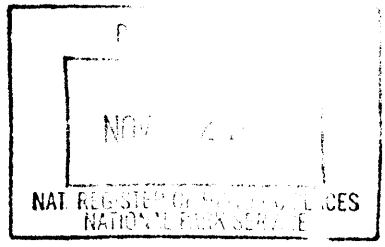
1365

NPS Form 10-900
(Rev. 10-90)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM



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

1. Name of Property

historic name Otho Mining District

other names/site number 39PN2579 – Otho Townsite and Mine

2. Location

street & number 13380 Greyhound Gulch not for publication n/a

city or town Otho Vicinity x

state South Dakota Code SD county Pennington code 103 zip code 57751

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this [x] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [x] meets [ ] does not meet the National Register Criteria. I recommend that this property be considered significant [ ] nationally [ ] statewide [x] locally. (___ See continuation sheet for additional comments.)

Jay D. Vogt 10-29-2004

Signature of certifying official Date

South Dakota SHPO

State or Federal agency and bureau

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

Signature of commenting or other official Date

4. National Park Service Certification

I hereby certify that the property is:

- [x] entered in the National Register.
  - [ ] See continuation sheet
- [ ] determined eligible for the National Register.
  - [ ] See continuation sheet
- [ ] determined not eligible for the National Register
- [ ] removed from the National Register.
- [ ] other, (explain:) _____

for
Signature of the Keeper — Date of Action

Edson H. Beall — 12/15/04

5. Classification

Ownership of Property (Check as many boxes as apply)

- x Private
- ___ public-local
- ___ public-State
- ___ public-Federal

Category of Property (Check only one box)

- ___ building(s)
- x District
- ___ Site
- ___ Structure
- ___ Object

Number of Resources within Property

Contributing	Noncontributing	
3	1	Buildings
68	2	Sites
2	0	Structures
0	0	Objects
73	3	Total

Number of contributing resources previously listed in the National Register

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

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat:	Industry/Processing /Extraction	Sub:	Extractive facility
	Industry/Processing /Extraction		Manufacturing facility
	Domestic		Single dwelling
	Domestic		Multiple dwelling
	Domestic		Hotel

Current Functions (Enter categories from instructions)

Cat:	Work In Progress	Sub:	

7. Description

Architectural Classification (Enter categories from instructions)

No Style

Materials (Enter categories from instructions)

Foundation	Concrete
Roof	Steel and Wood
Walls	Wood
Other	

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

See Continuation Sheets

8. Statement of Significance

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

x **A** Property is associated with events that have made a significant Contribution to the broad patterns of our history.

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

x **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a Significant and distinguishable entity whose components lack individual distinction.

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

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

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

___ **B** removed from its original location.

___ **C** a birthplace or a grave.

___ **D** a cemetery.

___ **E** a reconstructed building, object,or structure.

___ **F** a commemorative property

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

Areas of Significance (Enter categories from instructions)

Architecture
Exploration/Settlement
Archeology – Historic Non-Aboriginal

Period of Significance

1892-1953

Significant Dates

1892
1914

Significant Person n/a

Cultural Affiliation n/a

Architect/Builder n/a

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

See Continuation Sheets

9. Major Bibliographical References

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

Previous documentation on file (NPS)

___ Preliminary determination of individual listing (36 CFR 67) has been requested.
___ previously listed in the National Register
___ previously determined eligible by the National Register
___ Designated a National Historic Landmark
___ recorded by Historic American Buildings Survey #
___ recorded by Historic American Engineering Record #

Primary Location of Additional Data

___ State Historic Preservation Office
___ Other State agency
_x_ Federal agency
_x_ Local government
___ University
_x_ Other

Name of repository: South Dakota School of Mines and Technology

10. Geographical Data

Acreage of Property 102

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

	Zone	Easting	Northing
1	13	629804	4859283
2	13	629840	4859183
3	13	629876	4859287
4	13	629888	4859171

☒ See continuation sheet

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

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

11. Form Prepared By

name/title Adrienne Kerst, Lance Rom, Scott Des Planques
organization *Quality Services* date 19 October 2003
street & number 2416 Jackson Blvd telephone 605-721-0701
city or town Rapid City state SD zip code 57702

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A USGS map (7.5 or 15 minute series)indicating the property's location.

A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs

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

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

Property Owner

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

name Dallas and Mary Dietrich
street & number 13380 Greyhound Gulch Road telephone 605-721-0701
city or town Keystone state SD zip code 57751

DESCRIPTION

The proposed Otho Mining District is located in the mountainous Black Hills geographic region. Elevation ranges from 1304meters to 1341meters above mean sea level. Drainages within the proposed Otho Mining District area are intermittent. Historically, Greyhound Creek had been a permanent stream. Climate of the area fluctuates seasonally from warm summers to cold winters. The area is semi-arid with variable, but moderate precipitation and low relative humidity.

Vegetation consists of Ponderosa pine, aspen and ground juniper on the slopes. Rocks on the north facing slopes are coated with moss and lichens. Vegetation in the area of the mill includes Ponderosa pine, aspen, birch, scrub oak, oak and mountain mahogany. Ground cover in this area consists of ground juniper, wild rose, chokecherry, common mullein, mountain thistle and various forbs and grasses. The grasses include barnyard grass, foxtail barley and smooth brome.

Today Greyhound Gulch appears much as it did in the early nineteen hundreds with a few minor exceptions. The main difference is that the hill slopes are more heavily forested now. When Otho was a mining area the trees were removed for construction, mining timbers, general heating and a myriad of other uses. The lack of vegetable gardens today is notable.

The remaining Otho buildings are located on a terrace overlooking the Greyhound Gulch drainage bottom and road. All of Otho's buildings are aligned in a northwest to southeast orientation on this terrace. The drainage bottom is vegetated with various forbs grass with a few Ponderosa pine, oak, scrub oak, wild rose and chokecherry. Slopes above, to the east of the terrace and across Greyhound Gulch to the west of it, are conifer forest with Ponderosa pine, aspen and birch. Except for the Dietrichs' residence the proposed Otho Historic District has remained basically unchanged for the past 91 years.

OTHO BUNKHOUSE
Contributing
Circa 1914

The Otho Bunkhouse is a gabled, balloon frame building constructed of milled lumber on a poured concrete foundation. The bunkhouse has a shed roof addition on the southeast corner that is flush with the façade. All elevations have wooden runners covering the seams of the vertical exterior wood cladding. The southwest elevation also has galvanized metal strips over the seams. The roof is seam metal and there is a brick chimney located near the southwest corner. With the addition, the building's footprint is L-shaped.

The façade (southwest elevation) has a central four-panel lumber framed wood door flanked by one-over-one double hung lumber framed windows. Attached on the southeast corner of the bunkhouse is the shed roof addition, which has a four-panel lumber framed wood door and a one-over-one double hung lumber framed window. The other elevations on the addition are bare.

The northwest elevation has three one-over-one double hung lumber framed windows.

The northeast elevation has a large central 7'x 9' opening that once had a garage door.

The southeast elevation has two one-over-one double hung lumber framed windows on the northeast portion of the elevation and the shed roof addition on the southeast portion of the elevation.

OTHO HOTEL
Contributing
Circa 1914

The Otho Hotel is a two-story, gable front, balloon framed building constructed of milled lumber on a poured concrete foundation. All elevations have wooden runners covering the seams of the vertical exterior wood cladding. The southwest elevation also has galvanized metal strips over the seams. The roof is seam metal and there is brick chimney centered on the ridgeline.

The façade (southwest elevation) has a one-story, open shed roof porch supported by three square wooden columns. The floor of the porch is 1'x3' tongue and groove boards. The first story of the façade has a four panel wood door and a one-over-one double hung window, both of which are lumber framed. The second story of the façade has a centered one-over-one double hung lumber framed window.

The northwest elevation has four one-over-one double hung lumber framed windows on the first story and three one-over-one double hung lumber framed windows on the second story. The two first story windows toward the northwest corner have been reduced in size and infilled with dimensional lumber.

The northeast elevation has a four-panel wood door flanked by one-over-one double hung lumber framed windows on the first story. The window closest to the northwest corner has been reduced in size and infilled with dimensional lumber. The second story is bare. Part of the exterior stairwell of the southeast elevation is flush with the southeast corner on the first story.

The southeast elevation has four double hung one-over-one windows on the story and three double hung one-over-one windows on the second story.

OTHO HOUSE
Contributing
Circa 1914

The Otho House is a side gabled, balloon frame building constructed of milled lumber on a poured concrete foundation. All elevations have wooden runners covering the seams of the vertical exterior wood cladding. The roof has asphalt shingles.

The façade (southwest elevation) has an open shed roof porch supported by three square wooden columns with a knee high wooden baluster between them. The floor of the porch is 1'x3' tongue and groove boards and it is supported by concrete blocks. The façade of the house has a four-panel wood door flanked by one-over-one double hung windows, all of which are lumber framed.

The northwest elevation has a single one-over-one double hung lumber framed window that is slightly off center. The northwest elevation of a small addition is flush with the elevation.

The northeast elevation has a four-panel wood lumber framed wood door toward the southeast corner and a small attached addition at the northwest corner. The northwest elevation of the addition has a lumber framed window opening. The northeast elevation of the addition is bare; the southeast elevation of the addition has a vertical plank door.

The southeast elevation has a single one-over-one double hung lumber framed window that is slightly off center.

OTHO OUTHOUSE
Contributing
Circa 1914

The Otho Outhouse is a side gabled structure constructed of milled lumber on a wood foundation. The roof has asphalt shingles and centered ventilator on the northeast slope.

The façade (southwest elevation) has a central vertical plank wood door. The northwest elevation has a small fixed pane lumber framed window. The northeast elevation is bare. The southeast elevation has a small fixed pane lumber framed window.

OTHO SHED
Contributing
Circa 1914

The Otho Shed is constructed of milled lumber on a wood foundation. The structure has a shed roof with wood shakes.

The northeast elevation is bare.

The southwest elevation has two small window opening with hinged wood shudders.

The northwest elevation has two door openings, one at each corner. The opening at the northeast corner does not have a door; the opening at the northwest corner has a vertical plank wood door.

The southeast elevation has two doors, one at each corner. Both doors are vertical wood plank. There is central opening on the lower half of the elevation that has been infilled with dimensional lumber.

