United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number ______ Page ______

SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 00001269 Date Listed: 10/26/00

Chicago, Milwaukee, St. Paul & Pacific Railroad Company Historic District	Mineral Shoshone	MT ID
Property Name	County	State

North Idaho 1910 Fire Sites
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.

Signature of the Keeper — Date of Action: 10/26/00

Amended Items in Nomination:

Location:
The Montana location is: *Mineral County -- 061.*

Significance:
Archeology (Historic/Non-Aboriginal) and *Conservation* are added as areas of significance.

U. T. M. Coordinates:
Point A is corrected to read: *603170*

Previous Documentation:
A 56-mile segment of the Milwaukee Road rail line from St. Regis to Avery was determined eligible for listing by the Keeper in 1995. (The current nomination represents a smaller segment of that larger linear district.)

Photographs:
Photograph #4 is omitted from the current nomination; as a result the remaining photographs are all misnumbered by one (1). The photographs were taken by Cort Sims, Panhandle NF and date from 1994; they reflect the current condition of the resources.

These revisions were confirmed with the National Forest Service.

DISTRIBUTION:
National Register property file

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NATIONAL REGISTER, HISTORY & EDUCATION
NATIONAL PARK SERVICE

NPS Form 10-900 OMB No. 1024-0018

1269

United States Department of the Interior
National Park Service
NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in "Guidelines for Completing National Register Forms" (National Register Bulleten 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable". For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Chicago, Milwaukee, St. Paul and Pacific Railroad Company Historic District
other names/site number Chicago, Milwaukee and St. Paul Railway Company
(X See continuation sheet)

2. Location

street & number Idaho Panhandle National Forest /NA/not for publication
city, town Avery /X /vicinity
state Idaho Code ID county Shoshone code ~~017~~ 079 zip code 83802
(X See continuation sheet)

3. Classification

Ownership of Property	Category of Property	Contributing	Noncontributing	
_ private	_ building(s)			
_ public-local	X district	__	__	buildings
_ public-State	_ site	5	__	sites/clusters
X public-Federal	_ structure	117	27	structures
	__ object	1	__	objects
(x see continuation sheet)		123	27	Total

Number of Resources within Property

Name of related multiple property listing:
North Idaho 1910 Fire Sites
(X See continuation sheet)

Number of contributing resources previously listed in the National Register 1 (x See continuation sheet)

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ✓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 CRF Part 60. In my opinion, the property ✓meets _does not meet the National Register criteria. See continuation sheet.

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property X meets _does not meet the National Register criteria. See continuation sheet.

Mark R. Becker FS/R1 9/20/00
Signature of commenting or other official Date

Mark F. Baumler 8/21/2000
State or Federal agency and bureau Montana State Historic Preservation Officer

Kenneth C Reid IDAHO DEPUTY SHPO 8/23/2000

Lolo National Forest
St. Regis /X/ vicinity
Montana
MT
~~Lincoln~~ Mineral
~~053~~ 061
59872

"Chicago, Milwaukee and Puget Sound"	Corporation name of the unified components of the Mobridge, South Dakota to Tacoma extension from 1909 to 1912 (Scribbins 1990: 160).
"Chicago, Milwaukee and St. Paul Railway Company"	Corporation name from 1874 to 1927 (Scribbins 1990: 160).
"Chicago, Milwaukee, St. Paul and Pacific"	Corporation name from 1928 until acquisition by the Soo Line in 1985 (Scribbins 1990: 160).
"Lines West"	The Pacific Extension, all lines west of Mobridge, S. Dakota (Scribbins 1990: 162).
"Puget Sound"	Nickname of the Chicago, Milwaukee and Puget Sound (Scribbins 1990: 164).
"Puget Sound Extension"	The line from Mobridge, S. Dak., to Seattle and Tacoma, Wash., constructed between 1906 and 1909 (Scribbins 1990: 164).

"Milwaukee Road"	Short name for the Chicago, Milwaukee, St. Paul and Pacific Railroad adopted in 1928 to acquision by Soo Line in 1985 (Scribbins 1990: 160).
"Missoula Division"	The Deer Lodge, Montana to Avery, Idaho until merged with the Rocky Mountain Division (Scribbins 1990: 162).
"Pacific Extension"	The 1400 mile line from Mobridge, South Dakota to Tacoma/Seattle, Washington.
"Rocky Mountain Division"	The line from Harlowton to Deer Lodge, Montana, later it absorbed the Missoula Division (Deer Lodge to Avery) (Scribbins 1990: 164).
"St. Paul"	Popular name for the Chicago, Milwaukee and St. Paul Railway Company in the early 1900s (Scribbins 1990:164).

For the purposes of this registration form, the short name "Milwaukee Road" or "Milwaukee" will be used for the railroad as a whole.

"Route of the Hiawatha", a name used by the Forest Service in the 1994 Environmental Assessment for a multi-purpose trail over the abandoned Milwaukee Road right-of-way from East Portal, Montana to the mouth of Loop Creek, seven miles north of Avery, Idaho.

In 1984, the Idaho State Historic Preservation Officer completed a thematic nomination to the National Register of 10 sites related to the 1910 forest fires in Montana and Idaho. The properties listed in 1984 include the Avery railroad depot of the Milwaukee Road, the town site of Grand Forks, the Avery Ranger Station and the grove of burned cedar snags at the mouth of Bullion Creek on the North Fork of the St. Joe River. The East Portal to Pearson portion of the Milwaukee Road is an important part of the surviving 1910 fire related sites and is considered eligible to the National Register under criterion A for its association with this historic event.

5. National Park Service Certification

__hereby, certify that this property is:
X 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:)

[signature] 10/24/00

for Signature of the Keeper   Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)	Current Functions (enter categories from instructions)
Transportation/Rail-related;	Transportation/Pedestrian-related;

7. Description

Architectural Classification (enter categories from instructions)	Materials (enter categories from instructions)
	foundation concrete, rock
	walls wood
	bridges steel, concrete, wood
	other trolley poles wood
	concrete signal piers
	rock ballast

Describe present and historic physical appearance.

The historic context for the 14.5-mile segment of the "Milwaukee Road Historic District" from East Portal, Montana to the mouth of Loop Creek (Pearson, Idaho) consists of three themes. These themes are construction, electrification and operation of the Milwaukee Road through the Bitterroot Mountains. The significant period considered in this registration form is from 1906 to 1945. This period of significance begins in 1906 with the start of the route survey. The period ends in 1945 when the company emerged from bankruptcy. Dates significant to the railway segment include: 1909 (completion of the line), 1910 (the year fire burned the area), and 1917 (completion of the conversion to electrical power).

X See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

__nationally _x_statewide _locally

Applicable National Register Criteria_x_A__B__C_x_D

Criteria Considerations (Exceptions) __A__B__C__D__E__F__G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Transportation	1906-1945	1909
		1910
		1917

Cultural Affiliation
N/A

Significant Person
N/A

Architect/Affiliation

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The historic district is a 14.5-mile segment of the Pacific Extension of the Chicago, Milwaukee, St. Paul and Pacific Railroad (popularly known as the Milwaukee Road) between St. Regis, Montana and Avery, Idaho that has the characteristics of a rural historic landscape. This railroad segment reflects an important part of the historical associations, location, design, materials and setting of the last transcontinental railroad to be constructed in the United States. The route reflects the challenges imposed on both the builders and the operators of the railroad in passing through the Bitterroot Mountains. This segment retains significant features including tunnels, bridges and a number of buildings, structures, sites and objects. The railroad segment is a focus for properties associated with the construction of the line and properties associated with activities related to the operation of the railroad. Some of these properties also have archaeological research potential through the study of the artifacts and features they contain. These sites contain important information through the materials, styles and integrity of association of artifacts and features relating to the construction and operation of the railroad.

_x_ See continuation sheet

9. Major Bibliographical References

Bohi, Charles W. and Roger H. Grant
1978 Country Railroad Stations of the Milwaukee Road and the Chicago and North Western in South Dakota. South Dakota History 9(1): 1-24.

X See continuation sheet.

Previous documentation on file (NPS):
_ preliminary determination of individual listing (36 CFR 67) has been requested.
data:
_ 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

_ State hist. preservation office
_ Other State agency
_ Federal agency
_ Local government
_ University
_ Other

Specify repository:

10. Geographical Data

Acreage of property 48 acres Montana, 655 acres Idaho

UTM References

	Zone	Easting	Northing
A	11	602170	5250100
B	11	602030	5249170
C	11	602130	5249060
D	11	600620	5248160

X See continuation sheet

Verbal Boundary Description

The edges of the Milwaukee Road Historic District follow the edges of the right-of-way

X See continuation sheet

Boundary Justification

From East Portal to Pearson the boundary follows the right-of-way 200 feet on each side of the

X See continuation sheet

11. Form Prepared By

name/title Cort Sims Forest Archaeologist
organization Idaho Panhandle National Forests date March 31, 2000
street & number 3815 Schreiber Way telephone (208) 765-7306
city or town Coeur d'Alene state Idaho zip code 83814

The ties, switches, signals and rails were salvaged in the early 1980s and part of the rute was graded for use as a truck road. However, the nominated segment contains distinctive structures remain largely unaltered from the original construction. In addition, some sites have archaeological research potential. The structures and sites in this historic district include:

Bridges
Earth Fills
Tunnels
Signal Piers
Sidings
Substation
Catenary Poles/Gallows Trolley Support
Railroad Grade
Grave
Railroad Signs
Telephone Line

Bridges. In constructing the railroad from East Portal to the mouth of Loop Creek (Pearson), the Milwaukee built a combination of 20 temporary wooden trestles and permanent bridges to speed up access to, and the opening of, the Bitterroot Mountain crossing. Describing similar trestles on the Cascade Mountain crossing, *Engineering News* (1909: 307-8) states that

> The timber trestles are of standard form, with 12 x 12-inches posts, 12 x 12-inches intermediate caps, 12 x 14-inches caps and top decks, 10 x 18-inches x 32-feet stringers, 8 x 8-inches x 12-feet ties, 6 x 8-inches guard rails, 6 x 10 and 4 x 12-inches longitudinal members and all other bracing 4 x 12-inches. These were all spiked in place, no machine bolts being used in construction, an aerial cableway was used, aided in places by a derrick.

Initially, the railroad constructed the Kelly and Clear Creek bridges with concrete and steel. The Milwaukee's valuation report (Chicago, Milwaukee and St. Paul n.d.: 47) completed by the railroad states that:

> All bridges except steel structures were built by contract in accordance with the standard plans of the C.M. & P. S. Ry. Co. under the direction of Winston Brothers Co. as per contract. Stringers were of Douglas fir and piles of cedar. The former were purchased and shipped from the Pacific Coast to stations on the Northern Pacific Railway, where they were unloaded and hauled by team to the various points of erection.
>
> Stringers used on the high bridges in the Bitter Root District were shipped to [St. Regis] on the N.P. Ry. then hauled west again on the Coeur d'Alene branch of that railway to Haugan, Saltese and Taft, from which points they were hauled by team over the newly constructed roads and trails to points of erection.
>
> Trestle timber other than stringers, such as posts, sills braces and caps were also purchased at Coast points, except a small portion that was obtained from local saw mills.
>
> Idaho cedar piles were used, originating on west slope of the Bitter Roots loaded at stations on the N. P. Ry., thence shipped to points of erection.
>
> As previously stated under grading, numerous temporary trestles were built on this section in order to prepare the line for track lying as soon as possible. 21 were built on the west slope of the Bitter Root Mountains and their total length was about 9800' with an average height of about 110', the maximum being 150' and the minimum 52'. These structures required the use of approximately 8,000,000 M. B. F. of timber and about 80 tons of iron. The timber, with the exception of the small dimension material such as bracing guard rail and ties, was shipped from Coast points via foreign railroads to Taft, Montana, then conveyed by teams to East Portal, thence to the summit by the electric tramway, thence distributed by wagon road to the points closest to the sites. From the wagon road they were taken to the bridge erection with traveling blocks operated on ropes supported by the standing timber, or fastened to the rock cliffs. The small dimension lumber was cut in a portable sawmill that had been established in the Clear Creek Valley by the Railway Company. The iron for these bridges was shipped from the East.

> The concrete foundations for the Kelly and Clear Creek viaducts were built during the early construction period, the equipment, cement, etc., being brought in by team from Taft, Montana. The steel work was fabricated in the East and shipped on foreign lines to Plummer, Idaho, from where it was taken to the bridge sites by work train. Clear Creek bridge is 165' high and Kelly Creek 205' high, and the steel erection was done during the winter of 1908, so the difficulties in the deep snow are obvious.

The railroad selected the Clear Creek and Kelly Creek bridges for permanent structures apparently because they are the longest and highest spans on this section. Of the original bridges between East Portal and Pearson, 9 became permanent bridges. The railroad filled the other crossings to form earth embankment crossings.

The permanent bridges include:

> 1 Treated Timber Pile Bridge
> 8 Deck Girder Bridges

The construction of the six deck girder bridges besides Kelly and Clear Creek structures began immediately after completion of the line in 1909. A note in *Railroad Age Gazette* (1909: 1322) states that

> The Chicago, Milwaukee & Puget Sound has given an order for six large steel viaducts, aggregating about 4,000 tons, to replace timber structures on its main line in Washington and Idaho. Two were given to the American Bridge Co. for the crossings of Mine and Hull creeks, Washington; two to the Toledo-Massillon Bridge Co., for Hansen and Change creeks, Washington, and two to the McClintoc-Marshall Construction Co. for Turkey and Glade [Big Dick] Creeks, Idaho. Bids have been asked on several other structures of the same kind, and the contracts probably will have been awarded by the time this item appears.
>
> This replacement of timber viaducts with steel is in line with the policy the road has adopted of getting rid of all such timber structures on its main line without delay. It was felt that, although these timber structures are new and of unusually substantial construction, the fire risk, with the delay to traffic that the destruction of one such bridge would entail, was too great to allow of their retention. A large number are being filled in with earth. All of the steel viaducts will have ballasted floors.

> In crossing the "Continental Divide" in the Rocky Mountains, three steel and 18 timber viaducts were built. The later are being filled in. Seven are already done and the work on the remainder is in progress. By the end of the year there will be no timber bridges on this part of the line.
>
> For the same reason that the timber bridges are being replaced, a number of the tunnels, which have timber linings when built are now being lined with concrete.

One of the Turkey Creek Bridge abutments has "1909" formed in one side of the concrete. The construction of the steel deck girder bridges occurred before 1912 when the railroad installed the handrails on all of them.

The guard railings consisted of cables when the railroad stopped operations. The Forest Service for safety reasons replaced all the remaining guard railings in 1997. Other than the removal of the rails and ties the trestles retain their original character and have a high degree of integrity.

Earth Fills. The Milwaukee used earth embankments to cross 19 drainages. The Milwaukee's valuation report (Chicago, Milwaukee and St. Paul n.d.: 81) states that:

> It was the policy of the Railway Company to hurry the grading all possible while work was being done under contract, and consequently many large temporary trestles were built which were filled either by the Railway Company forces or contract outfits after the track was laid. Many of the bridges in the Bitter Roots were filled with material obtained in delighting and widening cuts for snow protection, and others were filled by the sluicing method. In connection with the latter, large areas of land were purchased from the Government and many miles of flumes were built to divert the mountain streams to the places where water was needed.

