

Nancy Hunt  
2021

## **The Swayze Mine**

*in Bethlehem Township, Hunterdon County, New Jersey*

### **– Brief History**

The Swayze Mine is a magnetite iron mine on Musconetcong Mountain at the southwest end of the New Jersey Highlands, in Bethlehem Township, Hunterdon County, New Jersey. According to geological survey reports, the mine was started and worked extensively before 1868, but it is not known by whom or when. This region has been explored and mined for minerals starting in colonial times – a history which has left the area pockmarked with a great number of early, undocumented mine sites, as well as later mineral explorations that were not recorded.

There are forty-one known iron mines in Hunterdon County, many of them in Bethlehem Township. For most, perhaps all, like for Swayze, there are no maps of the underground workings, no maps of the surface layout and no company records. Various geological surveys, studies, reports and contemporary news accounts provide an outline of the Swayze Mine's productive history.

Around 1869, the old Swayze Mine was reopened by G. M. Miller & Company. Initially it was called the "Bethlehem Mine". The name was soon changed to "Swayze Mine" in honor of the property owner, William W. Swayze<sup>1</sup>, who, like G.M. Miller, lived in Glen Gardner.

In 1870, about 500 tons of iron ore from the Swayze Mine were shipped by rail from Valley Station on the Central Railroad of New Jersey (CRRNJ), which ran along the base of the mountain. As the direct route from the mine down the mountain to the station, a descent of 518 feet in three-quarters of a mile, was too steep for wagons, the ore was carted along a two-and-a-half mile route that used a gentler slope on the southwest side of the mountain.

In 1871, new shafts were sunk at the Swayze Mine, following the line of magnetic attraction to the east of the depleted, pre-1868 shafts. At the time G.M. Miller ended work at the Swayze Mine in 1875, the workings had gone to a depth of 90 feet.

---

<sup>1</sup> William W. Swayze was a successful farmer and local politician who served on the New Jersey Assembly and held several local positions, including County Collector and Bethlehem Township Assessor and Health Inspector.

In 1879, G.M. Miller & Company along with Daniel Runkle<sup>2</sup> of Asbury, New Jersey, were working the neighboring West End (Turkey Hill) Mines, located about a mile-and-a-half southwest of the Swayze Mine and making plans to resume mining at Swayze. In 1879, the Swayze Mine was reopened by the West End Company. The Company officers included: President: Frederic (Frederick) A. Potts<sup>3</sup>; Secretary and Treasurer: John Kean, Jr.<sup>4</sup>; General Manager: G. M. Miller; Superintendent: N. H. Heft.<sup>5 6</sup>

Both the West End/Turkey Hill Mines and the Swayze Mine produced Bessemer grade ore and both employed hundreds of workers. The largest business in the area, the enterprise was so important that on July 1, 1880, the name of the Bethlehem post office was officially changed to "West End"<sup>7</sup>.

Improving the speed and efficiency of transporting iron ore were important for both of these mines. There was a straightforward opportunity to do this at the West End/Turkey Hill Mines. The tracks of the Lehigh Valley Railroad, which ran along the edge of the West End Mines, were at a grade level slightly lower than the surface works of the mines. This would allow rail cars loaded at the mine to roll by gravity to the train station. A spur rail line from the Lehigh Valley Railroad tracks into the West End Mines site was started in 1879 and opened in 1880. (Map 6)

At the Swayze Mine the situation was more challenging. Both the direct route down the mountainside to the train station and the route used by the wagons were too steep for a conventional railroad. In 1881, a different solution was tried: a wire rope aerial tramway, the first one in the state, was erected to transport iron ore down the hillside to Valley Station in metal buckets. Superintendent Heft said "We can transport 150 tons of ore over our tramway from mine to cars, a distance of 4,000 in 10 hours, for a cost of 10 cents per ton."<sup>8</sup> This innovation improved production considerably. The route of the tramway is shown on the NJGS-27 (C.C. Vermeule, ca. 1881-1887) map. (Map 7) Production was between 2,000 and 3,000 tons of ore per month.

In late 1882, the iron and steel industry went into a slump. On Tuesday night, December 6, 1882, the West End Company suspended operations at the Turkey Hill Mine. Company President, Frederic A. Potts

---

<sup>2</sup> Daniel Runkle was a Director, then became President of the Warren Foundry and Machine Company in Phillipsburg. (Snell, James P. A History of Sussex and Warren Counties, New Jersey. Everts & Peck. Philadelphia. 1881. p 561.)

<sup>3</sup> Frederic A. Potts was a Director of the Central Railroad of New Jersey (1877-1882); President of the New York-Susquehanna and Western Railroad (1881-1888) and on the Board of several other railroads. He was in the wholesale coal business and was President of the New York Coal Exchange. He served on the Board of several other companies, including two banks. He served on the New Jersey Senate 1874-1876 and was the Republican candidate for the Governor of New Jersey in 1880. (Snell, James P. A History of Hunterdon and Somerset Counties, New Jersey. Everts & Peck. Philadelphia. 1881. pp 520-521.)

<sup>4</sup> John Kean, Jr., was President of the Elizabeth Gas Company, Vice President of the National State Bank of Elizabeth and served in the U.S. House of Representatives from March 4, 1883 to March 3, 1885 (Lee, Francis Bazley. History of Trenton, New Jersey. John L. Murphy, Printer. Trenton, New Jersey. 1895. p. 71) and was a U.S. Senator from March 4, 1899 to March 3, 1911. ([https://en.wikipedia.org/wiki/John\\_Kean\\_\(New\\_Jersey\\_politician\)](https://en.wikipedia.org/wiki/John_Kean_(New_Jersey_politician))).

<sup>5</sup> N.H. Heft had discovered and opened some of the mines at West End in 1872.

<sup>6</sup> Snell, James P. A History of Hunterdon and Somerset Counties, New Jersey. Everts & Peck. Philadelphia. 1881. p. 467.

<sup>7</sup>Ibid. p. 462.

<sup>8</sup> Cook, George H. Annual Report of the State Geologist for the Year 1881. New Jersey Geological Survey. Trenton, New Jersey. 1881.

explained that they had to stop work at the mine because the orders they had from the Bethlehem Iron Works had been canceled, and there was no other place to sell the ore. Over a hundred men were put out of work.<sup>9</sup> There was worry that the Swayze Mine would also have to be closed, which would raise the number of people out of work to three or four hundred.<sup>10</sup> Potts assured that the Swayze Mine would remain open because that mine had orders from the Scranton and Lackawanna Iron and Coal Company. Mining costs, however, had to be brought down. Hours at Swayze were dropped to half-time. Within a month, on January 2, 1883, both mines resumed full-time operation.<sup>11</sup>

In 1884, a geologic fault was encountered in the mine that offset the productive ore vein 40 feet to the northeast. Two drifts were dug about 300 feet into the ore. The total length of workable stopes was 467 feet.<sup>12</sup>

In December of that same year, when economic stress again affected these mines, wages at the Swayze Mine were reduced from \$1.10 to \$.90 a day. Machine runners' wages were reduced from \$1.40 to \$1.10 a day.<sup>13</sup>

On November 9, 1888, an unexpected event occurred which would have had an impact on the company: West End Iron Company President, Frederic A. Potts died suddenly following a brief illness. He was 52.