OTHO SUPERVISOR'S RESIDENCE BUNGALOW
Non-contributing
Circa 1900

The Otho Supervisor's Residence is a gabled, asphalt shingled log cabin with a poured concrete foundation. The logs are hewn flat on the top and bottom and chinked with mortar. All the original wood doors and windows have been replaced. Some original window and door openings have been altered to accommodate the replacement materials. There is a recent balloon frame addition on the southwest elevation with cedar siding.

OTHO MINING DISTRICT FEATURES

Feature 1 – This is a contributing two-track road with a disturbed area. The disturbed area is approximately 20 meters in diameter. It is the result of ground disturbing activities, apparently bulldozing. This feature is situated at the base of a west-facing slope on a terrace overlooking the Greyhound Gulch. It is at the confluence of an unnamed east-west oriented intermittent drainage.

Feature 2 – Feature 2 is a contributing prospecting exploratory pit 3 meters in diameter x 1.5 meters deep. The tailings mound is located east of the pit. It measures 4 meters in diameter x 1 meter tall. This feature is partially filled by collapsing dirt walls and forest debris such as branches and pine needles. A large pine tree grew inside the feature and fell over, possibly distorting the original shape of the hole.

Feature 3 – Another contributing prospecting exploratory pit is circa 3 meters in diameter and 1/2 meter deep. The back fill mound is located to the east of the hole; it measures 3 meters in diameter x ½ meter tall. This feature is partially filled by collapsing dirt walls and forest debris such as branches and pine needle duff.

Feature 4 – Feature 4 is a contributing stone cairn. This cairn is comprised of dry laid stones of local origin. It measures 1meters in diameter by ½ meter tall. The stones are small enough to be lifted by one person. Lichen growth on the stones is dense enough to indicate the cairn is an old feature, probably the original property boundary marker indicating the northeast corner.

Feature 5 – This contributing prospecting exploratory pit measures 2 meters x 1 meter x .75 meter deep. The backfill mound is located to the east measuring 1 meter diameter x .3 meter tall. This feature is partially filled by collapsing dirt walls and forest debris.

Feature 6 – This contributing prospecting exploratory pit measures 2 meters by 1 meter by .3 meter deep. It is partially filled by collapsing dirt walls and forest debris. The tailings mound measures 2 meters x 1.5meters x 1meters tall and is located to the east of the hole. This mound is comprised of dirt and stones of local origin. Stones in the mound are small enough to be lifted by one person.

Feature 7 – This feature is a contributing cairn comprised of dry laid stones of local origin. It measures 1 meter in diameter x .5 meter tall. The stones are small enough to be lifted by one person. Lichen growth on the stones is dense enough to indicate the cairn is an old feature, possibly marking the original west mineral claim or property boundary.

Feature 8 – This is another contributing cairn also comprised of dry laid stones of local origin. It measures 1 meter in diameter by ½ meter tall. The stones are small enough to be lifted by one person. Lichen growth on the stones is dense enough to indicate the cairn is an old feature, probably marking the original northwest property boundary.

Feature 9 – This contributing cairn is also comprised of dry laid stones of local origin. It is 1 meter diameter x ½ meter tall. The stones are small enough to be lifted by one person. Lichen growth on the stones is dense enough to indicate the cairn is an old feature, probably indicating another portion of the original west property boundary.

* Features 7, 8 and 9 - These three contributing cairns roughly line-up to form a mining claim boundary.

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Feature 10 – This contributing 2-track road, approximately 80 meters long, runs between Longmont and Otho No. 2 Lodes. It is shown on Mineral Survey 2067 from 1916.

Feature 11 – This contributing two-track road is approximately 202 meters long. It runs to all points on Otho No. 2 Lode (Mineral Survey 2067, 1916), and runs into the associated Longmont Lode as well. Feature 11 runs south-southwest along the bottom of an unnamed intermittent drainage.

Feature 12 – Feature 12 is a contributing prospecting exploratory cut 2 meters wide, 3 meters long and 2 meters deep. This feature is partially filled by collapsing dirt walls and forest debris. The backfill mound measures 3 meters by 1.5 meters ½ meter tall. It is located to the south of the cut.

Feature 13 – Another contributing prospecting cut is 6 meters long, 2 meters wide and 2 meters deep. It is partially filled by collapsing dirt walls and forest debris. The backfill mound measures 3 meters by 2.5 meters by 1 meter tall and is located to the west of the cut. The cut is northeast into the slope.

Feature 14 – Feature 14 is a contributing building foundation circa 14 x 20 ft. This feature was the foundation to a house noted on the 1916 Mineral Survey 2067. The rectangular leveled area is elevated 5" high. It is 14' x 20' with the long walls running from, east-northeast to west-southwest.

Feature 15 – This is a contributing concrete foundation 14' long x 5" thick. This feature may have been either the rear foundation to the office on the 1916 Mineral Survey 2067, or the bath house noted by long time Otho resident Martha Linde via personal interview with Custer historian Jessie Sundstrom (personal communication Sundstrom 01/10/2003). This partially buried foundation is oriented north-northwest to south-southeast.

Feature 16 – This is a contributing abandoned privy depression 1 meter x 1 meters x .6 meter deep.

Feature 17 – Another contributing privy depression is 1 meters X 1 meters X .2 meter deep.

Feature 18 – This contributing feature is a dugout doorway 4'10" tall x 2'6" wide. It looked unstable and was not entered. The entry way appears to be approximately 7' in length. All around the doorway and inside, 10 x 10 and 4 x 10 beams were used. Other milled lumber includes 4 x 4s, 4 x 6s, 2 x 6s, 1 x 6s and 1 x 4s. A space behind the doorway is 13'1" square x 7'3" deep. Various sizes of milled lumber were used in its construction. The dugout had collapsed and owners have started to excavate it with a backhoe. At this time very little of the dugout area's original construction is visible. Sections of the west-southwest internal wall were visible and appear to be comprised of heavy 10 x 10 beams.

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Feature 19 – This contributing building foundation may have been the hoist building. The west-southwest wall is 12'6"and the north-northeast wall is 11'1". This feature is approximately 1'3" deep. The foundation has been heavily impacted by the recent installation of a drainage field for a septic system. There is a 3' x 3' poured concrete foundation extending from the north-northeast wall. The hoist was in this area and may have been mounted on this section of concrete (Mineral Survey 2067, 1916).

Feature 20 – Feature 20 is a contributing prospecting exploratory cut circa 3 meters x 3 meters x 2 meters deep. This feature is partially filled by collapsing dirt walls and forest debris. Tailings for this cut are downslope and to the west. The tailings measure 2 meters north-south x 3 meters east-west and 1 meter high.

Feature 21 – This contributing feature is a mine. The cut trench leading to the mine tunnel proceeds into the slope northeast at 46 degrees. This cut is 4 meters long and 3 meters wide. It is difficult to ascertain exactly where the trench ended and the tunnel began because the dirt and stone walls have collapsed. By examining the cave-in and associated boulders and debris it is believed that about 4meters of tunnel has collapsed. Because of the collapse and sloughed walls the entrance is now only 1.5 meters deep. This feature is also partially filled by forest debris.

This mine was fairly substantial according to Mineral Survey No. 2067 completed in 1916. The main shaft was 5' x 7' x 176.5' with three drifts to the southeast 4' x 6' x 125', to the northeast 4' x 6' x 63.5,' and to the northwest 4' x 6' x 198'. The entrance was collapsed in 1916 when Mineral Survey 2067 was made.

Tailings from this mine were deposited south down the drainage. The tailings pile is circa 37 meters long north-south by 10 meters wide east-west and 6 meters high. At some point in time the south end of the tailings was removed. The tailings pile area of disturbance is about 5 meters north-south by 10 meters east-west. There are some large Ponderosa pines, aspen and scrub oak growing on the tailings.

Feature 22-(&59) – These two contributing features are the Otho Tin Mine and its foundations.

The cut trench leading to the mine tunnel, Feature 59, is about ¾ of the way up a steep north facing slope overlooking Greyhound Gulch. It is 12 meters from the south end of the trench cut to the tunnel entrance. The width of the trench varies from 3.5 meters on the north end to 10 meters on the south end. At the south end of the cut, the depth is approximately 2.5 meters. East, west and south walls have collapsed into the trench and partially buried the tunnel entrance. A small hole, 1 meter x 1 meter, is the only remnant of the entrance.

In addition to the trench there are also rough cut timbers, 4 x 6s, 8 x 8s, 10 x 10s, and 8 x 12s, scattered in and around it. Sheet metal can be found sticking out of the debris and laying about the area. The nails found in the rubble are the cut wire types.

There is a terraced area between the mine and the tailings slope. This ledge measures 20 meters east to west and 3 meters north to south. The majority of the tailings are downslope from the eastern portion of this ledge.

The Otho Tin Mine consists of 1 cut trench, 1 tunnel and 7 drifts. The mine entrance, tunnel, and 5 of the 7 drifts, are located on the Otho Lode. Two of the western drifts are located on Otho No. 1 Lode. The main tunnel leads 305' to the south-southeast with the longest drift 150' heading west (from Mineral Survey 2067, 1916).

East of the mine entrance and about 5meters down slope a path can be seen. This path is all that remains of the mill's flume. The first information on the flume location came in an interview with Dick Knecht. He stated "There was a flume that ran below the footpath to the east of the Otho mill. The water was used in the mill for processing the ore. It ran around the east side of the ridge and below the foot path" (personal communication 01/09/03). The old flume path is on a very steep, dangerous slope.

Feature 22- Otho Tin Mill Foundation

A series of poured concrete foundation slabs and a scatter of mine related artifacts are the remains of the Otho Tin Mill. The largest visible foundation (A) is located at the foot of a north facing slope in Greyhound Gulch. This foundation is poured concrete slabs that measure 18' 6" on the east facing edge, 33' on the north and 14'4"on the west before it is covered by sod. At the northeast corner the foundation slab is at least 1' 4" deep and continues underground. Duff and sod completely cover the south portion of this feature.

On foundation (A), at the south end of the west wall, is a raised structural support (B) constructed of poured concrete. Feature B rests on, and runs parallel to, the west edge of foundation A. Feature B measures 13'4" along its north-south axis by 4'3" wide east to west and is 10" tall. Bricks cover most of the top except at the north end where there are four heavy 1" diameter bolts mounted vertically.

