



Ambient Air Boundary Control Plan

NorthMet Project

Prepared for
Poly Met Mining, Inc.

May 2017

Revision 0

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Abbreviations

Acronym	Description
Cliffs Erie	Cliffs Erie LLC
DNR	Minnesota Department of Natural Resources
LTVSMC	LTV Steel Mining Company
NAAQS	National Ambient Air Quality Standards
Northshore	Northshore Mining Company
Plan	Ambient Air Boundary Control Plan
PM _{2.5}	particles less than 2.5 micrometers in diameter
PolyMet	Poly Met Mining, Inc.
PSD	Prevention of Significant Deterioration
RTH	Rail Transfer Hopper
USEPA	U.S. Environmental Protection Agency

1.0 Introduction

Poly Met Mining, Inc. (PolyMet) is proposing to develop the NorthMet copper-nickel-gold/platinum-group-metal mine and associated processing facilities in northeastern Minnesota located near Hoyt Lakes. The mining and processing operation will be located in an existing mining region and will use existing infrastructure as much as possible. The proposed project is referred to as the NorthMet Project (Project). This Ambient Air Boundary Control Plan (Plan) and accompanying figures describe the “effective fenceline” used for the modeling comprising the Class II modeling supplement submitted subsequent to the Project Application for a Permit to Construct and Operate (Reference (1)). This Plan also describes the measures that will be taken to restrict the access of the general public to the areas within the effective fenceline.

The modeling conducted for the environmental review process used a receptor grid based on the anticipated Project property boundary at the time of the commencement of operations. As the permitting process commenced, additional focus was placed on how the general public would be excluded from the areas not treated as ambient air in the modeling and the concept of an “effective fenceline” was developed as a line defined by PolyMet at which the access of the general public can be controlled and at which compliance with National Ambient Air Quality Standards (NAAQS) can be demonstrated. The receptor grid used for the Class II supplement modeling is based on the effective fenceline. The effective fenceline essentially functions as the ambient air boundary in the establishment of a receptor grid for a NAAQS compliance demonstration. However, the term “effective fenceline” is used in place of “ambient air boundary” in this document due to the criteria used to develop it and the potential for the effective fenceline to be redefined in future modeling exercises.

In other words, while the control strategies described in this document are geared towards the effective fenceline, PolyMet reserves the right at a future date to extend the controlled boundary beyond the current effective fenceline, potentially as far as the boundary of the areas that PolyMet will use or control during the duration of the Project, to the extent effective control of those areas can be demonstrated.

The concept of an effective fenceline is consistent with U.S. Environmental Protection Agency (USEPA) guidance (Reference (2)).

2.0 Ambient Air

The USEPA definition of ambient air is: "that portion of the atmosphere, external to buildings, to which the general public has access" (40 C.F.R. § 50.1(e)). The USEPA has interpreted this to mean that areas owned or controlled by an owner/operator and where the owner/operator precludes¹ public access to the land or property using a fence or other effective physical barriers are not considered ambient air.

In addition, Minnesota's air quality rules regulate "ambient air" so as to prohibit ambient air quality standard exceedances "beyond such person's property line . . . [except in places where] the general public has access to the person's property or portion thereof. . . the general public shall not include employees, trespassers, or other categories of persons who have been directly authorized by the property owner to enter or remain on the property for a limited period of time and for a specific purpose." See Minnesota Rules, part 7009.0020.

PolyMet's defined effective fenceline is designed to meet the federal definition of "ambient air," even though the Project will be permitted as a synthetic minor source for federal Prevention of Significant Deterioration (PSD) regulation purposes and no PSD modeling will be necessary.

Three primary factors are used to establish the effective fenceline:

- What property will be owned or controlled by PolyMet?
- Can access to the property in those areas be reasonably restricted?
- Does modeling show that the ambient air outside of the controlled property boundary meets ambient air quality standards?

To determine the effective fenceline for the Project, the property boundary was determined as it will exist at the time of the commencement of operations. The property boundary is often the basis for developing an ambient air boundary and in this instance serves to establish the maximum potential extent of the effective fenceline. This area is also considered the area PolyMet controls, as the term is used and depicted in Large Figure Q3-1 ("Area PolyMet Controls"). The property ownership will be contiguous for the Project's two areas, the Mine Site and the Plant Site. However, for the purpose of developing a receptor grid for Class II modeling, separate effective fencelines are defined for each. After the areas PolyMet controls or uses were established, PolyMet performed an assessment of the ability to limit access. Based on this information, the proposed effective fenceline was established such that it represented a boundary at which access by the general public could be controlled and at which compliance with the NAAQS can be demonstrated through modeling. The results of the additional modeling conducted

¹ "Preclude" does not necessarily imply that public access is absolutely impossible, but rather that the likelihood of such access is small. USEPA. Interpretation of "Ambient Air" In Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD) (Reference (2)).

utilizing the effective fenceline as the ambient air boundary were submitted in the Class II modeling supplement.

3.0 Project Effective Fenceline

The Project area, which includes the Mine Site and Plant Site, is located in St. Louis County, Minnesota, at the eastern end of the Mesabi Iron Range (Large Figure Q3-1). The Mine Site currently is in an area of the Superior National Forest that eventually will be owned by PolyMet. This area has not previously been mined. It is located approximately 6 miles south of the City of Babbitt and directly south of Northshore Mining Company's (Northshore) Peter Mitchell Mine, which is an active taconite/iron ore mine. The Plant Site is located to the southwest of the Mine Site at those portions of the former LTV Steel Mining Company (LTVSMC) taconite processing facility PolyMet has purchased from Cliffs Erie LLC (Cliffs Erie).

Separate effective fencelines were defined for the Plant Site and the Mine Site. The Plant Site and Mine Site areas PolyMet controls or uses will be connected at the time of the commencement of Project operations and no later than the start of mining operations at the Mine Site (defined as the commencement of blasting of waste rock or ore), but separate effective fencelines will be used to control access by the general public to the Plant Site and Mine Site. The combined impacts from the Plant Site and Mine Site, outside the effective fencelines, were evaluated in the Class II modeling supplement.

The Project effective fencelines reflect careful consideration of the land that will be owned or controlled by PolyMet at the time of the commencement of operations and PolyMet's ability to preclude access by the general public. Large Figure Q3-1 shows the proposed Plant Site and Mine Site effective fencelines and that these are within the larger area PolyMet controls.

