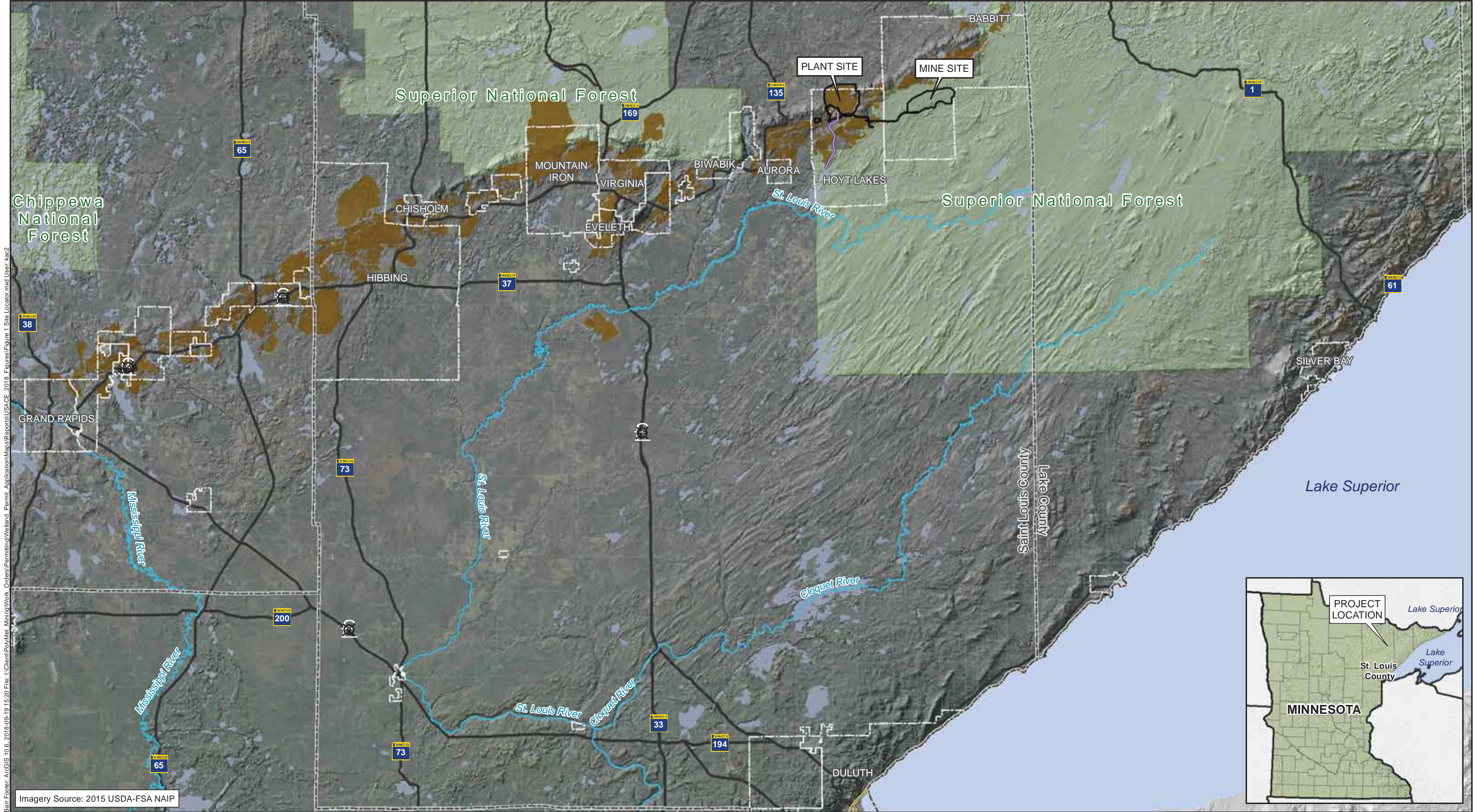


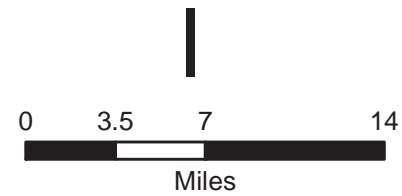
Enclosure A to D.A. permit MVP 1999-5528-JKA

Permit Sketches numbered 1-20



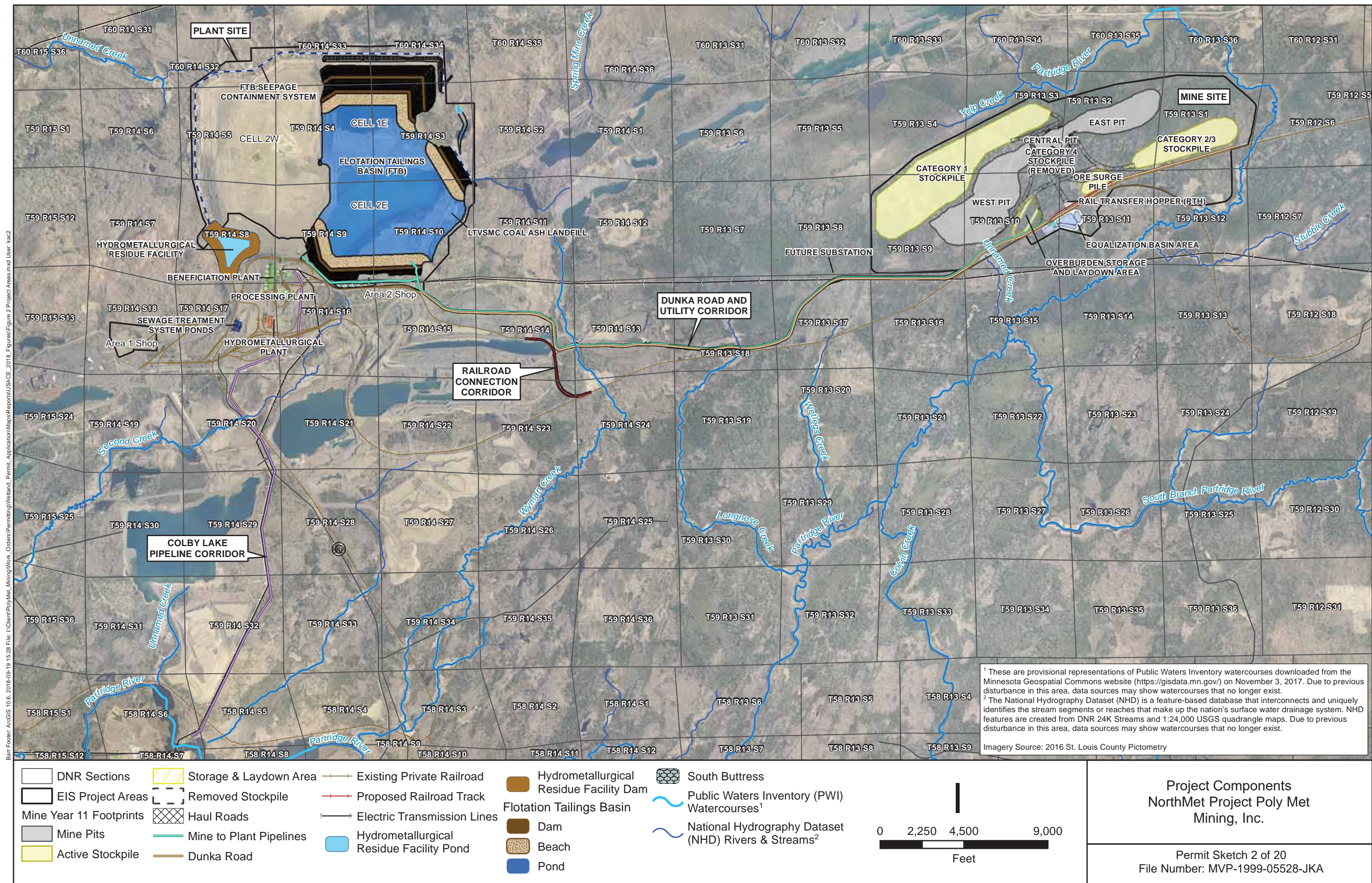
Barr Footer: ArcGIS 10.6 2018-09-19 15:20 File: I:\Client\PolyMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 1 Site Locator.mxd User: kac2

- EIS Project Areas
- Mesabi Iron Range
- National Forest Boundary
- County Boundaries
- City Boundaries
- Major River
- Lakes

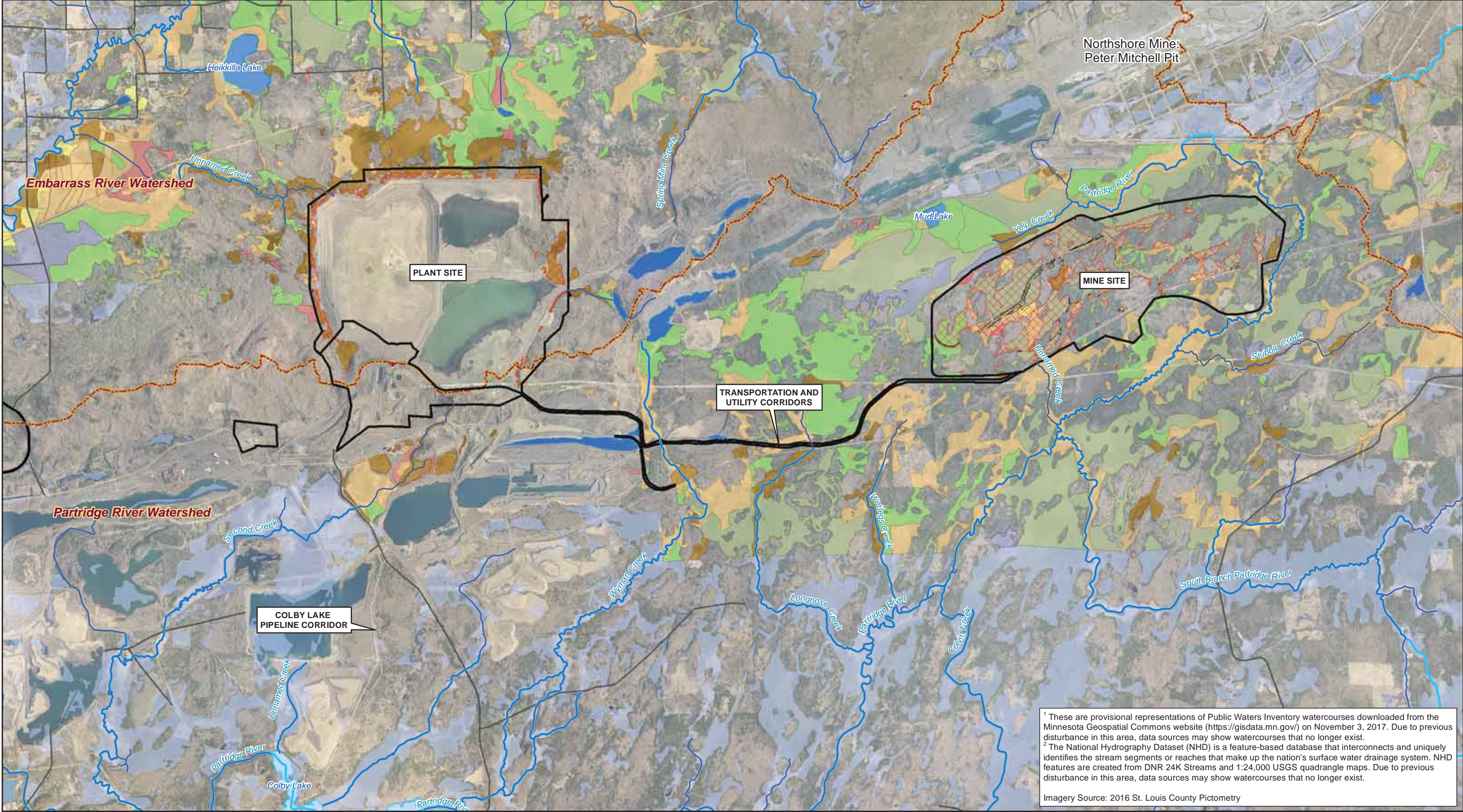


SITE LOCATOR MAP NorthMet Project Poly Met Mining, Inc.