Just 3' 7½" west of feature B is another raised structural feature C. Constructed of poured concrete it is parallel to it. This raised Feature C measures 4' along its north-south axis by 2'8" wide east to west at its base. At the top, feature C measures 3'3' along its north south axis by 1'10" wide east to west. There are four 1"diameter bolts mounted vertically in each corner on top of this. The western edge of feature C, butts up to the eastern edge of another foundation D located to the west of it

Poured concrete foundation D is located 7'10" west of the main slab (A). This second foundation slab is barely visible on the north side and is covered with sod and duff on its other sides. The only side that is not buried is the north facing edge, which measures 36'6" long. There is a mound of crushed quartz measuring 1.5meters by 2 meters by .3meters high on the western half of foundation D.

Another poured concrete foundation (E) is located 45meters south and up-slope of the north-facing wall of foundation D. This multi-tiered structure served as the foundation for the mill crusher. The base of this structure is 8'2" across east to west and 3'1" high. It (E) is partially buried into the hillside so a length measurement was not possible. There are three north to south oriented 2½" x 9" rough cut planks resting upright with their 2½" side atop a 4 x 12 timber with its axis east-west.

The second tier of the foundation for the mill crusher, also poured concrete, is a ten-sided geometric form This section is 3'7" high but the sides all vary in width, averaging 3' a section, ± 1". The circumference of this tier is approximately 22'8".

Another section of this mill crusher foundation extends 4'9" to the east side of the lower tier. It is made of poured concrete and is 3'1" high. On top of this, along the eastern edge, are two heavy 1" diameter bolts mounted vertically. There are two rough cut 4 x 6 beams along the east edge. These two beams are horizontally embedded into the slope pointing northward. They are likely remnants of the wood floor in the crusher room.

About 10 to 12 meters upslope from the mill crusher, 7 meters, ± 2 meters in elevation, is another section of poured concrete foundation (F). Feature F is located on a very steep slope of mine tailings. It was not possible to safely obtain all of its measurements. The concrete slab is 1'4" thick and is approximately 20' long east to west. Due to the erosion of tailings and other debris onto the slab, north-south measurements could not be taken. A scatter of rough cut 2 ½ x 9" beams surrounds this foundation.

About 4 meters upslope from foundation F, 2 meters in elevation, is another section of foundation (G). There are two rough-cut 10 x 10 beams horizontally embedded into the slope pointing northward. A single large metal spike protrudes from one of the foundation beams. These beams are likely to be remnants of floor supports.

Upslope approximately 4 meters, 2 meters in elevation, from foundation G, is a 10 x 10 rough cut beam in the slope. It is a partial foundation H. H is horizontally set into the slope east-west. Beam H may represent a portion of the uppermost floor of the Otho Tin Mill.

An artifact scatter is strewn along the face of the slope in the area of these foundations (E-H). This scatter is comprised of sheet metal, most of which is either partially buried or in small fragments. There is also rough cut lumber and beams of various sizes ranging from 2 x 6s to 10 x 10s littering the area.

The poured concrete multi-tiered structure E was the foundation for a Chilean roller mill. Mounted on the foundation is a steel circular trough with 1/8th inch mesh screen on the north facing side. This ring shaped feature is 1'6" tall on the outside. The inside depth is unknown due to the trough being partially filled with

sediment. Diameter of the ring is 11'6" on the outside and 9' on the inside. There is a pipe mounted vertically in the center of the ring forming a central axis. This pipe is made from ¾" steel and has a 1' outer diameter and a 10 ½" inner diameter. The hole in the pipe was the mounting for the vertical central shaft of the Chilean mill.

There is a trench located at the base of the slope below the Chilean roller mill foundation (E). This trench runs to the west along the base of the north-facing slope. The trench measurements are 60' long by 1'10" wide with a maximum depth of 2'6". It is believed that this trench is the lower section of the flume.

Mine related artifacts are scattered around foundations and structures (A-D). Curved sections of steel are thought to be the track (annular die) of the Chilean Mill, which is located up-slope, south, of the foundations. These annular die sections were partially buried in sod and were not measured. This portion of the Chilean mill was described by Truscott as, "The annular die lies flat in a pan-casting into which it is secured by wedges. Being about 3' thick and somewhat wider than the runner it is heavy, and for convenience made into sections. Upon this casting is reared the housing in which the screens are set, these generally leaning outwards" (1923:89-90).

A large cast steel hub 3'2" in diameter is also laying on foundation D. This part is referred to as the Chilian mill's spider. This spider has a heavy steel cylinder protruding vertically from its axis. Atop the cylinder is a circular steel fitting with six equidistant cylinders all pointing upward at approximately a 45 degree angle. The spider was the top portion of the Chilean Mill where the crushing wheels were mounted (Wiard 1915:336-338 and Truscott 1923:89).

Other artifacts strewn about the area include sheet metal with nail holes along the edge and rough cut lumber ranging from 2 by 6s to 10 by 10 timbers and bricks. To the south of foundation A lie the remains of a stairway, upside-down, leaning against the base of the slope. All that is left are two notched 2 x 12s and 2 x 8 steps. A hollow galvanized steel roller 6'1" long and 1' in diameter is located west of foundation D.

Vegetation in the area of the mine entrance consists of Ponderosa pine, aspen and ground juniper. The slope is covered in sparse tufts of grass and a layer of pine needle duff. Rocks on the north facing slope are coated with moss and lichens. Vegetation in the area at the base of the mill is a typical conifer forest tree such as Ponderosa pine, aspen, birch, scrub oak and oak. Ground cover in the area consists of ground juniper, wild rose, chokecherry, common mullein, mountain thistle and various forbs and grasses including barnyard grass, foxtail barley and smooth brome. The ground in the site area is covered with a layer of pine needle duff combined with deciduous tree leaves. The duff is generally under an inch in depth.

Feature 23- This feature consists of two contributing pieces of mining equipment. Both are made from cast iron or steel and are related to the milling process. The northern piece is labeled in raised metal letters, "THE

EDW. P. ALLIS Co. MILWAUKEE, WIS., 974 M, 10 X 7". This was identified as a Reliance roll. Described by Wiard:

> At that time [circa1910] a roll called the Reliance roll, manufactured by W. P. Allis & Sons, was in much favor among mill men. The most excellent features of this roll were that they did not choke under very heavy feeding. There is a low, heavy base frame, four pedestals carrying the bearings, two firmly fixed to an integral part of the frame, and the other two sliding on the frames and held up and held up to the work of crushing by springs. However, the Reliance roll revealed many defects. Owing to the high position of the shafts, and particularly of the movable shaft, vibration was great and it was difficult to keep the tension rod tight (Wiard 1915:61-62).

There is no discernable writing on the other piece of equipment to the south. However, it resembles the upper portion of the Reliance roll pictured in Wiard's 1915 publication, The Theory and Practice of Ore Dressing, page 223. The weight of both of these pieces combined would be between 800 to 1000 pounds, if not more.

Feature 24 – (& 28) This contributing mine is located near the terminus of a finger ridge approximately half way up the slope. It overlooks the junction of two intermittent drainages. The first drainage is west-east oriented and is unnamed. The second is Greyhound Gulch a northwest-southeast situated valley. Greyhound Gulch is intermittent now, but evidence such as beaver dams indicate it may have had year round flow in the past.

Vegetation in the area of the site typical conifer forest trees such as Ponderosa pine, aspen, birch, scrub oak and oak. Ground cover in the area consists of ground juniper, wild rose, chokecherry, common mullein, mountain thistle and various forbs and grasses, including barnyard grass, foxtail barley and smooth brome. The ground in the site area is covered with a layer of pine needle duff combined with deciduous tree leaves.

Cut tunnel A is located on a south-facing slope near the terminus of an unnamed ridge. Tunnel A overlooks an unnamed drainage 50 meters to the south. The entrance cut for tunnel A is situated north-south and is 10 meters long by 2.2 meters wide on the north end, and 3 meters wide on the south end. Materials from the walls have fallen into the tunnel entrance and partly blocked it with about one meter of dirt and rocks. At the north end of the cut, the tunnel begins and goes 1.3 meters before a milled lumber wall and door blocks it. This wall and door construction is obviously new and consists of scavenged 1 x 6 boards of various lengths and colors nailed to a 2 x 4 frame. The hinges on the door appear to very old but they are attached with new screws. Debris fall has partially blocked the door, which can only be opened about ½ meter.

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Tunnel B is a cut tunnel that is located on a south facing slope near the terminus of an unnamed finger ridge. The tunnel cut is aligned at 298 degrees proceeding into the ridge.

This mine entrance overlooks Greyhound Gulch 50 meters to the east. The entrance cut for tunnel B is situated east-west and is 6 meters x 2.2 meters wide. Materials from the cut walls have fallen into the tunnel entrance and partly blocked it with about one meter of dirt and rocks. In addition a portion of the tunnel has collapsed but the interior mine tunnel is still visible from the outside. Tunnel B had been sealed off at some point in time with a combination of a dry laid rock and lumber wall. Both rough cut and milled lumber were used in the wall construction. Rough cut 4 x 8 timbers and milled 2 x 8s and 2 x 6s can be seen in the collapsed area. The mine consists of 2 cuts, 2 tunnels, 1 drift and 3 inside shafts (winzes). All but the south entrance and tunnel (located on Otho No. 1 Lode) are located on Longmont Lode.

Tunnel A (feature 24) leads 119' to the north and Tunnel B (feature 28) leads 382' to the south. The three winzes are located along tunnel B along with a 51' drift to the north (Mineral Survey 2067 1916).

Tailings from feature 24 tunnel A start at 18.5 meters south of the tunnel entrance. The tailings extend approximately 13.5meters to the south of the entrance cut and 7meters down slope, east-west. The tailings measure 23meters long.

Tailings from feature 28 tunnel B start two meters east of the tunnel entrance. This tailings mound appears to contain the majority of the material removed from the mine. Tailings extend approximately 17meters to the east-southeast, downslope from the entrance cut and 20meters across, northeast-southwest. The mound extends horizontally 9 meters east-southeast and is 7 meters wide and approximately 7 meters above the drainage floor.

Feature 25 – This contributing prospecting exploratory cut is 5 meters by 2 meters by 2 meters deep heading west into the slope. This feature is partially filled by collapsing dirt walls and forest debris. Tailings for this cut are down slope to the east and measure 2 meters north-south by 4 meters east-west and .7meters tall.