Between 1886 and 1889, the production at the Swayze Mine was reportedly small.<sup>14</sup> In early 1889, another downturn in the iron and steel industry occurred and a large number of businesses failed. This time, the West End Iron Company was included and went into receivership. According to newspaper accounts, the company had between \$300,000 and \$500,000 in liabilities<sup>15</sup>, but only \$30,000 in assets. The land, equipment and personal property were sold off in a five-day long Sheriff's Sale which started on October 8, 1889. It is probable that nearly everything which could be disassembled and moved off the mine property was sold and dispersed in those five days, including the aerial tramway, hoists, other operating equipment, hardware and supplies.

Several years later, in July 1897, a new enterprise came to the area – the West Portal<sup>16</sup> Company. Initial rumors and news reports were that the mines were being re-opened. A flurry of activity occurred over the next two months, but the only relation to the mines turned out to be collecting hundreds of wagon loads of loose rock from the top of the mountain to use in construction projects in the valley below. When the business promoters failed to pay their workers, the local businessmen and farmers, the effort collapsed.

---

<sup>9</sup> Sun, The. New York, New York. December 7, 1882.

<sup>10</sup> Evening Star, The. Washington, D.C. December 7, 1882.

<sup>11</sup> Laborer Enquirer, The. Denver, Colorado. January 20, 1883.

<sup>12</sup> Geological Survey of New Jersey. Annual Report of the State Geologist for the Year 1884. Trenton, NJ. 1884. p. 94.

<sup>13</sup> Las Vegas Daily Gazette. Las Vegas, Nevada. December 6, 1884; Highland Weekly News. Hillsborough, Ohio. December 10, 1884.

<sup>14</sup> Pustay, M.R. Abandoned Iron Mines of Hunterdon County New Jersey 1988. Office of Safety Compliance, Division of Workplace Standards, New Jersey Department of Labor. 1988.

<sup>15</sup> Indian Chieftain, The. May 23, 1889.; The Londonderry Sifter. Londonderry, Vermont. May 23, 1889.

<sup>16</sup> The name "West Portal" is derived from the fact that this area is at the entrance or "portal" of the western end of the Lehigh Valley Railroad tunnel through the Musconetcong Mountain.

For fifty years, no mining or mine-related activity took place at the Swayze Mine site. Then, in 1939, another company was organized, West Portal Mines, Inc., which leased the property. The company was organized by Anthony M. Hauck of Clinton, New Jersey, with Harry M. Roche of Dover, New Jersey, as consulting engineer. Other principals were Wilmet D. Cloos, Lake Ariel, Pennsylvania, and Clifton B. English, Easton, Pennsylvania. Modern methods, including installation of electronic haulage equipment, were going to be used.<sup>17</sup> In February 1941, the New York Times reported that the mine was being prepared to provide the low phosphorous iron ores that are required for the armor plate industry<sup>18</sup>. A magnetic ore concentrator was installed to work the tailings piles in 1941. Some concentrates were produced and shipped, but the quantity is not known.<sup>19</sup>

West Portal Mines, Inc., was short-lived. Work ended around 1943. The local story is that the business failed because so many men left to serve in the military during World War II. In 1946, the company was listed in the "Acts of the One Hundred and Seventieth Legislature of the State of New Jersey..." under "Proclamations" for failure to pay taxes in 1943.

West Portal Mines, Inc., was the last business venture to mine or utilize the iron ore in the area.

Swayze Mine Operational History Chart

| <b>Mine Operator</b>    | <b>Start</b>   | <b>End</b>  | <b>Activity Duration</b> | <b>Gap since last activity</b> |
|-------------------------|----------------|-------------|--------------------------|--------------------------------|
| <i>unknown</i>          | <i>unknown</i> | Before 1868 | <i>unknown</i>           | ---                            |
| G. M. Miller & Company  | Approx. 1869   | 1875        | 6 years                  | Not known                      |
| West End Iron Company   | 1879           | 1889        | 10 years                 | 4 years                        |
| West Portal Mines, Inc. | 1939           | About 1943  | 4 years                  | 50 years                       |

It is estimated that, over time, the total amount of ore shipped from the Swayze Mine was 253,000 tons.

The many geological reports that mention the Swayze Mine state that the underground workings at the Swayze Mine were extensive, but the workings are not mapped and the actual routes and their dimensions are not known.

#### U.S. GOVERNMENT STUDIES

In the period from 1943 to 1946, the U.S. Government carried out a nationwide program to locate and evaluate strategic mineral resources. Magnetite deposits in New Jersey were studied by the U.S.

<sup>17</sup> Iron Age, The. Plant Expansion and Equipment Buying. Chilton. Philadelphia, Pa. April 6, 1939. P. 85.

<sup>18</sup> New York Times, The. New York, New York. February 19, 1941.

<sup>19</sup> Pustay, M.R. op. cit.

Geological Survey and the U.S. Bureau of Mines. The USGS mapped the sites and analyzed the data which the US. Bureau of Mines collected using dip-needle surveys and diamond-drill coring.<sup>20</sup>

Map 9 shows the extent of the dip-needle surveyed area (broken line) and the locations of the diamond drill holes at the Swayze Mine, as well as the shafts and open pits located during the study.

No easily mineable ore bodies were located at the Swayze Mine, although there is a small possibility that there could be a continuation of the already-mined ore body which became separated from that ore body by a geological fault and was displaced to a very great depth.<sup>21</sup>

The US Bureau of Mines report included this statement about the surface equipment that was at the Swayze Mine at the time of their study:

“The Swayze mine has a complete mill ready for operation. All buildings are galvanized sheet iron over wooden frames; these comprise the:

Main mill building,  
Engine house,  
Large shop,  
Warehouse,  
Experimental shop, and  
Office building.

There is also a:

Wagon scale.”<sup>22</sup>

### The Swayze Mine Site Today

The Swayze Mine property was purchased by County of Hunterdon on December 23, 2001, and was opened to the public as Jugtown Mountain<sup>23</sup> Nature Preserve. Hiking trails have been put through the site, but otherwise, it is untouched.

The Swayze Mine site today is as the last workers left it in 1943 – minus the equipment and buildings, and covered with leaves, brambles and fallen trees. The foundations of both the mid-20<sup>th</sup> century and the mid-19<sup>th</sup> century buildings and structures remain, although the concrete foundations are beginning

---

<sup>20</sup> Hotz, Preston E. Some Magnetite Deposits in New Jersey. A Contribution to Economic Geology. Geological Survey Bulletin 995-F. 1954.

<sup>21</sup>Ibid., p. 251.

<sup>22</sup>Botsford, G.B. McHenry Mosier. West Portal Magnetite Mines, Hunterdon County, N.J. Report of Investigations. RI 4352. US Bureau of Mines. October 1948. P. 5.

<sup>23</sup> Before the development of the West End mines, the local hamlet, with its tavern, mills and shops, was a popular resting place for travelers and teamsters, and had been known for about seventy-five years as “Jugtown”. (Snell, James P. p. 462.) There are also popular stories that illicit beverages were hidden in the rocky terrain here during Prohibition. (Kiofsky, Douglas G. Heritage of Our Hunterdon County Parks, The. Hunterdon County Division of Parks and Recreation. Flemington, N.J. 2013.)

to crumble. Perhaps twenty or more mine shafts and pits remain visible. Mine tailings are piled in many locations. The lidar survey map (Map 12 and 13) shows the large number of surface disturbances including pits and shafts which remain today.

