

VALUATION SECTION MONTANA 3.

GENERAL LOCATION:

Valuation Section Montana 3 covers about 92 miles of the main line of the Chicago, Milwaukee & St. Paul Railway Company's Puget Sound Extension extending from Lombard, Montana in a general westerly direction through Broadwater and Gallatin Counties to Sappington, thence in a westerly and northwesterly direction through Jefferson, Madison and Silver Bow Counties to Colorado Junction, a point about one and one-half miles west of Butte, where a junction is made with the Butte Anaconda & Pacific Railway.

RECONNOISSANCE AND SURVEYS:

The reconnoissances in the Fall of 1904, as previously described in Valuation Sections Montana Nos. 1 and 2, continued on west from Lombard along the Missouri and Jefferson Rivers thence across the Continental Divide in the Rocky Mountains to Butte, Montana. It was from this report that information was obtained for the instrumental surveys.

Three survey parties were placed in the field in January 1906 to make preliminary and location surveys between Three Forks and Butte. These parties worked until August 1906. During the Winter of 1907-08 another party made surveys from the vicinity of Three Forks east to Lombard. Numerous preliminary lines were surveyed over this Section and the nature of the country required extensive contour and line projection work. Many of the projected lines were established on the ground and discarded before the route as adopted and constructed was decided upon.

CHARACTER OF COUNTRY:

Between Lombard and Piedmont the line as constructed is in close proximity to the Northern Pacific Railway Company's main line, although the Missouri and Jefferson Rivers lie between the two railroads a large portion of the distance. Between Piedmont and Butte the line diverges from the Northern Pacific Railway and crosses the Continental Divide several miles south of that line. Territory between Piedmont and Butte is all of a rough mountainous character.

CONSTRUCTED LINE:

At Lombard the line crosses the Missouri River near the mouth of Sixteen Mile Creek thence in a general southwesterly direction follows the Missouri River Valley to the mouth of the Jefferson, Madison and Gallatin Rivers, which unite and form the Missouri River a short distance east of Three Forks. From this point the Jefferson River Valley is followed to Piedmont thence up the east slope of the Rocky Mountains across the Divide and down the west slope, with heavy development work, to Butte. Between Lombard and Piedmont the gradients are light and maximum curvature is 8 degrees. The ascent on the east side of the mountains is made on a two percent gradient and 1-66/100 percent gradient is used on the west slope. Numerous sharp curves are used in the mountain district.

CONSTRUCTION ORGANIZATION:

The construction organization consisted of an Engineer of Construction who had general charge of the work, assisted by one Division Engineer and eight Resident Engineers and parties. The residency lengths varied from 9 to 16 miles. The Engineer of Construction maintained offices in Butte.

McIntosh Bros. did the work under their general contract covering the clearing, grubbing, grading, bridge and culvert work, track laying, etc. The work was sublet to various other firms who in some cases relet parts of their work to other contractors.

CONSTRUCTION:

Between Lombard and Piedmont contractors' equipment, material and supplies were unloaded at various points along the Northern Pacific Railway and taken to the points of use by team. Piedmont was the point of delivery for the work on the east slope of the mountains and Butte for the work on the west slope. Wagon roads were constructed by the contractors for handling the supplies and equipment.

The cuts between Lombard and Piedmont were largely made through loose and solid rock. Two important channel changes were made in the Jefferson River between Willow Creek and Alcazar. These channel changes were both made with team outfits. A large amount of embankment was washed out along the Jefferson and Madison Rivers during June 1908, and was rebuilt with teams and later widened with train hauled material. This same flood washed out portions of the Jefferson River bridges near Three Forks and occasioned considerable riprapping by Company Force and work train service. West from Piedmont the cuts were composed of disintegrated granite and solid rock. This disintegrated granite was extremely hard to handle and a large amount of powder was required on this Section.