Feature 26 – This contributing feature is a mineshaft 3 meters in diameter and 12 meters deep. It is partially filled by collapsing dirt walls and forest debris. Original shaft dimensions were 6' x 4' but collapsing walls have enlarged the opening. Tailings are southeast measuring 4 meters north-south, 5meters east-west and 2.75 meters high (Mineral Survey 2067 1916).

Feature 27 – Another contributing prospecting exploratory cut measures 5 meters by 2 meters and 2 meters deep, heading west into the slope. This feature is partially filled by collapsing dirt walls. Tailings for this cut are east, downslope and measure 3 meters north-south, 4 meters east-west and 0.5 meter high.

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Feature 28 – This contributing feature is a mine tunnel (refer to F-24 description). Feature 28, Tunnel B, is a cut tunnel that is located on a south facing slope near the terminus of an unnamed finger ridge. The tunnel cut is aligned at 298 degrees proceeding into the ridge.

This mine entrance overlooks Greyhound Gulch 50 meters to the east. The entrance cut for tunnel B is situated east-west and is 6 meters x 2.2 meters wide. Materials from the cut walls have fallen into the tunnel entrance and partly blocked it with about one meter of dirt and rocks. In addition a portion of the tunnel has collapsed but the interior mine tunnel is still visible from the outside. Tunnel B had been sealed off at some point in time with a combination of a dry laid rock and lumber wall. Both rough cut and milled lumber were used in the wall construction. Rough cut 4 x 8 timbers and milled 2 x 8s and 2 x 6s can be seen in the collapsed area. The mine consists of 2 cuts, 2 tunnels, 1 drift and 3 inside shafts (winzes). All but the south entrance and tunnel (located on Otho No. 1 Lode) are located on Longmont Lode.

Tailings from feature 28, tunnel B, start 2 meters east of the tunnel entrance. This tailings mound appears to contain the majority of the material removed from the mine. Tailings extend approximately 17 meters to the east-southeast, downslope from the entrance cut and 20 meters across, northeast-southwest. The mound extends horizontally 9 meters east-southeast and is 7 meters wide and approximately 7 meters above the drainage floor.

Feature 29 – This is a contributing shed foundation. It appears that the shed must have rested on a wooden or earth foundation because the depression it left is faint. The feature measures 13'2" on the south-southwest and north-northeast edge, the west-southwest and east-northeast edge 10'.

Feature 30 – This contributing mineshaft is 3.5 meters in diameter and is approximately 6 meters deep. It is partially filled by collapsing dirt walls and forest vegetation. The original shaft dimensions were 6' x 4' but collapsing walls have enlarged the opening. Tailings for the shaft are piled to the southeast. The tailings mound measures 4 meters north-south, 6 meters east-west and 2.5 meters high. A rough hewn timber is vertically protruding from the tailings on the southwest side of the shaft. This timber has a square nail embedded in it.

Feature 31 – This contributing prospecting exploratory cut is 8 meters long, 5 meters on the southwest end, 3 meters on the northeast end and 3 meters deep proceeding southwest into the slope. It is partially filled by collapsing dirt walls and forest debris such as branches and pine needle duff. Tailings are downslope to the north and thrown over the east edge of the cut. The tailings measure 6 meters north-south, 4 meters east-west and 1 meter high.

Feature 32 – Another contributing prospecting exploratory cut is 2 meters by 1.5 meters and .5 meter deep with its long axis oriented north-south. It is partially filled by collapsing dirt walls and woody material. Tailings are thrown over the east edge of the cut. The tailings measure 2 meters by 1 meter by .3 meters high.

Feature 33 –This contributing prospecting exploratory cut is 4 meters by 4 meters and 3 meters deep heading southeast into the slope. It is partially filled by collapsing dirt walls and forest debris. Tailings are downslope northwest of the cut. It measures 4 meters by 5 meters by 1 meter high.

Feature 34 – Feature 34 is another contributing prospecting exploratory cut measuring 2 meters by 1 meter by .5 meters deep, with its long axis oriented northeast-southwest. This feature is partially filled by collapsing dirt walls. Tailings are to the northwest of the cut and measure 3 meters by 2 meters by .3 meter tall.

Feature 35 – This feature is another contributing prospecting exploratory hole. It is 1 meter in diameter and .25 meters deep. It is partially filled by collapsing dirt walls and forest debris. Tailings are to the north-northeast.

Feature 36 – Feature 36 is a contributing prospecting exploratory cut that measures 4 meters by 2 meters and .7 meters deep, with its long axis oriented northeast-southwest. This feature is partially filled by collapsing walls and debris. Tailings are over the east edge of the cut. They measure 3 meters by 2 meters by .3 meters tall.

Feature 37 – Feature 37 is a contributing mine. It consists of two intersecting prospecting exploratory cut trenches and a collapsed tunnel. The first trench is 10 meters by 2.5 meters and 1.5 meters deep with its long axis oriented northeast-southwest. Tailings are to the east of the trench and measure 9 meters by 2.5 meters by .5 meter high. The second trench is 11 meters by 2.5 meters and 2 meters deep with its long axis oriented southeast-northwest. Its tailings are to the southeast down slope of the trench and form a mound 6 meters by 5 meters by 2 meters high. The collapsed tunnel is located at the northwest end of the second trench. Originally the tunnel was 15' deep by 6' by 4' (Mineral Survey 2067, 1916). This feature is partially filled by collapsing dirt walls and forest debris.

Feature 38 – This is a contributing prospecting exploratory hole that is 1.5 meters in diameter and .3 meters deep. It is partially filled by collapsing dirt walls and forest debris. A small pile of tailings is located east of the hole.

Feature 39 – Another contributing prospecting exploratory cut measures 3 meters by 1.5 meters and 1 meter deep. This feature is partially filled by collapsing dirt walls. Tailings are thrown over the edge of the cut.

Feature 40 – Feature 40 is a contributing prospecting cut that measures 3 meters in diameter and 1.2 meters deep. This feature is partially filled by collapsing dirt walls and forest debris such as branches and pine needle duff. Tailings are to the east of the hole and measure 4 meters by 3 meters by .3 meters tall.

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Feature 41 – This is a contributing prospecting exploration pit 1.5 meters in diameter by .5 meters deep. It is partially filled by collapsing dirt walls and forest debris. A small pile of tailings is south of the hole.

Feature 42 – This feature is also a contributing prospecting exploratory cut. It measures 7.5 meters by 2 meters and 2.5 meters deep with its long axis oriented southeast into the northwest-facing slope. This feature is partially filled by collapsing dirt walls and forest debris. Tailings are piled down slope to the northwest, and measure 8 meters by 5 meters by 2 meters high. It has a Ponderosa pine and birch trees growing in it, as well as chokecherry.

Feature 43 – This is a contributing prospecting exploratory hole that is 1.5 meters in diameter by .5 meters deep. This feature is partially filled by collapsing dirt walls and forest debris. A small pile of tailings is south of it.

Feature 44 – Feature 44 is another prospecting exploratory hole that is 3 meters in diameter by 1 meter deep. This feature is partially filled with collapsing dirt walls and forest debris. A small pile of tailings is south.

Feature 45 - This feature is a contributing ore bin associated with F-28. It is located 30 meters south-southeast of the mine tunnel. The ore bin measures 13'2" east to west. A north to south measurement was not possible because that section was indefinable. It was made of heavy rough cut timbers. The walls have collapsed and the north wall is buried under tailings.

A brief description of ore bins is taken from Wiard. He states

> Bins used for mills are constructed of wood or steel. For wooden bin structures only sound strait lumber should be used. Wooden bins should have a hoppered bottom placed at an angle of 45 degrees, and this is particularly desirable for the bins receiving ore from the mine. In flat-bottomed bins the closer the gates are together, the greater the uninterrupted run-out after the bin is filled (1915:61-62).

There is an artifact scatter around this ore bin. This is comprised of sheet metal pieces and some smaller milled lumber such as, 1 x 6s and 1 x 4s. The nails in these boards are the wire cut style.

Feature 46 – This is a contributing prospecting exploratory cut that measures 6 meters x 2 meters x 2 meters deep cuts northeast into the southwest-facing slope. This feature is partially filled by collapsing dirt walls and forest debris such as branches and pine needle duff. Tailings are piled down slope to the west in a 5 meters x 3 meters x 1.5 meters mound.

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Feature 47 – Feature 47 is a contributing prospecting exploratory cut that measures 2meters X 1meters X .25meters deep cuts into the west-southwest-facing slope. This feature is partially filled by collapsing dirt walls and forest debris such as branches and pine needle duff. A small pile of tailings is spread down slope to the southwest.

Feature 48 – This contributing prospecting exploratory cut measures 2 meters by 1 meters and .25 meter deep. It cuts into a west-southwest-facing slope. This feature is partially filled by collapsing dirt walls and forest debris. A small pile of tailings is spread down slope to the southwest.

Feature 49 –This contributing cairn is comprised of dry laid stones of local origin. It measures 1 meter in diameter and .5 meter high. The stones are small enough to be lifted by one person. Lichen growth on the stones is dense enough to indicate the cairn is an old feature. It probably the original northwest property or claim boundary.

Feature 50 – This contributing mine shaft is 3.5 meters in diameter and is approximately 6 meters deep. This feature is partially filled by collapsing dirt and rock walls, forest debris such as branches and pine needle duff and sediments that have washed down the drainage. Original shaft dimensions were 4½' x 4½' x 25' deep, but collapsing walls have enlarged the opening. Tailings for the shaft are piled to the southwest half encircling the shaft. The tailings mound extends 4 meters along the west and south walls and is 1.75 meters high.

Feature 51 – Feature 51 is a contributing historic dump comprised of various bits of garbage discarded between 1920 and 1950. This dump was discovered December 9, 2002 when septic system construction excavation uncovered it. Some of the artifacts noted were two old car batteries, food storage cans, glass bottles, china and stoneware. It is not known what percentage of the dump was destroyed by the construction, but there still are undisturbed portions of the dump remaining.

Feature 53 – This contributing mine feature includes a prospecting trench and partially collapsed tunnel. It is 12 meters long and up to 2.5 meters deep with its long axis running east-west. Walls on the west end have not sloughed and are only 1.3 meters wide. The eastern dirt walls have collapsed leaving the trench 3 meters wide in that area. Tailings are down slope to the east of the trench and measure 6 meters by 6 meters and 2 meters deep. The collapsed tunnel is located at the west end of the trench. It is not known how much of the tunnel collapsed but it can be seen to continue westward into the slope. Originally the tunnel was 30' deep x 7' x 4' (Mineral Survey 2067 1916). This feature is partially filled by collapsing walls and forest vegetation.