The method of filling largely depended on the location of the fill. On the Idaho side two water flumes provided water for sluicing bridges from Cliff Creek west to Moss Creek and from Clear Creek to an area adjacent Furguson Creek. The railroad filled other areas by hauling material to the site with train cars.

A railroad manual (Camp 1903: 752, 757) of the period explains the process of filling a bridge.

> Filling Trestles. Improved earth-handling appliances such as steam shovels, material cars and unloading plows of large capacity, have so cheapened the cost of handling dirt that trestle filling has become a widely established method of constructing railway embankments. When new roads are being constructed it is frequently the plan to build temporary trestles out of timber conveniently at hand in order to quickly open the road for traffic and begin earning money, while these trestles are being filled in with steam shovels and work trains at much less cost than it could have been done by contract from borrow pits or adjacent cuts at the time the roadbed was being graded. It is also a policy, now widely adopted, to fill in all the old wooden trestles of moderate height as fast as they require renewing. In support of this plan there are many considerations, such as the relative cost of track and bridge maintenance, danger from fire, accidents liable to happen in cases of derailment, etc. Investigations of the comparative cost of embankment filling and wooden trestle construction have shown that, under usual conditions of timber supply and traffic movement, trestles as high as 22 to 25 ft. can be filled as cheaply as they can be rebuilt, considering first cost only; and that, taking the cost of periodical rebuilding and the various items of bridge inspection and bridge maintenance into consideration, it is an economical proposition to fill trestles up to 50 ft. in height, providing unusual difficulties are not encountered in maintaining a waterway. Local conditions, such as cost of timber and cost of handling earth, as influenced by interference with work-train service by the traffic trains, might change these figures one way or the other, but for general practice they are regarded as typical limits unless the situation is attended with exceptional conditions.

> Filling Trestles by Hydraulic Methods. The economical and very extensive operations of moving earth in hydraulic mining suggested the application of the same process to railway trestle filling, and on the Northern Pacific and Canadian Pacific roads a large number of high wooden structures have been filled in this way. The process, commonly known as sluicing, consists in loosening the material--gravel, earth or loose rock--from the bank with a powerful hydraulic jet and conveying it to the site of the trestle in sluice boxes or flumes. The water is obtained by diverting mountain streams at a sufficiently high level to produce the pressure required for such purposes. The flow to the monitor is through strong iron pipe, the head sometimes being upwards of 200 ft. The monitor is provided with nozzles 3 to 6 ins. in diameter, according to the head and the character of the material. For breaking up masses of material the small-size nozzles are most effective, while for flushing the sluices the increased volume of water required is furnished by the larger ones. By directing the jet against the face of the hillside the earth or gravel is broken up by the force of the discharge and brought down in the flow to the sluiceway. The sluice box or flume, which is sometimes 3 ft. wide and 3 ft. deep, is laid to a steep grade--10 to 25 per cent--so that heavy material, including boulders as large as 18 ins. in diameter, is readily carried with the current. To protect the flume from scour the bottom is paved with wood blocks or laid with old rails. The distribution of the material at the place of deposit is controlled by shifting the end of the flume from time to time and by deflecting the current to desired points on the fill.
>
> As the material drops upon the fill it is carried in rivulets toward the slope, and as the water drains away the solid material is left behind.

The height of the crossing determined the use of a steel viaduct or an earth fills. The cost of an earth embankment increased as a square of the height. The cost of a steel viaduct increased at a much slower rate with increased height (Tratman 1909: 165). Access to water for sluicing is another factor in the case of the Milwaukee's Bitterroot crossing. The Russell Creek Bridge is beyond the reach of either the Cliff/Brushy Creek or Clear Creek flumes. The bridge represented the least expensive option open to the railroad.

A company map of the grade between Roland and Avery dated September 9, 1911, shows the status of filling and timber trestle replacement on the Idaho side of the Bitterroot Mountains. The map shows the following information.

Timber Bridge		DD 210	Filled
" "	(Moss Creek)	DD 212	Filled
" "	(Brushy Creek)	DD 214	Filled
" "		DD 216	
" "		DD 218	
Kelley Creek Steel Viaduct		DD 220	
Timber Bridge	(Loop Creek)	DD 222	Filled
Turkey Creek Viaduct		DD 224	
Timber Bridge		DD 226	
Bear Creek Viaduct		DD 228	
Clear Creek Viaduct		DD 230	
Timber Bridge	(No Creek)	DD 232	Filled
" "	(Dry Creek)	DD 234	Filled
" "	(Dago Creek)	DD 236	Filled
" "	(Falcon Creek)	DD 238	Filled
" "	(Little Creek)	DD 240	Filled
" "	(Rest Creek)	DD 242	Filled
" "	(Dismal Creek)	DD 244 1910	Filled

By 1911 or 1912 the railroad completed either filling or replacing the timber bridges. Since completion the railroad made few alterations to the bridges or the earth embankments. Today, some collapsing of the wood trestles within some of the earth embankments is taking place. Occasional holes occur on top of the earth embankments previously filled by the railroad as a part of roadbed maintenance. The Forest Service now fills these holes for safety reasons.

In the winter of 1995 water spilled out of the diversion ditch above the Moss Creek fill and washed it out. The Forest Service built a bypass around the washout in 1997. Other than the Moss Creek washout and the removal of the ties and rails by salvagers, the earth fills retain their original character and have a high degree of integrity.

Tunnels. The Milwaukee dug 10 railroad tunnels between East Portal and Peason. The tunnels, if not completely lined with concrete, have at least some concrete lining. All 20 portals have concrete facing. The Milwaukee's valuation report (Chicago, Milwaukee and Puget Sound n.d.: 50 and 83) states that:

> Winston Brothers Company contracted to do the work on the St. Paul Pass Tunnel (Tunnel 20). The top heading was driven first after which the lower portion was drilled and broken up. Model 20 Marion shovels operated by air worked in from each end, loading the material on 1 1/2 yard cars, which were handled by electric motors.
>
> To furnish the electricity a power house was built at Taft, and a transmission line from there to the east portal of the tunnel, where a substation was installed. A transmission line was also built over a summit to serve the west end.
>
> On the Bitter Root slope west from Roland there are sixteen tunnels varying in length from 183' to 1516'. The total length is 8464'. Some of these required timber lining, a few being through self-sustaining solid rock. Timber used in lining was approximately 2,000,000 M.B.F., with about 1800 cords of lagging.
>
> A small part of the lining timber was obtained locally from the Clear Creek mill, but most of it was shipped in from other points.
>
> Concrete lining has been placed in the other tunnels that require it since the line was opened for traffic.

The St. Paul Pass Tunnel is the longest tunnel in the St. Regis to Avery segment. The excavators of this tunnel did such a good job that the alignment is very close to perfect. *Railroad Age Gazette* (1909: 379) states that:

> St. Paul Pass tunnel, the Chicago, Milwaukee & Puget Sound Ry.'s tunnel through the Bitter Root Mountains, had the headings connected February 9. The alignment was within 0.03 of a foot and the levels within 0.01, and therefore practically exact.

General maintenance and repair of the tunnels since construction included adding and eventually repairing or replacing linings and portals facing, adding and replacing rock sheds, adding drainage pipe, adding ballast and new ties and lowering the floors in some tunnels.

Workers formed the date "1940" into the concrete lining of Tunnel 27. On the west end of tunnel 29 the railroad formed "1951" in the portal concrete. A 1994 newspaper article in the St. Maries, Idaho paper Gazette Record by Ralph Papenfuhs states that his father worked on a tunnel repair gang from 1940 to 1946. His father was part of a 17 to 20 man gang that

> . . . lived in tar papered shacks. There were eight to nine bunkhouses, a cook -house and tool shed. The first camp was at Roland, Ida. After they got half way into the tunnel, the camp was moved to East Portal on the Montana side . . .
>
> During the day the men spent their time breaking out old concrete with jackhammers and dynamite . . .
>
> After the old concrete was removed, new steel would be tied in and forms built and new concrete pumped in. This would go on day after day (Papenfuhs 1994).

A powder magazine dug into the hillside at Roland probably relates to this tunnel repair work carried out in the 1940s. The railroad added the earlier concrete lining in 1915. An article in the *Milwaukee Employees Magazine* (1915: 9) states that:

> The last of the tunnels on the Coast Line to be concreted, the big bore at St. Paul Pass, has been lined and the work wound up with some remarkable achievements to its credit, considering that a very heavy traffic had to be kept moving during the concreting, as well as the work of electrification to be maintained at top speed all the time. .

The tunnels retain a high degree of integrity, being virtually unchanged other than the removal of the ties and rails through them.

Signal Piers. The Milwaukee used the "ABS" system or Automatic Blocking Signal System. They pioneered the development of this system and became the first railroad in the Northwest to use ABS. Tratman (1909: 263) states that:

> In this system the train sets each signal at "stop" as it passes. It releases the signal behind, which then automatically returns to the "proceed" position.

The Milwaukee's valuation report (Chicago, Milwaukee and St. Paul n.d.: 86) states that "automatic block signals are used throughout" the East Portal to Pearson segment.

The original signal system differed substantially from the ABS system. Crowell and Asleson (1980: 62) state that:

> To ensure the safety of each train in the Bitterroots, a foolproof method known as the staff system was used. It involved the exchange of a steel rod about the length of a brick with an individually corrugated side like key. In the early days when trains entered the sidings and stations, another signal awaited them. A paddle sticking up meant the go-ahead for the west train; the paddle dropping down automatically meant a stop for the eastbound train. When the line was electrified [1917], the battery-operated paddle system was changed to modern [ABS] electric light signals.

The remnants of the signal system that survive today include concrete piers in their original locations. They have lost much of their integrity, but they do retain some of their original character in the context of the nominated segment and are included as contributing structures on the basis of their relationship to the district as a whole.

Sidings. Like many other railroads, the Milwaukee's organization consisted of divisions made up of sections. Typical sections on the Milwaukee measured 5.5 miles to 9.5 miles long on single track. A section foreman took charge of each section and in the summer had under him a section gang of 2 to 7 men. In the winter, the section gang consisted to 1 or 2 men (Tratman 1909: 285).

On the nominated segment of the Milwaukee Road the railroad put section crews at East Portal, Roland, Adair, and Falcon.

Each section foreman

> . . . is usually required to walk over his section every other day, or at least once a week; this depends upon the season, the length of the section, the condition of the track and the amount of traffic (Tratman 1909: 291).

At Roland, the railroad constructed a two-story frame station building. In the 1940s it became the section foreman's house. In the 1960s the railroad tore the building down and moved two other structures from Roland through the St. Paul Pass Tunnel to East Portal for bunkhouses. These two structures, stripped by salvagers, were collapsed by snow and the remnants were removed.

The archaeological research potential of these siding sites is in the information they contain that relate to important research questions, some of which are listed below.

> (a) What types of structures existed at these sidings and depots and what were their arrangements? Archaeological data can provide structural information; location information and site plan information that is not recorded in existing archival sources.
>
> (b) How long did the sidings and depots function?
>
> (c) How were different ethnic groups housed at these sites and how is this reflected in the archaeological record?
>
> (d) How similar or different were different sidings and depots of different railroads?
>
> (e) Viewed as a group how did sidings and depots change over time?

For a siding to be eligible within the context established in this nomination under Criterion D, they must contain surface or subsurface remains capable of yielding significant historical information. The integrity of association (1) and materials (2) are sufficient to qualify a siding or depot site as eligible within the context of this nomination.

Substation. In the St. Regis to Avery segment, Milwaukee constructed three electrical substations. The railroad located these substations at Drexel, East Portal and Avery. All three are now destroyed. They are described by Holley (1987: 302),

> Substation buildings on the Milwaukee Road were large electrical vaults. They had concrete roofs, substantial brick walls, and thick concrete floors. Beneath the floors were basements designed to provide air circulation of the electrical equipment. Most buildings had flat roofs and were constructed from one of two standard plans. The buildings provided for either two or three motor-generator sets, with transformers. Most design variations from building to building involved the location of doors and offices.
>
> Five of the twenty-two buildings were substantially different from the rest and somewhat different from each other. These were the gabled roof buildings located in deep snow zones. They were located at Drexel, East Portal, Avery, Cle Elum and Hyak. East Portal was the largest of all substation buildings. Hyak was the tallest, resting atop a ten-foot tall foundation. Drexel and Cle Elum had only one arched window in front rather than two.

Brick salvaging destroyed the East Portal substation in 1980. At this site the salvagers left piles of broken concrete and brick. The concrete foundation the buildings still exist. It has lost much of its integrity and is eligible only in the context of the surrounding archaeological site.

Catenary Poles and Gallows Supports. Thirty-six catenary poles, remnants of these poles and gallows supports still exist in nine locations along the nominated segment. Catenary or trolley poles supported the trolley. The trolley on the Milwaukee consisted of

. . . a single stranded steel messenger wire and two side by side 4/0 grooved copper contact wires. . . . The standard height of the contact wires was 24 feet 2 inches above the rails. This allowed enough room for brakemen to give hand signals from the car tops without coming into contact with the trolley. Lower wire heights were found in places where the railroad passed through bridges, underpasses and tunnels. The original minimum height was 18 feet 9 inches. During the 1950's this was increased to 19 feet in order to accommodate tri-level auto racks. Gaining this extra clearance required lowering the floors of several tunnels . . . Most of the Milwaukee's trolley supports were tapered, 40-foot red cedar poles. The originals were un-creosoted and by the mid-1920's, many had rotted badly below ground level. Between 1925 and 1937, they were bolted to creosoted fir stubs in order to extend their life. The use of stubs was so successful that most of the pole line was not slated for replacement until the late 1970's. All replacement

> but in areas of curving track and through yards, it was as little as 90 feet. This allowed the Milwaukee to align the trolley close to track center without excessive use of backbone wires and pull-offs. In order to limit the amount of guying needed on the pole line, the Milwaukee canted its poles back by an amount that was generally one half inch per foot (Holley 1987: 154).

On bridges, the Milwaukee sometimes used "gallows" supports (also called portal structures). Essentially these consisted of 30-foot tall, rectangular supports constructed out of squared treated timbers. Steel brackets attached to gallows to the steel deck girders. The railroad used single catenary poles sometimes in combination with the gallows supports. Few of the original catenary poles exist today. Many more of the original gallows supports survive because of the difficulty of removing them from the sides of the trestles. Much of their original integrity has been lost, but the surviving structures retain some integrity as part of the nominated segment and are considered contributing structures in this registration form.