Permit Sketch 1 of 20
File Number: MVP-1999-05528-JKA



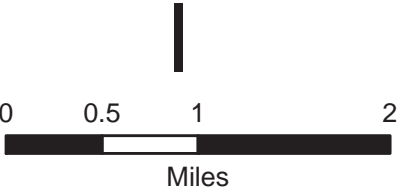
Bar Footer: ArcGIS 10.6, 2018-09-19 15:40 File: I:\Client\PolyMet_Mining\Work_Orders\Permitting\Wetland_Permits_Application\Maps\Reports\USACE_2018_Figures\Figure 3 Project Area Wetlands Showing Direct Wetland Impacts.mxd User: jae2



¹ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
² The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

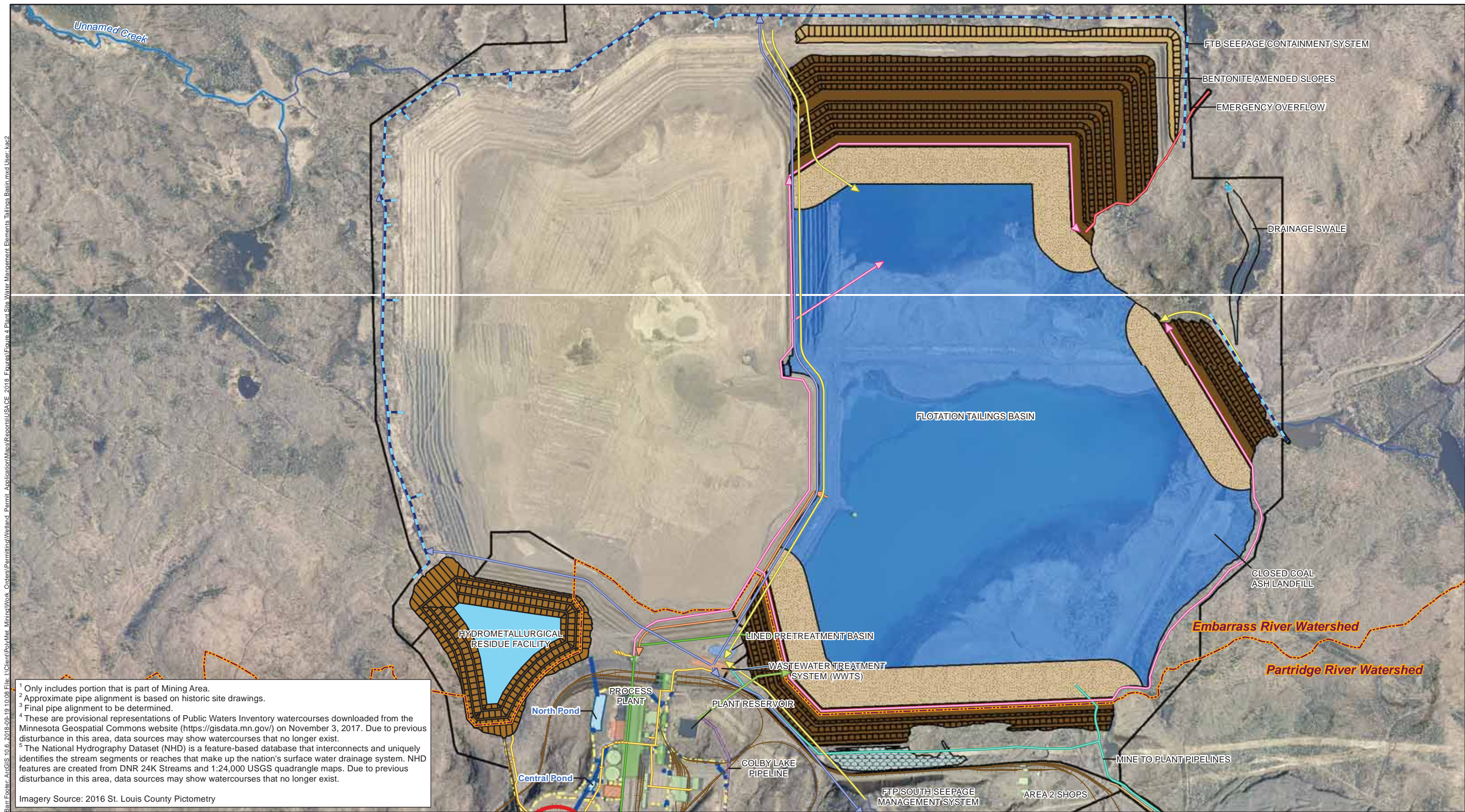
Imagery Source: 2016 St. Louis County Pictometry

EIS Project Areas	Eggers & Reed Wetland Types	Hardwood swamp	Public Waters Inventory (PWI) Basins
Watershed Divide	Shrub Swamps (Alder thickets & Shrub-carrs)	Open water (Shallow, open water & lakes)	Public Waters Inventory (PWI) Watercourses ¹
National Wetlands Inventory	Coniferous bog	Open bog	National Hydrography Dataset (NHD) Rivers & Streams ²
Direct Wetland Impacts	Coniferous swamp	Sedge meadow; Wet meadow	
Fragmented Wetlands	Deep marsh; Shallow marsh		



PROJECT AREA WETLANDS SHOWING DIRECT WETLAND IMPACTS NorthMet Project Poly Met Mining, Inc.
Permit Sketch 3 of 20 File Number: MVP-1999-05528-JKA

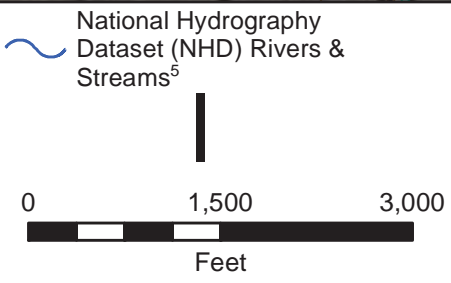
Bar Footer: ArcGIS 10.6 2018-09-19 10:08 File: I:\Client\Polymet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 4 Plant Site Water Management Elements Tailings Basin.mxd User: kac2



¹ Only includes portion that is part of Mining Area.
² Approximate pipe alignment is based on historic site drawings.
³ Final pipe alignment to be determined.
⁴ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
⁵ The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

EIS Project Areas	Proposed Hydrometallurgical Plant Building	Mine to Plant Pipelines	Treated Mine Water Ppe	North Buttress
Dunka Road ¹	Existing Railroads	FTB Seepage Containment System	Stormwater Culvert	South Buttress
Existing Beneficiation Plant Building	Proposed Railroad	FTB Water Return Pipe	Stormwater Ditch	HRF Pond
Existing Other Plant Building	Colby Lake Pipeline	FTB Tailings Discharge Pipe	Stormwater Ponds	HRF Dam
Proposed Beneficiation Plant Building	Existing Sewer Pipe ²	Plant Reservoir Overflow	Dam	Watershed Divide
	Proposed Sewer Pipe ³	Tailings Basin Seepage Collection Pipe	Beach	Public Waters Inventory (PWI) Watercourses ⁴
		Treated Water Pipe		



PLAN VIEW

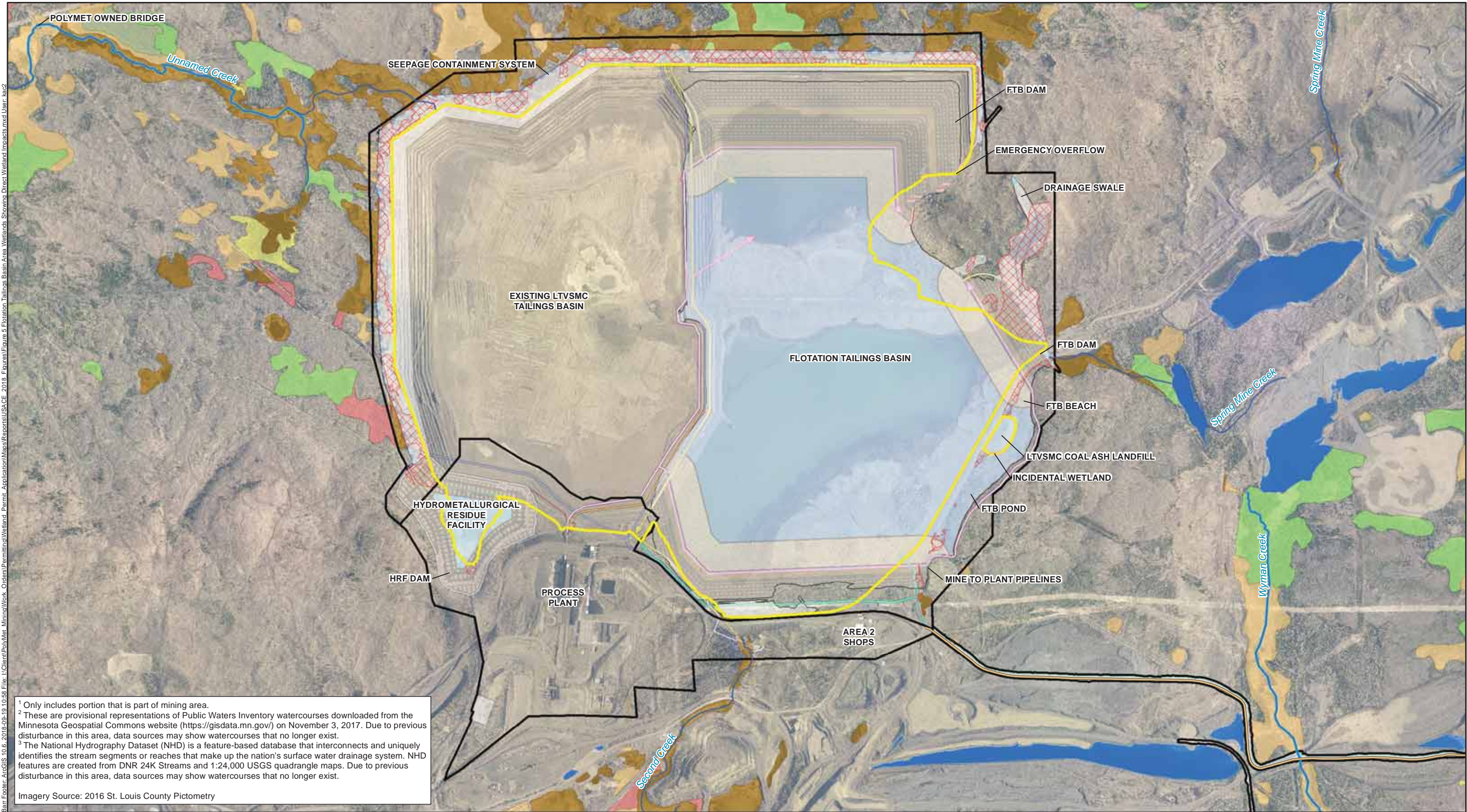
Showing Plant Site Project Elements

NorthMet Project Poly Met Mining, Inc.

Permit Sketch 4 of 20

File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6 2018-09-19 10:58 File: I:\Client\Polymet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 5 Flotation Tailings Basin Area Wetlands Showing Direct Wetland Impacts.mxd User: kac2

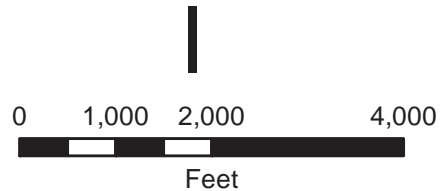


¹ Only includes portion that is part of mining area.
² These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
³ The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

- | | | |
|--|---|--|
| EIS Project Areas | Direct Wetland Impacts | Coniferous swamp |
| Dunka Road ¹ | Fragmented Wetlands | Deep marsh; Shallow marsh |
| Areas Disturbed by Proposed Project Features | Eggers & Reed Wetland Types | Hardwood swamp |
| LTVSMC's Permit to Mine | Shrub Swamps (Alder thickets & Shrub-carrs) | Open water (Shallow, open water & lakes) |
| Ultimate Tailings Basin Limit | Coniferous bog | Sedge meadow; Wet meadow |
| Incidental Wetland | | |

