

May 17, 2021

Mr. Jeff Randolph Blue Cup Ventures, LLC 2490 Black Rock Turnpike Fairfield, CT 06824

RE: Historic Mining Review Desktop Study

85-Acre Parcel

Haul Road & Johnson Street

Wilkes-Barre, Luzerne County, Pennsylvania Kleinfelder Project Number: 20214488.001A

Dear Mr. Randolph:

In accordance with your request, Kleinfelder, Inc. (Kleinfelder) has prepared this correspondence to present our findings of the desktop study and historic mining review on the proposed distribution center development at the above referenced project site.

PROJECT & SITE DESCRIPTION

The project site currently consists of approximately 85 acres of undeveloped and partially wooded land, located along Haul Road in Wilkes-Barre, Luzerne County, Pennsylvania. The property has been disturbed over its history leaving the existing ground surface and topography highly variable as a result. Topography across the project site generally slopes downgradient from Wilkes-Barre Mountain in the east to PA-309 toward the west. The location of the project site in relation to the surrounding area is shown on the *Topographic Map* (Figure 1) presented within the Appendix.

Based on information provided by Blue Cup Ventures, LLC, the project will consist of development of the project site into a distribution center. The size of the proposed structure(s) is unknown at the time of this writing. Based on Figure 1, existing ground surface elevations across the project site range from approximately 800 in the extreme eastern portion to 660 feet in the northern and western portions of the site. The project site is situated within the northern anthracite coal field of Pennsylvania's eastern coal region which has been historically mined for anthracite coal, which carries the potential for underground mines.

SCOPE OF WORK

The scope of work for this project was to identify the historic use of the property, locate available historic maps, including mine diagrams and determine the potential for deep mine features at the site. This objective was accomplished through a scope of work which included a desktop review of existing data and preparation of this summary letter.

SITE GEOLOGY

Based on the <u>Pennsylvania Geologic Survey Atlas of Preliminary Geologic Quadrangles</u>, Fourth Series, 1981, the project site is underlain by the Pennsylvanian Llewellyn Formation (geologic symbol PI). The project site within its geologic setting is presented on the *Geologic Map* (Figure 2) provided within the Appendix.

According to the Pennsylvania Geologic Survey publication, *The Engineering Characteristics of the rocks of Pennsylvania Second Edition*, 1982, the Llewellyn Formation consists of interbedded layers of sandstone, siltstone and conglomerate; which range from medium- to coarse-grained; with numerous anthracite coal and dark-gray to black shales. The sandstone in this formation is well bedded and thick to massive, while the coal and shale beds are relatively thin. Fractures are moderately developed and moderately distributed. Joints are moderately spaced, open and steeply dipping. The rock is slightly to moderately weathered to a shallow or moderate depth, dependent on the local lithology. The resulting soil mantle is thin to moderately thick.

Mr. Jeff Randolph 85-Acre Parcel Haul Road & Johnson Street May 17, 2021 Page 2 of 5

HISTORIC OVERVIEW

The project site, which was referred to as the Franklin Colliery was started by the Lehigh Valley Coal Company of Wilkes-Barre and was later taken over by Pagnotti Enterprises of West Pittston, Pennsylvania and operated until 1964. A recycling facility has been constructed to the southwest of the project site with an access road traversing the western portion of the site. Current mining permits are held by Jeddo-Highland Coal Company (S.M.P. #40990201) and Latona Mining, LLC (M.S.H.A ID #36-01673). The project site is known to be underlain by several mapped coal seems, containing economically viable deep and shallow coal mines.

ANTHRACITE COAL MINING

The project site is located within the "Northern Anthracite Coal Field" as described by the Pennsylvania Geological Survey in 1884. The 1884 Northern Coal Field Mine Sheet No. VI shows the project site to be underlain by the outcrops of the Red Ash, Ross and Baltimore coal veins. Additional mining maps observed from the Pennsylvania Mine Map Atlas of the Pennsylvania Department of Environmental Protection, show the Sump and Skidmore veins also underlay the site. The coal veins within this area extend to approximately 1500 below the surface.

A cross-section of the coal seams is presented within the Appendix on the *Geologic Stratigraphy* (Figure 3). The Geologic Stratigraphy is shown on the upper right corner of the 1884 Northern Coal Field Mine Sheet No. VI. The cross-section is anticipated to represent the structure of the coal beneath the site in descending order as E. Baltimore or Mammoth Bed, D. Bed, Ross Bed and Red Ash Bed coal veins from the Empire Tunnel which is anticipated to be located to the northeast of the project site. As previously mentioned, the Sump and Skidmore veins were also mined beneath the site, however it is not shown on the geologic stratigraphy section. Thicknesses of the coal veins shown at the Empire Tunnel location are as follows:

- . E. Baltimore or Mammoth Bed: 16 feet in thickness
- D. Bed: 6 feet in thickness (unnamed vein below is 6 feet in thickness)
- C. Ross Bed: 8 feet in thickness
- B. Red Ash Bed: Top Red Ash is 6 feet thick and Bottom Red Ash is 10 feet in thickness

Available mining maps were found for the Baltimore, Sump, Skidmore Middle, Skidmore Bottom, Ross, Red Ash Top and Red Ash Bottom Coal Veins. Based on the individual mining maps reviewed, shown within the Appendix on the *Mining Maps* (Figures 4 through 13), deep mining operations took place across and beneath the majority of project site at various elevations. It should be noted that the maps were overlaid using industry accepted standards, however; due to the inherent unknown referencing system of the maps and a lack of a known surveyed benchmark, a certain margin of error may exist.

Surficial mining maps were also observed for the Baltimore, Sump, Skidmore, Ross and Red Ash veins. The Baltimore and Sump veins appear to have outcropped (contacted the surface) within the project site. The Skidmore, Ross and Red Ash veins appear to have outcropped to the southeast of the project site at the base of Wilkes-Barre Mountain, and plunged to elevations beneath the project site.