Feature 54 – This contributing prospecting exploratory hole is 2 meters in diameter and .5 meters deep. It is partially filled by collapsing dirt walls and forest debris. A small of pile tailings is southeast of it.

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Feature 55 – This is another contributing prospecting exploratory cut measuring 3 meters by 2 meters and .7 meters deep. It cuts into the west-southwest facing slope. The feature is partially filled by collapsing dirt walls and forest debris including branches and pine needle duff. Tailings are spread along the north edge of the trench in a 4 meters by 2 meters by .5 meters high mound.

Feature 56 – This contributing prospecting exploratory cut measures 3 meters by 2 meters and .7 meter deep. It is in the west-southwest facing slope. The feature is partially filled by collapsing dirt walls and forest materials. Tailings are spread downslope to the east in a 3 meters by 2 meters by .7 meter tall mound.

Feature 57 – Feature 57 is a contributing prospecting exploratory hole 1.5 meters in diameter and 1 meter deep. This feature is partially filled by collapsing dirt walls. Tailings go downslope north of the hole in a 2 meters by 1 meter by .3 meter high mound.

Feature 58 – Feature 58 is a contributing prospecting exploratory cut that measures 3 meters by 3 meters and 2 meters deep. It cuts into a north-facing slope. The feature is partially filled by collapsing dirt walls and forest vegetation. Tailings are spread downslope to the northwest in a 4 meters by 2 meters by .7 meters high mound.

Feature 59 - See Feature 22 Otho Tin Mill Mine for description.

Feature 60 – This linear feature is a contributing two-track road that leads up an unnamed intermittent drainage to the top of the ridge above Otho Tin Mill.

Feature 61 – Feature 61 is a contributing prospecting exploratory hole that is 1meter in diameter and 1meter deep. It is partially filled by collapsing dirt walls and forest debris. Tailings are down lope north of the hole in a 1 meter diameter and 1meters tall mound.

Feature 62 – This is a contributing mineshaft. The shaft opening is 2 meters in diameter and is approximately 1 meters deep. This feature has been intentionally filled in. What is left of the shaft is covered with forest debris, chokecherries and wild rose. Originally, the shaft dimensions were 4½' x 4½' x 25'. Tailings from the shaft may have been used to refill the hole as none are present in the immediate area.

Feature 63 – This contributing prospecting exploratory cut measures 3 meters by 1.5 meters and 1.5 meters deep. It cuts into the north-facing slope. This feature is partially filled by collapsing dirt walls and forest debris. Tailings are downslope to the north in a 3 meters by 2 meters and .3 meters high mound.

Feature 64 – Another contributing prospecting exploratory cut measures 4.5 meters by 2 meters and 2 meters deep. It cuts into the northeast facing slope. Wall collapse has widened the northeast end of the cut to 3 meters,

but the rest remains fairly intact. Tailings are down slope northeast in a 6 meters by 5 meters by 1.6 meters high mound.

Feature 65 – This contributing artifact scatter consists of rusted paint and food cans, shoe leather, a partially buried piece of galvanized sheet metal with nail holes in it; one rectangular1 gallon can with "PRESTONE" on the least rusted side and a section of oxidized sheet metal.
Feature 66 - This contributing water well was apparently constructed in a mine shaft that originally measured 5' by 5' by 45' (Mineral Survey 2067, 1916). The well has a poured concrete slab atop it that is old and crumbling. This slab is square and its sides are oriented north-northeast. The sides measure 6' by 6 ½" each and the slab is 6" above ground. The sub-surface depth of the slab is not known. Inside the well is a concrete lined cylinder approximately 1 meter diameter. Depth of the well is unknown.

There is a square, box-like feature atop the concrete slab made of 2 x 6 lumber and plywood. It measures 5' 11" per side and is 6" tall. An access door is located on the top in the northeast corner. The door is a 1' 11" square piece of plywood with two hinges attaching it. This box-like feature is a recent addition to feature 66.

Feature 67 – Feature 67 is a non-contributing partially buried piece of bent galvanized sheet metal with nail holes in it. The sheet metal measures 2' by 8'. Interviews with long time residents of the Otho area including Margaret Buntrock (01/12/03) and Dick Knecht (01/09/03) revealed that the mine buildings had metal roofs in the old days. This could be a section of the metal roof on the powder house shown on the Mineral Survey 2067 from 1916. The 1916 map shows it in the area of feature 67.

Feature 68 – This non-contributing feature is also a partially buried piece of bent galvanized sheet metal with nail holes in it. The exposed portion of sheet metal measures 1 1/2' by 2'. This could also be a section of the metal roof on the Powder House.

Feature 69 – This is a contributing artifact scatter consisting of broken rusted metal implements, cut bricks, concrete, a partially buried piece of bent galvanized sheet metal with nail holes in it, and pieces of flat window glass in a 5 meters by 5meter mound of recent logging slash. Informants did not recall a building in this area. These pieces of construction materials could be a components of the Storehouse listed on the 1916 map. Dimensions of the storehouse are listed as 40' x 56' (Mineral Survey 2067 1916).

Feature 70 – This contributing artifact scatter also consists of broken rusted metal implements, cut bricks, concrete, a partially buried piece of bent galvanized sheet metal with nail holes in it, and shards of flat window glass in a 4 meter diameter area. Pieces of mining equipment here include a sheet metal trough and rectangular conveyor buckets with metal wheels. Some of the conveyor buckets are connected. The longest row contained four.

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Informants Margaret Buntrock (01/12/03) and Dick Knecht (01/09/03) did not recall this building. These could be components of the Mine Shop listed on the 1916 map. Dimensions of the mine shop are listed as 11' by 26' (Mineral Survey 2067 1916).

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The Otho Mine is located in Greyhound Gulch in the Keystone vicinity, Pennington County, South Dakota. The Custer Expedition of 1874 confirmed the existence of gold in the Black Hills of South Dakota. This set off a subsequent rush of prospectors into the area, even though the land was part of the Great Sioux Reservation. The Sioux were eventually forced to cede the land and Pennington County was created in 1875.

The Otho Mine District is significant under Criteria A and C. It is significant under Criterion A for the role it played in the settlement of the Black Hills and western South Dakota. It is significant under Criterion C for the vernacular architecture of the buildings and structures associated with the mine.

The general character of the proposed Otho Mining District was a typical, small late 19th and early 20th century mining community. Otho itself was comprised of a mine mill and its associated buildings, as well as a row of buildings that were used to house and feed miners and their families, and manage the day to day activities of the mine. The estimated population of Otho in the early 20th century was 200, some of the miners worked at the Otho Tin Mill while others worked at nearby mines (Sundstrom personal communication 01/10/2003).

Very few records exist of Otho's early mines and miners. The information found through informants and research was mainly regarding the Otho Tin Mill built in 1914. Some of the best sources regarding Otho's development were Mrs. Linde's publications. Linde noted,

> As the tin boom faded, people stayed on at Glendale [a short distance down the draw from Otho], making a living the best they could until Keystone flourished in the early [18]90's. At this time Glendale declined to just a few families, until in 1914 when Otho was developed just above [west of in Greyhound Gulch] the Glendale property. Mr. Long, who had been able to raise numerous large sums of money in Chicago, had by 1914 completed a fine large mill and then had considerable buildings constructed around it. These buildings, many of which still stand, consisted of a boardinghouse, bunkhouse, warehouse, blacksmith shop and the boss's house (1988:64).

In addition to mining in the Otho area, there was a sawmill operation as well. There are a few photographs of the Linde Sawmill while it was at Otho. Mrs. Linde notes "In 1930 the R. E. Linde Sawmill was moved near the Otho Mine property and sawed timber in that area. There were mining buildings there, so the Ernest Linde family moved into the cook house and the men from the mill also stayed there, in ample quarters" (Linde 1984:29 and 1988).

Mrs. Buntrock recalled "The Linde's lived in the second house in Otho" [now referred to as the Bunkhouse] (personal communication January 10, 2003).

Otho was different than other small mining areas. The late 1800s tin boom is regarded by some as a ten year long hoax, concocted and continued for the sole purpose of mining hopeful investor's money. There are a few exceptions to this. The Black Hills mines near Tinton, South Dakota seem to have actually produced reasonable amounts of tin ore over a period of time and so did the Otho mines. While Otho was originally developed during the false tin boom in the late 1800s, it persisted, was operated, and was one of the few areas that actually did produce tin ore, after the tin hoax had ended.

Two men who were influential to the early development of mining in this area were Alexander "Alex" Madill and Byron Ferguson. The Tin Boom of 1883 lead to the discovery of the Otho lode by Byron Ferguson and William McGarrity on June 4, 1892. Alexander "Alex" Madill apparently was not involved directly with Otho but he established several mines bordering the claim.

In *The People of Pennington County, South Dakota* Alex Madill is said to have come...to the Black Hills in 1877, prospecting for the next year and a half; headquartering in Deadwood. He was one of the twelve men who staked out the Homestake Mine...With Byron Ferguson, he operated the Glendale property as a gold mine, and helped with the startup of the famed Etta Mine [at nearby Keystone].

Alex Madill was an influential figure in the town of Glendale. In 1877 Glendale was described as a lively mining camp. In Rushmore's Golden Valleys, Mrs. Linde notes "The Glendale Mine was first partly owned and operated as a gold mine by [Alexander] Alex Madill and Byron Ferguson, but at the time of the tin boom of 1883 the Glendale Mine was bought by the famed Harney Peak Tin Company and became known as the Glendale Tin Company in Greyhound Gulch" (1988:62). Alex Madill was also involved in other ventures. Mrs. Linde notes "The first sawmill in the area was operated by Alex Madill, which...supplied lumber for both the Glendale and Hayward Camps" (1988: 62).

Alex's son George lived in Otho. Long time Glendale resident Margaret Buntrock remembers "When we moved up there [to Glendale in Dec, 1928] George Madill took us kids down into one of the mine tunnels. He took us in there with his miners cap on". George's son Waldo Madill also lived in Otho. He worked on Mount Rushmore (Buntrock personal communication January 10, 2003).