Railroad Grade. The Milwaukee contractors built the railroad grade from East Portal to Pearson between 1907 and 1909. The Milwaukee's valuation report (Chicago, Milwaukee and St. Paul Railway n.d.: 85) states that

> Track between St. Paul Pass Tunnel and Clear Creek Viaduct was laid by hand in the fall of 1908. The ties had been made locally and previously distributed by team along the road bed. The rail and fastenings were shipped to Taft, Montana, thence hauled by team to East Portal where they were transferred to the tramway and taken to the summit. At the summit they were transferred to wagons for distribution along the line. The difficulty and expense of these operations are obvious, but it was imperative that this track be laid as the snow season was coming and it was needed for the erection of Kelly and Clear Creek viaducts. A delay in the erection of these bridges meant a subsequent delay in the opening of the line for traffic.

The railroad completed the original ballasting (about 4 inches of gravel) in 1908 and 1909. Initially, the Milwaukee used native ties with 33-foot rails. Periodic maintenance of the line in 1918, 1929, 1939, 1940, 1944, 1946, 1947, 1955, 1972, 1973 and 1974 added gravel and crushed rock to the roadbed.

McGonigal (1995: 80-3) states that

> Ballast performs several important functions: it distributes weight, keeps the ties in place, allows water to drain away, protects track from the effects of frost heaving, facilitates maintenance by keeping track up off the ground, retards the growth of vegetation, and provides firm yet resilient support.
>
> The average life of ballast depends on train frequency and weight. After the passage of about 250 million gross tons (2500 or so good-sized trains), it's time for new rock, which is often simply dumped on top of the old, making the latter part of the sub-ballast, which need not be of as high quality as the top ballast. As the track must be raised each time this is done, this can lead to problems with vertical clearance, road crossings, and (where there is passenger service) station-platform height (or tunnel height).

The Milwaukee lists numerous culverts and water tunnels through the grade between East Portal and Pearson. In the original construction, the railroad used sawn and hewn timber or lag culverts. The railroad replaced these structures as soon as practicable with steel or concrete pipe, poured concrete tunnels and several water tunnels through bedrock.

Between 1983 and 1985 salvagers removed rails and ties on the East Portal and Pearson segment. Ties, fastenings and sometimes rails are scattered along the sides of the roadbed. Much of this debris resulted from the Milwaukee's maintenance activities rather than the efforts of the salvagers. The grade, altered by salvage operations, still retains integrity in the character of the surface and the 1.7% climbing grade.

Grave. There is one marked grave on the nominated segment. It is the grave of a construction worker on the Milwaukee who died when he jumped from a train during the 1910 fire. Railroad workers marked this grave with a dry laid rock wall and a concrete block topped with a steel cross. Vandals disturbed the rock wall in recent years in an attempt to remove the cross. The site is included in the nomination because of its relationship to the railroad and the related fires of 1910 and retains integrity in spite of the attempted vandalism.

Railroad Signs. One partly salvaged flanger sign, and one milepost are all that remain of the numerous signs that once dotted the rail line between East Portal and Pearson. The existing signs are a small fraction of the original signs on the route and have lost much of their integrity. However, in the context of the nominated segment, it is counted as a contributing structure.

Telephone Line. A telephone line parallels the nominated segment. This line dates to the construction of the railroad. The railroad maintained the same crank telephone system until it stopped traffic in 1979.

Much of the telephone line is still in place. Sections of the line are on the ground and collectors removed some of the insulators. In general the telephone line has a very high degree of integrity.

Notes on Directions: In the following descriptions directions referenced in the text are true map coordinates. However, when referring to tunnel portals, the end reached first coming from Peason is always the west portal and the end reached first coming from East Portal is always the east portal.

(1) Railroad Grade. The sixteen miles of railroad grade retains the ballast the railroad placed on the route. The ballast has been graded flat and the ties and rails were removed by salvagers. The route retains integrity of setting and character of the grade as it climbs at the original 1.7 percent from Pearson to East Portal. The grade is counted as 1 contributing structure.

(2) East Portal Substation and Siding. This site includes two collapsed frame buildings (moved from Roland), the foundation and rubble from the electrical substation and the concrete foundations of three substation operator houses. Salvagers piled steel I-beams, sheet metal, bricks and broken concrete on the substation foundation. Later work resulted in the piling of a large number of corrugated steel culverts on the substation site that came out of the St. Paul Pass Tunnel in the early 1980s. Most of this material has been removed in the late 1990s. Oral informants state that the residence furthest west burned in the 1950s. Salvagers dismantled parts of the other houses and tore down the substation in 1980. The Forest Service burned the remnants of the houses in 1992. The railroad moved two wooden structures to East Portal from Roland in 1960s when the section foreman moved to East Portal. These two wooden structures collapsed in 1997 and the remnants were removed.

The contributing properties include: 1 site including the archaeological remains of the substation, residence foundations and buried cultural material. The 2 noncontributing properties include a toilet and an interpretive kiosk now under construction.

Surface indications indicate that the site contains subsurface remains capable of yielding significant historical information that still retains integrity of association and materials.

(3) Tunnel 20. St. Paul Pass (Taft) Tunnel is 8,771 feet long. Both portals have treated timber snow sheds covering the entrances. The tunnel averages about 16 feet wide and 23 feet high. Concrete lines the tunnel in most areas. This lining replaced the original concrete in the early 1940s. Small alcoves or safety niches, measuring 5 feet wide by 7 feet high by 2 feet deep (a few alcoves are larger) were constructed as indentations in the north side wall of the concrete lining, and are located at spacing of 350 to 500 feet in the fully-lined tunnel segment. Doors were at one time used to prevent ice build up on the trolley by closing off both entrances when the outside temperature dropped below freezing. The remnants of these doors are still evident on both ends. The Forest Service is in the process of repairing the concrete lining and the snow sheds for use in connection with a bicycle trail. The railroad constructed the snow shed on the east end in 1974 after a train wreck demolished the original structure. The west snow shed and the tunnel are counted as 2 contributing structures. The 1974 constructed east snow shed is considered 1 noncontributing structure.

(4) Roland, Idaho (10-SE-596). This is the site of a railroad construction camp and later a small community of railroad employees and their families. During construction of the railroad, up to 300 people lived at Roland. Most of these people were engaged in digging the St. Paul Pass Tunnel. Much of the town burned during the 1910 fire. The Milwaukee had a turntable, water tower, station, sand yard, coal yard, houses for an agent and section foremen and some bunkhouses for crews. In the 1960s the section foreman was moved to East Portal and the buildings at Roland were either torn down or moved to East Portal. The site contains 1 contributing structure, the a concrete powder magazine, the 1 contributing archaeological site consists of two concrete building foundations, flattened areas, building debris, railroad ties and other debris associated with the railroad and buried features and artifacts. Two noncontributing structures include the vault toilet and an interpretive kiosk built in 1997.

Surface indications indicate that the site contains subsurface remains capable of yielding significant historical information that still retains integrity of association and materials.

(5) Catenary Poles. This includes eight cut ends of catenary poles that once supported the electrical trolley that powered this section of the Milwaukee Road until 1974. The original poles were scabbed to treated timbers in the 1920s to extend their life. The poles were cut off about 5 feet above the ground either by the railroad or by the salvage company. The original structure had poles on both sides of the tracks that supported two trolley lines at this point. This is counted as 8 contributing structures

(6) Signal Pier. This is a rectangular concrete signal pier on the west side of the roadbed counted a 1 contributing structure.

(7) Signal Pier. This is a rectangular concrete signal pier on the east side of the roadbed counted a 1 contributing structure.

(8) Earth Fill DD-208 (Filled Wooden Bridge). This is an embankment used to cross the East Fork of Cliff Creek. The fill has a concrete water tunnel 385' long and 4' by 4'6". The railroad originally built a timber bridge across this drainage and then filled it soon after construction by washing material off the surrounding slopes. The fill and the water tunnel are counted as 2 contributing structures.

(9) Tunnel 21. This is a straight 790-foot long tunnel that is approximately 24 feet high 20 feet wide. Both ends of the tunnel have concrete portals and lined with concrete at both ends. The middle portion of this tunnel is native rock. A treated timber snow shed covers both ends. Concrete wing walls protect the up slope side of each portal and the timber sheds sit partly on these walls. The tunnel builders formed the letters C. M. & P. S. in the concrete above the west portal. The two snow sheds and the tunnel are counted as 3 contributing structures.

(10) Earth Fill DD-210 (Filled Wooden Bridge). This is an embankment used to cross a small drainage tributary to Loop Creek. A photograph of this crossing taken in about 1910 shows a large timber bridge in the process of being filled. The railroad hydraulically sluiced material off the slope above Tunnel 21 and into the trestle to build the embankment. A 59' long, 3'6" by 2'6" concrete culvert goes under the fill. The fill and the tunnel are counted as 2 contributing structures,

(11) Earth Fill DD-212 (Filled Wooden Bridge). This is an embankment used to cross Moss Creek. The railroad sluiced material for this embankment off of the adjoining hillsides. A 144' long 4'6" long, 4'6" by 4' concrete culvert goes under the fill. During the early winter of 1995 a storm washed out the fill creating a cut 100 feet deep and 200 feet wide. The Forest Service has built a bypass road around the earth fill washout. The fill and the culvert are counted as 2 contributing structures. The new bypass road is counted as 1 noncontributing structure.

(12) Tunnel 22. This is a straight 1516-foot long tunnel approximately 20 feet wide and 22 feet high. Both ends have concrete portals and the tunnel is lined with concrete. The east portal has concrete buttresses on each side of the opening. This is counted as 1 contributing structure.

(13) Earth Fill DD-214 (Filled Wooden Bridge). This is an embankment used to cross Brushy Creek. The railroad washed fill for this embankment off of the adjoining slopes of Brushy Creek with a hydraulic giant. A 265' long 6' by 5' concrete water tunnel goes under this fill. In 1994 part of this water tunnel collapsed and was subsequently repaired in 1996. The fill and water tunnel are counted as 2 contributing structures.

(14) Earth Fill. This is an embankment used to cross a small drainage tributary to Brushy Creek and is counted as 1 contributing structure.

(15) Catenary Pole. This is the butt of a pole that once supported the trolley above the railroad tracks. Salvagers left only approximately 5 feet above ground. The railroad "stubbed" this pole with a treated timber in the 1920s to extend its life span. This is counted as 1 contributing structure.

(16) Tunnel 23. This is a curved 279-foot long tunnel with approximately 24 feet wide and 22 feet high openings. Both ends of the tunnel have concrete portals and the tunnel is entirely lined with concrete. A treated timber snow shed covers the east portal. Above the west portal are the letters "Jan 29, 1909" is formed in the concrete. A concrete wing wall on the up slope side protects the east portal, while the west portal has concrete buttresses on both sides of the entrance. The tunnel and the snow shed are counted as 2 contributing structures. Part of the roof of the tunnel is collapsing and it has been gated at both ends. A bypass road has been constructed around the tunnel. The two gates and the bypass road are counted as 3 noncontributing structures.

(17) Tunnel 24. This is a curved 377-foot long tunnel with approximately 20 feet side and 24 feet high openings. Both ends of the tunnel have concrete portals and the tunnel is nearly partly with concrete. A treated timber snow shed covers the east portal. A straight concrete wing wall supports one side of the rock shed. "C. M. & S. P." and "24" are formed in the concrete on the west portal. The tunnel is counted as 1 contributing structure.

(18) Small Creek Bridge DD-216. This is a 515-foot long seven span steel plate deck girder solid concrete ballasted floor bridge with concrete "U" abutment spans on each end. The bridge rests on six steel girder bents formed into 2 towers with cross bracing and single bents on each end. Concrete boxes contain ballast on top of the deck girders. The railroad added cantilevered treated timber cat walks on each side with steel brackets bolted to the ballast boxes. Brackets attached to the deck girders support 2 catenary poles and 3 gallows trolley supports. The contributing structures include 1 trestle, 2 cantinary poles and 3 gallows trolley supports. The recently added cable railings are counted as 2 noncontributing structures.

(19) Rock Fence. This is a remnant of a rock fence. The remnants include the web fencing and the butt of a catenary pole. The rock fence let section crews know when rockslides occurred in areas prone to recurrent rock fall. Attached to an electrical switch the fence tripped the switch when rocks rolled into it and alerted the section foreman. This feature is counted as 1 contributing structure.

(20) Barnes Creek Bridge DD-218. This is a 507 foot long curved seven span steel plate deck girder solid concrete ballasted floor bridge with concrete "U" abutment spans on each end. The bridge rests on six steel girder bents formed into 2 towers with cross bracing and single bents on each end. Concrete ballast boxes siting on the steel plate girders contain the ballast. The railroad cantilevered treated timber catwalks on each side with steel brackets bolted to the ballast boxes. Brackets attached to the deck girders support 2 catenary poles and 3 gallows trolley supports. This property consists of 6 contributing structures (1 trestle, 2 catenary poles and 3 gallows trolley supports) and 2 noncontributing structures, two recently added cable guardrails.

(21) Rock Fence. Three standing poles and some web fencing are all that remain of a rock fence. The fence signaled section crews when rock slides occurred in the area. A rock hitting the fence would trip a switch and activate a signal to let sections crews know the occurrence of a rockslide. This feature is counted as 1 contributing structure.

(22) Grave (10-SE-584). This is a gravesite along the Milwaukee Road topped by a rock wall. A concrete block on top of the wall has a steel cross protruding out it. The rock masonry wall measures approximately 104" wide and 38" high. The concrete block measures 22" wide and 13" high. The steel cross is 28" tall and about 20" wide. The grave contains no inscriptions or other markings.

During the 1910 fires the railroad sent work trains into the area to pick up construction crews and their families and take them to the safety of the longer tunnels. On one train an unidentified construction worker jumped from the train and died. He is the only known death in the Loop Creek drainage resulting from the 1910 fire. One death is remarkable considering the large number of workers along this part of the railroad and the severity of the fire in Loop Creek. The grave is counted as 1 contributing structure because of its relationship to the railroad and related fires of 1910.

(23) Kelly Creek Bridge DD-220. This is a 850 foot long seven span steel plate deck girder solid treated timber ballasted floor, bridge with concrete abutments at each end. The bridge rests on twelve steel girder bents cross-braced into 5 towers and with single bents at each end. Cantilevered treated timber cat walks are an extension of the treated timber deck and extend out on each side about 3 feet. Treated timber curbs form a trough for the ballast. Cantilevered beyond the catwalk on the down streamside are four concrete escape platforms. Brackets attached to the deck girders support 3 catenary poles and remnants of 1 gallows trolley support. A sign painted on one girder shows "Kelley Creek Painted 8.2.34 Graphite Paint No. 36701". This property consists of 5 contributing structures (1 trestle, 3 catenary poles and the remnant of 1 gallows trolley support). The 2 noncontributing structures are the two recently added cable guardrails.

(24) Signal Piers. Two concrete signal piers, one on each side of the roadbed situated, on the south end of Kelley Creek Bridge. These piers are counted as two contributing structrures.

(25) Signal Pier. This is a concrete signal pier on the north side of the roadbed at the beginning of the Adair siding. This pier counts as 1 contributing structure.

