NorthMet Project: 2026 Section 404 Permit Application

July 2026

NEWRANGE COPPER NICKEL

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Abbreviations and Acronyms

ACHP	Advisory Council on Historic Preservation
APE	area of potential effects
Barr	Barr Engineering Co.
BBLV	Beaver Bay to Lake Vermilion
BMP	Best Management Practices
Bois Forte	Bois Forte Band of Chippewa
BSA	Bank Service Area
CIR	color-infrared
Cliffs Erie	Cliffs Erie LLC
CN	Canadian National Railway
CWA	Clean Water Act
D&IR	Duluth & Iron Range Railroad
2009 DEIS	2009 Draft Environmental Impact Statement
DM&IR	Duluth, Missabe, and Iron Range
DOQ	digital orthoquadrangle
EAW	Environmental Assessment Worksheet
ECS	Ecological Classification System
EIP	Ecosystem Investment Partners
EIS	Environmental Impact Statement
ENSR	ENSR International
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
2015 FEIS	2015 Final Environmental Impact Statement
2015 FEIS HRF	Hydrometallurgical Residue Facility in the 2015 FEIS
Fond du Lac	Fond du Lac Band of Lake Superior Chippewa
FSA	Farm Services Agency
FTB	Flotation tailings basin
GIS	Geographic Information System
GPS	Global Positioning System
Grand Portage	Grand Portage Band of Lake Superior Chippewa
HGM	hydrogeomorphic
HUC10	USGS Hydrologic Unit Code scale
IAP	Impact Assessment Planning
ID	identification number
IPaC	Information for Planning and Consultation
LEDPA	Least Environmentally Damaging Practicable Alternative
LiDAR	Light Detection and Ranging
LRR	Land Resource Region
LTSF	lined tailings storage facility
LTVSMC	LTV Steel Mining Company
MDNR	Minnesota Department of Natural Resources
MEPA	Minnesota Environmental Protection Act
Mine Site	NorthMet deposit
MLRA	Major Land Resource Area
MnGeo	Minnesota Geospatial Commons
MnRAM	Minnesota Routine Assessment Method
MNRI	Midwest Natural Resources Inc.

MNWI-SQT	Minnesota and Wisconsin Stream Quantification Tool
MOA	Memorandum of Agreement
MPCA	Minnesota Pollution Control Agency
MPDF	Multiple Property Documentation Form
NEPA	National Environmental Protection Act
NewRange	NewRange Copper Nickel LLC
ng/L	nanograms per liter
NorthMet Project	NorthMet Mine and Ore Processing Facilities Project
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTCHS	National Technical Committee for Hydric Soils
NWI	National Wetland Inventory
OHWM	Ordinary high water mark
Ojibwe	Chippewa
OSLA	Overburden Storage and Laydown Area
OSP	ore surge pile
Permits	Individual Non-Irrigation Water Appropriation Permits 2016-1363, 2016-1364, 2016-1365, 2016-1367, 2016-1369, and 2017-0260
PolyMet	Poly Met Mining, Inc
PRSF	permanent rock storage facility
ROD	Record of Decision
RPM	reasonable and prudent measures
RSF	rock storage facilities
2004 Scoping EAW	2004 Scoping Environmental Assessment Worksheet
SDD	Scoping Decision Document
2013 SDEIS	2013 Supplemental Draft Environmental Impact Statement
SDS	State Disposal System
SHPO	Minnesota State Historic Preservation Officer
SNF	Superior National Forest
SSURGO	NRCS Soil Survey Geographic Database
stpd	short tons per day
SWPPP	Stormwater Pollution Prevention Plans
TCP	traditional cultural properties
TEK	Traditional Ecological Knowledge
TEP	Technical Evaluation Panel
THPO	Tribal Historic Preservation Officer
TRSF	temporary rock storage facility
TSF	tailings storage facility
TUC	Transportation and Utility Corridors
U.S.	United States
µs/cm	microsiemens per centimeter
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WCA	Wetland Conservation Act
WMS	Web Map Service

WOTUS	Waters of the U.S.
WWTP	Wastewater Treatment Plant

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1.0	Initial Version	July 29, 2026

Executive Summary

The NorthMet Mine and Ore Processing Facilities Project (NorthMet Project), located in northeastern Minnesota, is a proposed mining operation designed to support U.S. domestic critical mineral production. The NorthMet Project is owned by NewRange Copper Nickel LLC (NewRange), an independent joint venture owned by Teck American Incorporated (a subsidiary of Teck Resources Limited) and PolyMet US, Inc. (a subsidiary of Glencore AG) on a 50:50 basis.

