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Dept. of Environmental Quality
Remediation Division

Cultural Resource Inventory and Assessment

for the

Forest Rose Mine and Mill

Prepared for the

Montana Department of Environmental Quality
Mine Waste Cleanup Bureau
Helena, Montana 59620

by

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INTRODUCTION

The Mine Waste Cleanup Bureau (MWCB) of the Montana Department of Environmental Quality (DEQ), as part of its reclamation program, is required to identify and assess affects on historic mines prior to implementation of reclamation activities. The MWCB has contracted with Frontier Historical Consultants (FHC) of Grand View, Idaho, [DEQ MWCB Task Order #12] to record and assess the mining property known as the Forest Rose Mine in the Dunkleberg Mining District in Granite County, Montana (Figure 1). The inventory of the project area included lands within the northwest quarter of the southeast quarter of Section 22, Township 9 North, Range 12 West (Figure 2). A total of 218 acres were included in the inventory and designated as the project area.

The inventory was conducted to satisfy federal and state legislation requiring cultural resources inventory in compliance with Section 106 of the National Historic Preservation Act (Public Law 89-665, as amended); Executive Order 11593 (Protection and Enhancement of the Cultural Environment); the National Environmental Policy Act; the Montana Environmental Policy Act and other state and federal legislation.

The purpose of the cultural resources inventory is to locate, record and evaluate the kinds and nature of cultural resources, if any, within the vicinity of the Forest Rose Mine project area and to evaluate those resources in terms of the National Register of Historic Places (NRHP). The results of the investigation, documented in this report, include recommendations of significance for the mining site. The site was also evaluated both as an individual historic site and as a historic mining landscape. Because this project area is within the Dunkleberg Mining District (Figure 3), an area of possible importance to Montana history, the mine site was also assessed in terms of its potential contribution to the Dunkleberg Historic Mining District.

The principal investigator on the project was Dale M. Gray, historian, who was responsible for the overall project management, historic research and inventory. On August 4 - 6, 2002, Gray and Jim Duran conducted the field inventory and photography of the project area. Gray and Teena Marchek prepared the maps. The report was prepared and generated by Gray and Paul G. Anderson, historian, and Robert Haynes-Peterson, draft editor.

The site map in this report is based upon CADD file maps provide by Pioneer Technical Services of Butte, Montana. Historical context and mine histories include original research as well as material adapted from histories provided by GCM Services, Inc. and Renewable Technologies, Inc. (RTI) of Butte, Montana.

EXECUTIVE SUMMARY

The MWCB proposes actions on the Forest Rose Mine site that may affect cultural resources. This study examined the site to determine: 1) what, if any, cultural resources were in the project area and: 2) the significance of the identified resources in terms of the National Register of Historic Places (NRHP).

One historic site was identified: the Forest Rose Mine (24GN0990), which is located on the steep east slope of Dunkleberg Ridge in western Montana. The site is in Section 22, Township 9 North, Range 12 West in the Dunkleberg Mining District, Granite County, Montana. Dunkleberg Creek flows north through the mine site, which is about 50 miles east of Missoula, Montana.

This extensive site consists of some 43 major features including: seven adits, three cabins, outhouses, building platforms, powder magazine, frame adit house, elevated transformer stand, water works building, trestle, coal bin, ore bins, various concrete

footings, water tank, assay office, mill building, flotation tank, numerous small-scale items, debris and large areas of tailings and waste rock dumps.

Although the Forest Rose Mine would not be classed as a major producer, it did ship a moderate amount of silver/lead/zinc ore during two widely separate periods. An initial period of historical significance occurred during the 1890s when the mine was developed and may have produced some ore. However, the most important periods of production occurred from 1917 to 1927 when 1,751 tons were mined, and from 1940 to 1946 when over 113,000 tons of silver / lead / zinc ore were shipped.

The Forest Rose Mine retains a fair degree of integrity in spite of the inevitable deterioration of the mine features from time and weather. Most of the structures at the Forest Rose have collapsed or are in ruins, but there are still sufficient structural remains to discern their shape, dimensions and function. The placement of the features has, in general, not been disturbed and the transportation networks, patterns of operation and mining methods can still be clearly seen. Although little remains from the mine's initial period of development in the 1890s, the other two periods of significance are well represented on the site and preserve many of the mine's values of design, materials, workmanship, feeling, association and integrity as a historic hardrock mine site and historic mining landscape.

The Forest Rose Mine site still retains sufficient integrity and significance to be recommended eligible for listing on the NRHP under criteria A and C.

Because there has been no over-all study of the Dunkleberg Mining District and no known Determination of Eligibility (Murdo 2002), the contribution of the Forest Rose Mine (24GN0990) to a potential Dunkleberg Historic Mining District could not be made.

PHYSICAL ENVIRONMENT

The Forest Rose Mine project area is located on a side drainage of the Clark Fork River on the east side of Dunkleberg Creek. The mountainous area is west of the Continental Divide and is heavily forested and cut by numerous drainages.

The project area is in the Lodgepole pine-Douglas fir forest zone, which covers the mountain slopes in northwest Montana (Payne 1973). Elevation within the project area is around 5,800 feet amsl at Feature 1 complex to 5,240 feet at the lower tailings impoundment. The climate is typical of mountainous western Montana, with a mean annual precipitation around 18 inches per year.

Sandstones and shales of the Cretaceous age underlie the Dunkleberg District. Exposed successively to the south are rocks from the Kootenai, Ellis, Phosphoria and Quadrant formations. Sills of diorite and gabbro up to 1,000 feet in thickness intrude the district's sandstone and shale. Near the contact with the intrusives, the native rock has been metamorphosed but metamorphism does not extend far from the contact. Along Dunkleberg Ridge, most of the lodes containing lead, zinc, silver and other metals which, are in simple quartz veins in fissures that follow bedding planes or cut across the sediments and diorite sills. The veins are usually narrow, but in places widen to three or four feet thick flat lenses. The exception is the Wasa Lode, which worked a contact metamorphic deposit. The most important ore in the district was argentiferous galena and cerussite. Sphalerite was common in some of the mines (Sahinen 1935).

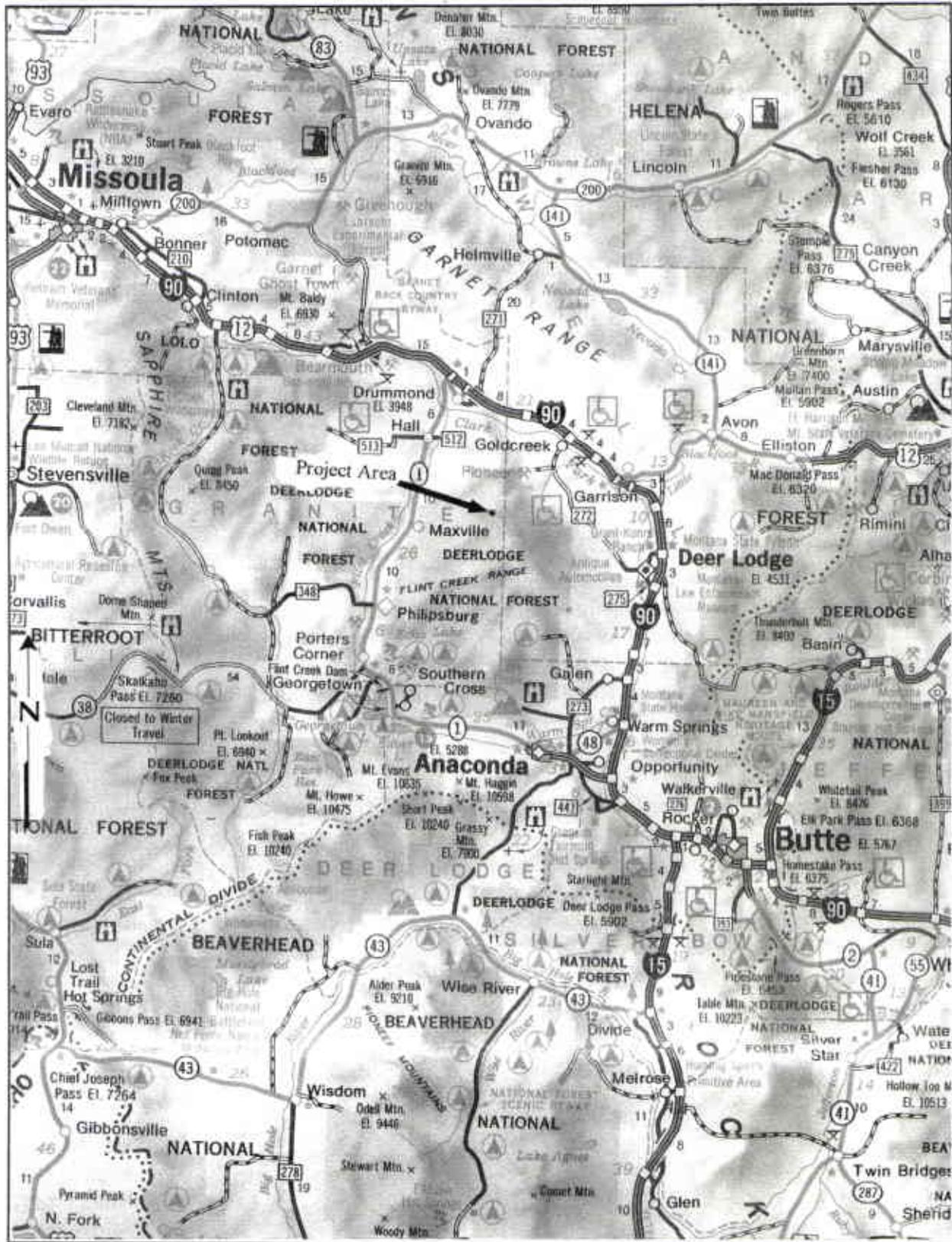


Figure 1. The location of the project area on a modern Montana highway map.

METHODOLOGY

Research

Inventory, recordation and evaluation methodology followed the guidelines in the *Montana State Historic Preservation Office Planning Bulletin 21* (SHPO 2000); the "AMRB Standard Procedures for the Documentation, Evaluation and Management of Historic Mining Properties" (AMRB Draft 1994); and the DEQ MWCB Task Order #12 contract agreement of August 1, 2002.

Prior to field work, detailed historic overviews of the Dunkleberg Mining District and the Forest Rose Mine (24GN0990) were prepared identifying significant events, historical chronologies, periods of historical patterns, significant persons, mining technologies and mining properties that might be associated with the area. This was compiled using sources such as previous cultural resource reports, primary sources from the Montana Tech Library in Butte, the Montana State Historical Library in Helena, files and records of the Department of Environmental Quality in Helena, and the Government Land Office Records at the Butte Bureau of Land Management (BLM).

Field Work

The project area around the Forest Rose Mine was subject to a pedestrian examination of an intensity to maximize the potential for locating all visible prehistoric and historic sites. The 218 acres survey in portions of Section 22, Township 9 North, Range 12 West was conducted at BLM Class III inventory standards. The survey area is shown on Figure 2. All historic features; e.g., structures, foundations, historic artifacts, roads, railroad lines, etc. were located and recorded on Amended Montana Site Inventory forms. All features and buildings were photographed and evaluated according to the standards and procedures of the National Register of Historic Places. No prehistoric resources were identified during the inventory.

Repeat Photography

Archives of the Montana Historical Society Photo Archives, the library of Montana Tech, the library of the University of Montana, the library of Montana State University and mining literature were consulted during the search for historic photographs of the site. No historic photographs of the Forest Rose Mine were found.

National Register of Historic Places Criteria Evaluation

Significance assessments were made by evaluating the Forest Rose Mine in respect to the four National Register criteria (36 CFR 60.4) and in terms of the guidelines in the various National Register Bulletins; e.g., 14, 15, 21, 30, 36 (draft), 39 and 42. In order for a site to be assessed as being significant and therefore eligible for inclusion on the National Register of Historic Places it must retain integrity and meet any of the following criteria:

Criterion A: The site was associated with events that have made a significant contribution to the broad patterns of our history.

Criterion B: The site was associated with the lives of persons significant in our past.

Criterion C: The site embodied the distinctive characteristics of a type, period, or method of construction, or that represented the work of a master, or that possesses high artistic values, or that represented a significant and distinguishable entity whose components may lack individual distinction.

Criterion D: The site has yielded or may be likely to yield information important in prehistory or history.

To be eligible each site and/or historic district must retain integrity of location, design, setting, materials, workmanship, feeling and association.

RESULTS OF FILES AND LITERATURE SEARCH

A file search was conducted at the State Historic Preservation Office (SHPO) for the area around the community of Dunkleberg and in the vicinity of the Forest Rose Mine. Sources for the Dunkleberg Mining District were also examined and selected for their potential to provide information on the Forest Rose Mine. The government land office records at the BLM in Butte were checked for land and mineral titles. Research at Montana Tech in Butte and the Thayer-Lindsley collection at the University of Wyoming was conducted to provide historical information on the operation and production of the Forest Rose Mine. Prior cultural resource reports were checked for information concerning local history and the location of cultural resources.

Most significant of the previous cultural reports on the area are:

Anderson, Paul and Barbara Sommers

- 1990 "Phase 25: A Cultural Resource Study of Selected Mining District and Mine sites in Western Montana," Prepared for the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, Helena, by GCM Services, Butte, Montana.

GCM Services

- 1995 "Dunkleberg Mining District: Technical Version." Part of a contextual overview of 224 mining districts in Montana. Prepared for the Montana Department of State Lands, Abandoned Mine Reclamation Bureau, Helena, by GCM Services, Butte, Montana.

Renewable Technologies, Inc.

- 2002 "Forest Rose (PA. No. 20-004), Dunkleberg Mining District, Granite County, Montana." Report prepared for the Mine Waste Cleanup Bureau, Montana Department of Environmental Quality, Helena, Montana.

DUNKLEBERG MINING DISTRICT BOUNDARIES

The general area of the Dunkleberg Mining District covers an area located on the northwest corner of the Flint Creek Range and about 10 miles southeast of the town of Drummond and some five miles east of the small community of Hall.

However, descriptions of the district in the mining literature are ill defined and sketchy at best.

Uuno Sahinen placed the Dunkleberg District to the south of Jens, a station on the Northern Pacific Railroad along the Clarks Fork River. A former ore-hauling road goes up Dunkleberg Creek from Jens. Sahinen said the mines and prospects of the district were confined to an area two miles wide and five miles long in the foothills of the Flint Creek Range. However, Sahinen does not attempt to locate more precisely where exactly this 10-mile-square district lay (Sahinen 1935).

C. C. Popoff (1953) is even more vague. He places the district in the Flint Creek Range, west of the Continental Divide and south of the Clark's Fork River, but fails to describe any more specific boundaries.

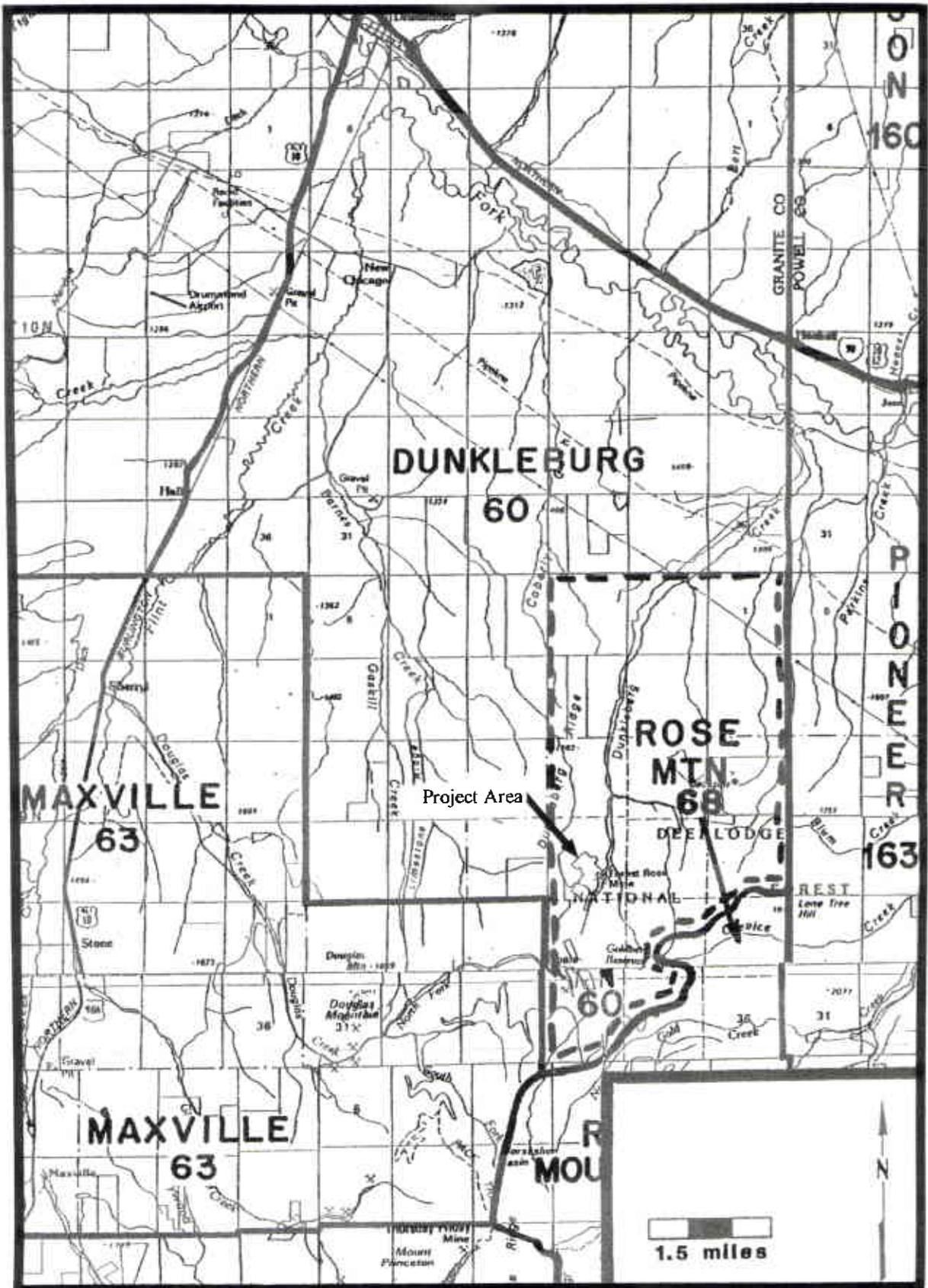


Figure 3. Map of the Dunkleberg Mining District, from AMRB (1994).

HISTORIC BACKGROUND

Periods of Historic Significance

To understand the historical significance of the Forest Rose Mine, it is necessary to view it within context of the mining district in which it functioned and when the mine itself was historically significant. The periods of significance for the Forest Rose Mine occurred during the 1890s when there was extensive development and perhaps some production; from 1917 to 1927 when 1,751 tons of ore was mined; and from 1940 to 1946 when 113,000 tons of silver/lead/zinc ore was shipped.

Dunkleberg Mining District

Lode mining in the Dunkleberg Mining District got underway during the 1880s. The Forest Rose and several other claims were staked in 1884. Other early claims include the Mountain Chief, Pearl (or Happy New Year), Kirkendal, and Monarch (or Old Tanglefoot). In the early years of the twentieth century, a small, undocumented, lead-smelting operation was tried on the Pearl claim, apparently with little success. Most of the district's production has come from the Forest Rose, Wasa and Jackson mines. Up to 1916, about \$200,000 in silver and lead had been produced in the district, about half of which was produced by the Forest Rose (Pardee 1917; Sahinen 1935; Popoff 1953).