Linde (1988) interviewed Arthur Johnson; resident of Otho, who said

> The Otho Lode was first discovered by Byron Ferguson and William McGarrity on June 4, 1892, with the discovery shaft situated only a thousand feet west of the Glendale Tin Mine. By 1898 these two men had increased their property by adding Otho Lodes 1, 2, 3, 4 and 5 and by doing considerable opening-up work. In 1898 McGarrity sold his half to

Mr. Ferguson, who had already made plans for selling this mining property to Frederick Long of Cook County, Illinois. This he did in 1899 (1988:64-65).

The origin of Otho's name, according to Custer Historian Jessie Sundstrom, is that "It is the first name of Otho Ferguson who lived and worked in the area. Otho mine was named after him". Otho Ferguson and his family cooked at the bunkhouse in Otho. The Fergusons' moved into the Otho area in 1884" (Sundstrom personal communication January 10, 2003).

While at Otho "Mr. and Mrs. Ernest Linde [also] ran the cookhouse for the mill in the old camp bunkhouse" (Linde 1988:67).

Land records pertaining to ownership and transfers of the mining district are as follows (from records in the Pennington County Courthouse, Rapid City, South Dakota (compiled by C. E. Feigel, n.d.):

- Byron H. Ferguson and William McGarrity's claim, by right of discovery, for Otho Lode was recorded July 8, 1892 at 10:35 A.M. in Book 18 Location Records, page 125. This record claims "Said Otho Lode was located on the 9th day of June A. D. 1892. Attested by Alex Madill". The location of Otho Lode was amended Mar. 5, 1894 Book 16 Location Records, page 116.

- Byron H. Ferguson and William McGarrity's claim by right of discovery for Otho Lode No. 1 was recorded July 8, 1892 at 10:35 A.M. Book 1" Location Records, page 126. This record claims "Said Otho Lode No. 1 was located on the 13th day of June A. D. 1894". The location of Otho Lode No. 1 was amended Mar. 5, 1894 Book 20 Location Records, page 481 and Feb. 21, 1896 Book 24 Location Records page 219. Attested by Alex Madill.

- Byron Ferguson and William McGarrity's claim by right of discovery for Otho Lode No. 2 was recorded Feb. 21, 1896 at 10 A.M. Book 24 Location Records, page 220. This record indicates Otho Lode No. 2 was located on the 1st day of Jan. A. D. 1896 as attested by Alex Madill.

- The Dietrichs [current owners of the Otho Lodes] also own the Longmont and Longmont No.1 Lodes, which are included in the Otho district. Most of the Otho mining town actually lies within the boundaries of the Longmont Lode.

- F. H. Long claimed, by right of discovery and location of Longmont Lode was recorded Jan. 12, 1900 at 10 A.M. Book 32 Location Records, page 83. This record states Longmont Lode was located on the 2nd day of Dec. A. D. 1899. Attested by George Madill and W. A. Haynes.

- Long claimed by right of discovery and location of Longmont Lode No. 1 was recorded Jan. 12, 1900 at 10 A.M. Book 32 Location Records, page 84. This record said Longmont No. 1 Lode was located on the 2nd day of Jan. A. D. 1900. Attested by George Madill and W. A. Haynes.

- On May 27th, 1899 W. McGarity sold his stock in Otho to his partner B. H. Ferguson, listed in Book J Mining Deeds, page 154.

- On May 29th, 1899 B. H. Ferguson sold his stock in Otho to Frederick H. Long, of Cook County, Illinois. Listed in Book J Mining Deeds, page 515.

- F. A. Long owned the Otho property until May 8th, 1915. Up to that point he had quite a number of co-investors.

- A. F. Dexter, of Cook County Illinois, one half interest in Otho properties. Recorded 07/15 1901 in Book L Mining Deeds, page 414.

- James T. Whitting, of Henry County Iowa, one-quarter interest in Otho properties. Recorded on 11/08/1902 in Book L Deeds Records, page 469.

- The Leviathan Gold Mining Company, entire interest in Otho properties. Recorded on 12/16/1902 in Book "L" Deeds Records, page 469.

- The Otho Gold Mining & Milling Company, F. H. Long, Secy., entire interest in Otho properties. Recorded on 02/24/1903 in Book L Deeds Records, page 469.

- Otho Development and Power Company, of the County of Pennington and State of South Dakota: entire interest in Otho properties. Recorded on 08/30/1909 in Book O Mining Deeds, page 125.

- Lucius Teter, Pres., Leverett Thompson, Sec., Chicago Savings Bank and Trust. Recorded on 10/11/09 in Book 31 Mortgage Records, pg. 145.

- -Otho Development and Power Company, a cooperation, of Keystone, of the County of Pennington and State of South Dakota: entire interest in Otho properties. Recorded 04/06/1915 in Book "N" Mining Deeds, page 477.

- The last sale marked the end of Frederick H. Long's involvement with the Otho properties. Later owners are listed as follows;
- -A. M. Lamphere of Rapid City, SD. Recorded 02/26/41 in Book "P" Mining Deeds, pg. 232.
- -Carl A. Ericsson and his wife Clara E. Ericsson of 4129 Cedar Ave., Minneapolis, MN. Recorded 05/1/42 in Book "P" Mining Deeds, pg. 238.
- -Gertrude F. Johnson and J. A. Johnson of New York, NY. Recorded 07/21/42 in Book 65 Deeds, pg. 220 or 226.
- -Gertrude F. Johnson of Keystone, SD. Recorded 10/04/62 in Book 137 Deeds, pg. 736.
- -Vivian Lorraine Taylor of Hennepin Co., MN. Recorded 10/04/62 in Book 137 Deeds, pg. 737.
- -John Arthur Johnson of Keystone, SD. Recorded 12/19/79 in Book 13 Deeds, pg. 737.

In Otho, the development of the district is synonymous with the development of the community. The community had a symbiotic relationship with the mill and mines. When the mines thrived Otho did as well. It was a typical boom and bust type of relationship between a small town and its only industry (Linde 1988:66).

The intact nature of the site is one of its greatest qualities. While the mill and some of the other structures are gone, what is left is a more complete picture of an old mining town and associated mining operations than exists as a single property in the Black Hills. Another outstanding quality of this property is that it has not been developed. The landscape in that area of Greyhound Gulch is still very much the same today as it was during the early part of the 20th century.

The Otho Mining District was a small rural mining community. Otho's open and undeveloped space offers an unspoiled glimpse at how and where the prospectors tested an area for minerals and how the later full scale mining developed. The landscape that surrounds it is pocked with prospectors test holes, cuts and trenches, mine tunnels and shafts, and milling foundations. This area provides a rare opportunity to see how these features tie together to generate a cohesive picture of turn of the century mining practices.

During research no official mine records were found stating exactly what was mined in the Otho mines. Some information has been gained by interviewing people who have lived in or near Otho. When asked about what was mined at Otho, Margaret Buntrock remembered they used to call the mine "The Tin Mill, that is what they called it, the Otho mine" (personal communication January 11, 2003); Betty Coatces said,

"Tin, I'm sure it was tin" (personal communication January 11, 2003); and Jessie Sundstrum stated, "They mined beryl, tin, and feldspar. Feldspar was what kept them going the longest" (personal communication January 11, 2003).

There is some confusion about what was mined in Otho. The day after the interviews, Mrs. Buntrock called and said, "I talked to my brother and he said he was sure they mined gold and silver at the Otho Mill" (personal communication January 12, 2003).

The milling processes at Otho are well represented by the remains of the machinery labeled, "THE EDW. P. ALLIS Co. MILWAUKEE, WIS., 974 M, 10 X 7". With this information this milling implement was identified as a Reliance Roll (Wiard 1915:61-62). The other identifiable piece of mining equipment was the Chilian Mill, mounted on a concrete foundation. These two different types of mills were commonly used to extract many different metals and minerals at mines throughout the Black Hills (Clow 2002: 67-68; Truscott 1923: 87-91; Wiard 1915: 335-340). Also, both of these mill types were used to dress ores; that is, to grind and prepare them for further refining.

In Chasing the Glitter, Clow (2002) described this type of mill as,

> Popular in the smaller mills Black Hills mining operations, was the Chilean roller mill. A horizontal drive gear at the top of the mill transmitted power to a vertical central shaft. Fastened to one end of the shaft was a horizontal axle affixed with two grinding wheels, each measuring four feet in diameter and eight inches in width and weighing nearly a ton. The center shaft turned at a speed of forty revolutions per minute, rotating the grinding wheels over the ore atop a bed of specially hardened iron. A piece of sheet metal enclosed the entire to prevent water and ore from splashing out as the wheels revolved. The pulp was discharged onto screens that revolved around the periphery of the roller mill.
>
> Introduced by the Golden West Mining Company in 1902, the Chilean mill provided small cyanide plants with an inexpensive, fine-crush machine. The Golden West installed its ten-ton Chilean mill at its Rochford plant for about nine hundred dollars, a sum that included a water flume and a water wheel, as well (Clow 2002: 67-68).

This type of mill was also discussed by Wiard, who spelling "Chilian" mill states,

> For fine crushing hard ores, the Chilian mill is most excellent. It is a large capacity, occupies little floor space in proportion to the rate at which it will crush, and is quite free

from vibration. On very hard ores the capacity from ¾" to 40 mesh would not exceed 40 to 50 tons per 24 hours, and on medium hard ores, 75 tons per 24 hours, with proportionate increases in capacity as the discharge mesh becomes coarser. Chilian mills revolve about 25 to 35 times per minute and requires from 25 to 75 h. p. The weight of a Chilian mill is from 25 to 30 tons. The consumption of wearing metal can be taken as 0.5 lb. per ton of ore crushed (Wiard 1915: 335,339-340).

