intact. Water covers a portion of the railbed at both ends where the tunnel is sealed off. The snowsheds that protected both portals have totally collapsed and decayed. The east portal was constructed directly into solid granite and required no external facing. The tunnel is a contributing structure in the district.

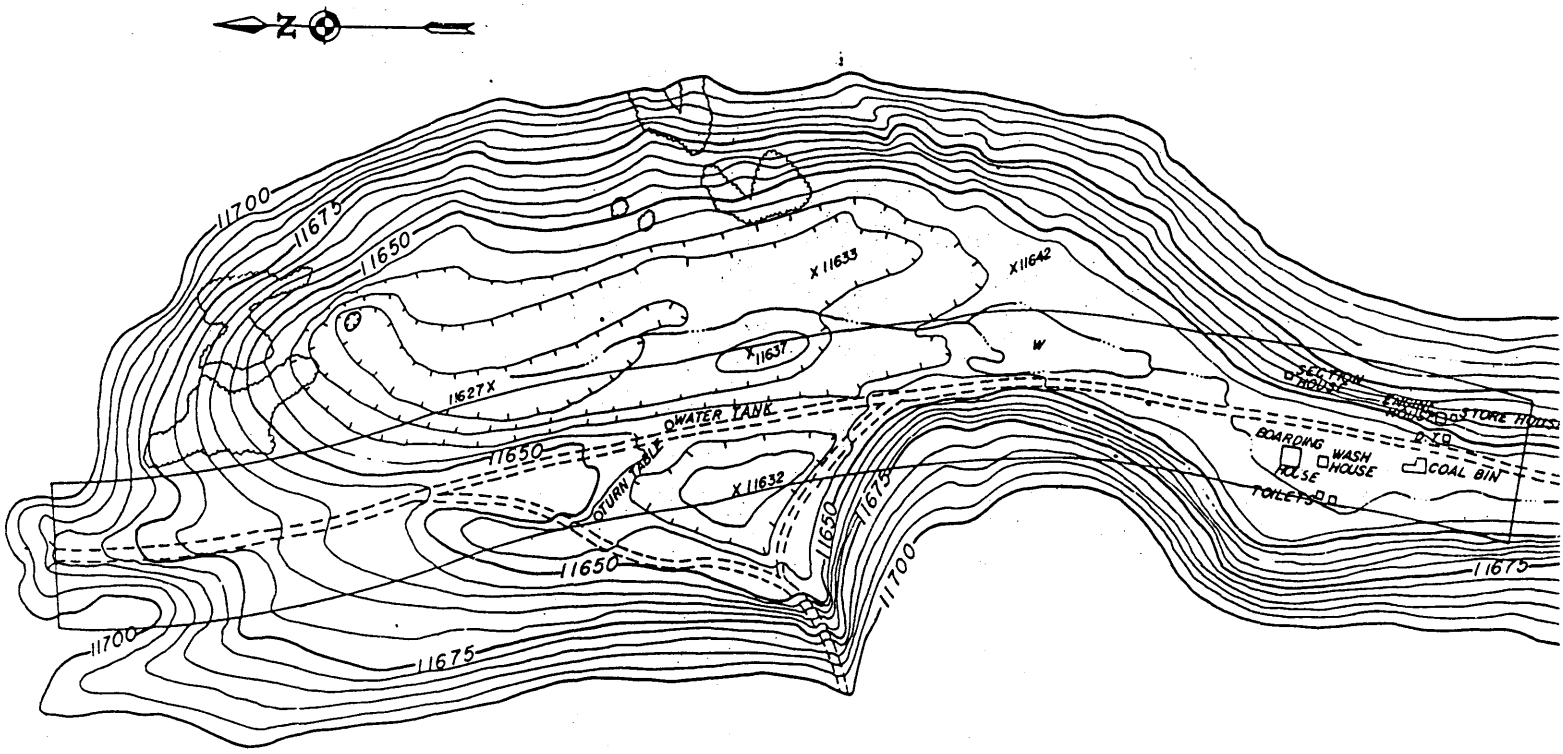
A telegraph line parallels the entire route with a few random poles still standing. The section that crosses Altman Pass, directly over the tunnel, is marked by broken and fallen poles. This single #9 galvanized wire system was used primarily as a communication service of the railroad, although service was also provided for public use. The site of the telegraph line is considered to be a contributing resource.

Also crossing Altman Pass is the Construction Road that was utilized to pack timbers and supplies to the western tunnel side of the Continental Divide. Today, it is easily visible as a well worn path from above the western portal to the Atlantic siding of the eastern portal. The road is considered to be a contributing structure.

The remnants of a turntable and a water tank are located several hundred meters south of the west portal. Both were constructed after a fire destroyed the engine house in 1906. The turntable now retains only a few boards marking its circular form around a shallow depression. The 30,000 gallon water tank was removed by the railroad in 1910 and relocated to Boreas Pass to replace a smaller tank. This tank still stands and is known as the Baker Tank on the "High Line" route. Remains of another construction camp can be seen to the east of the water tank location. Only a stone foundation and strewn lumber mark the camp's site.

The Alpine Tunnel Station complex is located approximately 1/3 of a mile south of the tunnel. At least ten different structures were constructed during the operation of the railroad. They are described below:

The stone section house was an "L" shaped structure built in 1881. It functioned as the original boarding house for the assigned complex crew members. The initial construction measured 55'x 30' and had a 25'x 16' addition added to the northeast corner prior to 1896. The corner, window, door and sill stones are of native hand-cut granite. The walls were constructed with random sized native stone material. Based upon photo evidence this facility was abandoned by 1896. Today only foundations and segments of the lower walls remain visible.