4.0 PolyMet's Commitment to Control Effective Fenceline

PolyMet understands that during operations they will have an obligation to secure the effective fenceline to preclude access by the general public. In some instances, the effective fenceline is drawn conservatively and actual control extends beyond that point. Control at a point beyond the effective fenceline that restricts access by the general public at or prior to the effective fenceline shall be considered control of the effective fenceline.

PolyMet has conducted a detailed review of the effective fenceline and developed this Plan to prevent access by the general public.

5.0 Description of Potential Methods to Restrict Access

Multiple methods will be employed to preclude access by the general public to the Mine Site and the Plant Site. The methods used for a given section of the effective fenceline will be based on factors such as the remoteness of the location and presence or absence of significant natural barriers to accessibility and visibility of the area from roads or other infrastructure. Most areas will use a combination of the methods described below to control access, some of which will be employed based on the Project's progress. The sections below describe the potential methods for effective fenceline control and provide a general description of where and how they will be employed.

5.1 Posting of "No Trespassing" Signs

The entire property boundary at the Mine Site and Plant Site will be posted per the Minnesota Department of Natural Resources (DNR) trespass requirements. This posting will provide PolyMet with the legal right to demand that trespassers vacate the site and not return. The postings will meet or exceed the DNR trespass statute, which requires legal postings to meet the following requirements:

- posted once each year and state "No Trespassing" or similar terms either:
 - along the boundaries every 1,000 feet or less, or in wooded areas where boundaries are less clear, at intervals of 500 feet or less; or
 - at the primary corners of each parcel of land and at access roads and trails at points of entrance to each parcel, except corners only accessible through agricultural land need not be posted
- posted with lettering at least 2 inches high with the signature or the legible name and telephone number of the designated PolyMet representative

An unauthorized person may not enter land with signs prohibiting outdoor recreation or trespass. See Minnesota Statute, section 97B.001, subdivision 4.

This Plan does not contemplate relying on this posting alone for any portion of the effective fenceline. It is viewed as an initial level of protection, allowing PolyMet to preclude access to the broader area that is, in many cases, beyond the effective fenceline

5.2 Control of Access Points

Existing roads and trails equal to or wider than 50 inches, abandoned railroad grades, or similar access points, will be secured with a locked and/or monitored gate or other barrier precluding access by the general public. Some specific areas where third parties have an access easement, such as power line corridors, may not be suitable for gating, but alternate procedures will be implemented to preclude access (e.g., patrols or remote visual or equivalent monitoring).

5.3 Security Patrols

Areas where access is not precluded by other methods will be secured through the use of security patrols. The frequency of patrols will be determined based on the likelihood of access to a particular section of the effective fenceline and the extent to which PolyMet or other authorized security personnel will regularly be present within a line of site of the effective fenceline. The minimum frequency for security patrols will be once per operating day based on the fact that the shortest averaging period for the pollutant with modeled results closest to the NAAQS (PM_{2.5}) is 24-hours. Patrol routes will be established such that the effective fenceline of concern is within the line of site of security personnel traveling on the patrol route.

5.4 Remote Monitoring

In some areas, in lieu of security patrols, remote monitoring will be deployed regularly throughout the day, including fixed cameras, cameras on drones, or other equivalent measures. The spacing and/or location of the remote monitoring will be determined based on the likelihood of access to a particular section of the effective fenceline and the capabilities of the employed technology.

5.5 Coordinated Access Control with Adjacent Facilities

Along some sections of the effective fenceline, such as the southern boundary at the Plant Site and portions of the northern boundary at the Mine Site, PolyMet shares a boundary with another mining/industrial operation(s) at or beyond the effective fenceline location. Both PolyMet and the other entities will have an obligation to control access at the common boundary, so where efficiencies can be realized from coordinated security efforts with the other facilities, PolyMet will make this part of the overall effective fenceline control strategy. Currently, PolyMet, Cliffs Erie, and Mesabi Nugget jointly contract the services of a third-party security company to provide 24-hour services for the security gate at the entrance to the Plant Site and to patrol the area of the three facilities, including the private road access from Highway 135 and other accessible areas. Where employed, these third-party security personnel will patrol and maintain the effective fenceline in the manner and frequency set forth in this Plan. Similarly the adjacent facilities may already employ fencing and gating to restrict access of the public to their respective facilities which serves as a further means of controlling public access to areas PolyMet controls or uses that are beyond those adjacent facility boundaries.

5.6 Access Control with Fencing

Some areas may not be amenable to the access control measures described above. These areas will be controlled through the use of secured fencing. The locations for fencing are determined based on the likelihood of access to a particular section of the effective fenceline and the feasibility of installing fencing in a given area without significant site preparation (e.g., placement of fill in low areas).

5.7 Natural Barriers

Some areas of the effective fenceline are located in areas of dense vegetation, floating bogs or standing water, making access very difficult for much of the year. Such areas will be evaluated and if there is a

seasonal need to restrict access, alternate procedures will be implemented as needed (e.g., frozen conditions may make some wetlands easier to traverse during the winter).

At some points along the effective fenceline, the boundary itself may not be an obstacle, but the remote locations, and lack of public roads or designated trails will make access very difficult. In other words, a potential trespasser may have to walk several miles through difficult terrain to get to the effective fenceline. Factors such as the ownership and use of the adjacent land and the potential for motorized vehicle use will be considered when determining if a particular section of the effective fenceline has an adequate natural barrier due to its remote location or if this barrier will need to be fortified with other access restrictions.

This Plan does not contemplate at this time relying on natural barriers alone for any portion of the effective fenceline based on the current regulatory framework, site topography, and proposed effective fenceline. It is viewed as an initial level of protection, allowing PolyMet to preclude access to the broader area that is, in many cases, beyond the effective fenceline. If this basis changes, PolyMet will reconsider how to use natural barriers to enforce the effective fenceline.

6.0 Plant Site Ambient Air Boundary Control

Large Figure Q3-2 provides an index of the supporting figures which show in greater detail specific areas along the Plant Site effective fenceline where access control measures will be implemented. The close-up figures start at the northern portion and proceed clockwise around the Plant Site. Plant Site effective fenceline sections will include some degree of access control measures, such as dense vegetation, water inundated areas, wetlands, or steep terrain from past mining activity coupled with posting of 'No Trespassing' signs and remote monitoring as appropriate or necessary. As noted above, neither natural barriers nor posting at the outer control boundary are currently relied upon alone. PolyMet is noting their presence as an initial layer of deterrence that should prevent access. The following text describes the effective fenceline section specific control methods and they are shown on the associated section figures.