The period prior to 1916 was also significant for a number of other mines in the district. In 1916, U.S. Geological Survey geologist Thomas Pardee visited the district's mines and reported that most of the mines had shut down but had had significant production before they closed. The Hatta Mine was typical. Located near the top of the slope east of Dunkleberg Creek, the mine produced a large amount of silver/lead ore prior to 1916. The Jackson Mine was in the same area as the Hatta and also experienced significant production of ore prior to 1916, amounting to \$25,000. The Pearl (or Happy New Year) Mine had a small blast furnace to smelt its lead ores, but by 1916 the adit had collapsed, indicating the mine had been shut down for some time. Two small mines that also shipped small amounts of ore before 1916 were the Summit and the Sunset mines (Pardee 1917).

World War I brought renewed activity to the district. The Forest Rose and a new claim, the Wasa, dominated the production. The Wasa Mine, located on Dunkleberg Ridge near the head of Douglas Creek, produced 2,000 tons of ore while the Forest Rose produced \$100,000 in silver/lead ore during the war years. However, with the onslaught of the Depression during the 1930s, activity again ceased in the district (Popoff 1953).

During World War II the mines revived and the combined Forest Rose and Wasa operation produced 113,000 tons of ore. The Forest Rose Syndicate built a 100-ton flotation mill near the Forest Rose Mine and controlled all the claims between the Forest Rose and the Wasa. From 1941 to 1947, this electrically powered mill treated 113,000 tons of lead/zinc ore worth \$875,000. Over 98 percent of the district's ore production during the war came from the Forest Rose Syndicate's joint operation (Popoff 1953).

Forest Rose Mine History

The discovery of the Forest Rose lode reportedly dates to 1866. According to one secondary source, David Dunkleberg made the find, first worked the lode and "made a good profit from his operation" (*Mining and Scientific Press* 1922:274). The duration of Dunkleberg's activities at the Forest Rose are unknown, but his claim to the lode most likely lapsed within the next few years.

Nearly twenty years later, in the spring of 1886, Frank Carnes, Armistead Mitchell and William Perriman relocated the Forest Rose (Granite County Deed Book G, p. 43). Carnes and others also filed notices of location on two nearby claims, the Bellare and Little Mack (Granite County Deed Book G, p. 21; p. 42). In 1887, a government worker completed surveys in preparation of patent for the Forest Rose and Bellare claims (Figure 4). The survey showed that the Forest Rose had been explored through several minor shafts and tunnels, while less extensive developments had occurred at the Bellare (U.S. Surveyor General's Office, "Plat of the Claim of A. H. Mitchell" 1887; "Plat of the Claim of Frank Carnes Upon the Bellare Lode" 1887).

By late May of 1889, ownership of the Forest Rose Mine group had been consolidated under the control of Mitchell and his long-time associate, Charles Mussingbrod (Granite County Deed Books B, p. 628; C, p. 42; p. 43; H, p. 87; E, p. 498; J, p. 306; p. 318). In addition to the Forest Rose, Mitchell and Mussingbrod together came to hold several mining properties in the nearby Philipsburg Mining District, as well as in Silver Bow County (Granite County Deed Book 9, p. 132).

In 1890, the partners expanded the holdings at the mine site by having three new claims surveyed for patent along with the old Little Mack location. These claims included the Monitor on the west side of the Forest Rose claim, and the Acrobat and Trapeze claims on the north (Figures 5 and 6). A small residential complex of three log buildings stood on the Acrobat claim (Feature 6) but it, and the other new claims, had otherwise only been minimally developed (Granite County Deed Book d, p. 524; p. 525; p. 552; U.S. Surveyor General's Office, "Plat of the Claim of Armistead H. Mitchell et al. Known as the Monitor Lode" 1890; "Plat of the Claim of Armistead H. Mitchell et al. Known as the Trapeze Lode" 1890; "Plat of the Claim of Armistead H. Mitchell et al. Known as the Little Mack Lode" 1890).

It is possible that some ore processing occurred at the Forest Rose during the late nineteenth century. A 1940s account of the mine's early history reported there was a small smelter at the mine in the early 1890s, but the facility was said to be "unsuccessful" (WPA 1942:9).

The Forest Rose Mine may have seen intermittent mining and small-scale production into the early 1900s before entering into a prolonged period of inactivity. By then Charles Mussingbrod had died and his share in the claims passed to his heirs. The decree of distribution for his estate made note of the "Forest Rose Tunnel," suggesting that it represented the major underground works at the mine site (Granite County Deed Book 9, p. 132). A later report on the Forest Rose described the mine's "old workings" to be at a depth of 160 feet (Strasberger 1922:3).

In the summer of 1916, J. T. Pardee of the United States Geological Survey investigated the long-idle Forest Rose Mine site. He found the underground works were inaccessible. However, based on the size of the dumps, he figured them to be "rather extensive." Reports of prior production of about \$100,000 in silver/lead ore were noted (Pardee 1918:247). A later evaluation of this estimate by another party concluded that it represented about 2,000 tons of ore (Strasberger 1922).

Beginning in October 1917, the Forest Rose Mine saw a new period of mining activity. While available information is sketchy, it appears that a group of Deer Lodge County men obtained a lease and option on the Forest Rose Mine group at that time and, informally at least, set up the Dunkleberg Mining Company to operate the property (Utah Secretary of State 1919).

Dunkleberg Mining sent several shipments of lead ore from the Forest Rose each year from 1917 to 1919 and probably was responsible for the mine's ore production noted by *Mineral Resources* in its report for the year 1920. Cumulative production from the Forest

Rose during those years amounted to 359 tons of ore, which yielded 11 ounces of gold; 10,385 ounces of silver; 43,351 pounds of lead and 378 pounds of copper (*Mineral Resources* 1918; 1919; 1920; 1921; Popoff 1953).

Meanwhile in early 1919, a group of individuals from Salt Lake City, Utah, and Deer Lodge, Montana [which may have included parties associated with the Dunkleberg Mining Company] incorporated the Forest Rose Mining Company under Utah law and assumed the 1917 lease and option agreement in the name of their new company (Utah Secretary of State 1919). Perhaps encouraged by Dunkleberg Mining's show at the mine, the Forest Rose Company purchased the Forest Rose Mine group for \$30,000 from the heirs of Mitchell and Mussingbrod in the fall of 1920 (Granite County Deed Book 21, p. 341). About this same time, Montana and South Dakota interests incorporated the Butte Western and Mining Company under South Dakota law to take over the mine's operation (Montana Secretary of State 1920).

Butte and Western Mining Company began a fairly ambitious program of development work at the Forest Rose in May of 1921. The company opened a tunnel in the west bank of Dunkleberg Creek on the Acrobat lode. This new underground access lay at the mine's 330 foot level, and 170 feet below the old working. By January 1922, the tunnel extended 485 feet into the hillside and two veins of ore had been exposed (Figures 7 and 8). In addition, two new raises and an intermediate crosscut connected the first vein with the old 160-foot level (Strasberger 1922; Popoff 1953). Work by miners in the following month exposed large ore bodies and deposited 100 tons of ore into newly constructed bins (Strasberger 1922). By late 1922, the company had "several hundred tons of sulphide lead ore" on reserve (*Mineral Resources* 1923:472). It had also purchased the Forest Rose Mine group of patent claims from Forest Rose Mining" (Granite County Deed Book 21, p. 460).

Development at the Forest Rose Mine continued in 1923 with the opening of a sub-level with three feet of ore, while work in the main tunnel exposed a vein of six feet of "commercial ore with three feet of ore assaying over \$50 per ton in silver and lead" (*Mines Handbook* 1925:1198). Production for the year included several hundred tons of lead ore sent to the East Helena smelter and several lots of lead/zinc ore shipped to Butte (*Mineral Resources* 1924).

In early 1924, Butte and Western Mining began construction of a small concentrator to test the feasibility of an oil flotation process for reducing Forest Rose ore into concentrates (Feature 8). The facility began test runs on ore before the year's end and the company ordered additional reduction equipment (*Mines Handbook* 1925; *Mineral Resources* 1925; *American Mining and Metallurgical Manual* 1924-1925). Operation of the pilot concentrator continued in 1925, resulting in a few shipments of lead concentrates reportedly assaying 32 percent lead and 32 to 37 ounces of silver per ton (*Mineral Resources* 1926; *Mines Handbook* 1927).

However, by late 1925, Butte and Western Mining's finances had reached a precarious state. Plans to increase the concentrator's capacity were abandoned and the facility shut down while the company arranged with "outside interests" to help fund additional development work at the mine (*Mines Handbook* 1927; 1932). Small amounts of ore continued to be shipped from the property over the next two years but this material likely resulted from clean up activities rather than new mining. Butte and Western Mining's association with the Forest Rose ended in late 1927 when the company lost title to the property (*Mineral Resources* 1927; *Mines Handbook* 1932; Montana Secretary of State 1927).

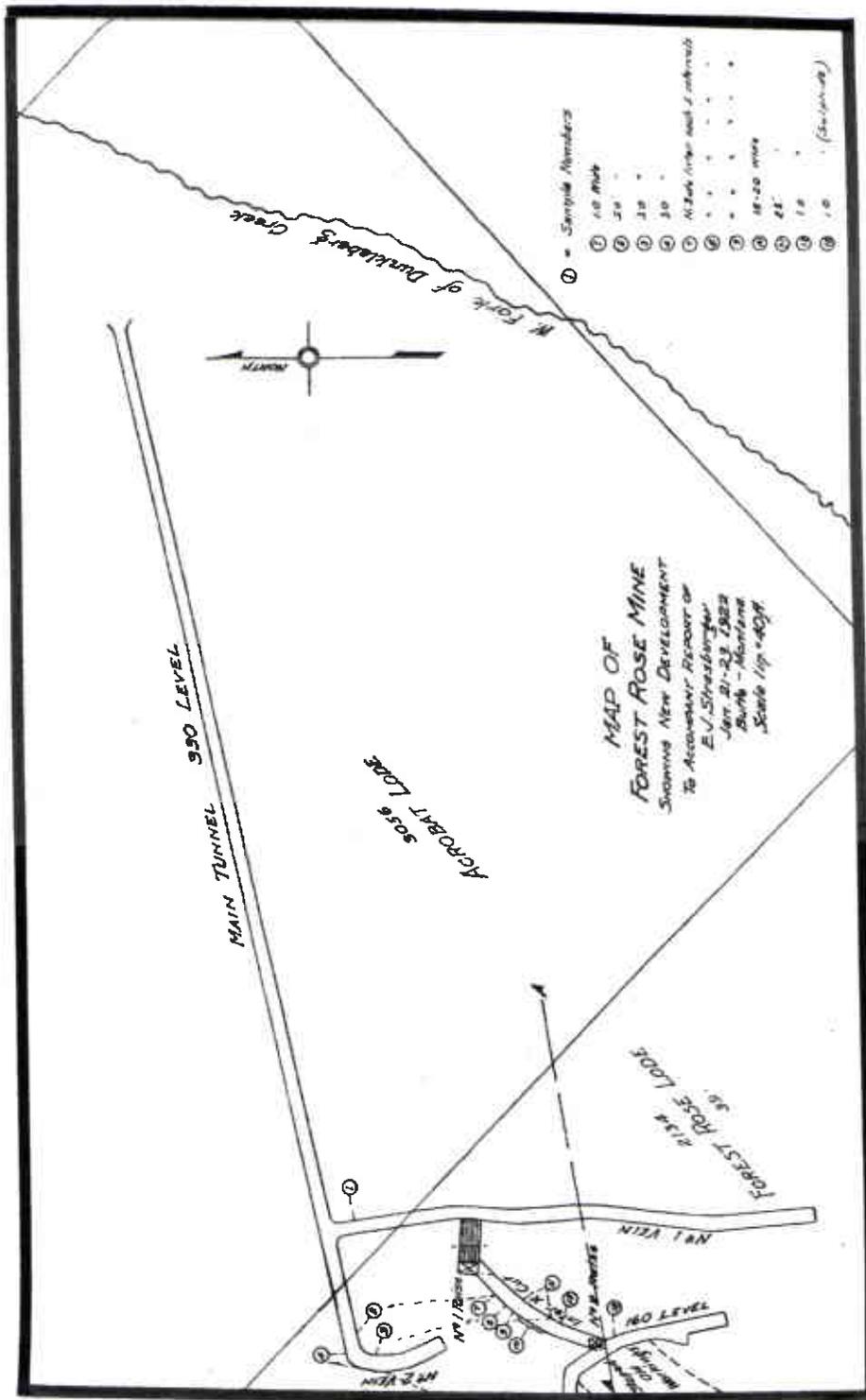


Figure 7. Underground development of the Forest Rose (Strasburger 1922).

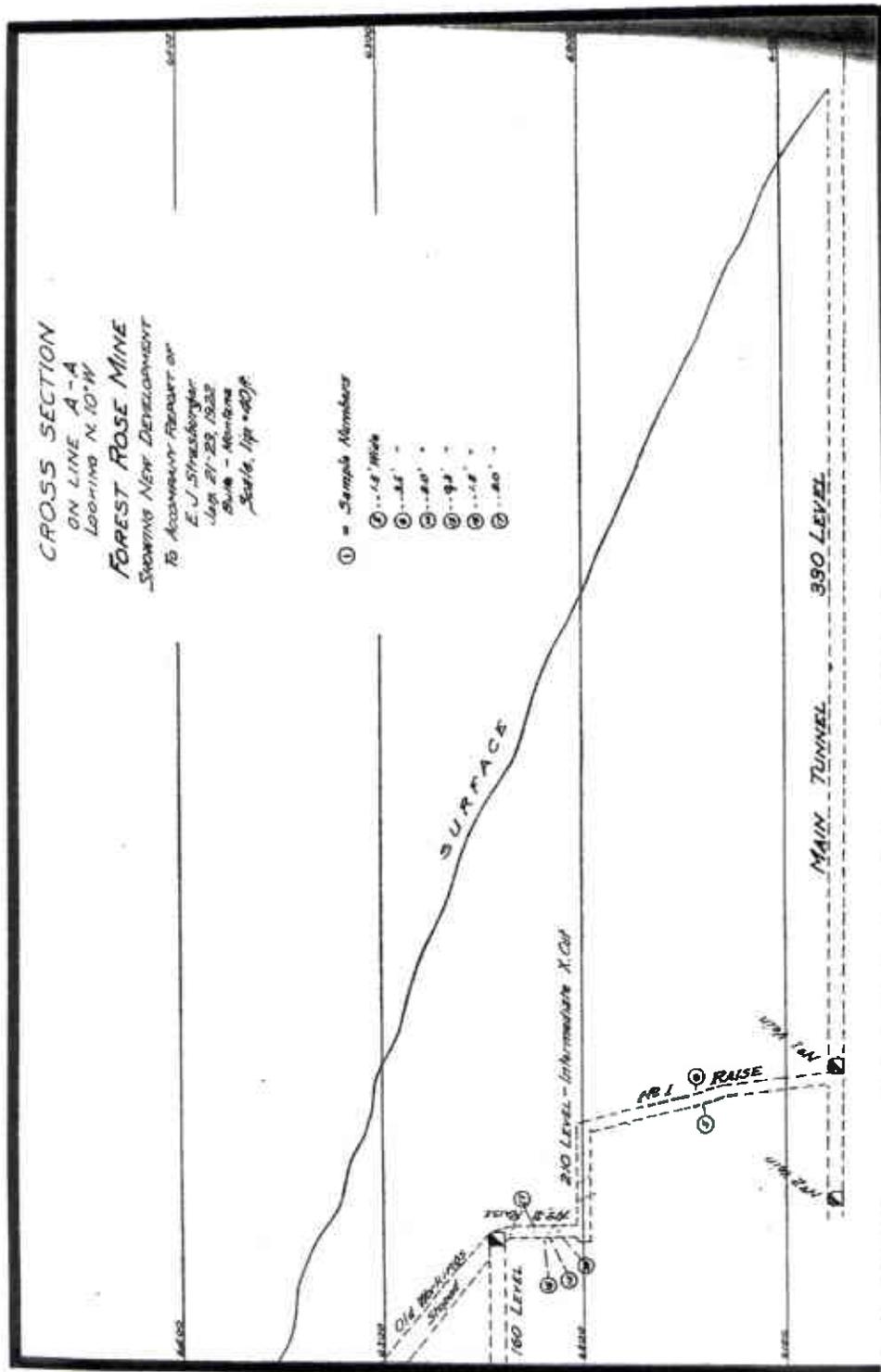


Figure 8. Underground development of the Forest Rose (Strasburger 1922).

Cumulative production from the time Butte and Western Mining began work at the Forest Rose in 1921 until work ended in 1927, totaled 1,751 tons ore which yielded 52 ounces of gold; 19,132 ounces of silver; 338,575 pounds of lead; 46,006 pounds of zinc and 3,194 pounds of copper. No more than about 500 tons of that total would have been treated at the pilot concentrator prior to shipment (Popoff 1953).

In late 1927, the Forest Rose Mine group was sold at public auction to satisfy Butte and Western Mining's outstanding debts and delinquent property taxes. After two of the company's stockholders, John Albin and Edna Alley, redeemed the sale; they and other stockholders received a sheriff's deed to the Forest Rose Mine group in early 1929. Albin held majority interest in the property with 89 percent of the company stock (Granite County Deed Book 23, p. 488).

Following several years of inactivity at the Forest Rose, in late 1935 John Albin sold his majority interest in the mine group to the Forest Rose Mining Company, a firm recently incorporated under South Dakota law by Albin and others, included some of Butte and Western Mining's former officials (Granite County Deed Book 27, p. 390; South Dakota Secretary of State 1934).

Forest Rose Mining apparently was not an operating firm but, rather, sought to secure lessees to work the mine. It presumably entered into its first lease agreement by 1937 when unknown parties shipped four tons ore from the Forest Rose (Popoff 1953). The company let a lease on the property again in July of 1938, this time to R. H. McCracken, O. J. Durand and William E. Fahey, all of Granite County (Granite County Miscellaneous Book 8, p. 528; p. 532). This lease covered a period of five years and included a \$90,000 option for purchase. The mining partners apparently failed to revive production at the Forest Rose and surrendered their lease without exercising the option (Ibid.).

In 1940, a new firm, the Forest Rose Mining Syndicate, took over lease operations at the mine. The syndicate shipped a single car, amounting to 30 tons of lead/zinc ore, from the property that year while embarking on an ambitious project to erect a 100-ton selective flotation mill (*Minerals Yearbook* 1940). Located near the portal of the mine's main adit, the concentrator became operational on January 12, 1941. Here the ore was broken down to less than two inches by a 10 x 20 jaw crusher. It was then ground to less than 65 mesh in a ball mill in a closed circuit with a rake classifier. The product was conditioned for lead flotation and taken to a bank of eight cells for lead concentration. The ore was then re-conditioned for the zinc circuit. Zinc concentrates were sent to the Anaconda zinc plant and lead concentrates were sent to the East Helena smelter. The mill could run 90 tons of Forest Rose ore or 65 tons of the Wasa or Monarch ore in a day (Popoff 1953). It ran continually through the year, treating a total of 18,766 tons of ore. Mining and milling operations provided employment for nearly 40 men (*Minerals Yearbook* 1941; Bennett 1944; Caverly 1941).

