

56-910



# 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 National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. 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 certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).

## 1. Name of Property

Historic name Headquarters, Rolla Division of the Bureau of Mines

Other names/site number Bureau of Mines Building No. 1

Name of related Multiple Property Listing N/A

## 2. Location

Street & number 1300 Bishop Avenue n/a not for publication

City or town Rolla n/a vicinity

State Missouri Code MO County Phelps Code 161 Zip code 65401

## 3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,  
I hereby certify that this x nomination      request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property x meets      does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

     national      statewide   x   local

Applicable National Register Criteria:   x   A      B      C      D

*Toni M. Prawl*

MAR 02 2017

Signature of certifying official/Title Toni Prawl, Ph.D. Deputy SHPO

Date

Missouri Department of Natural Resources  
State or Federal agency/bureau or Tribal Government

In my opinion, the property      meets      does not meet the National Register criteria.

Signature of commenting official \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_ State or Federal agency/bureau or Tribal Government \_\_\_\_\_

## 4. National Park Service Certification

I hereby certify that this property is:

entered in the National Register      determined eligible for the National Register

     determined not eligible for the National Register      removed from the National Register

     other (explain) \_\_\_\_\_

*Mr. Edson H. Beall*

4.24.17

Signature of the Keeper

Date of Action

Headquarters, Rolla Division of the Bureau of  
Mines

Phelps County, MO

Name of Property

County and State

**5. Classification**

**Ownership of Property**  
(Check as many boxes as apply.)

**Category of Property**  
(Check only **one** box.)

**Number of Resources within Property**  
(Do not include previously listed resources in the count.)

<input type="checkbox"/>	private
<input type="checkbox"/>	public - Local
<input checked="" type="checkbox"/>	public - State
<input type="checkbox"/>	public - Federal

<input checked="" type="checkbox"/>	building(s)
<input type="checkbox"/>	district
<input type="checkbox"/>	site
<input type="checkbox"/>	structure
<input type="checkbox"/>	object

Contributing	Noncontributing	
1	0	buildings
0	0	sites
0	0	structures
0	0	objects
1	0	<b>Total</b>

**Number of contributing resources previously listed in the National Register**

0

**6. Function or Use**

**Historic Functions**

(Enter categories from instructions.)

GOVERNMENT: government office

EDUCATION: research facility

**Current Functions**

(Enter categories from instructions.)

EDUCATION: college

**7. Description**

**Architectural Classification**

(Enter categories from instructions.)

OTHER: Georgian Revival

**Materials**

(Enter categories from instructions.)

foundation: concrete

walls: brick

roof: asphalt

other: stone

wood

**NARRATIVE DESCRIPTION ON CONTINUATION PAGES**

Headquarters, Rolla Division of the Bureau of  
Mines

Phelps County, MO

Name of Property

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**8. Statement of Significance**

- 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.
- 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.)

Property is:

- A Owned by a religious institution or used for religious purposes.
- B removed from its original location.
- C a birthplace or grave.
- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years old or achieving significance within the past 50 years.

STATEMENT OF SIGNIFICANCE ON CONTINUATION PAGES

**9. Major Bibliographical References**

**Bibliography** (Cite the books, articles, and other sources used in preparing this form.)

**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 # \_\_\_\_\_
- recorded by Historic American Landscape Survey # \_\_\_\_\_

**Primary location of additional data:**

- State Historic Preservation Office
  - Other State agency
  - Federal agency
  - Local government
  - University
  - Other
- Name of repository: State Historical Society of Missouri, Rolla

Historic Resources Survey Number (if assigned): \_\_\_\_\_

**Areas of Significance**

Science

Industry

**Period of Significance**

1946 - 1967

**Significant Dates**

1948

1950

**Significant Person**

(Complete only if Criterion B is marked above.)

n/a

**Cultural Affiliation**

n/a

**Architect/Builder**

Architect: Hopkins, Henry P.

Headquarters, Rolla Division of the Bureau of  
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### 10. Geographical Data

**Acreeage of Property** Less than one acre

#### Latitude/Longitude Coordinates

Datum if other than WGS84: \_\_\_\_\_

(enter coordinates to 6 decimal places)

1	<u>37.954211°</u>	<u>-91.776545°</u>	3	_____	_____
	Latitude:	Longitude:		Latitude:	Longitude:

2	_____	_____	4	_____	_____
	Latitude:	Longitude:		Latitude:	Longitude:

#### UTM References

(Place additional UTM references on a continuation sheet.)

\_\_\_\_\_ NAD 1927 or \_\_\_\_\_ NAD 1983

1	_____	_____	_____
	Zone	Easting	Northing

3	_____	_____	_____
	Zone	Easting	Northing

2	_____	_____	_____
	Zone	Easting	Northing

4	_____	_____	_____
	Zone	Easting	Northing

**Verbal Boundary Description** (On continuation sheet)

**Boundary Justification** (On continuation sheet)

### 11. Form Prepared By

name/title Debbie Sheals and Andrea Herries

organization Historic Preservation Consulting

date December 12, 2016

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city or town Columbia

state MO

zip code 65201

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### Additional Documentation

Submit the following items with the completed form:

- **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. Key all photographs to this map.
- **Continuation Sheets**
- **Photographs**
- **Owner Name and Contact Information**
- **Additional items:** (Check with the SHPO or FPO for any additional items.)

**Paperwork Reduction Act Statement:** This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

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**Estimated Burden Statement:** Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

## Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

## Photo Log:

Name of Property: Headquarters, Rolla Division of the Bureau of Mines

City or Vicinity: Rolla

County: Phelps State: Missouri

Photographer: Samuel O'Keefe (photos 4, 5, and 8) and Debbie Sheals

Date Photographed: February 2016 (SO) August 2016 (DS)

Description of Photograph(s) and number, include description of view indicating direction of camera:

- 1 of 18: Façade (west wall). Camera looking east.
- 2 of 18: Southwest corner. Camera looking northeast.
- 3 of 18: Southwest corner and street scape. Camera looking northeast.
- 4 of 18: South wall. Camera looking north.
- 5 of 18: Southeast corner. Camera looking northwest.
- 6 of 18: Back (east wall). Camera looking west.
- 7 of 18: North side entrance. Camera looking southeast.
- 8 of 18: Northwest corner. Camera looking southeast.
- 9 of 18: Front entranceway. Camera looking southeast.
- 10 of 18: First floor entrance hall. Camera looking west.
- 11 of 18: First floor hall. Camera looking north.
- 12 of 18: Basement entrance hall. Camera looking east.
- 13 of 18: Second floor hall. Camera looking north.
- 14 of 18: Laboratory, second floor. Camera looking east.
- 15 of 18: South stairway. Camera looking east.
- 16 of 18: Laboratory, third floor. Camera looking west.
- 17 of 18: Stairway, fourth floor. Camera looking west.
- 18 of 18: Office, fourth floor. Camera looking west.

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**Figure Log:**

Include figures on continuation pages at the end of the nomination.

1. Aerial photo map from Google Earth, with Coordinates.
2. Aerial photo map of the area from Google Earth.
3. Boundary and Campus Location Map.
4. Excerpt of a Current Missouri S & T Campus Map, with Bureau of Mines Building locations.
5. Headquarters, Rolla Division of the Bureau of Mines, ca. 1947.
6. Headquarters, Rolla Division of the Bureau of Mines, ca. 1950.
7. First Floor Plan.
8. Second Floor Plan.
9. Fourth Floor Plan.
10. 1933 Sanborn Fire Insurance Co. Map, Rolla, Missouri, 3.
11. Rendering of Proposed of Bureau of Mines Complex, Rolla, MO, ca. 1942.
12. Headquarters, Bureau of Mines College Park, Maryland. Building constructed 1936-37. Photo date ca. 1954.
13. Photo Collage for promotion of the Rolla Bureau of Mines ca. 1950s.
14. Rendering of Headquarters, Rolla Division of the Bureau of Mines, ca. 1947.
15. Map of buildings and warehouses for the Bureau of Mines, Rolla MO, Region VI, 1956.
16. Pyro-Metallurgy Building, Alloys Foundry and Warehouses, formerly located near Highway 66.
17. Fire damage in 1948. Headquarters, Rolla Bureau of Mines.
18. Map of Region VI, Headquarters, Rolla Bureau of Mines, ca. 1947.
19. Clerical Staff at Headquarters, Rolla Bureau of Mines, ca. 1952.
20. Laboratory at Headquarters, Rolla Bureau of Mines, ca. 1952.
21. Annual Open House, 1957, with typed notes from back of photo.
22. Chart of Titles and Locations of Bureau of Mines in Rolla, MO 1920-1996.

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Continuation Sheet

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Headquarters, Rolla Division of the Bureau of Mines
Name of Property
Phelps County, MO
County and State
n/a
Name of multiple listing (if applicable)

**Summary**

The Headquarters building for the Rolla Division of the Bureau of Mines is located on the campus of the Missouri University of Science and Technology, at 1300 Bishop Avenue, in Rolla, Phelps County, Missouri. It was built in 1946 and 1947, suffered major roof damage during a fire in 1948, and rebuilt to its current form in 1950. It is a four-story load-bearing masonry building with red brick walls, a high basement and a side-gabled roof. Each of the flat end walls features a pair of oversized chimneys that are set flush with the exterior walls. The Georgian Revival style building has a rectangular footprint, with a wide façade that faces west to Bishop Avenue. The symmetrical façade has three large bays, filled with a total of seven columns of windows. The center bay is topped with a front-facing cross gable that is flanked by large shed-roofed dormers. The dormers and upper windows are all located on the fourth floor of the building, which is tucked into the slope of the roof. A formal entranceway at the first floor is reached by a wide flight of concrete steps edged with ornamental metal railings. The doorway features an elaborate Georgian Revival style surround topped with a broken pediment and urn; it is flanked by oversized lantern light fixtures that are early or original. The interior of the building is highly intact. Each floor has a central corridor lined with offices and laboratories, and there is a large enclosed stairway in each of the back corners. The stairways feature oversized oculus windows, located between the first and second floors. Original interior finishes in place include varnished millwork, structural glazed tile, and plaster walls and ceilings. Because the building occupies a large parcel of land which includes the entire University campus, only the land immediately adjacent to the building is included in this nomination. The nominated property includes the 100-foot by 53-foot building, and a rectangular lot which measures 160 feet by 113 feet. The building is a contributing resource, and the only resource on the property. The Headquarters building has seen no additions or exterior changes of note since the roof was rebuilt in 1950; it is in good condition and looks very much as it did in the 1950s.

**Elaboration**

**Site**

The Headquarters building is located in the north part of the city of Rolla, on the west edge of the campus of Missouri University of Science and Technology (Missouri S&T). The building faces west to Bishop Avenue, a five-lane commercial artery that is also part of U. S. Highway 63 and 13<sup>th</sup> Street intersects Bishop Avenue directly opposite the front door of the Headquarters building (Photos 1-3). The properties across Bishop Street to the west contain modern commercial buildings, and it is surrounded on the other three sides by the campus of the University (Figures 1-4).

The Headquarters occupies a generally level site, with small lawns at the front and sides, and mature trees to the north and west. A large University building, Havener Center, sits less than fifty feet to the north; it was built in 2005. There is a large paved Missouri S&T parking lot to the south of the Headquarters building, and another parking lot located directly behind it (Figures 3 and 4). Two smaller

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utilitarian buildings located southwest of the Headquarters building were also constructed by the Bureau of Mines in the 1940s. They are now known as Bureau of Mines Buildings #2 and #3. (See Figures 4 and 25.) They have seen extensive modern alterations, and no longer reflect their historic roles. Building #2 is a two-story building with flat roof, a concrete foundation and modern vertical metal wall cladding. It was built ca. 1943 to house a Zinc Pilot Plant and an Aluminum Pilot Plant. Building #3 is a modest one-story building with a gabled roof and a mix of painted brick and metal-clad walls. It was built ca. 1945. At its center is a brick building with a flat roof that served as a core library for the storage of rock samples.<sup>1</sup> Havener Center and those two buildings are outside the boundaries of the nominated property, which encompass only the Headquarters building and immediately adjacent lawns and traffic areas.

**Exterior**

The Headquarters building has four stories, plus a raised basement and a small attic space. The lot slopes to the east; the basement is approximately four feet above grade at the front and completely above grade at the rear. The basement has brick walls and a projecting water table that is topped with shaped bricks. (The water table is most visible in photos 7-9.) Floors 1 through 3 are all similar, while part of the fourth floor is located within the slope of the roof. The fourth floor includes large shed-roofed dormers and tall cross gables on the front and back sides of the building (Photos 1, 2, 5 and 6). There is also a small windowless attic located above the fourth floor. The dormers and cross gables were added to the building as part of the 1950 repairs; all other floors date to 1947.

Exterior brick walls are generally flat, with little surface variation. Aside from the gauged bricks of the water table, the only other relief is found in wide projecting bands of brick located at the top of the second floor on both the front and back walls. The masonry is not without ornament however. All of the exterior walls utilize a Flemish bond masonry pattern, which consists of alternating headers and stretchers in each course. The courses are staggered to create an ornamental pattern in which the headers align at every other course. The Flemish bond is generally recognized as the most time-consuming and elaborate type of brick bond pattern, and its use on all four walls of the building is notable. It was also utilized for the cross gables that were added after the 1948 fire.

Ornamental brickwork is also used for all window openings in the masonry walls. Those on floors 1 through 3 all have extra tall flared jack arches that include at least two rows of soldier bricks each (Photo 1). The basement windows have shorter segmental-arched tops formed of sailor brick courses. The masonry openings throughout are intact, but are filled with newer white aluminum window sashes. The new sashes are comparable to the originals in configuration, but vary in the number of lights. Many of

<sup>1</sup> *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p, Western Historical Manuscripts Collection – Rolla. United States. UNP Bureau of Mines. RA710, Box 1. State Historical Society of Missouri, Columbia Depository.



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the originals had 6 lights over 9 lights, while all of the new windows have 6 lights over 6 lights (Photos 1 and 6, and Figures 4 and 5).

Each side of the building contains a centered entrance. Two of those have ornamental door surrounds that feature early or original Georgian Revival style detailing. The most elaborately detailed doorway is on the front wall (Photos 1 and 9). That double doorway is topped with a wide broken semi-circular pediment and urn. The pediment has heavy cornices that feature dentils and small consoles. A simple entablature runs between the pediment and the top of the doorway, and the opening is flanked by pilasters that have reeded front panels. The entrance on the north side wall is almost as elaborate as the one on the façade (Photo 7). Like the front door, it has a wide set of concrete steps with ornamental metal railings, and a classically detailed door surround. The north surround has a triangular pediment, with a plain entablature and simple flanking pilasters. Both of those doorways have modern aluminum and glass doors and transoms which were installed in the original door openings with no damage to the surrounding millwork.

The south side and rear walls have simpler entrances (Photos 4, 6). Both of those doorways lead to the basement level of the building. They are both sheltered by vestibules that have shallow frame gabled roofs and modern glass and aluminum framed walls. The asphalt-shingled roofs may be several decades old, but are not original. Aluminum and glass doors in the vestibules and into the building are all modern.

The wide front wall has a three-part composition (Photos 1 and 2). The center bay, which includes three columns of windows and the ornamental front entranceway, is taller than the side bays. The brick wall of that section extends up into the front cross gable in an unbroken line, which creates a full four-story expanse of wall. The fourth floor of the front cross gable has a row of seven closely spaced windows, topped by a wide rectangular louvered vent. (Historic photos show that the vent was originally smaller and circular; see Figure 5.) The side bays are slightly lower, with just three stories of front wall between the water table and the eaves of the roof. The eave-lines are accented with wide painted wood cornices which include bands of dentils and small scrolled wood brackets. Each of the wide dormers that flank the front cross gable have a shed roof and five closely set windows. The windows fill most of the front dormer wall space. The small side walls of the dormers are faced with vertical planks that are not original (Photos 3, 4 and 5 and 8).