Historical aerial photographs provided by USDA were observed and are provided within the Appendix on this Letter on the *Historical Aerial Photographs* (Figures 14 through 17). The 1939 aerial shows surficial disturbances across the project site have already taken place. Various buildings have been constructed, rail lines have been aligned in the central and eastern portions of the site, and piles of material have been removed from the north, eastern and southwestern portions of the site. Surficial disturbance severity increases from the 1939 aerial to the 1959 aerial incorporating seemingly large piles to the south central and western portions of the site. The advent of more powerful earth movers during the 1940's and 1950's allowed strip mining to become a more commercially viable method of coal removal than it was previously, in areas with shallow or thin coal seams. By the 1969 aerial, it appears some of the previously existing piles and disturbances become centralized to the central portion of the site, with some various buildings and piles remaining in other portions of the site. Deep mining activities in the area generally ceased prior to 1970. By the current aerial (ca. 2016), mining operations are no longer active, and the site looks generally overgrown with vegetation without much topography change from the 1969 aerial.

Mr. Jeff Randolph 85-Acre Parcel Haul Road & Johnson Street May 17, 2021 Page 3 of 5

SUMMARY OF DATA OBTAINED

Based on our review of available, published data, it appears that the site was primarily used as a coal mine, both at the surface and at depth. Historic maps indicate that mining has occurred within each of the coal bearing formations at the site. Surface, or strip, mining was conducted within the Baltimore and Sump Veins at obtainable depths across the project site. The Skidmore, Ross and Red Ash veins were strip mined to the southeast of the project site where their outcrops surfaced in the base of Wilkes-Barre Mountain. Deep mining was conducted utilizing the "room and pillar" mining method. The coal seams were contacted and mined into. The "pillars" would support the mined "rooms". Some of the mine maps show that some pillars have been removed from the mine works in a process which is called "robbing". Robbing consists of the removal of the "pillars" in an effort to remove as much coal as possible. Based on the historical aerials, significant piles of material appear to remain on-site along with the potential for mining activity infrastructure, like rail lines, roads, equipment, building materials.

The mined coal veins beneath the project site appear to exist in the following order and brief descriptions of the veins are provided below.

Baltimore

The Baltimore vein was generally strip mined across the site. It was deep mined as it plunged to the southwest of the project site. The Baltimore was probably deep mined at first as it outcropped across the site, then as excavation equipment capabilities were improved, the overburden material was removed so the vein could be strip mined to some extent. The Baltimore vein may be (have been) approximately 16 feet thick in this geographic area, and as strip mining became more prevalent as excavation technology improved, this vein may have been chased via strip mining even with 100 feet of overburden material.

Sump

The available mining maps indicate Sump vein was strip mined in the southern portion of the site at the outcrop. It was deep mined as it plunged to the southwest of the project site and the pillars were robbed. The Sump vein was mined beneath approximately 15% of the southwestern portion of the site.

Skidmore Middle

The Skidmore Middle vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath the entirety of the project site. Approximately 80% of the Skidmore Middle vein was robbed, leaving 20% with presumably intact pillars.

Skidmore Bottom

The Skidmore Bottom vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath approximately 65% of the project site in various areas. Certain areas in the central portion of the project site were omitted in the mining maps observed. Approximately 80% of the Skidmore Bottom vein was robbed, leaving 20% with presumably intact pillars.

Ross

The Ross vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath only approximately 1% of the project site. The mining maps do not indicate robbing was conducted within the Ross vein.

Red Ash Top

The Red Ash Top vein was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath the entirety of the project site. Approximately 1% of the Red Ash Top vein was robbed, leaving 99% with presumably intact pillars.

Mr. Jeff Randolph 85-Acre Parcel Haul Road & Johnson Street May 17, 2021 Page 4 of 5

Red Ash Bottom

The Red Ash Bottom vein is the deepest of available mined veins beneath the site, and was strip mined to the southeast of the project site as it outcropped in the base of the mountain. The vein was deep mined utilizing room and pillar mining methods beneath the entirety of the project site. The mining maps do not indicate robbing was conducted within the Red Ash Bottom vein.

CONCLUSIONS

Based on the extent and age of the surficial disturbance from stripping operations at the project site, it is assumed material was moved across the site without engineering control, therefore, not as properly placed structural fill, which increases risk of intolerable post-construction settlement if not mitigated. The fill material used is also likely to be comprised of varying non-cohesive soils. Based on the unknown depth of the fill material from mining activities, any development of the project site would likely require a ground improvement program including Deep Dynamic Compaction. Deep mining activities have occurred beneath the project site at depths which may influence the surface development. Some likelihood of mine subsidence exists within the southwestern 15% of the project site from remnants of the Baltimore and Sump vein deep mine workings, therefore, a possibility exists for the inclusion of a subsidence mitigation program for development of the project site. Kleinfelder recommends that a detailed subsurface mine exploration be conducted to explore the conditions of the subsurface mine features. Test pits and test borings are recommended to explore the near surface conditions prior to site development. Uncertainty exists to the true extent of the deep mine workings, subsidence potential and environmental concerns associated with historic deep mines at the site. Deep mine borings are also recommended with an air rotary rig, in order to explore the deep mine veins beneath the site. Additionally, the lack of engineering control during the placement of fill at the site creates additional settlement issues. It must be understood the project site is underlain by deep and shallow mining which is can create areas susceptible to subsidence. The Owner should recognize the risks associated with the development of a project site which has been mined.

GEOTECHNICAL ENGINEERING SERVICES

The scope of work completed for this report was intended to provide a preliminary desktop review of the conditions across and beneath the project site as they relate to potential mining activities, in order to gain a further understanding of the risks involved with development of the project site. It is recommended a detailed subsurface exploration be completed across the site improvements prior to the issuance of final design criteria for the project. The specific scope of work will be determined once preliminary/final site plans have been developed.