The NorthMet Project combines legacy infrastructure, including re-use of the historic LTV Steel Mining Company (LTVSMC) taconite processing facility, with new development to extract, handle, and process ore from the NorthMet deposit. The NorthMet Project is positioned to become a long-term domestic source of copper, nickel, cobalt, and platinum group elements (such as platinum and palladium), which are critical inputs to United States' national security, domestic manufacturing, and energy dominance objectives.

A prior version of the NorthMet Project went through environmental review and permitting, as follows:

- 2004 Section 404 Permit Application submitted
- 2004 Scoping environmental assessment worksheet (EAW) submitted
- 2009 combined state-federal draft environmental impact statement (EIS) published
- 2013 combined state-federal supplemental draft EIS published
- 2013 Section 404 Permit Application submitted
- 2015 combined state-federal final EIS published
- 2018 land exchange completed and state permits issued, including Section 401 water quality certification
- 2019 U.S. Army Corps of Engineers (USACE) record of decision and Section 404 permit issued
- 2022 Clean Water Act Section 401(a)(2) public hearing held
- 2023 Section 404 permit revoked

To address concerns raised during the Section 401(a)(2) process, as described in Section 1, and to enhance environmental safeguards and operational performance, the NorthMet Project design has been modified. The updated design reflects lessons learned from the prior regulatory process and incorporates material changes to tailings management, water treatment, and environmental controls specifically intended to address these concerns. NewRange is re-submitting this permit application with an additional study on potential indirect wetland impacts (see Section 10.1.5 and Appendix F), which will be incorporated into revised water quality modeling, and the following key changes described in more detail in Table ES-1:

- Relocation and redesign of the tailings storage facility (TSF), a major factor in 401(a)(2) concerns
- Updates to water management and water treatment, directly addressing 401(a)(2) concerns
- A change in ore conveyance from rail to conveyor between the Mine Site and Plant Site to reduce greenhouse gases and potential fugitive emissions

- Revisions to the mine plan layout to optimize the mine design, move away from the Partridge River, consolidate mining infrastructure, and provide operational flexibility
- Increase in production capacity from 32,000 short tons per day (stpd) to 40,000 stpd with increased efficiency, reducing mine life from 20 years to 16 years