- Large Figure Q3-3 – The estimated line of site from the Tailings Basin perimeter road towards the property boundary is approximately 3,300 feet. The effective fenceline will be located at approximately 1,600 feet from the perimeter road, which will be patrolled at least once per day. In addition to security patrols, some PolyMet worker's daily tasks will result in them traveling Tailings Basin roads on a regular basis, at which time they will be required to notify security if unauthorized personnel are observed.
- Large Figure Q3-4 – The effective fenceline in this area will be setback approximately 800 feet from the Area 5 roads and the proposed Flotation Tailing Basin buttress access road. The effective fenceline will be within the line of site of a vehicle travelling down the Area 5 roads or buttress access road. This area will be fenced or remotely monitored if necessary before roads are constructed. This area will be patrolled at least once per day following construction of the roads or before then by applicable remote monitoring methods. In addition to daily security patrols at Area 5, workers present at Area 5 or travelling the access roads will be required to notify security if unauthorized personnel are observed.
- Large Figure Q3-5 – The southeastern Plant Site effective fenceline will be adjacent to the Tailings Basin roads at the north end and is crossed by the Dunka Road to the south. The primary control of the effective fenceline in this area is provided by restriction from other site access such as that provided by Northshore and other gates and fencing. In addition, most of the effective fenceline will have a line of site from roads (north end and where roads cross to the south), and gaps will be filled in with fencing and/or remote monitoring. PolyMet personnel's duties will result in them being present near the southeastern boundary on a regular basis and they will be instructed to notify security if any apparently unauthorized personnel are observed on PolyMet property.
- Large Figure Q3-6 – The southern Plant Site effective fenceline is located in an area of historical mining activities, including pits, stockpiles, and haul roads. These features prevent trespassing onto the property. The Plant Site is accessed from the south by St. Louis County Highway 666 and will have a controlled security gate that is manned 24 hours per day. The general public can access Highway 666 up to the security gate. The effective fenceline in this area is on the east side of the public portion of the highway where there is visibility to the guards by line of site and

remote monitoring surveillance. PolyMet will also own land on the west side of the highway; however, receptors were placed in this area and the effective fenceline will be located on land that is north of the security gate so as to simplify the Plan.

Further to the west, the effective fenceline is along the property boundary and will have a line of site from roads and operating areas, including former Area 1 Panel Yard and Area 1. The property boundary will be posted with 'No Trespassing' signs as noted above. Any areas along this section not secured by a barrier will be secured by shared patrols at least once per day (security shared with Cliffs Erie and Mesabi Nugget) or remote monitoring and/or fencing. Cliffs' workers and contractors are currently required to sign in at the Administration Building or the Security Controlled Gate when entering or leaving the site. PolyMet personnel's duties will result in them being present near the southern boundary on a regular basis and they will be required to notify security if any apparently unauthorized personnel are observed on PolyMet property.

Workers that access the adjacent Cliffs Erie facility, via Highway 666 or the private road from Highway 135, will continue to be required to sign in at the Administration Building or the Security Controlled Gate when entering or leaving the site. A security controlled gate or a locked gate at the entrance to the private road from Highway 135 prevents unauthorized vehicle access to facility

- Large Figure Q3-7 – The southwestern Plant Site effective fenceline will be located primarily in wetlands consisting of bogs and swamps and areas of dense vegetation providing a natural barrier against trespassing during every season. Locked gates or other immovable barriers will be installed on any access points established by past logging activities. State Highway 135, which parallels the western Plant Site property boundary, is approximately 1 mile west of the property boundary. A private road providing access from Highway 135 to the Plant Site is patrolled by security personal and access is prevented by an occupied security checkpoint at the entrance to the private road from Highway 135 or a locked gate at times when not patrolled by security personnel shared between PolyMet and Mesabi Nugget.

The Mesabi Nugget facility will share a border with the Project in the southern portions of the effective fenceline in this area. This area will be posted with 'No Trespassing' signs as noted above and any areas along this section of the effective fenceline not secured by a natural or manmade barrier will be secured by patrols and/or remote monitoring to prevent access to off-site workers on Nugget property from entering PolyMet property without permission.

The portion of the effective fenceline running north and south will have a line of site from Tailing Basin roads. The estimated line of site from the Tailings Basin perimeter road that runs north and south, towards the property boundary, is approximately 3,300 feet. The effective fenceline will be located at approximately 1,600 feet from the perimeter road and will be patrolled at least once per day. PolyMet personnel's duties will result in them being present near the southern boundary on a regular basis and they will be required to notify security if any apparently unauthorized

personnel are observed on PolyMet property. Similarly, patrols will be used to secure the effective fenceline running east/west to the north of Area 1 Panel Yard and Area 1. In areas where line of site cannot be achieved, fencing and/or remote monitoring will be used to secure the effective fenceline.

7.0 Mine Site Ambient Air Boundary

Large Figure Q3-2 provides an index of the supporting figures, which show in greater detail specific areas along the Mine Site effective fenceline where access control measures will be implemented. The close-up figures start at the northern portion and proceed clockwise around the Mine Site. Each close-up figure is discussed below with respect to effective fenceline controls. Mine Site effective fenceline sections will include some degree of access control measures, such as dense vegetation, water inundated areas, wetlands, or steep terrain from past mining activity, coupled with posting of 'No Trespassing' signs and remote monitoring, as appropriate or necessary. As noted above, neither natural barriers nor posting at the outer control boundary are currently relied upon alone. PolyMet is noting their presence as an initial layer of deterrence that should prevent access. The following text describes the effective fenceline section specific control methods and they are shown on the associated section figures.

- Large Figure Q3-8 – The northwestern Mine Site effective fenceline border is located adjacent to wetlands consisting mostly of bogs and swamps, in areas where PolyMet property will abut property owned by Northshore. The effective fenceline in this area will follow the outline of the Category 1 Waste Rock Stockpile. There are no public roads or trails accessing this area, and Northshore's land control extends approximately 1-1/2 miles north of the property boundary. Northshore and PolyMet will both provide site security measures to preclude the general public and the other party's unauthorized personnel from accessing the property in this area. This area will be posted with 'No Trespassing' signs as noted above. The effective fenceline for this area will be at approximately 800 feet from the perimeter of the Category 1 Waste Rock Stockpile and will be patrolled at least once per day. Before construction of the Category 1 Waste Rock Stockpile, construction activities will provide worker line of site and security patrols will provide additional measure. Once in operation, equipment operators will frequently be working on the Category 1 Waste Rock Stockpile, where they will have an extended line of site to the northwest. The operators will be required to inform security if they observe any unauthorized individuals on PolyMet property.
- Large Figure Q3-9 – The northern Mine Site effective fenceline is located in wetlands consisting mostly of bogs and swamps, adjacent to property owned by Northshore. The effective fenceline in this area will run along the northern boundary of the East Pit. There are no public roads or trails accessing this area, and Northshore's land control extends approximately 3 miles north of the PolyMet property boundary. Northshore and PolyMet will coordinate site security measures to preclude the general public from accessing the property in this area and to prevent unauthorized personnel from one company from accessing the other company's property. This area will be posted with 'No Trespassing' signs, as noted above. The effective fenceline for this area will be at approximately 800 feet from the pit perimeter and will be patrolled at least once per day.
- Large Figure Q3-10 - The northeastern Mine Site effective fenceline is located in wetlands consisting mostly of bogs and swamps and some areas of uplands that have been periodically logged. The portion of the northeastern Mine Site effective fenceline that runs east/west is adjacent to property owned by Northshore. Northshore and PolyMet will provide site security