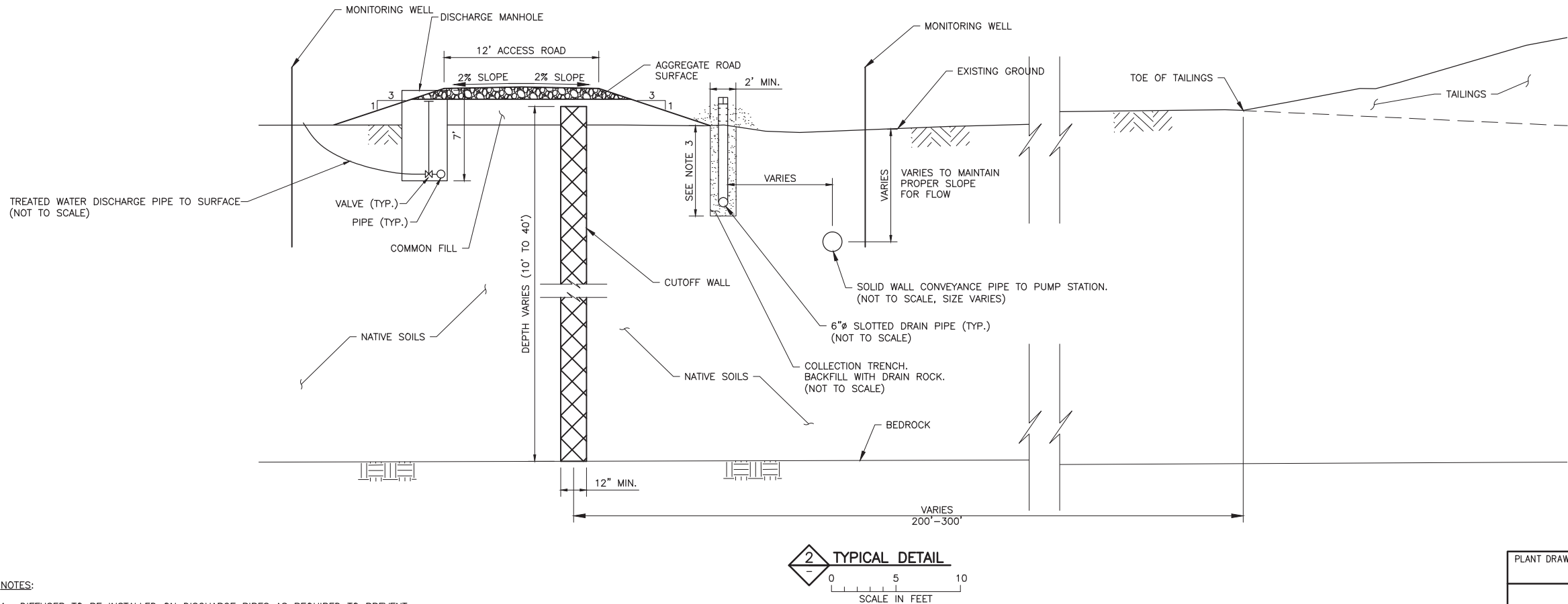
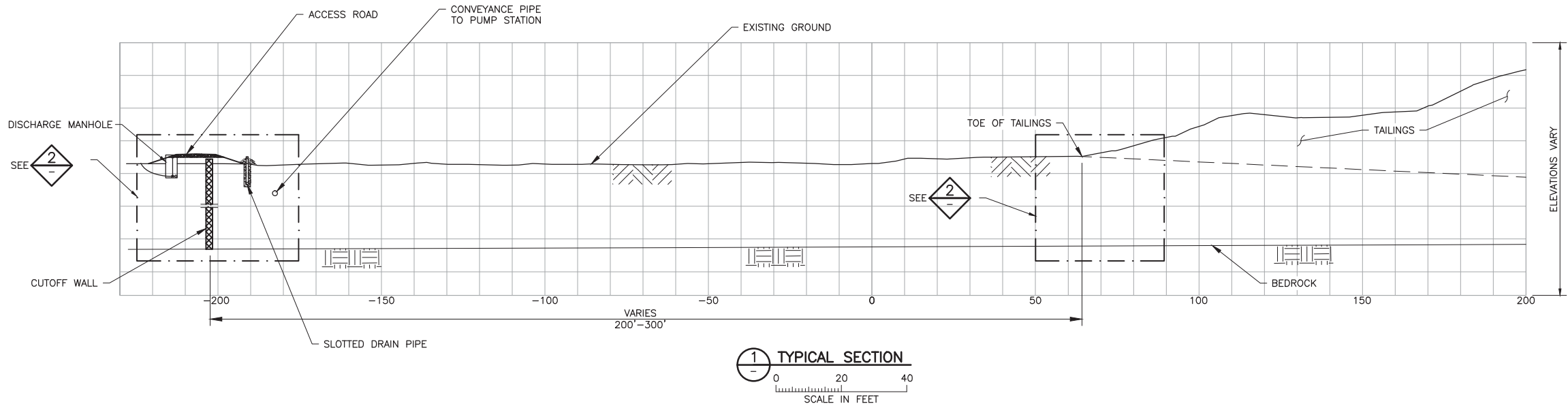
- Public Waters Inventory (PWI) Watercourses²
- National Hydrography Dataset (NHD) Rivers & Streams³



FLOTATION TAILINGS BASIN AREA
WETLANDS SHOWING DIRECT WETLAND
IMPACTS
NorthMet Project
Poly Met Mining, Inc.

Permit Sketch 5 of 20
File Number: MVP-1999-05528-JKA

CADD USER: Cristian A. Diaz FILE: K:\DESIGN\2369028\10\PERMIT_NMT-10-CU-013.DWG PLOT SCALE: 1:2 PLOT DATE: 5/15/2017 4:25 PM



NOTES:

1. DIFFUSER TO BE INSTALLED ON DISCHARGE PIPES AS REQUIRED TO PREVENT EROSION.
2. CUTOFF WALL MAXIMUM DESIGN HYDRAULIC CONDUCTIVITY = 1×10^{-6} CM/SEC
3. 7' TYPICAL BUT MAY BE LESS IN AREAS WITH SHALLOW BEDROCK

Permit Sketch 6 of 20
File Number: MVP-1999-05528-JKA

VER NO	DATE	DESCRIPTION	ISSUE STATUS		
A	09/28/12	WATER MANAGEMENT PLAN - PLANT- VERSION 2 - ATTACHEMENT B	ISSUED	VERSION	DATE
1	09/09/14	WATER MANAGEMENT PLAN - PLANT- VERSION 3 - ATTACHEMENT B	FOR PERMITTING	4	5/15/17
2	12/31/14	WATER MANAGEMENT PLAN - PLANT- VERSION 3,4 - ATTACHEMENT B			
3	05/28/15	ISSUED FOR INCLUSION IN PERMIT APPLICATIONS			
4	05/15/17	PERMIT APPLICATION UPDATES	FOR CONSTRUCTION		
			NOT APPROVED FOR CONSTRUCTION.		


I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME THOMAS J. RADUE
SIGNATURE *Thomas J. Radue*
DATE 5/15/17 LICENSE# 20951


DRAWN: BDP
CHECKED: DVS/AMP
BARR PROJECT NO.: 23/69-0C29
SCALE: AS SHOWN

PLANT DRAWING NUMBER:

FTB SEEPAGE CONTAINMENT AND STREAM AUGMENTATION SYSTEMS DETAILS



POLY MET MINING, INC.
NORTHMET PROJECT
HOYT LAKES, MINNESOTA

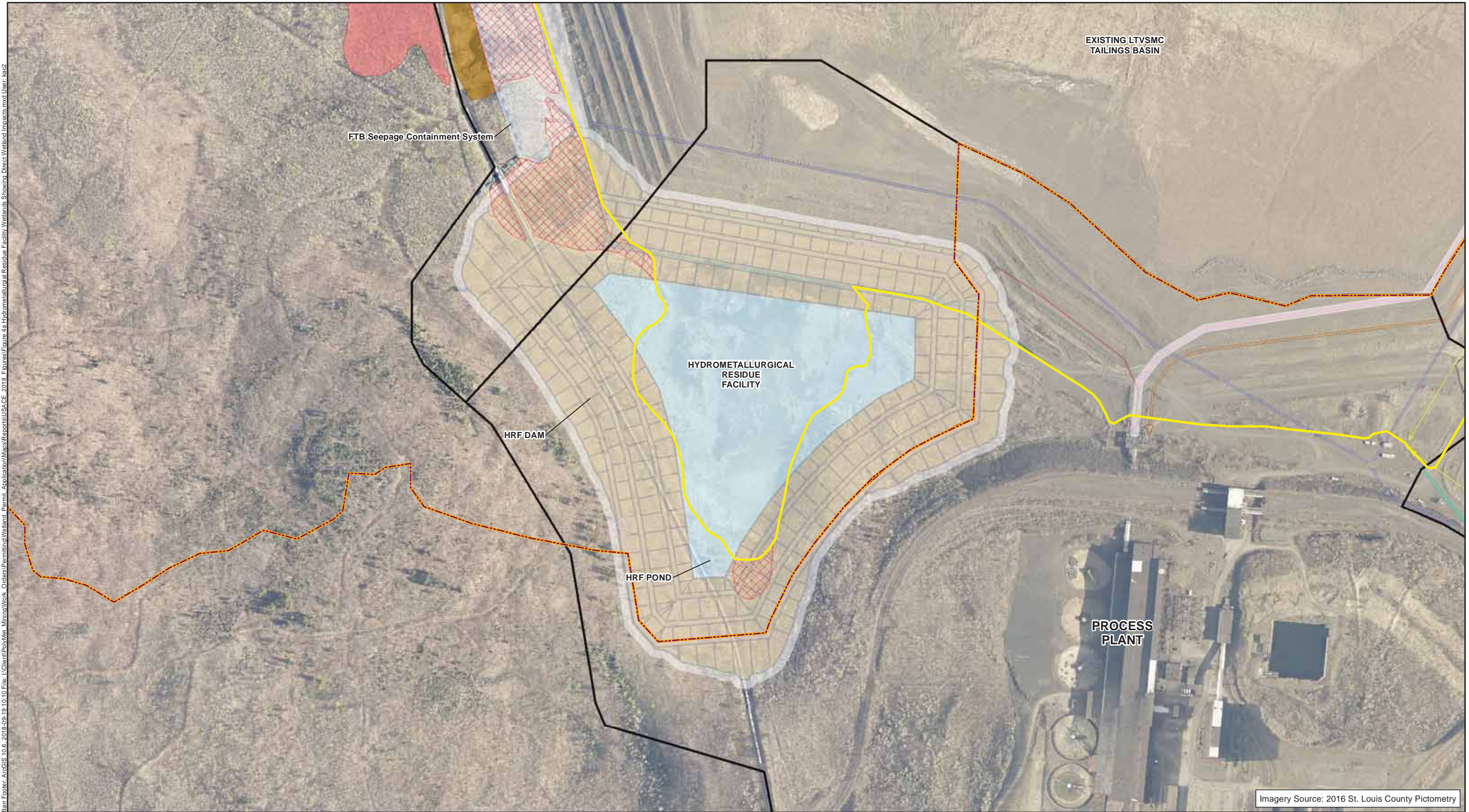


BARR ENGINEERING CO.
4300 MARKETPOINTE DRIVE
SUITE 200
MINNEAPOLIS, MN.
Ph: 1-800-632-2277

DWG. NO. FTBCA-013

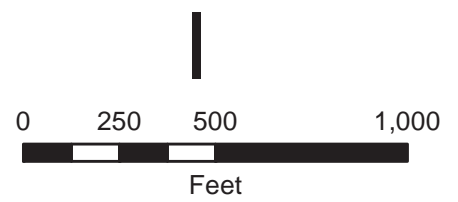
REV A

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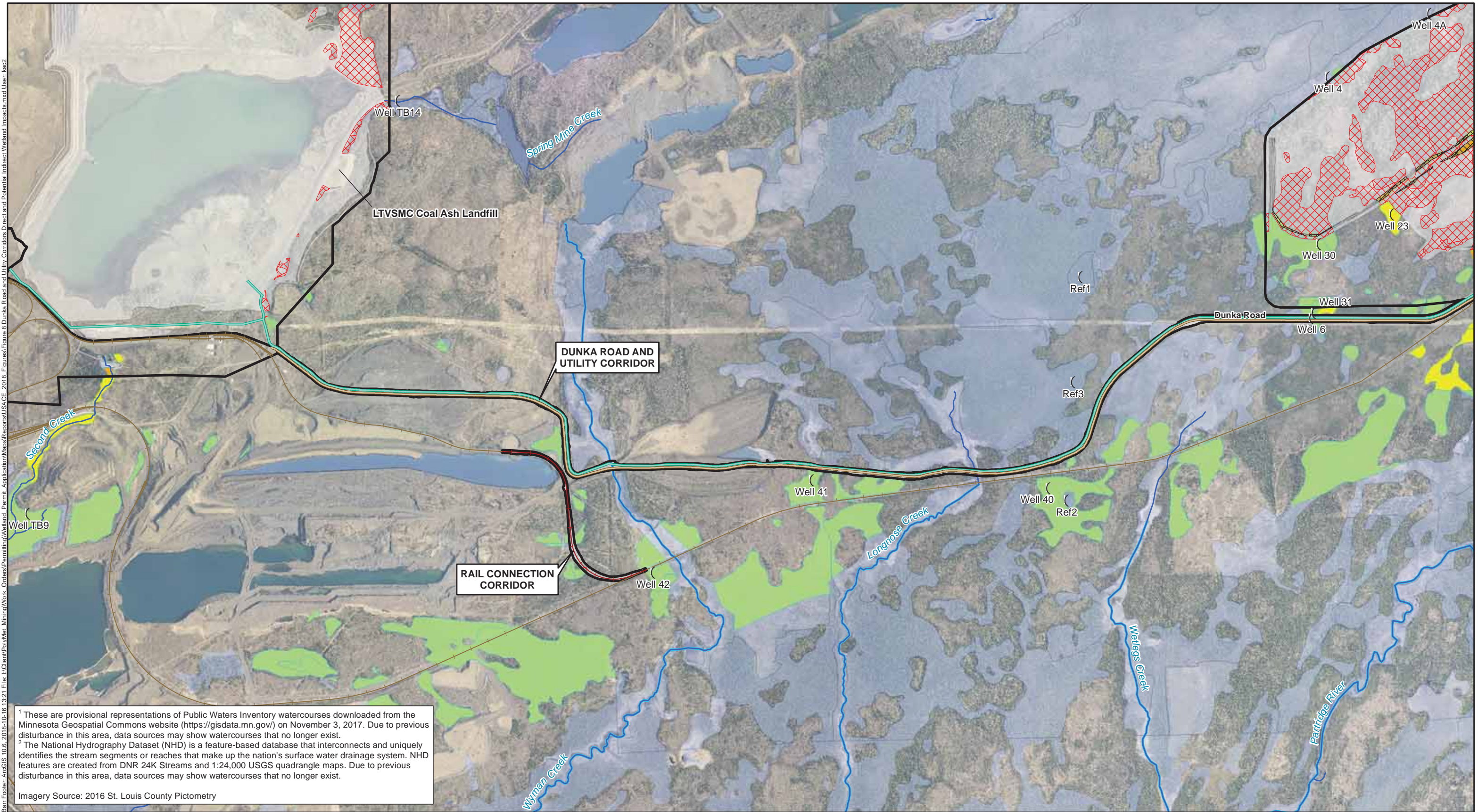