In 1942, the Forest Rose Syndicate augmented its mining properties in the district as a means to both ensure and increase its ore supply to the Forest Rose mill. During that year, in addition to the Forest Rose, the Syndicate started working the adjacent Monarch and Wasa mines, which were located about one mile to the south (*Minerals Yearbook* 1942). Mining and milling operations continued under defense contracts with little interruption through 1945 under the direction of superintendent Ed Hughes. All of the company's production was taken by the federal government to provide for the nation's wartime production needs (WPA 1942; *Minerals Yearbook* 1944; 1945; Popoff 1953).

The Forest Rose Syndicate ceased mining at the Forest Rose in 1945. However, it ran the concentrator again in 1946, treating an additional 12,555 tons of Wasa Mine ore (Popoff 1953). The concentrator apparently was shut down for good immediately after that.

Combined production by the Forest Rose Syndicate from the Forest Rose, Wasa and Monarch mines between 1942 and 1945 totaled 81,716 tons of lead/zinc ore, all of which was processed into concentrates prior to shipment. One later source suggested that about 60 percent of the syndicate's production from the period was Forest Rose Mine ore (War Production Board 1943; 1944; 1945; Popoff 1953).

Soon after the Forest Rose Syndicate's shutdown the Forest Rose Mine, a Bureau of Mines geologist surveyed the property's underground workings. He found the main tunnel was in nearly 500 feet and noted 3,000 feet of drifts, crosscut, and winzes. The longest underground feature was the 1,800-foot drift into the Monarch Mine property. A winze sunk 400 feet below the main tunnel had flooded (Popoff 1953).

Former mine superintendent for the Forest Rose Syndicate, Ed Hughes, seems to have tried to revive operations at the property in the early 1950s. He and two others incorporated a new mining business called the "Forest Rose Corporation" under Montana law in 1951 (Montana Secretary of State 1951). However, the venture proved both unsuccessful and short lived. There are no known accounts of any activity by the company at the Forest Rose before the Montana Secretary revoked its right to conduct business in the state in 1954 (Montana Secretary of State 1954; 1960).

A short time later, A. L. Woodfin obtained a lease on the property. He worked the Forest Rose in 1956, but his operation appears to have been unproductive. The mine has remained idle to the present (Stout and Ackerman 1959).

The Forest Rose Mining Company is currently still the owner of record with a majority interest in the Forest Rose Mine group of patented claims. However, the remaining 10-11 percent interest has changed hands several times over the years and is currently divided among several individuals (Granite County Deed Book 42, p. 392; Microfilm Roll 41, p. 626; p. 627; Microfilm Roll 44, p. 356).

RESULTS OF INVENTORY

By contractual definition, the project was limited to the survey and recordation of the Forest Rose Mine near Dunkleberg, Montana. No additional historic or prehistoric sites were recorded or located during the project. The site has somewhat diminished integrity due to age, weather and human activities on the site, but it retains sufficient integrity to convey the historic setting and ambiance of a small, mid-twentieth century hardrock mine. It is recommended to be eligible for the National Register of Historic Places under criteria A and C, both as an individual site and as a historic mining landscape. No determination could be made on whether Forest Rose Mine contributed to the Dunkleberg Mining District.

Forest Rose Mine - 24GN0990

Site Type: Historic silver/lead mine
 Location: NE 1/4, NE 1/4, SE 1/4 Section 15, T8N, R6W
 Ownership: Forest Rose Mining Company, South Dakota, Beaverhead-Deerlodge National Forest, JoJamette Antonioli, Joseph Benard, Martin V. O'Neill, W. D. Kyle

Historic period(s) of significance: 1890s; from 1917 to 1927; and from 1940 to 1946
 Figures: 4 to 28

Description

The Forest Rose Mine (24GN0990) is located on the steep eastern slope of Dunkleberg Ridge in western Montana. The site is in Section 22, Township 9 North, Range 12 West, in the Dunkleberg Mining District, Granite County, Montana. Dunkleberg Creek flows north through the mine site, which is about 50 miles east of Missoula, ten miles southeast of the town of Drummond and some five miles east of the small community of Hall.

This extensive site consists of some 43 features including: seven adits, three cabins, outhouses, building platforms, powder magazine, frame adit house, elevated transformer stand, water works building, trestle, coal bin, ore bins, various concrete footings, water tank, assay office, mill building, flotation tank, numerous small items, debris and large areas of tailings and waste rock dumps.

Features

F-1A Collapsed adit. This collapsed adit portal is oriented at 284 degrees and measures 12 x 25 feet. A road cut runs through the waste rock dump and is about six feet below the adit. The feature corresponds to the "Shaft No. 5" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1B Incline shaft opening. This feature is located 40 yards to the north of F-1A. An incline shaft opens at the north corner of a 21 x 96-foot cut at the top of a 73-yard waste rock dump, which slopes down the hillside to the main road at a 37-degree incline. The waste pile is oriented at 115 degrees. The road to the four collapsed adits to the northeast of F-1B cuts through the waste rock dump and is adjacent to the shaft opening on its north side. A partially buried hoist drum measuring 3 feet, 11 inches long; 2 feet, 2 inches wide and 2 feet in diameter, is located just below the opening. The feature corresponds to the "Discovery Shaft" (Figure 15) and "Shaft No. 2" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1C Open adit. This adit opening is at the top of a rock waste dump, which is oriented at 63 degrees and extends 200 feet down the slope to the lower mine road. The opening is in a 10 x 25-foot cut, oriented at 300 degrees. The feature corresponds to the "Tunnel No. 2" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1D Collapsed adit. This collapsed adit entrance is adjacent to the remains of an 8 x 14-foot structure, which may have been either a hoist house or a load-out. The feature was constructed with 2 x 12-foot notched logs and milled lumber. The feature corresponds to the "Shaft No. 4" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1E Collapsed adit. This collapsed adit is at the base of a 66-foot log rock waste dump and is oriented at 118 degrees. Stacked rock remains near the adit entrance. Wood debris, sawn logs, a piece of mine rail and a one-quart syrup can are also found near the adit. The feature corresponds to the "Tunnel No. 3" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1F Collapsed adit and building platform. The adit entrance is oriented at 282 degrees and is in a cut measuring 25 x 40 feet. A 10 x 20-foot platform is located at the adit entrance and a collapsed root cellar is also nearby. Debris observed in the area included: a crushed stove pipe, two scorifiers, an iron strap and milled boards. The feature corresponds to the "Tunnel No. 1" and "Shaft No. 3" on the 1886 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-2 Collapsed adit. The adit entrance is in a cut measuring 20 x 56 feet and is oriented at 130 degrees. In front of the adit portal there is a 2-inch pipe and a sawn stull post. A 58-foot toe spreads out from below the adit entrance. At the north end of the toe there is a collapsed ore bin (see below F-2A) and the remains of a log crib. At the south end of the toe there is a scatter of poles, a 3-inch pipe, a 2 x 2-inch wood stake, a 2 x 2 x 1-foot crib, a 4-inch galvanized air duct and a blacksmith's forge crib. The crib was built with wire nails and at one time had a pole roof (Figure 16).

F-2A Collapsed ore bin. At the north end of the toe of F-2 there are the remains of a collapsed ore bin. The 12 x 12-foot ore bin was built of 2 x 12-inch heavy planks which rested on a log crib base of saw-cut, un-notched vent poles. The front of the bin has fallen over the stream.

F-3 Collapsed cabin. The cabin measures 27 feet, 7 inches x 13 feet, 4 inches and is oriented at 100 degrees. It has five tiers of 6-inch saddle notched logs with concrete and full pole chinking. The ends were vertical planking, which once supported a tarpaper covered gable roof. The cabin, at one point had a screened front porch and a frame addition. The interior walls were of lap siding and fiberboard. There are two 4-lite fixed sash windows on the north side and one on the east side. The window openings appear to have been painted turquoise (Figure 17).

Just above the cabin there are two outhouse pits measuring 4 x 5 feet and a 3 x 3 feet. The pits are 15 feet apart and oriented at 260 degrees. The small pit has 6 x 5-foot building debris scatter below it. Observed around the site was a trash scatter with sanitary and hole-in-the-top cans, a vertical plank door with manufactured hinges, a knob and tube, simple "hoosier," a table and shelf, a towel rack, galvanized pipe sections, a car leaf spring and wood debris. A tree at the cabin's northeast corner has a yard-light made from a coffee can.

Downstream some 40 yards from the cabin, there is a pile of 10-foot long, 4 inch in diameter pipes.

F-3A Collapsed outhouse. The 5 x 6-foot outhouse was built of plywood and board and battens.

F-3B Remains of a structure. This small (7 x 11-foot) wood structure is located 33 feet to the north across the road from F-3 and is oriented at 348 degrees. Its function is unknown.

F-4 Partially collapsed cabin. Located at the northeast corner of the site on the Trapeze claim, this log cabin is oriented at 250 degrees and measures 27 x 42 feet. Although the roof has collapsed, the walls of the cabin are still intact. The walls are constructed with 18-tiers of saddle-notched logs, with quarter pole and concrete chinking and rest on a log foundation. The gable roof originally was covered with tarpaper and wood shingles (Figure 18). On the north side of the cabin there is an attached collapsed wood frame shed and cellar measuring 7 x 8 feet. Adjacent to the shed remains, there is a collapsed root cellar and an abandoned set of wood steps. A cupola and smoke stack are inside the cabin.

The cabin's south wall has one 1/1 double hung sash window (missing) and one 4-lite fixed sash window (missing) and one empty doorway. Projecting out from the south wall there is a V-shaped log support at the west end (made with five logs) for an oil or gas tank. The west wall also has an empty doorway in addition to one open window and a 1/1 fixed sash window. The north wall has one open window and one 1/1 double-hung sash window and a door to the shed addition. The east wall has two doors and one window. The doors open onto a collapsed wood porch (6 x 12 feet). This is one of three log buildings shown on the 1890 Mineral Survey map of the Trapeze Lode (GLO 1890c).

The remains of a two-hole outhouse are 21 feet south of the cabin on an orientation of 170 degrees. Near the outhouse there is the crossbar from a power pole. A piece of galvanized air duct was also observed in the area. Eighteen feet from the cabin's west side there is a 6 x 10-foot pit with charcoal strewn in the vicinity. Further south of the cabin there is a rusted tin "Great Falls Select" beer sign.

F-4A Trash scatter. This trash scatter is located just east of F-4 and across the mine road. Debris and numerous items are scattered around the area. These include: a carbide drum, an Indian figurine with "Shenango China - New Castle PA" on it, a wash tub, a white heavy china bowl, an oil can, pieces of rubber, leather foot wear, gray enamel ware, sawn beef bones, the bottom of a Pepsi bottle and the bottom of a Coke bottle with "Missoula Mont" embossed on it, along with numerous cans and pieces of brown glass.

F-4B Collapsed powder magazine. This small powder magazine is located north of F-4A and on the north side of the road. It only measures 3 feet wide. It is distinguished by two projecting entrance stulls.

F-5 Collapsed main adit. The adit entrance is in a 6 x 20-foot cut oriented at 255 degrees. Six vertical stulls are in the cut. Wood stairs are adjacent to the south side of the cut and the north side is shored up with six- inch poles and 14-inch timbers. A set of pole stulls project out of the adit and onto the waste dump. They appear to be a frame for a canvas covered tramway (Figure 19). The adit dates from the 1922 expansion of the mine.

F-5A Partially collapsed frame building (9 x 13 feet). This small structure is located just south of the adit portal (F-5) and is oriented at 146 degrees. The building has vertical plank walls, and a metal-covered gable roof. On the south side is a full-length shelf that presumably supported pipes for the mine.

F-5B Frame adit house (9 x 13 feet). This partially collapsed structure is located 36 feet south of the adit entrance (F-5) and is oriented at 280 degrees. The building had a concrete ring foundation, steel walls and a collapsed gable roof. The west wall has three 6-lite, fixed sash windows. The north wall has a Cannonball Junior, no. 1082 door hanger made by Starline Inc., Harvard, Illinois. The interior of the adit house still has shelves, part of a smoke stack and a forge crib. At the building's south end, four compressor mounts rest on a concrete slab. The footings have .75 and 1.25-inch bolts imbedded in them. Two of the footings measure 1 foot, 10 inches square; one measures 3 x 4 feet; while the largest is 5 feet, 6 inches x 6 feet. The building probably contained the 1940s-era compressor for the mine and was later integrated into a modern steel building during modern exploration of the mine. The mine building on the south end has been salvaged with only a one-foot high stubwall remaining (Figure 20).

F-5C Small collapsed outhouse. This outhouse once measured 6 x 6 feet, 7 inches. An unknown collapsed structure is adjacent to it.

F-5C Two-lobed dump. This waste rock dump at the main adit portal (F-5) has two lobes with the northeast lobe oriented at 108 degrees and measures 10 x 81 feet, while the southwest lobe is oriented at 162 degrees and measures 78 feet beyond Feature 2.

F-6 Collapsed log cabin. This small cabin measured 14 x 15 feet, 6 inches. It had seven-tiers of nailed logs and concrete daubing was used to seal the logs. There are vertical planks in the corners and the collapsed roof was once covered with tarpaper. A metal bed frame is inside the collapsed structure (Figure 21).

F-6A Outhouse. This two-seat outhouse is found to the north of the cabin (F-6) and measures 4 x 4 feet and was covered by a metal roof. It is made with 20-tiers of horizontal poles nailed to the corners. A small trash scatter is located on the slope below the outhouse. The cans were not investigated due to the discovery of wasps within one of the cans. Also found near the outhouse is a shepherder stove.

F-7 Elevated transformer stand. The structure is located just north of the collapsed main adit entrance (F-5) and alongside the old mine road. It measured 8 x 24 feet and is oriented at 138 degrees. The stand has two levels spaced 1-foot apart. It is set on 24-inch posts with 10 x 10-inch beams and 2 x 12-foot planks on top. An adjacent tree has ceramic insulators on it and insulators are also found on pieces of lumber. Cans and wood debris are also found in the area (Figure 22). The stand probably dates from the 1940 development of the site.

F-8 Test Mill site. The remains of this 25 x 26-foot structure is oriented at 338 degrees. It is cut into the hillside. Piers measuring 14 x 14 inches are in front and it is braced from underneath to support by 2 x 14-inch floor joists. Round nails were used in the construction. Stairs lead up to the floor from the southwest corner. Black slimes were observed in a fan below the feature descending the hillside (Figure 23). This appears to be the remains of the sample flotation mill built in 1924 by Butte and Western Mining.

F-9 Concrete footings. A 1920s-era building once stood on these concrete foundations. The foundations measure 12 x 20 feet and are oriented at 350 degrees. It

may have served as an compressor house. The walls and roof are gone and only the wood floor remains. Round nails were used in the structure's construction. Two concrete footings are in the structure. Three steel drill rods are sticking up from the concrete.

F-10 Water works building (10 x 40 feet). This structure is oriented at 94 degrees. A water tank with a valve box is at the structure's northeast corner. South of the structure there is a shovel and a dynamite box. A small tram is on the side of the building. The building probably dates from the 1940s.

F-11A Upper tailings. The tailings are oriented 30 degrees, stretch for 149 feet and have a large diameter waste rock dam. Wood debris and insulators are found at the north end of the tailings. This feature probably saw activity throughout the mine's history.

F-11B Tailings impoundment. The impoundment is filled with dark tailings and has an erosion channel. The tailings are oriented at 285 degrees and measure 171 x 30 feet. A 1930s era auto and a washtub were observed at the south end of the tailings while cribbing was found at the north end (Figure 24).

F-11C Tailings impoundment with orange tailings. The impoundment is oriented at 35 degrees and extends for 237 feet from F-11B. A berm, oriented at 280 degrees, runs for 180 feet across the north end of the tailings.

F-11D Breached lower tailings impoundment. The impoundment has been bulldozed and the dam has been breached. A flimsy pole structure is in the middle of the tailings. The structure was constructed within an erosion area in the middle of the tailings, indicating a modern origin.

F-11E Ditch. This ditch runs along the east side of the tailings and diverts the stream water past the tailings. The ditch was probably constructed in 1940 to keep the stream from eroding the tailings and to protect the water quality of the stream.

F-12 This mill complex dates from the 1940 development of the Forest Rose (Figures 9, 10 and 28).

F-12A Waste rock area of missing ore bin. An ore bin once stood in this area but at some point was removed. The rock pile is 27 x 69 feet in size, is oriented at 72 degrees and slopes at 28 degrees.

F-12B Platform. This platform below Feature 12A once served as the west end of the Feature 12C trestle. It measures 6 x 8 feet.

F-12C Trestle. The A-frame trestle has collapsed. It originally ran from the upper ore bin to the lower ore bin and crossed an access road to the main adit entrance (F-5).

F-12D Coal bin. This coal bin is oriented at 330 degrees and measures 12 x 14 feet. Galvanized metal sheets were observed in the structure.

F-12E Two ore bins. These collapsed ore bins measured 12 x 15 feet (Figure 11).

F-12F Concrete footings. These concrete ball mill footings are located a few feet to the west of the water tank (F-12G) on the east side of the mill. There are three sections, with the northern-most measuring 1 foot, 6 inches x 5 feet, 6 inches with two 1-1/2 inch bolts imbedded in the top. A second footing is 6 feet, 3 inches x 1 foot, 5 inches x 8 feet, 7 inches and also has two 1-1/2 bolts in it. Attached to the second footing is a large (2

feet, 10 inches x 6 feet, 5 inches and 3 feet, 1 inch high) footing with 12, 3/4-inch bolts in groups of four at each end and in the middle (Figure 12).

F-12G Two story water tank. This tank measures 15 x 17 feet and remains partially intact. It is constructed of 12-tiers of V-notched logs. The timbers appear to have been salvaged and some are spliced together. The inside walls consist of vertical planks. The roof is a wood frame with galvanized metal covering. On the east side there is a fallen concrete footing. Also observed in the area was a carbide can and brown ceramic insulators. Inside the structure there is a pump stand. Attached to the west side of the tank there is a pipe exit (Figure 13).

The tank is connected by a ramp to the upper mill floor. A wood frame on the upper floor appears to have once supported a pump powered by an automobile engine.

F-12H Concrete footings. These footings are located in the upper mill floor immediately below the twin ore bins. They appear to date from the World War II period of the mine's operation. They were once inside a 12 x 15-foot wood frame structure but the walls have been sawn off for unknown reasons.

F-12I Assay office. This structure is located on the south side of the mill. The north half of the building is still standing, the south side has been reduced to a floor. The assay office measures 12 x 15 feet and is of frame construction with horizontal planks. Inside the office there remains an oven stand, forge hood, cupboard and sink. A door opens on the north side and windows open on the east and west wall. A deck extends from the east side of the structure. An access road runs to the south from the south side of the building.

F-12J Ore bin. This partially collapsed ore bin measured 8 x 12 feet. It appears to date from operations at the mine during the 1920s. This lower ore bin connects to the upper mill floor by a short tramway.

F-12K Middle mill floor. This is bound on the west by the water tank and on the east by the lower mill floor. The middle floor measures 20 x 33 feet. Concrete footings are inside and are covered with debris, making measurements impossible. Two windows open on the south wall. An access road runs south from this feature

F-12L Lower mill floor. This debris-covered feature has a 4-foot wide concrete ledge on the west side supported by two concrete buttresses. The lower floor measures 20 x 33 feet and had a shed roof. The north and south walls each have two 3/3 / 3/3 windows while the west wall has three. Extending from the west wall is a scupper leading to a large waste mound and just beyond is a 10-foot section of a frame wall (Figure 14).