The back wall of the building is very similar to the façade (Photos 1 and 6). It has the same three-part composition and nearly identical detailing at the roofline, which includes classically detailed cornices at the eaves and a cross gable and flanking dormers that match those of the front wall. The vent in the back cross gable is slightly smaller than that of the front wall. Floors 1 through 3 are also similar to those of the façade, with seven columns of windows and the same type of masonry detailing. They differ in

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that the end bays contain very large multi-paned oculus windows, which light the stairways between the second and third floors (Photos 6 and 15). Those window openings are filled with multi-light wood sashes that appear to be original. The back wall is also different in that the basement level is at grade, and the centered back doorway leads to the basement level instead of the first floor.

The tall narrow side walls are also very similar to each other (South wall, photos 4 and 5; north wall, photos 7 and 8). Aside from the differences in doorways, they are nearly identical. Each is a simple flat wall with little added architectural detailing. The rooflines are enlivened by large round louvered vents and by the paired oversize chimneys, which sit on either side of the ridgeline. Each wall has a single centered column of windows. As in other locations, the masonry window openings are original and the aluminum window sashes are a few decades old.

**Interior**

The interior of the building features a utilitarian layout and simple finishes (Figures 7-9). Neither the floorplans nor the finishes have seen many changes of note. Floorplans are very similar from floor to floor. Each level, except the attic, has a central corridor lined with offices and laboratories, and the first and second floors also have wide cross halls that link the entrances and the main corridors (Photos 10 and 12). The corridors are lined with doorways into the offices and labs, many of which also have interconnecting doorways. There are two large enclosed stairways, one in each rear corner of the building. A small elevator is located next to the south stairwell. The small attic is generally open. It has a freight elevator and a narrow staircase, both of which link only to the fourth floor. The attic also houses large ventilation units, located in the cross gable ends.

The first floor, which is filled with offices, is slightly more finished than other parts of the building. It has tall plastered ceilings, and composition tile flooring. The halls have gold glazed structural tile wainscoting and plastered walls. Almost all doorways have varnished wood doors that have four-light glazing above paired tall inset panels; several are topped with single-light transoms (Photo 11). Most doorways and window openings have only narrow painted metal frames, and there are no baseboards. Several of the first floor offices have newer finishes which include wood paneling or wallpaper, suspended ceilings and carpeted floors. First floor hallway finishes are all early or original.

The corner stairwells are highly intact. They have walls of gold glazed structural blocks, and painted plaster ceilings. Flooring, treads and risers are all of painted concrete and the balustrades are painted metal, all in very good condition (Photo 17). The large oculus windows between the second and third floors are trimmed with gold tile which matches that of the walls (Photo 15).

The upper floors all have similar floorplans and finishes (Figures 8 and 9, and Photos 13-18). Each level has a wide central corridor lined with doorways. Most doorways are filled with the same type of

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varnished wood doors used on the lower floors; several of the doors on the second floor also have transoms. (Photo 13) Doors have narrow painted wood casing, and the hallways have short flat wood baseboards. Glazed tile is absent from the upper hallways, but is used in some offices. The second and fourth floor hallways all have very large ductwork running along their ceilings, and the third floor hall has a suspended ceiling system. Most of the second and third floor rooms are laboratories, while the fourth floor has a mix of offices and labs (Photos 14, 16, and 18).

The basement contains utility areas, including a large boiler room. Basement hallways have suspended tile ceilings, painted brick walls and composition tile flooring. Most of the doorways have the same type of varnished wood doors found on the first floor (Photo 12). Most rooms have painted concrete or brick walls and concrete flooring. The attic is generally unfinished, and filled with storage units that are walled with chain link fencing.

**Integrity**

The building has seen remarkably few alterations since the roof repairs were completed in 1950. There have been no additions or other changes to the footprint of the building or its patterns of fenestration. Exterior doors and windows are modern, but the openings and door surrounds are original. The modern vestibules on the basement level doors are small and unobtrusive. The dormers have some modern wall cladding, but all original masonry walls are fully intact and in good condition. The only apparent alterations to the masonry walls is found in the upper cross gables, which now have rectangular instead of round vents. All original hallways and other circulation spaces are intact, as are the vast majority of the original offices and lab spaces. Almost all interior finishes are original, including glazed structural tile walls, varnished millwork, and some laboratory tables.

The Headquarters building retains integrity in multiple areas. Interior and exterior changes have been limited and the building clearly retains original elements of design, workmanship and materials, especially evident in the exterior detailing and interior finishes of the circulation spaces. Location, setting, feeling and association are also intact. The Headquarters building became part of the university campus after the Bureau of Mines was dissolved by Congress in the 1990s, and it is still well-known for its association with the Bureau of Mines. (It is currently known as Bureau of Mines Building #1.) The site for the building was originally chosen in part for its proximity to the campus, and the Rolla division of the Bureau of Mines had a close working relationship with the University throughout its tenure in Rolla. The building continues to reflect that long partnership.

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n/a
Name of multiple listing (if applicable)

**Summary**

The Headquarters building for the Rolla Division of the Bureau of Mines, located at 1300 Bishop Avenue, Phelps County, Rolla, Missouri is significant under National Register Criterion A in the areas of SCIENCE and INDUSTRY. It is locally significant as the Headquarters of the Rolla Division of the Bureau of Mines, which helped to define Rolla as a community vested in scientific work and education. This is the largest building constructed by the Bureau of Mines in Rolla, and the only one to utilize any formal architectural detailing. The size, prominent location on a busy street and high level of architectural styling show that this building was intended to serve as the face of the Bureau of Mines in Rolla. The Federal Bureau of Mines (BOM) was created by an act of congress in 1910, to conduct research into various aspects of mining practices. The Bureau immediately began to establish research facilities across the country, and in 1920, opened a branch in Rolla, on the campus of the Missouri School of Mines and Metallurgy (now Missouri S & T.) The Rolla branch of the BOM operated in University-owned buildings until the early 1940s, when the need for more space led to the decision to move those facilities off-campus. Local civic leaders, concerned about the potential of losing Bureau operations in Rolla, banded together to purchase land on a busy street near the campus to serve as the site for new Bureau of Mines facilities. Architectural plans were developed for the new site in the early 1940s, and over the next decade, the Bureau constructed at least seven new buildings in Rolla. All except the Headquarters building were utilitarian buildings, constructed to serve as research facilities or warehouses. The Headquarters building is the largest building erected as part of that program, and the only one that was built specifically for the BOM that retains integrity. The period of significance begins in 1946, the year that construction began, and ends in 1967. Significant activities begun historically continue to have significance, but no more specific date can be determined. That period includes the establishment of the new site and the construction of the Headquarters, as well as more than a decade of scientific work. The period also includes two significant dates in 1948 when fire destroyed the roof and 1950 when the roof was replaced. The Bureau maintained a strong working relationship with the university after moving to the new site, partnering in the continuing development of advancements in mining and metallurgy. In the United States, use of minerals and metals began to significantly increase during the industrial revolution and continued to grow exponentially in the years after, whether that be for construction of industrial and civil projects, or weapons needed for war efforts in the 1940s and 1950s. The work of the Bureau helped to improve the collection and conservation of metals and minerals which were used in a wide variety of products and industries for the United States. The laboratories in both the Headquarters Building and the utilitarian buildings employed scientists and engineers that specialized in areas such as chemistry, geology, mapping, mine construction and safety, along with extractive and physical metallurgy, all to identify, extract and use those resources. The Bureau of Mines was dissolved by Congress in 1995, and their property in Rolla was deeded to the University of Missouri in 2000. The Bureau of Mines in Rolla, Missouri played an important role in metallurgical research and industry advancements as part of the Federal Bureau of Mines, and the Headquarters building serves as a significant, intact link to that history.

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**Elaboration**

**Federal Bureau of Mines of the United States Department of the Interior**

In the late 1800s and into the first decade of the twentieth century, mining of natural resources in the United States was an unregulated and often dangerous occupation. During these years, only the United States Geological Survey (USGS) was conducting limited research in fuel development, efficiency in mining, structural development and the causes of mine explosions.<sup>2</sup> Congressional interest in mining research began after 1900, when fuel supply demands prompted increases in coal research, and a series of mining accidents occurred, including the worst mining accident in the United States history in 1907 in Monongah, Marion City, West Virginia.<sup>3</sup>

Congressional response to the lack of mining safety, and the expanded need for research into fuels, minerals and metals, resulted in the creation of the Bureau of Mines (BOM) on May 6, 1910 under Act 36 Stat. L, 369 as a branch of the Department of the Interior.<sup>4</sup> The new Bureau was assigned the task of conducting research and implementing practices to limit mining accidents.<sup>5</sup> It also took over all mining related jobs previously conducted by the USGS and added the "technical process of production and of utilization, including mineral technology and metallurgy," according to Fred Wilbur Powell, in his book, *The Bureau of Mines; Its History, Activities and Organization*.<sup>6</sup>

Over the next five years, the scope of work and research conducted by the Bureau of Mines continued to grow. By 1913 The Bureau began to address economic conditions affecting the industry, and expanded research into unfinished mineral products for use in the United States.<sup>7</sup> Four divisions were created within the Bureau: Technical, Economic, Safety and Health, and Administrative. Substations under these four divisions conducted a variety of work, which ranged from creating educational films to developing machinery and mineral testing.<sup>8</sup> In 1915 Congress passed Act 38 Stat. L., 959, titled the Foster Act, which authorized the Bureau to establish ten mining experiment stations and seven mine safety stations throughout the nation. By 1921, there were thirteen BOM experiment stations in operation, including the one in Rolla.<sup>9</sup>

<sup>2</sup> Fred Wilbur Powell, *The Bureau of Mines; Its History, Aactivities and Oorganization*, (New York: D. Appleton and Company, 1922), 2-3.

<sup>3</sup> Powell, *The Bureau of Mines; Its History*, 4-5; and "1907, The Monongah Coal Mine Disaster," *History*, accessed Sept. 22, 2016, <http://www.history.com/this-day-in-history/the-monongah-coal-mine-disaster>. 361 men were killed in the mine explosions of the Monongah Coal Mine.

<sup>4</sup> Powell, *The Bureau of Mines; Its History*, 4-5.

<sup>5</sup> "Devaney Explains Bureau of Mines Work," (Missouri University of Science and Technology Archives, ca. 1937), 1.

<sup>6</sup> Powell, *The Bureau of Mines; Its History*, 4.

<sup>7</sup> Powell, *The Bureau of Mines; Its History*, 5.

<sup>8</sup> "Devaney Explains Bureau of Mines Work," 6.

<sup>9</sup> Powell, *The Bureau of Mines; Its History*, 6.

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**Establishment of the Federal Bureau of Mines at Rolla, Missouri**

The Missouri School of Mines and Metallurgy (currently known as Missouri University of Science and Technology or Missouri S&T) was established in 1870 as a land-grant college dedicated to the study of math, engineering, and physical and geological sciences, including mining.<sup>10</sup> It was established under the aegis of the Morrill Act, which was passed by the US Congress 1862. The act allowed for the use of public land for educational institutions that were dedicated to industrial education.<sup>11</sup> By 1870, Missouri legislators decided that the University of Missouri in Columbia would operate a School of Agriculture and that a School of Mines and Metallurgy would be located in Southeast Missouri.<sup>12</sup> Quickly following this decision, the legislature chose Rolla as the location of the mining school due to its proximity to the rich mineral district of Southeast Missouri.<sup>13</sup> Additional sources identify Rolla as the “geographical center of the lead and zinc districts of the entire Middle West.”<sup>14</sup> This area includes Wisconsin, Southern Illinois, Kentucky, Tennessee and Arkansas and Kansas. Rolla is also close to sources of other metals and minerals including, but not limited to, fluorite, barite, bauxite, manganese, nickel, and cobalt.<sup>15</sup>

Rolla’s proximity to the abundant mineral and metal sources in these regions was beneficial to the work of the school, and also made it attractive to the Bureau of Mines as a potential site for one of its experimental stations. In 1909 the University established a Mining Experiment Station on the school campus and in the late 1910s, the school invited the Bureau to establish their laboratories on campus as well.<sup>16</sup> In addition to its favorable location, the school offered access to established laboratories and researchers knowledgeable in the field, as well as the promise of future advancements in mechanical and electrical engineering, as applied to metallurgy and mining.<sup>17</sup>

The Bureau of Mines accepted the invitation, and in 1920 the Mississippi Valley Experiment Station of the United States Bureau of Mines was established on the MSM campus (Figure 22).<sup>18</sup> Operations of the Bureau’s Mississippi Valley Experiment Station began in the University’s Metallurgy Building (now

<sup>10</sup> Clarence N. Roberts, *History of the University of Missouri School of Mines and Metallurgy 1871-1946*, (unlisted publisher, ca. 1946), 13-16.

<sup>11</sup> Roberts, *History of the University of Missouri School of Mines and Metallurgy 1871-1946*, 13.

<sup>12</sup> Roberts, *History of the University of Missouri School of Mines and Metallurgy 1871-1946*, 15.

<sup>13</sup> Roberts, *History of the University of Missouri School of Mines and Metallurgy 1871-1946*, 16.

<sup>14</sup> “Missouri School of Mines and Metallurgy, A Brief Submitted to the United States Bureau of Mines in Justification of the Request for the Location of a Bureau of Mines Experiment Station at Rolla.” (UM School of Mines, C3110, folder 576), 1. University of School of Mines Papers, State Historical Society of Missouri, Columbia.

<sup>15</sup> “The Missouri School of Mines and Metallurgy...,” (UM School of Mines, C3110, folder 576), 1.

<sup>16</sup> Bonita H. and Clair V. Mann, *The History of Missouri School of Mines and Metallurgy*, (Rolla, MO: Phelps County Historical Society, 1941), 927; and Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 929.

<sup>17</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 928-929; and “The Missouri School of Mines and Metallurgy...,” (UM School of Mines, C3110, folder 576), 36.

<sup>18</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 928.

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known as the IDE building) in conjunction with the school's Mining Experiment Station program.<sup>19</sup> As noted in one history of the school, the initial studies focused on "the treatment of the non-argentiferous simple ores of lead and zinc produced in the Mississippi Valley, as distinguished from the complex, more or less argentiferous lead-zinc-copper-iron ores of the west."<sup>20</sup> (Argentiferous means containing silver.)

Over the next two years MSM worked to fulfil a contractual agreement between the school and the Bureau of Mines concerning facilities, equipment, and staff. Under the agreement, the University Board of Curators were to provide quarters for the work of the Bureau, and the Bureau would pay for equipment and staff salaries.<sup>21</sup> In November of 1923 the Bureau moved into a building that the University constructed specifically for "the purpose of housing the station," under the supervision of the director of the school, Dr. Chas H. Fulton.<sup>22</sup> That building is still part of the Missouri S&T campus, and is now known as Fulton Hall, in honor of Dr. Fulton.<sup>23</sup> In addition to the Headquarters property that is being nominated in this document, Fulton Hall is also likely to be eligible for inclusion in the National Register, for its association with this earlier era of the Bureau of Mines' history in Rolla.