LIMITATIONS

The information provided above is based on a review of historical maps that may contain inaccuracies. Kleinfelder conducted a thorough review of these historic documents and relied on them to arrive at our conclusions. This study is based on generally accepted policies and procedures, and interpretation of various publicly available maps and geologic studies which are believed to be accurate and reliable. Discrepancies or inaccuracies regarding any data provided are not the responsibility of Kleinfelder. It is emphasized that this study was made for the 85-Acre parcel at Haul Road and Johnson Street in Wilkes-Barre, Luzerne County, Pennsylvania. The intent of our study was to provide conclusions concerning the history of coal mining at the property. The information presented herein should not be used for any other purpose.

Mr. Jeff Randolph 85-Acre Parcel Haul Road & Johnson Street May 17, 2021 Page 5 of 5

CLOSING

We trust that this is the information you require. Should you have any questions or if we may be of further assistance, please don't hesitate to contact our office.

Sincerely,

KLEINFELDER, INC.

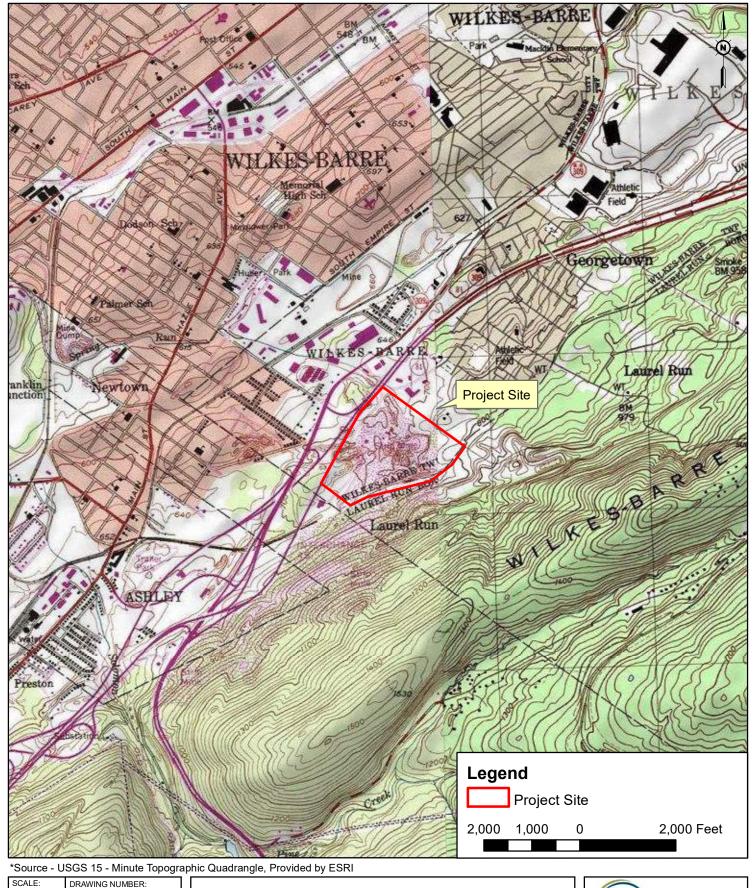
Jason E. Trimble Project Manager

Mark A. Giunta, P.E. Principal Professional



APPENDIX

FIGURE 1 – TOPOGRAPHIC MAP FIGURE 2 – GEOLOGIC MAP FIGURE 3 – GEOLOGIC STRATIGRAPHY FIGURE 4 – GENERAL MINING MAP FIGURE 5 – BALTIMORE MINING MAP FIGURE 6 – BALTIMORE STRIP MINING MAP FIGURE 7 – BALTIMORE VEIN ELEVATION MAP FIGURE 8 – SUMP VEIN MINING MAP FIGURE 9 – SKIDMORE MIDDLE MINING MAP FIGURE 10 – SKIDMORE BOTTOM MINING MAP FIGURE 11 – ROSS VEIN MINING MAP FIGURE 12 - RED ASH TOP MINING MAP FIGURE 13 – RED ASH BOTTOM MINING MAP FIGURE 14 – 1939 AERIAL PHOTOGRAPH FIGURE 15 – 1959 AERIAL PHOTOGRAPH FIGURE 16 – 1969 AERIAL PHOTOGRAPH FIGURE 17 – CURRENT AERIAL PHOTOGRAPH