U.S.F.S. R-2
GUNNISON N.F.
COLORADO
ALPINE TUNNEL - WEST PORTAL
RELATIVE TOPOGRAPHIC MAP
BASE MAP SOURCE - U.S.G.S. QUADS:
GARFIELD

scale 1"=100'
100 0 100 200
feet

CONTOUR INTERVAL: 5'
PHOTOGRAPHY: ESK 1:15840 1967
PHOTO CENTER: ESK 9-59
SPOT ELEVATION: X 11633

COMPILED BY DIVISION OF ENGINEERING
BRANCH OF GEOMETRONICS
USING KELSH PLOTTER METHODS

MAY 1978

West Portal with Alpine Station

The 58'x 157' stone engine house employed the same construction technique as the section house listed above and was also constructed in 1881. The engine house is located 75 feet south of the section house and 89 1/2 feet from the centerline main rail line. This structure housed a 14'x 40' coal bin, a 50' diameter turntable and a 9,500 gallon wooden water tank. The engine house was served by a rail spur that ran completely through the building. A 1906 fire, started by a locomotive, so badly damaged the engine house that no effort was made to restore it. Like the section house, it also remains basically a pile of stone rubble with many of the cut stones removed by vandals.

The 8'x 13' collapsed ruins of a timber lined dugout is located 25 feet south of the engine house and probably served as a tool shed.

The 14'x 20' depot/telegraph office built in 1890, served both as a telegraph and train dispatch office. The rectangular plan, front gabled, lap sided building contains a paneled wood door and three-light window on the east elevation. The south elevation contains one 6-light fixed window and a one-over-one sash window. The west and north walls are without fenestration. The roof is covered with corrugated metal and the ridge is topped by a sign board containing the name, "Alpine Station." Sometime after the 1906 fire, a 12'x 14' extension was added to the rear of the building. The Mile-Hi Jeep Club recently restored the building and removed the extension. The only deviation from the original construction is the replacement of the tar paper roof with steel roofing material. The building retains its historic integrity, is the best preserved structure at the station complex, and is a contributing building in the district.

The wooden 55'x 24' boarding house was constructed 10 feet south of the depot/telegraph office. The facility housed a dining room, kitchen and two bedrooms on the lower level and a private company bedroom and large open boarding room for regular railroad crew members on the second floor. The boarding house collapsed in the early 1960's and remains in complete disrepair.

A two-hole outhouse/privy is located 35 feet west of the boarding house. The building has partially fallen over. This was the second outhouse constructed. Photographic evidence suggests the original structure was located directly west of the front entrance of the engine house.

The collapsed remains of a structure of unknown function is located directly south of the outhouse.

A covered storage cellar is located 20 feet south of the boarding house. Entrance was gained though a covered walkway that extended from the front porch of the boarding house. Today the structure has lost its metal roof and the stone walls are leaning inward.

Forty feet south of the cellar are the standing timbers of a 16'x 32' coaling platform. Coated by creosote, the structure has remained in good condition. The eastern side has shown the most deterioration. The structure contributes to the district.

Future management plans for the Alpine Tunnel Station complex calls for the restoration of the coaling platform, outhouse and storage cellar. The ultimate goal calls for the restoration of the facility to its 1910 configuration including the rebuilding of the two story wooden boarding house.

Another construction camp is located approximately one mile downgrade from the complex. Remnants of several cabins are still visible. Work crews used these structures while building the cribbing along the Palisades rock formation. The site is considered to be contributing.

The South Park Toll Road crosses the rail line as it proceeds up Williams Pass and is considered a noncontributing structure within the district.

The next point of interest is the Palisades. Due to the spectacular cliffs, this is one of the most photographed sections of the entire South Park system. The tracks follows a very narrow traverse that is supported by a stone wall that allowed for construction across this natural barrier. The stones were hand cut using the tap and die method. Drill holes can still be seen in the cut granite stones today. This crib wall measures 2 feet thick, 33 feet high by 425 long. The Palisades wall stands in the same relative condition as it did while in operation of the rail line. The structure is a contributing resource within the district.

The Sherrod townsite was a short lived mining camp. Located on *private property*, little remains except scattered debris and collapsed buildings. Sherrod included a depot that was constructed after the Woodstock avalanche and later removed to Ohio City. The site is considered to be a contributing resource within the district.

The Hancock Pass wagon road crosses the right-of-way on the north side of town and is considered to be a noncontributing structure.

Continuing down the railbed is the Sherrod Loop where the railbed made a sharp 228 degree U-turn crossing Middle Quartz Creek twice. Two stone culverts are located on the loop. The roadbed over the upper 31 foot inlet has washed out, but provides an excellent viewing example of the fitted stone culvert construction technique used by the railroad. The lower 125 foot culvert remains intact. Both culverts are considered to be contributing structures.

Woodstock is the second townsite west of the tunnel and is located approximately 3 miles downgrade from the western portal. The town included a water tank, bunk house, hand car house and numerous cabins. In 1884 these buildings were all destroyed by an avalanche, killing 13 of the 16 people living in the town at the time. Only the stone pedestals of the water tank and rotting timbers remain at the site today. The water tank site is considered to be contributing.