Table ES-1 NorthMet Project Design Comparison

NorthMet Project Area	Prior Permitted Project	2026 Proposed Action
Mine Site	• Development of three open pits that, upon closure, will include one backfilled pit wetland and one flooded pit void.	• Development of two open pits that, upon closure, will include one backfilled pit and one flooded pit void.
	• Construction of one permanent waste rock stockpile, two temporary waste rock stockpiles, a temporary overburden storage and laydown area (OSLA), and a temporary ore surge pile.	• Construction of one permanent rock storage facility, a temporary rock storage facility, a temporary overburden storage and laydown area (OSLA), and a temporary ore surge pile.
	• Construction and operation of ore handling facilities (rail transfer hopper for loading ore on trains with railroad spur track), and supporting infrastructure (such as roads, electrical supply, fueling and minor maintenance facility, stormwater systems, mine water systems, etc.).	• Construction and operation of ore handling facilities (crusher and overland conveyor) and supporting infrastructure (such as roads, electrical supply, fueling facilities, maintenance facilities, stormwater systems, mine water systems, etc.).
	• Refurbishment and reuse of mine ancillary facilities, with mobile equipment major maintenance and repairs at Area 1 shops (at Plant Site) and offices, change-houses, and support facilities at Area 2 shops (at Plant Site). Use of these facilities required upgrades of Dunka Road with 20-foot-wide turnouts for major equipment.	• Construction of mine ancillary facilities at the Mine Site, including mobile equipment maintenance facilities, offices, change-houses, and other support facilities.
	• Development of mine water collection systems that send contact water to an equalization basin area south of Dunka Road to store water prior to transporting it through three mine-to-plant pipelines for reuse in the beneficiation process or treatment. Reuse of mine water at the Plant Site will minimize the need for additional make-up water from offsite sources.	• Development of mine water collection systems that send contact water to an equalization basin in the West Pit to store water prior to transporting it through the pit-to-plant pipeline for reuse in the beneficiation process or treatment. Reuse of mine water at the Plant Site will minimize the need for additional make-up water from offsite sources.
	• Development of stormwater systems that will divert clean water away from mining areas to offsite surface waters.	• Development of stormwater systems that will divert clean water away from mining areas to offsite surface waters.
	• Overburden management: o Unsaturated mineral overburden will be used for general construction activities with excess stored in the OSLA. o Peat will be used for general construction activities (e.g., topsoil) with excess stored in the OSLA. o Saturated overburden will be used as approved by the Minnesota Department of Natural Resources (MDNR) (where the water that contacts the saturated mineral overburden will be collected and sent to the Plant Site for reuse) or stored in one of the geomembrane-lined temporary waste rock stockpiles.	• Overburden management: o Unsaturated mineral overburden will be used for general on-site construction with excess stored in the OSLA. o Peat will be used for general construction activities (e.g., topsoil) with excess stored in the OSLA. o Saturated mineral overburden will be used as approved by the MDNR (where the water that contacts the saturated mineral overburden will be collected and sent to the Plant Site for reuse) or stored in the geomembrane-lined temporary rock storage facility (TRSF).
	• Waste rock management: o Category 1 (≤0.12% sulfur) waste rock will be stored in the permanent stockpile encompassed by a groundwater collection system to collect drainage and route it to the Plant Site for reuse. The permanent stockpile will have a geomembrane cover system for closure. o Category 2/3 (>0.12% and ≤0.60% sulfur) waste rock will be stored in a temporary stockpile with a geomembrane liner system until backfilled in the East and Central Pits for subaqueous storage. o Category 4 (>0.6% sulfur and all Virginia Formation) waste rock will be stored in a temporary stockpile with a geomembrane liner system over the un-mined central pit until backfilled in the East Pit for subaqueous storage.	• Waste rock management: o Category 1 (<0.20% sulfur) waste rock will be used in construction; excess will be stored in the permanent rock storage facility with an engineered seepage management system to collect drainage and route it to the Plant Site for reuse. The permanent rock storage facility will have a geomembrane cover system for closure. o Category 2, Category 3, and Category 4 (≥0.20% and all Virginia Formation) waste rock will be stored in the temporary rock storage facility with a geomembrane liner system until backfilled in the mine pits for subaqueous storage.
Transportation and Utility Corridors (TUC)	• Used to transport personnel, materials, and ore between the Mine Site and the Plant Site.	• Used to transport personnel, materials, and ore between the Mine Site and the Plant Site.
	• Refurbishment and reuse of Dunka Road to its original width, with construction of 20-foot-wide turnouts.	• Refurbishment and reuse of Dunka Road to its original width.
	• Refurbishment and reuse of the existing LTVSMC private railroad to move ore to the Plant Site. o Construction of a new rail connection track to connect two existing railroad tracks.	• Construction of a new overland conveyor with a maintenance road when not located adjacent to Dunka Road. o Construction of wildlife crossings and road crossings over or under the conveyor.
	• Construction of three new mine-to-plant pipelines buried or covered in a berm located along Dunka Road.	• Construction of a new pit-to-plant pipeline buried within the maintenance road adjacent to the conveyor.
	• Construction a new power distribution line along Dunka Road.	• Construction a new power distribution line along the overland conveyor corridor.