A road connects to the south side of the feature.

F-12M Flotation Tank. This tank is located 35 feet east of the lower mill floor and measures 10 x 12 feet and is oriented at 158 degrees. It is 12 feet high and was constructed of milled lumber. A 12-foot building fragment is adjacent to the tank's southwest corner. On the east side a wood flume connects the tank with the lower mill floor. South of the tank is a stove.

F-12N Scale footings. A small structure that may have housed a scale is located 18 feet north of the Middle Mill floor (Feature 12K) mill. The concrete footings measure 6 x 5 feet.



Figure 9. August 2002 overview photo of the Forest Rose Mill Feature 12 as viewed to the northwest.



Figure 10. August 2002 overview photo of the Forest Rose Mill Feature 12 as viewed to the west.



Figure 11. August 2002 photo of the Forest Rose Mill Feature 12E ore bin as viewed to the west.



Figure 12. August 2002 photo of the Forest Rose Mine Feature 12F mill footings as viewed to the south.



Figure 13. August 2002 photo of the Forest Rose Mill Feature 12G log water tank as viewed to the north.



Figure 14. August 2002 photo of the Forest Rose Mine Feature 12L lower mill floor as viewed to the north.



Figure 15. August 2002 photo of the Forest Rose Mill Feature 1B discovery shaft as viewed to the north.



Figure 16. August 2002 photo of the Forest Rose Mine Feature 2 blacksmith forge as viewed to the south.

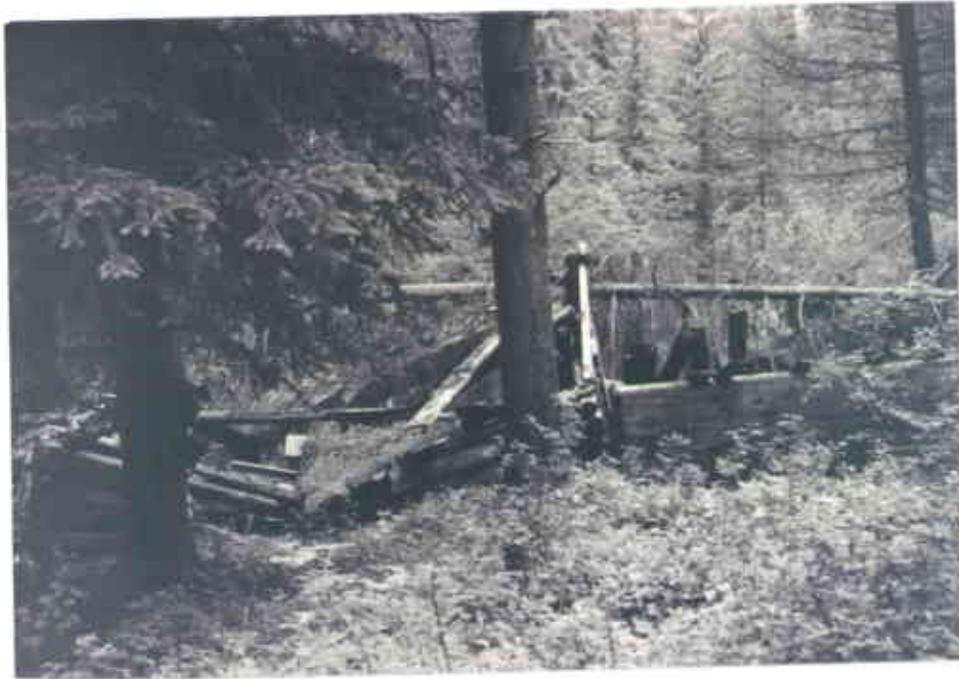


Figure 17. August 2002 photo of the Forest Rose Mine Feature 3 cabin as viewed to the north



Figure 18. August 2002 photo of the Forest Rose Mine Feature 4 cabin as viewed to the northeast.



Figure 19. August 2002 photo of the Forest Rose Mine Feature 5 adit as viewed to the west.



Figure 20. August 2002 photo of the Forest Rose Mine Feature 5B adit house as viewed to the northwest.



Figure 21. August 2002 photo of the Forest Rose Mine Feature 6 cabin as viewed to northeast.



Figure 22. August 2002 photo of the Forest Rose Mine Feature 7 transformer stand as viewed to southeast.



Figure 23. August 2002 photo of the Forest Rose Mine Feature 8 test mill foundations as viewed to southeast.



Figure 24. August 2002 photo of the Forest Rose Mill Tailings Features 11B and 11C as viewed to north northeast.

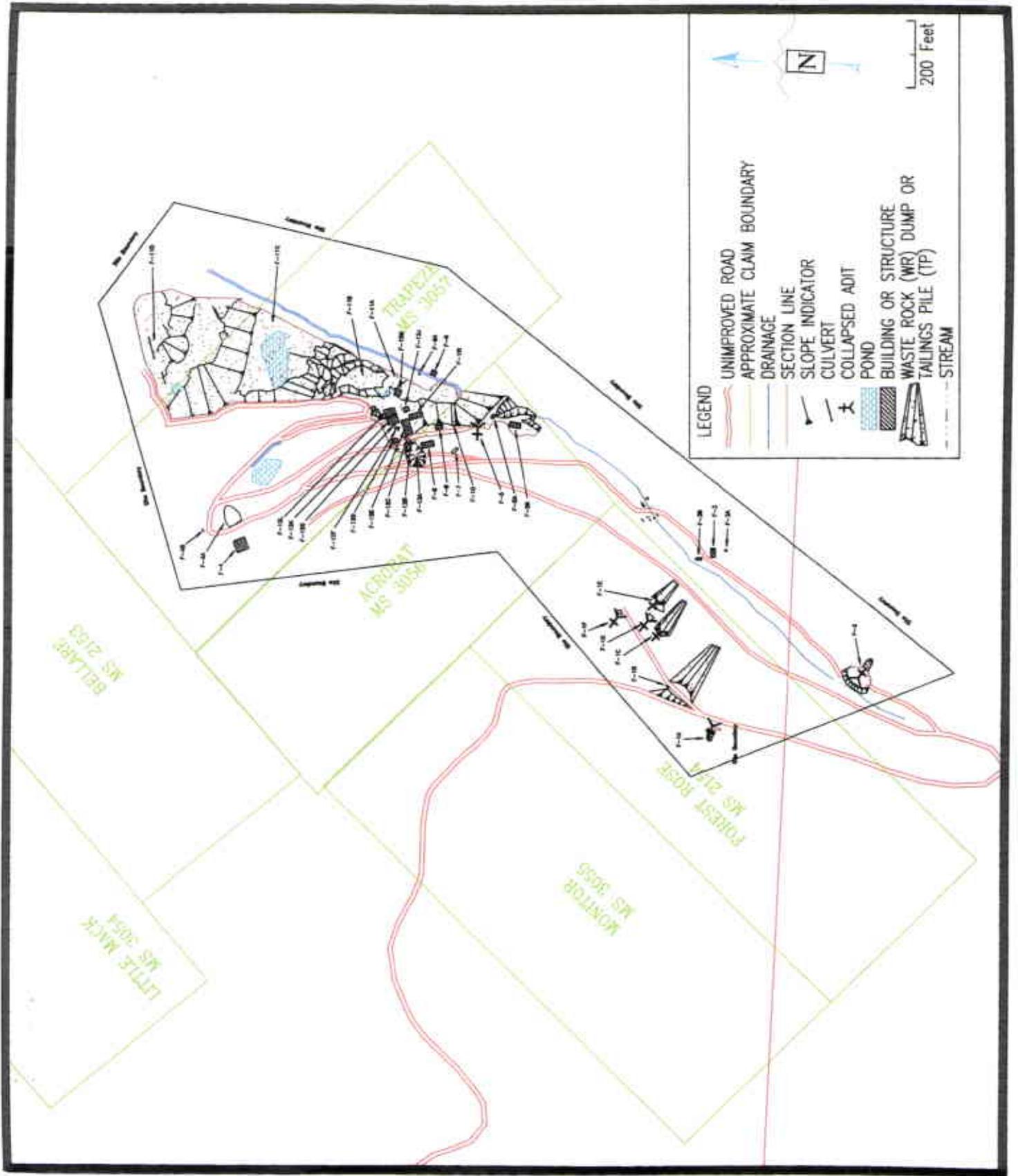


Figure 25. Forest Rose Site Map (2002 FHC).

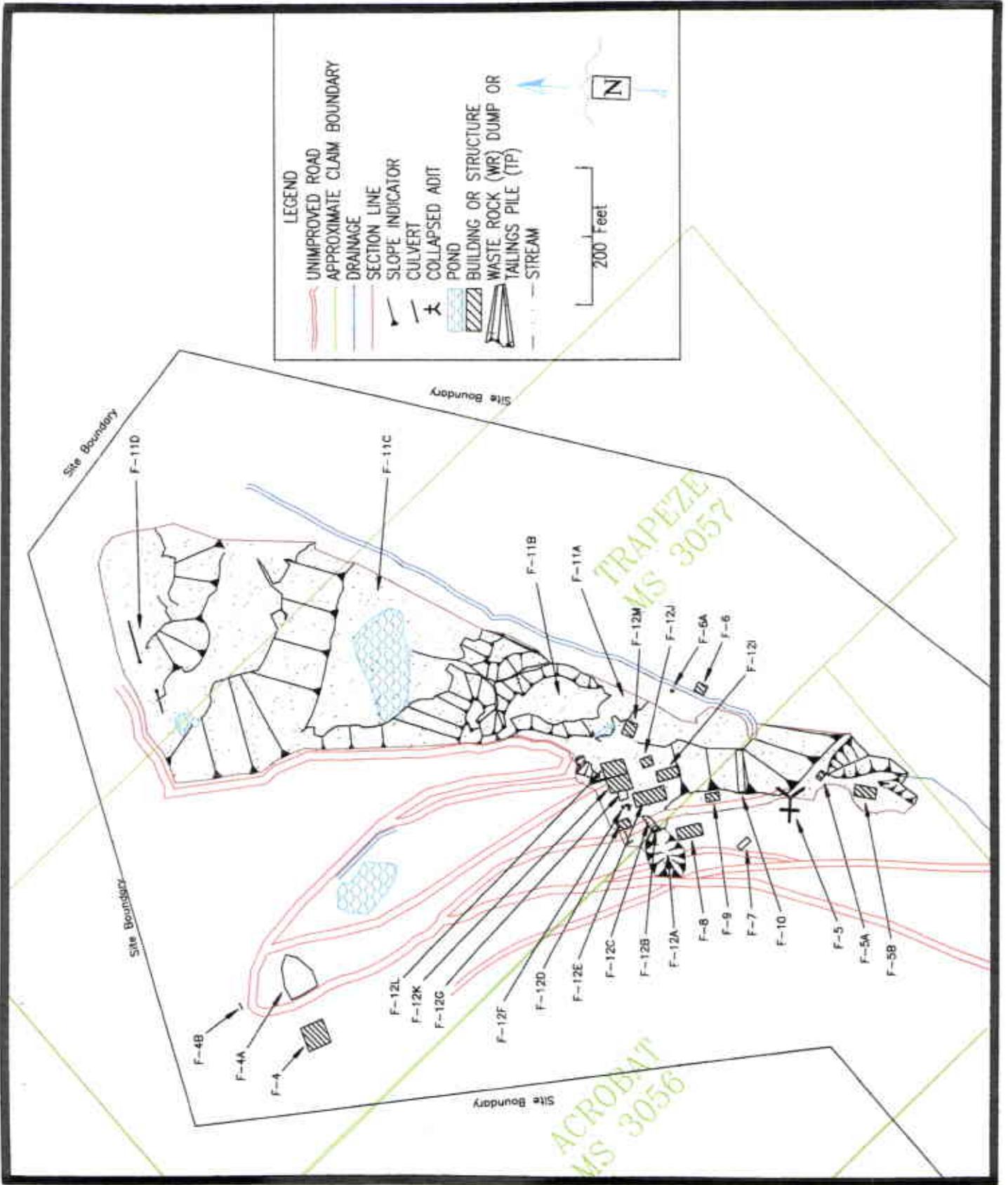


Figure 26. Forest Rose Lower Mine Map (2002 FHC).

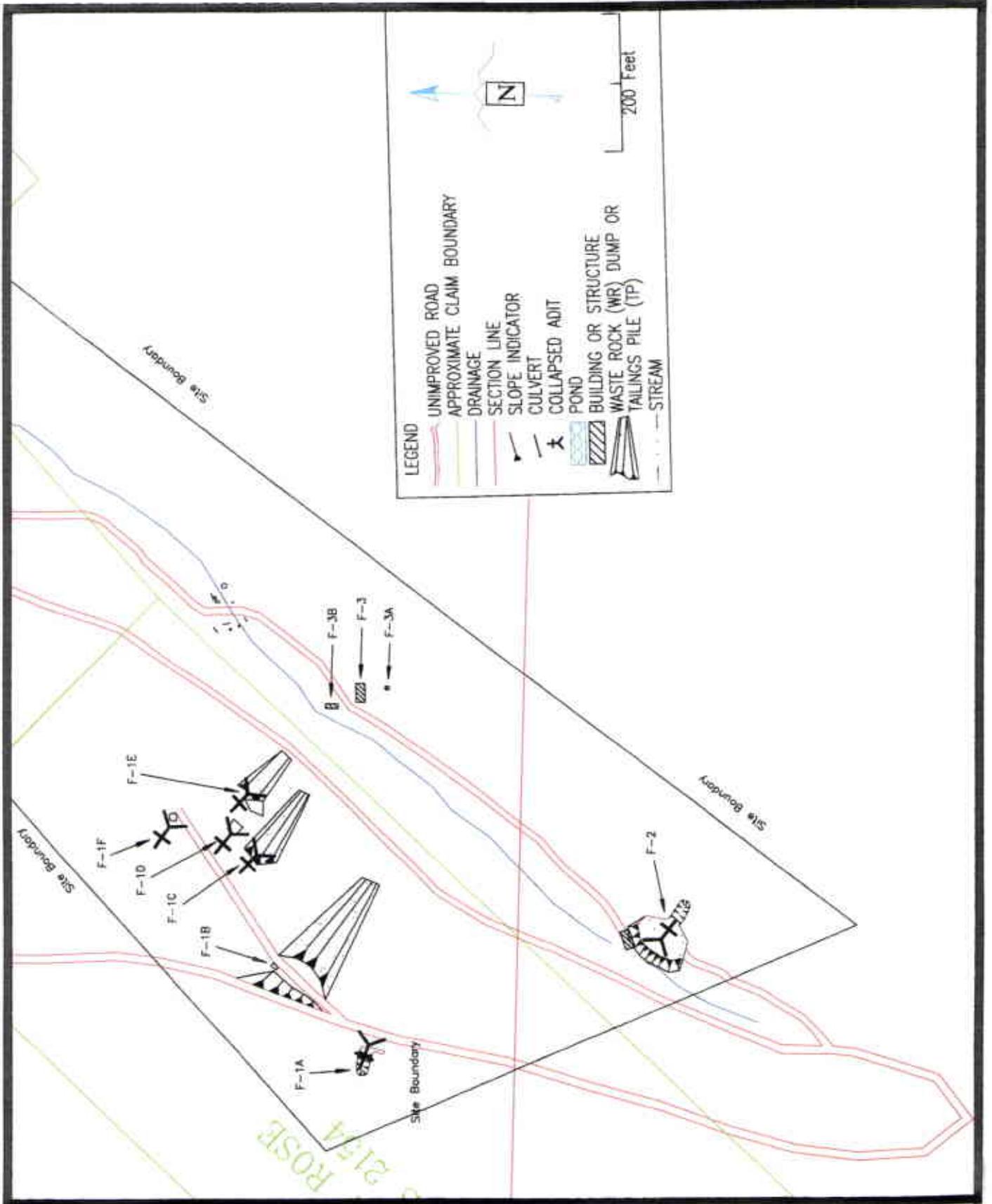


Figure 27. Forest Rose Upper Mine Map (2002 FHC).

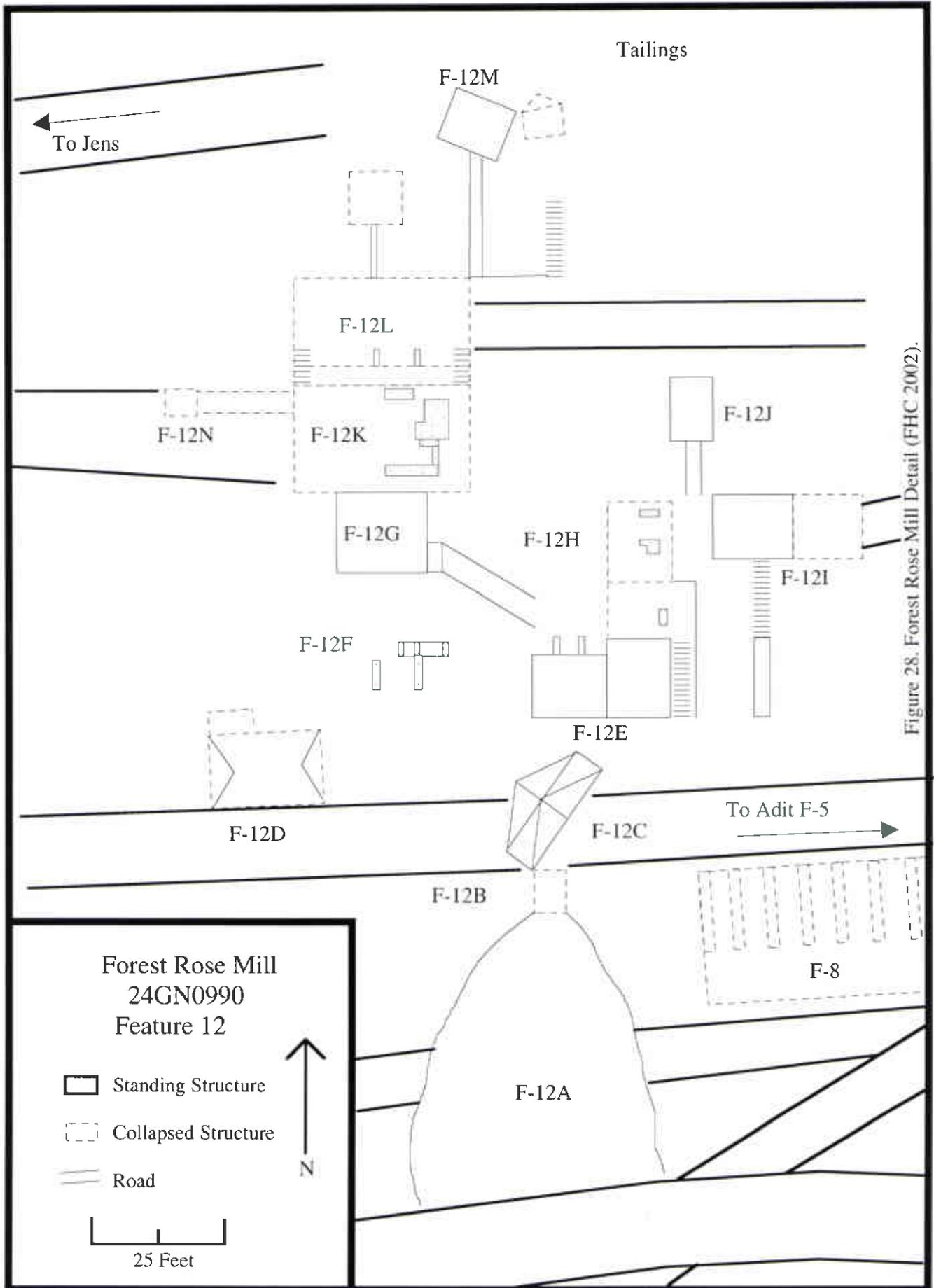


Figure 28. Forest Rose Mill Detail (FHC 2002).