(26) Adair, Idaho (10-SE-590). This is the site of a railroad construction camp and later a small community of railroad employees and their families. This community burned in the 1910 fire. After the fire the railroad used the site as a location of a section house and section crew quarters. In the early teens the site became the terminal for the Loop Creek logging flume. The logging contractor constructed a pond and loading siding on Manhattan Creek above tunnel 25. After the flume operations ceased about 1915, the Richmond Mine used the same area as a terminal for an aerial tramway for moving ore from the m on top of the Bitterroot Divide. At about the same time period a mile long tunnel was excavated from a point just above Adair on Manhattan Creek to a point about 1000 feet under the original Monitor Mine workings. Originally, Adair had a saloon, a small store that sold clothing and general merchandise, a post office, a fishpond, a section house and a station. The post office closed in 1926 and by the 1970s only the section crew remained. The site now consists of 1 contributing structure, a coal shed and 1 contributing archaeological site comprised of a collapsed residence, remnants of the flume pond dam, a concrete foundation and buried artifacts and features.

Surface indications indicate that the site contains subsurface remains capable of yielding significant historical information that still retains integrity of association and materials.

(27) Manhattan Creek Bridge DD-731. This is a 42-foot long straight 3 span-treated timber bridge. The bridge is supported on 2 pile bents and has a treated timber deck without a ballast covering. The bridge counts as 1 contributing structure.

(28) Tunnel 25. This is a 700-foot long tunnel with a 90-degree turn between Manhattan Creek and Loop Creek. The portals at both ends are concrete with "1909" formed in the concrete above the entrance. The west portal has a treated timber snow shed added to the entrance. The east portal has a buttress wall on each side of the entrance flaring at 45-degree angles. The west portal has a stepped concrete wing wall on the up slope side. The tunnel and the snow shed are counted as 2 contributing structures.

(29) Earth Fill DD-222 (Filled Wooden Bridge). This is an earth embankment that crosses Loop Creek. A 187' long, 16' by 11' half water tunnel, half through the bedrock, diverts Loop Creek form its original channel. On the side up stream of this water tunnel the railroad constructed a debris trap out of steel rails driven vertically into the ground. The earth fill and the water tunnel are counted as 2 contributing structures.

(30) Tunnel 26. This 800-foot long tunnel curves from the east portal to the central arch and then straightens out to the west portal. Both portals are concrete and the interior is completely lined with concrete. There is a snow-shed addition covering the west portal. The tunnel and the snow shed are counted as 2 contributing structures.

(31) Turkey Creek Bridge DD-224. This is a 494-foot long curved nine span steel plate deck girder solid concrete ballasted floor bridge with concrete abutments on each end. On the north side of the west abutment "1909" is formed in the concrete. A wood beam brace under the span that joins the west abutment is a recent addition by the railroad to "temporarily" shore up the span. In addition, water undermined one of the bridge footings and the railroad repaired it by pouring more concrete under it. There are four 46' spans and five 62-foot spans. On top of the bridge concrete ballast boxes contain the ballast. The railroad included cantilevered treated timber cat walks to each side of the bridge by bolting steel brackets to the side of the ballast boxes. Brackets attached to the deck girders support 3 catenary poles and 3 gallows trolley supports. Vandals damaged one of the gallows by chopping one leg with an ax. The Forest Service repaired this damage by scabbing two treated timber planks on to the leg with bolts. The railroad channeled Turkey Creek to prevent it from undermining the bridge piers. The channeling consists of wood lining the banks and stream bottom, making the stream run through the channel under the bridge. This property includes 8 contributing structures (1 trestle, 3 catenary poles, 3 gallows trolley supports and 1 stream channel structure) and 3 noncontributing structures (1 temporary brace under the west abutment added after the period of significance and 2 cable guardrails added recently).

(32) Russell Creek Bridge DD-226. This is a 281 foot long curved five span steel plate deck girder solid concrete ballasted floor bridge with concrete abutments on each end. The bridge rests on four steel girder bents formed into 2 towers with cross bracing. There are two 46-foot spans and three 63-foot spans. On top of the bridge the ballast is contained in concrete ballast boxes. Cantilevered treated timber catwalks have been added on each side with steel brackets bolted to the ballast boxes. Brackets attached to the deck girders support 2 catenary poles. The 2 catenary poles and the trestle are counted as 3 contributing structures. The 2 recently added cable guardrails are counted as 2 noncontributing structures.

(33) Rock Fence. This feature consists of parts of square mesh fencing along the roadbed originally part of a rock fence. The rock fence signaled section crews when rock slides occurred in the area. A rock hitting the fence would trip a switch and activate a signal, which in turn alerted section crews to a rockslide. This property is counted as 1 contributing structure.

(34) Bear Creek Bridge DD-228. This is a 570 foot long straight steel plate deck girder, solid concrete ballasted floor bridge. The bridge has a concrete span at each end and 8 steel girder spans in the middle. The bridge sits on seven steel girder bents cross-braced into three towers, leaving one single bent. On top of the bridge, the ballast is contained in concrete ballast boxes. Cantilevered treated timber catwalks have been added to each side of the bridge with steel brackets bolted to the sides of the ballast boxes. Brackets attached to the steel girders hold 2 catenary poles and 2 gallows trolley supports. The property consists of 5 contributing structures (1 trestle, 2 catenary poles, 2 gallows trolley supports and 2 noncontributing structures (2 recently added cable guardrails).

(35) Rock Fence. This feature consists of sections of square mesh fencing along the roadbed. This rock fence to signaled section crews when rock slides occurred in the area. A rock hitting the fence would trip a switch and activate a signal alerting sections crews to the occurrence of a rockslide. This feature is counted as 1 contributing structure.

(36) Clear Creek Bridge DD-230. This is a curved 760-foot long 13 span, steel plate deck girder, solid treated timber ballasted floor-bridge with concrete abutments at each end. The bridge is supported by 12 steel girder bents formed into five steel towers leaving a single bent at each end. The timber deck extends out to support a 2 foot 10 inch catwalk on each side. The ballasted bed is 14 feet wide and ballast is bordered by wood beam curbing. The south curb on the west end is 20 inches higher than the north curb and this creates a banked curve on the bridge deck. Brackets attached to the deck girders hold 3 catenary poles and 2 gallows trolley supports. This property is counted as 6 contributing structures (1 trestle, 3 catenary poles, 2 gallows trolley supports) and 2 noncontributing structures (the 2 recently installed cable guardrails).

The gallows are about 30 feet high and 20 feet wide and constructed of 10 inch by 12 inch treated timber. Steel corner brackets help make the framework ridged and one upright retains the cross member that supported the feeder line a hanger in the middle of the crosspiece supported the trolley.

(37) Catenary Pole. This is a single pole on the north side next to the east portal of tunnel 27. The pole has a metal milepost marker on the west facing side showing "1759" on a white back ground with black letters. This indicates 1759 miles from Chicago. Apparently, after the end of electrification the railroad salvaged most of the catenary poles. The exceptions included those poles that had milepost signs on them. The catenary pole is counted as 1 contributing structure and the mile post sign is counted as 1 contributing object.

(38) Tunnel 27. This 470 foot long curved tunnel has concrete portals, and concrete lining at each end and native rock walls in the middle. The railroad later added long treated timber snow sheds at both ends. About 25 feet from the west portal railroad workers formed the date "1940" in the concrete lining on the south wall. The railroad formed the number "27" in the concrete in the west portal. The tunnel and the two snow sheds are counted as 3 contributing structures.

(39) Tunnel 28. This 178 foot long curved tunnel has concrete portals, a concrete lining at each end and native rock walls in the center. The east portal has a long concrete wing wall along the south side of the entrance with weep holes to allow for drainage. The letters "C M & P S" are above the portal. The railroad added treated timber snow sheds to both ends of the tunnel but the east end snow shed no longer exists. The west portal has a long stepped concrete wing wall along the north side of the entrance that also supports one side of the snow shed. The railroad formed the number "28" into the concrete on the west portal. The remaining snow shed and the tunnel are counted as 2 contributing structures.

(40) Earth Fill DD-232 (Filled Wooden Bridge). This is an earth embankment used to cross "No Creek", a tributary to Loop Creek. There is a 1909 or 1910 photograph of this crossing under construction. The photo shows a temporary wood trestle built over the drainage and soil being sluiced into the area under it. At present some caving in of the top of the embankment is the result of the rotting of the old trestle within the fill. A 246' long 24" corrugated iron pipe culvert runs under the fill. The fill and the culvert are counted as 2 contributing structures.

(41) Earth Fill DD-234 (Filled Wooden Bridge). This is an earth embankment used to cross "Dry Creek", a tributary to Loop Creek. Artifacts scattered on each side of this embankment by the salvage crew includes a telephone box on a pole that was pushed over the south edge of the embankment. The fill counts as 1 contributing structure.

(42) Earth Fill DD-236 (Filled Wooden Bridge). This is an earth embankment used to cross "Dago Creek", a tributary to Loop Creek. In recent years, areas within the fill collapsed, as the old trestle within the fill rots away. The fill counts as 1 contributing structure.

(43) Falcon Siding (10-SE-531). This site includes remnants of the Milwaukee Road's siding at Falcon. It now consists of collapsed frame buildings and the concrete foundation of the water tank. At one time a local informant recalled that this siding had a depot, jewelry store, water tower with spout and several section houses along the right-of-way. The Milwaukee's right-of-way log indicates that the railroad "retired" the depot in 1941.

The four collapsed buildings are small frame structures with tongue and grove drop siding. Salvagers removed usable materials from the buildings so they now lack structural details. Oral history informants state that the depot had a store in it that was run by a Mrs. Van Antwerp, until it burned down in 1910. After 1910, Falcon consisted of section houses (prefabs from Tomah, Wisconsin), an operator's house and a jewelry store. The depot was at the west end of the passing track across from the Falcon Ranger's Cabin. The section houses were between the depot and the jewelers', which were nearer the east end of the siding. The section houses were just across the tracks from the water tower and the jeweler's store was a little lower on the slope, towards the homestead.

Surface indications indicate that the site contains subsurface remains capable of yielding significant historical information that still retains integrity of association and materials. The site is considered 1 contributing archaeological site and 1 contributing structure (the water tank foundation and remnants.

(44) Earth Fill DD-749. This is an earth embankment used to cross a small drainage tributary to Loop Creek. This drainage supplied the water for the water tank at Falcon Siding. The drainage flows under the fill through a 252' long 30" concrete pipe culvert. This is counted as 1 contributing structure.

(45) Earth Fill, DD-741. This is an earth embankment used to cross a small drainage tributary to Loop Creek. This is counted as 1 contributing structure.

(46) Earth Fill, DD-743. This is an earth embankment used to cross a small drainage tributary to Loop Creek. The drainage flows under this fill through a 120' long 24" concrete pipe culvert. This is counted as 2 contributing structures.

(47) Earth Fill, DD-238 (Filled Wooden Bridge). This is an earth embankment used to cross Falcon Creek, a tributary to Loop Creek. The creek flows through a 252' long 30" concrete pipe culvert. This is counted as 2 contributing structures.

(48) Earth Fill, DD-240 (Filled Wooden Bridge). This is an earth embankment used to cross "Little Creek", a tributary to Loop Creek. The creek flows under the fill in a 144' long 30" corrugated iron pipe. This is counted as 2 contributing structures.

(49) Earth Fill, DD-747. This is an earth embankment used to cross a small drainage tributary to Loop Creek. The drainage flows through a 264' long 36" concrete pipe. This is counted as 2 contributing structures.

(50) Earth Fill, DD-242 (Filled Wooden Bridge). This is an earth embankment used to cross Rest Creek, a tributary to Loop Creek. Rest Creek flows under the fill through a 296' long 4' by 6' concrete water tunnel. This is counted as 2 contributing structures.

(51) Earth Fill, DD-749. This is an earth embankment used to cross "Sleepy Creek" tributary to Loop Creek. The creek passes under the fill through a 264' long 42" concrete pipe. This is counted as 2 contributing structures.

(52) Earth Fill, DD-244 (Filled Wooden Bridge). This is an earth embankment used to cross "Dismal Creek", a tributary to Loop Creek. The creek flows through a 234' long 4' by 6' water tunnel. This is counted as 2 contributing structures.

(53) Earth Fill, DD-751. This is an earth embankment used to cross a small drainage tributary to Loop Creek. The drainage flows under the fill through a 186' long 24" concrete pipe. This is counted as 2 contributing structures.

(54) Earth Fill, DD-757. This is an earth embankment used to cross a small drainage tributary to Loop Creek. The drainage flows under the fill through a 30' long 24" concrete pipe. This is counted as 2 contributing structures.

(55) Tunnel 29. This is a 217 foot curved railroad tunnel. Both portals are concrete and the tunnel lining is concrete at each end. The middle walls of the tunnel are native rock. There are no rock sheds on either end of the tunnel. Formed in the concrete on the east portal are the letters "C M & P S" and "29". In the west portal the railroad formed the numbers "1951" and "29". This tunnel is counted as 1 contributing structure.

(56) Flanger Sign. This is a 4 inch by 4 inch post about 7 feet high that has two pieces of sheet metal attached to the top forming a "Y". The railroad located such signs before structures such as switches, indicated to "flanger" or snow plow operators to raise the flanger or plow to clear the obstruction. The sign is considered 1 contributing structure.

(57) Person Siding. This was a siding that was used by logging and mining companies in the area. The site now contains a mountain bike trailhead. It contains 4 noncontributing features including a vault toilet, interpretive kiosk, a metal gate and an entry sign.

(58) Telephone Line. This is a multi-line railroad telephone system on telephone poles with two crossbars. The crossbars support clear and green glass insulators on which telephone and telegraph line is suspended. The line parallels the railroad grade from East Portal to Pearson. Some of the poles are broken off and the line is on the ground but most of the system is still in place. The system is counted as 1 contributing structure.

The significant period considered in this registration form is from 1906 to 1945. This period of significance begins in 1906 with the start of the route survey. The period ends in 1945 when the company emerged from bankruptcy. Dates significant to the railway segment include: 1909 (completion of the line), 1910 (the year fire burned the area), and 1917 (completion of the conversion to electrical power).

The line from East Portal to Pearson comprises a recognizable segment of railroad grade because of the area topography. This segment is the western end of the Missoula Division and later the Rocky Mountain Division of the Milwaukee Road. Farrington (1943: 76) describes the route from East Portal to Pearson.

> The country is wild. The mountains are jumbled and broken by high ridges and deep hewn gullies. The curvature is almost constant, as the railroad feels its way through a rugged, tempestuous world. The road climbs 1020 feet in 15 miles on an average lift of 1.7 percent.
>
> The St. Paul Pass Tunnel drives it's bore 8,771 feet through the high rims at the summit. [After that the grade] follows a steady descent to Avery, at the end of the electrified section.

The 14.5-mile segment of the Milwaukee Road is a transportation system type of historic district. This district reflects the application of scientific principles to construct a railroad over a mountain range in an undeveloped forested area using turn of the century technology. This railroad provided the first convenient means to travel through this portion of the Bitterroot Mountains. The main features of this railroad segment (bridges, tunnels, railroad grade) retain a high degree of integrity.

Carlos Schwantes (1993: 17) views the history of the Pacific Northwest railroads and why they were build as being divided into two "railway ages."