SCALE: DRAWING NUMBER:
AS SHOWN FIGURE 1

DRAWN BY: CHECKED BY:
C. WEEMS J. TRIMBLE

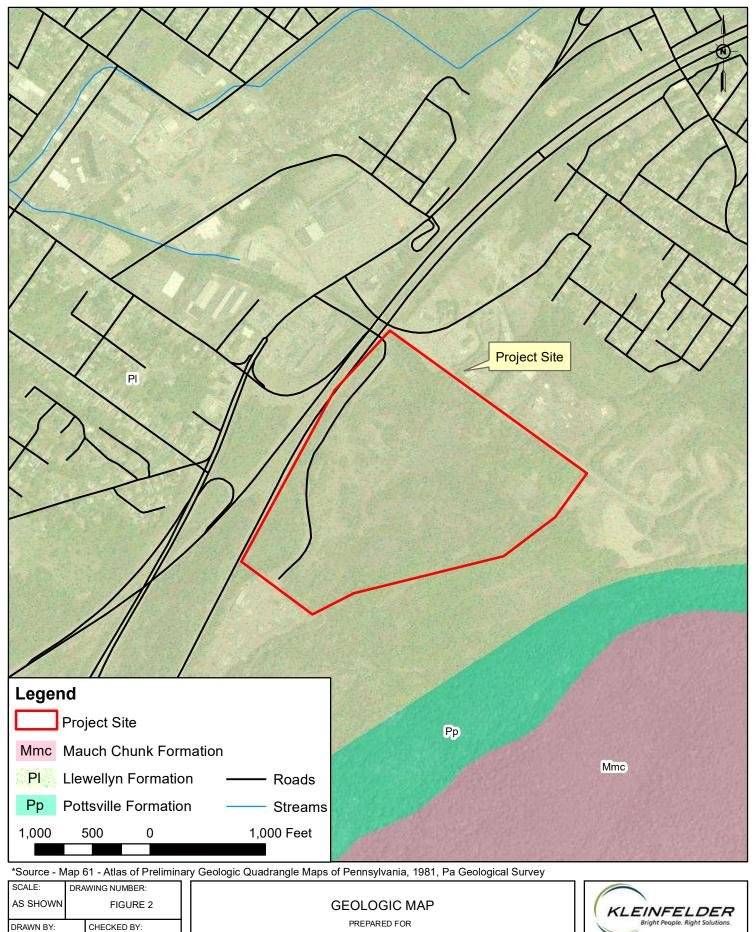
APPROVED BY: DATE:
M. GIUNTA 4-06-2021

TOPOGRAPHIC MAP
PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA





PREPARED FOR
HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

C. WEEMS

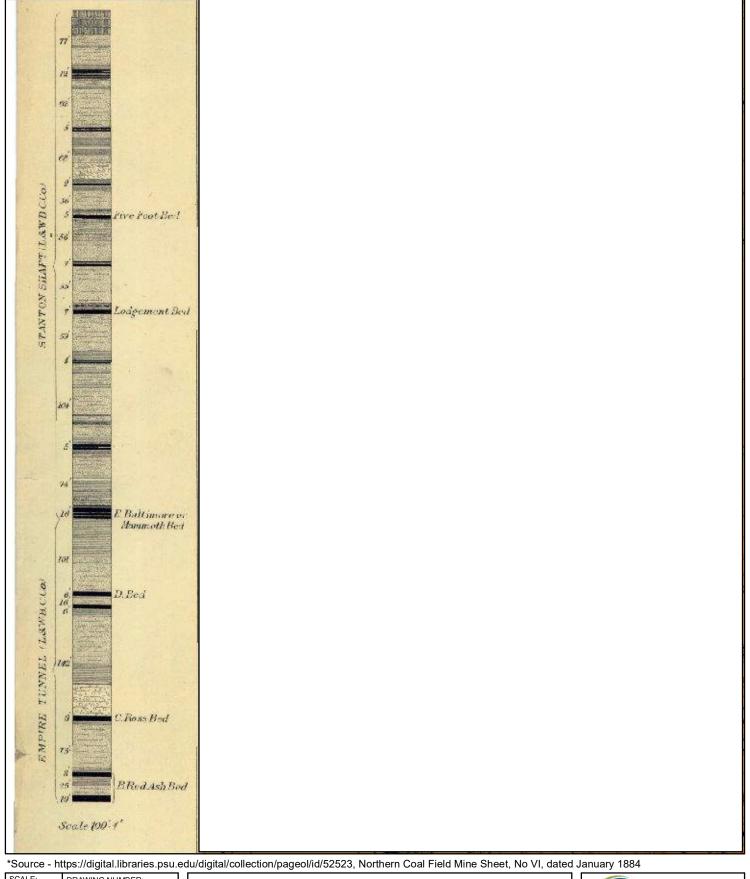
M. GIUNTA

APPROVED BY:

J. TRIMBLE

4-06-2021

DATE:



SCALE: DRAWING NUMBER:
AS SHOWN FIGURE 3

DRAWN BY: CHECKED BY:
C. WEEMS J. TRIMBLE

APPROVED BY: DATE:
M. GIUNTA 4-06-2021

GEOLOGIC STRATIGRAPHY

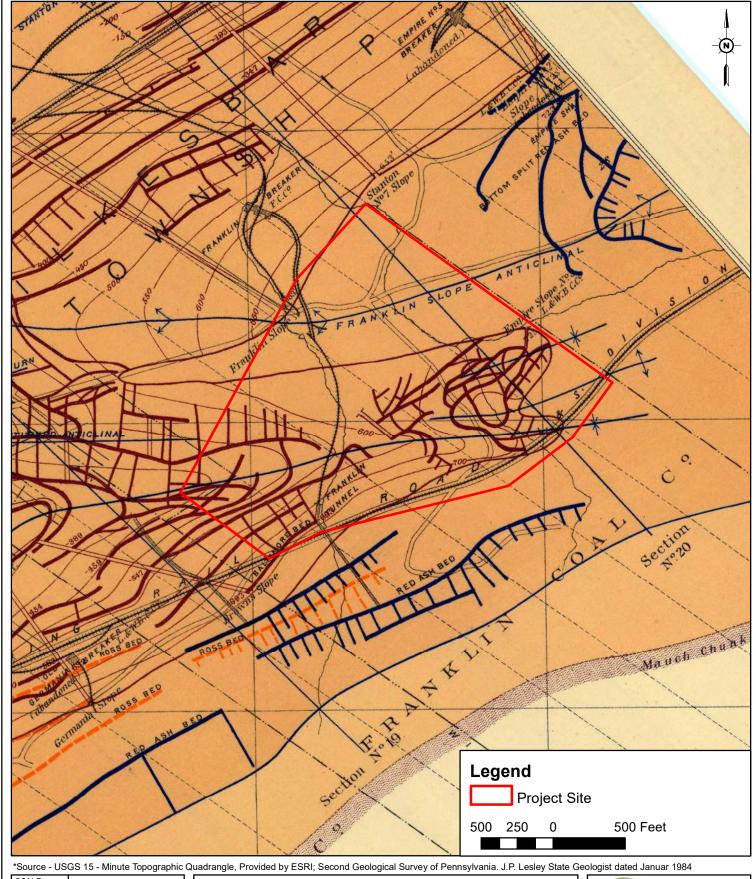
PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA



FAX (717)458-0801



SCALE: DRAWING NUMBER:
AS SHOWN FIGURE 4

DRAWN BY: CHECKED BY:
C. WEEMS J. TRIMBLE

APPROVED BY: DATE:
M. GIUNTA 4-06-2021

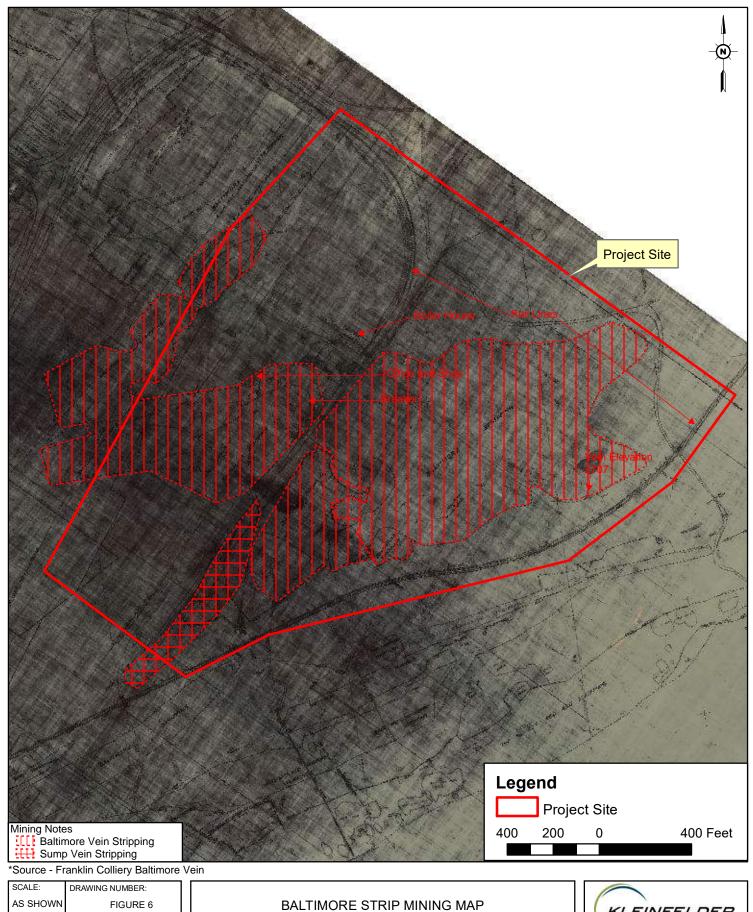
GENERAL MINING MAP
PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA







AS SHOWN FIGURE 6

DRAWN BY: CHECKED BY:
C. WEEMS J. TRIMBLE

DATE:

4-06-2021

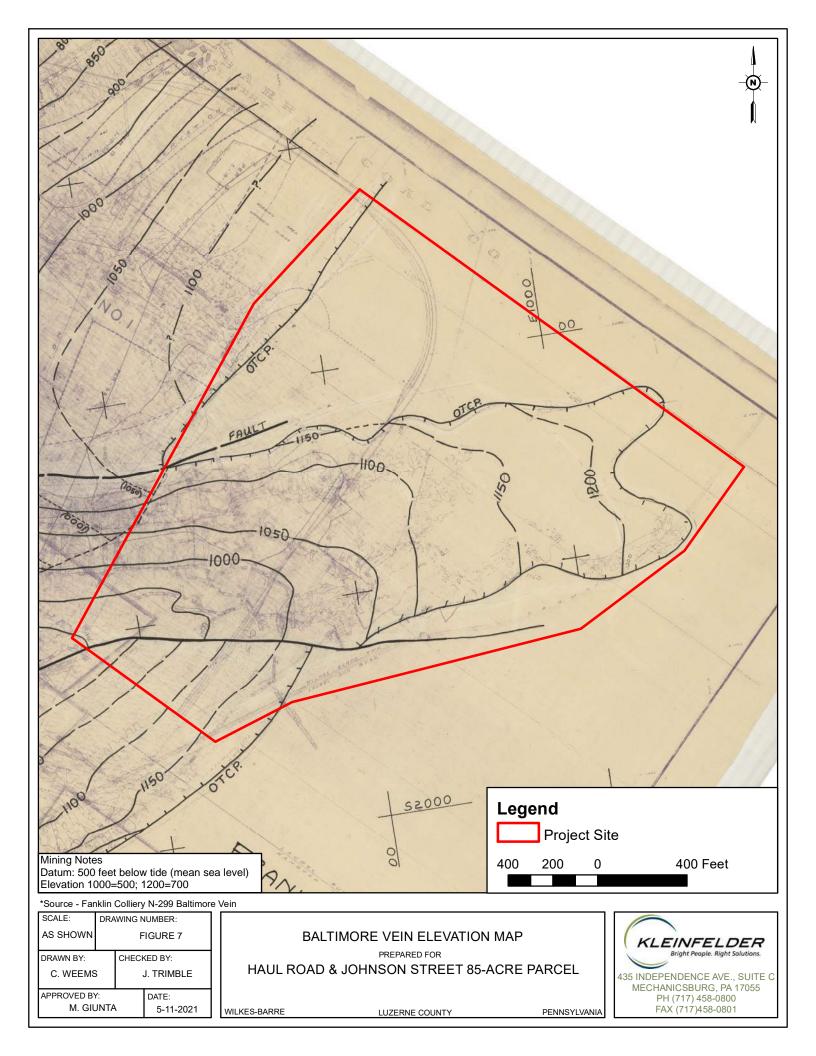
APPROVED BY:

M. GIUNTA

PREPARED FOR HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

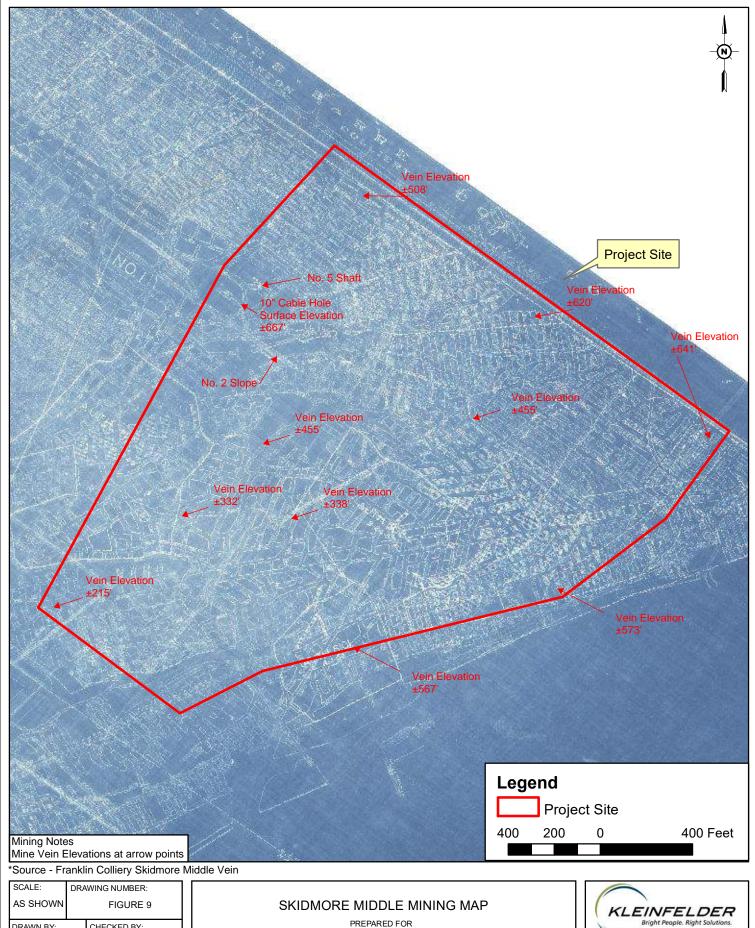






APPROVED BY: DATE: M. GIUNTA 4-06-2021

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA



WILKES-BARRE PENNSYLVANIA LUZERNE COUNTY

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

DRAWN BY:

C. WEEMS APPROVED BY:

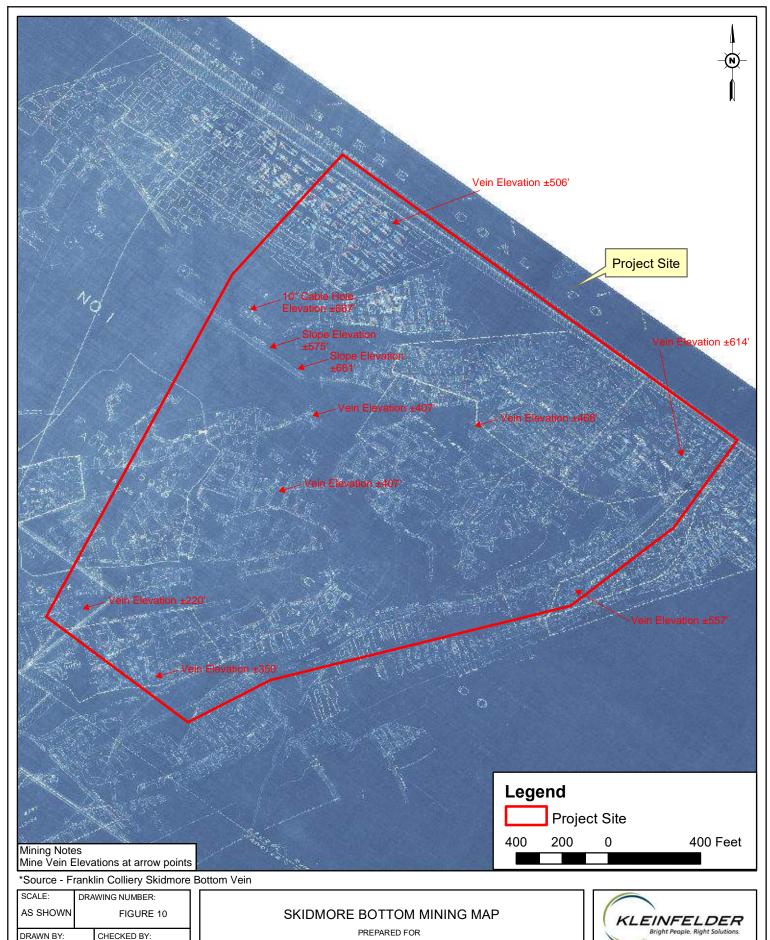
M. GIUNTA

CHECKED BY:

J. TRIMBLE

4-06-2021

DATE:



WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

C. WEEMS

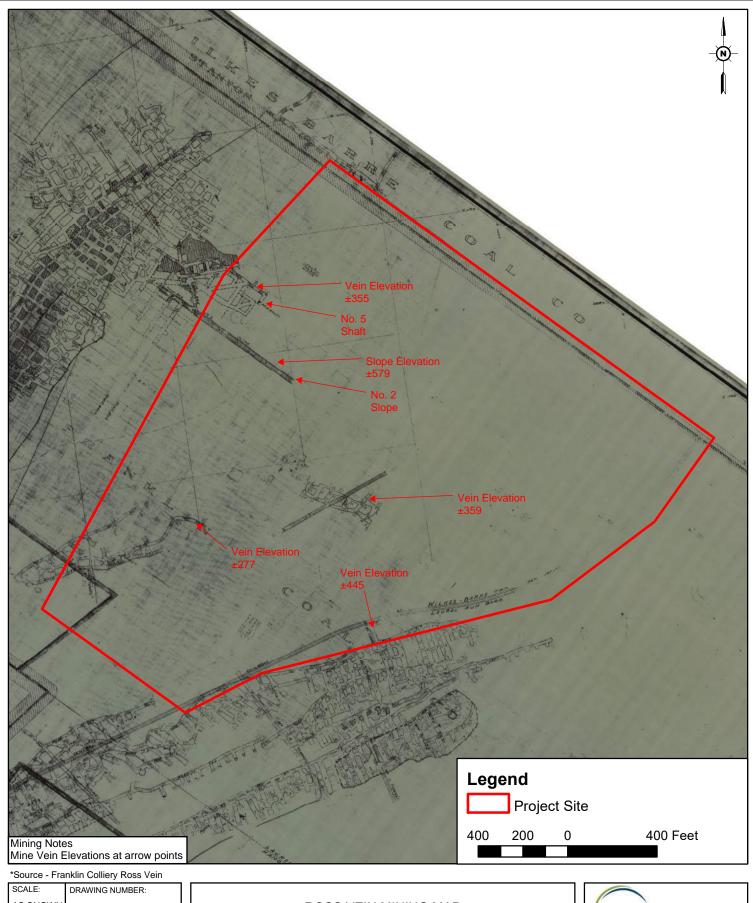
APPROVED BY:

M. GIUNTA

J. TRIMBLE

4-06-2021

DATE:



SCALE: DRAWING NUMBER:
AS SHOWN FIGURE 11

DRAWN BY: CHECKED BY:
C. WEEMS J. TRIMBLE

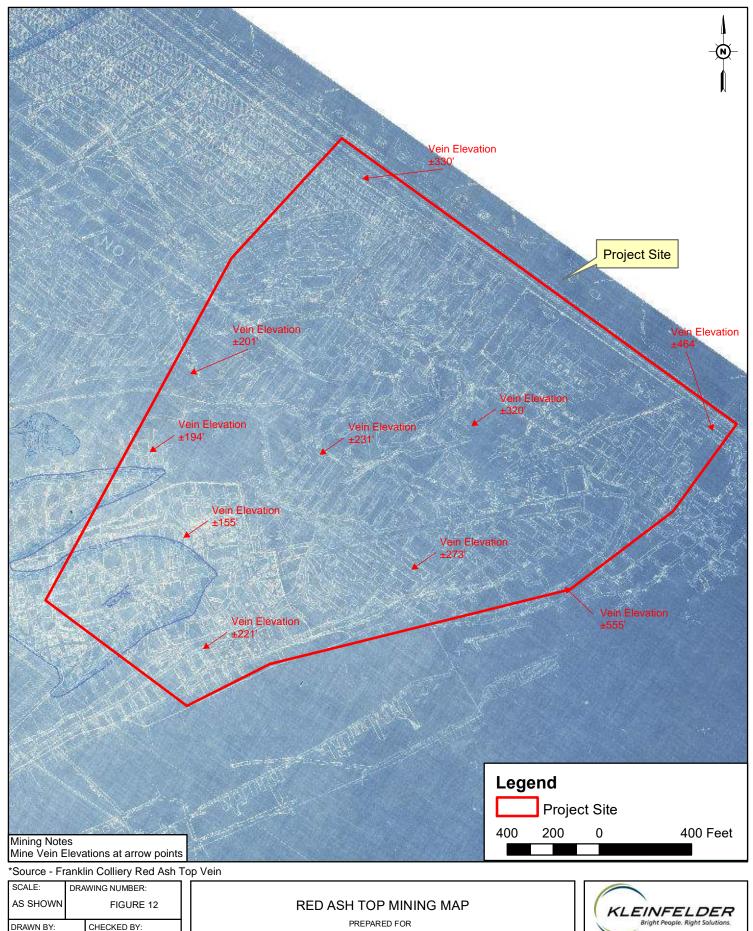
APPROVED BY: DATE:
M. GIUNTA 4-06-2021

ROSS VEIN MINING MAP PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA





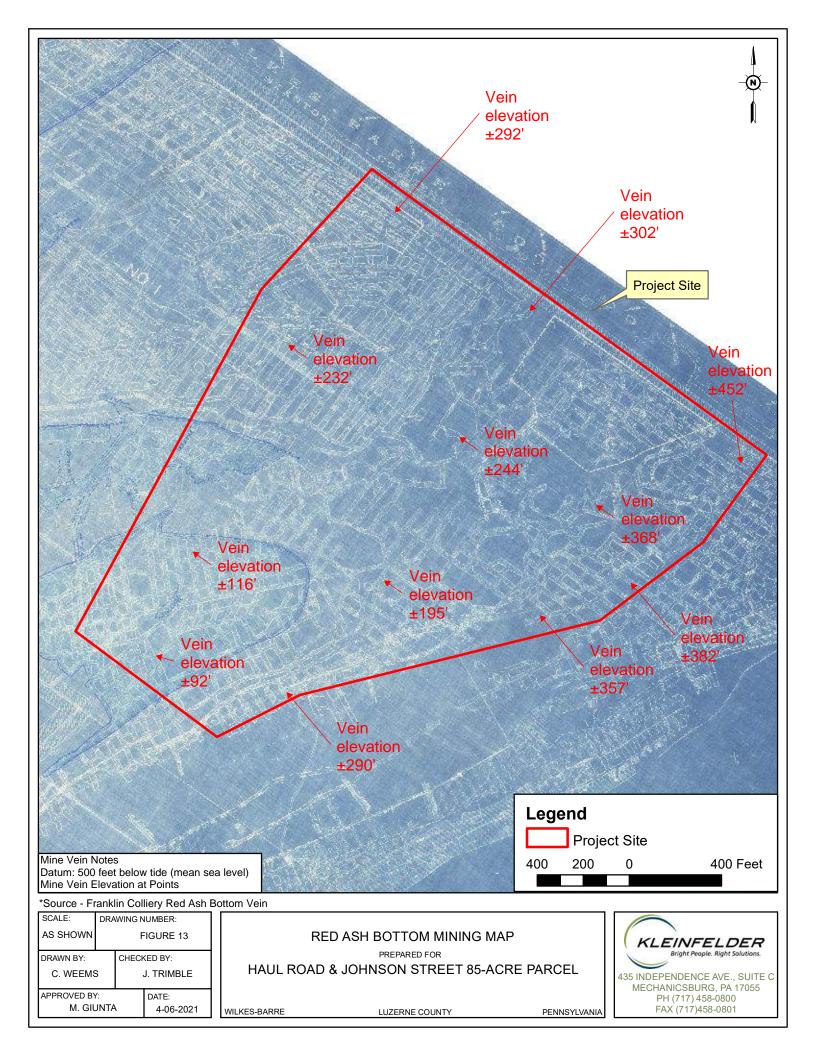
DRAWN BY:
C. WEEMS
CHECKED BY:
J. TRIMBLE