The boundaries of the Swayze Mine site are difficult to determine and the site is difficult to map, as it is spread over as much as a hundred and fifty acres which have reforested and have been intruded by brambles, obscuring former roadways, foundations, pits and shaft openings. A combination of map overlays, more detailed lidar studies and on-site surveying is needed to map features and develop site boundaries.

The mining features plotted on the geological report maps mostly fit into Bethlehem Township Block 32, Lot 55 and Block 32, Lot 54, which are owned by the County of Hunterdon.

The Swayze Mine site is also adjacent to the identified West Portal Historic District, as shown on the New Jersey Historic Preservation Office LUCY map (Maps 14 and 15).

## BIBLIOGRAPHY

### TEXTS

Bayley, William S. Iron Mines and Mining in New Jersey. Vol. VII of the Final Report of the State Geologist. New Jersey Geological Survey. Trenton, NJ. 1910.

Bayley, W.S. Pre-Cambrian Geology and Mineral Resources of The Delaware Water Gap and Easton Quadrangles, New Jersey and Pennsylvania. United States Geological Survey. Bulletin 920. 1941.

Botsford, G.B. McHenry Mosier. West Portal Magnetite Mines, Hunterdon County, N.J. Report of Investigations. RI 4352. US Bureau of Mines. October 1948.

Geological Survey of New Jersey. Annual Report of the State Geologist for the Years: 1873, 1879, 1880, 1881, 1883, 1884, 1885, 1890. Trenton, NJ.

Hawkes, H.E. and P.E. Hotz. Drill-Hole Correlation as an Aid in Exploration of Magnetite Deposits in the Jersey Highlands New York and New Jersey. Contributions to Economic Geology. Bulletin 955-A. Geological Survey, US Department of the Interior. 1947.

Hotz, Preston E. Some Magnetite Deposits in New Jersey. A Contribution to Economic Geology. Geological Survey Bulletin 995-F. 1954.

Hunterdon County Division of Parks and Recreation. Tower Hill Reserve & Jugtown Mountain Nature Preserve Trail Map and Guide. Flemington, NJ. Revised 2/2020.

Kiofsky, Douglas G. Heritage of Our Hunterdon County Parks, The. Hunterdon County Division of Parks and Recreation. Flemington, N.J. 2013.

Lee, Francis Bazley. History of Trenton, New Jersey. John L. Murphy, Printer. Trenton, New Jersey. 1895.

Legislature of the State of New Jersey. "Acts of the One Hundred and Seventieth Legislature of the State of New Jersey and One Hundred and Second under the New Constitution". MacCrellish & Quigley Co., Printers. Trenton, New Jersey. 1946.

Pustay, M.R. Abandoned Iron Mines of Hunterdon County New Jersey 1988. Office of Safety Compliance, Division of Workplace Standards, New Jersey Department of Labor. 1988.

Snell, James P. A History of Hunterdon and Somerset Counties, New Jersey. Everts & Peck. Philadelphia. 1881.

Snell, James P. A History of Sussex and Warren Counties, New Jersey. Everts & Peck. Philadelphia. 1881.

### NEWSPAPERS AND PERIODICALS

New York Times, The. New York, New York. Articles retrieved from The New York Times Archives on "TIMESMACHINE": nytimes.com

Iron Age, The. Chilton. Philadelphia, Pa. Articles retrieved from The Internet Archive: archive.org.

Other newspaper and periodical articles were retrieved from the Library of Congress Historic American Newspapers Collection, online: Chronicling America: <https://chroniclingamerica.loc.gov>

### OTHER ONLINE SOURCES

Wikipedia.org "John Kean New Jersey Politician".  
([https://en.wikipedia.org/wiki/John\\_Kean\\_\(New\\_Jersey\\_politician\)](https://en.wikipedia.org/wiki/John_Kean_(New_Jersey_politician)))

### PHOTOGRAPHS

Nancy Hunt, 2021.

PHOTOS



*Figure 1. The concrete foundation of a solitary building next to the entrance driveway and parking area.*



*Figure 2. Concrete foundations at 1939-1943 magnetic ore concentrating plant.*



*Figure 3. Concrete foundations at 1939-1943 magnetic ore concentrating plant.*



*Figure 4. Concrete pads at 1939-1943 magnetic ore concentrating plant.*



*Figure 5. Concrete foundations at 1939-1943 magnetic ore concentrating plant.*



*Figure 6. Mine shaft opening and tailings a few hundred feet from the magnetic ore concentrating plant.*



*Figure 7. A smaller mine hole in the same area.*



*Figure 8. Tailings pile on the west side the parking lot.*



*Figure 9. 19th century foundation a few feet couth of the large tailings pile.*



*Figure 10. Directly above the wall in Figure 7 are two vertically set bolts. The stone "wall" in the background is the roadbed for an on-site ground tramway.*



Figure 11. Mine hole.



Figure 12. Mine hole.



*Figure 13. Tramway roadbed adjacent to the roadbed end point.*



*Figure 14. The right wall of this feature is the end of the tramway roadbed.*



*Figure 15. Stone wall buried in leaves.*



*Figure 16. Foundations.*



Figure 17. Foundations.



Figure 18. Fitting to anchor equipment.



Figure 19. Threaded bolts set in stone.