> Not until a frenzy of track laying gripped the region between 1880 and 1893 did railroads write clearly legible signatures across the Pacific Northwest. When a nationwide depression temporarily halted construction in mid-1893 and ended the first railway age, an 8,000-mile network of tracks stretched across Oregon, Washington, Idaho, and Montana. The Pacific Northwest's second railway age lasted from the return of prosperity in 1897 until America entered World War I in early 1917. During those two decades workmen spiked another 8,000 miles of new line into place and upgraded numerous older sections. The region's first railway age emphasized construction of new lines and spurred the rise of whole new cities and industries. The second emphasized improved plants and equipment and was a time of growing, and ultimately suffocating, public regulation of railroads.

The historic context of Milwaukee Road's Pacific Extension (including the segment described in this registration form) starts in the middle of the Northwest's second railway age. In the middle of this period the board of directors of the Chicago, Milwaukee & St. Paul Railway Company decided to expand their railway network from the Midwest to the Pacific Ocean.

The construction of this extension began with route surveys in 1905. The railroad chose to cross the Bitterroot Mountains at St. Paul Pass between St. Regis, Montana and Avery Idaho. This segment turned out to be the most costly and difficult part of the new line to construct. The railroad managed to start freight service on the Pacific Extension in 1909. Cross-country passenger service followed in 1911.

The Milwaukee's board of directors followed the completion of their Pacific Extension with another risky decision, to electrify the mainline between Harlowton, Montana and Seattle, Washington. By 1920 the company completed two parts of this system (which included the St. Regis to Avery segment) to form the longest electrified mainline railway in the world.

Increased competition nationally for all railroads from the expanding road network and the use of automobiles and trucks following World War I ended the Milwaukee's expansion and finally lead to bankruptcy in 1925. The company emerged from bankruptcy in 1926 only to sink back into receivership in 1935.

In spite of their financial problems, the company joined the trend among railroads to offer streamliner passenger service. Starting in 1935, the Milwaukee Road initiated streamliner passenger service between Chicago and St. Paul. Over the next few years the railroad introduced additional streamlined passenger trains, all named Hiawatha, such as the Midwest Hiawatha, the Afternoon Hiawatha and the North Woods Hiawatha.

In 1947 the Olympian passenger train on the Milwaukee's Chicago to Seattle route acquired streamlined equipment and its name changed to the "Olympian Hiawatha." Daily this passenger train passed over the St. Regis to Avery route until 1961. During its operation, the railroad occasionally advertised the streamliner service by putting the slogan "Route of the Hiawathas" on the side of freight cars.

World War II provided the Milwaukee Road with a temporary increase in business, helping it emerge from receivership in 1945. After the Korean War, the company's financial problems increased. The company dismantled the electrification system in 1974. According to the then president of the company, William Quinn, he wanted to eliminate the electrification to help facilitate the participation of the Milwaukee in the Burlington Northern merger (Sol 1995: 2-3). Coming right before the oil embargo this move proved to be a very costly and ultimately futile strategy. The company's financial position deteriorated and in 1977 the company again filed for bankruptcy. The Milwaukee Road stopped all traffic on its lines west of Miles City, Montana in 1980 and sold them in 1981 and 1982. In 1985 the U. S. Government bought the segment from Haugan to Avery for $3,900,000. In the early 1990s the Forest Service began planning to use the abandoned grade as a bike trial named the "Route of the Hiawatha."

Events related specifically to the historic context of the East Portal to Pearson segment began at the turn of the century. The Milwaukee board of directors started planning the Pacific Extension in 1901. To find a suitable route, the company employed 800 men to survey various routes over a 6-year period. Crews surveyed the East Portal to Pearson segment in 1906 and 1907. Actual construction started in 1907 with one contractor and six subcontractors.

Several factors influenced the choice of the route to cross the Bitterroot Mountains. The Northern Pacific and Great Northern occupied the Coeur d'Alene, Clark Fork and Kootenai River routes to the north. The remoteness of the route along the Clearwater River meant that route could not contribute substantially to the traffic on the railroad. The St. Joe River route had the advantages of containing the largest stands of white pine in the world and no competing railroads to take away future logging traffic.

The Milwaukee established major supply depots for the construction companies at Taft, Montana off the Northern Pacific Wallace branch line and St. Joe City, Idaho, head of navigation on the St. Joe River. Between these supply depots; the contractors built a wagon road from Taft to St. Joe City to supply the construction camps. Daily stages ran from Taft to Avery and from St. Joe City to Spring Creek (down river from Avery). A tramway lifted heavy construction materials from East Portal to the summit. Construction camps occupied nearly every flat spot along the Milwaukee right-of-way between Taft and Avery. The Milwaukee contracted for the establishment of hospitals at St. Joe City and Taft with clinics at Marble Creek and Grand Forks. Edith Schussler (1956: 15) recalled that:

> In 1907-9, my husband, Dr. Otto F. Schussler, and his friend, Dr. Leon J. Coria, operated a hospital in connection with the building of the Chicago, Milwaukee, St. Paul and Puget Sound Railway to the Pacific Coast. Their contract extended from St. Regis, Montana to St. Joe, Idaho. Some of the heaviest rockwork included the St. Paul Pass Tunnel between Montana and Idaho. The hospital was two and one half miles east of the tunnel at Taft, Montana on the shore of the little St. Regis River. It was at this place that the great powerhouse was located and where large quantities of lumber were stored for tunnel use.

The hundreds of people employed during the construction of the East Portal to Pearson section included Japanese, Italians, French Canadians, Spaniards, Irishmen, Swedes, Norwegians, Austrians, Belgians, Hungarians, Bulgarians, Serbs, Montenegrins and others. Camp structures sometimes reflected the culture of groups as exemplified by the large bread ovens built at some Milwaukee construction camps and often associated with Italian workers (Theriault 1982).

The railroad employed Japanese workers in Avery to the 1950s. Harold Theriault (1980: 212) states that:

> [The Milwaukee] . . . had to make some kind of concession [to keep the silk transportation business] to the Japanese, so they hired them for the roundhouses and so on, and that kept the silk business.

Stanislaus Filipowich, an Austrian count and civil engineer, obtained the subcontract for constructing part of the grade down the valley from Taft. To do the work Filipowich brought with him several hundred Montenegrins from his father's estate in Austria. These and other Montenegrins quit in mass in 1908 because of the killing of one of their leaders (Schussler 1956: 39-51).

To facilitate rapid construction the contractors built 21 temporary trestles between St. Paul Pass Tunnel and Pearson. The railroad eventually used many of the trestles as forms for earth fill crossings. Water carried out of Clear Creek and Brushy Creek in miles of wooden flume washed earth off adjacent hillsides and into the trestle forms. In other areas muck blasted out of the tunnels and cuts along the road became part of the embankment fill.

On the Milwaukee, McCarter (1992: 10) notes that

> Approaches to bridges, winged abutments, and piers on major structures were made of concrete, not stone and masonry or timber, as was the case with the Northern Pacific and Great Northern. Most of this concrete work is still in place after more than eighty years, a testament to the emphasis the Milwaukee placed on high-quality construction.

The East Portal to Pearson road was difficult and expensive to construct because of the large number of tunnels, bridges and earth embankments. Wood and Wood (1972: 42) state that:

> The tunnel at St. Paul Pass, 8771 feet long, was the most difficult of all the tunnels to build on the original main line. For six months the bore was pushed through at a average rate of twenty feet per day. The twenty-two mile stretch of main line from St. Paul Pass west to Avery was the most costly piece of track on the road due to the bridges, fills and tunnels. On the "East Fork Loop" the track runs over a long deep fill, then through a tunnel, over another fill, through a curving tunnel and out on to a bridge, describing a complete semi-circle on the mountain side. In the twenty-five miles between the summit and the water level at St. Joe, there was a total of fourteen tunnels and twenty-six bridges.

The Milwaukee used Deck Girder Bridges to cross many of the deep drainages between St Paul Pass and Pearson. The Deck girder bridges are of two general types. Kelly Creek and Clear Creek bridges represent the first type. These bridges have solid floors constructed from treated timbers. The solid floor supported a layer of ballast in which the ties and rails sit. Curbing along each side kept the ballast in place. Photographs of the Kelly Creek Bridge soon after construction show a deck without ballast. Comments in *Railway Age Gazette* (1915: 728) suggest that the railroad added the ballasted deck shortly after construction. However, plans dating from the 1950s suggest that the bridges had open decks until then.

The remaining six bridges represent the second type of deck girder-bridge in the Bitterroot segment. These structures replaced the original temporary timber trestles from 1909 to 1911. These bridges have solid concrete floors constructed out of "U" shaped ballast boxes placed side by side across the top of the deck girders. The ballast boxes hold ballast that supports the ties and track.

The railroad's use of the ballasted solid floor on bridge decks represented a significant change. Tratman (1909: 164) sums up the desirability of such bridges.

> Solid floors for steel bridges have advantages in safety, permanence and smooth riding. The first cost is, of course, greater, but there is a decided saving in maintenance work, while with a ballasted floor the track maintenance can be regularly attended to by the section gangs instead of by the bridge gangs. Ballasted floors are generally preferred to bare floors. They enable the standard track construction to be carried across the bridge, while the extra dead load not only requires a heavier construction of bridge, but the ballast practically eliminates impact stress and also prevents much of the vibration which causes objectionable noise.

The Milwaukee's use of the ballasted solid floor deck girder bridge design were some of the first of this type to be employed by a railroad of what was to become standard practice on many railroads.

In the hurry to complete the Pacific Extension, these bridges were originally constructed with open decks consisting of ties placed directly over the deck girders. In 1911 the concrete ballasted deck replaced the temporary open decks.

Quivik (1982: 28) notes that,

> The railroads had another more direct impact on bridge building in Montana. Besides building many bridges themselves, they changed the nature of vehicular bridge building. First, the railroads allowed out-of-state bridge builders to compete for bridge contracts with the companies of Montana by offering those companies the opportunity to ship bridge steel and other materials into the territory. Second the railroads brought bridge - builders and engineers into Montana to build railroad bridges . . .

This is true for the Milwaukee's bridge building effort as well. The well-known bridge building company, McClintic-Marshall Construction Company (An Andrew Mellon Company now part of Bethlehem Steel) built Kelly Creek and Clear Creek bridges. The Milwaukee engineers designed all of the bridges but contracted the fabrication of the bridges to bridge building companies.

The railroad pounded the last spike into place near Garrison, Montana in May of 1909. Freight service to the coast opened a month later and local passenger service followed shortly thereafter. Cross-country passenger service had to wait until 1911 when the Olympian and Columbian passenger trains started running between Seattle and Chicago.

Commodities transported on the East Portal to Pearson segment included transcontinental shipment of silk from Japan and other imports from Asian nations, agricultural and forest products from the Northwest and manufactured goods from the East. Local freight traffic in the teens included logs from the Loop Creek drainage and the North Fork of the St. Joe. Mining along the Bitterroot divide produced enough ore to warrant shipment on the railroad from Adair in the 1920s and 1930s.

In 1910, fires burned millions of acres of forest in Idaho, Montana and Washington. Fire hit the Milwaukee as the company began replacing the temporary trestles and grade on the East Portal to Pearson section with permanent structures. The fire cost the Milwaukee dearly in lost facilities and in delays and surely contributed to the final inflated cost of the Pacific Extension. Elers Koch (1915: 11) states that at the time of the great fires, the Milwaukee

> . . . had just been opened through the St. Joe territory. While trains were running, the many high timber bridges had not yet been filled, and there was much construction work still underway. The whole twenty-five miles of railroad through the rugged country between Avery and the Taft Tunnel was swept by a consuming blast of fire, so hot that

> pick handles lying in the open beside the track were utterly consumed. Considering the number of people in this section and the severity of the fire, it is almost miraculous that no lives were lost along the railroad. Great credit is due C. H. Marshall, superintendent, and W. R. Lanning, chief carpenter, of the Missoula Division. Under direction of these men a special train evacuated the town of Avery. Between Avery and the Taft Tunnel there were probably 1,000 people, mainly railway workers and their wives and children. These were picked up by work trains at the last moment, with bridges blazing, and at imminent danger to the trainmen's lives. Trains were run into tunnels and held there while the fire swept by, consuming everything up to the tunnel portals. Sixteen bridges, from 120 to 775 feet in length, were burned in this section.

One man jumped from a train near Adair and died either from the fall or from the fire. Buried next to the railroad grade where he died, railroaders tended his grave until the trains stopped moving over the East Portal to Pearson segment.

Derleth (1948: 193-4) states that

> Beyond question, the men of the Milwaukee did a large share of the work necessary to prevent the death toll from rising. Telegraphers warned of the advance of the fire. As the flames advanced toward Avery, on the Milwaukee Road, two trainloads of Avery people were moved to Tekoa, Washington, though here and there Milwaukee bridges were burning, and three of the Milwaukee's bridges near Malden, Washington, burned out. On the night of August 20, Engineer John Mackedon, returning from a trip to the mountain top with but one assistant in his engine, drew up at the Milwaukee Road's station at Falcon, which was on fire, to find several hundred men, women, and children gathered on the platform of the depot. The moment he stopped, people who climbed aboard or clung to it wherever they could find a place to take hold besieged his engine. Mackedon realized that he could not possibly carry them all on his engine; so, despite the fact that cars on a side track were aflame, Mackedon cut an empty from them and left Falcon with the car and the engine packed with the survivors of the flaming town.
>
> In an article on the fire published in *Railroad Man's Magazin*e for May, 1911, Harry Rusch of Avery described the heroic efforts of Milwaukee Road men--how conductor Harry B. Vandercook and Engineer Blondell, missing Superintendent C. H. Marshall when they sought refuge in one of the Milwaukee's tunnels after escaping fire-swept

Falcon, decided to go back down the mountain for him:

> The huge timbers of the bridges were burning beneath them, but they still kept on until they had rescued the official from certain death. Their return trip up the mountain to the tunnel was terrible. The bridges were all ablaze. After crossing them they were compelled to stop and extinguish the flames that threatened to demolish their caboose. They remained in the tunnel eight days until the bridges were rebuilt . . . . "Why, all that you could see of a bridge was a wall of flame, but we crossed it. I hooked her up, threw her wide open, and then we lay down on the deck to protect ourselves from the heat. We expected that every minute would be our last on earth."

In addition to the role of the men on the trains, others also played courageous parts. Ralph W. Anderson, foreman at the roundhouse at Avery, saved that town by summoning all his Japanese employees and all other Milwaukee Road personnel in the vicinity to build a backfire on both sides of the St. Joe River, thus saving Avery by sending the fire around the town.

The 1910 Fires undoubtedly spurred on the Milwaukee to complete the filling and replacement of the wooden trestles as soon as possible and to eventually convert the line to electric power.

The railroad considered electrification in the early planning of the line. When buying rights-of-way, company agents also obtained land for substations and water rights on nearby rivers.

Recognizing the importance of having knowledgeable businessman from the West upon the board of directors, the railroad added John D. Ryan to the board in 1909 at the suggestion of William Rockefeller.