Imagery Source: 2016 St. Louis County Pictometry

- | | |
|---|--|
| EIS Project Areas | Direct Wetland Impacts |
| Areas Disturbed by Proposed Project Features | Fragmented Wetlands |
| LTVSMC's Permit to Mine Ultimate Tailings Basin Limit | Eggers & Reed Wetland Types |
| Watershed Divide | Deep marsh; Shallow marsh |
| | Hardwood swamp |



HYDROMETALLURGICAL RESIDUE FACILITY SHOWING DIRECT WETLAND IMPACTS NorthMet Project Poly Met Mining, Inc.
Permit Sketch 7 of 20 File Number: MVP-1999-05528-JKA



Bar Footer: ArcGIS 10.6 2018-10-16 13:21 File: I:\Client\Polymet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 8 Dunka Road and Utility Corridors Direct and Potential Indirect Wetland Impacts.mxd User: kac2

¹ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

² The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

EIS Project Areas

Dunka Road

Mine to Plant Pipelines

Existing Private Railroad

Proposed Railroad Track

Public Waters Inventory (PWI) Watercourses¹

National Hydrography Dataset (NHD) Rivers & Streams²

Areas Disturbed by Proposed Project Features

Direct Wetland Impacts

Fragmented Wetlands

Potential Indirect Wetland Impact Factor Rating

5

2

4

1

3

No Impact

0

1,100

2,200

4,400

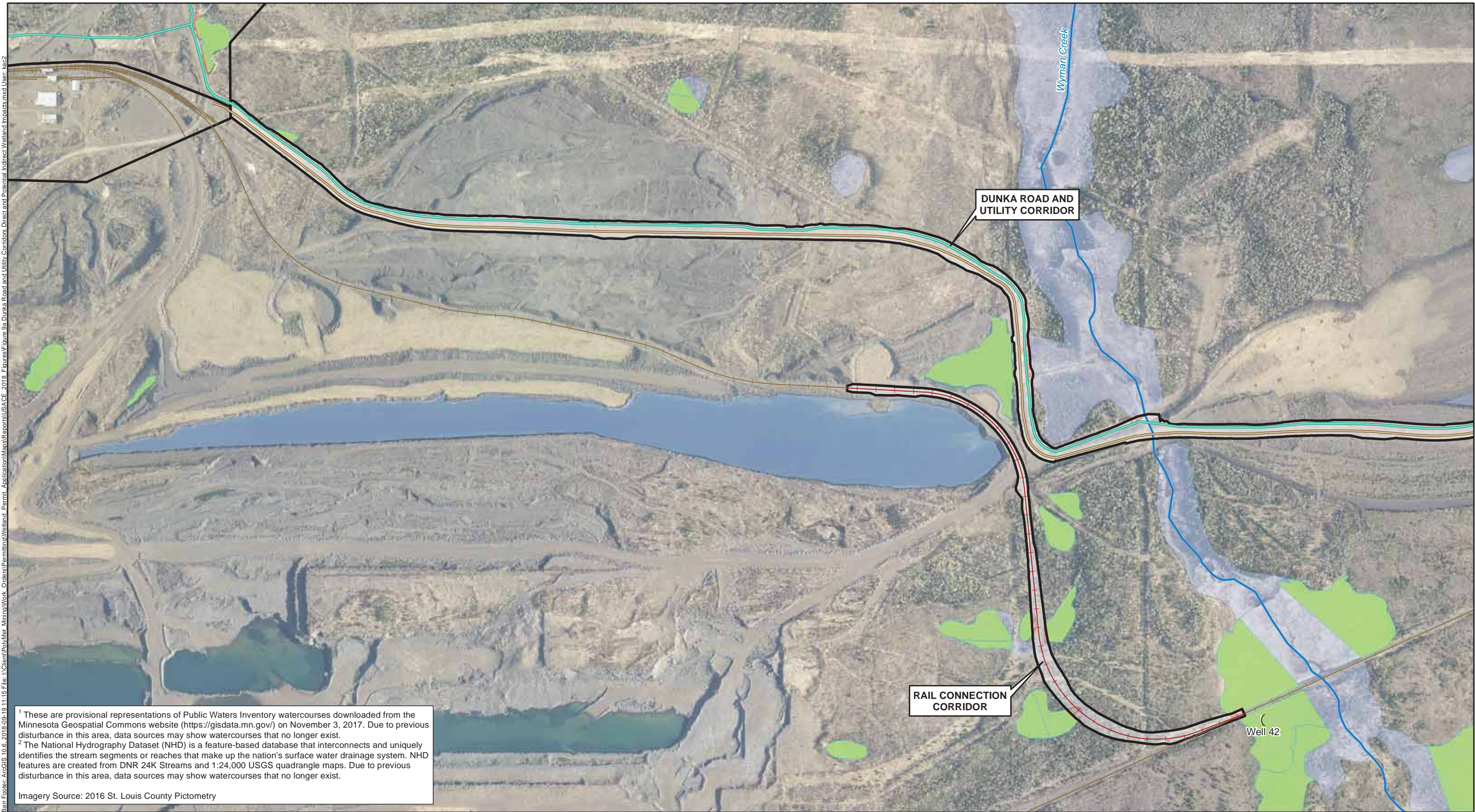
Feet

NORTHMET PROJECT

DUNKA ROAD AND UTILITY CORRIDORS
DIRECT AND POTENTIAL INDIRECT WETLAND
IMPACTS

Permit Sketch 8 of 20

File Number: MVP-1999-05528-JKA



Bar Footer: ArcGIS 10.6 2018-09-19 11:15 File: I:\Client\Boj\Met Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 9a Dunka Road and Utility Corridors Direct and Potential Indirect Wetland Impacts.mxd User: kac2

¹ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

² The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

EIS Project Areas

Dunka Road

Mine to Plant Pipelines

Existing Private Railroad

Proposed Railroad Track

Public Waters Inventory (PWI) Watercourses¹

National Hydrography Dataset (NHD) Rivers & Streams²

Areas Disturbed by Proposed Project Features

Direct Wetland Impacts

Fragmented Wetlands

Incidental

Potential Indirect Wetland Impact Factor Rating

5

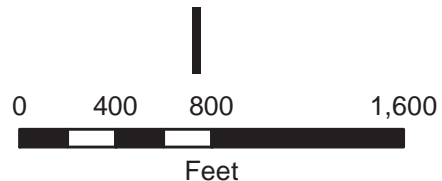
4

3

2

1

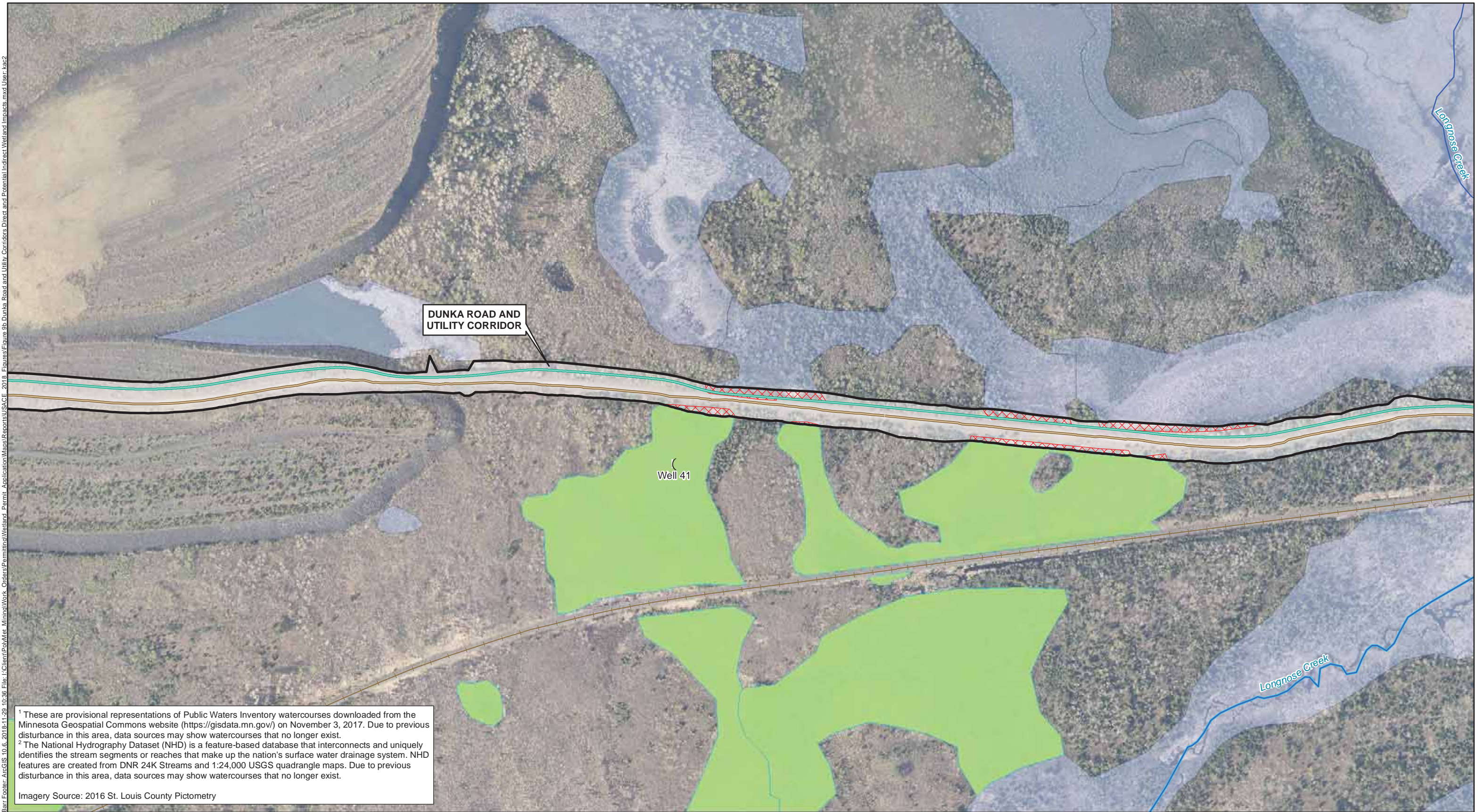
No Impact



RAILROAD CORRIDOR and DUNKA ROAD WETLAND IMPACTS
NorthMet Project
Poly Met Mining, Inc.