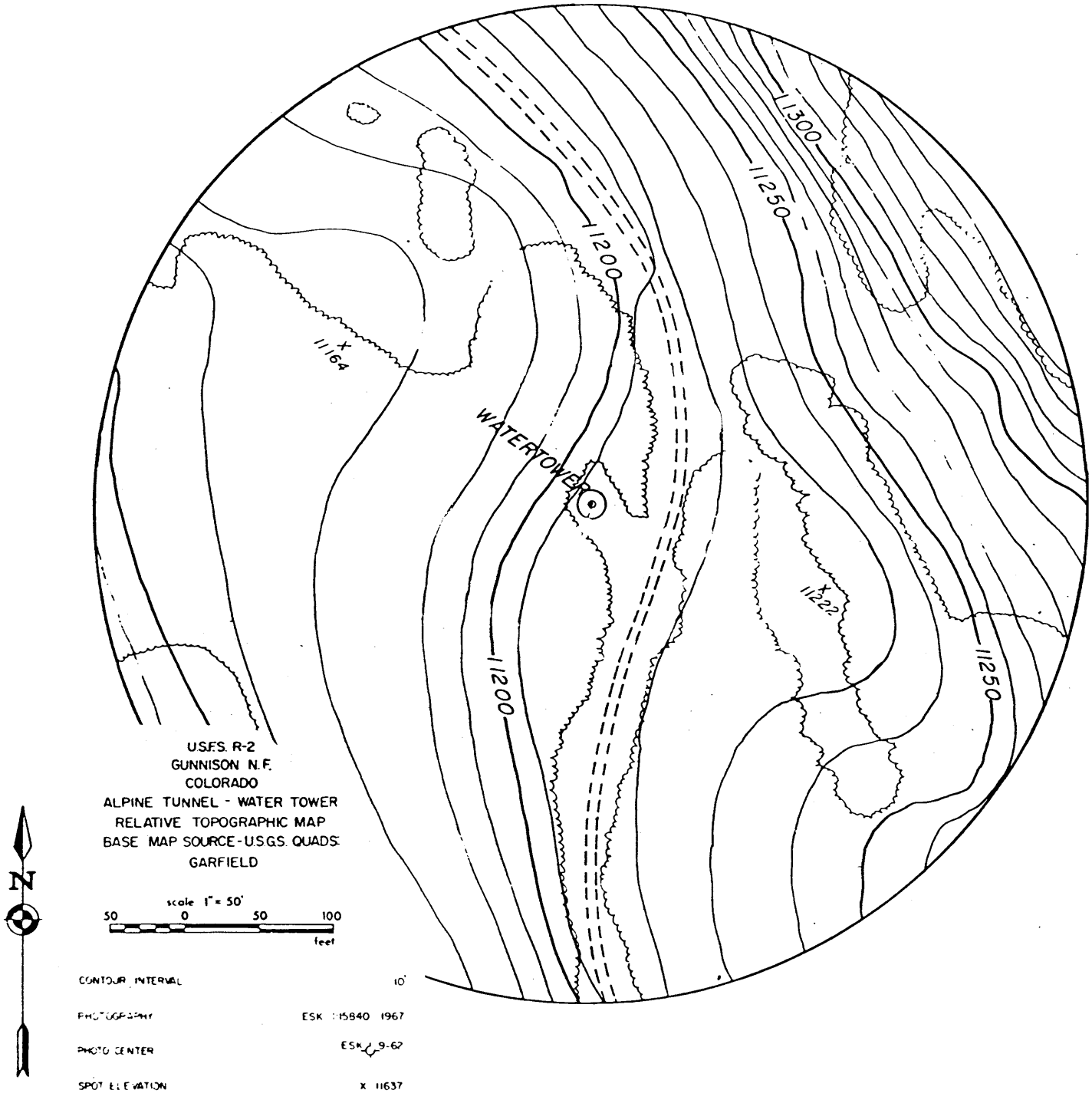
About a half mile downgrade a new water tank, the Tunnel Gulch water tank, was built after the avalanche. The Tunnel Gulch water tank. This structure was stabilized and restored by the Mile High

Jeep Club. The tank is one of the best examples of the typical water tanks used along the South Park rail system. The structure contributes to the district.

The final construction camp is located approximately one mile downgrade from Woodstock. As with the other construction sites this one also was abandoned after completion of the railroad. Only the remnants of one cabin corner can be found today. A William Jackson photo reflects the location of several structures in this camp.
The Midway water tank is situated further downgrade. Only the base of the tank and supporting timbers remain. The site is considered to be contributing.

A section of a hillside cut remains with original ties still in place. Likewise, a stone culvert, located nearby is still in working order.

The railbed crosses Quartz Creek outside of the Quartz townsite. The Alpine Tunnel Historic District boundary terminates where the Cumberland Pass Wagon Road crosses the railbed within the townsite of Quartz. The town functioned as the principle shipping point for the Taylor Basin served by the Cumberland Pass route. Quartz continued to serve as the easternmost terminus to Gunnison after the railroad through the Alpine Tunnel was abandoned in 1910.



Tunnel Gulch Water Tank

Resource Summary:

	Contributing	Noncontributing	UTM References Zone	Easting	Northing
Buildings (1)					
Depot/Telegraph Office at Alpine Tunnel Station	1				
Structures (9)					
Alpine Tunnel	1		13	377503	4278179
Construction road over Altman Pass	1		13	380931	4277495
Coaling platform	1				
South Park Toll Road		1	13	378623	4276053
Palisades wall	1		13	378900	4275290
Hancock Pass Wagon Road		1	13	379028	4274625
Sherrod Loop culverts	2		13	378904	4274560
			13	379000	4274480
Tunnel Gulch water tank	1		13	378265	4275925
Sites (9)					
Atlantic Camp site	1		13	377698	4278716
Telegraph route over Altman Pass	1		13	377599	4278346
Alpine Tunnel Station complex	1				
Construction camp	1				
Construction camp	1				
Construction camp	1				
Sherrod townsite	1				
Woodstock tank site	1		13	378858	4275055
Midway water tank	1				
TOTAL	17	2			

STATEMENT OF SIGNIFICANCE

The Alpine Tunnel Historic District is eligible for the State Register under criterion "a" for its association with the operation of Colorado mountain railroads in the late 19th and early 20th century. The route through the Alpine Tunnel illustrates the operational challenges faced by the Denver, South Park and Pacific Railroad in providing rail service across the Continental Divide to the Gunnison Basin. The district is eligible under criterion "c" for its engineering significance, containing intact buildings and structures related to the design, construction and operation of the route over the Continental Divide. The construction of North America's highest and longest narrow gauge railroad tunnel and the first railroad tunnel of any type to pierce the Continental Divide affords the district national significance. The district is also eligible under criterion "e" for its potential to yield important information relating to the construction and operation of this significant mountain railroad.