The partnership between MSM and the Bureau of Mines was beneficial to the school, the Bureau and the City of Rolla. Its place in the community played a significant role in Rolla's development as a center of scientific advancements and education. By the early 1920s, Rolla was home to the Missouri School of Mines (established in 1870), the Missouri State Geological Survey (established in 1908), and the Experiment Station of the Bureau of Mines (established in 1920). According to Mann's *History of Missouri School of Mines and Metallurgy*, the Topographical and Water Resources Divisions of the United States Geological Survey were opened offices there soon after.<sup>24</sup>

### Industrial and Scientific Research of the Rolla Bureau of Mines, 1921-1941

Between 1921 and 1941 the Bureau conducted scientific experimentation and research on a wide variety of metals and minerals from the surrounding region, and often from other areas of the country.<sup>25</sup> And, as directed in the founding purpose of the Experiment Station in Rolla, a good amount of time was invested in developing advanced techniques for the recovery of zinc and lead from mines and ores. One significant advancement was presented in a ca. 1928 paper titled "Progress of Flotation and Milling Processes" which "showed that by better milling processes, and the adoption of flotation, the

<sup>19</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 929; and "School of Mines Brought Bureau of Mines to Rolla," *40<sup>th</sup> Annual Rolla Daily News Progress Edition* (Rolla, MO), July 31, 1986, 10.

<sup>20</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 928.

<sup>21</sup> "School of Mines Brought Bureau of Mines to Rolla," 10; and Mann, 928-929.

<sup>22</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 929.

<sup>23</sup> Fulton Hall is intact and retains integrity. It is scheduled to be included in an upcoming survey of the historic core of the Missouri S&T campus.

<sup>24</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 934.

<sup>25</sup> Devaney Explains Bureau of Mines Work," 6.

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mines [of the Tri-State District] were recovering much ore that formerly went into the tailing piles and slime ponds.”<sup>26</sup> The development of this milling process, credited to the Bureau’s work in Rolla, created an estimated five million dollar annual savings to the zinc mining industry, including the Missouri zinc industry.<sup>27</sup>

In 1928, the BOM operation in Rolla was renamed the Ore Dressing Section of the Bureau’s Metallurgical Division; the branch continued to operate out of the Mines Experiment Station Building on campus.<sup>28</sup> The Bureau of Mines in Rolla was frequently renamed when the Department of the Interior reorganized the regions of the larger, national Bureau of Mines. Reorganization often resulted from prioritization of different geological regions of the country, as they related to the current uses of national resources.

Throughout reorganization and the name changes, the Rolla branch served as a regional headquarters, with a continued focus on research and technical advancements. That work dealt with recovery of a number of metal and minerals, including lead and zinc. Although the materials studied varied, usually the developing science addressed common problems for each field of industry associated with mining, metals and minerals. The Bureau of Mines at Rolla dealt with mineral ore dressing, extraction, flotation processes and extractive and physical metallurgy. Ore dressing is the crushing and separating of ore into valuable substances or waste by any variety of techniques. Extraction is the process of obtaining something from a mixture or compound by chemical or physical or mechanical means. Flotation processes involve the application of an activity agent in the use of a surface-active chemical to increase the attraction to a specific mineral. Extractive metallurgy is the science and practice of extracting metals from their ores, refining them and preparing them for use. Physical Metallurgy is the process of making useful products out of metal.<sup>29</sup>

Development of techniques to accomplish the abovementioned processes required a good deal of space, including laboratories and warehouses that could accommodate large furnaces, floatation tables, ore dressing machines, large drill presses, etc. Those processes required an ever-increasing amount of space, and by the late 1930s the Bureau had nearly outgrown the University facilities.

**Central Region Headquarters, ca. 1940.**

In the early 1940s, space shortages became critical as the work assigned to the Rolla Bureau increased due to United States involvement in World War II. During the War years, the Federal Bureau of Mines

<sup>26</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 931. Tri-District refers zinc deposits found in a geographical area concentrated in Missouri, Kansas and Oklahoma.

<sup>27</sup> Mann, *The History of Missouri School of Mines and Metallurgy*, 1941, 931.

<sup>28</sup> “School of Mines Brought Bureau of Mines to Rolla,” 10.

<sup>29</sup> Definitions for ore dressing, extraction, flotation processes, extractive metallurgy, physical metallurgy accessed Sept. 20, 2016, <https://www.britannica.com/science>.



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reorganized into only three divisions for the entire country.<sup>30</sup> On June 25, 1942 the Secretary of the Department of the Interior, Harold L. Ickes, announced that the Bureau's Metallurgical Division in Rolla was to become the Central Region headquarters for the Bureau of Mines (Figure 18).<sup>31</sup> The Central Region oversaw work in seventeen states and Alaska. The remaining two regions were located in College Park, Maryland, and Salt Lake City, Utah.<sup>32</sup> This new designation was promoted by the Dean of the School of Mines and Metallurgy, Curtis L. Wilson, as an assignment that would "make Rolla one of the outstanding centers of scientific industrial research in the United States."<sup>33</sup>

In keeping with the war effort, the BOM was directed to find ways to increase output of ores from domestic deposits, increase production of processed minerals, and find substitutes for metals deficient in the United States. During the announcement of the assignment of three regional headquarters, Secretary Ickes emphasized the importance of the use of domestic metals in production of war weapons: "To win this war we must get more American metals and other minerals out of the ground and into the nation's factories to produce ships, tanks, trucks, planes, guns and other weapons."<sup>34</sup>

The expansion was well-received by the town, as employment growth within the Bureau was expected to increase from fifty employees to as many as 200, but that growth soon caused complications for the University.<sup>35</sup> The new Central Region designation came with a need for more space to conduct the research and development needed to produce the metal for the War efforts. The BOM pushed the University to supply more buildings, laboratories and offices, but the school had space needs of their own, and also wanted complete use of the Experimental Station building (Fulton Hall).<sup>36</sup> The University and the Bureau could not reach an agreement, and in 1942 Dean Curtis L. Wilson asked the Bureau to leave the campus and find other headquarters.<sup>37</sup>

Civic leaders of Rolla, who feared losing the Bureau, responded to the situation by creating a special committee to keep the Central Region headquarters in Rolla.<sup>38</sup> Mr. Noel Hubbard, who was registrar for the Missouri School of Mines and Metallurgy and an active member of the Rolla Chamber of Commerce, served as chairman of the committee. His fundraising efforts involved requests for faculty at the

<sup>30</sup> "Bureau of Mines Establish Regional Headquarters at Rolla," *MSM Alumnus* 16 (1942): 1, Missouri University of Science and Technology Archives.

<sup>31</sup> "Rolla Made Center for Bureau of Mines," *Rolla Herald* (Rolla, MO), July 2, 1942, 1.

<sup>32</sup> "Bureau of Mines Establish Regional Headquarters at Rolla," *MSM Alumnus* 16 (1942): 2.

<sup>33</sup> "Bureau of Mines Establish Regional Headquarters at Rolla," 1; and "Great Increase in US Bureau of Mines," *The Rolla Herald*, (Rolla, MO) July 9, 1942, 1.

<sup>34</sup> "Rolla Made Center for Bureau of Mines," *Rolla Herald* (Rolla, MO), July 2, 1942, 1.

<sup>35</sup> "Bureau of Mines Establish Regional Headquarters at Rolla," *MSM Alumnus* 16 (1942): 2.

<sup>36</sup> "The Rolla Station of the U.S. Bureau of Mines," *CVM* Mar. 2 1973, (Feb. 25, 1973, (1947-58), 74-75, Missouri University of Science and Technology Archives.

<sup>37</sup> "The Rolla Station of the U.S. Bureau of Mines," 74-75.

<sup>38</sup> "The Rolla Station of the U.S. Bureau of Mines," 74-75.

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university to contribute \$40.00 each, and on October 3, 1942 he published an open letter to the citizens of Rolla asking for monetary pledges to support the purchase of a site in Rolla for the Bureau.<sup>39</sup> Mr. Hubbard's petitions received positive responses, and the group was able to raise enough money to cover the purchase of property that was situated on the west edge of the university campus, on what was then Highway 66 (Figure 10).<sup>40</sup>

Between 1942 and 1944, the Bureau of Mines continued to operate primarily from the Experiment Station (Fulton Hall) while plans for the new land that had been donated by the town were being developed. The Bureau brought in Henry P. Hopkins, of Baltimore Maryland, to develop architectural plans for the new site.<sup>41</sup> In 1944 he presented drawings to the Bureau and town that showed a large U-shaped complex that included seven connected buildings (Figure 11). A rendering of the complex was included in a front page article in the *MSM Alumnus* magazine, which noted that the development was expected to cost around one million dollars and that most of the construction was anticipated as post-war development, with funding that had yet to be secured.<sup>42</sup> Of the buildings shown in that rendering, only the Headquarters building and the Zinc Pilot Plant (BOM #2) were actually built.<sup>43</sup>

Hopkins appears to have adapted his existing design for the Bureau of Mines complex in Rolla from his 1930s design for the Eastern Experiment Station of the Bureau of Mines in College Park, Maryland.<sup>44</sup> The Bureau building in College Park, which was built in 1936-1937, is still in use, as the University of Maryland's Microbiology building.<sup>45</sup> The massing, design and size of Hopkins' design for the Rolla Complex and the building in College Park are nearly identical. Minimal differences of the College Park building appear at the roof, with six dormers that are rounded and a cupola. The window trim and door surrounds are also slightly different (Figure 12). The Maryland Park Bureau building was also built with side additions. Although early plans of the Rolla complex show that the same side additions were to be similarly built, limited funds prevented the construction.<sup>46</sup> The Headquarters buildings in Rolla, Missouri

<sup>39</sup> "The Rolla Station of the U.S. Bureau of Mines," 74-75.

<sup>40</sup> "The Rolla Station of the U.S. Bureau of Mines," 74-75. Lots purchased include 3, 4, 5, 6, 7 in the Townsend Addition and abutting lots 7 and 8 in the Ladd's Addition. This typewritten manuscript lists lots 3-7 in the Bishop's addition, but the 1933 Sanborn map for Rolla, page 3, identifies the area as Townsend Addition.

<sup>41</sup> U.S. Bureau of Mines Plans New Building," *MSM Alumnus* 18 (1944): 1, Missouri University of Science and Technology Archives.

<sup>42</sup> U.S. Bureau of Mines Plans New Building," *MSM Alumnus* 18 (1944): 1.

<sup>43</sup> U.S. Bureau of Mines Plans New Building," *MSM Alumnus* 18 (1944): 1.

<sup>44</sup> U.S. Bureau of Mines Plans New Building," *MSM Alumnus* 18 (1944): 1.

<sup>45</sup> "College Park, Maryland" folder, Western Historical Manuscripts Collection (WHMC) – Rolla. UNP Bureau of Mines, Experiment Stations. RA710, Box 16. State Historical Society of Missouri, Columbia Depository; University of Maryland Facilities Management, "Building Inventory," accessed August 31, 2016, <https://www.facilities.umd.edu/SitePages/FPBuildingInventory.aspx>.

<sup>46</sup> *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p., (WHMC), Box 1.

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and College Park, Maryland are the only two buildings known to have been designed by Henry P. Hopkins for the Bureau of Mines.

Construction of the new Rolla complex began with work space, at what Hopkins had laid out to be the southeast corner of the building. The 1944 article in the *MSM Alumnus* magazine that included the rendering of the complex noted that one unit, which was “being built to house pilot plants for research work in zinc and aluminum smelting practices,” was nearly complete.<sup>47</sup> The pilot plants housed large machinery and often furnaces that were used in the various metallurgical research. Here techniques and machines could be produced and tested that would eventually be reproduced, maybe at even larger scales, in refining sites and factories around the country. Those early plants were housed in one building, now known BOM #2. (See Figure 4, and Photo 3. The building is visible on the right in Photo 3.) The general form of the original construction is still apparent, but it now has exterior metal cladding and a modern addition resulting in a loss of integrity. Early photos of the building show it originally had brick walls lined with windows. (Is it pictured in the center of the top row of photos in Figure 13.)

The BOM likely chose to start with work space, to fulfill the metal recovery work needed for the World War II efforts.<sup>48</sup> The work conducted at the Bureau in Rolla was of great importance to the industries that used metal resources for production. The work was also a source of pride for the Bureau and the University. The fall 1942 edition of the “MSM Alumnus” included a description of some of the work that was conducted by the Bureau during its initial twenty-two years in Rolla. A synopsis of the Bureau’s work was included in the article, which was titled “Bureau of Mines Establish Regional Headquarters at Rolla”:

“during the time it has been in operation, 161 scientific treatises have been written and released from this station, dealing with lead, zinc, fluorospar, steel metallurgy, recovery of mineral by floatation, refractories of material and recently, the recovery of manganese from low grade ores.”<sup>49</sup>

In the same article, Dean Curtis Wilson identified manganese as “a mineral of strategic importance in the war effort”.<sup>50</sup> Aluminum was also of great value, and between 1943 and 1944, seventy-six mining exploration projects were conducted in the central region, and the Bureau of Mines in Rolla helped to increase the production of aluminum by 20 times during that period.<sup>51</sup> Other work at the Rolla facility included developments in locating aluminum ore, referred to as

<sup>47</sup> U.S. Bureau of Mines Plans New Building,” *MSM Alumnus* 18 (1944): 1.

<sup>48</sup> “Bureau of Mines Pilot Plants Nearing Completion,” n.p.

<sup>49</sup> “Bureau of Mines Establish Regional Headquarters at Rolla,” *MSM Alumnus* 16 (1942): 1-2.

<sup>50</sup> “Bureau of Mines Establish Regional Headquarters at Rolla,” *MSM Alumnus* 16 (1942): 1-2.

<sup>51</sup> “School of Mines Brought Bureau of Mines to Rolla.” 10.

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bauxite, and new extraction processes from that ore, which is found in great abundance in Bauxite, Arkansas.<sup>52</sup>

Other wartime development of the site included the construction of a modest one-story brick building just south of the new pilot plants (BOM #2). This smaller building, which was built between 1942 and 1946, was originally used as a Core Library. It housed core samples, tubular rock cuttings that reveal the geological characteristics of areas that the Bureau of Mines studied.<sup>53</sup> The Core Library, now known as BOM #3, is still in place and in use by the University as a Drill Storage building (See Figure 4). It has been expanded and otherwise altered, and does not retain integrity from the period of significance.

### Construction of the Headquarters Building for the Rolla Division of the Bureau of Mines

With the end of World War II, the Bureau of Mines was able to turn its attention to additional construction in Rolla, and in 1946, they began work on a four-story brick Georgian Revival style building that was to serve as the Headquarters building of the Rolla Division of the Bureau of Mines. This building was intended to be the front center section of the U-shaped complex designed by Hopkins in the 1940s, however, only BOM #2 and the nominated property were built (Figure 11). The 1946 construction date marks the beginning of the period of significance for the Headquarters building at 1300 Bishop Avenue. The building was completed in January of 1947.<sup>54</sup>

The rectangular shaped building faces Bishop Avenue, with the front door aligned with 13<sup>th</sup> Street (Figure 4). The front wall of the building was lined with even rows of symmetrically arranged windows, and a central wide entranceway highlighted by a finely detailed broken pediment. At the time of construction, seven narrow dormers set in the side-gabled roof had triangular pediments, and all the masonry window openings in the building (except the basement level) were filled with 9/9 or 6/9 wood sashes. The building also featured simple classical elements such as a dentiled cornice at the roof line (Figure 4).

Interior finishes were, and are still, decidedly more utilitarian than the elegant Georgian Revival style exterior. The building has very little millwork or other interior embellishment, even in the most publicly available rooms of the first floor. The corridors feature industrial structural glazed tile (SGT) wainscot, and simple flat plastered walls and ceilings, with dark varnished doors providing the only contrast. That same system of finishes continues throughout the building, which allowed rooms to serve various functions as changing needs dictated. Early photos show that everyone from clerical staff to scientists working with technical equipment were housed in rooms that feature SGT walls and simple finishes.

<sup>52</sup> "School of Mines Brought Bureau of Mines to Rolla." 10.

<sup>53</sup> *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p. (WHMC) Box 1.

<sup>54</sup> *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p. (WHMC) Box 1.