measures to preclude the general public and the other party's unauthorized personnel from accessing the property in this area. This area will be posted with 'No Trespassing' signs as noted above. The effective fenceline for this area will be approximately 800 feet from the footprint of the Category 2/3 Waste Rock Stockpile, which will be patrolled at least once per day. Any gaps not covered by these measures will be filled in with fencing and/or remote monitoring.

The portion of the northeastern Mine Site effective fenceline that runs north/south is adjacent to the eastern perimeter of the Category 2/3 Waste Rock Stockpile. There are no public roads in this area; however, there are access roads to monitoring wells. Northshore and PolyMet will provide site security measures to preclude the general public and the other party's unauthorized personnel from accessing the property in this area. This area will be posted with 'No Trespassing' signs as noted above. The effective fenceline for this area will be approximately 800 feet from the footprint of the Category 2/3 Waste Rock Stockpile which will be patrolled at least once per day. Access roads to monitoring wells will be monitored.

- Large Figure Q3-11 – The southeastern Mine Site effective fenceline is located along the Dunka Road, except in the area around the Rail Transfer Hopper (RTH) described in the following section. The Dunka Road, a mining road constructed by Erie Mining Company (now Cliffs Erie) for access to the Dunka Mine about 9 miles to the northeast, will be used to patrol this portion of the effective fenceline. A railroad grade is also present in this area. This rail line was formerly used to transport ore from the Dunka Pit to the LTVSMC taconite processing plant. Now, only a 3-1/2 mile section of the track remains in place east of the Dunka Junction. The rail corridor is parallel to the Dunka Road where it crosses the effective fenceline, so the Dunka Road patrols will control access via the rail corridor. The Dunka Road is a private road and does not provide access for the general public to the PolyMet site. Access to the Dunka Road is restricted by a 24 hour security controlled gate at the PolyMet Plant Site and a similar gate at the Northshore Mine Site. The road is also posted with "private road" signs. The Dunka Road is patrolled as far east as the Mine Site by PolyMet security personnel to an existing gate. During operations, access to the Mine Site via the Dunka road will be restricted to persons who have been directly authorized by PolyMet to use the road, and who have been granted access through the PolyMet security gate at the Plant Site. Cliffs Erie personnel, with prior authorization, may utilize the Dunka Road for the limited purpose of accessing the Dunka / Northshore facilities from the Cliffs Erie facility. In addition, access by Cliffs Erie or Northshore personnel or invitees to the Dunka Road within the PolyMet site is subject to contractual restriction agreements with Cliffs Erie and Northshore that expressly limit access for specified activities. PolyMet, Cliffs Erie, and Northshore will coordinate security efforts to restrict access to the Dunka Road from either facilities' entry point. The effective fenceline in this area will be approximately 150 feet from the roadway and will be patrolled at least once per day. PolyMet personnel will frequently travel the Dunka Road as part of their daily job functions and they will be required to notify security of the presence of any unauthorized individuals observed from the road.

Near the RTH Area, PolyMet may elect to control access to this area at the rail line and power line

corridors. The Cliffs Erie private rail line, formerly used to transport pellets to the shipping facility at Taconite Harbor, crosses the Mine Site property boundary to the east of the RTH; the power line corridor is to the south. The rail line that crosses the southeastern Mine Site property boundary is a private track, not a common carrier, and does not provide for access by the general public. Rail use is restricted by agreements between Cliffs Erie and PolyMet and access to the PolyMet site via rail will be restricted to persons who have been directly authorized by PolyMet to enter the site. The power line corridor does not have a designated trail and will be controlled by a locked gate and/or other fencing, monitored with remote monitoring or patrols. The nearest public access via an unimproved road is approximately 1 to 1-1/2 miles from the southeastern part of the effective fenceline.

This area will be posted with 'No Trespassing' signs, as noted above. Waste water treatment ponds will be present south of Dunka Road and will be approximately 800 feet or less from the effective fenceline. Staff will frequently be working at the waste water treatment ponds throughout the day, where they will have an extended line of site to the south east towards the effective fenceline and will be required to notify security of the presence of any unauthorized individuals observed from the ponds. Otherwise, patrols on existing roads and trails, remote monitoring, fencing and/or other technology will be utilized.

- Large Figure Q3-12 – The portions of the southwestern Mine Site effective fenceline along the Dunka Road will be controlled as described for areas along the Dunka Road in the southeastern section above. The portion of southwestern Mine Site effective fenceline that runs north/south will be located in small uplands that have been logged. Portions of the area to the west of the effective fenceline are adjacent to the Plant Site boundary and privately owned land without any road access, preventing trespassing onto the property. Locked gates or other fencing will be installed on any access points established by logging activities. Otherwise, patrols on existing roads and remote monitoring as appropriate or necessary will be used.

The nearest public road access is approximately two miles away from the southwestern Mine Site property boundary. This area will be posted with 'No Trespassing' signs, as noted above. Access to this area will be restricted through: 1) patrols at Area 5 to the northwest, 2) routine security provided by Northshore to the north, 3) existing fencing at Area 5 south and 4) patrols along Dunka Road and existing trails. These security provisions will be supplemented with remote monitoring or fences as needed.

8.0 References

1. **Barr Engineering Co.** Application for a Permit to Construct and Operate - NorthMet Project. August 2016.
2. **Robinson, Randy, U.S. Environmental Protection Agency Region 5.** Letter to Dennis Becker, Minnesota Pollution Control Agency. August 25, 1999.
3. **U.S. Environmental Protection Agency.** Interpretation of "Ambient Air" In Situations Involving Leased Land Under the Regulations for Prevention of Significant Deterioration (PSD) Memorandum. June 22, 2007.