Permit Sketch 9 of 20
File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6, 2018-11-29 10:36 File: L:\Client\PolMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 9b Dunka Road and Utility Corridors Direct and Potential Indirect Wetland Impacts.mxd User: kac2

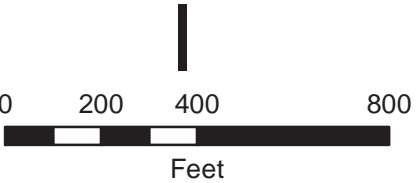


¹ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

² The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

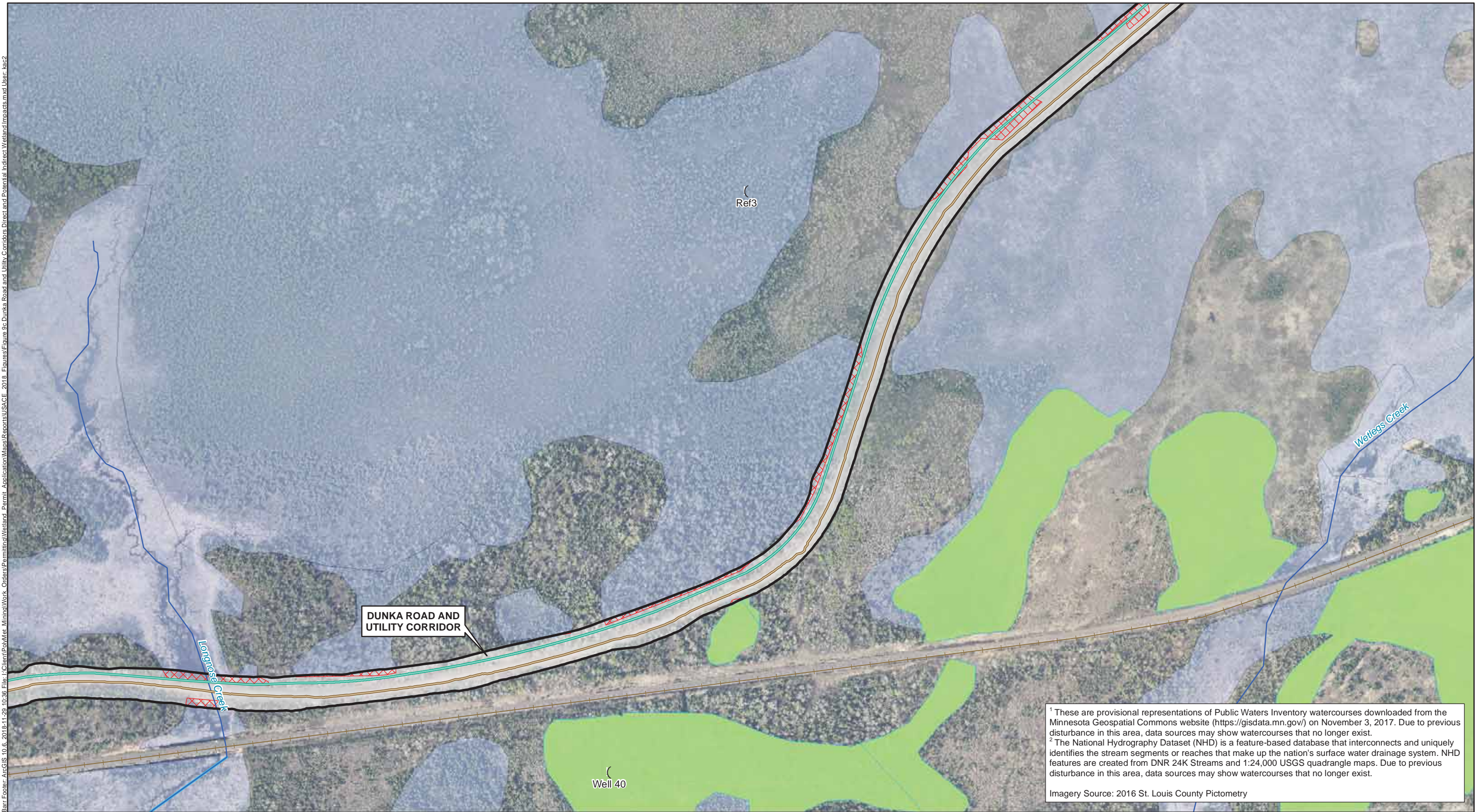
- | | | | |
|---|--|---|-----------|
| EIS Project Areas | National Hydrography Dataset (NHD) Rivers & Streams ² | Potential Indirect Wetland Impact Factor Rating | |
| Dunka Road | Areas Disturbed by Proposed Project Features | 5 | 2 |
| Mine to Plant Pipelines | Direct Wetland Impacts | 4 | 1 |
| Existing Private Railroad | Fragmented Wetlands | 3 | No Impact |
| Proposed Railroad Track | | | |
| Public Waters Inventory (PWI) Watercourses ¹ | | | |



**DUNKA ROAD AND UTILITY CORRIDORS
WETLAND IMPACTS-Western Segment
NorthMet Project
Poly Met Mining, Inc.**

Permit Sketch 10 of 20
File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6, 2018-11-29 10:36 File: L:\Client\BojMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 9c Dunka Road and Utility Corridors Direct and Potential Indirect Wetland Impacts.mxd User: kac2



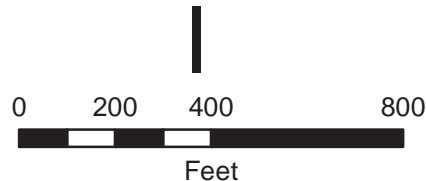
¹ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
² The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
 Imagery Source: 2016 St. Louis County Pictometry

- EIS Project Areas
- Dunka Road
- Mine to Plant Pipelines
- Existing Private Railroad
- Proposed Railroad Track
- Public Waters Inventory (PWI) Watercourses¹

- National Hydrography Dataset (NHD) Rivers & Streams²
- Areas Disturbed by Proposed Project Features
- Direct Wetland Impacts
- Fragmented Wetlands

Potential Indirect Wetland Impact Factor Rating

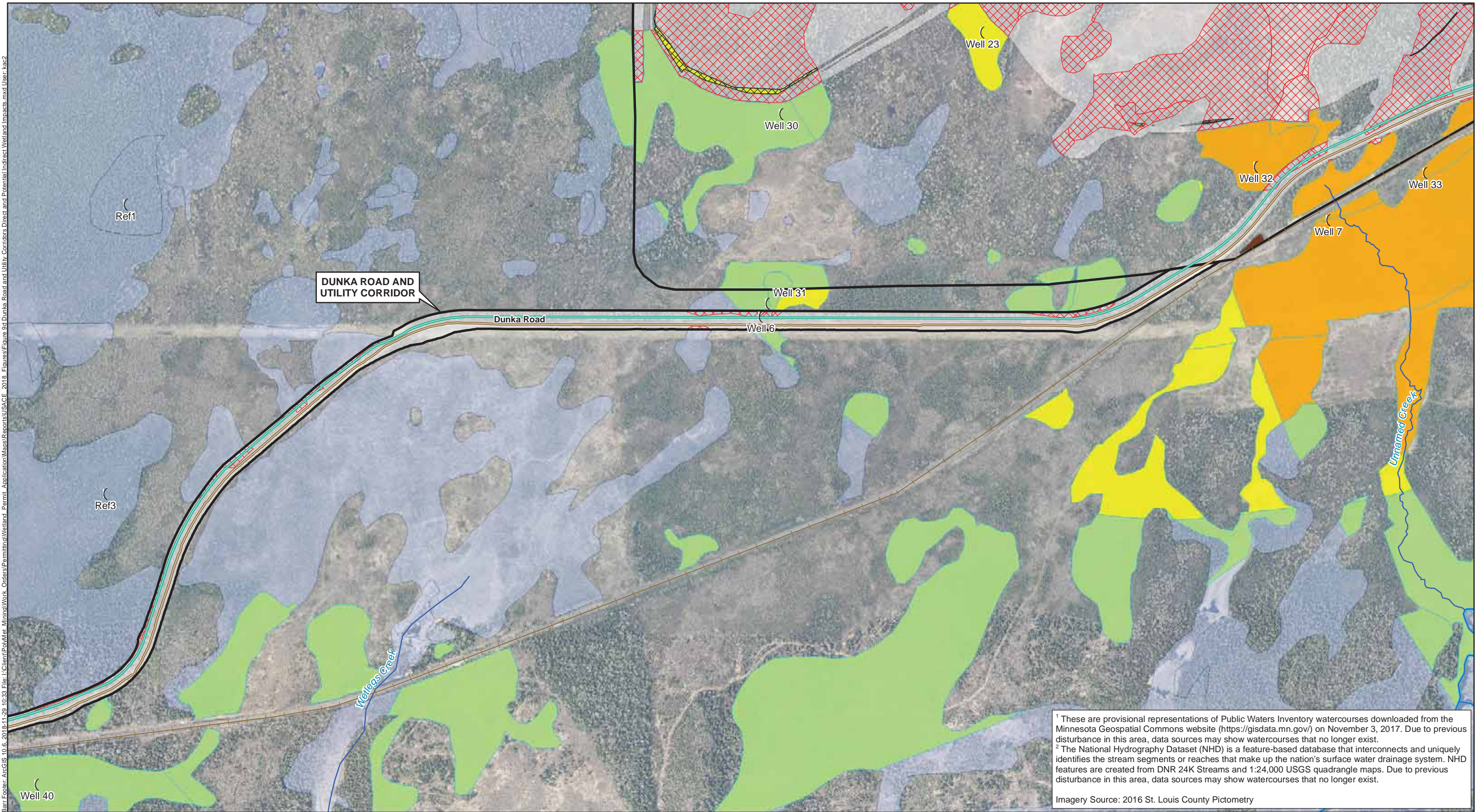
5	2
4	1
3	No Impact



**DUNKA ROAD AND UTILITY CORRIDORS
WETLAND IMPACTS-Central Segment**
NorthMet Project
Poly Met Mining, Inc.

Permit Sketch 11 of 20
File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6, 2018-11-29 10:33 File: L:\Client\PolMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 9d Dunka Road and Utility Corridors Direct and Potential Indirect Wetland Impacts.mxd User: kac2

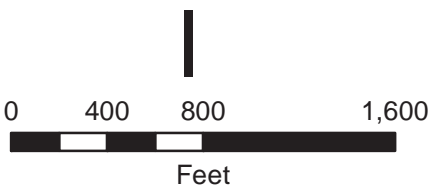


¹ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
² The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
Imagery Source: 2016 St. Louis County Pictometry

- EIS Project Areas
- Dunka Road
- Mine to Plant Pipelines
- Existing Private Railroad
- Proposed Railroad Track
- Public Waters Inventory (PWI) Watercourses¹

- National Hydrography Dataset (NHD) Rivers & Streams²
- Areas Disturbed by Proposed Project Features
- Direct Wetland Impacts
- Fragmented Wetlands

- Potential Indirect Wetland Impact Factor Rating
- | | |
|---|-----------|
| 5 | 2 |
| 4 | 1 |
| 3 | No Impact |



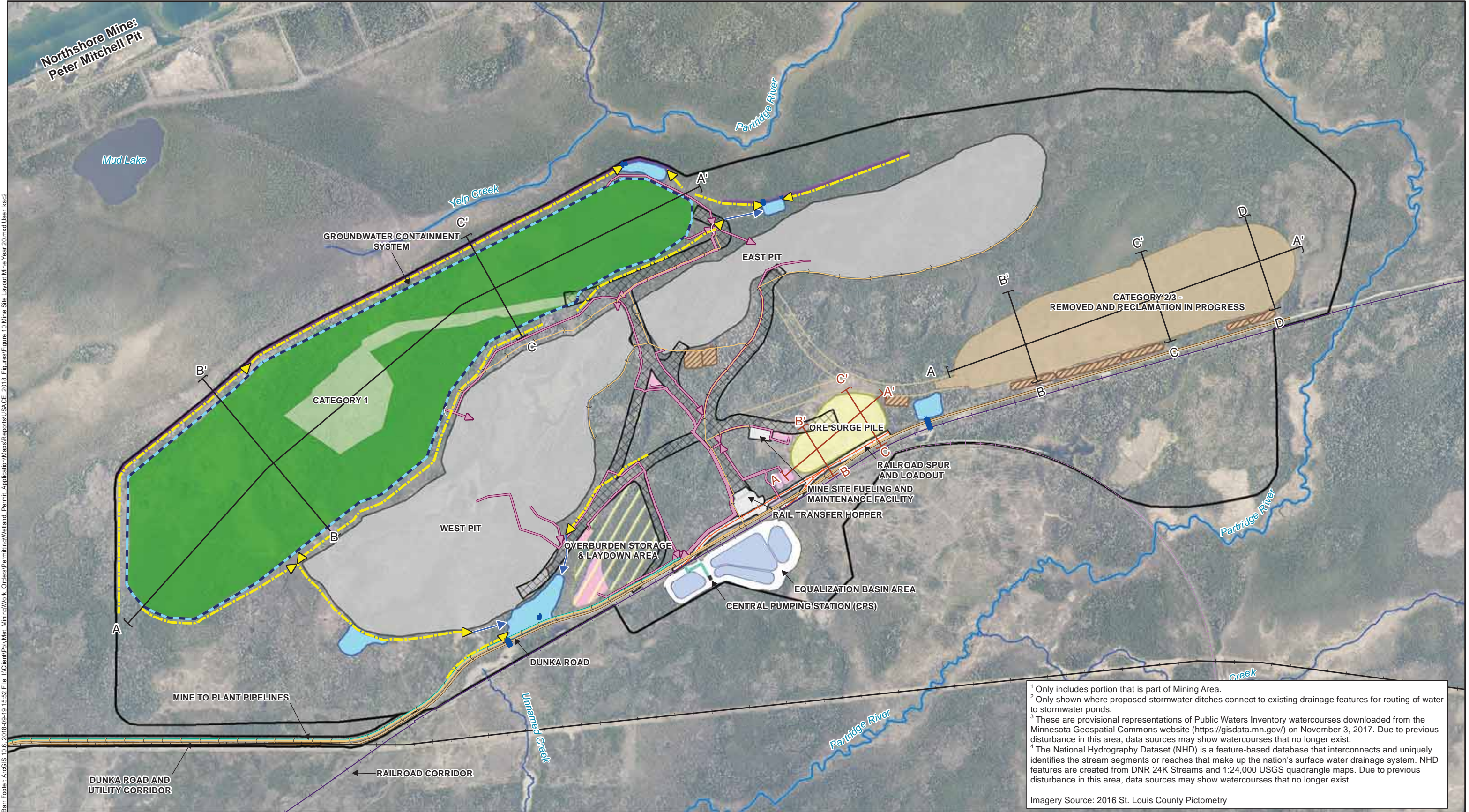
DUNKA ROAD AND UTILITY COORIDOR

Wetland Impacts- Eastern Segment

NorthMet Project PolyMet Mining, Inc.