Background History

The Denver, South Park and Pacific Railroad (DSP&P) filed its incorporation papers on June 14, 1873. Its founders, who included such political and financial luminaries as John Evans, David Moffat and Charles Kountse, charted an ambitious future for the infant railroad. Plans called for a route to South Park via the Platte Canyon and the Arkansas River, from there to Salida, through Poncha Pass, across the San Luis Valley to the mining claims of the San Juan Mountains, and as was the goal of nearly every western railroad of the period, on to the Pacific. The company chose to build its rail network utilizing a the three-foot narrow gauge spacing between rails. Narrow gauge construction allowed steeper grades, sharper curves, and cheaper cost materials and rolling stock than did standard gauge construction.

Track laying began in 1874. Not long after the first rails received their first spikes, the emerging silver mining boom in Leadville caused company directors to redirect their planned route towards this new source of economic vitality. By 1879 track was advancing rapidly towards Leadville. At the same time, Jay Gould, financier and railroad accumulator, assumed control of both the DSP&P and its main competitor, the Denver and Rio Grande Railroad (D&RG). In a step designed to limit profit reducing competition between his two Colorado railroads, Gould forged what came to be known as the Joint Operating Agreement of 1879. Under its terms the Rio Grande would lay track from Buena Vista into Leadville with the DSP&P being granted equal traffic rights over the D&RG tracks. The DSP&P would build into the Gunnison Basin with equal traffic rights extended to the Rio Grande. The DSP&P turned away from the San Juans and Leadville and set its sights for the Continental Divide and the lucrative Gunnison mining district beyond.

Over the next few decades the DSP&P operated under a series of names. In November, 1880, it became the Union Pacific Railway, Colorado Division. An 1889 bankruptcy and reorganization resulted in the Denver, Leadville and Gunnison Railway. Finally, in December of 1898, the railroad became

part of the newly organized Colorado and Southern Railway under which name it operated until abandonment.

Engineering Significance

As the DSP&P managers contemplated their westward expansion, they surveyed a number of possible routes over the Continental Divide. Many passes were already being utilized for trail and wagon routes. These included Otto Mear's Marshall Pass Toll Road, the Hancock Pass Wagon Road and the Alpine and South Park Toll Road over Williams Pass. Chief engineers Leonard H. Eicholtz and James A. Evans settled on the route up the Chalk Creek drainage (Chaffee County), tunneling under 11, 940 foot Altman Pass (at the Continental Divide), and proceeding down the Quartz Creek drainage (Gunnison County) through Pitkin and on to Gunnison. The grade on both summit approaches could be kept from exceeding 4%, close to the maximum possible for an adhesion railroad. Tunneling through the divide near the summit would reduce the maximum altitude that had to be achieved as the rails snaked toward the pass.

M. Cummings & Company received the contract for the construction of the Alpine Tunnel in December, 1879. Even though the DSP&P rails had not even reached the Arkansas River crossing, work on the tunnel began in January, 1880. Plans called for completion of the tunnel in six months. Atlantic construction camp was established by the east portal and another camp soon took shape by the west portal.

Both the construction company and the railroad underestimated the difficulties of construction under the adverse conditions of a typical high county Colorado winter. Temperatures of 40 degrees below zero were not unusual and blizzards, drifting snow and avalanches were commonplace. Supplies were hauled in by mule and wagon from Hancock on the east and up Quartz Creek on the west.

Laborers found the high altitude work difficult, particularly during the cold winter months. Workers were recruited locally and back East. Laborers received $3.50 a day while hard rock miners and explosivesmen pulled down $5.00 a day. Steady crews of 350 to 450 were needed and perhaps as many as 10,000 men worked on the tunnel as some point during its construction.

The engineers not only underestimated the rigors of winter construction, they also failed to appreciate the nature of the geology at the summit. They anticipated boring through solid, self-supporting granite without the need for costly and time consuming timber bracing. What they encountered was unstable rubble and slide rock deposited in the pass as a result of the erosion of the flanking mountain peaks. The chemical action of water seepage accompanied by the forces of repeated freezing and thawing created a miner's and an engineer's nightmare. Power tools did not work well in the crumbling, decomposed granite. Hand drilling became the standard method of excavation. Huge sections of rock fell from the sides and ceiling as the tunnel progressed, necessitating the erection of false timbering at

a great loss of time and added expense. Estimates are that 1.5 million board feet of lumber were used in the temporary support of the tunnel.

Escalating costs soon drove Cummings and Company into bankruptcy after boring only 250 feet. The DSP&P transferred the construction contract to Fitzgerald, Cushing & Osborn of Lincoln, Nebraska. The new firm brought with them considerable experience in canal, railroad and tunnel construction. One of their first steps was to secure large quantities of California redwood timbers to be used for the permanent lining of the tunnel. Redwood was chosen due its strength, durability, resistance to decay, low flammability (an important consideration with spark producing coal fired locomotives), low cost, and ready availability. The timbers were shipped in via the Central Pacific and Union Pacific Railroads to Buena Vista and hauled by wagon up Chalk Creek and Tunnel Gulch to Atlantic. Half the timbers went on over the pass for use at the west portal excavation. As the rails advanced up Chalk Creek the wagon haul shortened. The *Engineering News* reported in January, 1882, that 500,000 board feet of redwood went into the tunnel lining.

A seven-segmented arch system was constructed with these redwood beams. The foundation for the arches was formed by using 12"x 12" timbers that ran parallel to both sides of the railbed. The arches were tied together by 12"x 12" horizontal beams that were placed between the first and second segments of the arch. Tunnel cribbing was attached to the outside of the arches to apply an even distribution of the tunnel weight. Tunnel debris was placed between the 4"x 12" redwood planking and the interior tunnel surface. The arch system ran throughout the tunnel, except for a segment 100 feet long near the west portal. The success of the redwood lining is demonstrated by the lack of a single fire in the 30 years of tunnel usage. Only three areas of the tunnel have collapsed - a large section near the east portal, constructed by Cummings & Co., and two smaller failures on each side of the apex. The reasonably intact condition of the timbers today is amazing in light of the total lack of maintenance since 1910. This represents a truly significant design and construction accomplishment considering the difficult conditions under which the Alpine Tunnel took shape.