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Those rooms were used as laboratories, offices for scientists and clerical staff, storage rooms for research materials and conference rooms. The building also housed a library, located on the fourth floor.<sup>55</sup>

The new Headquarters building became the face of the Bureau of Mines in Rolla, which had been renamed the Rolla Division of Mines in 1945 (Figure 22). Photos of the building were frequently used in BOM and University publications, as well as local newspaper articles. A front page article about an upcoming Centennial Celebration in the city included a photo of the building, described as “The beautiful home of the U. S. Bureau of Mines.”<sup>56</sup>

Following the construction of the Headquarters building, the administration and staff of the Bureau of Mines in Rolla may have been anticipating the completion of the plans that Hopkins had developed for the U-shaped complex, but the additional sections were never built. A reproduction of a rendering of the façade, which was used in a BOM publication in the early 1950s, shows a front view of the planned complex, and labels the two front side wings as “proposed.” (See Figure 14). Those plans were apparently dropped, however, and there were no other BOM construction projects on the Bishop Avenue property. Only the Headquarters building and the BOM #2 were built (Figure 11).

The scale of the Bishop Avenue development may have been reduced because of wartime development of BOM facilities at other locations in Rolla. In the early 1940s the Bureau also constructed three large metal buildings on leased land near 14<sup>th</sup> Street and Highway 66. They later came to be known as BOM #4-7 (See Figure 4). Those buildings served as pilot plants and warehouse space for the Bureau, which also leased warehouse space in other parts of town. As noted in a circa 1952 history of the Bureau of Mines in Rolla, “other units such as warehouses, the alloy foundry, the mineral wool laboratory, the sink-float pilot plant and the pyro-metallurgical laboratories are scattered throughout Rolla in wartime, temporary structures” (Figures 15 and 16).<sup>57</sup> The three buildings that the BOM constructed on leased land on 14<sup>th</sup> Street were demolished in recent years to make way for new development by the Missouri University of Science and Technology (Figure 4).<sup>58</sup> The Headquarters building on Bishop Avenue is the only BOM facility constructed after the Bureau left the University campus that retains historic integrity.

<sup>55</sup> Western Historical Manuscripts Collection – Rolla. United States. UNP Bureau of Mines. RA710, Box 1 and 2. State Historical Society of Missouri, Columbia, MO Depository. Photographs of early floor plans of the Headquarters buildings from ca. 1947, ca. 1950s and ca. 1980s are available in Box 1 and 2 of this unprocessed collection.

<sup>56</sup> “U. S. Agencies Here to Aid in Centennial Celebration,” *Rolla Herald*, Feb 24, 1949, 1.

<sup>57</sup> *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p, Western Historical Manuscripts Collection (WHMC) – Rolla. United States. UNP Bureau of Mines. RA710, Box 1.

<sup>58</sup> “The Rolla Station of the U.S. Bureau of Mines,” 4.

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The Headquarters building saw limited alterations for the next five decades except for the fourth floor, which experienced a change within two years of construction. On June 27, 1948 a lighting strike set the roof ablaze, completely destroying the uppermost floor (Figure 17).<sup>59</sup> The roof was not rebuilt until the summer of 1950 due to shortages of steel, according to a 1950 article in the *Rolla Herald* titled "New Roof for Bureau of Mines is Delayed."<sup>60</sup> During reconstruction, the uppermost floor was redesigned with a cross gable roof and larger dormers on both the west and east sides of the roof. The expanded fourth floor allowed for more research laboratories and offices, along with rooms for drafting, graphics and x-ray machinery (Figure 5).<sup>61</sup>

### Operations of the Bureau of Mines in Rolla, Missouri, 1947-1958

Between 1948 and 1950, the Headquarters building remained in use while staff awaited reconstruction of the roof. During this time, the Rolla Bureau was reassigned to the headquarters for Region VI of the National Bureau of Mines, and renamed the Mineral Technology Division (Figure 22). Region IV included Arkansas, Oklahoma, Kansas, Missouri, Texas and Louisiana (Figure 18). This change was announced in December of 1949 by James Boyd, director of the U.S. Bureau of Mines at Washington during a three day visit to Rolla.

Reassignment as the headquarters for the Mineral Technologies Division of Region VI resulted in an expanded work load at Rolla, with the goal of producing new mining techniques and more advanced metal recovery systems.<sup>62</sup> According to Boyd, the United States ranked first in mineral production in the world, but was also the largest consumer of metal, and the possibility of depletion was becoming evident.<sup>63</sup> Expansion of the program over the next ten years involved focusing research efforts on wartime needs (this time for the Korean War that had begun in 1950); work in physical metallurgy, which involved the engineering of products that could use domestically recovered metals; and additional projects in mineral dressing and extractive metallurgy for metals, minerals and petrochemical found throughout Region VI.<sup>64</sup>

<sup>59</sup> "School of Mines Brought Bureau of Mines to Rolla, 10.

<sup>60</sup> "New Roof for Bureau of Mines is Delayed," *Rolla Herald* (Rolla, MO), Jan. 25, 1950, 1, accessed Aug. 31, 2016, <https://www.newspapers.com/image/128466338>.

<sup>61</sup> Floor Plans ca. 1950, (WHMC), Box 1 and 2.

<sup>62</sup> "Expanded Program for U.S. Bureau of Mines in Rolla is Planned." *Rolla Herald* (Rolla, MO), Dec 5, 1949, 1; and *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p.; and *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), 1956 Region VI map. Other technology headquarters in Region VI included Accident Prevention and Health Headquarters in central Texas, the Helium Division Headquarters in Amarillo Texas, and the Fuels Technology headquarters in Bartlesville, Oklahoma.

<sup>63</sup> "Expanded Program for U.S. Bureau of Mines in Rolla is Planned," 1.

<sup>64</sup> "It's All War Work Now for Rolla's Bureau of Mines," *Rolla Herald* (Rolla, MO), July 19, 1951, 1, accessed Aug. 31, 2016, <https://www.newspapers.com/image/128631515>; and *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p.; and "School of Mines Brought Bureau of Mines to Rolla," 10.

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An overview of the station that was published in 1952 provides a good description of the type of work done in the Headquarters building during the period of significance. That book, titled *Minerals Technology Division Bureau of Mines Region VI*, include photos and descriptions of the headquarters building in Rolla. It shows that the building contained both administrative offices and laboratories that supported operations and conducted research for work in Region VI. The administrative staff were organized into five units and used offices throughout the headquarters building. The units were identified Procurement, Accounting, Personnel, Property and Supply, and Graphic Service (Figure 19). The laboratories located in the headquarters building worked with samples received in the property and supply room from various field stations, mining sites and related industries. Samples underwent chemical analysis, possibly quantitative analysis with equipment such as flame photometers, polarographs and spectrographs, or other tests that used specialized equipment located in the various laboratories (Figure 20). The upper floors of the building housed rooms used by the graphic and drafting units. Photostat, photographic and blackline prints produced by the graphic unit, and maps produced by the drafting unit were used by the scientists conducting research in the headquarters building, the pilot plants and mining engineers and researchers at the field sites.

The 1952 book also showed that work conducted in offices and laboratories of the headquarters building was tied to the work in the large Bureau of Mines warehouse sized pilot plants scattered throughout Rolla (Figure 15). These buildings contained the larger equipment, furnaces and shops necessary for research and experimentation.<sup>65</sup> In the pilot plants to the east of the headquarters building, cabinetry and machine shops produced the specialty equipment needed by the scientists working in laboratories of the headquarters building. Examples of other large equipment included arc furnaces that aided in the recovery of cobalt and nickel, extruders that produced 1+ inch sized rods made from magnesium alloy, and large grinders and floatation tables which were used in ore dressing.

The expanded duties of the Rolla branch brought increasing attention to the organization. Throughout the 1950s, the work conducted at the Rolla facilities was drew visitors from different state agencies across the country, administrators from the Department of the Interior, and foreign mining specialists. In 1951, a group of French mining specialists selected Rolla as part of their national tour, in part so that they could visit the BOM facilities there. They visited multiple mining sites and stations to study a range of methods used in the US mining industry, including productivity, organization of companies, and personnel management and training.<sup>66</sup>

The BOM in Rolla welcomed visitors from the town as well. Tours of the Headquarters building and pilot plants were given during an annual open house (Figure 21). This event was commonly attended by

<sup>65</sup> *Minerals Technologies Division Bureau of Mines Region VI*, (Rolla, MO), n.p., (WHMC), Box 1.

<sup>66</sup> "French Mining Experts Will Tour State and Federal Agencies Here," *Rolla Herald* (Rolla, MO), Jan 25, 1951, 1, accessed Aug. 31, 2016, <https://www.newspapers.com/image/128625233>.

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seniors from the Missouri School of Mines and Metallurgy. During this visit, the students were able to see the equipment engineered and used by the researchers at the Bureau. The tour offered exposure to possible graduate work that was available through combined efforts of the University and the Bureau of Mines.<sup>67</sup>

In 1958, research reassignment from the National Bureau of Mines moved the mining projects under the supervision of the Bureau of Mines in Rolla to the Bureau of Mines Division in Twin Cities, Minnesota. This move allowed each of those facilities to become more specialized; the Twin Cities branch had already been operating a mining division, but they were not doing metallurgy work. The Rolla Branch had been studying mining and as well as metallurgy, and that change allowed them to develop a specialization in metallurgy, which one later history noted included mineral dressing, extractive metallurgy and mineral resource studies.<sup>68</sup> The change in scope was reflected by a name change in 1959, to the Rolla Metallurgy Research Center of the Bureau of Mines (Figure 22).<sup>69</sup> The period of significance ends in 1967 where activities begun historically continue to have importance, but no more specific date can be determined. The facility continued to play an important role in Rolla for years to come, however, and it remained in operation for most of the twentieth century.

**Continued Contributions to the Metallurgy Industry and Rolla Community, 1959-1996**

Research continued at the Bureau of Mines in Rolla for an additional 37 years. The work conducted by the scientists and staff was directed by evolving problems and material needs for mining and metallurgy, as it had been during earlier periods of wars and industrial growth. Between 1966 and 1979, some areas of research involved solving problems related to mineral dressing, metallurgical and industrial waste, extractive and physical metallurgy, and health and safety technology for mines.<sup>70</sup> In the 1980s and early 1990s, about 74 percent of the research conducted by the Rolla Center focused on environmental concerns such as remediation of lead contamination in soils, old mills, and land-fills.<sup>71</sup>

Locally, the Bureau of Mines maintained a place of importance in the community. The community was informed of the work conducted by the Bureau in Rolla through newspaper articles that announced out-of-town visitors, dates for the annual open house, projects and workshops held for local school and scout groups, and national awards given to staff and researchers. Additionally, once a year, an extensive article was published in the "Progress Edition" of the *Rolla Daily News* that reviewed the history of the Bureau in Rolla, and described the projects that the Bureau had been working on over the past year. The

<sup>67</sup> *Minerals Technologies Division Bureau of Mines Region VI*. (Rolla, MO), n.p.

<sup>68</sup> "School of Mines Brought Bureau of Mines to Rolla," 10.

<sup>69</sup> "School of Mines Brought Bureau of Mines to Rolla," 10.

<sup>70</sup> "School of Mines Brought Bureau of Mines to Rolla," 10.

<sup>71</sup> R.D. Hohenfeldt,, "Some hope for the Rolla Research Center?, " *Rolla Daily News* (Rolla, MO) Mar. 18, 1994, n.p., (WHMC), Box 1.; and Bruce Murray, "Bureau of Mines may become satellite office," *Rolla Daily News* (Rolla, MO) Jan. 21, 1994, n.p., (WHMC), Box 1.



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first annual article dedicated to the work of the Bureau began in 1947 with a photo and caption of the new Bureau Headquarters building at 1300 Bishop Avenue, and by the 1970s coverage had expanded to multi-page articles with large photos that described, in great detail, the advancing work of the Bureau.<sup>72</sup> The scientific terminology commonly used throughout the extensive articles showed that the newspaper's audience was a community well-versed in scientific knowledge.

The Bureau of Mines also maintained a strong working relationship with the University. This relationship was well described in the 1973 Progress Edition of the *Rolla Daily News*. An article titled "Bureau of Mines Serves Public, Industry, Government" stated, "Close cooperation with the University continues through the sharing of equipment, services, student employment, seminars, and part-time professional staffing."<sup>73</sup>

### Dissolving of the Bureau of Mines

Beginning in the 1980s, under the Reagan administration, changes in federal funding for the Bureau of Mines began to threaten the future of the Rolla Research Center.<sup>74</sup> By the 1990s, changes in the focus of scientific studies funded by the federal government, under the Clinton administration, finalized the closure of the Bureau of Mines facilities throughout the country, including the one in Rolla.<sup>75</sup> Funding allocated for the Bureau of Mines was to be diverted to a new agency, the National Biological Survey.<sup>76</sup>

Closure of the Bureau in Rolla was of great concern to the civic leaders of the town and a frequent subject of review in the local newspapers in 1994.<sup>77</sup> Termination of the local Research Center meant an annual budget loss of \$4.2 million dollars, approximately 75 jobs, and one of the scientific agencies that had been a part of Rolla since 1920. Despite civic and political leaders' efforts to save the Bureau in Rolla, the Federal Bureau of Mines was dissolved in September of 1995 by the U.S. Congress, and the Rolla Research Center was closed in 1996.<sup>78</sup> On January 28, 2000 the Department of the Interior deeded the Headquarters building and all related Bureau of Mines buildings in Rolla to the University of Missouri.<sup>79</sup> Today, the Missouri University of Science and Technology continues to use the Headquarters

<sup>72</sup> The "Progress Edition" of the *Rolla Daily News* was published on an annual basis in July or August, beginning in 1946.

<sup>73</sup> Ann Wilkinson, "Bureau of Mines Serves Public, Industry, Government," *Rolla Daily News* (Rolla, MO), Aug. 31, 1973, 6, (WHMC), Box 1.

<sup>74</sup> R. D. Hohenfeldt, "Concern expressed about center's future," *Rolla Daily News* (Rolla, MO) ca. 1994, 1, (WHMC), Box 1.

<sup>75</sup> R. D. Hohenfeldt, "Let's make sure center stays open," ca 1994, n.p., (WHMC), Box 1.

<sup>76</sup> R. D. Hohenfeldt, "Concern expressed about center's future," 1.

<sup>77</sup> R. D. Hohenfeldt, "Let's make sure center stays open," n.p.

<sup>78</sup> R. D. Hohenfeldt, "Some hope for the Rolla Research Center? n.p.; and "United States Bureau of Mines," Wikipedia, Accessed Aug. 24, 2016, [https://en.wikipedia.org/wiki/United\\_States\\_Bureau\\_of\\_Mines](https://en.wikipedia.org/wiki/United_States_Bureau_of_Mines).

<sup>79</sup> "Deed," Transfer of land and property from the U.S. Department of the Interior to the University of Missouri, 2000, Records of the Missouri University of Science and Technology.

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building (BOM #1), pilot plants (BOM #2), and core library building (BOM #3) for research and office space for University staff and students.

**Conclusion**

Between 1920 and 1996, the Bureau of Mines complex in Rolla, Missouri was the primary, and often only, location for Federal Bureau of Mines activities in Missouri. Work done in the Rolla facilities helped to advance the collection and conservation of metals and minerals used in a wide variety of products and industries in the United States. The Bureau of Mines established one of its initial ten experimental sites in Rolla, Missouri at the invitation of the Missouri School of Mines and Metallurgy in 1920. The Bureau of Mines was an independent federal bureau that formed a partnership with the university that lasted for seventy-six years. The Bureau was also important to the vitality of the town of Rolla, for the economic benefits it provided to the community and as one of the multiple science-based government institutions located in Rolla.

The Headquarters building at 1300 Bishop Avenue is the only building constructed by the Bureau of Mines in Rolla which retains integrity (other extant properties either have a loss of integrity or were built by the university.) It represents efforts of the City of Rolla to keep the Bureau of Mines in the community when the University would no longer support it. The building is intact and good condition. The interior and exterior have seen very few changes since the 1950s, and the building represents a strong sense of time and place to the period of significance of 1946 to 1967.