Permit Sketch 12 of 20
File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6 2018-09-19 15:52 File: I:\Client\PolyMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 10 Mine Site Layout Mine Year 20.mxd User: ka2



¹ Only includes portion that is part of Mining Area.
² Only shown where proposed stormwater ditches connect to existing drainage features for routing of water to stormwater ponds.
³ These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
⁴ The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

<div><div></div><div>EIS Project Areas</div></div> <div><div></div><div>Dunka Road¹</div></div> <div><div></div><div>Mine Year 20 Footprints</div></div> <div><div></div><div>Mine Year 20 Footprints</div></div> <div><div></div><div>Open Stockpile</div></div> <div><div></div><div>Covered Stockpile</div></div> <div><div></div><div>Active Stockpile</div></div>	<div><div></div><div>Storage & Laydown Area</div></div> <div><div></div><div>Removed and Reclaimed Stockpiles</div></div> <div><div></div><div>Haul Roads</div></div> <div><div></div><div>Reclaimed Haul Roads</div></div> <div><div></div><div>Ore Surge Pile Cross-Sections</div></div> <div><div></div><div>Stockpile Cross-Sections</div></div> <div><div></div><div>PolyMet Power Distribution Lines</div></div>	<div><div></div><div>Minnesota Power Transmission Line</div></div> <div><div></div><div>PolyMet Exclusive Track</div></div> <div><div></div><div>Cliffs Track with License to PolyMet</div></div> <div><div></div><div>Cliffs Exclusive Track</div></div> <div><div></div><div>Groundwater Containment System Sumps</div></div> <div><div></div><div>Groundwater Containment System</div></div> <div><div></div><div>Mine to Plant Pipelines</div></div>	<div><div></div><div>Mine Water Pipelines</div></div> <div><div></div><div>Reclaimed Mine Water Ponds and Sumps</div></div> <div><div></div><div>Mine Water Ponds and Sumps</div></div> <div><div></div><div>Perimeter Dike</div></div> <div><div></div><div>Existing Drainage²</div></div> <div><div></div><div>Stormwater Ditches</div></div> <div><div></div><div>Stormwater Culverts</div></div>	<div><div></div><div>Stormwater Ponds</div></div> <div><div></div><div>Public Waters Inventory (PWI) Watercourses³</div></div> <div><div></div><div>National Hydrography Dataset (NHD) Rivers & Streams⁴</div></div>
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0

750

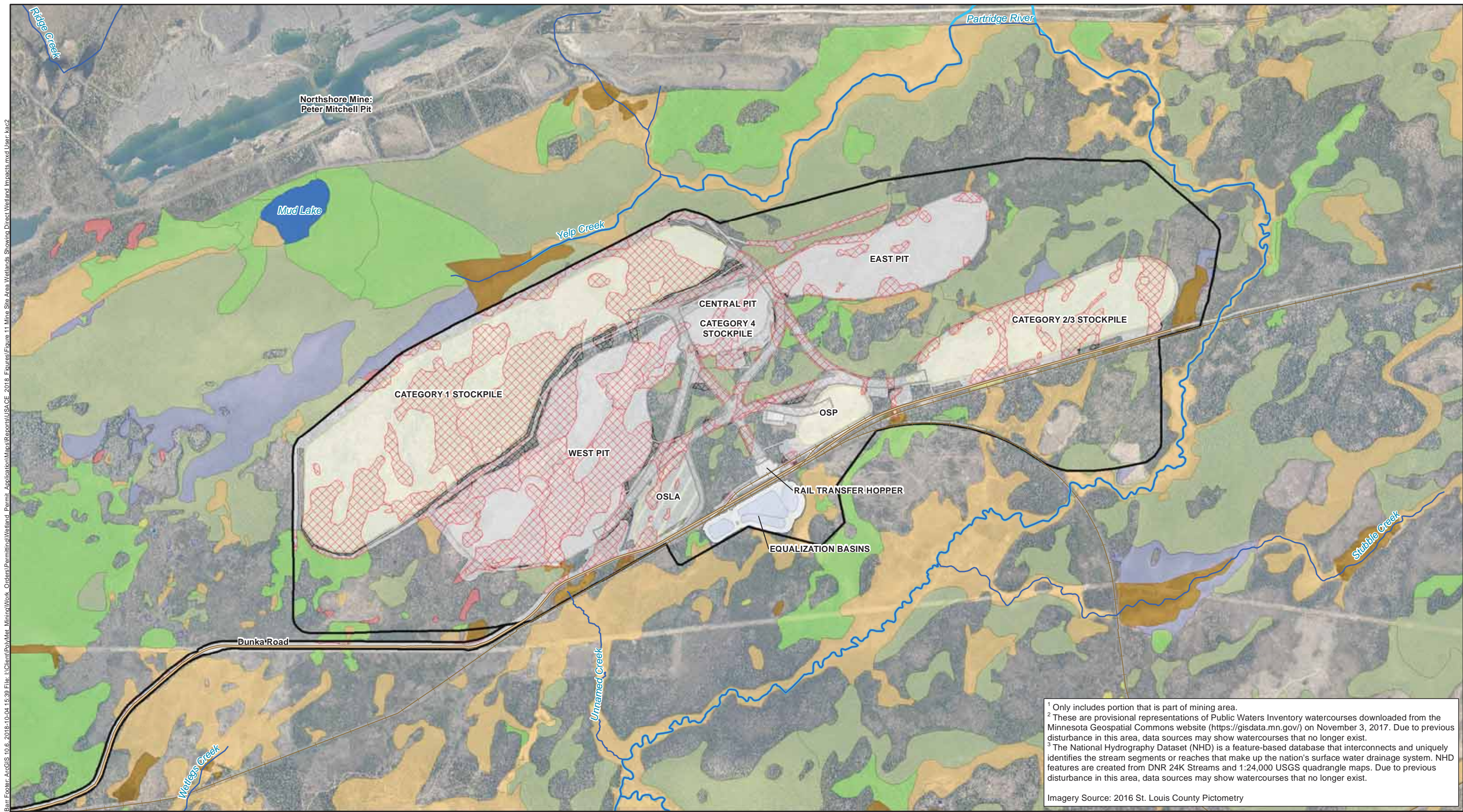
1,500

Feet

MINE SITE LAYOUT -
MINE YEAR 20
NorthMet Project
Poly Met Mining, Inc.

Permit Sketch 13 of 20
File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6 2018-10-04 15:39 File: I:\Client\PolyMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 11 Mine Site Area Wetlands Showing Direct Wetland Impacts.mxd User: kac2

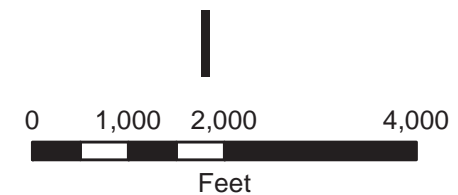


¹ Only includes portion that is part of mining area.
² These are provisional representations of Public Waters Inventory watercourses downloaded from the Minnesota Geospatial Commons website (<https://gisdata.mn.gov/>) on November 3, 2017. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.
³ The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that make up the nation's surface water drainage system. NHD features are created from DNR 24K Streams and 1:24,000 USGS quadrangle maps. Due to previous disturbance in this area, data sources may show watercourses that no longer exist.

Imagery Source: 2016 St. Louis County Pictometry

- | | | |
|--|---|---|
| EIS Project Areas | Eggers & Reed Wetland Types | Hardwood swamp |
| Dunks Road ¹ | Shrub Swamps (Alder thickets & Shrub-carrs) | Open water (Shallow, open water & lakes) |
| Areas Disturbed by Proposed Project Features | Coniferous bog | Open bog |
| Direct Wetland Impacts | Coniferous swamp | Sedge meadow; Wet meadow |
| Fragmented Wetlands | Deep marsh; Shallow marsh | Public Waters Inventory (PWI) Watercourses ² |

National Hydrography Dataset (NHD) Rivers & Streams³

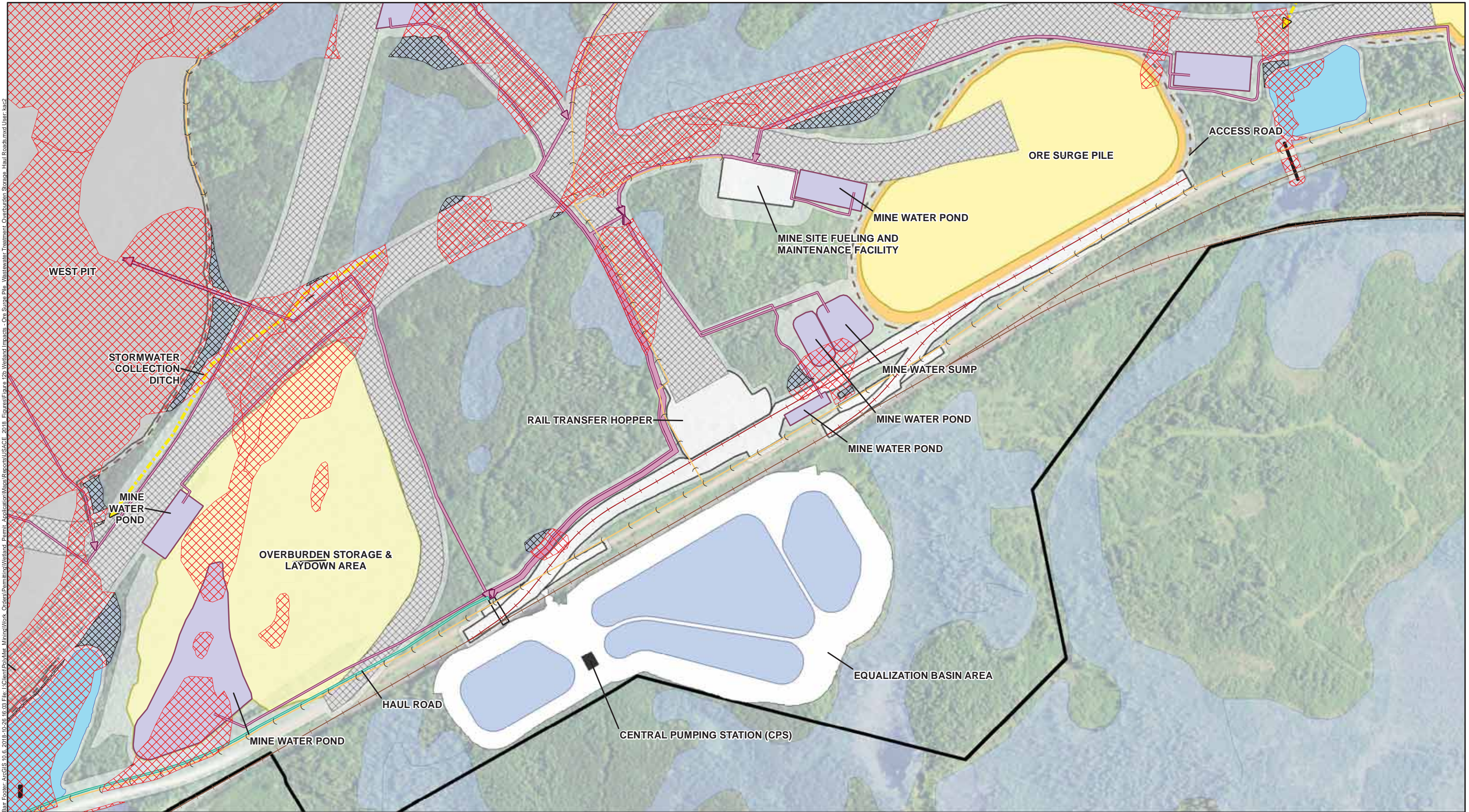


MINE SITE AREA WETLANDS Showing Direct and Fragmented Wetland Impacts

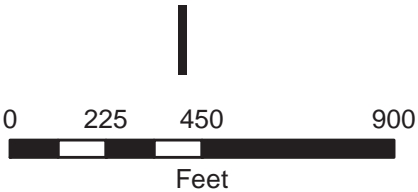
NorthMet Project Poly Met Mining, Inc.