> . . . Ryan was president of the powerful Anaconda Mining company, and had a lively interest in water power; his familiarity with the country through which the new extension of the Milwaukee Road must operate made him a desirable addition to the board, particularly since Rockefeller himself had long before bought a considerable interest in Anaconda. Ryan was also very much alive to another factor that bore directly upon problems of the railroad in mountain operation: he was keenly interested in railroad electrification, partly to secure a new use of copper, partly to afford an outlet for the vast undeveloped water power he and his associates directly or indirectly controlled (Derleth 1948: 188).

In 1912 the Milwaukee board of directors started development of a plan to electrify part of the Pacific Extension. A feasibility study projected a 45 million dollar cost for the project. The company took a chance when it decided to start conversion of the Harlowton, Montana to Avery, Idaho segment because this was the first major attempt to electrify a main line railroad in North America.

Influencing the board decision were a number of factors. The 1910 fires precipitated laws prohibiting the use of both coal and wood burning locomotives in the Idaho Forest Preserve. Oil burning locomotives raised the expense of operation of the Milwaukee considerably. In addition, steam locomotives lost efficiency in the cold northwest winters. Finally, the accumulation of smoke and gas from steam locomotives in the tunnels on the Milwaukee was not to the liking of either employees or passengers and their safety concerns were often valid.

In 1914, with the urging of Ryan, the Milwaukee began to convert the mountain sections of the Pacific Extension to electrical power. The character and successes of the electrification project are partly due to Ryan's involvement. Ryan persuaded the Milwaukee board to buy commercial power rather than build their own power plants.

When the sections became fully operational in 1917, the results so impressed the board of directors that it launched the second phase of electrification. This phase included the main line from Othello to Tacoma, Washington. With the completion of this phase in 1920, the Milwaukee had the longest stretches of electrified main line railroad in the world. Due to financial problems, the Milwaukee never completed the electrification between Avery and Othello that would have joined the two existing electrified lines. This left a gap between Avery and Othello that remained steam powered and insured that Avery would serve as a key division point for switching trains back and forth from steam to electric power.

The railroad built several hundred miles of 100,000-volt power lines to connect the more remote substations. Transformers at the substations reduced the 100,000-volt alternating current to 2,300 volts, and converted by motor generators to 3000 volt direct current, for distribution over a catenary trolley system, suspended normally twenty-four feet above the running rails (Wood and Wood 1972: 69).

The railroad built fourteen red brick two story substations between Harlowton and Avery (1 roughly every 32.8 miles) including number 13 at East Portal.

The electrification project eliminated or greatly reduced the need for coal, water and ash handling facilities. It reduced the number of crews needed to operate the line and in the long run paid for itself through increased efficiency and productivity.

The Milwaukee's electrified locomotives used "regenerative braking" when descending the grades from St. Paul Pass. Reversing the electric motors in the engines turned them into generators. As the trains descended they generated 40 to 60 percent of the power needed by another train coming up the grade. After the Milwaukee successfully used this system it became standard equipment on electric locomotives. Farrington (1943: 83) notes that

> As compared with steam operation, the tonnage per train has been practically doubled, as well as the speed on ascending grades, while the absence of wear and tear on the brake equipment, due to the regenerating feature, greatly reduces maintenance and at the same time increases the safety of operation.

The Milwaukee's electrification project exceeded all expectations of the company and became a model of what many believed to be the future railroad. The regeneration feature never profited the Milwaukee because the railroad never reached the contractual power obligations the railroad entered into with the power companies.

The electrification project originally had a life expectancy of 30 years. However, the system survived nearly unaltered for 58 years, and

> So excellent was the performance of the new system that it was eventually copied on some 41,000 route-miles of railroad in 26 nations, in preference to any other system (Northwest Rail Improvement Committee 1978: 1).

It is also recorded that

> Thomas A. Edison marveled at the smooth ride, Babe Ruth posed in the cab with an engineer, and President Warren G. Harding operated an electric locomotive for a stretch, occasioning the installation of a plaque on the side of the cab which read: "Chicago, Milwaukee and St. Paul Ry./To Puget Sound -- Electrified/July 2, 1923/Warren G. Harding/President of the United States/Operated Locomotive No. 10305/West bound Sappington, Mont./to Avery, Idaho.
>
> More importantly, throughout the 1920s, a steady stream of engineers and railway officials from all over the world came to observe this new American engineering marvel. Representatives from at least 17 countries in Asia, Africa, Europe, North America and South America visited the Milwaukee Road's western lines. That they were impressed with what they saw was evident, because almost all of those countries built electrified lines soon afterward and several, notably Brazil, Chile, Argentina, Spain and France, adopted many of the Milwaukee's new techniques (Clark 1973: 4)

Locomotives used on the line include: wood, coal or oil fired steam locomotives; diesel locomotives and electric locomotives. The Milwaukee Road acquired one hundred and twenty-eight electric locomotives from 1915 to 1950. Four distinctive types of electric locomotives on the line set it apart from other railroads. These electric locomotives include

> EP-1, EF-1 (Box-Cab or Pelicans) built by General Electric, were two-unit locomotives rated at 3000 hp. General Electric built forty-two these units for the Milwaukee from 1915 to 1916. Freight geared locomotives had the designation EF-1, when in two units (EP-1 when geared for passenger trains), EF-2 and EF-3 with three units and EF-5 with four units. Some of these locomotives survived until the end of electrification. One unit (Number 10200) was probably the oldest working locomotive in the country when it was working in 1974 as a helper at Deer Lodge. This locomotive is now at the Lake Superior Transportation Museum in Duluth, Minnesota. In the late teens, a box cab derailed along the north fork of the St. Joe at Motor Creek.
>
> EP-2 (Bi-polar or centipedes) built by General Electric, were distinctive 28 wheel electric passenger train locomotives. Five of these locomotives arrived in 1919 and 1920 with a rating of 3450 hp. The railroad tested the Bi-polars on the Harlowton/Avery section in 1919. These locomotives spent the next 38 years on the Coast Division. In 1958 the Bi-polars moved to the Rocky Mountain Division and worked several years moving passenger trains before being retired for good. The National Museum of Transportation preserves one of these locomotives. The other four units ended up in a scrap yard.

EP-3, (Quills), built by Baldwin-Westinghouse in 1920. The Milwaukee acquired ten passenger train locomotives of this type with a rating of 4200 hp. In 1933 a EP-3 derailed at Stetson, above Avery, and later scrapped.

The "Quill" nickname given to Baldwin-Westinghouse motors comes from the hollow 15-inch 'quill' tube surrounding each drive axle (Steinheimer 1979: 47).

It was a Quill that President Harding helped pilot into Avery in 1923. All of these engines ended up as scrap by 1957.

EF-4, (Little Joes), built by General Electric. The Milwaukee in 1948 - 1950 acquired 12 locomotives of this type with a rated horse power of 5500. General Electric built these engines for the Soviet Union. The Cold War politics of the day allowed the Milwaukee to obtain these at a bargain price. All of these engines ran on the Rocky Mountain Division until the end of electrification. One locomotive of this type survives in a park in Deer Lodge, Montana. The rest of these locomotives ended up on the scrap pile after the end of electrification.

Between East Portal and Pearson the Milwaukee built sidings at East Portal, Roland, Adair, Falcon and Pearson. East Portal, Roland, Adair and Falcon, during construction of the line, were small communities and shrank in size to house maintenance workers after completion of the railroad. Pearson siding was used by miners and loggers in the area.

East Portal developed from a camp for men working on the St. Paul Pass Tunnel into section crew quarters, out lasting Roland at the other end of the tunnel. An electrical substation built in 1915 at East Portal insured year round occupancy of the siding. In the 1950s remote operating equipment allowed the operator at East Portal substation to control the next two substations to the east.

Roland had a station, a turntable, bunkhouses and a few single-family homes. From 1909 to 1916 Roland was a station for the steam "helper" that helped boost trains up to the St. Paul Pass Tunnel. After electrification, Roland started to decline. During the late 30s and early 40s the Milwaukee developed a downhill ski area above Roland. The Milwaukee ran special ski trains from Spokane, Coeur d'Alene, Missoula and Avery to the ski area. The last people moved out of Roland in the 1960s and the railroad moved the remaining buildings to East Portal.

Adair served as a siding for loading ore and logs. Crowell and Asleson (1980: 62) state that

> The town of Adair, high on the railroad loop above Loop Creek, was the campsite for three or four hundred people during construction days. It served as a loading site for ore from the Idaho-Montana Mine, the Richmond, and the Monitor. A specially built tramway carried ore down the mountain to the siding. When C. H. Gregory salvage-logged near Adair during the teens, he constructed an unusually long log flume over the tunnel to unload his logs at the siding. Adair once had several sporting houses [houses of prostitution], saloons, and a small store that sold clothing and general merchandise. The Adair section man built a small fishpond between the depot and section house that entertained passengers on the train for many years.

Falcon siding burned in the 1910 fire. Rebuilt, it managed to survive the transition from its start as a construction siding to an active section point for the railroad logging of the North Fork during the teens. Falcon siding had an active post office and a store into the 1930s.

In 1925, the Milwaukee declared bankruptcy. The causes of this bankruptcy included: (1) the gross underestimate of the cost of the Pacific Extension (45 to 60 million dollars estimated, 257 million dollars actual cost); (2) a huge debt built up through the questionable acquisition of small railroads in the Midwest; (3) the low volume of traffic on the Pacific Extension - caused by the opening of the Panama Canal in 1914; (4) the increased use of the automobile by the public; (5) a decline in the rate of industrial expansion in the Pacific Northwest; and (6) competition from other railroads.

In 1928 the Milwaukee reorganized as the "Chicago, Milwaukee, St. Paul and Pacific Railroad Company." This company struggled to overcome the debts of the past and the increased competition until it entered bankruptcy in 1935. The company lingered in receivership for 10 years because of legal battles between stockholders and creditors. The company again reorganized in 1945 after a boost in traffic due to World War II.

In 1933 a flood washed out part of the Northern Pacific's Wallace branch line roadbed between St. Regis and Haugan. As a result, the Northern Pacific entered into a joint use agreement with the Milwaukee. This agreement allowed both railroads to use the Milwaukee track between St. Regis and Haugan. The railroads carried on with this arraignment until both lines shut down in 1980.

In spite of financial problems, the Milwaukee launched the Hiawatha, a streamlined passenger train service between Milwaukee and Chicago 1935. Following the last reorganization the Milwaukee extended its streamlined passenger train service in 1947 to the Pacific Extension by converting the "Olympian" into the "Olympian Hiawatha."

> From 1947 until 1954 there were two passenger trains daily between Chicago and Seattle. The Olympian Hiawatha was a streamlined passenger train featuring a rear car "Skytop Lounge" solarium and a streamlined Fairbanks-Morse diesel 6000 hp. (FM) locomotive. It also featured modern sleeping and dining cars for the passengers. The Olympian Hiawatha claimed a number of distinctions. It was the sole member of the tribe to include sleeping cars, it had -- though not for long -- a unique color scheme, it was the continent's fastest open-platform observation car ride, and it was one of the few trains anywhere to regularly operate with diesel, electric, and steam motive power in the course of a single journey (Scribbins 1970: 30).

At first the diesels pulled the Olympian Hiawatha straight through from Chicago to Seattle. However,

> A coal miners' strike late in 1949 brought an effort to conserve coal; the FM's turned back at Harlowton, handled the Columbian as well as the Hi, and ended steam passenger operation across the prairies. The EP-3 Westinghouse Quill-type motors took over on the Rocky Mountain division, and EP-2 General Electric bi-polar motors climbed through the Cascades (Scribbins 1970: 175).

After World War II there were a few years of profitable operation, but after the Korean War, income began a steady decline. New electric locomotives (the 12 Little Joes), introduced in 1950, and ever increasing numbers of diesel locomotives provided the company with modern equipment. However, the new management was not able to turn the company around in the long run. Net income began to decline after 1953. In 1955 the Columbian ran for the last time, and six years later the Olympian Hiawatha followed. The Great Northern, the Northern Pacific, the Chicago, Burlington and Quincy and the Spokane, Portland and Seattle merged to form Burlington Northern Railroad in 1970. While a condition of the merger allowed the Milwaukee increased access to western markets, it soon found the competition too stiff to operate profitably. In 1974 the electrified sections converted to diesel power. The Milwaukee also asked to be a part of the Burlington Northern merger. In 1977, the company again filed for bankruptcy. In 1980, the Milwaukee stopped all traffic over lines west of Miles City, Montana and in 1981 and 1982 sold these western lines. In 1985 the eastern portion of the Milwaukee Road sold out to the Canadian Pacific subsidiary Soo Line. At this point the Milwaukee Road ceased to exist.

The reasons for the abandonment of electrification and the final demise of the company are still matters of hot debate. Some figures tell one side of the story. In 1975 the Milwaukee had 5% of the route miles of all the nation's railroads, but had only 2.5% of the rail traffic. In the end 40% of the line was west of Butte, but it sustained only 6% of the Milwaukee's total traffic. All but two years from 1926 to 1940 showed a deficit, and the post war boom of the Milwaukee ended in 1952 when income began a steady slide into bankruptcy (Schmidt 1977). Wood and Wood (1972: 167) note that while 58% of all intercity travelers used automobiles in 1944, 18 years later 90% of the travelers used automobiles. Freight traffic dropped from 70% to 41%. Overall railroad income dropped by an average of 58% in the same period. Schwantes states that (1993:305)

> Studies showed that although the Milwaukee was the nation's fifteenth largest railroad in terms of revenues in 1958, 96-percent of its traffic could be handled by competing lines. Bankruptcy was perhaps inevitable and probably would have come earlier had the railroad not tapped the resources of its land company.

Still, many questions remain unanswered about actions the railroads management made that appear contrary to the best interests of the company (see for example Ploss 1984, Sol 1995 and n.d.)

The drop in traffic and income crippled Milwaukee Road's ability to maintain its track and equipment. In spite of the support and inventiveness of its' employees the road slowly fell apart. Hyde (1990: 92) states:

> Given the railroad's sagging financial condition (it hadn't covered fixed charges since 1967), money to rebuild the electrification could neither be borrowed from banks nor robbed from operating revenues. Besides, even under the most generous study, traffic density on the Pacific Extension was not nearly heavy enough to require or justify such a large expenditure . . . By the late 1970s operations were crippled by slow orders and frequent major derailments; it was not unknown for trains to show up in Tacoma or St. Paul with only half of the cars they had left with. Freight claim payments were delayed for months because the railroad didn't have the cash to pay them, the shippers began to route their carloads via BN or UP.

The deterioration of the Milwaukee went well beyond the Pacific Extension, affecting the entire system. Hyde, when discussing the Iowa Division of the Milwaukee, states that after 1977:

> The mainline between Green Island and Marion remained in service to access important customers, primarily at Cedar Rapids, though track speed on this stretch had been reduced in many places to 10-mph, partly to minimize derailments, and partly to keep heavy grain hoppers - when they did derail - from wallowing too far away from the rails (1990 3).