Large Figures

Barr Footer: ArcGIS 10.4, 2017-05-16 09:43 File: I:\Client\Polymet Mining\Work Orders\Permitting\Air Permit Application\Map Report\Appendix 03-1\Large Figure Q3-1 Project Location and Effective Fenceline.mxd User: mak3

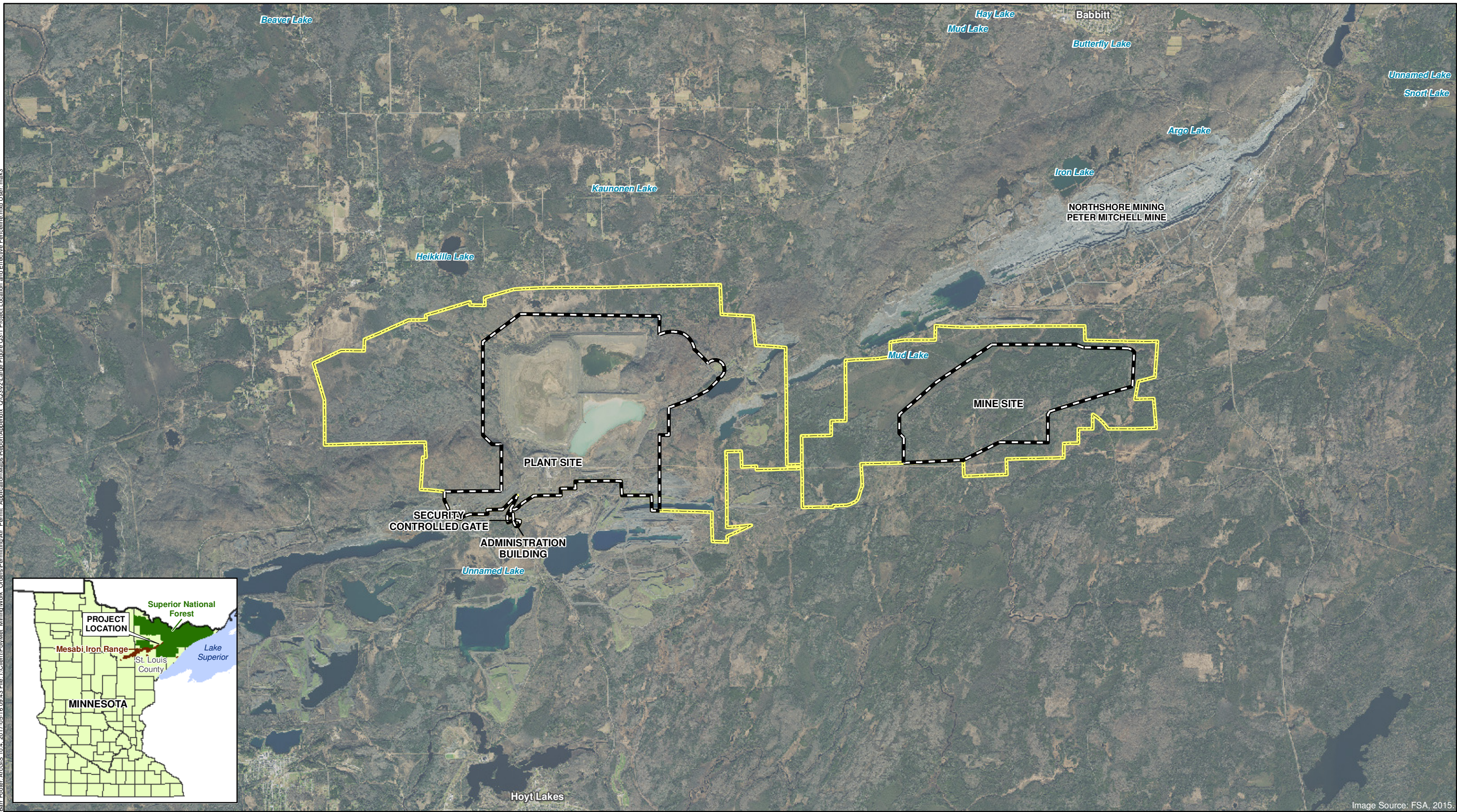


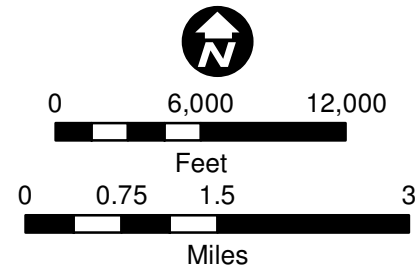


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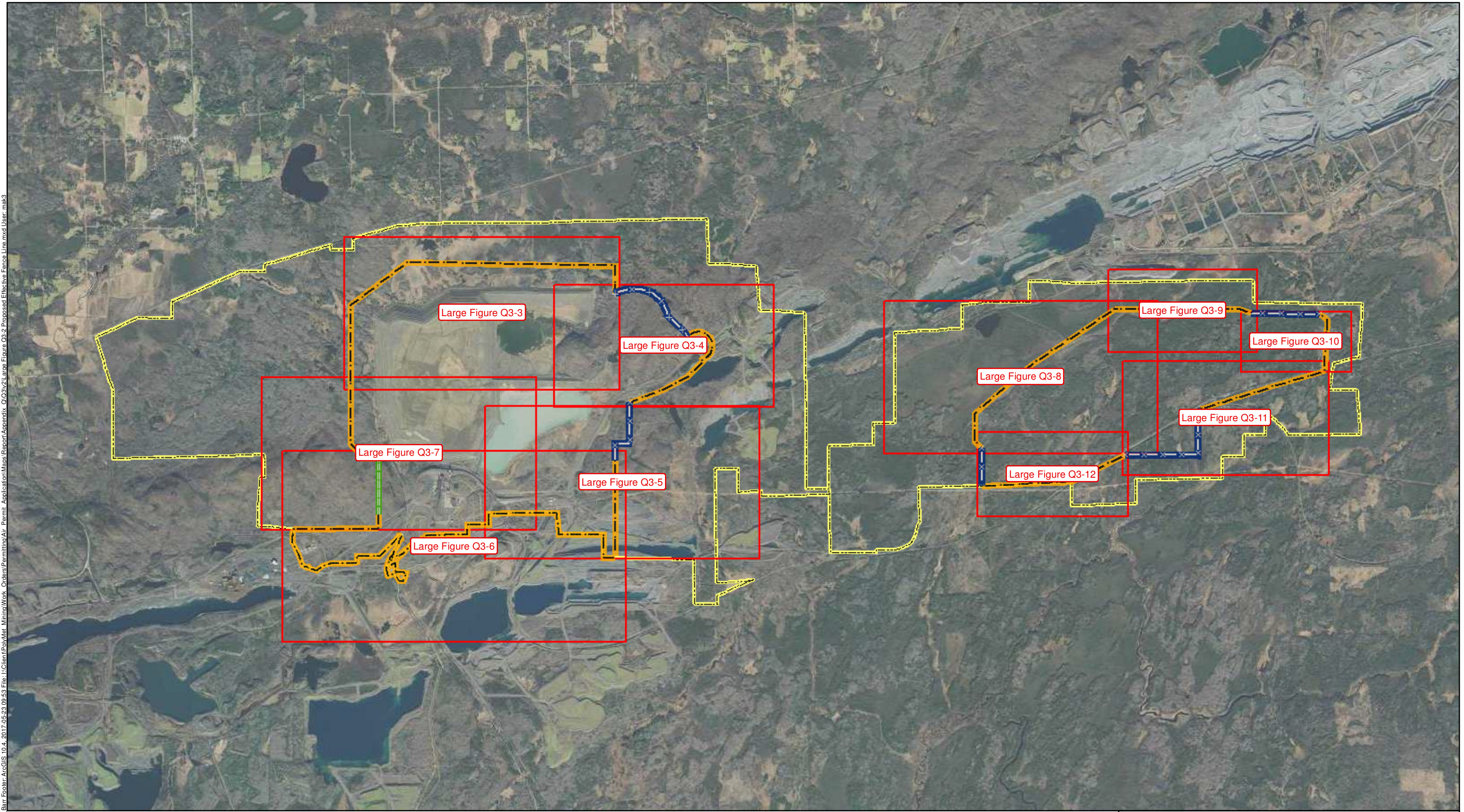
-  Effective Fenceline
-  Area PolyMet Controls