Permit Sketch 14 of 20
File Number: MVP-1999-05528-JKA

Bar Footer-ArcGIS 10.6, 2018-10-26 16:03 File: I:\Client\BowMet_Mining\Work_Order\Permitting\Wetland_Permit_Application\Map_Responses\USACE_2018_Figures\Figure 12b Wetland Impacts - Ore Surge Pile Wastewater Treatment Overburden Storage Haul Roads.mxd User: jae2



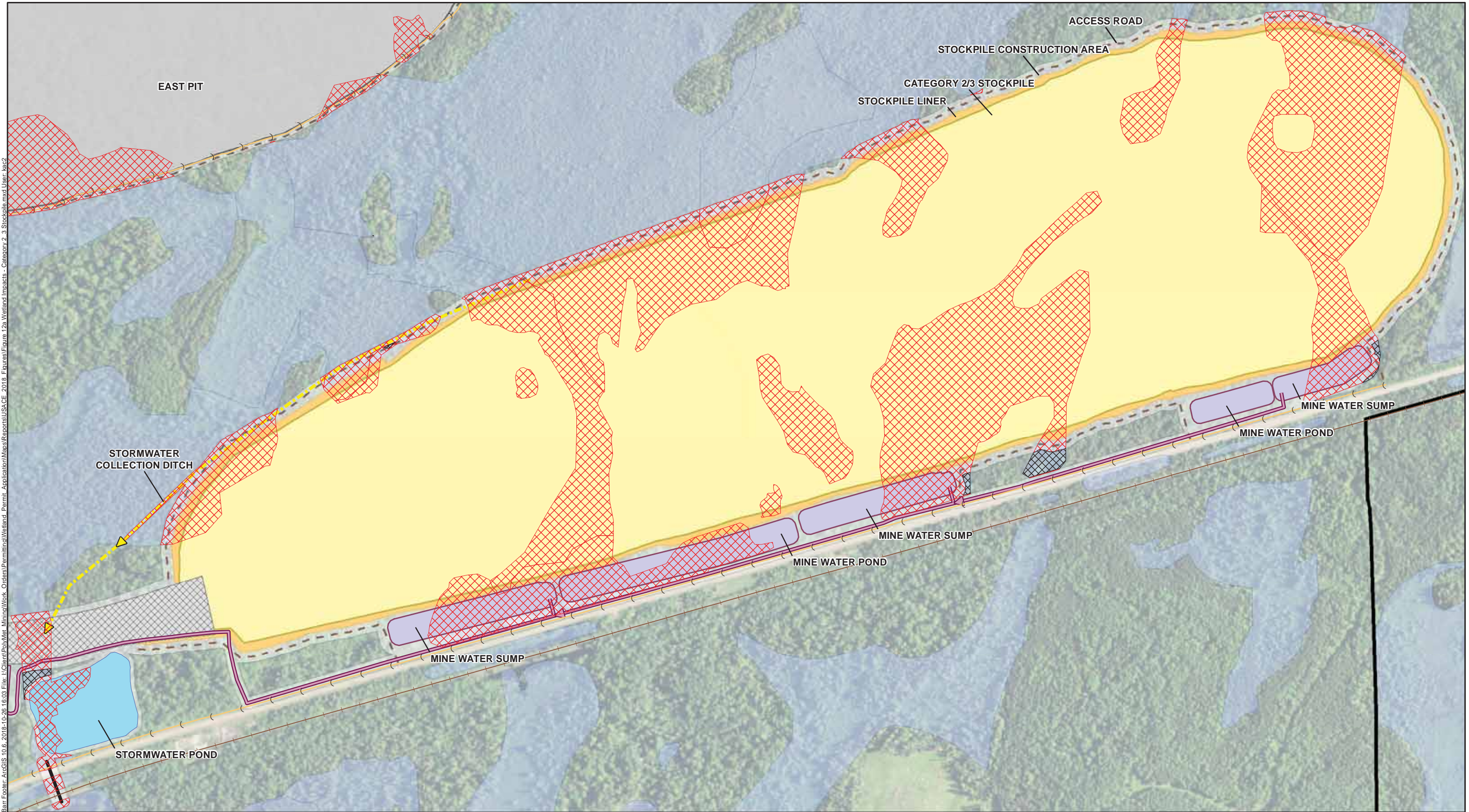
- | | | | |
|-------------------|---------------------------|-----------------------------|--|
| EIS Project Areas | Stormwater Capture System | Mine Water Ponds and Sumps | Direct Wetland Impacts |
| Mine Site | Stormwater Pond | Proposed Transmission Lines | Fragmented Wetlands |
| Mine Pits | Culverts | Access Road | Areas Disturbed by Construction of Proposed Project Features |
| Stockpiles | Mine Water Capture System | Existing Private Railroad | |
| Stockpile Liner | Mine Water Pipes | Proposed Railroad Track | |
| Haul Roads | | Wetlands | |



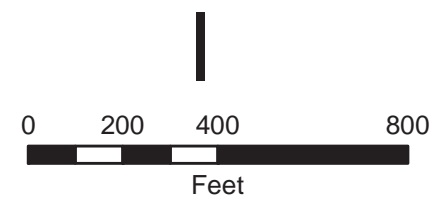
WETLAND IMPACTS - OSP / WWTF /
OVERBURDEN STORAGE/ HAUL ROADS
NorthMet Project
Poly Met Mining, Inc.

Permit Sketch 15 of 20
File Number: MVP-1999-05528-JKA

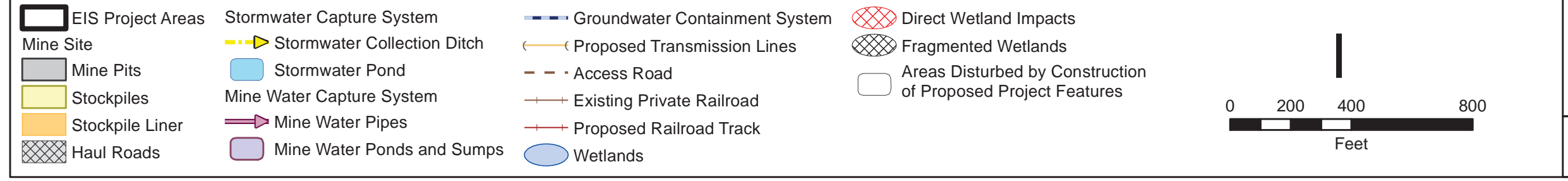
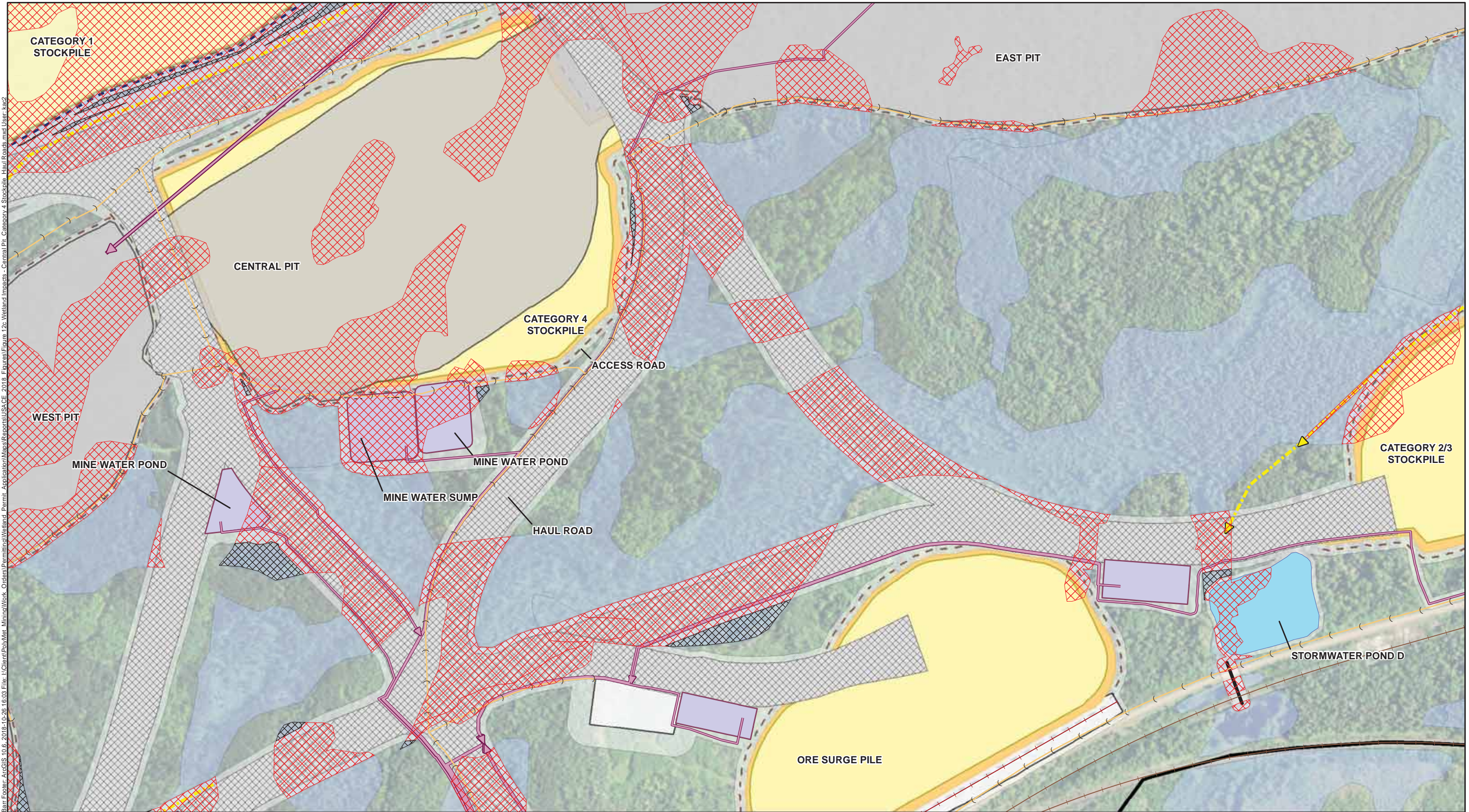
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|-------------------|-----------------------------|--|
| EIS Project Areas | Mine Water Ponds and Sumps | Direct Wetland Impacts |
| Mine Site | Stormwater Collection Ditch | Fragmented Wetlands |
| Mine Pits | Stormwater Pond | Areas Disturbed by Construction of Proposed Project Features |
| Stockpiles | Culverts | |
| Stockpile Liner | Mine Water Pipes | |
| Haul Roads | Access Road | |
| | Existing Private Railroad | |
| | Wetlands | |



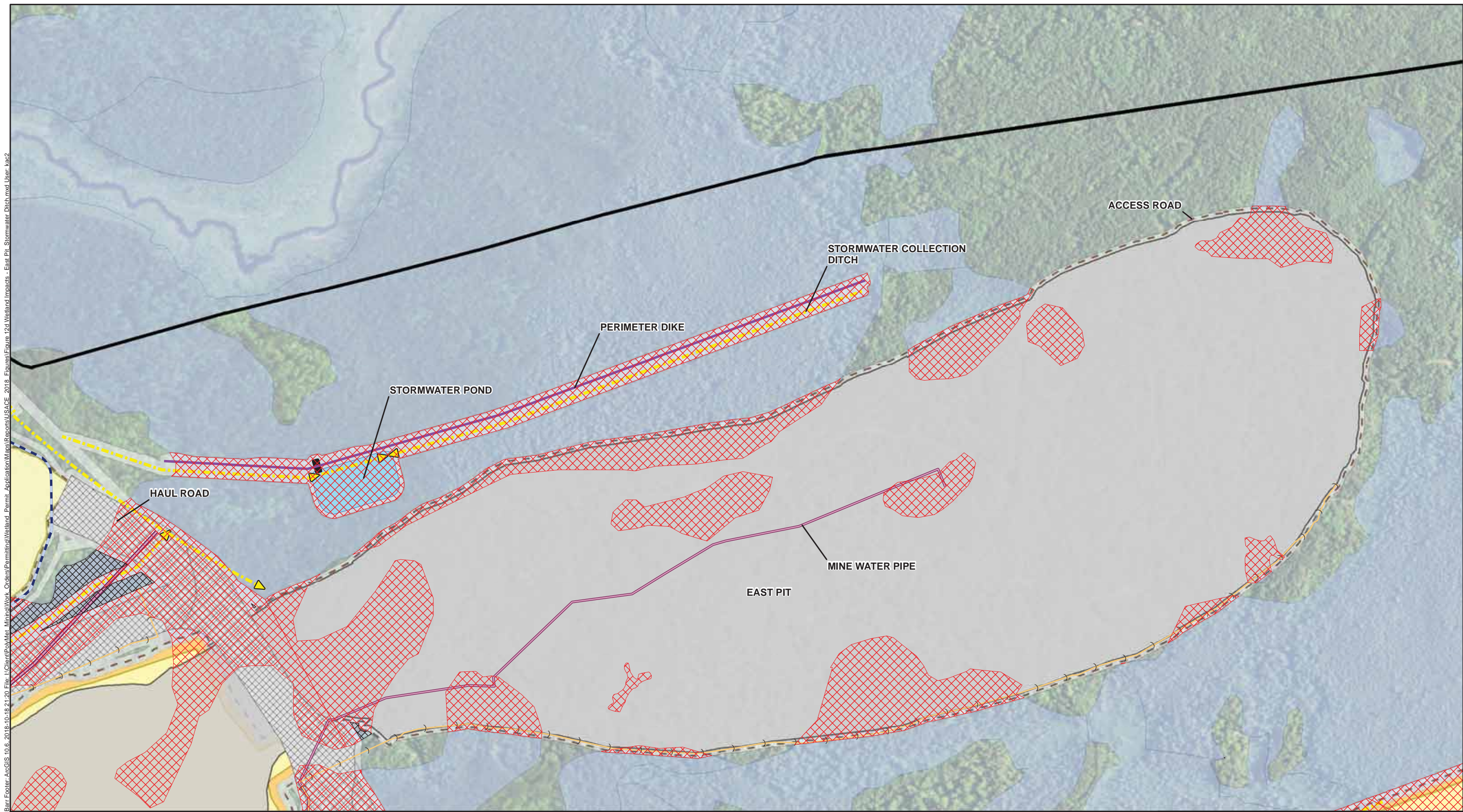
WETLAND IMPACTS -
CATEGORY 2/3 STOCKPILE
NorthMet Project
Poly Met Mining, Inc.