SITE EVALUATION

Periods of Historic Significance

The Forest Rose Mine would not be classed as a large mining operation, but it was the largest producer in the Dunkleberg District and did ship a moderate amount of silver/lead/zinc ore during two widely separate periods. An initial period of historical significance occurred during the 1890s when the mine was developed and may have produced some ore. However, the most important periods of production occurred from 1917 to 1927 when 1,751 tons were mined, and from 1940 to 1946 when over 113,000 tons of silver/lead/zinc ore were shipped.

Integrity of the Mine Site

The Forest Rose Mine retains a fair degree of integrity in spite of the inevitable deterioration from time, weather and human activities. Most of the structures at the Forest Rose have collapsed or are in ruins but there are still sufficient structural remains to, in most cases, discern their dimensions, construction features and function. The placement of the features has, in general, not been disturbed and the transportation networks; patterns of operation and mining methods can still be clearly seen. Although little remains from the mine's initial period of development in the 1890s, the other two periods of significance are well represented on the site and preserve many of the mine's values of design, materials, workmanship, feeling, association and integrity as a historic mine site and historic mining landscape.

Site Significance

The site is recommended to be eligible for the NRHP under criteria A and C.

Criterion A: The Forest Rose Mine was the primary producing mine in the Dunkleberg Mining District and, as such, it contributed to local mining history and therefore makes a modest contribution to the broader patterns of our history. The site has good integrity and is recommended to be eligible for the NRHP under Criterion A.

Criterion B: The site is not associated with any persons of historical importance and cannot be recommended for the NRHP under Criterion B.

Criterion C: Although there are virtually no physical remains from the mine's initial period of significance (1890s), the other two periods (1917-1927 and 1940-1946) are represented by the numerous features on the site. Most of the features are in an advanced state of decay and they may lack individual distinction, but the site as a whole embodies the distinctive characteristics of a type and a period. For these reasons the Forest Rose Mine is recommended to be eligible for the NRHP under Criterion C.

Criterion D: The Forest Rose Mine site has a large number of small-scale components and debris; none of which have any particular cultural significance. It did not appear that there were any extended periods when miners and/or their families lived on the mine site and, therefore, it would be unlikely there would be a sub-surface cultural component. In order for the site to be significant under Criterion D, it would have to be tied to important research questions that cannot be answered solely through historical research. The Forest Rose Mine does not meet this requirement and is not recommended eligible for the NRHP under Criterion D.

Forest Rose Mine Historic Landscape Discussion

The Forest Rose Mine qualifies as a historic mining landscape as defined by National Register Bulletins 30 and 42.

The Forest Rose Mine has been subject to natural forces such as decay, erosion, deposition and collapse and has felt the effects of modern human activities on the site such as salvage, exploration, reclamation and vandalism. In addition, the vegetative component of the site has been altered by the re-growth of trees and underbrush on the site. However, these forces have not diminished the mine's integrity to a point where it does not convey the characteristics of a typically defined historic mining landscape.

These landscape characteristics are the tangible evidence of the activities of the people who occupied, developed and operated the Forest Rose Mine. The site can still reflect the experiences, attitudes, cultural traditions and economic needs of those people. It also retains aspects of land use and activities, patterns of spatial organization, response to natural environment, circulation networks, buildings, other structures and objects, clusters and small-scale elements that would define a historic landscape.

Land use and activities: Mining and milling activities have been historically reflected in several land uses. These include utilization of the slope of the hill to facilitate the movement of materials from the mine and taking advantage of streams to remove at least some of the waste materials. The Forest Rose Mine was operated from a horizontal tunnel and two raises to the upper levels. This utilized the slope of the hill to facilitate the hauling of ore from the mine to the mill. Many of the adits used the steep slopes to dump mine waste rock down the hillside. In addition, having the main entrance tunnel as the lower level greatly facilitated draining the mine of water. The large tailings and waste rock dumps took advantage of Dunkleberg Creek to move the tailings to impoundments.

Patterns of spatial organization: The mine's structures and other features were built at locations that took advantage of the roads, access to water and proximity to the claim's ore bodies.

Cultural traditions: The three collapsed cabins (Features F-3, F-4 and 6) appear to have been inhabited at some time but the remaining artifacts in and around the cabins would seem to indicate they were not lived in for any extended period. Nor is there any historical record of extended habitation at the site. There was a report of a small residential complex of three log buildings on the site in 1890, only the Feature 4 cabin appears to have survived from this period. Can dumps associated with Features 3, 4 and 6 reflect can goods available locally during the periods of mine production and development. None of the structures or the historical record gives any indication of the ethnicity or cultural traditions of the mine workers.

Circulation networks: The site contains an extensive system of roads, which connected mine adits, load-outs and waste rock dumps. Tramways, such as the ones at features F-12B and F-12J, were used to transport ore. Also part of the site's circulation network is: the platform (Feature F-12B) and trestle (Feature F-12C); as well as the ditch system (Feature F-11E) on the east side of the tailings that transports stream water around the tailings.

Boundary demarcations: No boundary demarcations were observed.

Vegetation related to land use: All mine sites have a great impact on the immediate and surrounding vegetation and the Forest Rose Mine is no exception. Local timber was used for construction of buildings and mine shoring as well as for fuel for the mill, cabins, shop and office. Waste rock also had a great impact on vegetation although re-growth of timber and undergrowth has obscured some of the features.

Buildings, structures and objects: Most of the structures from the mine's two twentieth century periods of significance remain on the site, even though many are in advanced states of decay and collapse.

Clusters: The site is composed of one central cluster of structures and mine features, which centers on the main entrance tunnel (Feature F-5). Minor clusters of adits or other features are at the northwest tip of the site and the southwest end. Roads connect the clusters.

Archaeological sites: There does not appear to have been any extended habitation on the site even though the two cabins (features F-3 & F-4) appear to have been lived in briefly. The site's small-scale elements are on the surface and it does not seem likely that there are any significant sub-surface archaeological sites.

Small-scale elements: There are numerous small-scale elements on the site including: a hoist drum, a yard light made from a coffee can, tables, a 1930s era auto and auto parts, a tin beer sign, enamel ware, carbide drums, electric ceramic insulators, a bed frame, stove parts, a blacksmith's forge crib, door hanger, concrete footings, numerous cans, in addition to scatters of other trash and debris.

Historic Landscape Significance

According to National Register Bulletin 30, a historic landscape must contain features that reflect the processes and characteristics of a historic landscape. Further, the landscape must also retain historic integrity to qualify for the National Register of Historic Places.

Decisions about historic integrity require professional judgments about whether a property today reflects the spatial organization, physical components and historic associations that it attained during the historic periods of significance. A property's periods of significance becomes the benchmark for measuring whether subsequent changes contribute to its historic evolution or alter its historic significance.

Historic integrity requires that the various landscape characteristics that shaped the land during the historic periods be present today in much the same way they were historically (National Register Bulletin 30 n.d.: 21). The final decision about integrity is based upon the condition of the overall property and its ability to convey significance (National Register Bulletin 30 n.d.:24).

The Forest Rose Mine retains sufficient features and integrity to reflect the processes and components of a historic landscape and would, therefore, be eligible for listing on the National Register of Historic Places as a historic landscape under criteria A and C.

Dunkleberg Mining District Significance

The Dunkleberg Mining District has not been subject to an overall inventory or assessment as a historic district. The Montana State Historic Preservation Office has no information on the status of the Dunkleberg Mining District (Murdo 2002). Since an inventory and assessment of the Dunkleberg Mining District and/or resolving its status is beyond the scope of this study, an assessment of the Forest Rose Mine to the Dunkleberg Mining District could not be made. In the event that the Dunkleberg Mining District is inventoried and assessed in the future as a historic district, the Forest Rose mine would qualify as a contributing component.

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Appendix A

Site Form:

Forest Rose Mine and Mill - 24GN0990

Photographic proof sheets

MONTANA CULTURAL RESOURCES INVENTORY

Site Form

Form No. 1. Locational Information

1.1	Site Number: 24GN0990	1.2	Site name/field designation Forest Rose Mine and Mill	1.3	County: Granite
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1.4 **Township/Range:** NE 1/4, NE 1/4, SE 1/4 Section 15, T8N, R6W

1.5	UTM:		
	Zone	Easting	Northing
	12	339 650 / 340 050	5152 750 / 5153 450

1.6 **Site type:** Historic Hard Rock Mine

1.7 **Recording status:** The site has been recorded, mapped, photographed and significance assessed in terms of the NRHP.

1.8 **Administrative/surface ownership:**

1.9 **Mineral ownership:** Forest Rose Mining Company, South Dakota, Beaverhead-Deerlodge National Forest, JoJamette Antonioli, Joseph Benard, Martin V. O'Neill, W. D. Kyle

1.10 **Project name:** Cultural Resource Inventory and Assessment of the Forest Rose Mine and Mill, Granite County, Montana. Task Order #12. Montana Department of Environmental Quality, Mine Waste Cleanup Bureau.

1.11 **General narrative description of site:** The Forest Rose Mine is located on the steep eastern slope of Dunkleberg Ridge in western Montana. The site is in the Dunkleberg Mining District, Granite County, Montana. The mine site is about 50 miles east of Missoula, ten miles southeast of the town of Drummond and some five miles east of the small community of Hall. This extensive site consists of some 43 features including: seven adits, three cabins, outhouses, building platforms, powder magazine, frame adit house, elevated transformer stand, water works building, trestle, coal bin, ore bins, various concrete footings, water tank, assay office, mill building, flotation tank, numerous small items, debris and large areas of tailings and waste rock dumps. The site has fair integrity and is recommended to be eligible for the NRHP under Criteria A and C.

1.12 **Map reference:** USGS Dunkleberg Creek, Montana (1996) quadrangle map (1:24,000).

1.13 **City/town:**
Vicinity of: Drummond, Montana

1.14 **Access to site:** From Drummond, Montana, proceed west on Interstate 90 to Jens. Turn south and proceed six miles climbing up a mountain valley. The road runs through the site in a series of switchbacks.

MONTANA CULTURAL RESOURCES INVENTORY**Form No. 2. Environmental Setting****2.1 Geographic Setting:**

Regional: The Forest Rose Mine is in Granite County in southwest Montana. The mountainous area is west of the Continental Divide and is heavily forested and cut by numerous drainages. The site is located on an east-facing hillside four miles to the south of the community of Jens.

Local: The topography is a sloping hillside on the east slope of Dunkleberg Ridge. Dunkleberg Creek flows through the site. Dunkleberg Creek is a tributary of the Clark Fork River.

2.2 Elevation: 5240 - 5,800 ft (1600 - 1770 m)

2.3 View/aspect: View is to the north.

2.4 Major drainage: Clark Fork

2.5 Minor drainage: Dunkleberg Creek

2.6 Water sources

	Names	Distance (in m)	Elev. Change (in m)	Type/ seasonality
1.	Clark Fork	10,000 m	500 m	perennial
2.	Dunkleberg Creek	0 m	0 m	seasonal

2.7 Vegetation - regional: Lodgepole pine-Douglas fir forest: Lodgepole Pine-Douglas Fir Forest: Pine, whortleberry, elk sedge, bluegrass.

2.8 Vegetation - local: Pine, beargrass, sagebrush, alder.

2.9 Soils: Gravelly loam

2.10 Surface visibility/season of survey: 100 % / Summer

2.11 Other environmental factors pertaining to site location:

MONTANA CULTURAL RESOURCES INVENTORY**Form No. 3. Site Assessment and Recording Documentation****3.1 Integrity of site:**

The Forest Rose Mine retains a fair degree of integrity in spite of the inevitable deterioration from time, weather and human activities. Most of the structures at the Forest Rose have collapsed or are in ruins but there are still sufficient structural remains to, in most cases, discern their dimensions, construction features and function. The placement of the features has, in general, not been disturbed and the transportation networks; patterns of operation and mining methods can still be clearly seen. Although little remains from the mine's initial period of development in the 1890s, the other two periods of significance are well represented on the site and preserve many of the mine's values of design, materials, workmanship, feeling, association and integrity as a historic mine site and historic mining landscape.

3.2 Site significance (NRHP): The site is recommended to be eligible for the NRHP under criteria A and C.

Criterion A: The Forest Rose Mine was the primary producing mine in the Dunkleberg Mining District and, as such, it contributed to local mining history and therefore makes a modest contribution to the broader patterns of our history. The site has good integrity and is recommended to be eligible for the NRHP under Criterion A.

Criterion B: The site is not associated with any persons of historical importance and cannot be recommended for the NRHP under Criterion B.

Criterion C: Although there are virtually no physical remains from the mine's initial period of significance (1890s), the other two periods (1917-1927 and 1940-1946) are represented by the numerous features on the site. Most of the features are in an advanced state of decay and they may lack individual distinction, but the site as a whole embodies the distinctive characteristics of a type and a period. For these reasons the Forest Rose Mine is recommended to be eligible for the NRHP under Criterion C.

Criterion D: The Forest Rose Mine site has a large number of small-scale components and debris; none of which have any particular cultural significance. It did not appear that there were any extended periods when miners and/or their families lived on the mine site and, therefore, it would be unlikely there would be a sub-surface cultural component. In order for the site to be significant under Criterion D, it would have to be tied to important research questions that cannot be answered solely through historical research. The Forest Rose Mine does not meet this requirement and is not recommended eligible for the NRHP under Criterion D.

3.3 Impacts: The site was reworked during several mining development episodes. Vandalism and erosion are currently degrading the site.

3.4 Recommendations: The site has been recorded, mapped, photographed and assessed. No further work is required.

3.5 Site located by: Dale M. Gray, Jim Duran **Date:** August 4-6, 2002

3.6 Site recorded by: Dale M. Gray, Jim Duran **Date:** August 4-6, 2002

3.7 Revisions by: **Date:**

3.8 Permit No. N/A

3.9 Publication(s) where site is described:

Gray, Dale M.

2002 "Cultural Resource Inventory and Assessment for the Forest Rose Mine and Mill". Prepared for the Montana Department of Environmental Quality, Mine Waste Cleanup Bureau by Frontier Historical Consultants, Grand View, Idaho.

3.10 Artifact repository: N/A

3.11 Fieldnotes/maps/photo repository: Frontier Historical Consultants, Grand View, ID 83624.

3.12 Photo and accession numbers:

October, 2001, DMG Roll 2. TMAX 400 Black and White

No.	Description	View
0	Forest Rose Card	
1	Feature 1A, adit	NE
2	Feature 1B, incline shaft	N
3	Feature 1, hoist drum	W
4	Feature 1c, open adit	NE
5	Feature 1d, shaft and load out	NW
6	Feature 1e, adit	NW
7	Feature 1f, double adits	NE
8	Feature 2, blacksmith forge crib	W
9	Feature 2, ore bin remains in drainage	SE
10	Feature 4, log cabin	NW
11	Feature 4, top of cabin	S
12	Feature 4, Great Falls Select sign	
13	Feature 4, oil barrel supports	W
14	Feature 4, gable ends	NE
15	Feature 3a, outhouse	SE
16	Feature 3, cabin	N
17	Feature 3b, structure	NW
18	Galvanized pipe in drainage	NE
19	Feature 4B, powderhouse ruins	W
20	Feature 5, adit	W
21	Feature 5a, building	S
22	Feature 5b, adit house	E
23	Feature 5c, outhouse	SW
24	Feature 5a, concrete footings	NW
25	Feature 6, cabin	NE

October, 2001, DMG Roll 3. TMAX 400 Black and White

No.	Description	View
00	Forest Rose Card	
0	Feature 7, transformer structure	SE
1	Feature 8, 1920s flotation mill remains	SE
2	Feature 9, compressor house	SE
3	Feature 6, cabin	NE
4	Feature 10, water tank	SE
5	Feature 12, mill complex	NW
6	Feature 11a, tailings	NE
7	Feature 11d, tailings	N
8	Feature 4a, powder house	N
9	Feature 12c, trestle	S
10	Feature 12d, blacksmith shop	E
11	Feature 12e, ore bin	SE
12	Feature 12f, compressor footing	SE
13	Feature 12e, ore bin	SW
14	Feature 12g, water storage	NW
15	Feature 12k and 12-l, ball mill and lower area	N
16	Feature 12h, footing	NW
17	Feature 12j, lower ore bin	N
18	Feature 12k, ball mill footings	N
19	Feature 12-l, lower mill and ball mill footings	NW
20	Feature 12m, flotation tank	NE
21	Feature 12, overview	SW

MONTANA CULTURAL RESOURCES INVENTORY**Form No. 5. Description of Historic Sites****5.1 Site dimensions, shape, how dimensions determined:**

"The site measures 5,372 feet (1,637 m) N/S x 2,238 feet (682 m) E/W. The project area is calculated to be 9,500,000 square feet (218 acres). The polygonal dimension was determined by the extent of the features."

5.2 Features:

F-1A Collapsed adit. This collapsed adit portal is oriented at 284 degrees and measures 12 x 25 feet. A road cut runs through the waste rock dump and is about six feet below the adit. The feature corresponds to the "Shaft No. 5" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1B Incline shaft opening. This feature is located 40 yards to the north of F-1A. An incline shaft opens at the north corner of a 21 x 96-foot cut at the top of a 73-yard waste rock dump, which slopes down the hillside to the main road at a 37-degree incline. The waste pile is oriented at 115 degrees. The road to the four collapsed adits to the northeast of F-1B cuts through the waste rock dump and is adjacent to the shaft opening on its north side. A partially buried hoist drum measuring 3 feet, 11 inches long; 2 feet, 2 inches wide and 2 feet in diameter, is located just below the opening. The feature corresponds to the "Discovery Shaft" and "Shaft No. 2" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1C Open adit. This adit opening is at the top of a rock waste dump, which is oriented at 63 degrees and extends 200 feet down the slope to the lower mine road. The opening is in a 10 x 25-foot cut, oriented at 300 degrees. The feature corresponds to the "Tunnel No. 2" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1D Collapsed adit. This collapsed adit entrance is adjacent to the remains of an 8 x 14-foot structure, which may have been either a hoist house or a load-out. The feature was constructed with 2 x 12-foot notched logs and milled lumber. The feature corresponds to the "Shaft No. 4" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1E Collapsed adit. This collapsed adit is at the base of a 66-foot log rock waste dump and is oriented at 118 degrees. Stacked rock remains near the adit entrance. Wood debris, sawn logs, a piece of mine rail and a one-quart syrup can are also found near the adit. The feature corresponds to the "Tunnel No. 3" on the 1887 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-1F Collapsed adit and building platform. The adit entrance is oriented at 282 degrees and is in a cut measuring 25 x 40 feet. A 10 x 20-foot platform is located at the adit entrance and a collapsed root cellar is also nearby. Debris observed in the area included: a crushed stove pipe, two scorifiers, an iron strap and milled boards. The feature corresponds to the "Tunnel No. 1" and "Shaft No. 3" on the 1886 Mineral Survey of the Forest Rose Lode (GLO 1887a).