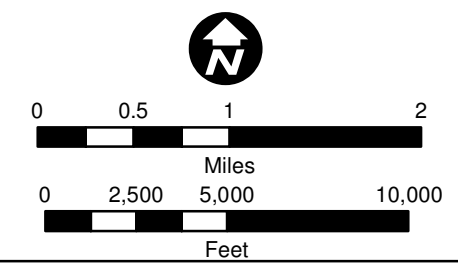
PROJECT LOCATION AND
EFFECTIVE FENCELINE
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-1
Ambient Air Boundary Control Plan

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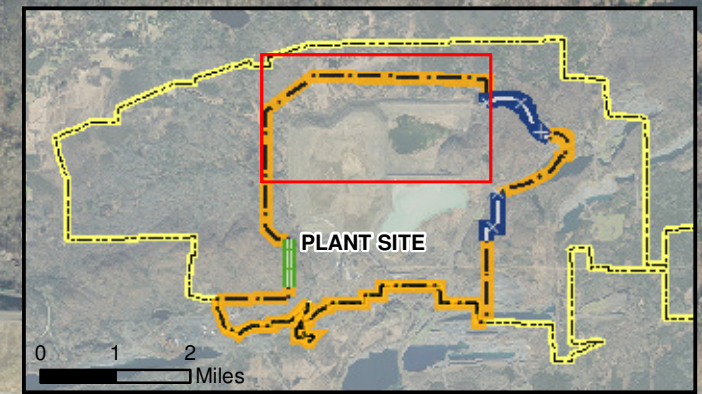
-  Area PolyMet Controls
- Effective Fenceline
-  Fencing / Remote Monitoring and/or Security Patrol
-  Fencing and/or Remote Monitoring
-  Security Patrols



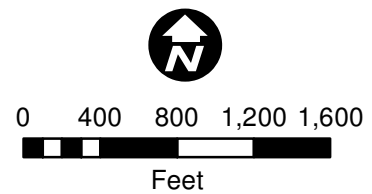
EFFECTIVE FENCELINE DETAIL KEY
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-2
Ambient Air Boundary Control Plan

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- Area PolyMet Controls
- Snowmobile Trail
- Effective Fenceline
- Fencing / Remote Monitoring and/or Security Patrol
- Fencing and/or Remote Monitoring
- Security Patrols



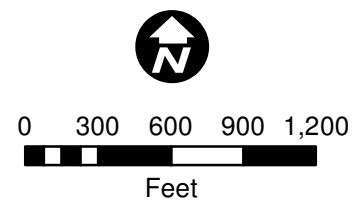
**PLANT SITE EFFECTIVE FENCELINE
DETAIL #1**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-3
Ambient Air Boundary Control Plan

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- - - Area PolyMet Controls
- Effective Fenceline
- - - Fencing / Remote Monitoring and/or Security Patrol
- - - Fencing and/or Remote Monitoring
- - - Security Patrols



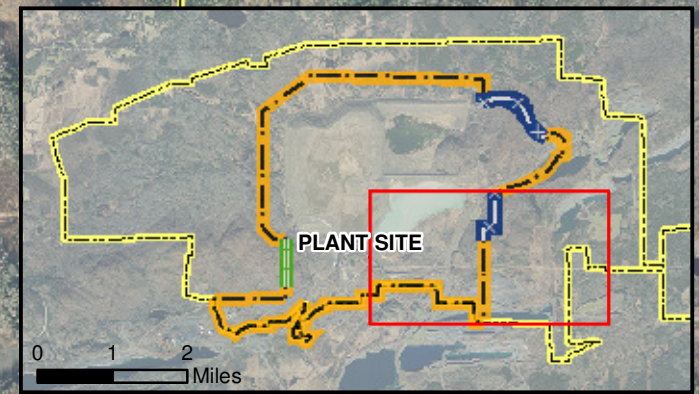
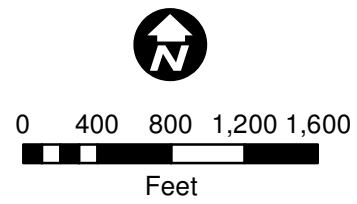
PLANT SITE EFFECTIVE FENCELINE
DETAIL #2
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-4
Ambient Air Boundary Control Plan

Barr Footer: ArcGIS 10.4, 2017-05-16 10:02 File: I:\Client\PolMet_Minima\Work_Orders\Permittion\Ar_Permit_Application\Map_Report\Appendix_Q3-5\Large Figure Q3-5 Plant Site Effective Fence Line Detail3.mxd User: msk3



- - - Area PolyMet Controls
- Effective Fenceline
- - - Fencing / Remote Monitoring and/or Security Patrol
- - - Fencing and/or Remote Monitoring
- - - Security Patrols