NorthMet Project Area	Prior Permitted Project	2026 Proposed Action
Plant Site	• Refurbishment and additions to existing mineral processing facilities at the former LTVSMC processing plant: o Refurbish and reuse existing roads, utilities, and rail connections. o Refurbish and reuse existing buildings for the beneficiation plant including crusher, fine crusher, concentrator, warehousing, and other supporting services. o Construct new buildings for concentrate dewatering and loadout and hydrometallurgical plant.	• Refurbishment and additions to existing mineral processing facilities at the former LTVSMC processing plant: o Refurbish and reuse existing roads, utilities, and rail connections. o Refurbish and reuse existing buildings for the beneficiation plant including concentrator, warehousing, and other supporting services. o Construct or install new infrastructure for coarse ore storage from the overland conveyor, concentrate dewatering and loadout, and supporting services.
	• High sulfur tailings will be blended into the copper concentrate to be shipped offsite.	• High sulfur tailings will be blended into the copper concentrate to be shipped offsite.
	• Hydrometallurgical residue will be disposed in a new double-lined cell called the hydrometallurgical residue facility constructed over the existing LTVSMC emergency basin. During closure, this facility will be drained, covered, and reclaimed.	• Excess high sulfur tailings that cannot be disposed of offsite would be stored in a new double-lined cell called the lined tailings storage facility (LTSF) constructed over the existing LTVSMC emergency basin. During closure, this facility will be drained, covered, and reclaimed.
	• Tailings disposal within a flotation tailings basin (FTB) on top of the existing LTVSMC tailings basin Cells 1E and 2E: o Perimeter dams of the FTB will be raised using an upstream construction method with compacted LTVSMC tailings. Geotechnical stability increased through the placement of rock buttresses from MDNR-approved material sources. Bentonite will be mixed into the exposed outer slopes of the FTB to restrict oxygen and water infiltration. o Construction of seepage capture systems around the base of the tailings basin. o During closure, addition of a bentonite layer into the beaches and over the pond bottom to restrict oxygen and water infiltration.	• Tailings storage facility (TSF) moved to a former LTVSMC mining area south of Dunka Road and east of Kensington Drive in an area that currently consists of former minelands and an inactive railroad embankment. Four former mine pits (Pits A, B, C, D) will be utilized for storage of low sulfur tailings. As the pits reach capacity, a transition to centerline dam construction will begin as sequenced below. o Pits A, B, C, and D will be dewatered prior to tailings deposition. o Whole tailings will be deposited into Pit A until capacity is reached at the pit rim. A seepage management system will be developed around the pit perimeter to limit water outflows and inflows. o Fine tailings will be deposited into Pits B, C, and D while constructing centerline embankments from coarse tailings produced from cycloning tailings to separate the fine and coarse tailings. Seepage management systems will be constructed around the TSF. o Upon closure, a coarse tailings cap will be placed on the TSF to promote surface water runoff and dry closure conditions.
	• Construction of a waste water treatment system that will discharge water meeting applicable water quality standards into wetlands north and south of the LTVSMC tailings basin at the Plant Site.	• Construction of a wastewater treatment plant that will discharge water meeting applicable water quality standards into wetlands at the Plant Site.
	• Water management at the Plant Site will include the lined hydrometallurgical residue facility, tailings basin seepage capture systems, stormwater ponds and ditches, and waste water treatment system. Plant Site water management features will be mostly located on previously disturbed areas. o Water recovered from the tailings basin seepage capture systems will be returned to the FTB pond for reuse in mineral processing or routed to the waste water treatment system for treatment and discharge to the environment.	• Water management at the Plant Site will include the lined tailings storage facility, tailings storage facility seepage management systems, stormwater ponds and ditches, and wastewater treatment plant. Plant Site water management features will be mostly located on previously disturbed areas. o Water recovered from the TSF seepage management systems and pond will be returned to the beneficiation plant for reuse in mineral processing, sent to Pit 3 for intermediate storage, or routed to the wastewater treatment plant for treatment and discharge to the environment.
Colby Lake Pipeline Corridor	• The Colby Lake pipeline will be repaired, if necessary, and recommissioned to provide make-up water from Colby Lake for the Plant Site.	• If additional make-up water is needed at the Plant Site, the Colby Lake pipeline will be repaired, if necessary, and recommissioned to provide make-up water from Colby Lake.