In the summer of 1880 William Jackson Palmer regained control of the D&RG from Jay Gould. He quickly canceled the Joint Operating Agreement and began laying rails from Salida via Mears Junction, over Marshall Pass towards Gunnison. Whichever railroad reached the Gunnison mining district first could establish itself as the preeminent line. The DSP&P redoubled its efforts to complete not only the Alpine Tunnel but the rest of the railbed on the eastern and western approaches. It is precisely this contest between lines that typifies the broad pattern of railroad expansion, operation, and often demise in Colorado during the late 19th and early 20th centuries.

After working through the winter of 1880-81, the DSP&P rails finally reached Hancock on July 26, 1881. At nearly the same time the east and west tunnel crews broke through and met below the summit of Altman Pass with a horizontal error of less than 1 inch. The track laying crews pushed the line to the east portal on August 11th and wagons began to haul rails through the unfinished tunnel so work could begin on the west side trackage toward Quartz. Much work remained to be done in the tunnel,

and the first train would not roll through until December. But the D&RG had already won the race to Gunnison having reached the town 5 days before the DSP&P rails reached the Alpine's east portal. The DSP&P could now only hope to recover its construction costs by splitting the Gunnison Basin's freight and passenger business with its rival. Construction of the tunnel alone is estimated to have cost somewhere between $120,000 and $300,000.

Before the DSP&P could hope to tap into any of the Gunnison trade it first had to tame the difficult western descent from the Alpine Tunnel. The downgrade from the tunnel to the Sherrod townsite has been referred to as "the most fantastic bit of railroad construction in the North America" (Helmers 1963:30). No less than 16 stone crib walls had to be constructed to provide a shelf wide enough to support the narrow gauge line from the west portal to Quartz. These crib walls average two feet thick and range in length from 29 feet to 550 feet. Heights range from 11 feet to 33 feet. Of all these walls none is as spectacular as the Palisades. Engineers first blasted a foundation at the base of the steep cliff. The exterior wall was then fitted with hand cut stones without use of mortar. The space between the wall and the cliff face was back filled to create a sturdy base on which to construct the railbed. The engineering success of these walls is borne out by their continued existence in nearly original condition without having received any maintenance in decades.

The DSP&P rails finally reached Gunnison on September 2, 1882. The belated arrival in no way detracts from the engineering significance of the accomplishment. The construction of the Alpine Tunnel by means of hand drilling through broken and shifting rock at an elevation over two miles above sea level is an engineering feat of magnificent proportions. The progress of the venture was closely monitored by professionals around the world and the news was frequently reported for their benefit in Engineering News. The achievement is made more impressive when we consider that a good portion of the work took place during the brutal winter months. No less significant is the construction of the east and west rail approaches with their numerous cuts and fills and spectacular stone crib walls. These resources, along with the sites of the associated construction camps, convey to modern visitors the magnitude of the engineering accomplishment of the designers and builders of the Alpine District.

U.S. Railroad Tunnels Through the Continental Divide

Name	Railroad	Altitude at Apex	Length	Gauge	Completed	Current Status
Alpine Tunnel	Denver, South Park & Pacific	11,612 feet	1,772 feet	Narrow Gauge	1881	Closed in 1910
Hagerman Tunnel	Colorado Midland	11,528 feet	2,061 feet	Standard Gauge	1887	Closed in 1893
Tennessee Pass	Denver & Rio Grande Western	10,221 feet	2,550 feet	Standard Gauge	1890	In use
Busk-Ivanhoe Tunnel	Colorado Midland	10,948 feet	9,394 feet	Standard Gauge	1893	Closed in 1918
Moffat Tunnel	Denver & Rio Grande Western	9,198 feet	6.2 miles	Standard Gauge	1927	In use

Transportation Significance

The line through the Alpine Tunnel, what the DSP&P referred to as its Alpine District, has long been heralded for its scenic wonders. Tourist from around the world rode the line to glimpse the high altitude panoramas. William H. Jackson, noted photographer, came through the area several times to record the railroad, its facilities and western landscapes. Samuel Clemens (Mark Twain), hearing about the thrill of riding down the western grade on a flat car (without an engine), undertook the adventure and had wild tales to report as a result (Helmers 1963:75).

The rugged mountain scenery may have impressed travelers but it provided an assortment of operating headaches for the DSP&P. Water towers, coaling stations, turntables and sidings had to be maintained to keep the thirsty and hunger engines running as they labored toward the tunnel. The steepness of the tunnel approaches required the addition of helper engines on all trains. The storage and maintenance of this extra locomotives necessitated the construction of the large stone engine house near the tunnel at Alpine Station. The engine house was a modern facility capable of repairing and storing six locomotives at one time. The crews necessary to man and service these locomotives, as well as the track maintenance crews needed lodging, and the stone section house quickly rose to provide accommodations. The two-story frame boarding house took over these responsibilities after a 1906 fire destroyed both the engine and section houses. Rapid communication was a necessary part of any railroad operation, particularly where a single track mainline was utilized to move trains in both directions. The depot/telegraph office at Alpine Station, along with the telegraph line that paralleled the rails kept operations running as smoothly as physical and natural conditions allowed. The Mile Hi Jeep Club restored the depot/telegraph station to its early appearance thus allowing modern visitors to better understand and appreciate the operation of the railroad. The depot/telegraph office remains as one of few standing buildings from the entire DSP&P railroad system.

The Jeep Club also restored the Tunnel Gulch water tank. This water tank remains an example of a typical watering structure once found at stops all along the original line. Only two original DSP&P tanks remain intact today. The other structure is the Baker Tank on the Highline route between Como and Breckenridge. It once stood near the west portal of the Alpine Tunnel but was removed prior to closure of the tunnel route in 1910.

Nature proved to be the biggest challenge faced by the Alpine District of the DSP&P. Winter operations called for herculean efforts to keep the tracks free of snow and ice and the tunnel accessible. Drifts of 20 to 25 feet were common. Doors were installed on the tunnel portals to keep snow from drifting in. Long wooden snow sheds grew from each portal for additional protection.