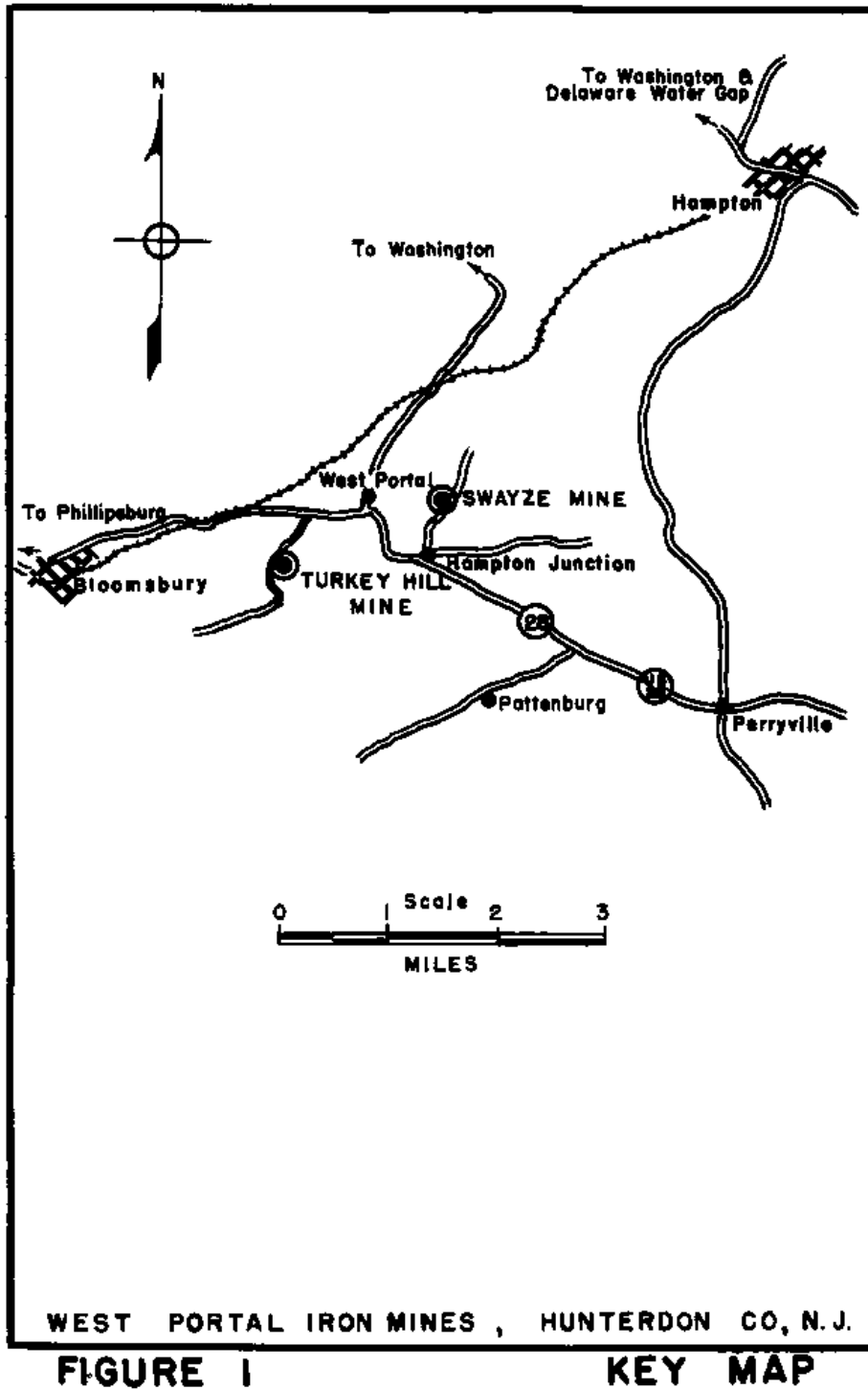


Figure 20. Long bolts with threaded ends, bent over, set in stone.