F-2 Collapsed adit. The adit entrance is in a cut measuring 20 x 56 feet and is oriented at 130 degrees. In front of the adit portal there is a 2-inch pipe and a sawn stull post. A 58-foot toe spreads out from below the adit entrance. At the north end of the toe there is a collapsed ore bin (see below F-2A) and the remains of a log crib. At the south end of the toe there is a scatter of poles, a 3-inch pipe, a 2 x 2-inch wood stake, a 2 x 2 x 1-foot crib, a 4-inch galvanized air duct and a blacksmith's forge crib. The crib was built with wire nails and at one time had a pole roof.

F-2A Collapsed ore bin. At the north end of the toe of F-2 there are the remains of a collapsed ore bin. The 12 x 12-foot ore bin was built of 2 x 12-inch heavy planks which rested on a log crib base of saw-cut, un-notched vent poles. The front of the bin has fallen over the stream.

F-3 Collapsed cabin. The cabin measures 27 feet, 7 inches x 13 feet, 4 inches and is oriented at 100 degrees. It has five tiers of 6-inch saddle notched logs with concrete and full pole chinking. The ends were vertical planking, which once supported a tarpaper covered gable roof. The cabin, at one point had a screened front porch and a frame addition. The interior walls were of lap siding and

fiberboard. There are two 4-lite fixed sash windows on the north side and one on the east side. The window openings appear to have been painted turquoise.

Just above the cabin there are two outhouse pits measuring 4 x 5 feet and a 3 x 3 feet. The pits are 15 feet apart and oriented at 260 degrees. The small pit has 6 x 5-foot building debris scatter below it. Observed around the site was a trash scatter with sanitary and hole-in-the-top cans, a vertical plank door with manufactured hinges, a knob and tube, simple "hoosier," a table and shelf, a towel rack, galvanized pipe sections, a car leaf spring and wood debris. A tree at the cabin's northeast corner has a yard-light made from a coffee can.

Downstream some 40 yards from the cabin, there is a pile of 10-foot long, 4 inch in diameter pipes.

F-3A Collapsed outhouse. The 5 x 6-foot outhouse was built of plywood and board and battens.

F-3B Remains of a structure. This small (7 x 11-foot) wood structure is located 33 feet to the north across the road from F-3 and is oriented at 348 degrees. Its function is unknown.

F-4 Partially collapsed cabin. Located at the northeast corner of the site on the Trapeze claim, this log cabin is oriented at 250 degrees and measures 27 x 42 feet. Although the roof has collapsed, the walls of the cabin are still intact. The walls are constructed with 18-tiers of saddle-notched logs, with quarter pole and concrete chinking and rest on a log foundation. The gable roof originally was covered with tarpaper and wood shingles. On the north side of the cabin there is an attached collapsed wood frame shed and cellar measuring 7 x 8 feet. Adjacent to the shed remains, there is a collapsed root cellar and an abandoned set of wood steps. A cupola and smoke stack are inside the cabin.

The cabin's south wall has one 1/1 double hung sash window (missing) and one 4-lite fixed sash window (missing) and one empty doorway. Projecting out from the south wall there is a V-shaped log support at the west end (made with five logs) for an oil or gas tank. The west wall also has an empty doorway in addition to one open window and a 1/1 fixed sash window. The north wall has one open window and one 1/1 double-hung sash window and a door to the shed addition. The east wall has two doors and one window. The doors open onto a collapsed wood porch (6 x 12 feet). This is one of three log buildings shown on the 1890 Mineral Survey map of the Trapeze Lode (GLO 1890c).

The remains of a two-hole outhouse are 21 feet south of the cabin on an orientation of 170 degrees. Near the outhouse there is the crossbar from a power pole. A piece of galvanized air duct was also observed in the area. Eighteen feet from the cabin's west side there is a 6 x 10-foot pit with charcoal strewn in the vicinity. Further south of the cabin there is a rusted tin "Great Falls Select" beer sign.

F-4A Trash scatter. This trash scatter is located just east of F-4 and across the mine road. Debris and numerous items are scattered around the area. These include: a carbide drum, an Indian figurine with "Shenango China - New Castle PA" on it, a wash tub, a white heavy china bowl, an oil can, pieces of rubber, leather foot wear, gray enamel ware, sawn beef bones, the bottom of a Pepsi bottle and the bottom of a Coke bottle with "Missoula Mont" embossed on it, along with numerous cans and pieces of brown glass.

F-4B Collapsed powder magazine. This small powder magazine is located north of F-4A and on the north side of the road. It only measures 3 feet wide. It is distinguished by two projecting entrance stulls.

F-5 Collapsed main adit. The adit entrance is in a 6 x 20-foot cut oriented at 255 degrees. Six vertical stulls are in the cut. Wood stairs are adjacent to the south side of the cut and the north side is shored up with six-inch poles and 14-inch timbers. A set of pole stulls project out of the adit and onto the waste dump. They appear to be a frame for a canvas covered tramway. The adit dates from the 1922 expansion of the mine.

F-5A Partially collapsed frame building (9 x 13 feet). This small structure is located just south of the adit portal (F-5) and is oriented at 146 degrees. The building has vertical plank walls, and a metal-covered gable roof. On the south side is a full-length shelf that presumably supported pipes for the mine.

F-5B Frame adit house (9 x 13 feet). This partially collapsed structure is located 36 feet south of the adit entrance (F-5) and is oriented at 280 degrees. The building had a concrete ring foundation, steel walls and a collapsed gable roof. The west wall has three 6-lite, fixed sash windows. The north wall has a Cannonball Junior, no. 1082 door hanger made by Starline Inc., Harvard, Illinois. The interior of the adit house still has shelves, part of a smoke stack and a forge crib. At the building's south end, four compressor mounts rest on a concrete slab. The footings have .75 and 1.25-inch bolts imbedded in them. Two of the footings measure 1 foot, 10 inches square; one measures 3 x 4 feet; while the largest is 5 feet, 6 inches x 6 feet. The building probably contained the 1940s-era compressor for the mine and was later integrated into a modern steel building during modern exploration of the mine. The mine building on the south end has been salvaged with only a one-foot high stubwall remaining.

F-5C Small collapsed outhouse. This outhouse once measured 6 x 6 feet, 7 inches. An unknown collapsed structure is adjacent to it.

F-5C Two-lobed dump. This waste rock dump at the main adit portal (F-5) has two lobes with the northeast lobe oriented at 108 degrees and measures 10 x 81 feet, while the southwest lobe is oriented at 162 degrees and measures 78 feet beyond Feature 2.

F-6 Collapsed log cabin. This small cabin measured 14 x 15 feet, 6 inches. It had seven-tiers of nailed logs and concrete daubing was used to seal the logs. There are vertical planks in the corners and the collapsed roof was once covered with tarpaper. A metal bed frame is inside the collapsed structure.

F-6A Outhouse. This two-seat outhouse is found to the north of the cabin (F-6) and measures 4 x 4 feet and was covered by a metal roof. It is made with 20-tiers of horizontal poles nailed to the corners. A small trash scatter is located on the slope below the outhouse. The cans were not investigated due to the discovery of wasps within one of the cans. Also found near the outhouse is a sheepherder stove.

F-7 Elevated transformer stand. The structure is located just north of the collapsed main adit entrance (F-5) and alongside the old mine road. It measured 8 x 24 feet and is oriented at 138 degrees. The stand has two levels spaced 1-foot apart. It is set on 24-inch posts with 10 x 10-inch beams and 2 x 12-foot planks on top. An adjacent tree has ceramic insulators on it and insulators are also found on pieces of lumber. Cans and wood debris are also found in the area. The stand probably dates from the 1940 development of the site.

F-8 Test Mill site. The remains of this 25 x 26-foot structure is oriented at 338 degrees. It is cut into the hillside. Piers measuring 14 x 14 inches are in front and it is braced from underneath to support by 2 x 14-inch floor joists. Round nails were used in the construction. Stairs lead up to the floor from the southwest corner. Black slimes were observed in a fan below the feature descending the hillside. This appears to be the remains of the sample flotation mill built in 1924 by Butte and Western Mining.

F-9 Concrete footings. A 1920s-era building once stood on these concrete foundations. The foundations measure 12 x 20 feet and are oriented at 350 degrees. It may have served as an compressor house. The walls and roof are gone and only the wood floor remains. Round nails were used in the structure's construction. Two concrete footings are in the structure. Three steel drill rods are sticking up from the concrete.

F-10 Water works building (10 x 40 feet). This structure is oriented at 94 degrees. A water tank with a valve box is at the structure's northeast corner. South of the structure there is a shovel and a dynamite box. A small tram is on the side of the building. The building probably dates from the 1940s.

F-11A Upper tailings. The tailings are oriented 30 degrees, stretch for 149 feet and have a large diameter waste rock dam. Wood debris and insulators are found at the north end of the tailings. This feature probably saw activity throughout the mine's history.

- F-11B Tailings impoundment. The impoundment is filled with dark tailings and has an erosion channel. The tailings are oriented at 285 degrees and measure 171 x 30 feet. A 1930s era auto and a washtub were observed at the south end of the tailings while cribbing was found at the north end.
- F-11C Tailings impoundment with orange tailings. The impoundment is oriented at 35 degrees and extends for 237 feet from F-11B. A berm, oriented at 280 degrees, runs for 180 feet across the north end of the tailings.
- F-11D Breached lower tailings impoundment. The impoundment has been bulldozed and the dam has been breached. A flimsy pole structure is in the middle of the tailings. The structure was constructed within an erosion area in the middle of the tailings, indicating a modern origin.
- F-11E Ditch. This ditch runs along the east side of the tailings and diverts the stream water past the tailings. The ditch was probably constructed in 1940 to keep the stream from eroding the tailings and to protect the water quality of the stream.
- F-12 This mill complex dates from the 1940 development of the Forest Rose.
- F-12A Waste rock area of missing ore bin. An ore bin once stood in this area but at some point was removed. The rock pile is 27 x 69 feet in size, is oriented at 72 degrees and slopes at 28 degrees.
- F-12B Platform. This platform below Feature 12A once served as the west end of the Feature 12C trestle. It measures 6 x 8 feet.
- F-12C Trestle. The A-frame trestle has collapsed. It originally ran from the upper ore bin to the lower ore bin and crossed an access road to the main adit entrance (F-5).
- F-12D Coal bin. This coal bin is oriented at 330 degrees and measures 12 x 14 feet. Galvanized metal sheets were observed in the structure.
- F-12E Two ore bins. These collapsed ore bins measured 12 x 15 feet.
- F-12F Concrete footings. These concrete ball mill footings are located a few feet to the west of the water tank (F-12G) on the east side of the mill. There are three sections, with the northern-most measuring 1 foot, 6 inches x 5 feet, 6 inches with two 1-1/2 inch bolts imbedded in the top. A second footing is 6 feet, 3 inches x 1 foot, 5 inches x 8 feet, 7 inches and also has two 1-1/2 bolts in it. Attached to the second footing is a large (2 feet, 10 inches x 6 feet, 5 inches and 3 feet, 1 inch high) footing with 12, 3/4-inch bolts in groups of four at each end and in the middle.
- F-12G Two story water tank. This tank measures 15 x 17 feet and remains partially intact. It is constructed of 12-tiers of V-notched logs. The timbers appear to have been salvaged and some are spliced together. The inside walls consist of vertical planks. The roof is a wood frame with galvanized metal covering. On the east side there is a fallen concrete footing. Also observed in the area was a carbide can and brown ceramic insulators. Inside the structure there is a pump stand. Attached to the west side of the tank there is a pipe exit.
- The tank is connected by a ramp to the upper mill floor. A wood frame on the upper floor appears to have once supported a pump powered by an automobile engine.
- F-12H Concrete footings. These footings are located in the upper mill floor immediately below the twin ore bins. They appear to date from the World War II period of the mine's operation. They were once inside a 12 x 15-foot wood frame structure but the walls have been sawn off for unknown reasons.
- F-12I Assay office. This structure is located on the south side of the mill. The north half of the building is still standing, the south side has been reduced to a floor. The assay office measures 12 x 15 feet and is of frame construction with horizontal planks. Inside the office there remains an oven stand, forge hood, cupboard and sink. A door opens on the north side and windows open on the east

and west wall. A deck extends from the east side of the structure. An access road runs to the south from the south side of the building.

F-12J Ore bin. This partially collapsed ore bin measured 8 x 12 feet. It appears to date from operations at the mine during the 1920s. This lower ore bin connects to the upper mill floor by a short tramway.

F-12K Middle mill floor. This is bound on the west by the water tank and on the east by the lower mill floor. The middle floor measures 20 x 33 feet. Concrete footings are inside and are covered with debris, making measurements impossible. Two windows open on the south wall. An access road runs south from this feature

F-12L Lower mill floor. This debris-covered feature has a 4-foot wide concrete ledge on the west side supported by two concrete buttresses. The lower floor measures 20 x 33 feet and had a shed roof. The north and south walls each have two 3/3 / 3/3 windows while the west wall has three. Extending from the west wall is a scupper leading to a large waste mound and just beyond is a 10-foot section of a frame wall.

A road connects to the south side of the feature.

F-12M Flotation Tank. This tank is located 35 feet east of the lower mill floor and measures 10 x 12 feet and is oriented at 158 degrees. It is 12 feet high and was constructed of milled lumber. A 12-foot building fragment is adjacent to the tank's southwest corner. On the east side a wood flume connects the tank with the lower mill floor. South of the tank is a stove.

F-12N Scale footings. A small structure that may have housed a scale is located 18 feet north of the Middle Mill floor (Feature 12K) mill. The concrete footings measure 6 x 5 feet.

5.3 Artifacts (observed, collected): Artifacts are listed under feature descriptions. No artifacts were collected.

5.4 Historical information and evaluation:

The discovery of the Forest Rose lode reportedly dates to 1866. According to one secondary source, David Dunkleberg made the find, first worked the lode and "made a good profit from his operation" (*Mining and Scientific Press* 1922:274). The duration of Dunkleberg's activities at the Forest Rose are unknown, but his claim to the lode most likely lapsed within the next few years.

Nearly twenty years later, in the spring of 1886, Frank Carnes, Armistead Mitchell and William Perriman relocated the Forest Rose (Granite County Deed Book G, p. 43). Carnes and others also filed notices of location on two nearby claims, the Bellare and Little Mack (Granite County Deed Book G, p. 21; p. 42). In 1887, a government worker completed surveys in preparation of patent for the Forest Rose and Bellare claims. The survey showed that the Forest Rose had been explored through several minor shafts and tunnels, while less extensive developments had occurred at the Bellare (U.S. Surveyor General's Office, "Plat of the Claim of A. H. Mitchell" 1887; "Plat of the Claim of Frank Carnes Upon the Bellare Lode" 1887).

By late May of 1889, ownership of the Forest Rose Mine group had been consolidated under the control of Mitchell and his long-time associate, Charles Mussingbrod (Granite County Deed Books B, p. 628; C, p. 42; p. 43; H, p. 87; E, p. 498; J, p. 306; p. 318). In addition to the Forest Rose, Mitchell and Mussingbrod together came to hold several mining properties in the nearby Philipsburg Mining District, as well as in Silver Bow County (Granite County Deed Book 9, p. 132).

In 1890, the partners expanded the holdings at the mine site by having three new claims surveyed for patent along with the old Little Mack location. These claims included the Monitor on the west side of the Forest Rose claim, and the Acrobat and Trapeze claims on the north. A small residential complex of three log buildings stood on the Acrobat claim but it, and the other new claims, had otherwise only been minimally developed (Granite County Deed Book d, p. 524; p. 525; p. 552; U.S. Surveyor General's Office, "Plat of the Claim of Armistead H. Mitchell et al. Known as the Monitor Lode"

1890; "Plat of the Claim of Armistead H. Mitchell et al, Known as the Trapeze Lode" 1890; "Plat of the Claim of Armistead H. Mitchell et al. Known as the Little Mack Lode" 1890).

It is possible that some ore processing occurred at the Forest Rose during the late nineteenth century. A 1940s account of the mine's early history reported there was a small smelter at the mine in the early 1890s, but the facility was said to be "unsuccessful" (WPA 1942:9).

The Forest Rose Mine may have seen intermittent mining and small-scale production into the early 1900s before entering into a prolonged period of inactivity. By then Charles Mussingbrod had died and his share in the claims passed to his heirs. The decree of distribution for his estate made note of the "Forest Rose Tunnel," suggesting that it represented the major underground works at the mine site (Granite County Deed Book 9, p. 132). A later report on the Forest Rose described the mine's "old workings" to be at a depth of 160 feet (Strasberger 1922:3).

In the summer of 1916, J. T. Pardee of the United States Geological Survey investigated the long-idle Forest Rose Mine site. He found the underground works were inaccessible. However, based on the size of the dumps, he figured them to be "rather extensive." Reports of prior production of about \$100,000 in silver/lead ore were noted (Pardee 1918:247). A later evaluation of this estimate by another party concluded that it represented about 2,000 tons of ore (Strasberger 1922).

Beginning in October 1917, the Forest Rose Mine saw a new period of mining activity. While available information is sketchy, it appears that a group of Deer Lodge County men obtained a lease and option on the Forest Rose Mine group at that time and, informally at least, set up the Dunkleberg Mining Company to operate the property (Utah Secretary of State 1919).

Dunkleberg Mining sent several shipments of lead ore from the Forest Rose each year from 1917 to 1919 and probably was responsible for the mine's ore production noted by *Mineral Resources* in its report for the year 1920. Cumulative production from the Forest Rose during those years amounted to 359 tons of ore, which yielded 11 ounces of gold; 10,385 ounces of silver; 43,351 pounds of lead and 378 pounds of copper (*Mineral Resources* 1918; 1919; 1920; 1921; Popoff 1953).

Meanwhile in early 1919, a group of individuals from Salt Lake City, Utah, and Deer Lodge, Montana [which may have included parties associated with the Dunkleberg Mining Company] incorporated the Forest Rose Mining Company under Utah law and assumed the 1917 lease and option agreement in the name of their new company (Utah Secretary of State 1919). Perhaps encouraged by Dunkleberg Mining's show at the mine, the Forest Rose Company purchased the Forest Rose Mine group for \$30,000 from the heirs of Mitchell and Mussingbrod in the fall of 1920 (Granite County Deed Book 21, p. 341). About this same time, Montana and South Dakota interests incorporated the Butte Western and Mining Company under South Dakota law to take over the mine's operation (Montana Secretary of State 1920).

Butte and Western Mining Company began a fairly ambitious program of development work at the Forest Rose in May of 1921. The company opened a tunnel in the west bank of Dunkleberg Creek on the Acrobat lode. This new underground access lay at the mine's 330 foot level, and 170 feet below the old working. By January 1922, the tunnel extended 485 feet into the hillside and two veins of ore had been exposed. In addition, two new raises and an intermediate crosscut connected the first vein with the old 160-foot level (Strasberger 1922; Popoff 1953). Work by miners in the following month exposed large ore bodies and deposited 100 tons of ore into newly constructed bins (Strasberger 1922). By late 1922, the company had "several hundred tons of sulphide lead ore" on reserve (*Mineral Resources* 1923:472). It had also purchased the Forest Rose Mine group of patent claims from Forest Rose Mining" (Granite County Deed Book 21, p. 460).

Development at the Forest Rose Mine continued in 1923 with the opening of a sub-level with three feet of ore, while work in the main tunnel exposed a vein of six feet of "commercial ore with three feet of ore assaying over \$50 per ton in silver and lead" (*Mines Handbook* 1925:1198). Production for the year included several hundred tons of lead ore sent to the East Helena smelter and several lots of lead/zinc ore shipped to Butte (*Mineral Resources* 1924).