Locomotives traveling over the Alpine District were fitted with steel plows to assist in snow removal. During the first years of operation crews often hand dug sections of track to keep it open or to rescue stranded trains. The section of track from Hancock to the east portal was particularly susceptible to drifting and snow slides as it clung to the north side of the mountain. It soon became clear that greater

snow removal capacity was needed. In 1890 the railroad purchased its first rotary snowplow. The rotary blades cut a huge swath through the snow under the power of its own boiler. A brace of four locomotives pushed the rotary plow along as it battled the drifts. While the rotary worked well on plain snow, the occasional rocks and timbers buried in the drifts and slides wreaked havoc on the whirling blades.

Avalanches were a constant threat throughout the Alpine District. In March, 1884, a tremendous slide roared down on the small community of Woodstock, three miles west of the tunnel. The avalanche destroyed every structure and buried 16 people. It wasn't until summer that the last of the 13 fatalities was found.

The high cost of keeping the Alpine District open in winter caused a huge financial drain on the DSP&P and its successors. In February, 1890, railroad managers decided to close the Alpine District for the duration of the winter and to route freight and passengers to the D&RG tracks over Marshall Pass. Marshall Pass was lower than the Alpine Tunnel and could more easily be kept open during the winter. The closure lasted longer than anticipated and rail travel through the tunnel did not resume until 1895. The high costs and operating difficulties of the route lead to the decision to close the tunnel permanently in 1910 with all traffic diverted to the Rio Grande.

The Alpine District proved itself capable of providing the rail service it was built to deliver. It simply could not cover its high operating costs against the competition of the D&RG. The Rio Grande itself eventually closed the Marshall Pass route to Gunnison when it completed a rail link with its mainline via Montrose and Grand Junction. Today, the area is without any rail connections, trucks and automobiles having filled the need once meet by the railroads.

The Alpine Tunnel Historic District offers a sense of historic cohesiveness through its association with the Denver, South Park and Pacific Railroad, and its contribution to the development of the Gunnison Basin and western Colorado. The railroad shipped the products of the area's mining and logging industries and brought in people and supplies to keep these industries and the communities they supported alive and thriving. These industries, with the help of the railroad, furthered the settlement of Colorado's high mountains.

Informational Significance

From a research standpoint, there is much recoverable data within this proposed Historic District. The three construction campsites have a large amount of trash accumulated over the term of occupation. Subsistence, health, social strata and recreational information could be obtained. This significant data could be compared to the low altitude construction camps along other segments of the Denver, South Park and Pacific Railroad.

Utilizing numerous historic photographs combined with on-the-ground observations, architectural historians could make complete structural documentation. The data is available, but as of yet, little technical/architectural work has been completed.

There are many other features that still provide a multitude of resource informational data. Outhouses, holding tanks, can dumps and foundations are also significant to the district and can provide data and artifacts useful to the continuing research on the railroad and on early settlers adaptation to the area.

The Alpine Tunnel Historic District is a monument to human effort in the conquest of natural barriers. Although its success was short lived, the district serves to define those practical limits. The builders overcame the extreme difficulties of construction in a harsh climate. The financial strain to operate and maintain the Alpine Tunnel route was staggering. The fact that it was be built at all is a testament to the ingenuity and perseverance of its designers and builders. The operation of the route provided needed transportation services in the face of daunting challenges. The district is one of the few high altitude sites sufficiently intact to be of interpretive value to the general public, in addition to research value for scholars, engineers, and narrow gauge railroad enthusiasts. The Alpine Tunnel's achievement of being the first railroad tunnel beneath the North American Continental Divide and its status as both the continent's highest and longest narrow gauge railroad tunnel afford the district national significance.

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GEOGRAPHICAL DATA

UTM References
(cont.)

3.	13	371591	4275623	Stream
4.	13	371638	4275007	Stream
5.	13	371648	4274995	Original Cut
6.	13	371260	4274060	Curve
7.	13	372808	4274140	Range 4E/5E boundary
8.	13	375020	4275383	Stream
9.	13	375836	4275830	Downed Crib Wall
10.	13	376197	4276149	Stream
11.	13	377596	4276338	Tunnel Gulch
12.	13	378265	4275925	Tunnel Gulch Water Tank
13.	13	378814	4275138	South Park Toll Road (Woodstock)
14.	13	378858	4275055	Woodstock Siding
15.	13	378904	4274560	Middle Quartz Creek Outlet Culvert
16.	13	379000	4274480	Middle Quartz Creek Inlet Culvert
17.	13	379028	4274625	Hancock Road
18.	13	378623	4276053	South Park Toll Road (Williams Pass)
19.	13	378900	4275290	Palisades
20.	13	378667	4275832	Palisades
21.	13	377546	4277302	Ties
22.	13	377493	4277352	New Toilet
23.	13	377484	4278035	Telegraph
24.	13	377503	4278179	West Portal
25.	13	377690	4278140	Altman Pass Trail
26.	13	377590	4278620	Altman Pass Trail
27.	13	377715	4278650	East Portal
28.	13	377698	4278716	Atlantic Camp Site
29.	13	380144	4278471	Curve
30.	13	380931	4277495	Construction Trail
31.	13	380963	4277464	Stream
32.	13	381574	4277462	Hancock

Verbal Boundary Description

The Alpine Tunnel Historic District follows the historic railbed of the Denver, South Park and Pacific Railroad from the bridge crossing Chalk Creek at the Hancock townsite to the intersection of the railbed with the Cumberland Pass Wagon Road within the townsite of Quartz. The boundary runs 100 feet on either side of the railbed centerline for approximately 13.8 miles. Three hundred feet of the former Atlantic rail spur northwest of the east portal. The district also includes the historic trail over Altman Pass.

Boundary Justification

The boundary includes the buildings, sites, and structures historically associated with the construction and operation of the Denver, South Park and Pacific Railroad and its successors from Quartz to Hancock. The two end points were chosen as easily identifiable geographical locations.