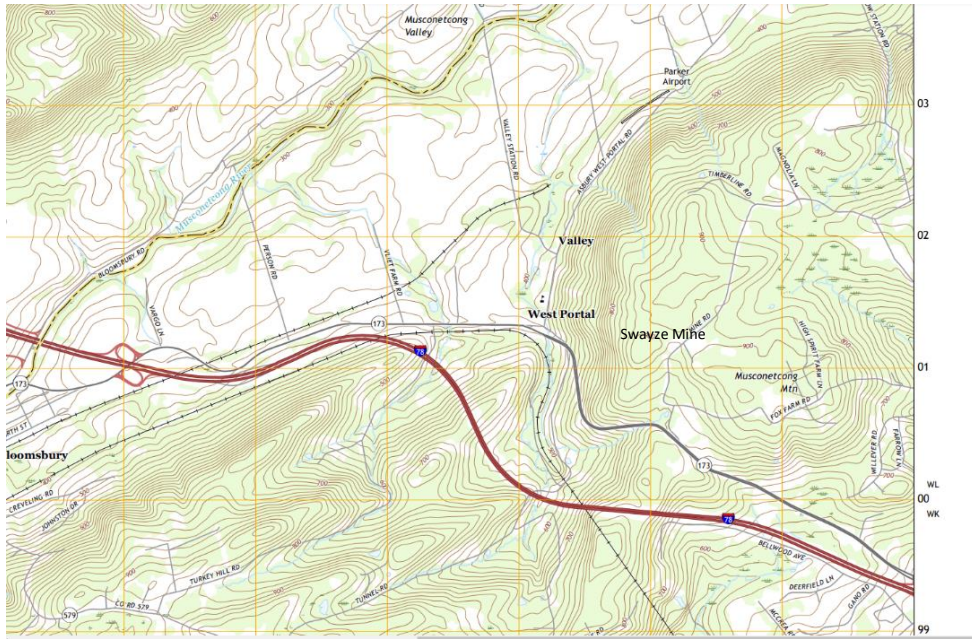


*Figure 21. Example of one of the many pits on the site.*

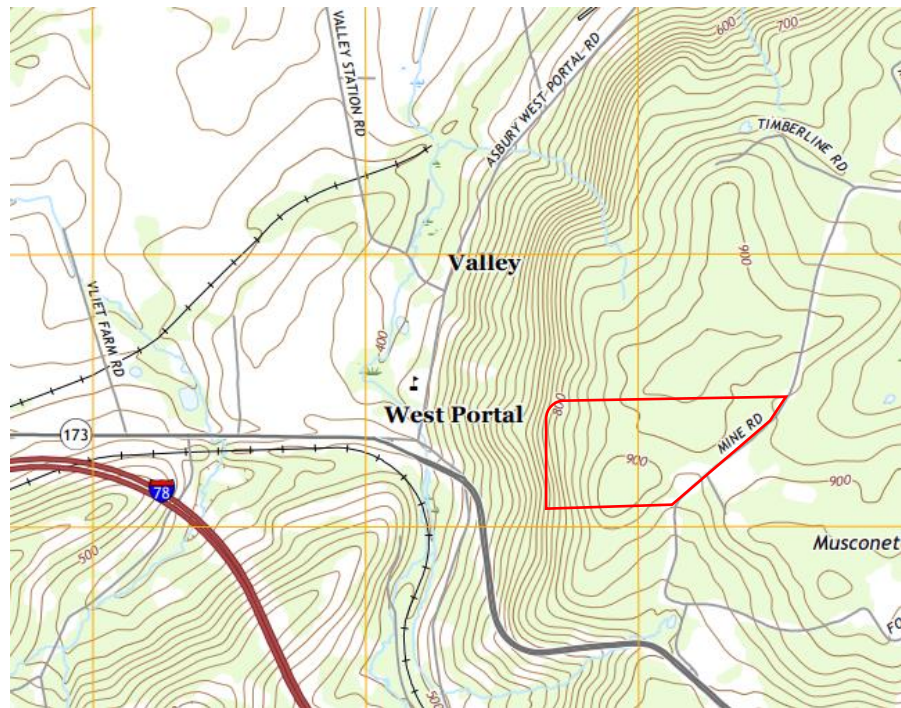
MAPS



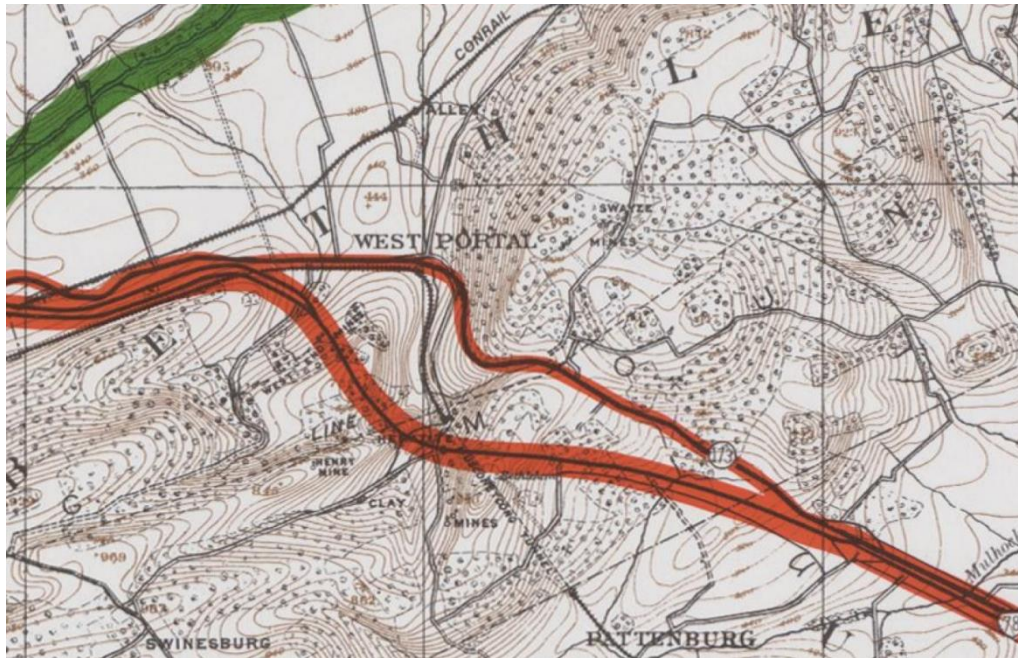
Map1. Location Map. (Botsford, G.B. RI 4352. US Bureau of Mines.)



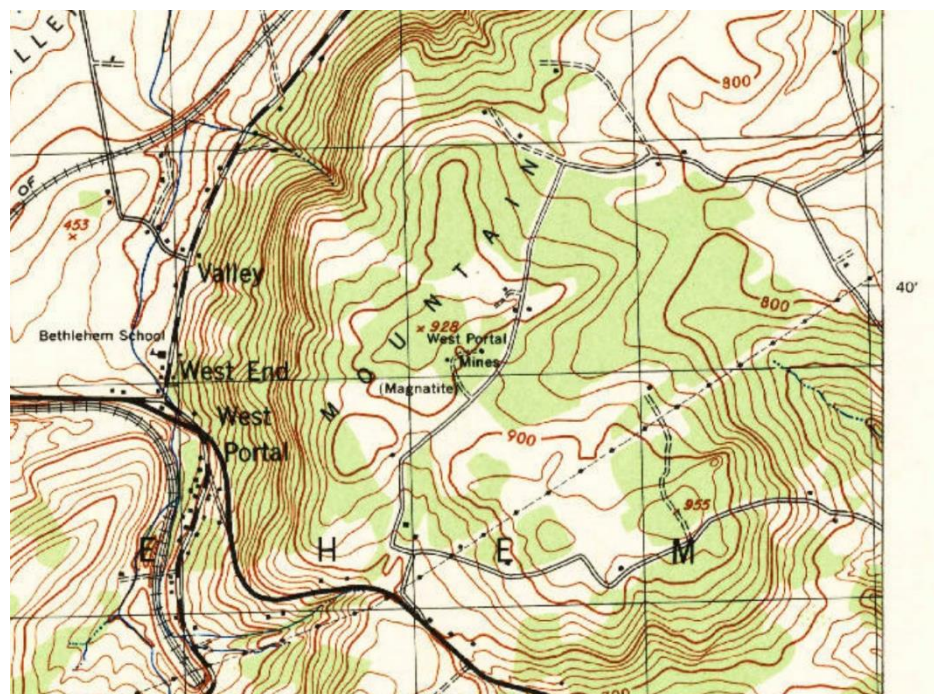
Map 2. Swayze Mine location and environs (USGS Topo 2019)



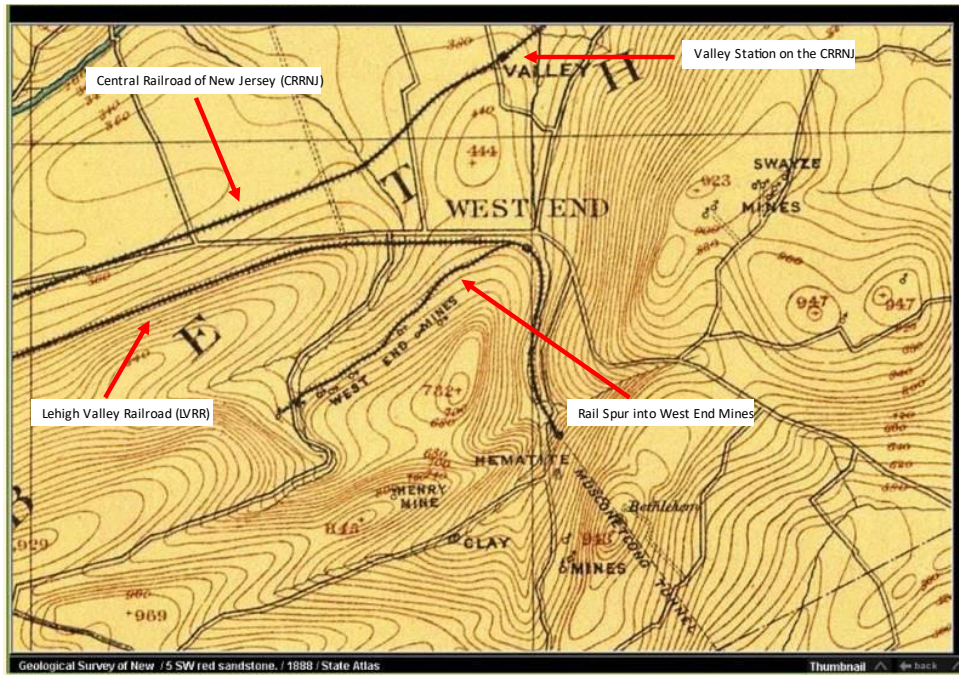
Map 3. Location of the densest occurrence of features at the Swayze Mine. (USGS Topo - 2019)



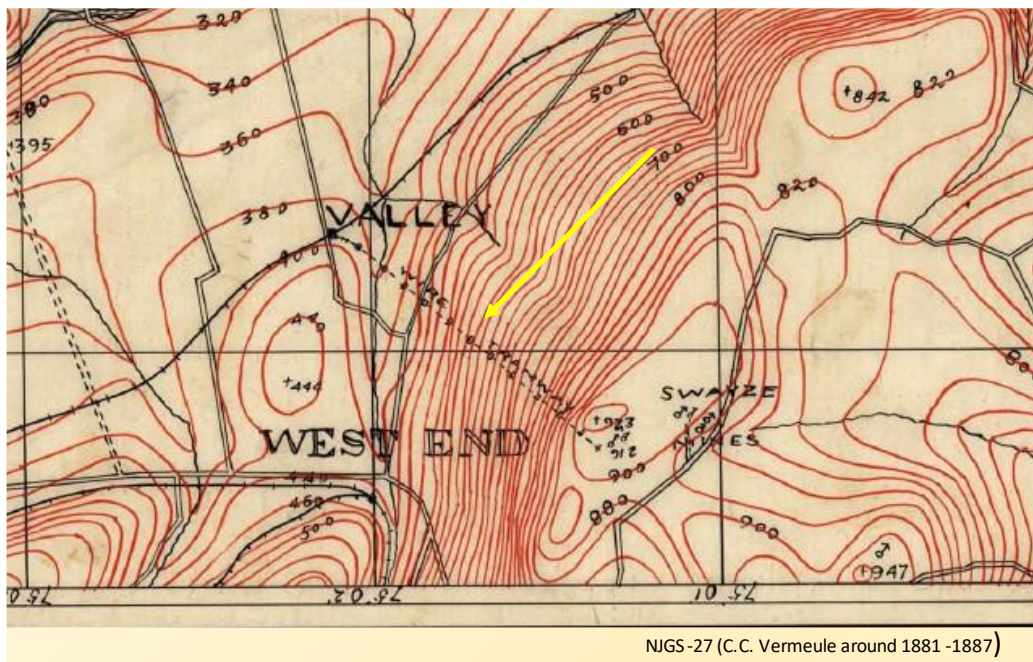
Map 4. "Swayze Mines". NJ Atlas Sheet 24, 1976 Revision, NJDEP.