The Milwaukee Road's touted computerized car tracking system "CarScope" could tell customers where their carloads were at any time. In the end, wags said that it would just as likely tell them it was "Probably in the St. Joe River." (Hyde 1990: 165)

The end of electrification was controversial, and many railroad advocates were unhappy with the company's decision. Part of the public's perception was colored because

> It had become almost a working museum, a storehouse of 50-year-old railroad equipment, with its box and steeple cabs [switch engines]. Wooden catenary poles marched, intriguingly but outmodely, along twisting single track, reminiscent of long-vanished interurban lines. Seen in this light, its continuance into the seventies at all would appear to have been a small miracle (Zimmerman 1973: 54).

Here, the Milwaukee history cannot be presented in an even-handed way if this view is left unchallanged. Sole (1995: 2) states that

> . . . the Milwaukee Road's decision to terminate the electrification was, bluntly put, 'dumb'. [L. W.] Wylie had written in 1956, in a paper for the American Institute of Electrical Engineers that 'age is not a suitable criterion to judge the Milwaukee road electrification'. By that, he meant that the Milwaukee electrification was, by physical appearances, a 'museum piece' and to a great extent based on a technology that appeared obsolete. Wylie warned, however, that appearances were entirely deceiving. The Milwaukee Road electrification, he maintained, had proven itself beyond anyone's wildest dreams, and technologies, which had supposedly supplanted the electrification, had, over time, showed their promises to be typically exaggerated. Particularly Wylie complained, the diesel electric locomotive had shown itself to be extremely expensive and short-lived, and alternating current technology had shown no advantage over existing Direct Current electrification . . . .

> The perplexing part of the decision to terminate was that, in the face of overwhelming price increase in the cost of diesel fuel, the Milwaukee Road was unable to reverse a decision which, on economic grounds, had become insupportable. Indeed, I recently performed a review of diesel fuel vs. electric power costs as they related to the Milwaukee for an arbitrary ten-year period following the termination decision in February 1973. The figures showed that the Milwaukee Road would have dropped nearly $100 million in increased fuel costs that would have been avoided had it remained electrified, even accounting for the retail cost increases in electric power costs over the same period.
>
> When analysts look at the history of the Milwaukee Road, it will be difficult to look at mistakes of that magnitude and still suggest with a straight face that incomprehensible and inexplicable management decisions were not the sole and fundamental reason for the demise of the Milwaukee.

Whatever the ultimate cause of the Milwaukee's problems, the last train passed over the East Portal to Pearson section on March 17, 1980. In 1982 a group of private investors acquired the section for a log-hauling road and removed everything considered worth salvaging (such as rails, ties, signals). In 1985 the U.S. Government acquired the segment from Haugan to Avery $3,900,000. An error by the government permitted segments on the Montana side to be required by private parties.

In 1986, the Forest Service modified the roadbed from Avery to the mouth of Loop Creek into a county road. In 1994, the Forest Service completed an environmental assessment involving the conversion of the route from St. Regis to the mouth of Loop Creek into a trail.

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(E)	11	600730mE	5248100mN
(F)	11	600620mE	5245850mN
(G)	11	600720mE	5245980mN
(H)	11	605260mE	5243620mN
(I)	11	605310mE	5243500mN
(J)	11	603220mE	5244400mN
(K)	11	603160mE	5244300mN
(L)	11	600600mE	5244480mN
(M)	11	600590mE	5244340mN
(N)	11	598220mE	5245530mN
(O)	11	598220mE	5245420mN
(P)	11	595500mE	5244780mN

Montana

T.19N., R.32W.

Section 23 NW ¼, NE ¼, SW ¼
Section 22 E ½ of SE ¼

Idaho

T.47N., R.6E.

Section 1 SW ¼
Section 2 SW ¼, SW ¼, SE ¼
Section 3 SW ¼
Section 4 S ½ of S ½
Section 5 SE ¼
Section 7 SE ¼ of NE ¼
Section 8 NW ¼, N1/2 of the NE ¼
Section 9 NE ¼ of NE ¼
Section 10 N ½ of NW ¼ , NE ¼ , N ½ of SE ¼
Section 11 N ½ of SW ¼ , SE ¼ of the NW ¼ , NE ¼
Section 12 All

T. 46 N., R. 7 E.	Section 7 SW ¼ , SE ¼
	Section 8 SW ¼ of SW ¼
	Section 17 NW ¼ of NW ¼
	Section 18 N ½ of N ½
T. 47 N., R. 6 E.	Section 26 SE ¼
	Section 25 SW ¼
	Section 35 NW ¼ , SW ¼

Verbal Boundary Description (Continued)

from East Portal to Pearson. The north leg of the boundary proceeds 200 feet from the center of the railroad grade and the south leg of the boundary proceeds 200 feet in the opposite direction paralleling the centerline of the railroad grade creating a 400-foot wide strip from East Portal, Montana to Pearson, Idaho.

Boundary Justification (Continued)

centerline of the railroad grade. This encloses the properties listed in this nomination with boundaries that are easily identifiable on the ground. In addition the boundaries follow the original 400-foot wide railroad right-of-way boundaries.

Photographs taken by Cort Sims
Forest Archeologist, IPNF, 1994

(1 of 26)
Remnants of substation at East Portal, #1 on USGS maps

View looking southwest

Shoshone County, Idaho

(2 of 26)
West portal of St. Paul Pass Tunnel, #2 on USGS maps

View looking northeast

(3 of 26)
Foundation of building at Roland, Idaho, #4 on USGS maps

View looking northwest

(4 of 26)
East portal of Tunnel 21, #10 on USGS maps

View looking east

(5 of 26)
Earth fill, #11 on USGS maps

View looking east

(6 of 26)
East portal of Tunnel 22, #14 on USGS maps

View looking east

(7 of 26)
West portal of Tunnel 23, #21 on USGS maps

View looking northwest

Photographs taken by Cort Sims
Forest Archeologist, IPNF, 1994

(8 of 26)
West portal of Tunnel 24, #22 on USGS maps

View looking west

(9 of 26)
Small Creek Bridge, #23 on USGS maps

View looking northeast

(10 of 26)
Rock fence, #25 on USGS maps

View looking northeast

(11 of 26)
Burnes Creek Bridge and Rock Fence, #26 and #28 on USGS maps

View looking north

(12 of 26)
Grave, #29 on USGS maps

View looking northeast

(13 of 26)
Kelly Creek Bridge, #30 on USGS maps

View looking east

(14 of 26)
Kelly Creek Bridge, #30 on USGS maps

View looking east

(15 of 26)
Adair coal shed, #33 on USGS maps

Photographs taken by Cort Sims
Forest Archeologist, IPNF, 1994

View looking east

(16 of 26)
Adair residence, #33 on USGS maps

View looking northeast

(17 of 26)
Bridge over Manhattan Creek, #34 on USGS maps

View looking west

(18 of 26)
East portal of Tunnel 25, #39 on USGS maps

View looking south

(19 of 26)
East portal of Tunnel 26, #42 on USGS maps

View looking southsest

(20 of 26)
Turkey Creek Bridge, #43 on USGS maps

View looking southwest

Photographs taken by Cort Sims
Forest Archeologist, IPNF, 1994

(21 of 26)
Russell Creek Bridge, #45 on USGS maps

View looking northwest

(22 of 26)
Bear Creek Bridge, #48 on USGS maps

View looking west

(23 of 26)
Clear Creek Bridge, #50 on USGS maps

View looking west

(24 of 26)
West portal of Tunnel 27, #57 on USGS maps

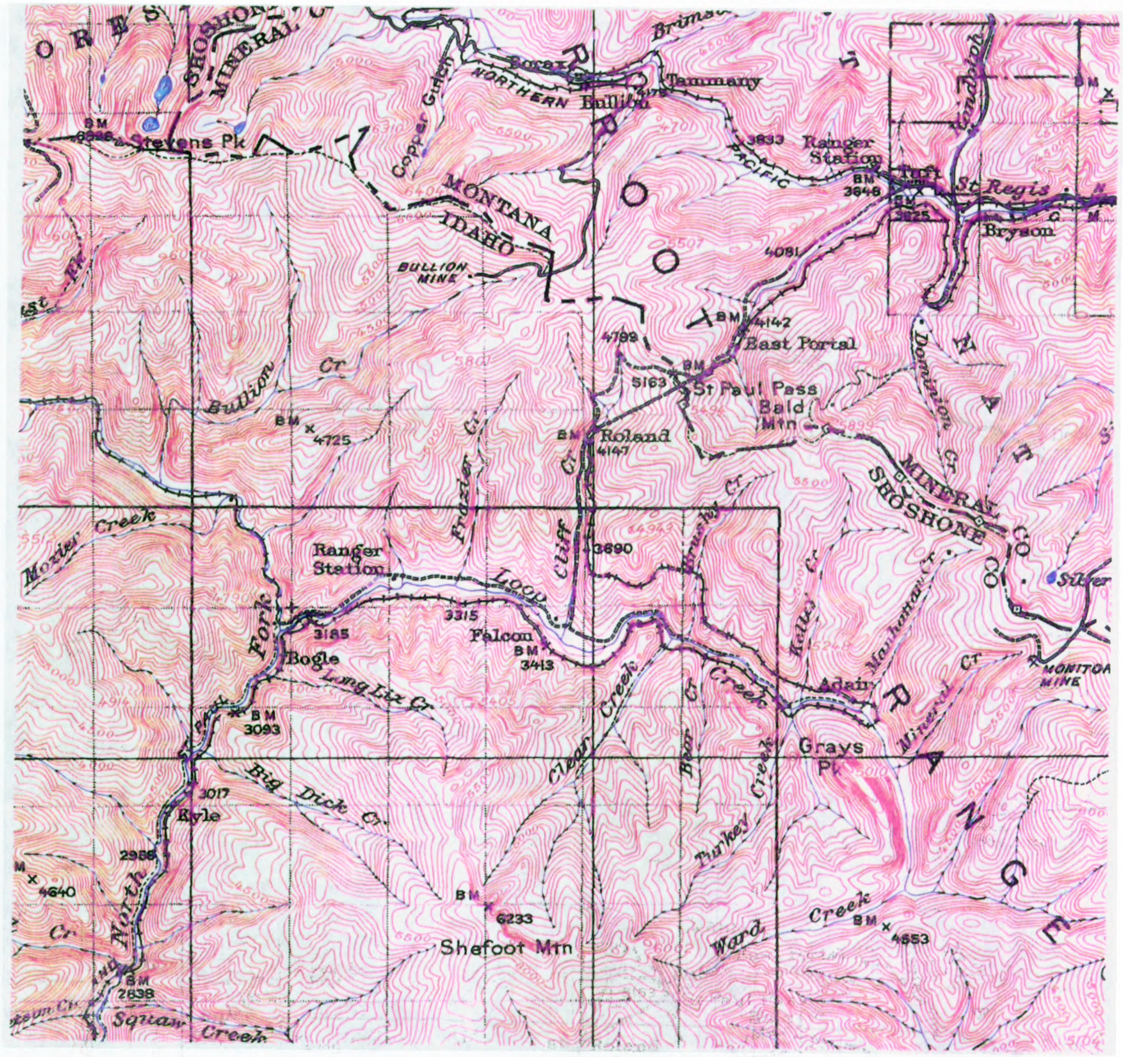
View looking east

(25 of 26)
West portal of Tunnel 28, #58 on USGS maps

View looking northeast

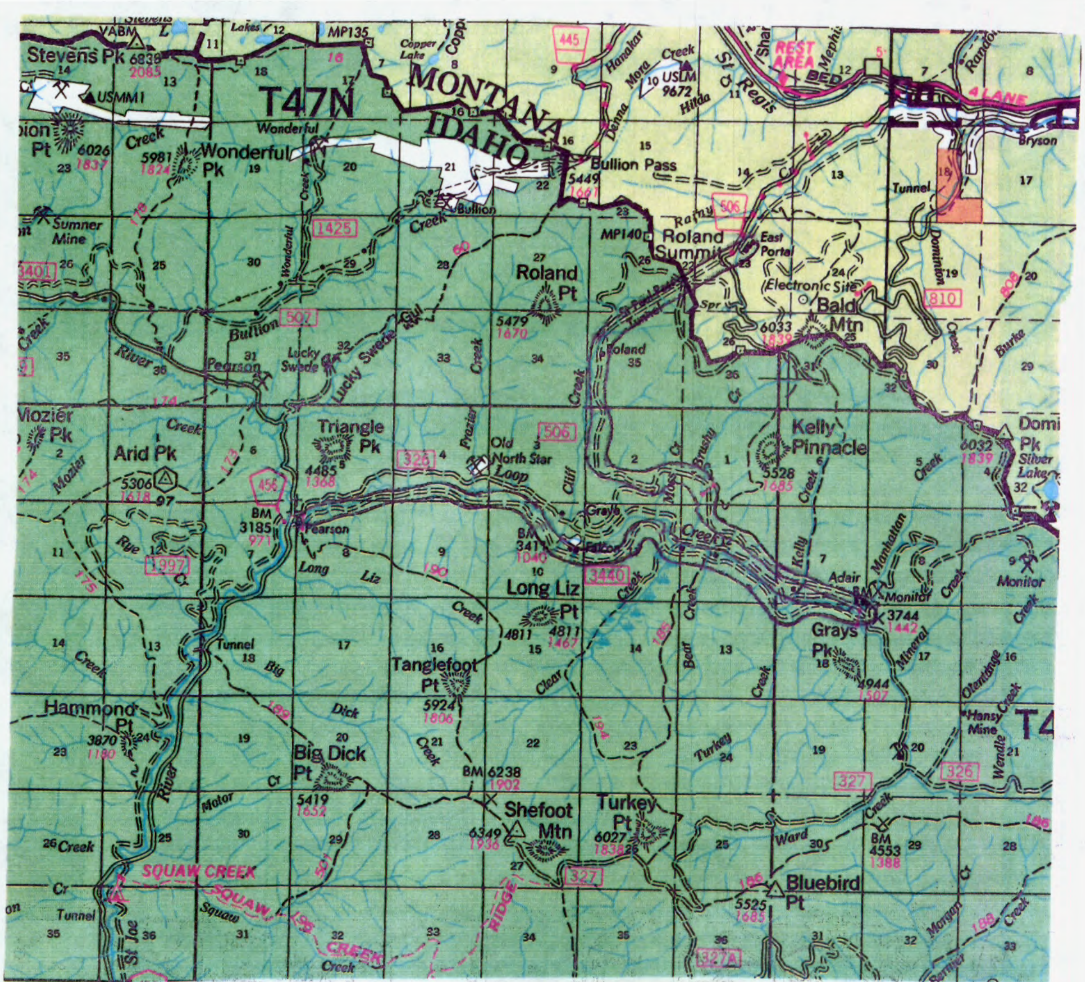
(26 of 26)
East portal of Tunnel 29, #80 on USGS maps