PROPERTY OWNERS

High Muckamuck Mining Claim [MS-1785]

name: William P. Williams (1/4 share)
street & number: PO Box 917
city or town: Gunnison
state & zip code: CO, 81230

name: Michael G. Dickinson (1/4 share)
street & number: 38163 W. Hwy 50
city or town: Gunnison
state & zip code: CO, 81230

name: Stephen & Debra Williams (1/2 share)
street & number: PO Box 917
city or town: Gunnison
state & zip code: CO, 81230

Sherrod Townsite (Old White Hat Placer Claim)

name: Sandra L., Misty D. and Tiffany A. Curtin
street & number: 7301 S. Webster
city or town: Littleton
state & zip code: CO, 80123

U.S.D.A. U.S. Forest Service

name: Jack A. Weissling, Forest Supervisor, Pike and San Isabel National Forests
street & number: 1920 Valley Dr.
city or town: Pueblo
state & zip code: CO 81008

name: Robert Storch, Forest Supervisor, Uncompahgre and Gunnison National Forests
street & number: 2250 Highway 50
city or town: Delta
state & zip code: CO 81416

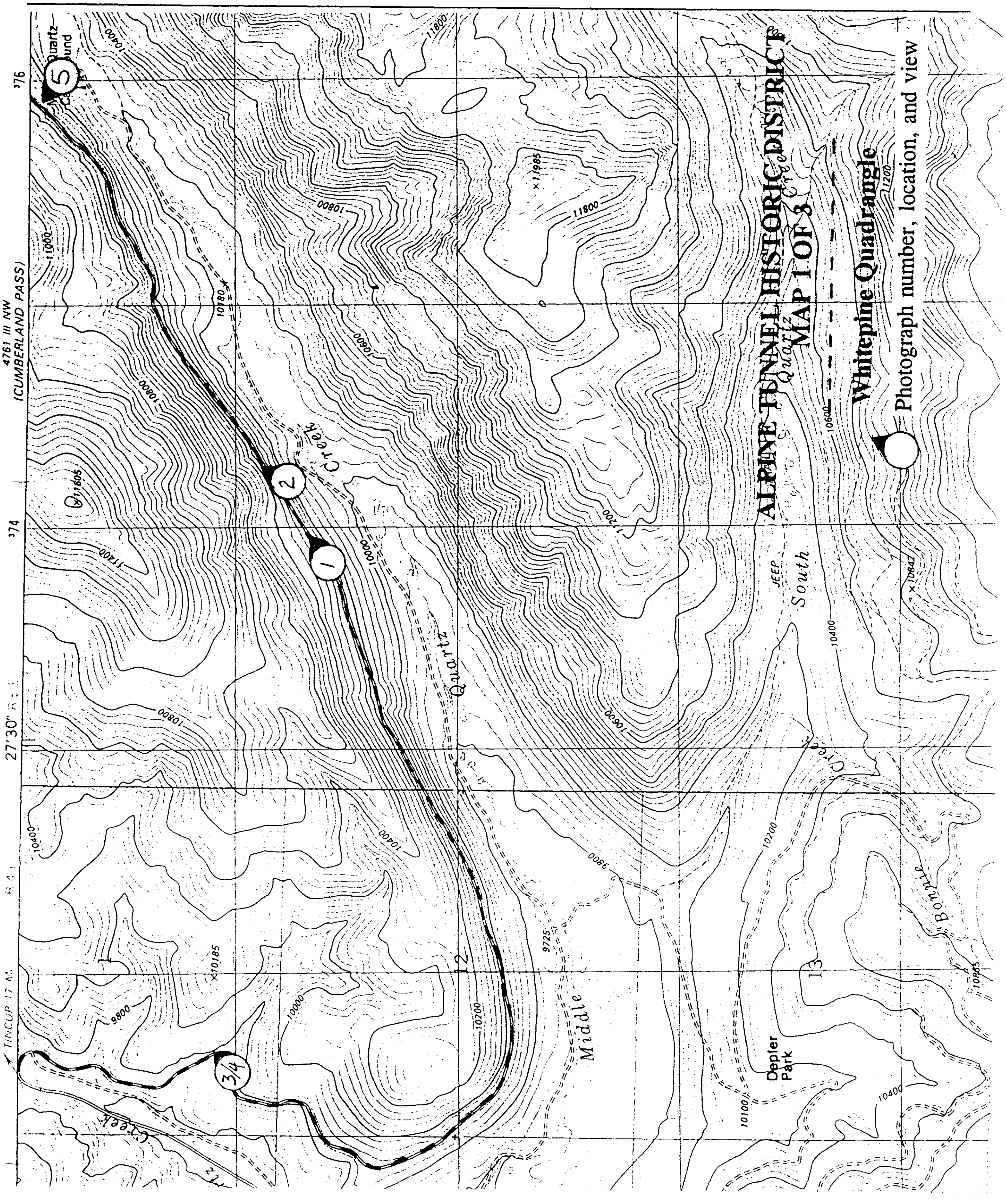
PHOTOGRAPH LOG

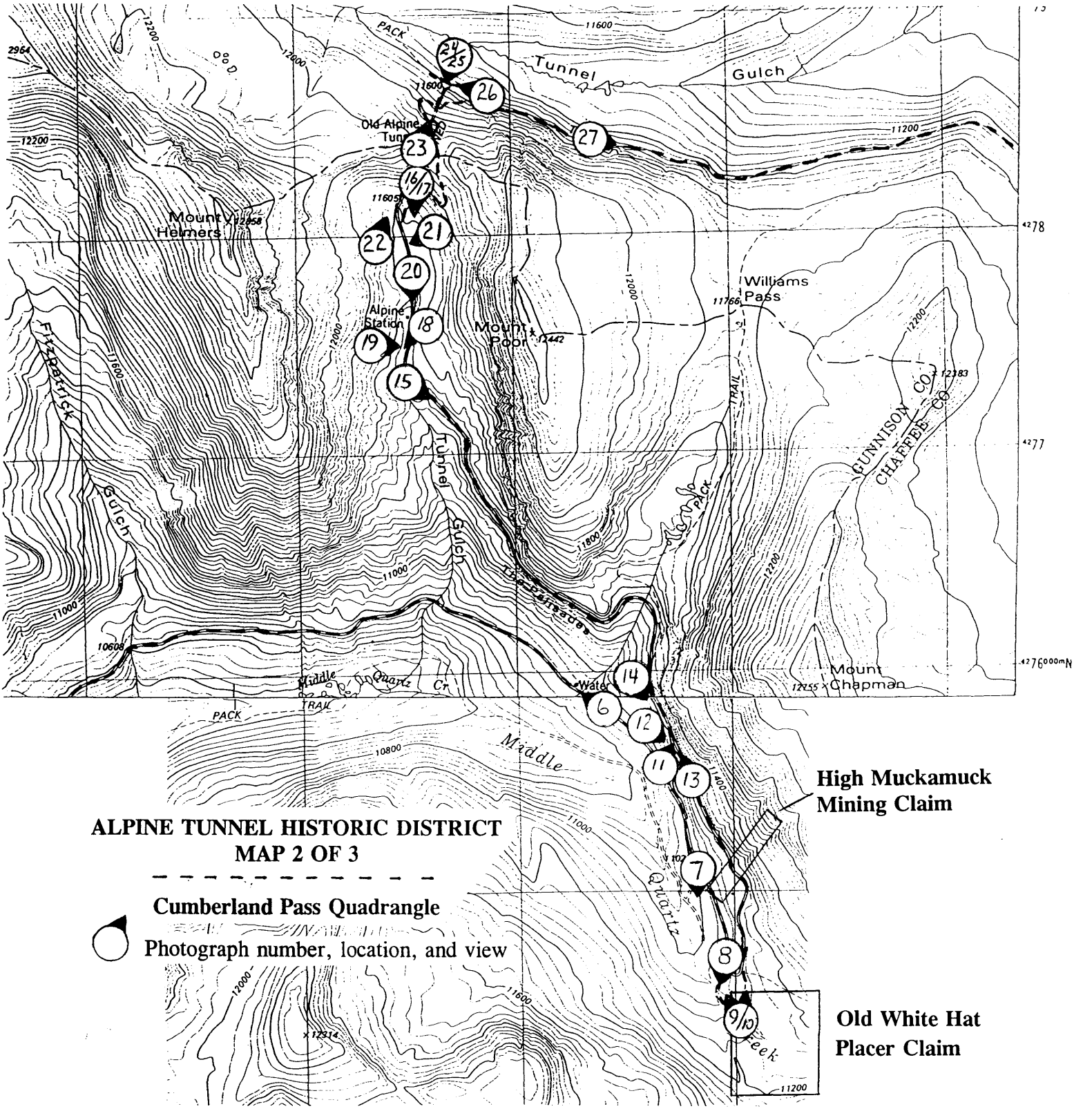
The following information pertains to photographs numbers 1-28 except as indicated:

Name of Property: Alpine Tunnel Historic District
Location: Grand and Chaffee Counties, Colo.
Photographer: Ray Rossman
Date of Photographs: 1994
Negatives: Taylor River/Cebolla Ranger District, Gunnison National Forest

Photo No.	Information
1	Railbed and associated telegraphic pole (note tie marks on roadway); looking northeast.
2	Midway water tank base; view to the north.
3	Dry laid stone culvert (exterior view); view to the north.
4	Dry laid stone culvert (interior view); view to the north.
5	Typical dry laid stone crib wall; view to the northwest.
6	Tunnel Gulch Water Tank (restored); view to the west.
7	Woodstock rail siding; view to the south.
8	Sherrod Loop (railbed); view to the south.
9	Sherrod Loop (railbed); view to the north.
10	Sherrod Loop exposed culvert (washed out); view to the northeast.
11	Palisades Wall; view to the northeast.
12	Palisades Wall; view to the southeast.
13	Palisades Wall; view to the northwest.