**PLANT SITE EFFECTIVE FENCELINE
DETAIL #3**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-5
Ambient Air Boundary Control Plan

Barr Footer: ArcGIS 10.4, 2017-05-16 10:05 File: I:\Client\PolMet_Minima\Work_Orders\Permitting\Air_Permit_Application\Map_Report\Appendix_Q3-6\Large_Figure_Q3-6_Plant_Site_Effective_Fence_Line_Detail_4.mxd User: msk3



- Area PolyMet Controls
- Effective Fenceline
- Fencing / Remote Monitoring and/or Security Patrol
- Fencing and/or Remote Monitoring
- Security Patrols



0 600 1,200 1,800 2,400
Feet



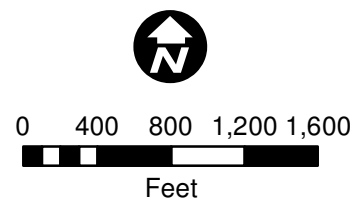
PLANT SITE EFFECTIVE FENCELINE
DETAIL #4
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-6
Ambient Air Boundary Control Plan

Barr Footer: ArcGIS 10.4, 2017-05-16 10:37 File: I:\Client\Polymet_Minima\Work_Orders\Permittion\Ar_Permit_Application\Maps\Report\Appendix_Q3-7\Large Figure Q3-7 Plant_Site_Effective_Fence_Line_Detail5.mxd User: msk3



- Area PolyMet Controls
- Effective Fenceline
- Fencing / Remote Monitoring and/or Security Patrol
- Fencing and/or Remote Monitoring
- Security Patrols



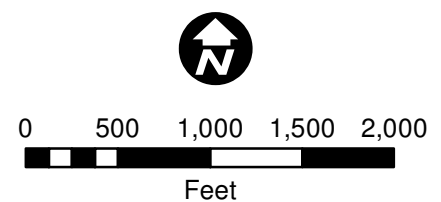
**PLANT SITE EFFECTIVE FENCELINE
DETAIL #5**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-7
Ambient Air Boundary Control Plan

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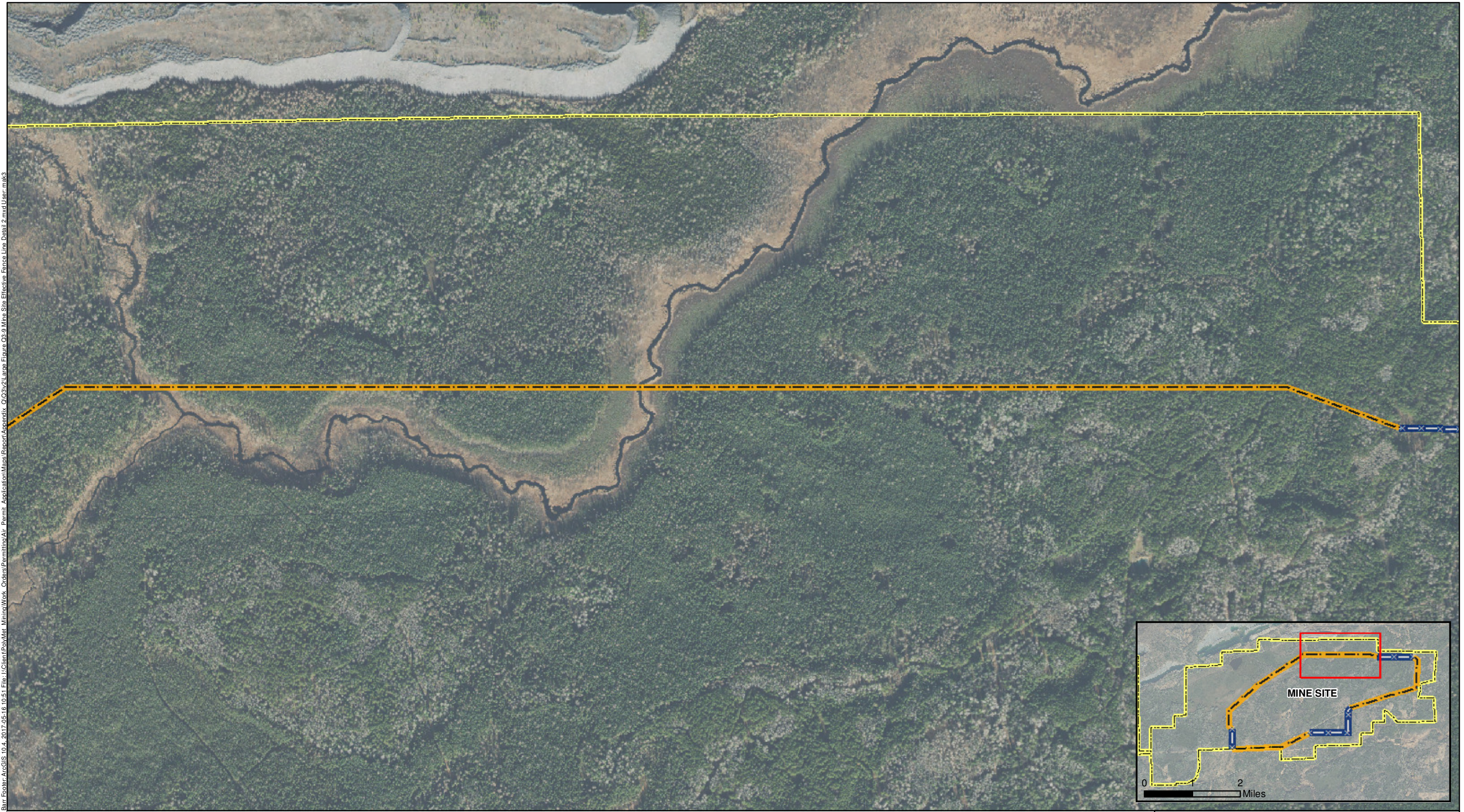
- - - Area PolyMet Controls
- - - Security Patrols
- - - Railroad
- - - Power Line
- - - Effective Fenceline
- x - Fencing / Remote Monitoring and/or Security Patrol
- - - Fencing and/or Remote Monitoring



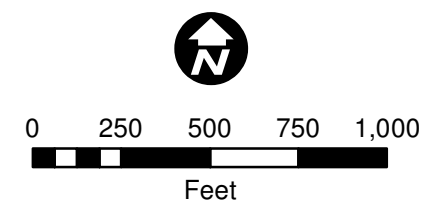
**MINE SITE EFFECTIVE FENCELINE
DETAIL #1**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-8
Ambient Air Boundary Control Plan