Another author, Truscott, offered a fine description of the Chilian Mill,

> In the typical Edge-Runner or Chilian mill, there are...two circular surfaces, one the cylindrical surface of the vertical roller and the other an annular die upon which that roller runs. With these machines, crushing takes place in this wise: the roller, in its run, rises upon material lying upon the die, crushing that material if its weight is sufficient. But that is not all. The surface of the roller being cylindrical, normal rolling would take it straight forward, whither, however, it cannot go, being constrained to take a circular path. The roller is in fact being continually pulled out of its straightforward path, with the result that in addition to crushing by pressure there is grinding by shearing (1923:87).
>
> Slow speed Chilian mills are generally of a large diameter but of relatively narrow roller-face, two factors minimizing grinding. On the other hand, the rollers are generally of sufficient weight to crush the ordinary product from a breaker; meeting such material in its path the roller mounts and falls again, a procedure, which if rapidly repeated would give rise to serious vibration. These rollers consequently can only proceed at a slow speed of 8-16 r.p.m. around the circle (1923:88-89).
>
> The weight of the roller is generally 5000-10,000 lbs., the diameter 6' or so, and the face about 9-15". There are, as a rule, two rollers, one at either end of the same diameter, though in special designs the number is increased to three or more. These rollers generally consist of a cast-iron core surrounded by a tire of suitable steel, this tire being sometimes as much as 9' deep and making one-third to one-half of the total weight when new, but wearing down to 1 ½" and less before being discarded (1923:88-89).
>
> The annular die lies flat in a pan casting into which it is secured by wedges. Being about 3' thick and somewhat wider than the runner, it is heavy, and for convenience, made into sections. Upon this casting is reared the housing in which the screens are set, these generally leaning outwards (1923:89-90).

> These mills crush in water. The ore, broken to about 1 ½", is fed at a point on the periphery, whereat water also is entered. By the continual passage of the rollers, the ore becomes disturbed, the water helping. The amount of water used depends largely upon the extent of the screen area; if limited to an opening at the front, the proportion of water may be as little as 2 tons per ton of ore (1923:91).

With regard to their product, these mills have their greatest application in crushing gold and silver ores to a fineness suitable for amalgamation or cyanidation, and it is usual for them to effect a complete reduction from about 1 ½" to the necessary fineness, a screen of about 30 mesh being common (1923:91).

The common social background of Otho was that, in some way, everybody was tied to the mine either as management, innkeeper, cook, engineer, miner, or family-member of these people. That is, of course, when the mines and mill were booming. When the mill closed during a bust period, some miners left at Otho and sought employment where they could find it. However, a core of families stayed on longer and survived the best they could. Families related to the first settlers in the area, such as the Madills, Lindes and Fergusons have lived in the Otho area for nearly one hundred years. Many of the descendants of these families still live and work in the Keystone area today (Linde 1988:64-68).

NATIONAL REGISTER CRITERIA AS APPLIED TO THE OTHO MINING DISTRICT

Criterion A

The Otho Mining District represents a period of time when mining in the Black Hills was drawing people into the area from all over the United States. It was the mining of various rich mineral deposits in the area that attracted both national and international speculators to invested millions of dollars into the economy of the Keystone area communities including Otho. Until 1882 the United States imported all the tin it used. Some of the mines in the Keystone area, including Otho, were the first mines in the nation to produce tin ores. Otho contributed to reducing the nation's dependence on imported tin. The reduction of imports allowed the United States to become a more self sufficient nation.

Mining in the area facilitated the development of both the local and regional infrastructures that were imperative to the transportation of valuable ore and minerals being recovered and processed. Transportation corridors have evolved from the early horse and wagon trails into what are now our highways and county roads winding throughout the area. Mining also fostered the development of rail transportation throughout the region to support the rapidly burgeoning socio-economic needs of the growing population. Small mining towns like

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Otho and its neighboring community, Glendale, created the need for a system of roads in the area. The first road in the Otho area was a toll road that first operated in 1877 (Linde 1988:62).

The development of mining towns on the interior of the Black Hills also contributed to the settlement of western South Dakota. Towns on the edge of the Black Hills, such as Spearfish, Belle Fourche, Edgemont, and Rapid City, soon became viable supply centers. The combination of businessmen and ex-miners created permanent settlements that supplied the miners on the interior of the Black Hills as well as the cattleman on the open plains to the east.

Many of the Black Hills mines such as Otho had self sufficient communities that developed as an integral component of the mine operations. These mining communities would often have a boarding house or hotel to house the miners and a company or locally owned general store, a number of homes for miners with families, sheds, barns, outhouses and various other mine oriented buildings. The Otho Mining District is an excellent example of one of the early mining communities that helped to develop the Black Hills area.

Criterion C

Otho is one of the few Black Hills mining communities still standing, possibly the only one of its kind that still has as many of its original associated buildings in such good condition. The intact nature of the site, including the relationship of the standing structures to the archeological components, is one of Otho's greatest assets. While the mill and some structures are gone, what is left is a more complete picture of a mining town than exists in many other places in the Black Hills. Another outstanding quality of Otho is that it has not been developed and the landscape of Greyhound Gulch is still very much the same today as it was during the early part of the 20th century.

The proposed Otho Mining District coveys a sense of architectural cohesiveness through its materials, workmanship, design and association. With the exception of the Bungalow, all of the remaining Otho buildings were constructed using vertically aligned 1 x 12" unpainted lumber with 1 x 2½" runners covering the seams. According to longtime area resident Dick Knecht, "The mill was a two and a half story building made of vertically aligned rough-cut 1 x 12 boards." (personal communication January 9, 2003). This stands to reason since all but one of the existing Otho buildings were constructed circa 1914 (Linde 1988). It seems likely that the same person(s) built all the 1914 structures.

The associated buildings convey the feeling of an early 20th century mining community. The vertically aligned, weather beaten finish of the wood along with the basic gabled, balloon framed buildings promotes

a definitive sense of the expedient rustic architecture prevalent in period mining communities of the Black Hills.

The first miners in the area built simple log structures out of the materials available. Most of the early mining consisted of small placer or pan mining operations in the streams or limited exploratory cuts. Once a lode was firmly established, the necessary structures and buildings were constructed to exploit the minerals. By 1876, there were four sawmills in operation in the northern Black Hills. The readily availability of timber encouraged the milling of lumber and therefore perpetuated the use of milled lumber in the early mining structures.

The materials used for the majority of mining structures were the same and reflected the available materials. The arrival of the railroad on the periphery of the Black Hills increased the variety of building materials, but the type and style of structure was influenced more by function and the personal influences of the builders. Miner's construction styles were influenced by everything from ethnic traditions to other mining structures they may have seen in the earlier rushes in places such as California or Colorado.

MAJOR BIBLIOGRAPHICAL REFERENCES

Clow, Richmond L.
2002 Chasing the Glitter: Black Hills Milling 1874-1959. South Dakota State Historical Society Press, Pierre.

Feigel C. E.
n.d. Abstract of Title to Longmont, Longmont No.1, Otho, Otho No. 1, and Otho No. 2 Lodes. Gantz-Feigel Abstract Company aka Pennington County Abstract Company, Rapid City.

Linde, Martha
1984 Sawmills of the Black Hills. Premelia Publishing, Keystone.

1988 Rushmore's Golden Valleys. Premelia Publishing, Keystone.

McAlester, Virginia, and Lee McAlester
1984 A Field Guide to American Houses. Alfred A. Knopf, Inc., New York.

Moor, C. G.
1928 Tin Mining. Sir Isaac Piyman & Sons, Ltd., New York.

Noble, Bruce J. Jr. and Robert Spude
1992 Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties, National Register Bulletin No. 42. U. S. Department of the Interior, National Park Service, Interagency Resources Division, National Register of Historic Places.

The People of Pennington County
1986 A History of Pennington County, South Dakota. Presented by the Pennington County Historical Book Committee. Taylor Publishing Co., Dallas.

Truscott, S. J.
1923 A Text-Book of Ore Dressing. McMillan and Co., London.

Wiard, Edward
1915 The Theory and Practice of Ore Dressing. McGraw-Hill Book Company, New York.

Wolf, Phyllis A. and Paul Miller
1993 Cultural Resource Report on the Hazardous Waste Reclamation Project and Archaeological Investigations at the Spokane Mine, Mill, and Townsite Custer County, South Dakota. Frontier Cultural Services, Custer.

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Verbal Boundary Justification
Includes Otho, Otho #1, Longmont, and Longmont #1 mining claims.

Otho Mining District Boundary Justification

The boundaries of the Otho Mining District, as indicated on maps included in this nomination, are derived from the historic mining claim boundaries. They match. It encompasses not only the buildings associated with the mining industry, but also structures and features, such as exploratory prospecting cuts, mines, mineshafts and tailings mounds. Such features normally surround the living, extraction and processing facilities. Included within these boundaries are several stone cairns, indicative of the original mine boundaries. Boundaries of the proposed District are justified by the Mineral Entry Survey plats of the property, by natural geographical features which have not changed over time, and by the intact historical integrity of the Otho mining community, which accurately reveals the nature of mining techniques and lifeways of this period of time for this region

UTM REFERENCES

A. Buildings

There are six extant, intact buildings within the Ortho Mining District, five of which are designated contributing. They are located in the SE ¼ of the NE ¼ of Section 15, Township 2S, Range 6E on the USGS Mt. Rushmore Quadrangle Map.

All buildings are located on a terrace overlooking the Greyhound Gulch drainage. Vegetation in the drainage bottom is primarily various forbs grass with a few Ponderosa pine, oak, scrub oak and chokecherry. Livestock, deer and elk periodically graze the drainage. Slopes above the terrace and across Greyhound Gulch from it are conifer forest with Ponderosa pine, aspen and birch.

Otho Bunkhouse c. 1914. Contributing UTM Zone 13 629890E 4859015N
Otho Outhouse c. 1914 Contributing UTM Zone 13, 629872E, 4859089N
Otho House c.1914 Contributing UTM Zone 13, 629869E, 4859058N
Otho Shed c. 1914 Contributing UTM Zone 13, 629898E, 4859023N
Otho Hotel c. 1914 Contributing UTM Zone 13, 629894E, 4859007
Otho Mining Supervisor's Residence c. 1900 Non-contributing UTM Zone 13, 629853E, 4859089 N

B. Features

Feature 1 – 1a - Two-track road. UTM Zone 13, 629933E, 4859109N.
1b – Old roadbed UTM 629945E, 4859145N.
1c – Old roadbed UTM 629975E, 4859164N.
1d – Proximal end of road cut. This feature is in drainage near the top of a ridge, located on Longmont No. 2 Lode (Mineral Survey 2067 1916). UTM Zone 13, 630000E, 4859177N.

Feature 2 – Prospecting exploratory pit, Otho No. 2 Lode (Mineral Survey 2067 1916).
UTM Zone 13, 630058E, 4859181N.

Feature 3 – Prospecting exploratory pit on Otho No. 2 Lode (Mineral Survey 2067 1916).
UTM Zone 13, 630054E, 4859275N.

Feature 4 – Stone cairn. on Otho No. 2 Lode (Mineral Survey 2067 1916).
UTM Zone 13, 629959E, 4859388N.