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Headquarters, Rolla Division of the Bureau of Mines
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Headquarters, Rolla Division of the Bureau of Mines
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Headquarters, Rolla Division of the Bureau of Mines

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**Verbal Boundary Description**

The boundaries of the property are shown in the heavy dashed line in Figure 3. They encompass a rectangle which measures 160 feet by 113 feet. That parcels includes the building, which measures 100 feet by 53 feet, plus 35 foot wide strips of land at the west and south sides of the building, and 25-foot wide strips at the east and north. The property can be described thusly:

Beginning at a point 35 feet due west of the southwest corner of the building; thence north 25 feet; thence east 113 feet; thence south 160 feet; thence west 113 feet; thence north 134 feet to the point of beginning.

**Boundary Justification**

This parcel represents all of the land associated with the building which retains integrity form the period of significance. Because the building occupies a large parcel of land which includes the entire University campus, only the land immediately adjacent to it is included in this nomination. The boundaries of the nominated property extend 35 feet in front of the building to include the front lawn, and 35 feet out from the south end wall, to encompass most of the lawn on that side of the building as well. Boundaries at the back (east) and north side are 25 feet from the building; the north side yard is smaller than that on the south, and the land behind the building is covered by a sidewalk and paved parking.

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Name of Property
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Figure 1. Aerial photo map from Google Earth, with Coordinates. Accessed September 29, 2016.



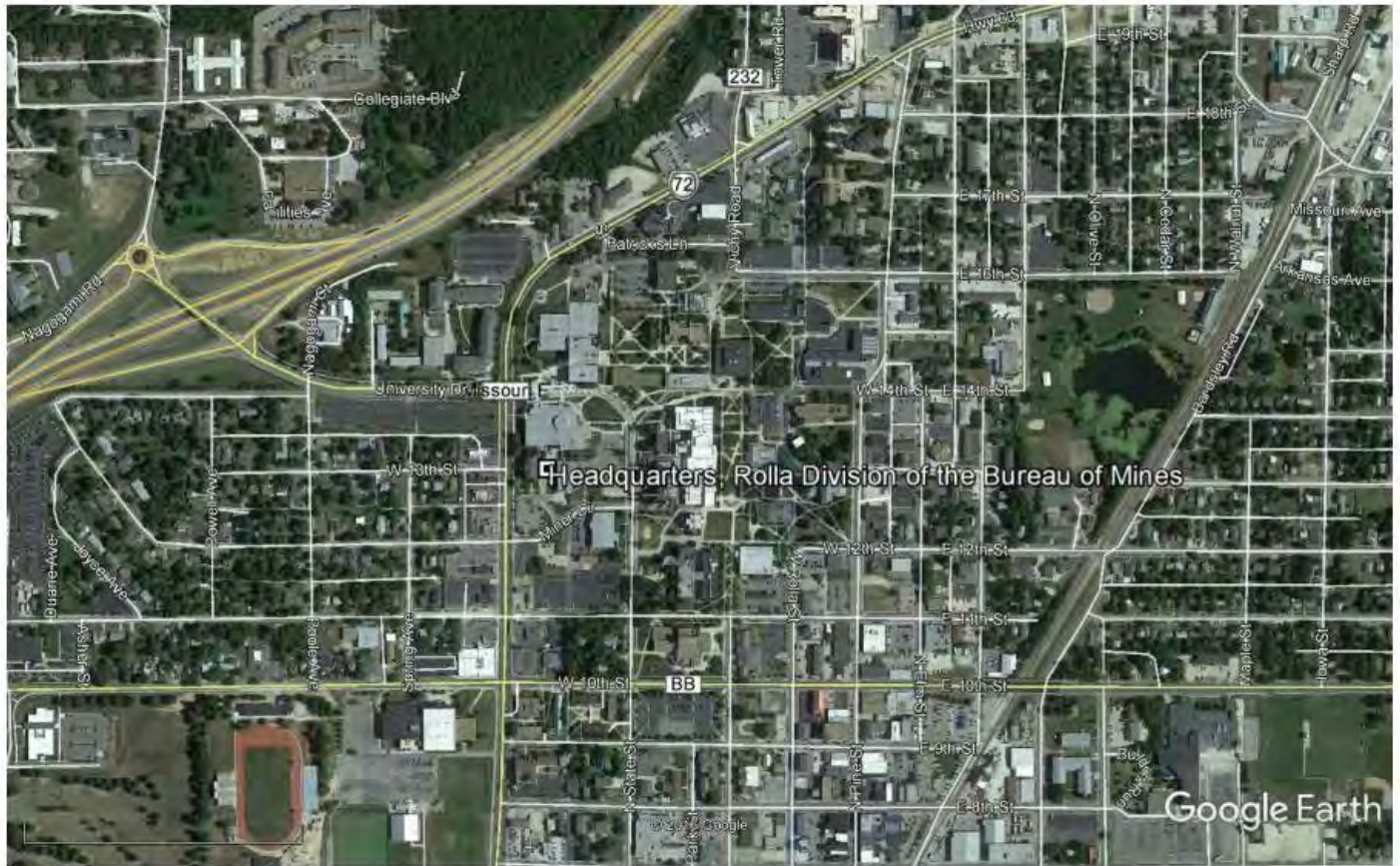
Headquarters, Rolla Division of the Bureau of Mines  
1300 N. Bishop Avenue Rolla, MO 65401 Latitude: 37.954211° Longitude: -91.776545°

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Figure 2. Aerial photo map of the area from Google Earth. Accessed September 29, 2016.



Google Earth



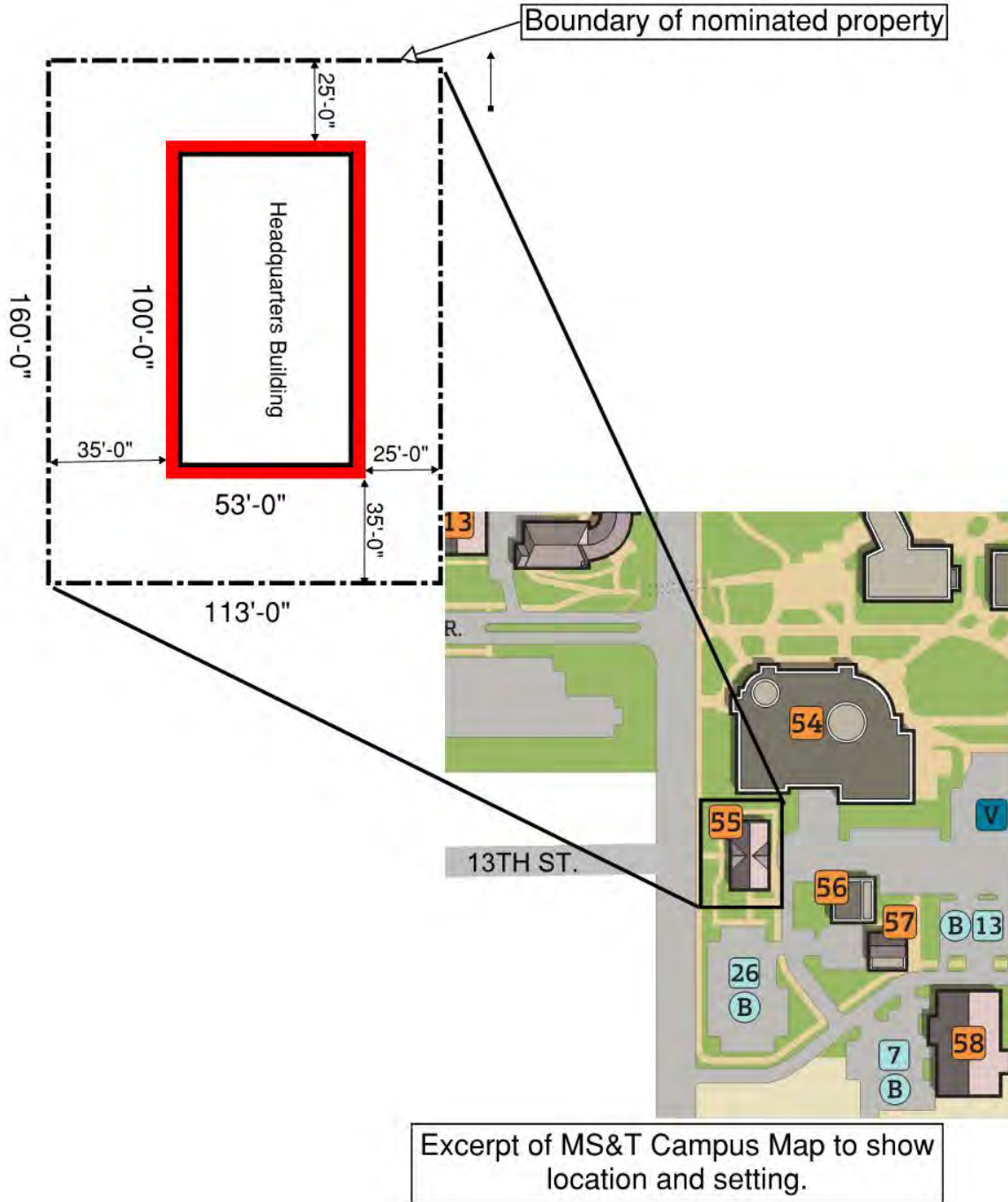


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**Figure 3. Boundary and Campus Location Map. Boundaries are shown by a heavy dashed line. Campus Map courtesy of Missouri State University of Science and Technology. (Campus Map courtesy Missouri University of Science and Technology, boundary map drawn by Deb Sheals, 2016.)**

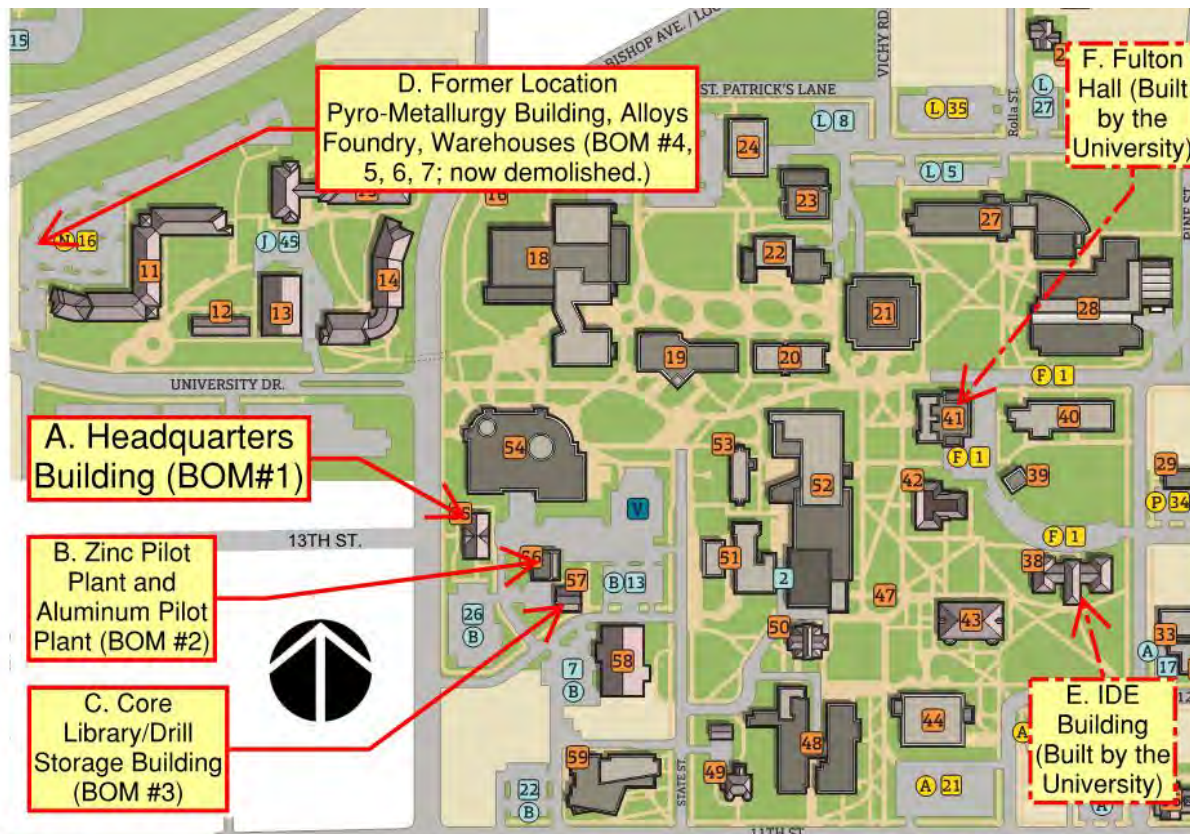


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**Figure 4. Excerpt of a Current Missouri S & T Campus Map, with Bureau of Mines Building Locations.**  
 This does not include leased warehouses.  
 (Campus Map courtesy Missouri University of Science and Technology.)



Federal Bureau of Mines Buildings, Rolla, Missouri					
Key	Building Historic Name (Current Name)	Year Constructed	Location	Status	Original Ownership
A	Headquarters, Rolla Division of the Bureau of Mines (BOM #1)	1946	1300 Bishop Avenue	In use	BOM
B	Zinc Pilot Plant and Aluminum Pilot Plant (BOM #2)	1944	651 W. 13th Street. East of the Headquarters building	In use	BOM
C	Core Library/Drill Storage Building (BOM #3)	ca. 1945	Directly southeast of Aluminum Pilot Plant	In use	BOM
D	Pyro-Metallurgy Building, Alloys Foundry, Warehouses (BOM #4, 5, 6, 7)	ca. 1946	University Drive near Bishop Avenue*	Demolished	BOM
E	IDE Building (Interdisciplinary Engineering Building)	ca. 1909	1215 N. Pine Street	In use	University
F	Fulton Hall	ca. 1923	301 W. 14th Street	In use	University

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Headquarters, Rolla Division of the Bureau of Mines

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n/a

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**Figure 5. Headquarters, Rolla Division of the Bureau of Mines, ca. 1947.**

(Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)



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Headquarters, Rolla Division of the Bureau of Mines

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**Figure 6. Headquarters, Rolla Division of the Bureau of Mines, ca. 1950.**

(Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)



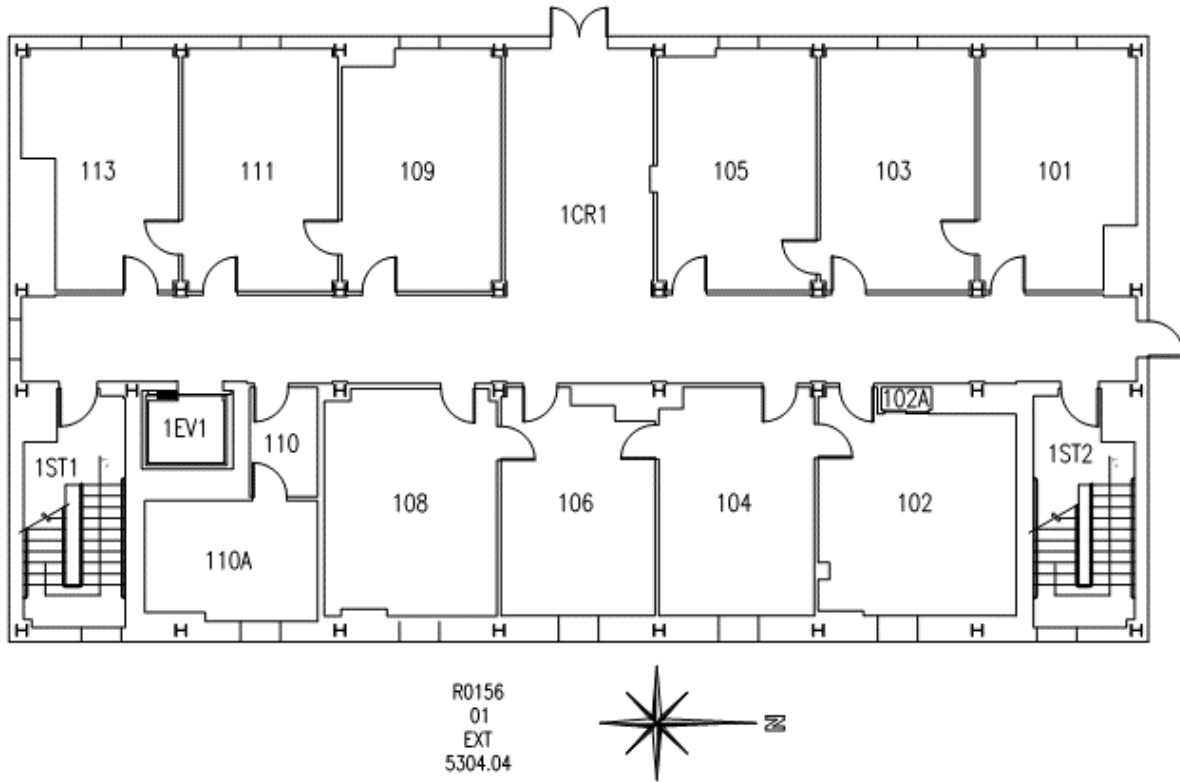
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Headquarters, Rolla Division of the Bureau of Mines
Name of Property
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n/a
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**Figure 7. Current First Floor Plan; Basement Plan is similar. There have been no major changes to the plans since the 1940s.**

(Plan Courtesy Missouri University of Science and Technology.)