View looking west



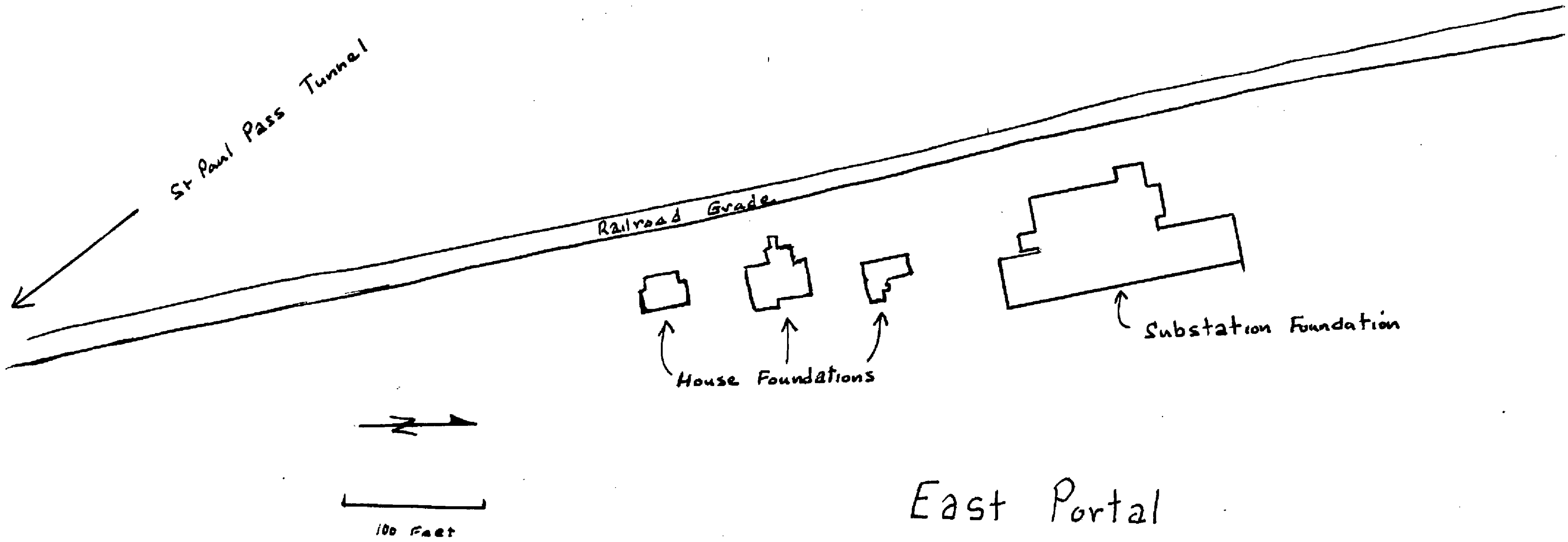
Chicago, Milwaukee, St. Paul and Pacific Railway Company
Historic District
Mineral County, Montana and Shoshone County, Idaho

Map 1 or 6: Portion of the Avery (1917) quadrangle showing the area discussed in this registration form



Chicago, Milwaukee, St. Paul and Pacific Railway Company
Historic District
Mineral County, Montana and Shoshone County, Idaho

Map 2 of 6: Boundary of Historic District discussed in this registration form.



East Portal

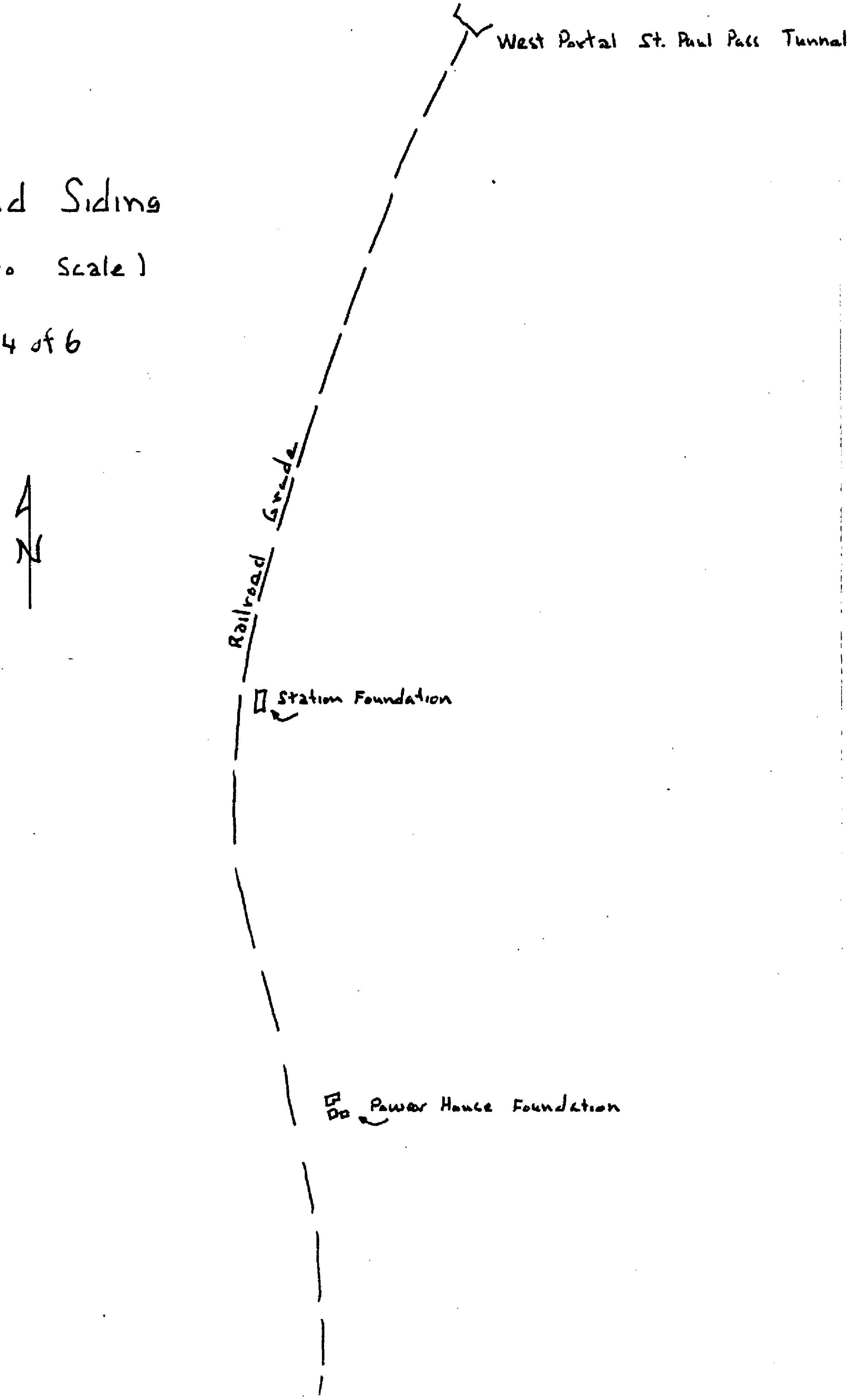
Map 3 of 6

Chicago, Milwaukee, St. Paul & Pacific
Railroad Company Historic District
(East Portal to Loop Creek Segment)

Roland Siding

(Not to Scale)

Map 4 of 6

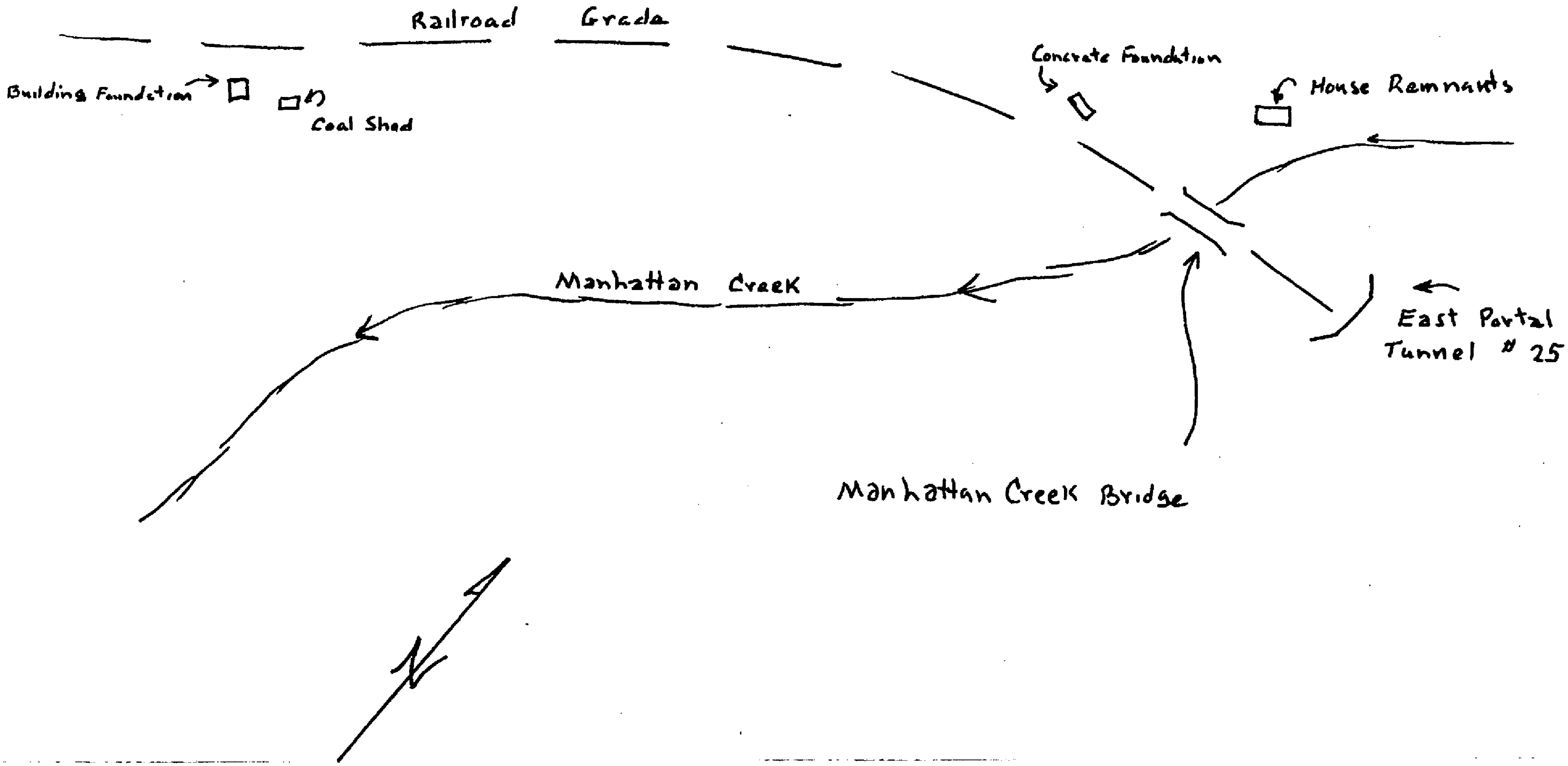


Chicago, Milwaukee, St. Paul & Pacific
Railroad Company Historic District
(East Portal to Loop Creek Segment)

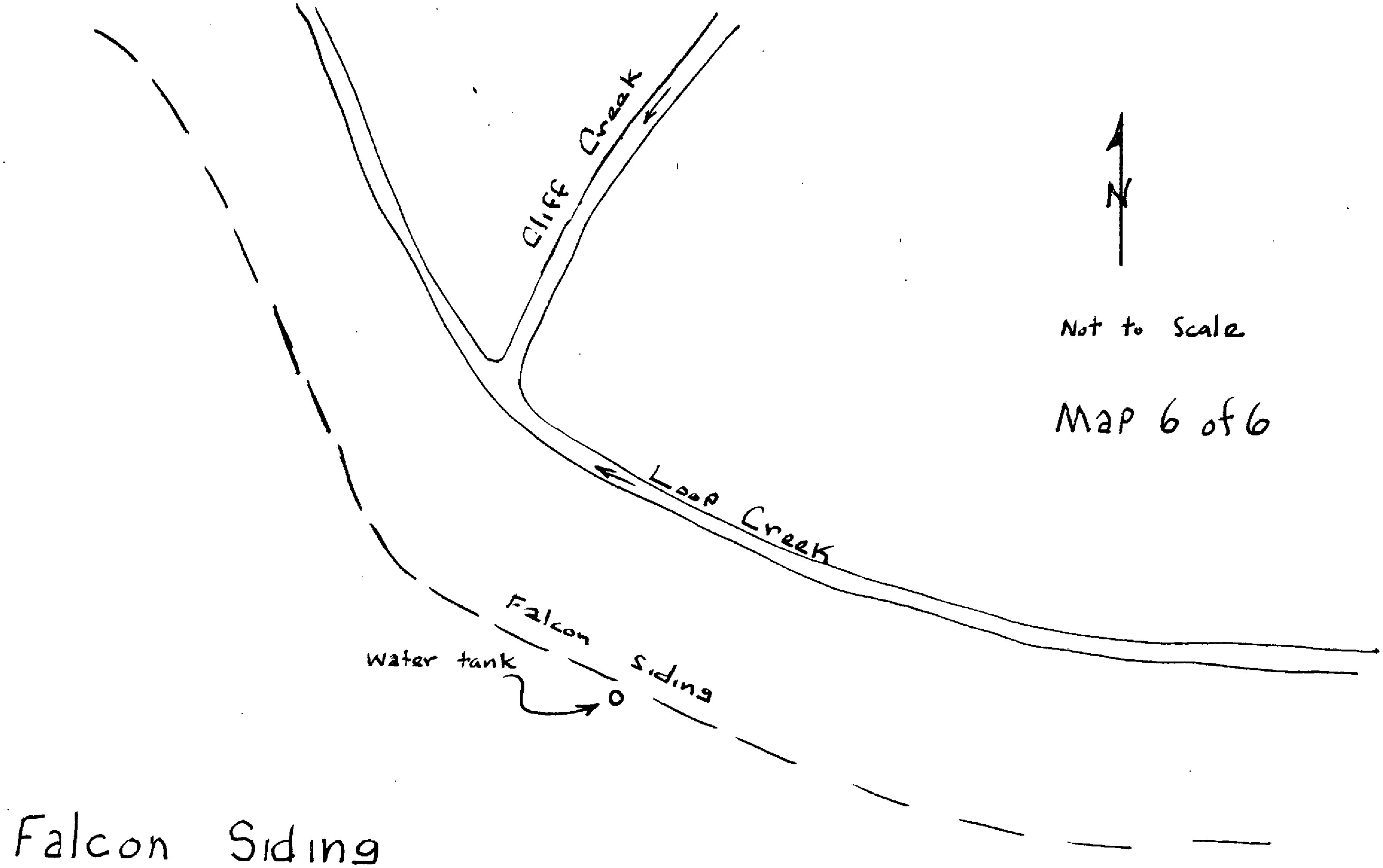
Adair Siding

(not to Scale)

Map 5 of 6



Chicago, Milwaukee, St. Paul & Pacific
Railroad Company Historic District
(East Portal to Loop Creek Segment)


Cliff Creek
N
Not to Scale
Map 6 of 6
Loop Creek
Falcon Siding
Water tank
Falcon Siding

Chicago, Milwaukee, St. Paul & Pacific
Railroad Company Historic District
(East Portal to Loop Creek Segment)