Map 5. "West Portal Mines". Bloomsbury Quadrangle, N.J., War Department, Corps of Engineers, U.S. Army, 1943.



Map 6. 1888 NJGS map showing rail spur into West End Mine. (source: David Rumsey Collection)



Map 7. NJGS-27. Map showing wire tramway from the Swayze Mine to Valley Station. ( ca. 1881-1887)

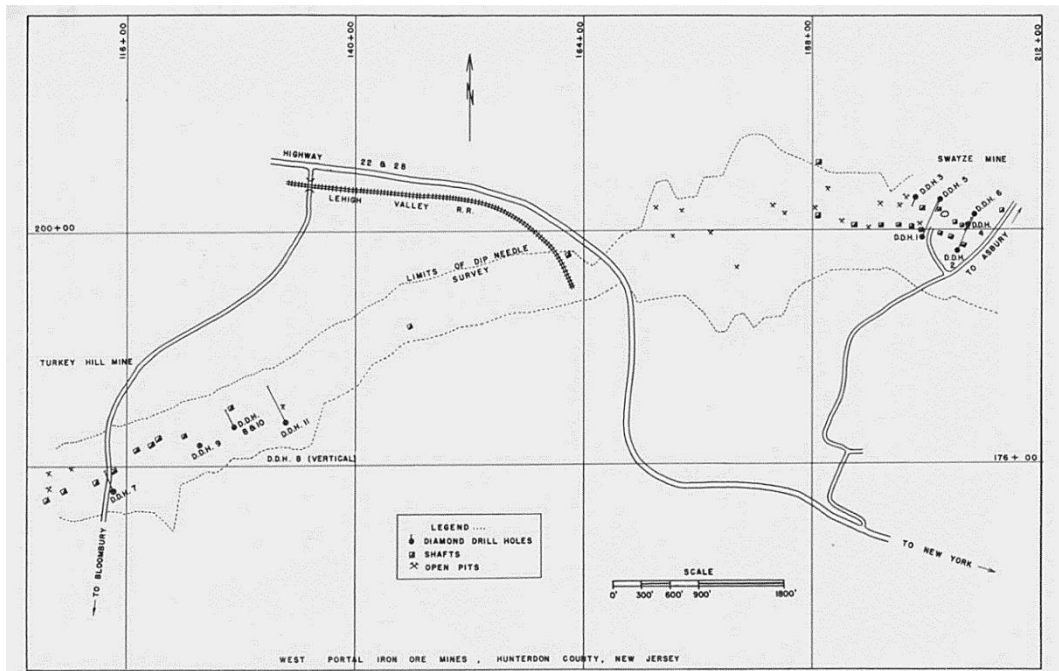
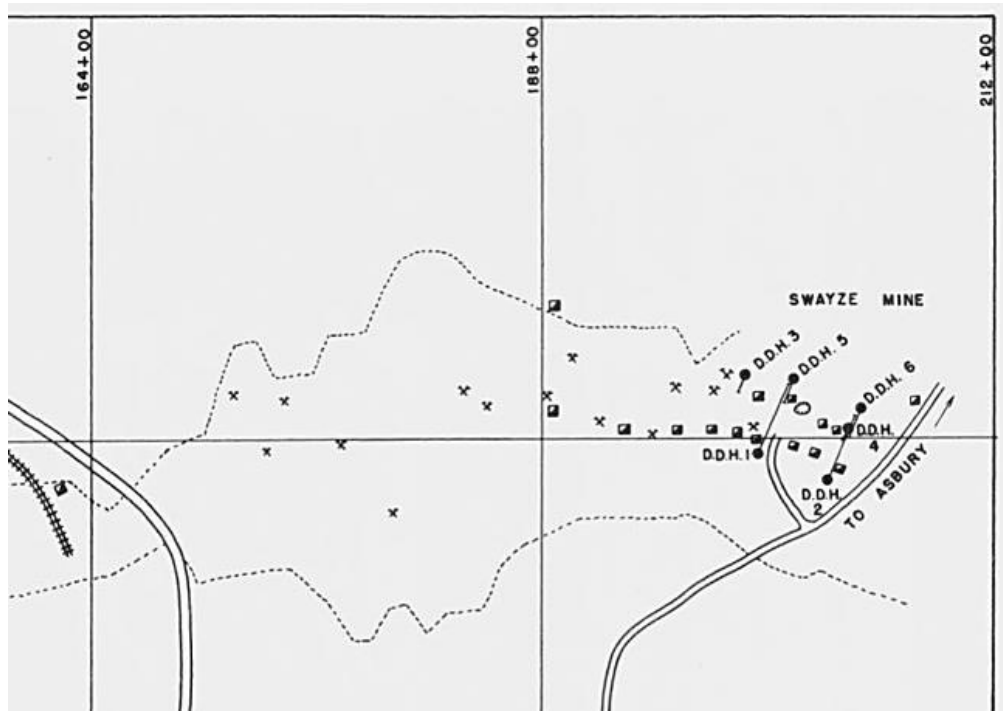
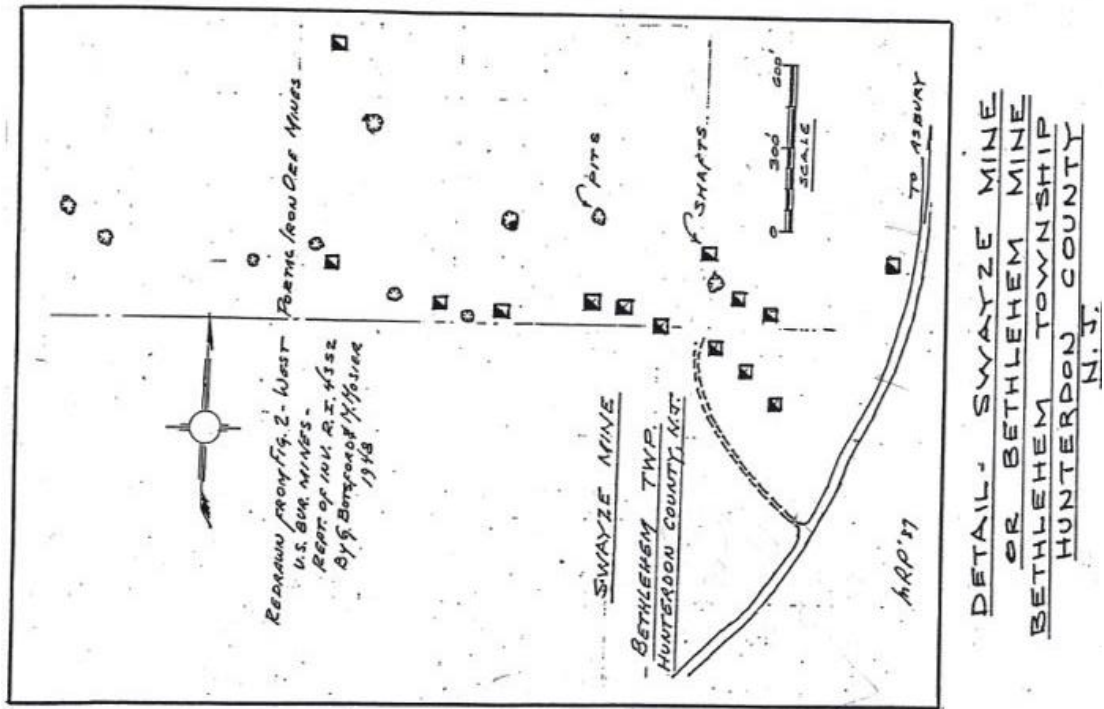


Figure 2. - Location of diamond-drill holes at West Portal mines.