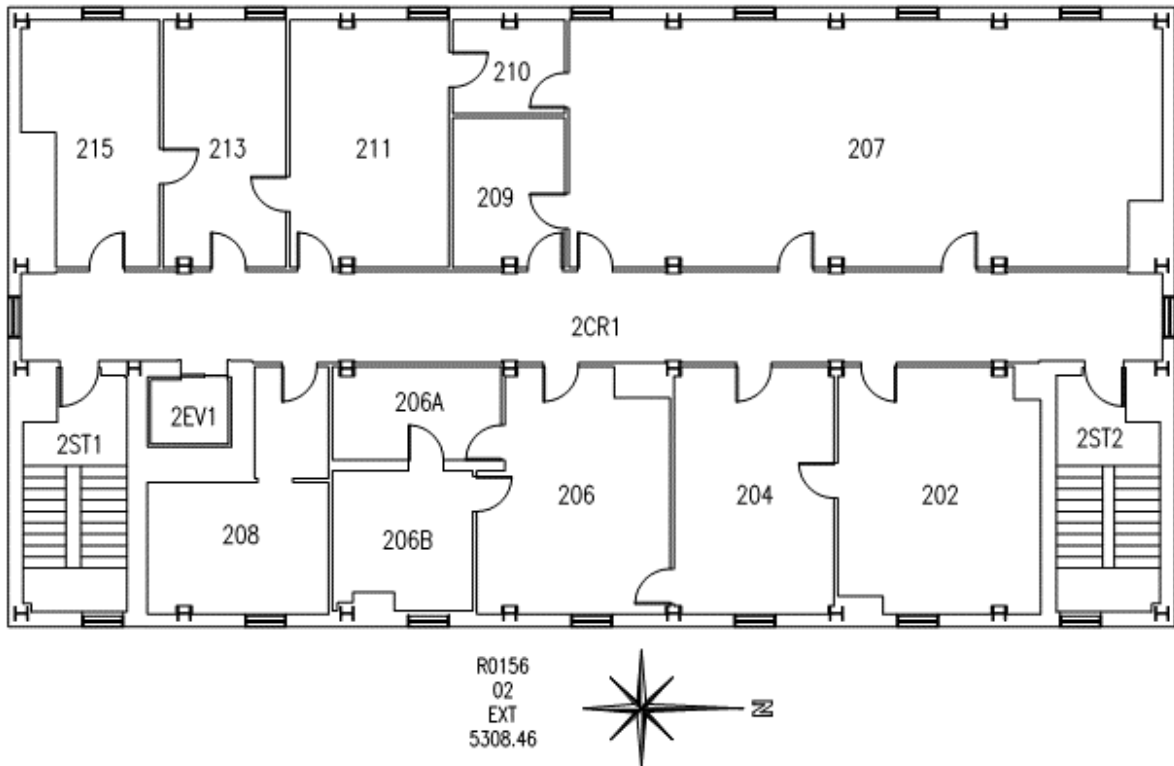
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Headquarters, Rolla Division of the Bureau of Mines
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**Figure 8. Current Second Floor Plan; Third Floor Plan is similar. There have been no major changes to the plans since the 1940s.**

(Source: Plan Courtesy Missouri University of Science and Technology.)

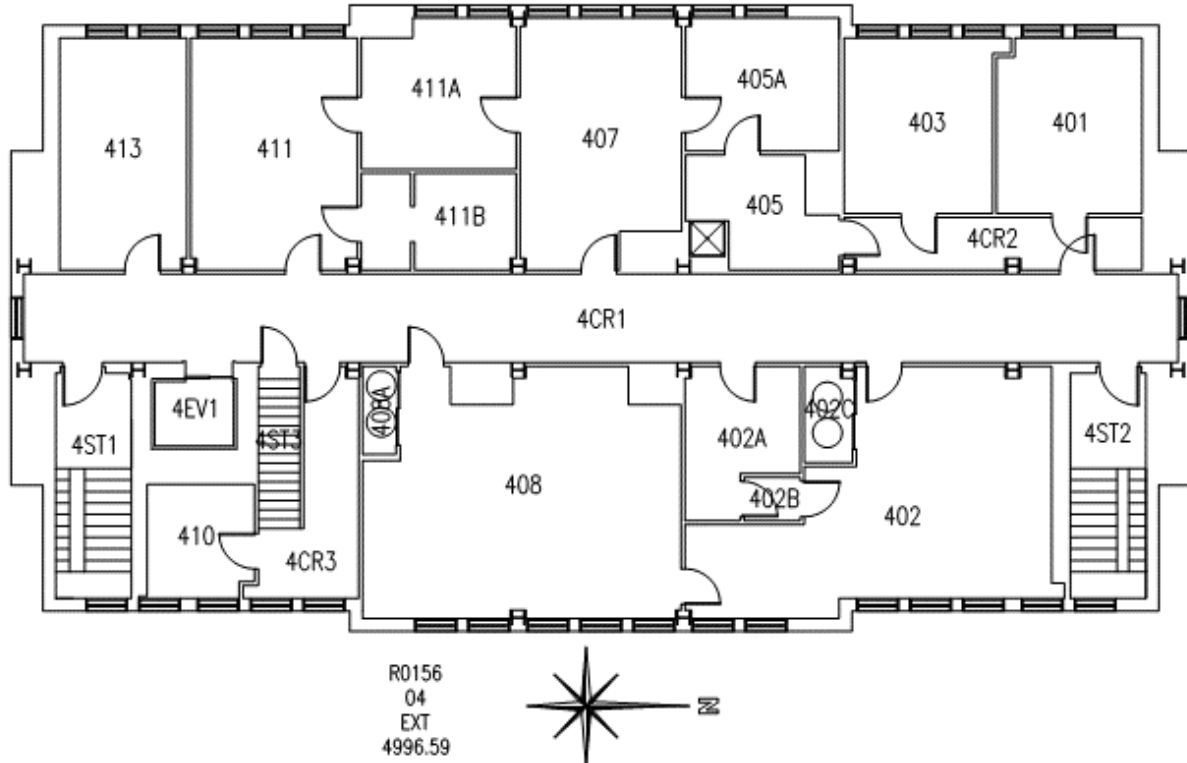


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Headquarters, Rolla Division of the Bureau of Mines
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**Figure 9. Current Fourth Floor Plan. There have been no major changes to this plans since 1950.**  
(Source: Plan Courtesy Missouri University of Science and Technology.)



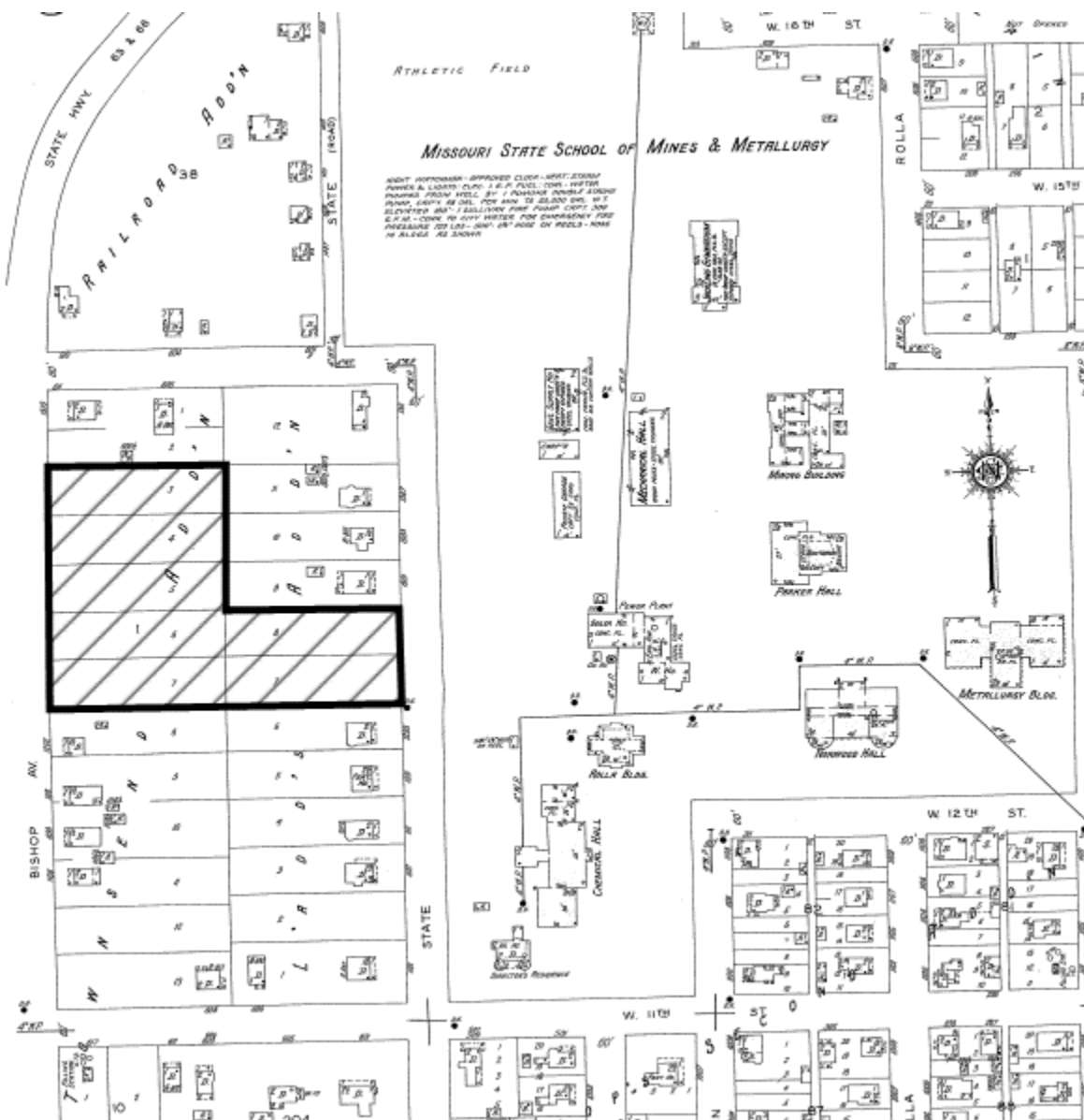
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Headquarters, Rolla Division of the Bureau of Mines
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n/a
Name of multiple listing (if applicable)

**Figure 10. 1933 Sanborn Fire Insurance Co. Map, Rolla, Missouri, 3. Land donated for the Bureau of Mines complex denoted by hatch.**

(Source: Sanborn Fire Insurance Company. Rolla, Missouri, 1933, sheet 3. Proquest  
<http://sanborn.umi.com.proxy.mcpl.lib.mo.us/mo/4849/dateid-000008.htm?CCSI=45n>)





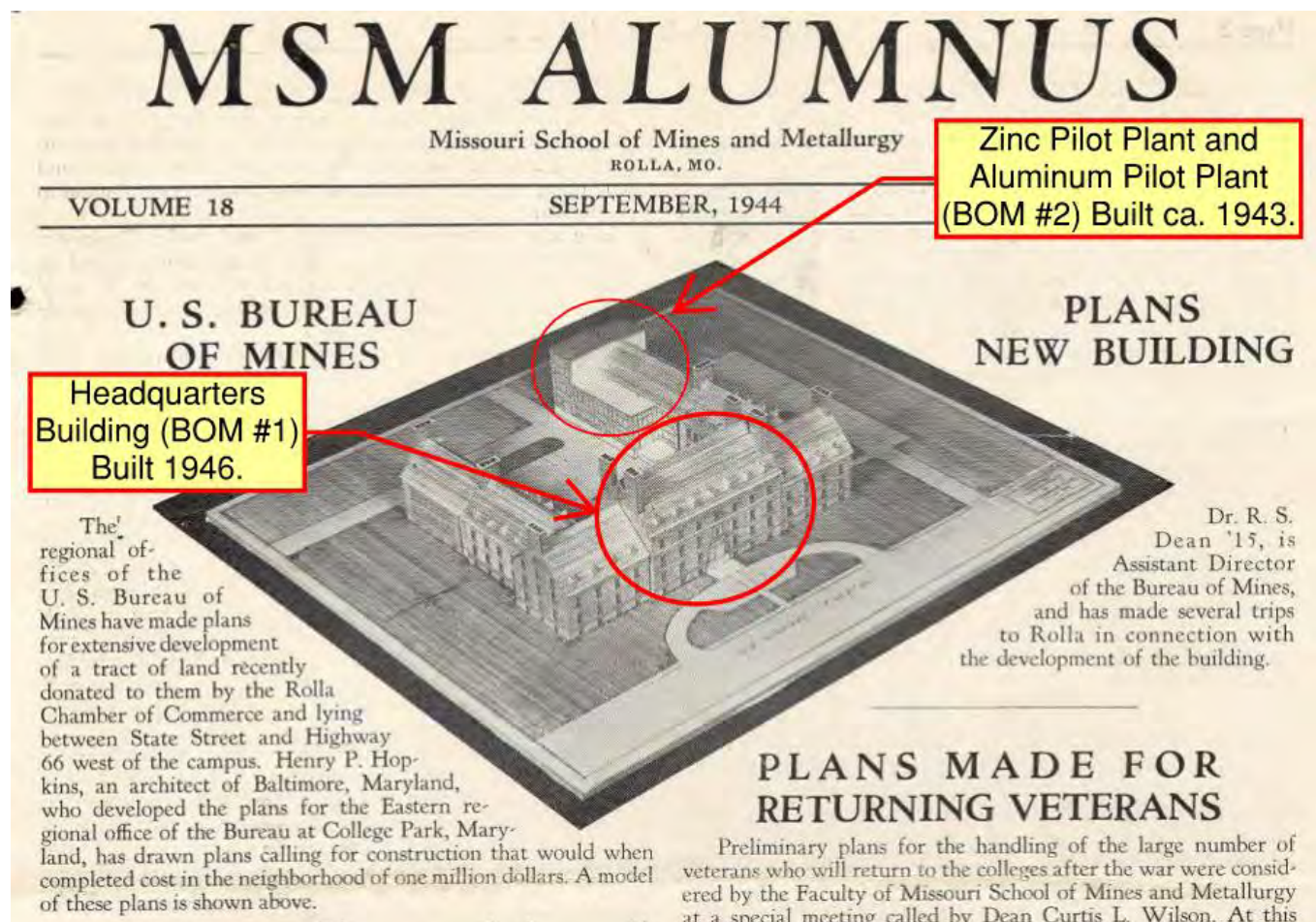
National Register of Historic Places  
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Headquarters, Rolla Division of the Bureau of Mines
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Figure 11. Architect's Rendering of Proposed Bureau of Mines Complex, with notes to show construction dates.