In early 1924, Butte and Western Mining began construction of a small concentrator to test the feasibility of an oil flotation process for reducing Forest Rose ore into concentrates (Feature 8). The facility began test runs on ore before the year's end and the company ordered additional reduction equipment (*Mines Handbook* 1925; *Mineral Resources* 1925; *American Mining and Metallurgical Manual* 1924-1925). Operation of the pilot concentrator continued in 1925, resulting in a few shipments of lead concentrates reportedly assaying 32 percent lead and 32 to 37 ounces of silver per ton (*Mineral Resources* 1926; *Mines Handbook* 1927).

However, by late 1925, Butte and Western Mining's finances had reached a precarious state. Plans to increase the concentrator's capacity were abandoned and the facility shut down while the company arranged with "outside interests" to help fund additional development work at the mine (*Mines Handbook* 1927; 1932). Small amounts of ore continued to be shipped from the property over the next two years but this material likely resulted from clean up activities rather than new mining. Butte and Western Mining's association with the Forest Rose ended in late 1927 when the company lost title to the property (*Mineral Resources* 1927; *Mines Handbook* 1932; Montana Secretary of State 1927).

Cumulative production from the time Butte and Western Mining began work at the Forest Rose in 1921 until work ended in 1927, totaled 1,751 tons ore which yielded 52 ounces of gold; 19,132 ounces of silver; 338,575 pounds of lead; 46,006 pounds of zinc and 3,194 pounds of copper. No more than about 500 tons of that total would have been treated at the pilot concentrator prior to shipment (Popoff 1953).

In late 1927, the Forest Rose Mine group was sold at public auction to satisfy Butte and Western Mining's outstanding debts and delinquent property taxes. After two of the company's stockholders, John Albin and Edna Alley, redeemed the sale; they and other stockholders received a sheriff's deed to the Forest Rose Mine group in early 1929. Albin held majority interest in the property with 89 percent of the company stock (Granite County Deed Book 23, p. 488).

Following several years of inactivity at the Forest Rose, in late 1935 John Albin sold his majority interest in the mine group to the Forest Rose Mining Company, a firm recently incorporated under South Dakota law by Albin and others, included some of Butte and Western Mining's former officials (Granite County Deed Book 27, p. 390; South Dakota Secretary of State 1934).

Forest Rose Mining apparently was not an operating firm but, rather, sought to secure lessees to work the mine. It presumably entered into its first lease agreement by 1937 when unknown parties shipped four tons ore from the Forest Rose (Popoff 1953). The company let a lease on the property again in July of 1938, this time to R. H. McCracken, O. J. Durand and William E. Fahey, all of Granite County (Granite County Miscellaneous Book 8, p. 528; p. 532). This lease covered a period of five years and included a \$90,000 option for purchase. The mining partners apparently failed to revive production at the Forest Rose and surrendered their lease without exercising the option (Ibid.).

In 1940, a new firm, the Forest Rose Mining Syndicate, took over lease operations at the mine. The syndicate shipped a single car, amounting to 30 tons of lead/zinc ore, from the property that year while embarking on an ambitious project to erect a 100-ton selective flotation mill (*Minerals Yearbook* 1940). Located near the portal of the mine's main adit, the concentrator became operational on January 12, 1941. Here the ore was broken down to less than two inches by a 10 x 20 jaw crusher. It was then ground to less than 65 mesh in a ball mill in a closed circuit with a rake classifier. The product was conditioned for lead flotation and taken to a bank of eight cells for lead concentration. The ore was then re-conditioned for the zinc circuit. Zinc concentrates were sent to the Anaconda zinc plant and lead concentrates were sent to the East Helena smelter. The mill could run 90 tons of Forest Rose ore or 65 tons of the Wasa or Monarch ore in a day (Popoff 1953). It ran continually through the year, treating a total of 18,766 tons of ore. Mining and milling operations provided employment for nearly 40 men (*Minerals Yearbook* 1941; Bennett 1944; Caverly 1941).

In 1942, the Forest Rose Syndicate augmented its mining properties in the district as a means to both ensure and increase its ore supply to the Forest Rose mill. During that year, in addition to the Forest Rose, the Syndicate started working the adjacent Monarch and Wasa mines, which were located about one mile to the south (*Minerals Yearbook* 1942). Mining and milling operations continued under defense contracts with little interruption through 1945 under the direction of superintendent Ed

Hughes. All of the company's production was taken by the federal government to provide for the nation's wartime production needs (WPA 1942; *Minerals Yearbook* 1944; 1945; Popoff 1953).

The Forest Rose Syndicate ceased mining at the Forest Rose in 1945. However, it ran the concentrator again in 1946, treating an additional 12,555 tons of Wasa Mine ore (Popoff 1953). The concentrator apparently was shut down for good immediately after that.

Combined production by the Forest Rose Syndicate from the Forest Rose, Wasa and Monarch mines between 1942 and 1945 totaled 81,716 tons of lead/zinc ore, all of which was processed into concentrates prior to shipment. One later source suggested that about 60 percent of the syndicate's production from the period was Forest Rose Mine ore (War Production Board 1943; 1944; 1945; Popoff 1953).

Soon after the Forest Rose Syndicate's shutdown the Forest Rose Mine, a Bureau of Mines geologist surveyed the property's underground workings. He found the main tunnel was in nearly 500 feet and noted 3,000 feet of drifts, crosscut, and winzes. The longest underground feature was the 1,800-foot drift into the Monarch Mine property. A winze sunk 400 feet below the main tunnel had flooded (Popoff 1953).

Former mine superintendent for the Forest Rose Syndicate, Ed Hughes, seems to have tried to revive operations at the property in the early 1950s. He and two others incorporated a new mining business called the "Forest Rose Corporation" under Montana law in 1951 (Montana Secretary of State 1951). However, the venture proved both unsuccessful and short lived. There are no known accounts of any activity by the company at the Forest Rose before the Montana Secretary revoked its right to conduct business in the state in 1954 (Montana Secretary of State 1954; 1960).

A short time later, A. L. Woodfin obtained a lease on the property. He worked the Forest Rose in 1956, but his operation appears to have been unproductive. The mine has remained idle to the present (Stout and Ackerman 1959).

The Forest Rose Mining Company is currently still the owner of record with a majority interest in the Forest Rose Mine group of patented claims. However, the remaining 10-11 percent interest has changed hands several times over the years and is currently divided among several individuals (Granite County Deed Book 42, p. 392; Microfilm Roll 41, p. 626; p. 627; Microfilm Roll 44, p. 356).

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5.6 Subsurface testing results, methods, stratigraphy, etc. none



August 2002 overview photo of the Forest Rose Mill Feature 12
as viewed to the northwest.



August 2002 overview photo of the Forest Rose Mill Feature 12
as viewed to the west.



August 2002 photo of the Forest Rose Mill Feature 12E ore bin
as viewed to the west.



August 2002 photo of the Forest Rose Mine Feature 12F mill footings
as viewed to the south.



August 2002 photo of the Forest Rose Mill Feature 12G log water tank as viewed to the north.



August 2002 photo of the Forest Rose Mine Feature 12L lower mill floor as viewed to the north.



August 2002 photo of the Forest Rose Mill Feature 1B discovery shaft
as viewed to the north.



August 2002 photo of the Forest Rose Mine Feature 2 blacksmith forge
as viewed to the south.



August 2002 photo of the Forest Rose Mine Feature 3 cabin
as viewed to the north



August 2002 photo of the Forest Rose Mine Feature 4 cabin
as viewed to the northeast.



August 2002 photo of the Forest Rose Mine Feature 5 adit
as viewed to the west.



August 2002 photo of the Forest Rose Mine Feature 5B adit house
as viewed to the northwest.



August 2002 photo of the Forest Rose Mine Feature 6 cabin
as viewed to northeast.



August 2002 photo of the Forest Rose Mine Feature 7 transformer stand
as viewed to southeast.

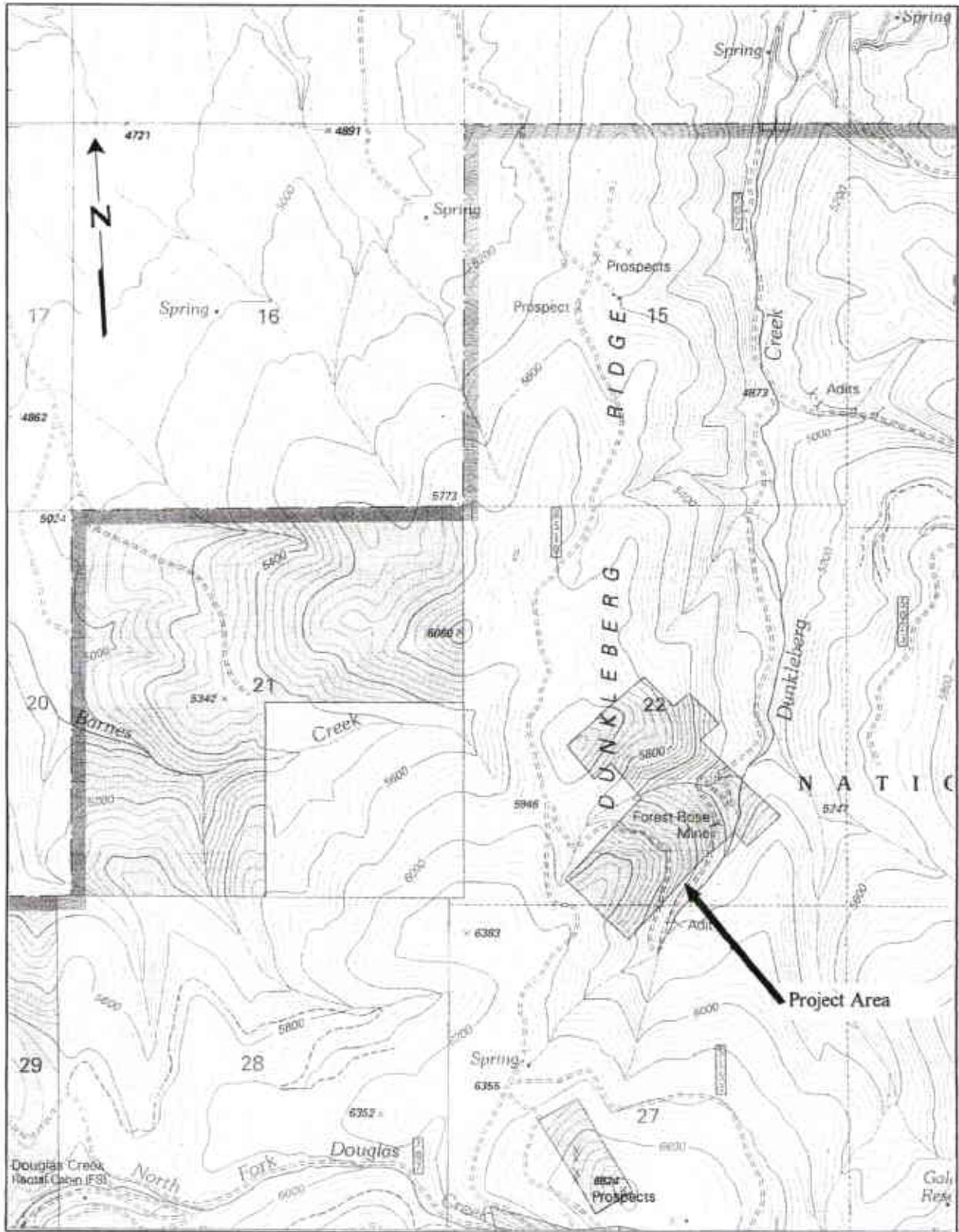


August 2002 photo of the Forest Rose Mine Feature 8 test mill foundations as viewed to southeast.



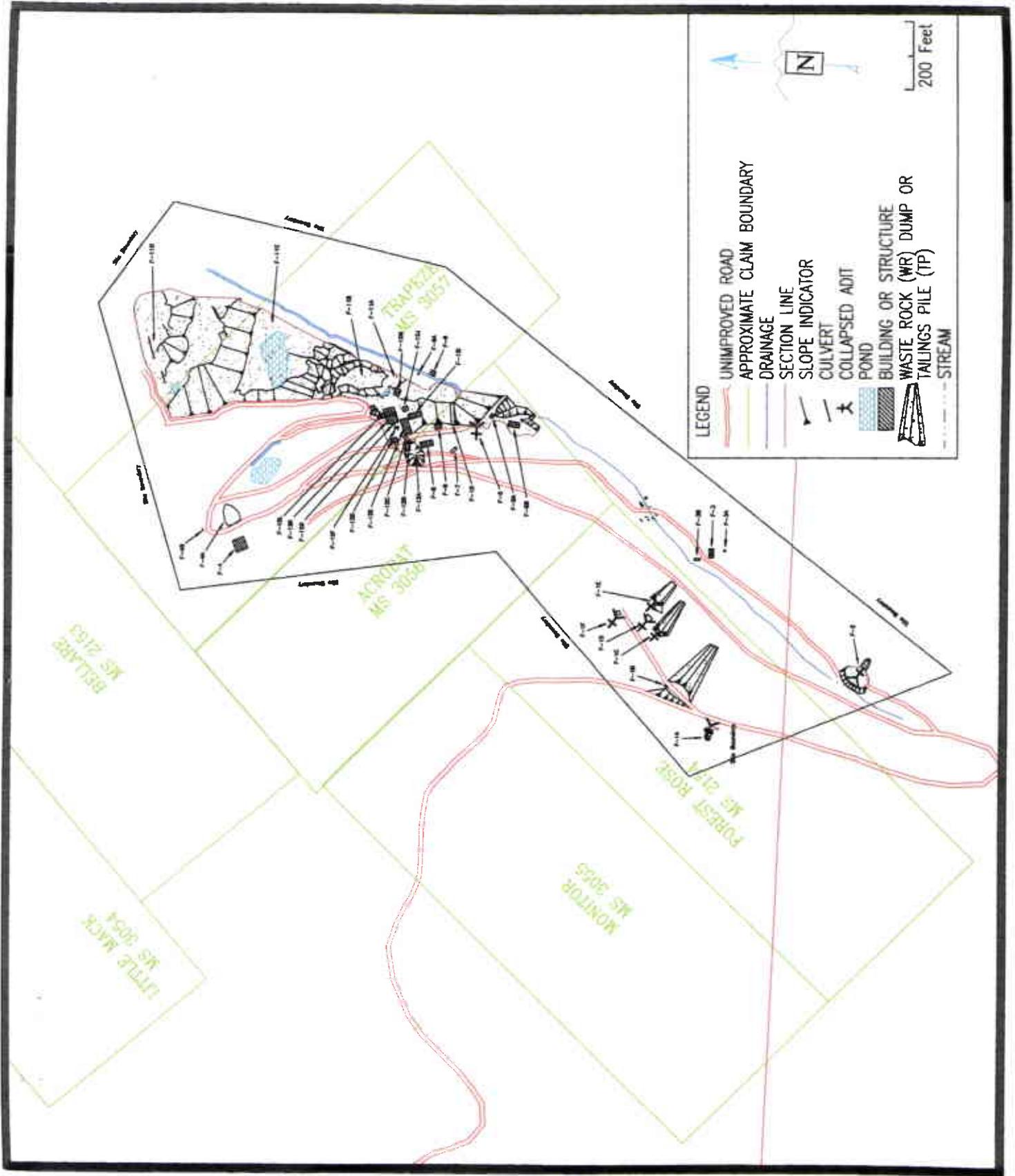
August 2002 photo of the Forest Rose Mill Tailings Features 11B and 11C as viewed to north northeast.

Forest Rose Mine and Mill

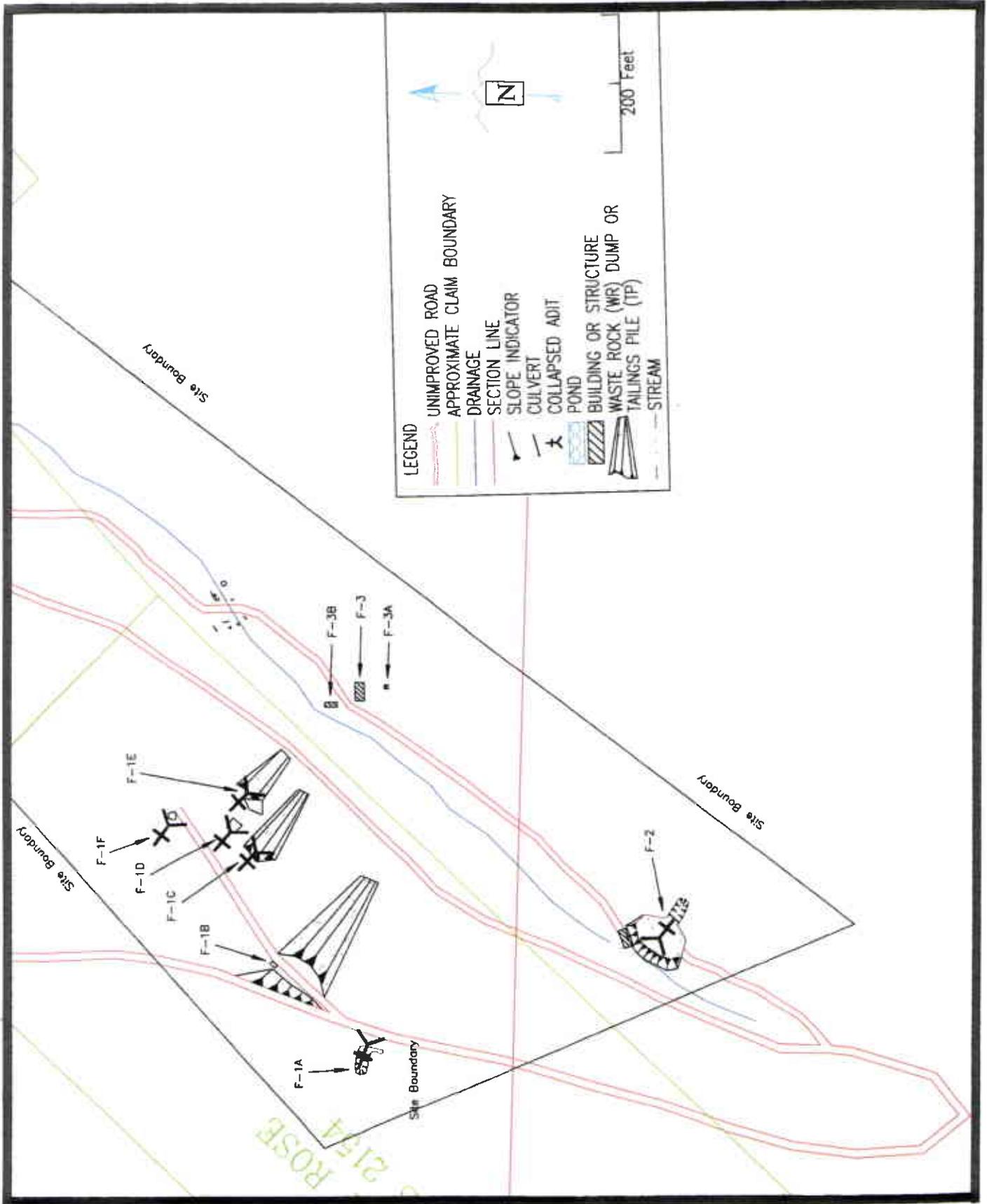


The Forest Rose Mine (24GN0990) from the Three Brothers USGS quadrangle map (1:24,000).