To facilitate the delivery of the material for the high steel bridges and tunnel work in the mountains, grading east from Butte and the construction of temporary timber trestles was pushed with great vigor.

A temporary line was graded and used for train operation over Pipestone Pass pending completion of a tunnel. Nineteen long and high timber trestles were built between Colorado Junction and Cedric which have since been filled by contract and Company Forces.

BRIDGES, TRESTLES AND CULVERTS:

The pile and frame trestles were built in accordance with the standard drawings of the Railway Company. The original long trestle over Silver Bow Creek east of Colorado Junction was constructed by contract as were also the timber bridges between Lombard and Piedmont.

Those between Butte and Piedmont were erected by the Railway Company Forces. The steel viaducts and concrete culverts were built by Railway Company Forces. Timber culverts were placed by contract.

TUNNELS:

Four tunnels numbered 10, 11, 12 and 13 occur on this Section. These were drilled under contract in 1907-08 and the concrete lining has been placed since by Company Forces. Tunnel No. 10 caved in during construction and caused a large additional expense for retimbering and bracing. The work on Pipestone Pass tunnel, or No. 11, was done by McIntosh Bros.

Material yards for bridge and tunnel material were located at Newcomb, Piedmont, Willow Creek, Sappington, Jefferson Island and Three Forks. All material was furnished by the Railway Company and delivered to these yards. The material used by the contractors was hauled by team to the structure sites.

TRACK LAYING AND BALLASTING:

In June 1907 a consolidation locomotive was sent to Butte for track laying and general use. This locomotive was in service constantly for a period of about one year before the track from the east was connected up. McIntosh Bros. did the track laying, using a Roberts Bros. machine over the entire distance with the exception of about four miles at the Continental Divide. The work was in progress at different places and at different times during 1907-08, being started from Butte early in 1907 and in the Fall of the same year track was started west from Piedmont. Track was laid over the Divide during the Summer of 1908 and between Lombard and Piedmont between January and July of that year. Material yards were at the places previously mentioned under the paragraph on tunnels. The main line was laid with 85 and 90 pound steel.

The original ballasting was done in 1908 and some ballast has been placed yearly since that time. Ballast was composed of gravel, lime rock and disintegrated granite, taken from pits located at Barron, Lime Spur, Vendome and Janney.

WATER SUPPLY:

Permanent water supply stations were installed at Three Forks, Alcazar, Piedmont, Grace, Donald and Butte Yard. Temporary stations were installed at various places during construction, water being taken from the natural resources.

BUILDINGS:

Combination freight and passenger depots were built at Three Forks and Piedmont. A large freight house was built in Butte and the Butte, Anaconda and Pacific passenger depot was used jointly at that point. Smaller depots for the accommodation of operators were built at the less important places. Engine terminal facilities consisting of a 15 stall round house, turn table, clinker pit, etc. were built at Three Forks. A two-stall engine house was built at Piedmont and four-stall engine house with other facilities at Butte Yards to care for the helper engines used on the mountain grades. An imposing brick passenger depot with an entire new layout of tracks was later constructed at Butte.

FENCE AND SNOW PROTECTION:

Right of way fence has been placed where conditions required it, and the necessary crossing facilities installed. Material was delivered by work train after the track was laid.

TELEGRAPH AND TELEPHONE:

Material for the telegraph and telephone line was distributed by work train. The line averages 35 poles per mile and carries an average of eight wires. Telephones are used for train dispatching, being installed in booths at "blind sidings" and in the depots.

ELECTRIFICATION:

This entire Section has been equipped for operation by electricity. Substations were built at Eustis, Piedmont and Janney. Power is obtained from the Montana Power Company's plant at Great Falls, being transmitted to the substations at 100,000 volts alternating current. It is transformed and regenerated to 3,000 volts direct current for train operation.

OPERATION AND MANAGEMENT:

This Section is operated as a part of the Rocky Mountain Division, the local offices being in Three Forks, Montana. Automatic block signals are used throughout.