1 Introduction, Background, and Basis of Changes

NewRange Copper Nickel LLC (NewRange) is submitting this amended application for authorization to discharge dredge or fill material into waters of the United States (WOTUS) under Section 404 of the Clean Water Act (herein referred to as the 2026 Section 404 Permit Application) in support of the NorthMet Mine and Ore Processing Facilities Project (NorthMet Project). NewRange, under its prior name Poly Met Mining, Inc., initially submitted a Section 404 Permit Application for the NorthMet Project to the United States Army Corps of Engineers (USACE) on July 16, 2004 (USACE File # 1999-5528-JKA) to fulfill the requirements of Section 404 of the Clean Water Act (2004 Section 404 Permit Application). The 2004 Section 404 Permit Application initiated an assessment of the potential scope of environmental review under the National Environmental Protection Act (NEPA) and the Minnesota Environmental Protection Act (MEPA). A joint state and federal Environmental Impact Statement (EIS) was prepared under the authority of NEPA (United States Code 1976, title 42, sections 4321 to 4361) and MEPA (Minnesota Rules, chapter 116D).

A Draft Environmental Impact Statement was produced in 2009 (2009 DEIS) after the scoping process was completed. The NorthMet Project was modified after publication of the 2009 DEIS (Reference (1)); therefore, a revised Section 404 Permit Application was submitted to the USACE in August 2013 (Reference (2)), which supplemented the 2004 permit application with the updated NorthMet Project plans. A Supplemental Draft Environmental Impact Statement (Reference (3)) was issued in November 2013 (2013 SDEIS) and a Final Environmental Impact Statement was issued in November 2015 (2015 FEIS) (Reference (4)). The USACE issued a Section 404 permit and Record of Decision (2019 ROD) in March 2019 (Reference (5)). Following a Section 401(a)(2) process and hearing, the Section 404 permit was revoked, by the June 2023 USACE Letter of Revocation, as described below (Reference (6)). These prior environmental review and permitting activities for the NorthMet Project are collectively referred to in this application as the Prior Regulatory Process.

The USACE 404 Letter of Revocation (Reference (6)) stated that “[c]onsistent with Clean Water Act (CWA) Section 401(a)(2) and 40 C.F.R. § 230.10(b)(1),...the Section 404 permit does not ensure that the project will not violate Fond du Lac Band of Lake Superior Chippewa’s [Band] water quality standards.” In the rationale for the decision, the USACE explained that the decision is based on the Band and U.S. Environmental Protection Agency’s (EPA’s) assertion in the 401(a)(2) process that “project discharges both within and outside the Corps’ purview under CWA Section 404 will violate the Band’s water quality requirements for mercury and specific conductance” and that “[n]either the Band nor EPA offered permit conditions that the Corps could attach to a modified CWA Section 404 permit for the project to ensure compliance with the Band’s downstream water quality requirements.” This decision also included the following specific claims (Reference (6)):

- “According to the Band, the construction and operation of the project will alter the hydrology of up to 6000 acres of wetlands, in addition to the approximately 939 acres of direct and fragmentation impacts. The Band contends that these wetland alterations, in addition to the loading of sulfates from the construction and operation of the NorthMet project, will both enhance methylation of mercury already present in the wetlands affected by the proposed mine and mobilize both total and methylmercury in those same wetlands. The Band claims that the mercury mobilized because of these wetland alterations will be exported from the NorthMet project site via the streams adjacent to the affected wetlands at the project site and be transported downstream to the Band’s Reservation. The Band concluded that this mercury will further exacerbate ongoing exceedances of the Band’s mercury criterion of 0.77 ng/L and ongoing nonattainment of the Band’s designated uses.”

- "EPA cited to gaps in data and expressed uncertainty about mercury methylation, mobilization, and discharges to downstream waters as a result of indirect effects to adjacent wetlands. EPA also determined that the project permit suite (consisting of various state and federal permits for the project) does not consider water quality impacts arising from the changes in hydrology of wetlands due to the dewatering of the mine pit that will result in the methylation of mercury and mobilization of mercury from the impacted wetlands. EPA concluded that any addition of mercury from the NorthMet project could contribute mercury at a concentration greater than the Band's water quality criterion of 0.77 ng/L and thereby violate the Band's water quality requirements."

- "The Band claims that discharges from the project will violate the Band's water quality requirements for specific conductance due to the contributions of mineral loadings to the St. Louis River…Both the CWA Section 404 permit and Minnesota CWA Section 401 certification predate the Band's adoption of its numeric specific conductance water quality criterion [of 300 microsiemens per centimeter (µS/cm)]."