Feature 5 – Prospecting exploratory pit on Otho No. 2 Lode (Mineral Survey 20671916).
UTM Zone 13, 639979E, 4859350N.

Feature 6 – Prospecting exploratory pit on Otho No. 2 Lode (Mineral Survey 2067 1916).
UTM Zone 13, 630025E, 4859285N.

Feature 7 – Cairn on Longmont Lode (Mineral Survey 20671916)
UTM Zone 13, 629694E, 4859357N.

Feature 8 – Cairn on Longmont Lode (Mineral Survey 2067 1916).
UTM Zone 13, 629678E, 4859420N.

Feature 9 – Cairn on Longmont Lode (Mineral Survey 2067 1916).
UTM Zone 13, 629779E, 4859267N.

Feature 10 – Two-track road between Longmont and Otho No. 2 Lodes (Mineral Survey 2067 1916).
UTMs Zone 13, 629958E, 4859240N to 629882E, 4859222N.

Feature 11a – Two track road Otho No. 2 Lode (Mineral Survey 2067 1916).
UTM Zone 13, points along the two-track road's course:

11b - 630065E, 4859156N end
11c - 630045E, 4859067N-
11d - 630024E, 4859040N-
11e - 629985E, 4859019N-
11f - 630022E, 4859006N-
11g - 630024E, 4858978N-
11h - 630044E, 4858959N-
11i - 630060E, 4858953N end

Feature 12 – Prospecting exploratory cut on Otho No. 2 Lode (Mineral Survey 20671916).
UTM Zone 13, 630033E, 4859069N.

Feature 13 – Prospecting cut on Otho No. 2 Lode (Mineral Survey 2067 1916).
UTM Zone 13, 630037E, 4858969N.

Feature 14 – House foundation noted on the 1916 Plat map (Mineral Survey 2067).
GPS readings were taken from the SW corner, UTM Zone 13, 629877E, 4859047N.

Feature 15 – Concrete on Otho No. 2 Lode (Mineral Survey 2067 1916).
GPS readings were taken from the SW end of the foundation, UTM Zone 13, 629898E, 4859034N.

Feature 16 – Privy depression on Longmont No. 2 Lode (Mineral Survey 2067 1916).
GPS readings were taken from the SW end of the foundation, UTM Zone 13, 629905E, 4859027N.

Feature 17 – Privy depression on Longmont No. 2 Lode (Mineral Survey 2067 1916).
GPS readings were taken from the SW end of the foundation, UTM Zone 13, 629905E, 4859031.

Feature 18 – Dugout doorway on Otho No. 2 Lode (Mineral Survey 2067 1916).
GPS readings were taken from the SW end of the foundation, UTM Zone 13, 629913E, 4858894N.

Feature 19 – Structure foundation on Otho No. 2 Lode (Mineral Survey 2067 1916).
GPS readings were taken from the SW end of the foundation, UTM Zone 13, 629883E, 4858984N.

Feature 20 – Prospecting exploratory cut on the Otho Load (Mineral Survey 2067 1916).

UTM Zone 13, 629920E, 4858961N.

Feature 21 – Mine on the Otho Load No. 2 (Mineral Survey 2067 1916).
The UTMs on the tailings mound are 630021E, 4858965N (south end) 630013E, 4858002N (north end).

Features 22 - Otho Tin Mill Foundations on the Otho Load and Otho Lode No. 1 (Mineral Survey 2067 1916).
GPS readings were collected from the east point, UTM Zone 13, 629931E, 4858779N and the west end UTM Zone 13, 629946E, 4858808N.

Feature 23 - Two pieces of mining equipment on the Otho Lode No. 1 (Mineral Survey 2067 1916).
UTM Zone 13, 629870E, 4858892N (one piece 1m. south and the other 1m. north).

Feature 24 - Tunnel A Mine on the Otho Lode No. 1 (Mineral Survey 2067 1916).
UTMs are Zone13, 629789E, 4858917N. Tunnel B is located

Feature 25 – Prospecting exploratory cut on the Otho Load.
UTM Zone 13, 629808E, 4858956N.

Feature 26 – Mineshaft on the Longmont No. 1 Load.
UTM Zone 13, 629680E, 4859064N.

Feature 27 – Prospecting exploratory cut on the Otho No. 1 Load (Mineral Survey 2067 1916).
UTM Zone 13, 629794E, 4858935N.

Feature 28 – Mine Tunnel B on the Longmont Lode (Mineral Survey 2067 1916).
UTMs are Zone13, 629827E, 4858945N.

Feature 29 – Shed on Otho No. 2 Lode (Mineral Survey 2067 1916).
GPS readings were taken from the SW end of the foundation, UTM Zone 13, 629928E, 4859031N.

Feature 30 – Mineshaft on the Otho No. 1 Load. UTM Zone 13, 629892E, 4858723N.

Feature 31 – Prospecting exploratory cut on the Otho Load. UTM Zone 13, 629908E, 4858724N.

Feature 32 –Prospecting exploratory cut on the Otho Load (Mineral Survey 2067 1916).
UTM Zone 13, 629892E, 4858745N.

Feature 33 – Prospecting exploratory cut on the Otho No. 1 Load (Mineral Survey 2067 1916). UTM Zone 13, 629861E, 4858765N.

Feature 34 – Prospecting exploratory cut on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629927E, 4858701N.

Feature 35 – Prospecting exploratory on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629965E, 4858721N.

Feature 36 – Prospecting exploratory cut on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629960E, 4858732N.

Feature 37 – Mine on the Otho Load (Mineral Survey 2067, 1916). UTM Zone 13, 629958E, 4858663N.

Feature 38 – Prospecting exploratory hole on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629959E, 4858617N.

Feature 39 – Prospecting exploratory cut on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629975E, 4858602N.

Feature 40 – Prospecting exploratory hole on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629895E, 4858570N.

Feature 41 – Prospecting exploratory hole on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629787E, 4858555N.

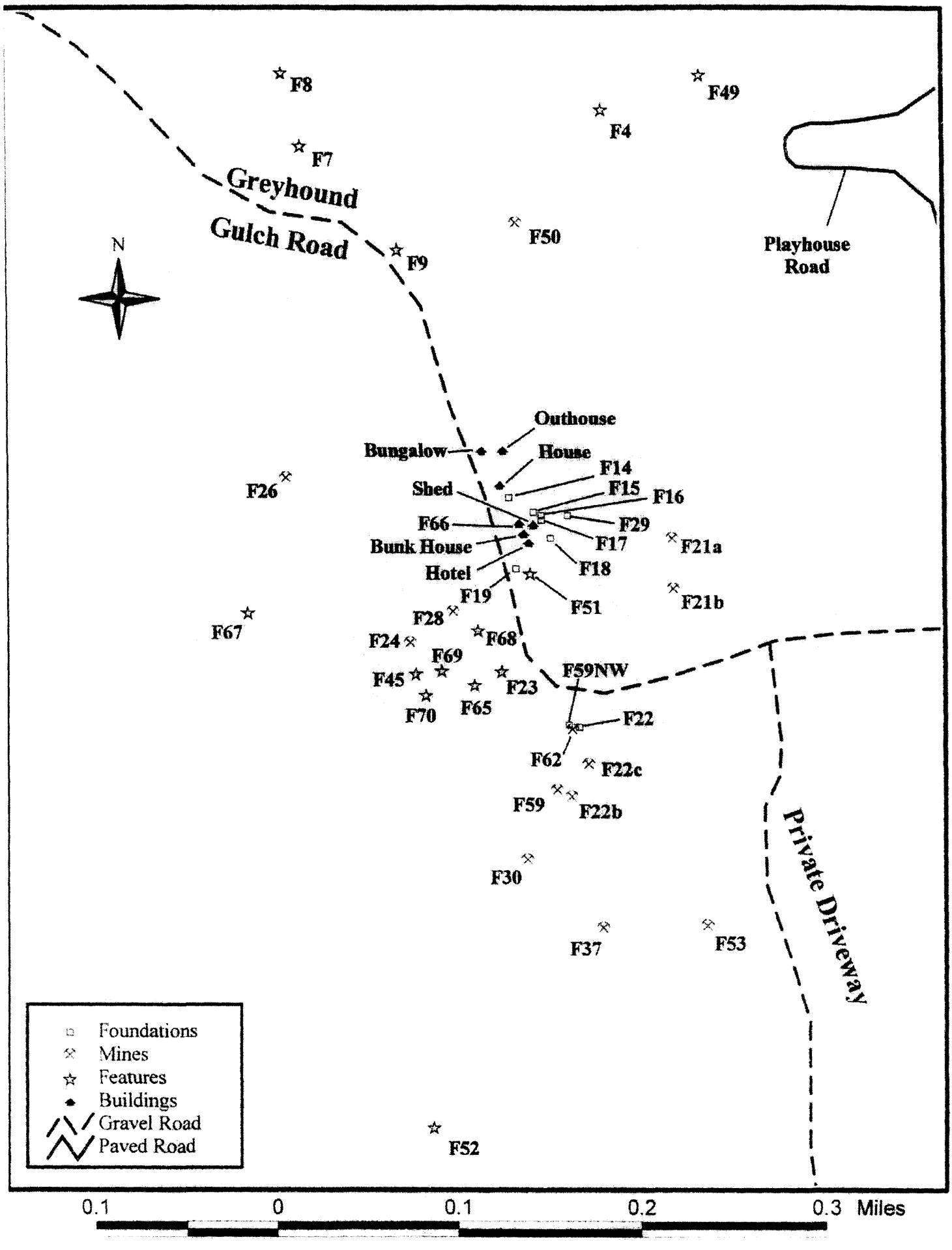
Feature 42 – Prospecting exploratory pit on the Otho No.1 Load (Mineral Survey 2067 1916). UTM Zone 13, 629801E, 4858804N.

Feature 43 – Prospecting exploratory hole on the Otho Load (Mineral Survey 2067 1916). UTM Zone 13, 629740E, 4858993N.

Feature 44 – Prospecting exploratory hole on the Longmont No. 1 Load (Mineral Survey 2067 1916). UTM Zone 13, 629625E, 4858964N.

Feature 45 – Ore bin on the Otho No. 1 Load (Mineral Survey 2067 1916).

Sec. 10: Structures and Features



Sec. 10: Mines and Prospecting Exploratory Cuts