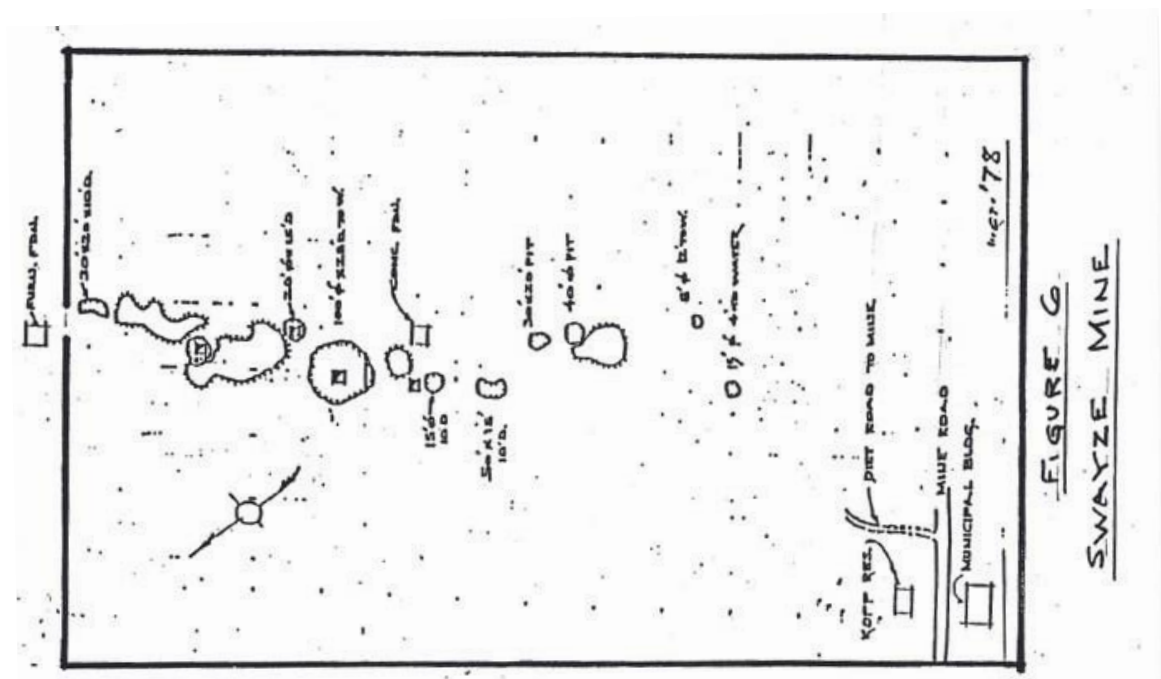
Map 8. Map by US Bureau of Mines showing both Swayze Mine (east of the highway labeled US 22 & 28) and Turkey Hill Mine (west of the highway). (Botsford, G.B. RI 4352. US Bureau of Mines.)



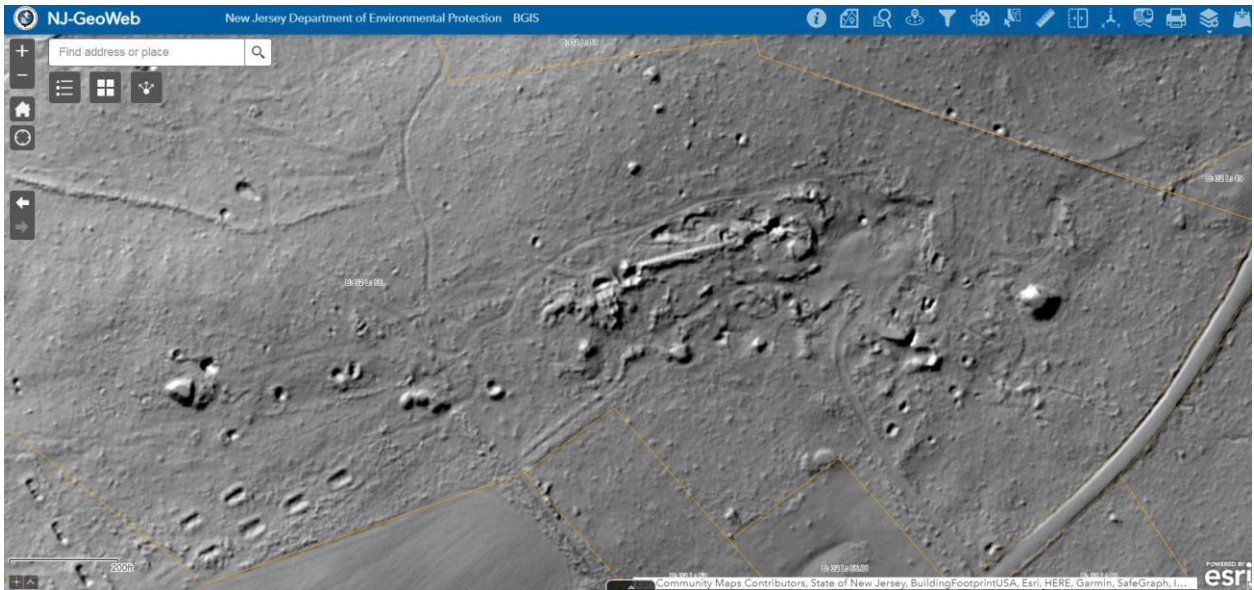
Map 9. Section of previous map showing Swayze Mine area. (Botsford, G. B. RI 4352. US Bureau of Mines.)