WETLAND IMPACTS - CENTRAL PIT /
CATEGORY 4 STOCKPILE / HAUL ROADS
NorthMet Project
Poly Met Mining, Inc.

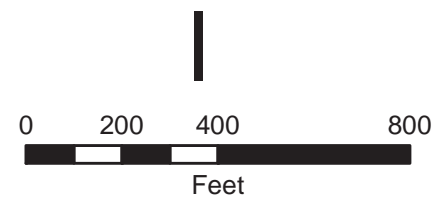
Permit Sketch 17 of 20
File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6 2018-10-18 21:20 File: I:\Client\PolyMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 12d Wetland Impacts - East Pit Stormwater Ditch.mxd User: kac2



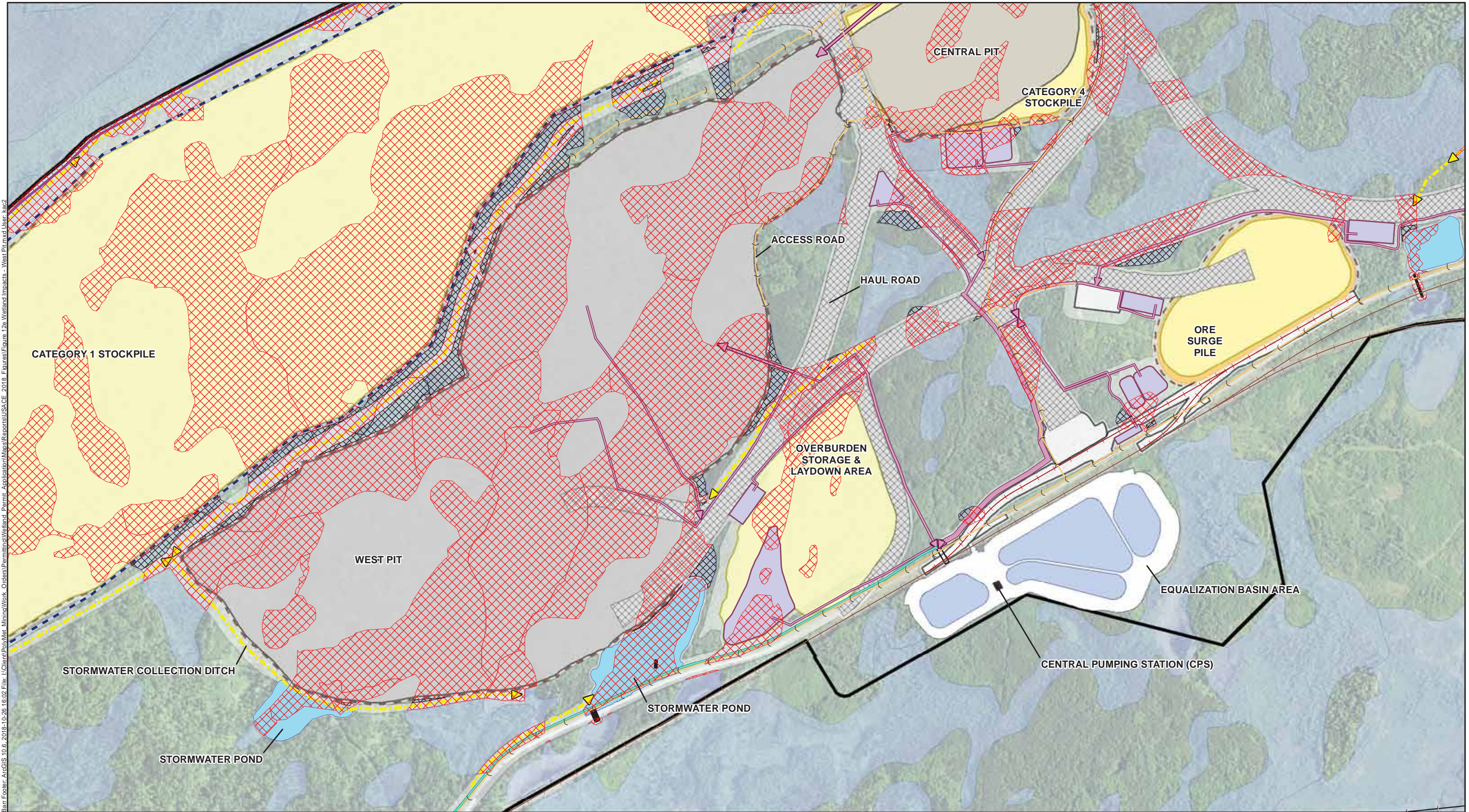
- | | | |
|-------------------|----------------------------------|----------------------------------|
| EIS Project Areas | Stormwater Capture System | Mine Water Capture System |
| Mine Site | Stormwater Collection Ditch | Mine Water Pipes |
| Mine Pits | Stormwater Pond | Groundwater Containment System |
| Stockpiles | Culverts | Proposed Transmission Lines |
| Stockpile Liner | Perimeter Dike | Access Road |
| Haul Roads | | Wetlands |

- | |
|--|
| Direct Wetland Impacts |
| Fragmented Wetlands |
| Areas Disturbed by Construction of Proposed Project Features |



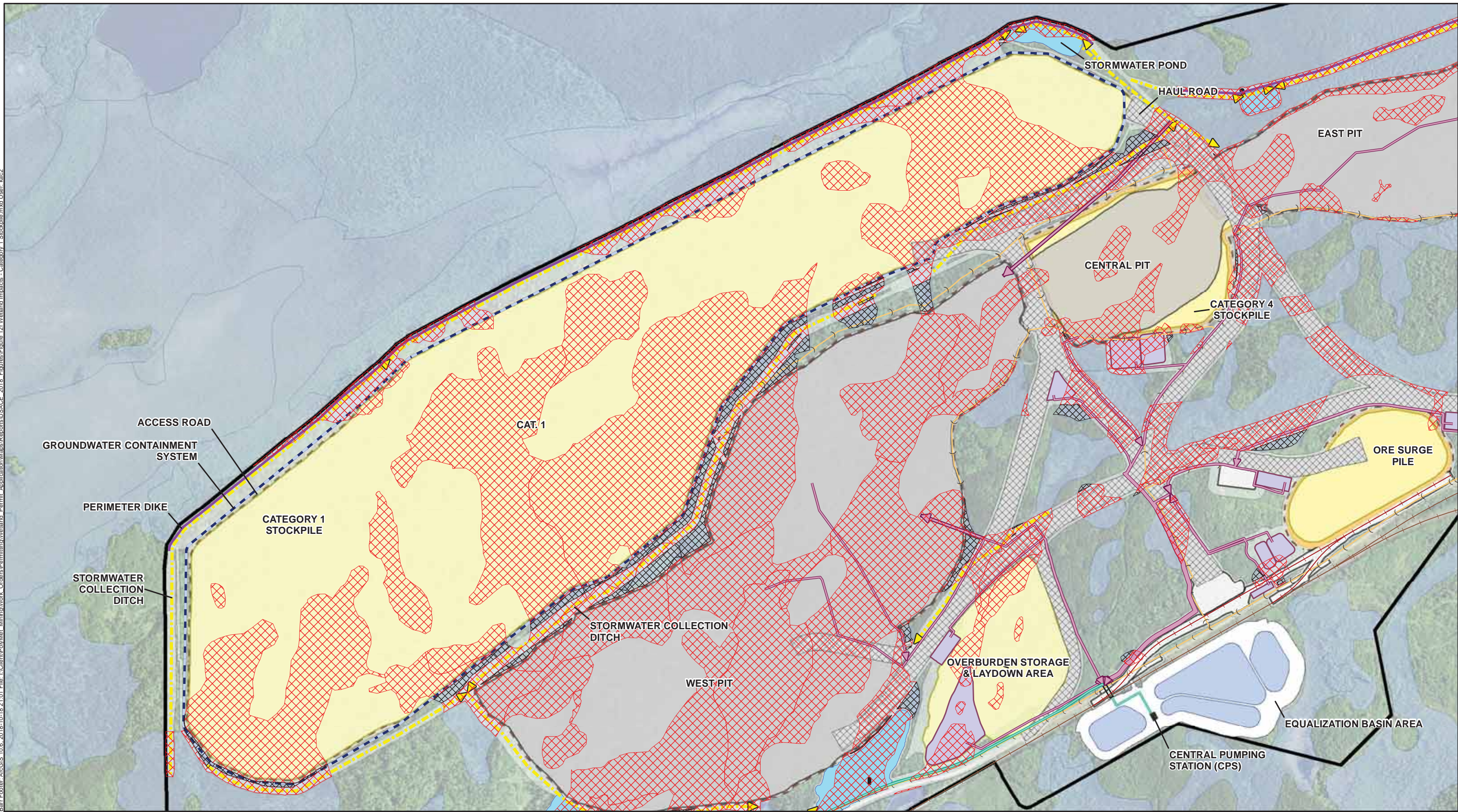
WETLAND IMPACTS - EAST PIT / STORMWATER DITCH NorthMet Project Poly Met Mining, Inc.
Permit Sketch 18 of 20 File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6 2018-10-26 16:02 File: I:\Client\Polymet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 12a Wetland Impacts - West Pit.mxd User: lsc2



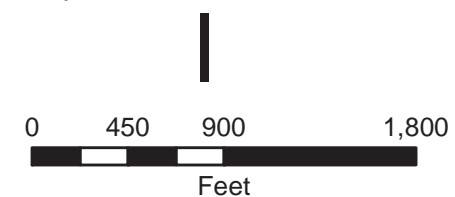
EIS Project Areas Mine Site Mine Pits Stockpiles Stockpile Liner Haul Roads	Stormwater Capture System Stormwater Collection Ditch Stormwater Pond Culverts Perimeter Dike	Mine Water Capture System Mine Water Pipes Mine Water Ponds and Sumps Groundwater Containment System Proposed Transmission Lines Access Road	Other Features Existing Private Railroad Proposed Railroad Track Wetlands Direct Wetland Impacts Fragmented Wetlands	Legend Areas Disturbed by Construction of Proposed Project Features
Scale 0 375 750 1,500 Feet				WETLAND IMPACTS - WEST PIT NorthMet Project Poly Met Mining, Inc. Permit Sketch 19 of 20 File Number: MVP-1999-05528-JKA

Bar Footer: ArcGIS 10.6 2018-10-18 21:01 File: I:\Client\PolyMet Mining\Work Orders\Permitting\Wetland Permit Application\Maps\Reports\USACE 2018 Figures\Figure 121 Wetland Impacts - Category 1 Stockpile.mxd User: jarc2



EIS Project Areas	Stormwater Capture System	Mine Water Capture System	Existing Private Railroad
Mine Site	Stormwater Collection Ditch	Mine Water Pipes	Proposed Railroad Track
Mine Pits	Stormwater Pond	Mine Water Ponds and Sumps	Wetlands
Stockpiles	Culverts	Groundwater Containment System	Direct Wetland Impacts
Stockpile Liner	Perimeter Dike	Proposed Transmission Lines	Fragmented Wetlands
Haul Roads	Mine to Plant Pipelines	Access Road	

Areas Disturbed by Construction of Proposed Project Features



**WETLAND IMPACTS -
CATEGORY 1 STOCKPILE**
NorthMet Project
Poly Met Mining, Inc.

Permit Sketch 20 of 20
File Number: MVP-1999-05528-JKA