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- Area PolyMet Controls
- Power Line
- Effective Fenceline
- X- Fencing / Remote Monitoring and/or Security Patrol
- Fencing and/or Remote Monitoring
- - - Security Patrols










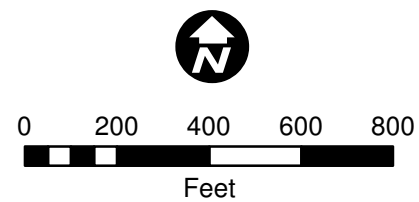
**MINE SITE EFFECTIVE FENCELINE
DETAIL #2**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-9
Ambient Air Boundary Control Plan

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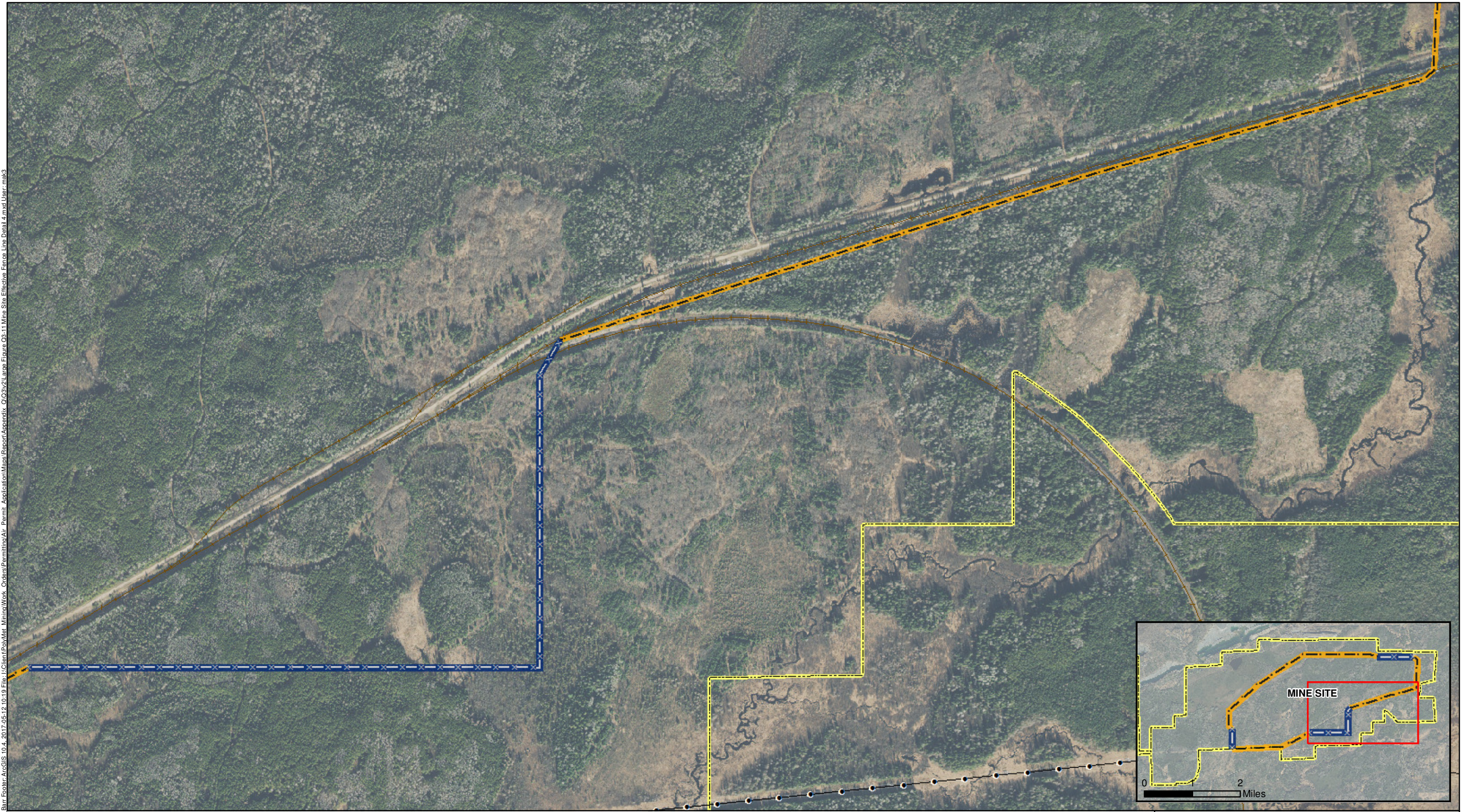
-  Area PolyMet Controls
-  Railroad
-  Power Line
-  Effective Fenceline
-  Fencing / Remote Monitoring and/or Security Patrol
-  Fencing and/or Remote Monitoring
-  Security Patrols



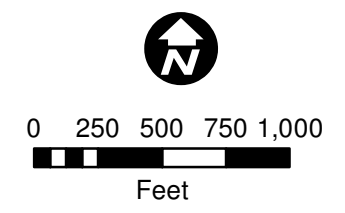
**MINE SITE EFFECTIVE FENCELINE
DETAIL #3**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-10
Ambient Air Boundary Control Plan

Barr Footer: ArcGIS 10.4, 2017-05-12 10:19 File: I:\Client\Polymet Mining\Work Orders\Permitting\Ar Permit Application\Maps\Report\Appendix Q3-11 Mine Site Effective Fence Line Detail 4.mxd User: mak3



- Area PolyMet Controls
- Railroad
- Power Line
- Effective Fenceline
- x- Fencing / Remote Monitoring and/or Security Patrol
- Fencing and/or Remote Monitoring
- x- Security Patrols



**MINE SITE EFFECTIVE FENCELINE
DETAIL #4**
NorthMet Project
Poly Met Mining, Inc.

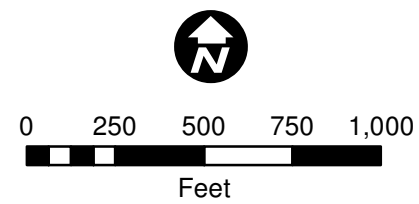
Large Figure Q3-11
Ambient Air Boundary Control Plan

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- Area PolyMet Controls
- Railroad
- Power Line
- Effective Fenceline
- X- Fencing / Remote Monitoring and/or Security Patrol
- X- Fencing and/or Remote Monitoring

--- Security Patrols



**MINE SITE EFFECTIVE FENCELINE
DETAIL #5**
NorthMet Project
Poly Met Mining, Inc.

Large Figure Q3-12
Ambient Air Boundary Control Plan