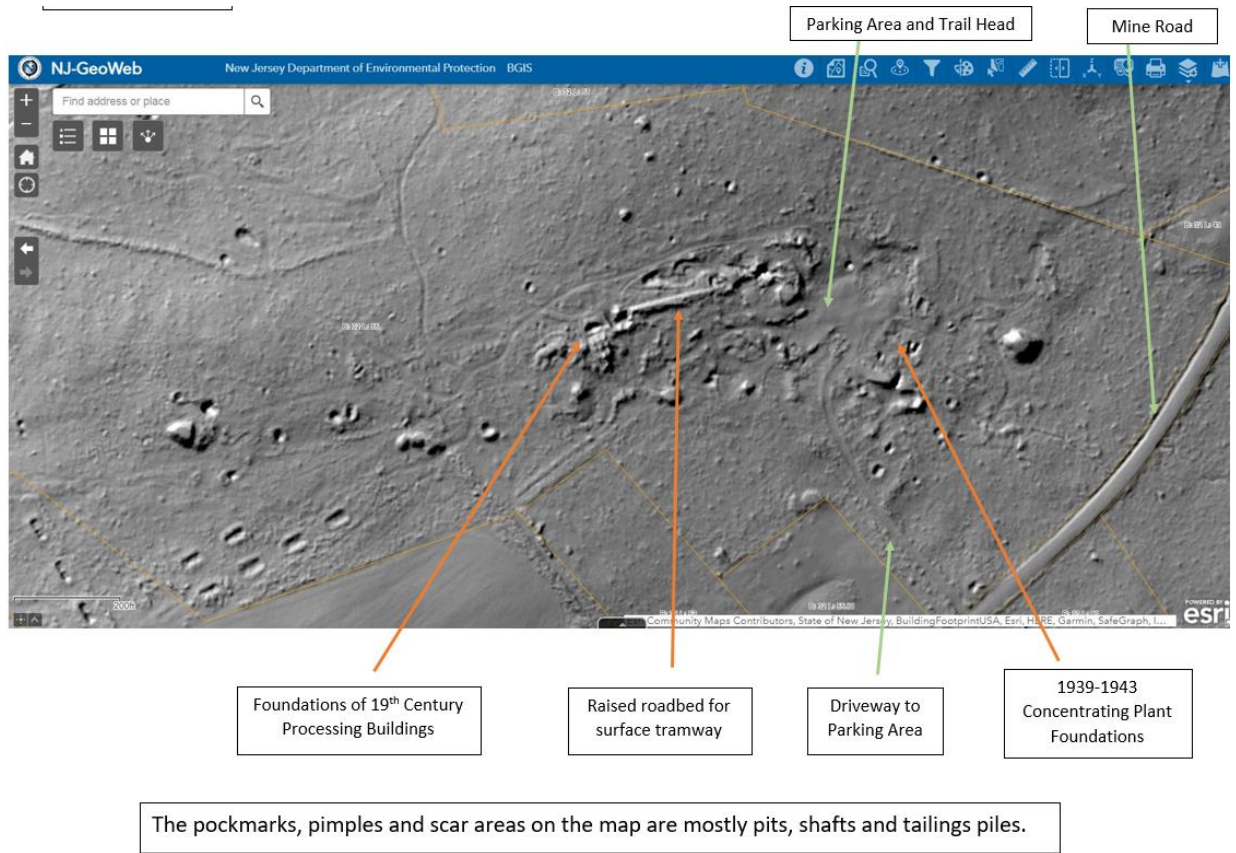
Map 10. Map showing locations of shafts and pits at the Swayze Mine. (Pustay, M.R. Abandoned Iron Mines of Hunterdon County)



Map 11. Map showing size of relative sizes of pits at the Swayze Mine. (Pustay, M.R. Abandoned Iron Mines of Hunterdon County)



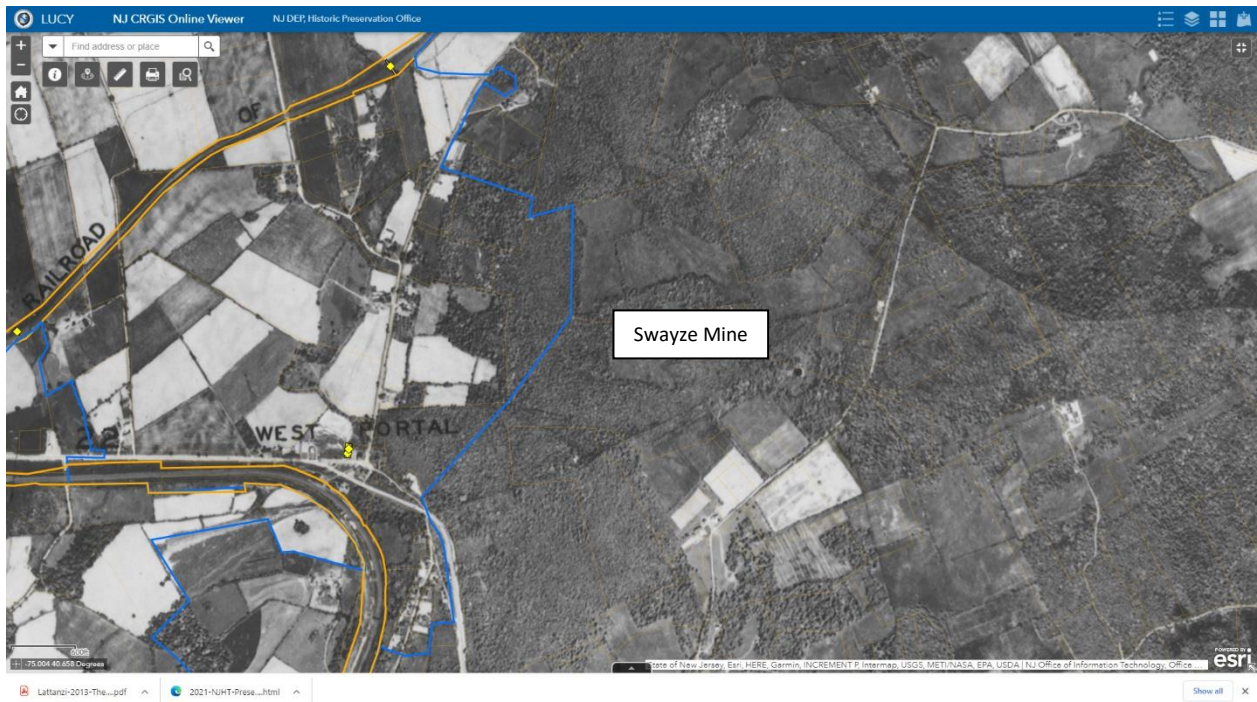
Map 12. Lidar view of the central area of the Swayze Mine.



Map 13. Lidar view of the central area of the Swayze Mine, with labels.



Map 14. The Swayze Mine is adjacent to the boundary for the identified West Portal Historic District shown on LUCY.



Map 15. The location of the Swayze Mine in relation to the proposed boundary for the identified West Portal Historic District.

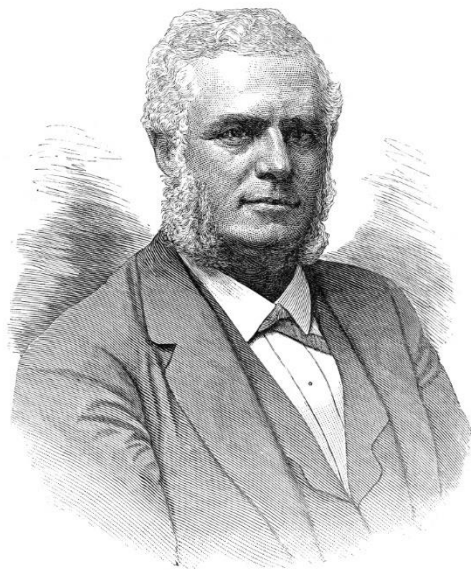
Some of the People Involved with the West End Mines and the Swayze Mine



*Mrs. W. Swayze*



*Daniel Runkle*



THE LATE FREDERIC A. POTTS

*Frederic A. Potts*



JOHN KEAN.