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

APPROVED BY:
M. GIUNTA
DATE:
WILKES-BARRE
LUZERNE COUNTY
PENNSYLVANIA

Bright People. Right Solutions.

435 INDEPENDENCE AVE., SUITE C
MECHANICSBURG, PA 17055
PH (717) 458-0800
FAX (717)458-0801





*Source https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

WILKES-BARRE

SCALE: DRAWING NUMBER: AS SHOWN FIGURE 14 DRAWN BY: CHECKED BY: C. WEEMS J. TRIMBLE APPROVED BY: DATE: M. GIUNTA 4-06-2021

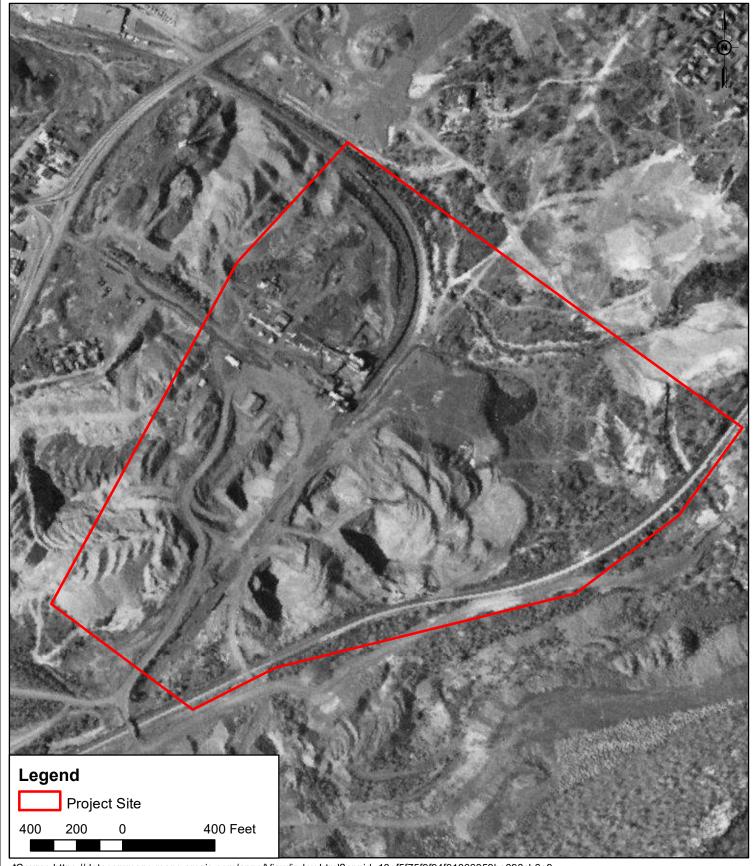
1939 AERIAL PHOTOGRAPH PREPARED FOR HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

LUZERNE COUNTY

435 INDEPENDENCE AVE., SUITE C MECHANICSBURG, PA 17055 PH (717) 458-0800 FAX (717)458-0801

PENNSYLVANIA

KLEINFELDER



*Source https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

WILKES-BARRE

SCALE: DRAWING NUMBER: AS SHOWN FIGURE 15 DRAWN BY: CHECKED BY: C. WEEMS J. TRIMBLE APPROVED BY: DATE: M. GIUNTA 4-06-2021

1959 AERIAL PHOTOGRAPH PREPARED FOR HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

LUZERNE COUNTY

435 INDEPENDENCE AVE., SUITE C MECHANICSBURG, PA 17055 PH (717) 458-0800 FAX (717)458-0801

PENNSYLVANIA

KLEINFELDER



*Source https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

WILKES-BARRE

SCALE: DRAWING NUMBER: AS SHOWN FIGURE 16 DRAWN BY: CHECKED BY: C. WEEMS J. TRIMBLE APPROVED BY: DATE: M. GIUNTA 4-06-2021

1969 AERIAL PHOTOGRAPH PREPARED FOR HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

LUZERNE COUNTY



435 INDEPENDENCE AVE., SUITE C MECHANICSBURG, PA 17055 PH (717) 458-0800 FAX (717)458-0801

PENNSYLVANIA



SCALE: DRAWING NUMBER:
AS SHOWN FIGURE 17

DRAWN BY: CHECKED BY:
C. WEEMS J. TRIMBLE

APPROVED BY: DATE:
4-06-2021

CURRENT AERIAL PHOTOGRAPH

PREPARED FOR

HAUL ROAD & JOHNSON STREET 85-ACRE PARCEL

WILKES-BARRE LUZERNE COUNTY PENNSYLVANIA