(MSM Alumnus Magazine courtesy Missouri S&T Archives.)



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**Figure 12. Headquarters, Bureau of Mines College Park, Maryland. Building constructed 1936-37.**

**Photo date ca. 1954.**

(Source: Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines, Experiment Stations. RA710, Box 16. State Historical Society of Missouri, Columbia Depository.)



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**Figure 13. Photo Collage for promotion of the Rolla Bureau of Mines ca. 1950s.**

(Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)

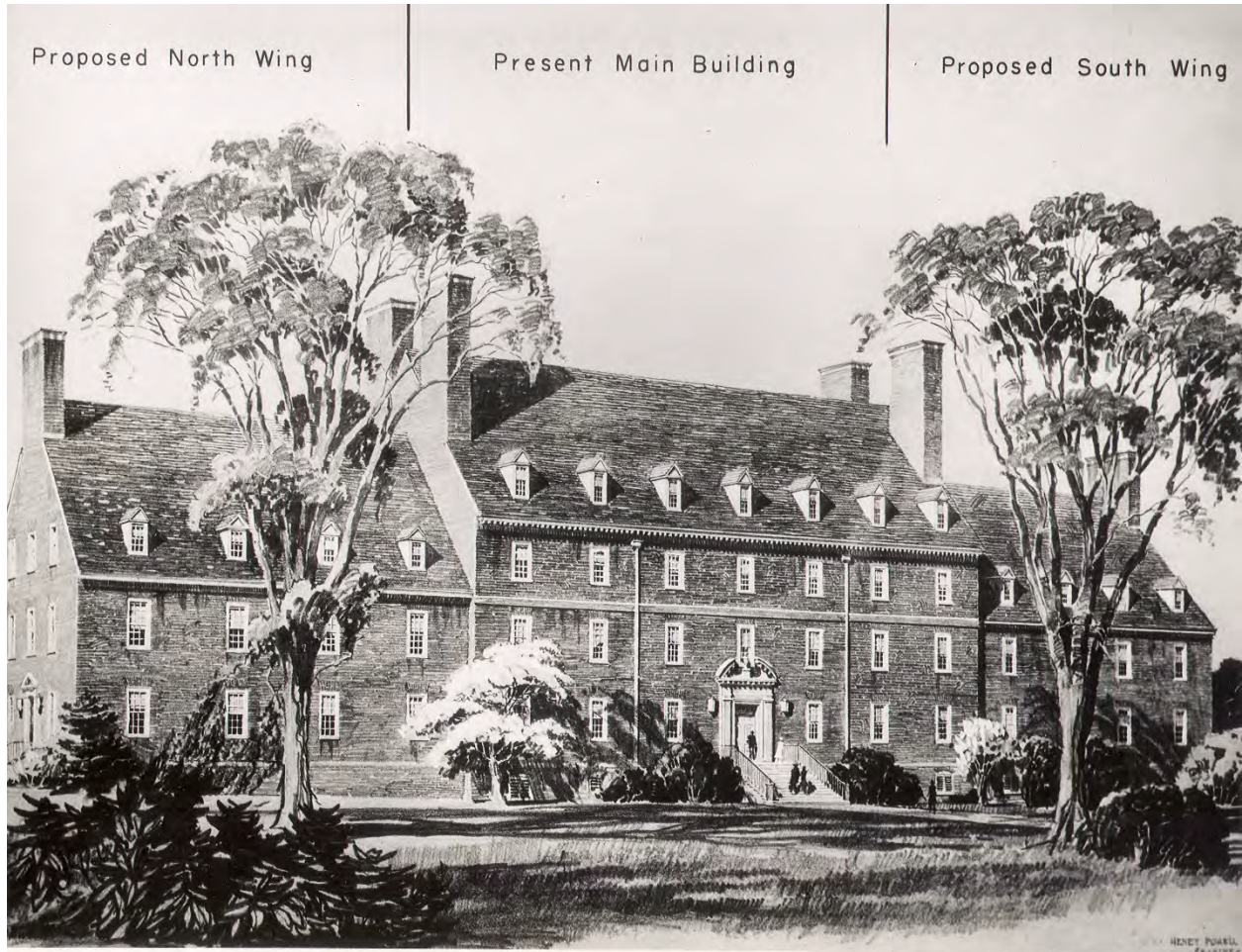


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**Figure 14. Rendering of Headquarters, Rolla Division of the Bureau of Mines, ca. 1947.**  
(Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)

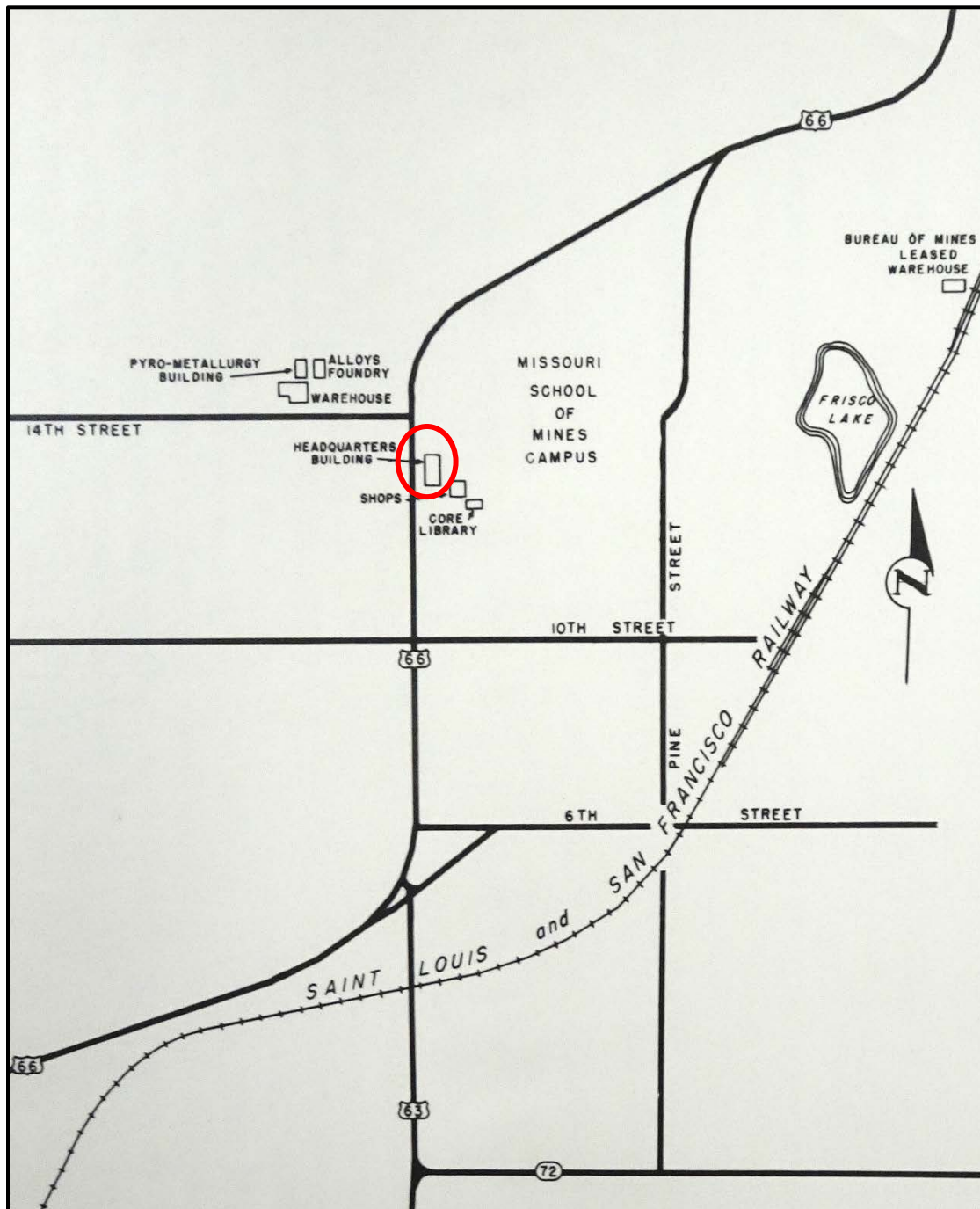


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**Figure 15. Federal Bureau of Mines Buildings located in Rolla, Missouri, as of 1956.** Note: The original map shows three additional leased warehouses to the south, along US 66. It does not appear that any of the leased warehouses are still in existence. (Source: Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)



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**Figure 16. Pyro-Metallurgy Building, Alloys Foundry and Warehouses, formerly located near Highway 66 (Now Demolished.)**

(Source: Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)



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**Figure 17. Fire Damage, 1948. Headquarters, Rolla Bureau of Mines.**

(Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)



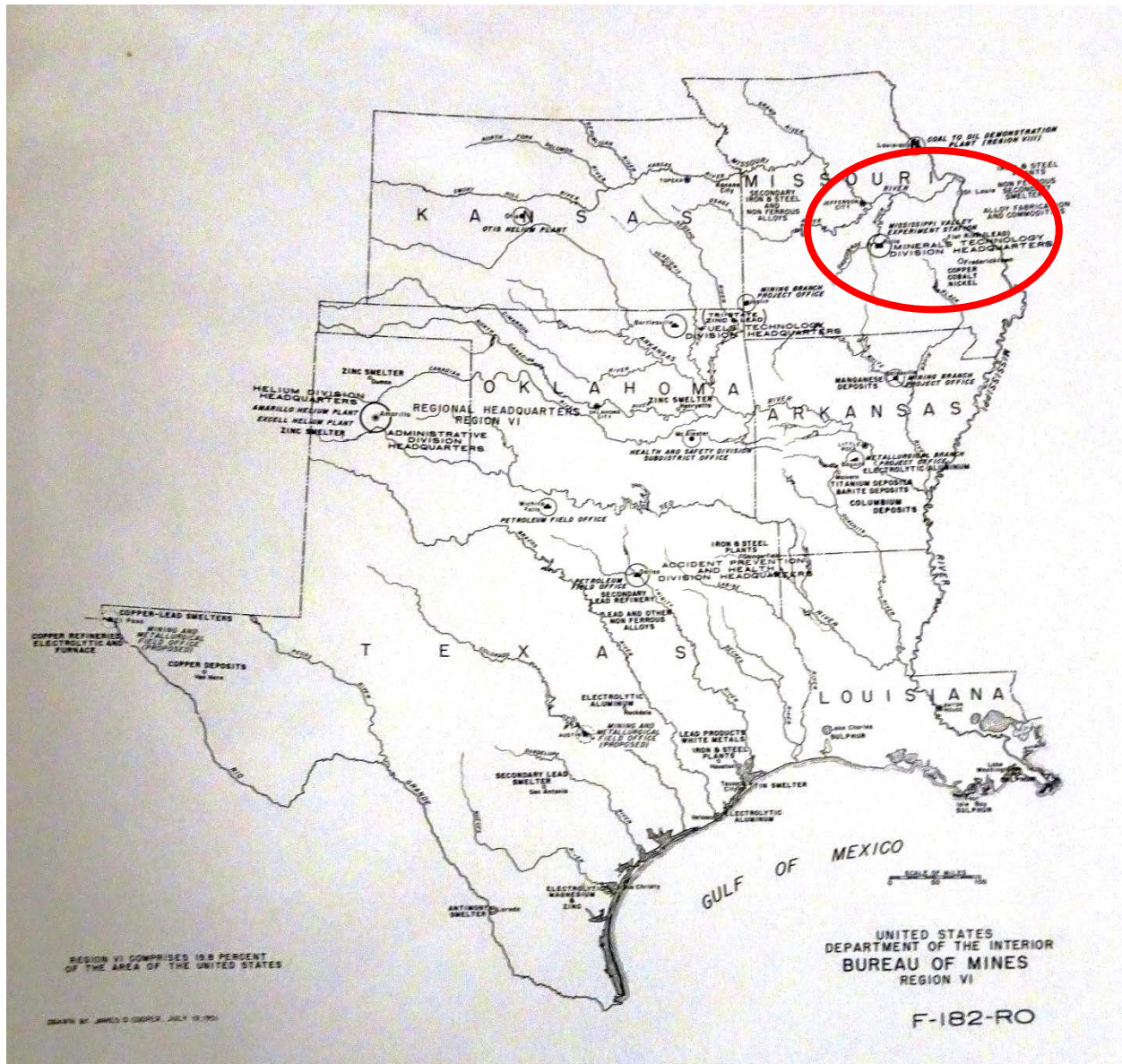
National Register of Historic Places  
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**Figure 18. Map of Region VI, Headquarters, Rolla Bureau of Mines, ca. 1947.**

(Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)





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**Figure 19. Clerical Staff at Headquarters, Rolla Bureau of Mines, ca. 1952.**

(*Minerals Technologies Division Bureau of Mines Region VI. Rolla, MO. Western Historical Manuscripts Collection – Rolla. United States. UNP Bureau of Mines. RA710, Box 1. State Historical Society of Missouri, Columbia, MO Depository.*)



MINERALS TECHNOLOGY DIVISION CLERICAL STAFF AND RECEPTIONIST

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**Figure 20. Laboratory at Headquarters, Rolla Bureau of Mines, ca. 1952.**

(Source: Western Historical Manuscripts Collection – Rolla. UNP Bureau of Mines. RA710, Box 2. State Historical Society of Missouri, Columbia, MO Depository.)



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**Figure 21. Annual Open House, 1957, with typed notes from back of photo.**

(Western Historical Manuscripts Collection – Rolla. United States. UNP Bureau of Mines. RA710, Box 1. State Historical Society of Missouri, Columbia, MO Depository.)



MARK JAMES OF THE PHYSICAL METALLURGY SECTION  
EXPLAINING TO INSTITUTE MEMBERS AND SCHOOL OF MINES  
STUDENTS THE BUREAU'S EXTRUSION PRESS WHICH REDUCES  
TWO-INCH METALLIC CYLINDERS TO THREE-EIGHTHS INCH  
RODS IN A FEW SECONDS.  
RECEIVED  
MINERALS TECHNOLOGY  
DIVISION  
MAR 8 1957  
BUREAU OF MINES  
ROLLA, MO.

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**Figure 22. Title and Location of Bureau of Mines in Rolla, MO 1920-1996**

(Source: "School of Mines Brought Bureau of Mines to Rolla." *40<sup>th</sup> Annual Rolla Daily News Progress Edition* (Rolla, MO), July 31, 1986, 10-11. Chart by Andrea Herries.)