14	Palisades Wall; view to the southeast.
15	Railbed near Alpine Tunnel Station Complex (note ties still in place); view to the south.

Photo No.	Information
16	Photographer: unknown Date of Photograph: ca. 1880s Negatives: Colorado Historical Society Tunnel complex from the Continental Divide (Altman Pass); view to the south.
17	Date of Photograph: 1986 Tunnel complex from the Continental Divide (Altamn Pass); view to the south.
18	Coaling platform at Alpine Station (remains of storage cellar and boarding house in foreground); view to the south.
19	Remains of stone section house; view to the east.
20	Alpine Station complex. Remains of stone section house and stone engine house on left of railbed. Restored depot on right with remains of wooded boarding house behind. View to the south.
21	Remains of wooden water tower removed by railroad in 1910. View to the southwest.
22	West portal and snowshed debris at Alpine Tunnel; view to the north.
23	Photographer: unknown Date of Photograph: ca. 1960 Negatives: Colorado Historical Society Interior tunnel view looking northeast.
24	East portal; view to the southwest.
25	East portal and snowshed debris; looking southwest.
26	Photographer: unknown Date of Photograph: ca. 1890s Negatives: Colorado Historical Society East portal and snowshed; view to the west.
27	Rock cut and railbed downgrade from east portal; view to the east.
28	Railbed with original ties in place above Hancock; view to the southeast.


ALPINE TUNNEL HISTORIC DISTRICT
MAP 1 OF 3
Whitepine Quadrangle
Photograph number, location, and view
4761 III NW
(CUMBERLAND PASS)
27'30"
TINCUP 17 MI.
374
376
Quartz
Creek
Middle
South
Bonnie
Depler Park
JEEP
12
13
1
2
3/4
5
10185
11985
10842
10885
9725
10780



ALPINE TUNNEL HISTORIC DISTRICT
MAP 2 OF 3

Cumberland Pass Quadrangle

Photograph number, location, and view

High Muckamuck Mining Claim

Old White Hat Placer Claim

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Alpine Tunnel Historic District
Section number Additional Documentation Page 27 Chaffee/Gunnison Counties, CO