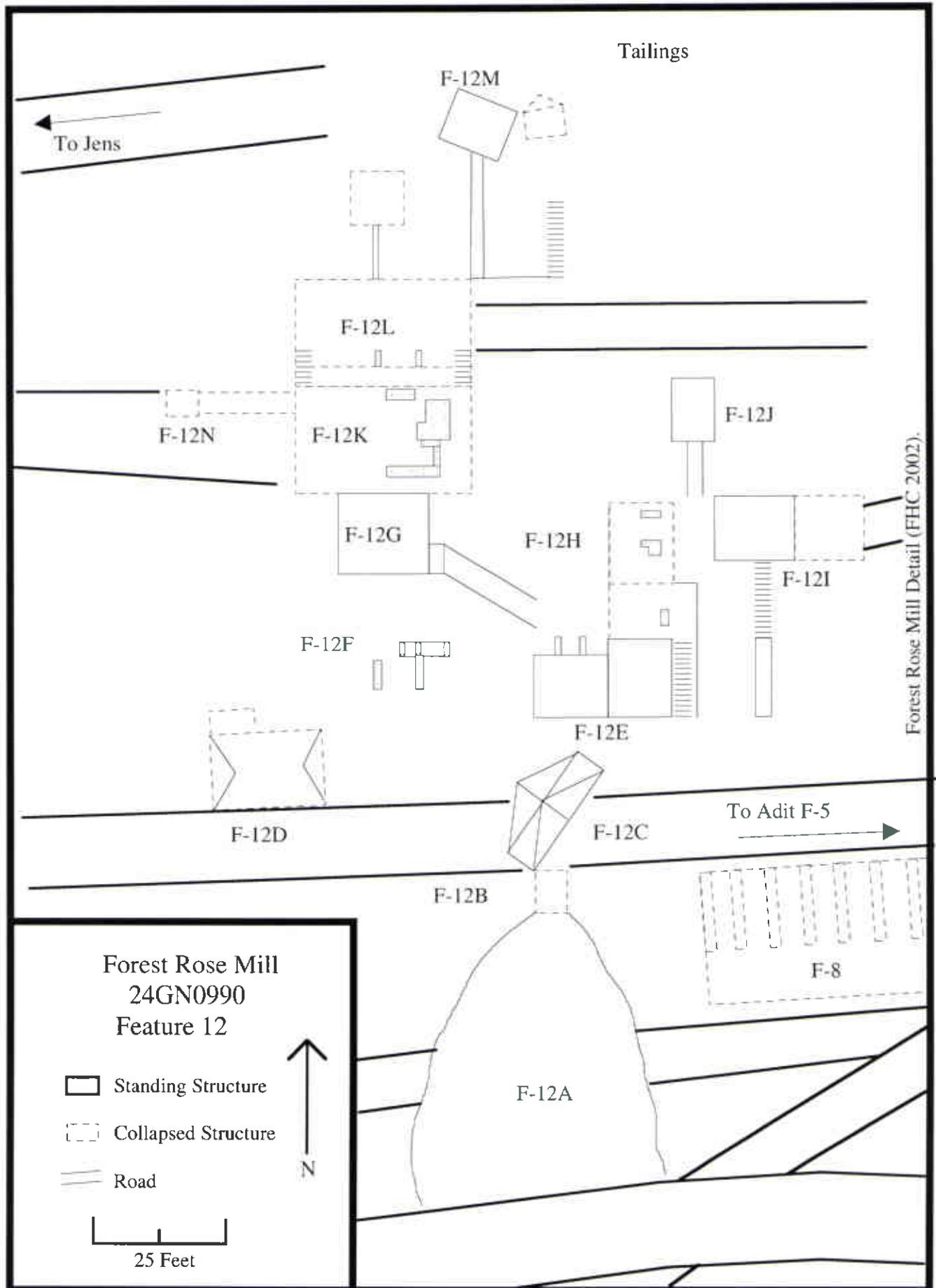
Forest Rose Mine and Mill

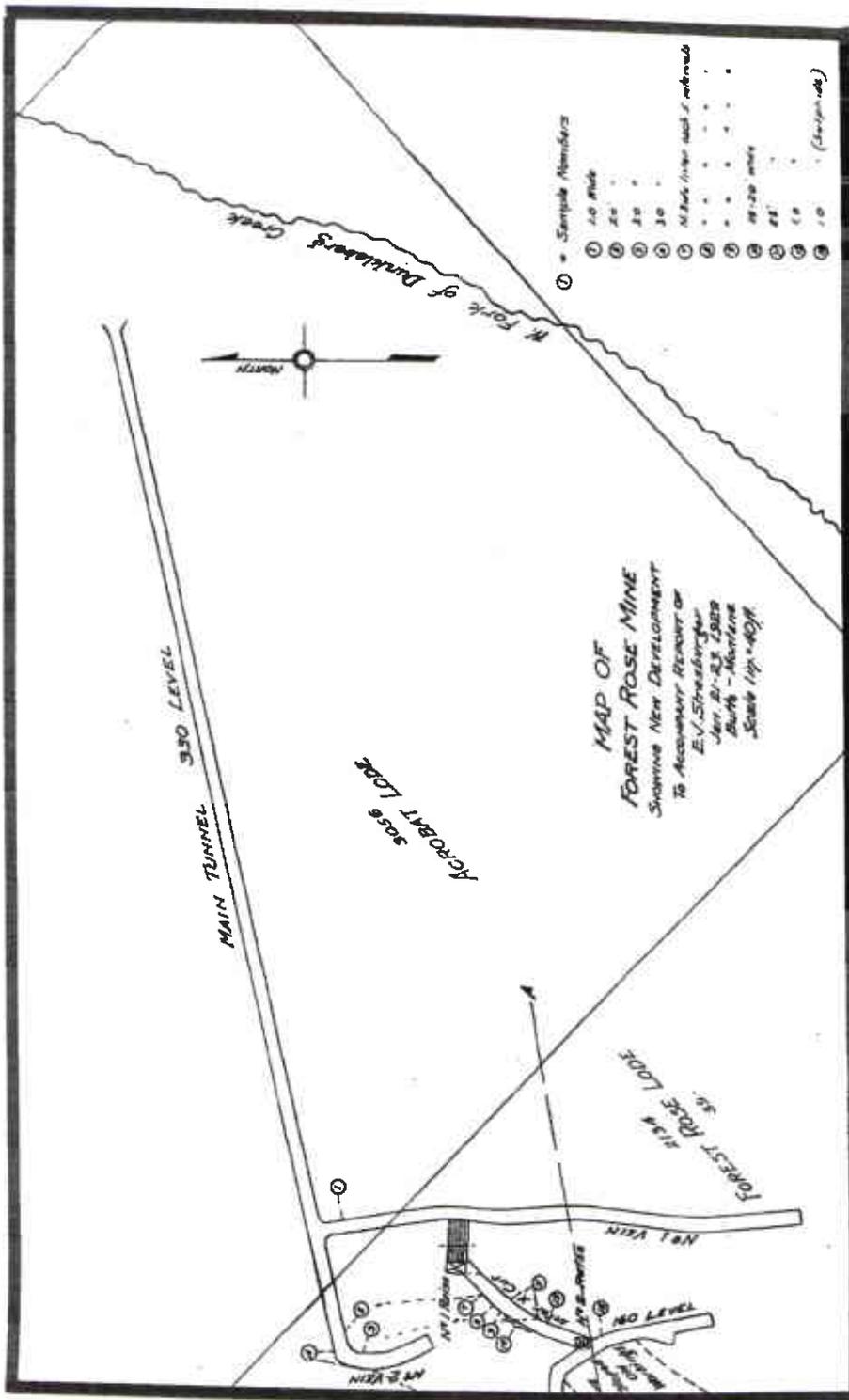


Forest Rose Site Map (2002 FHC).

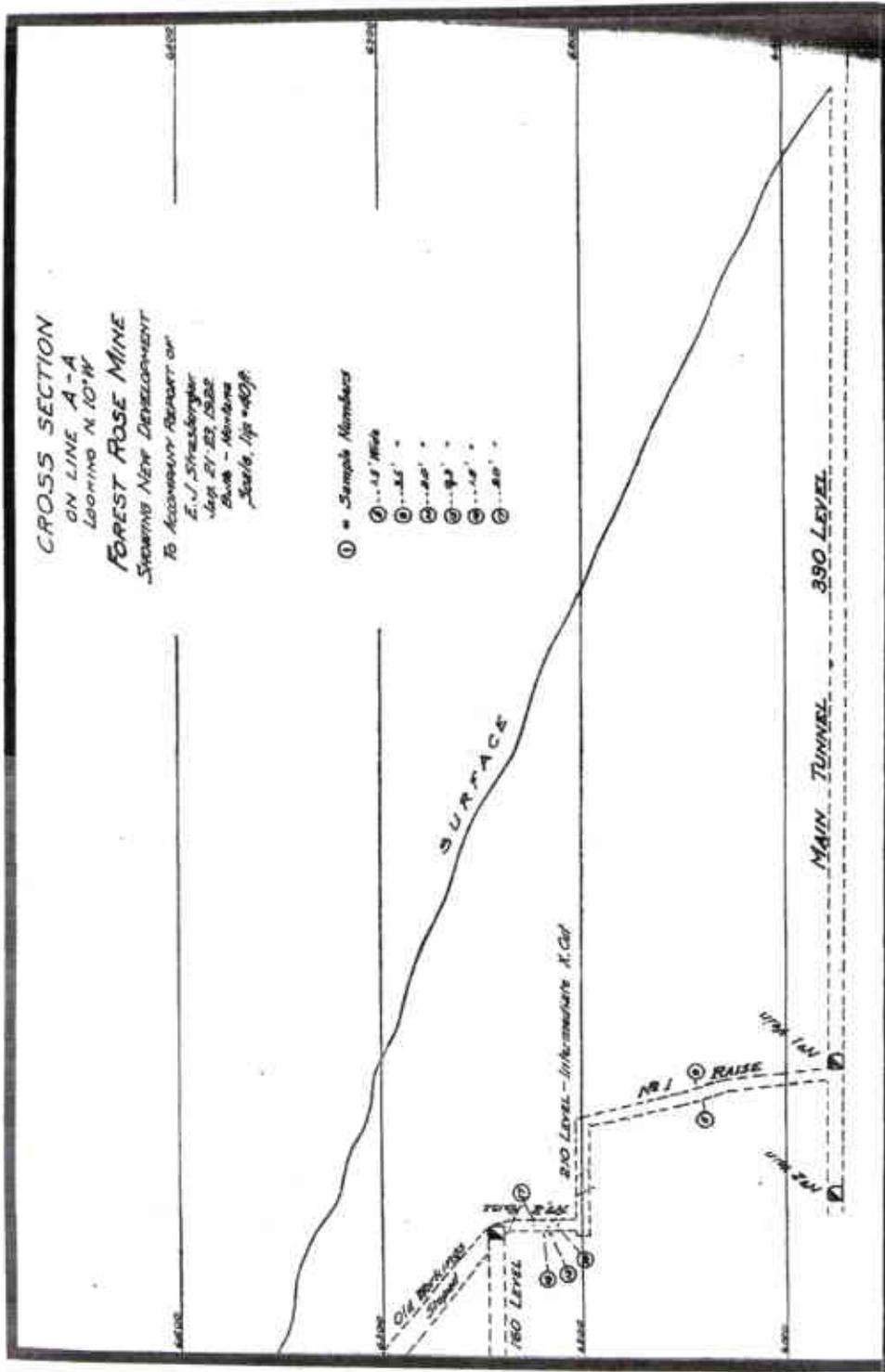


Forest Rose Upper Mine Map (2002 FHC).

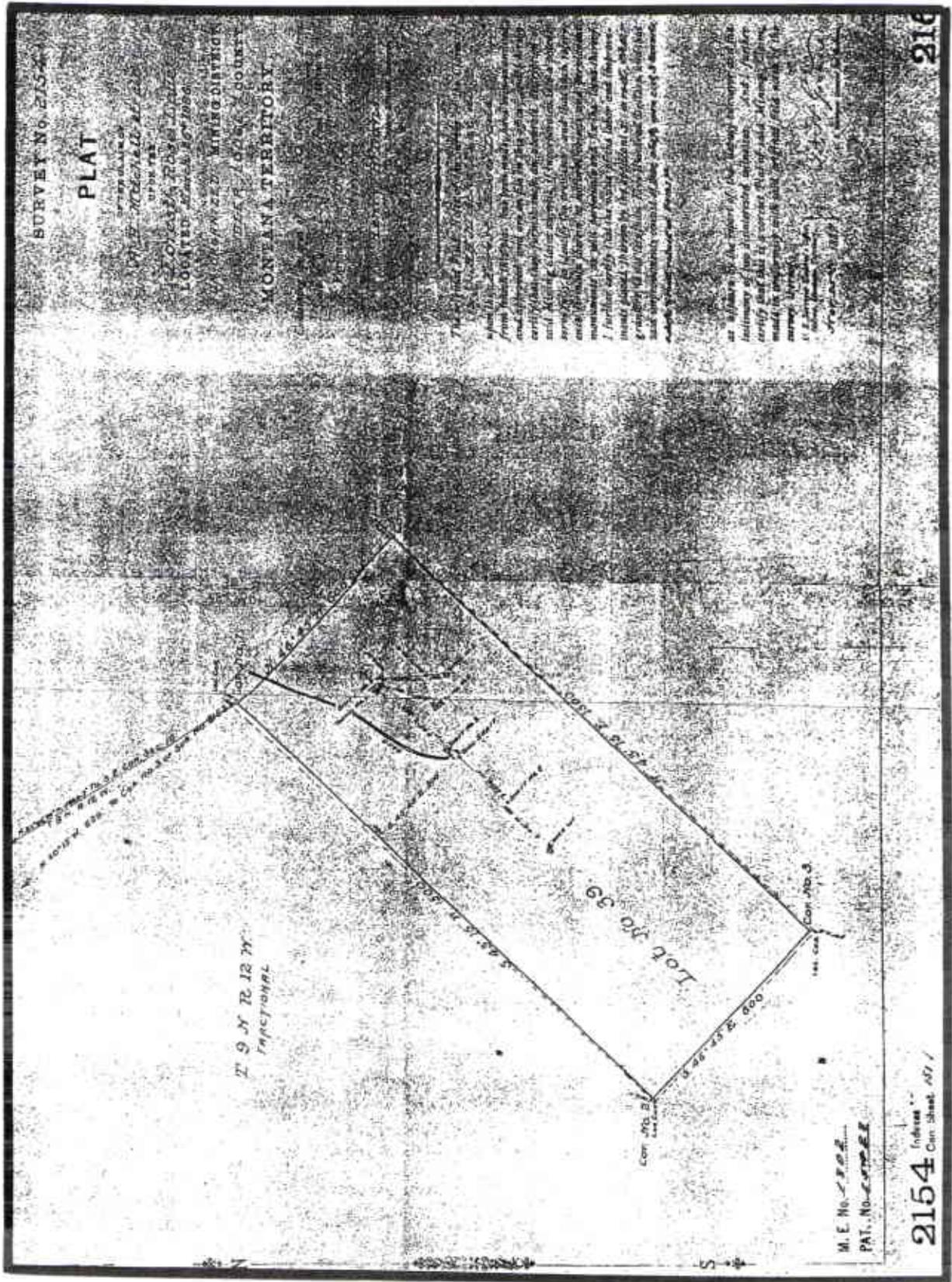




Underground development of the Forest Rose (Strasburger 1922).



Underground development of the Forest Rose (Strasburger 1922).

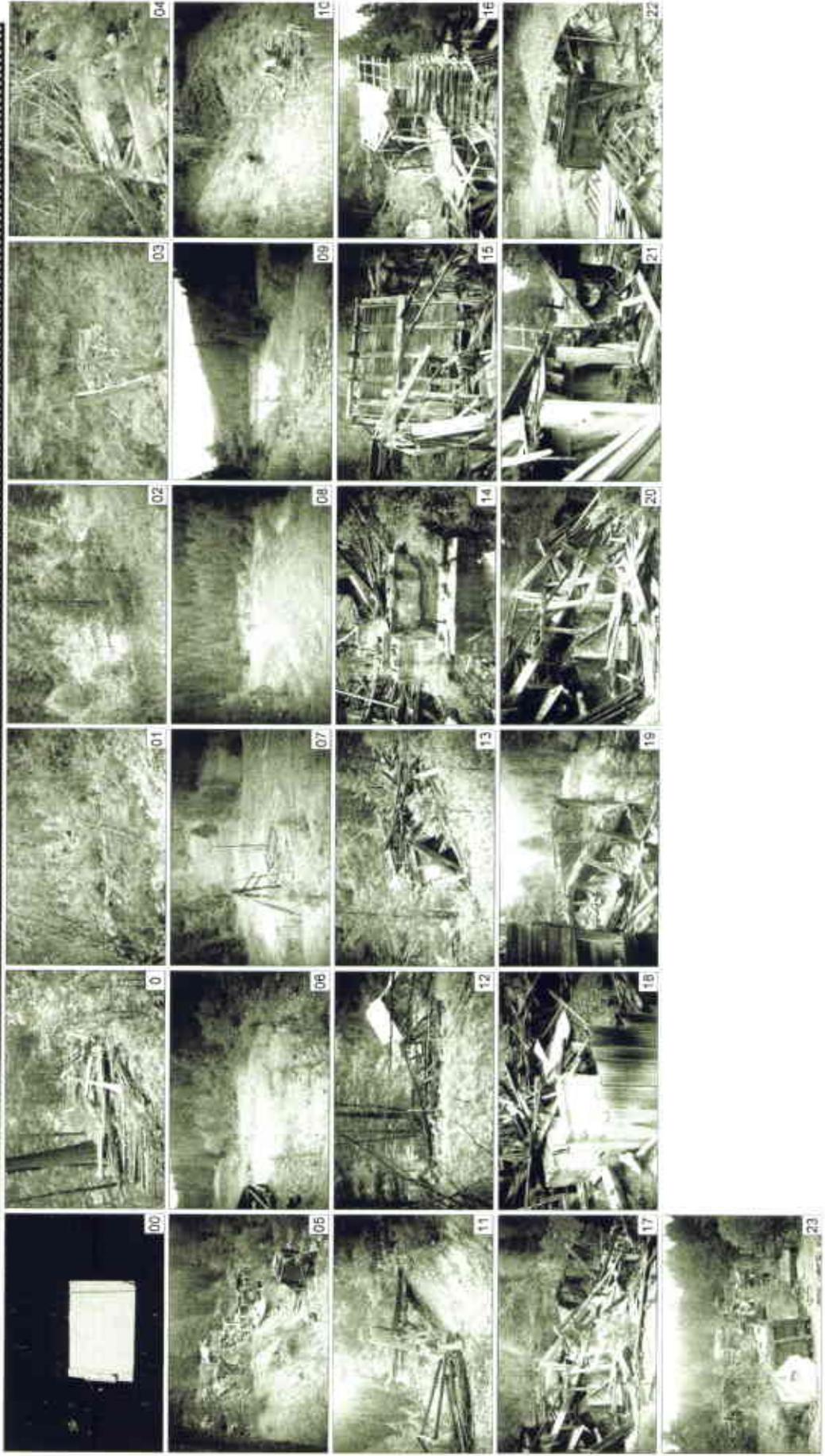


Mineral Survey Map, Forest Rose Lode (GLO 1887a).

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