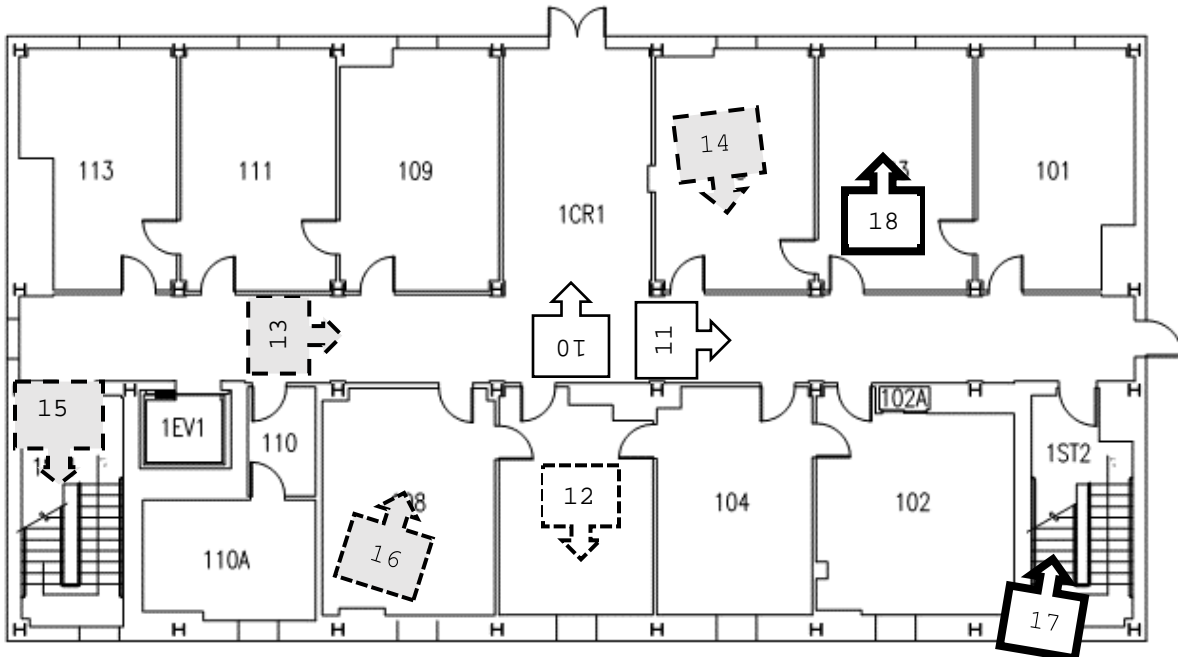
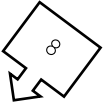
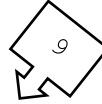
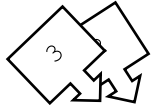
Year(s) of Operation	Title of Bureau of Mines Division in Rolla, MO	Buildings in Use in Rolla	Region Served
1920 - 1923	Mississippi Valley Experiment Station	Metallurgy Building of Missouri School of Mines and Metallurgy (Now IDE building).	Mississippi Valley including Illinois, Kentucky , Wisconsin, Missouri, Kansas and Oklahoma
1924 - 1927	Mississippi Valley Experiment Station	Mines Experiment Station Building (Now Fulton Hall).	Mississippi Valley including Illinois, Kentucky , Wisconsin, Missouri, Kansas and Oklahoma
1928 - 1941	Ore Dressing Section of the Bureau's Metallurgical Division	Mines Experiment Station Building (Now Fulton Hall).	Mississippi Valley including Illinois, Kentucky , Wisconsin, Missouri, Kansas and Oklahoma
1942-1944	Central Region Headquarters of the Bureau of Mines (One of three Regions in the US)	Mines Experiment Station Building (Fulton Hall). Aluminum and Zinc pilot plants at 651 W. 13 <sup>th</sup> St. (Now BOM #2).	17 States and Alaska.
<b>1945- 1948</b>	<b>Rolla Division of the Bureau of Mines</b> (One of ten Geographical Divisions)	Aluminum and Zinc pilot plants. (extant) <b>1946-1947: Headquarters Building at 1300 Bishop Avenue. (extant)</b> Core Library. (Now BOM #3.) Alloys Foundry, Pyro-metallurgy Building, and Steel Warehouse (Near 14 <sup>th</sup> and HWY 66, now demolished.) Additional leased warehouses.	Arkansas, Oklahoma, Kansas, Missouri, Illinois and Indiana
<b>1949 - 1958</b>	<b>Region VI – Mineral Technology Division of the Bureau of Mines</b> (One of nine Regions)	No additional buildings.	1949: Texas and Louisiana exchanged for Illinois and Indiana
1959 - 1978	Rolla Metallurgy Research Center of the Bureau of Mines (One of five Regions)	No additional buildings.	Arkansas, Oklahoma, Kansas, Missouri, Texas and Louisiana
1979 - 1996	Rolla Research Center of the Bureau of Mines	No additional buildings.	Unknown

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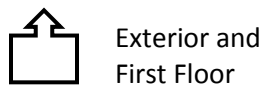
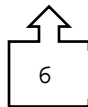
Section number Photos Page 47

Headquarters, Rolla Division of the Bureau of Mines
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Photo Key.



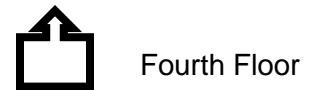
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Exterior and  
First Floor



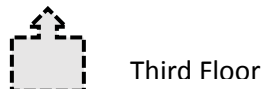
Second Floor



Fourth Floor



Basement



Third Floor

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Headquarters, Rolla Division of the Bureau of Mines
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1 of 18: Façade (west wall). Camera looking east.



2 of 18: Southwest corner. Camera looking northeast.



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Headquarters, Rolla Division of the Bureau of Mines
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3 of 18: Southwest corner and street scape. Camera looking northeast.



4 of 18: South wall. Camera looking north.



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Headquarters, Rolla Division of the Bureau of Mines

Name of Property  
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n/a

Name of multiple listing (if applicable)

5 of 18: Southeast corner. Camera looking northwest.



6 of 18: Back (east wall). Camera looking west.





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Headquarters, Rolla Division of the Bureau of Mines

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n/a

Name of multiple listing (if applicable)

7 of 18: North side entrance. Camera looking southeast.



8 of 18: Northwest corner. Camera looking southeast.



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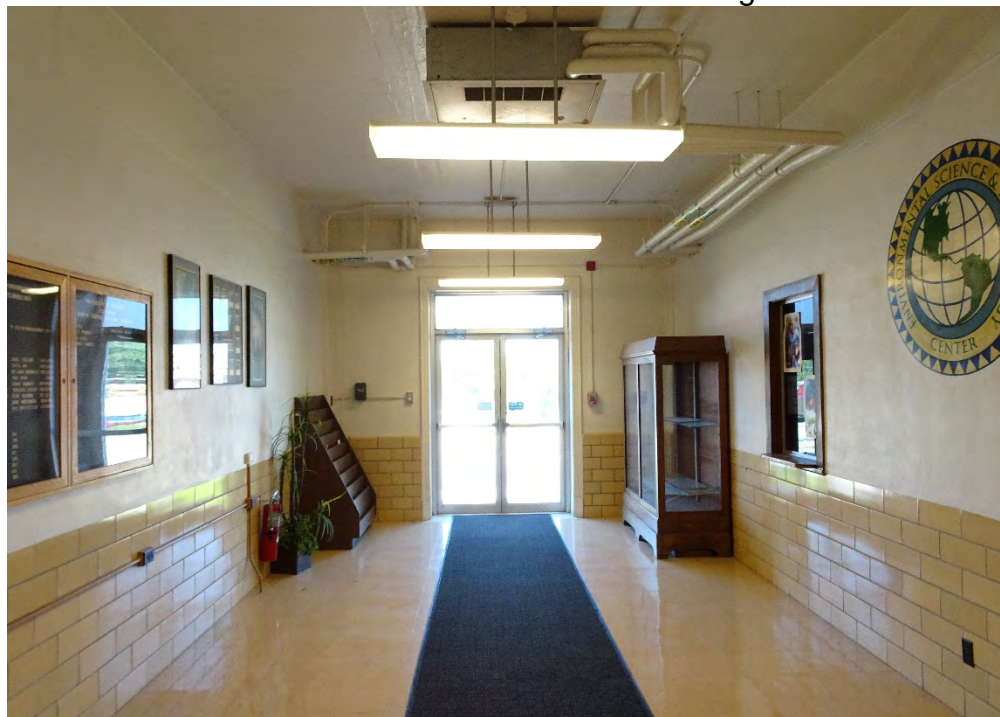
Section number Photos Page 52

Headquarters, Rolla Division of the Bureau of Mines
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9 of 18: Front entranceway. Camera looking southeast.



10 of 18: First floor entrance hall. Camera looking west.



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Headquarters, Rolla Division of the Bureau of Mines
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11 of 18: First floor hall. Camera looking north.



12 of 18: Basement entrance hall. Camera looking east.



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Headquarters, Rolla Division of the Bureau of Mines

Name of Property  
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n/a

Name of multiple listing (if applicable)

13 of 18: Second floor hall. Camera looking north.



14 of 18: Laboratory, second floor. Camera looking east.

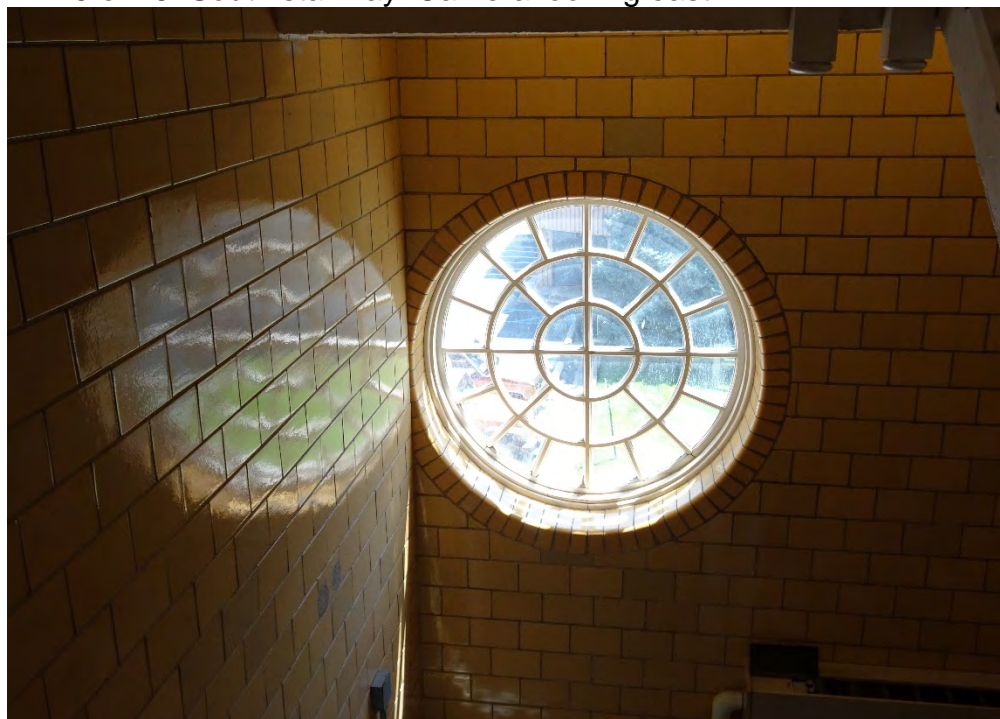


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Headquarters, Rolla Division of the Bureau of Mines
Name of Property
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15 of 18: South stairway. Camera looking east.



16 of 18: Laboratory, third floor. Camera looking west.

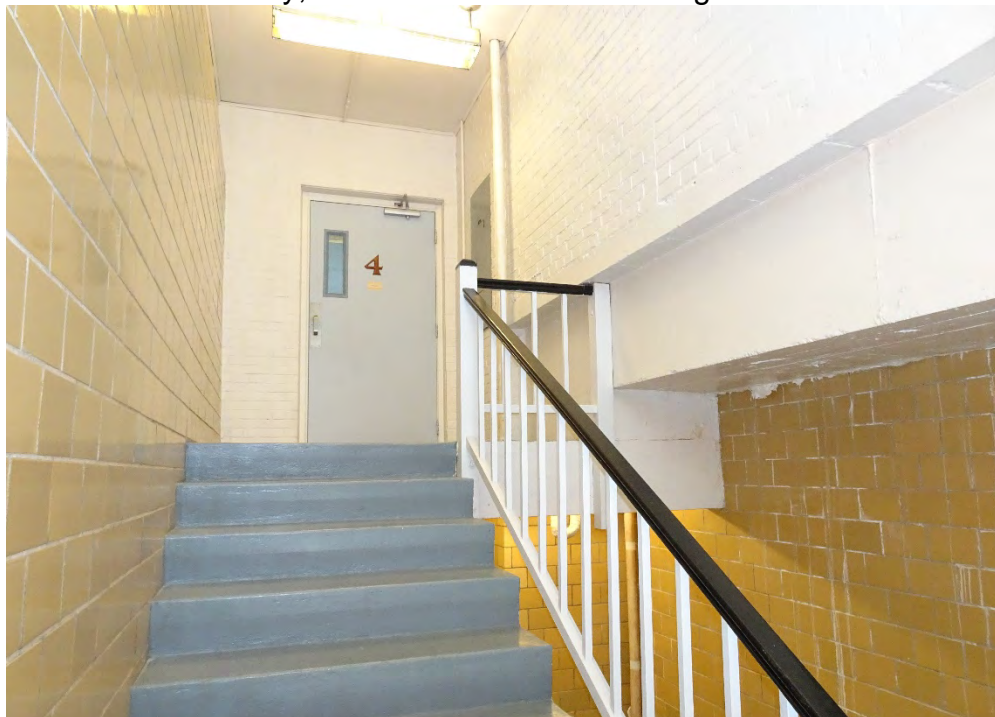


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Headquarters, Rolla Division of the Bureau of Mines
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n/a
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17 of 18: Stairway, fourth floor. Camera looking west.



18 of 18: Office, fourth floor. Camera looking west.





Shuttered window in the gable end of the roof.

1300

Bishop Ave

STOP

542  
Bureau of Mass. High. No. 2



















1300







105

105

103

104

EXIT



8-4

84A

EXIT

FIRE

206



207



209

SAMPLE PREPARATION



**PERSONAL EYE WASH**  
KEEP AREA CLEAR



**PERSONAL EYE WASH**









UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES  
EVALUATION/RETURN SHEET

Requested Action:

Property Name:

Multiple Name:

State & County:

Date Received: 3/10/2017      Date of Pending List:      Date of 16th Day:      Date of 45th Day: 4/24/2017      Date of Weekly List: 5/4/2017

Reference number:

Nominator:

Reason For Review:

Accept       Return       Reject      4/24/2017 Date

Abstract/Summary Comments:

Recommendation/ Criteria

Reviewer Edson Beall      Discipline Historian

Telephone \_\_\_\_\_      Date \_\_\_\_\_

DOCUMENTATION:    see attached comments : No    see attached SLR : No

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.





Missouri Department of  
**NATURAL RESOURCES**

Eric R. Greitens, Governor

Carol S. Comer, Director



**Memorandum**

**Date:** March 1, 2017  
**To:** Dr. Stephanie Toothman, Keeper of the National Register of Historic Places  
**From:** Toni M. Prawl, Ph.D., Deputy SHPO and Director, Missouri SHPO *TMP*  
**Subject:** Headquarters, Rolla Division of the Bureau of Mines, Phelps County, MO, National Register Nomination

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Our state review board, the Missouri Advisory Council on Historic Preservation, approved the above nomination on **Council meeting date**. All owners and appropriate elected public officials were notified and provided at least thirty (30) days to comment on the above proposed nomination in accordance with Section 36CFR60.6, interim regulations, using the exact notification format recommended by the National Register. **The enclosed disc contains the true and correct copy of the nomination to the National Register of Historic Places.**

Please find enclosed the following documentation:

- 1   CD with original National Register of Historic Places registration form
- Multiple Property Documentation Form
- Photographs
- 1   CD with electronic images
- Original USGS map(s)
- 2   Piece(s) of correspondence (cover letter and signature page)
- Other: \_\_\_\_\_

**Comments:**

- Please ensure that this nomination is reviewed
- The enclosed owner objection(s) do \_\_\_\_\_ do not \_\_\_\_\_ constitute a majority of property owners.
- Other: \_\_\_\_\_