- "EPA concludes that even relatively small increases in specific conductance loadings and/or decreases in dilution capacity would result in violations of the Band's water quality requirements pertaining to specific conductance and anti-degradation requirements of the Band within wetlands and streams on the Band's Reservation."

Despite these conclusions, the Letter of Revocation explicitly says that "[t]his decision does not preclude [NewRange] from submitting a new CWA Section 404 permit application that will meet all applicable water quality requirements for its project" (Reference (6)). NewRange has concerns about the factual and legal validity of the Letter of Revocation (Reference (6)). Nevertheless, NewRange's 2026 Section 404 Permit Application shows that the NorthMet Project, as updated and supported by additional studies, will meet all applicable water quality requirements.

The 2026 Section 404 Permit Application provides environmental information that is consistent with the 2015 FEIS (Reference (4)) for areas that were previously evaluated along with updated environmental information for new NorthMet Project areas. NewRange is addressing the concerns raised by Fond du Lac and the EPA in the 401(a)(2) process through project changes and additional studies. These concerns are primarily related to potential indirect wetland impacts (e.g., altering hydrology of wetlands associated with construction and operations including drawdown from mine pit dewatering) leading to potential water quality impacts tied to the CWA Section 401 water quality certification process, proposed tailings basin design, and wastewater treatment plant discharges (e.g., discharges associated with the CWA Section 402 NPDES/SDS permit). To specifically address these water quality concerns, NewRange has reassessed the design of the NorthMet tailings storage facility, water management, and wastewater treatment plant and is performing a new study of potential indirect wetland impacts, as discussed in this 2026 Section 404 Permit Application (Section 10.1.5), which will lead to revised modeling of potential water quality impacts. Because these issues were associated with water quality concerns from the 401(a)(2) process, the new study of potential indirect wetland impacts will be completed as part of the Section 404 permit application process (work plan attached in Appendix F), in coordination with the USACE, EPA, and Fond du Lac, Bois Forte Band of Chippewa (Bois Forte), and the Grand Portage Band of Lake Superior Chippewa (Grand Portage). The results of the new study will be evaluated for incorporation in the revised water quality modeling assessment, which will also be coordinated with these parties. The revised water quality modeling assessment will then be submitted as part of the CWA Section 401 water quality certification process to document potential impacts to the applicable water quality standards.

NewRange proposes to construct an open pit, polymetallic mineral mine in northern Minnesota. The NorthMet Project is located in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles

north of Duluth, and six miles south of Babbitt, Minnesota. The NorthMet Project has been modified in certain respects, with the NorthMet Project location shown on Large Figure 1, and the revised NorthMet Project areas (Mine Site, Plant Site, Transportation and Utility Corridors, and Colby Lake Pipeline Corridor) shown on Large Figure 2. The NorthMet Project is located primarily in the Upper Partridge River watershed with a small portion within the Embarrass River watershed (Large Figure 3). Aquatic resources within the NorthMet Project are shown on Large Figure 4.

The NorthMet Project supports U.S. domestic critical mineral production by mining and processing polymetallic ore from the northwest portion of the Duluth Complex, which is an intrusive rock formation that forms much of the bedrock of northeastern Minnesota. The ore contains copper, nickel, cobalt, gold, and platinum group elements (such as platinum and palladium). NewRange plans to refurbish and reuse the former LTV Steel Mining Company (LTVSMC) taconite processing facility near Hoyt Lakes, Minnesota to produce a copper concentrate, a nickel concentrate, and a high sulfur tailings for off-site shipment and processing. The reuse of the former processing site minimizes impacts to aquatic resources.

The NorthMet deposit was first discovered in 1969 by U.S. Steel, with exploration taken over by Fleck Resources Ltd. (a precursor to PolyMet Mining Corporation). The U.S. Forest Service (USFS) issued a Final ROD in January 2017 regarding a land exchange at the Mine Site for lands within the Superior National Forest (SNF; Reference (7)), with the land exchange finalized in June 2018 (Reference (8)). In 2018, Poly Met Mining, Inc. acquired the former LTVSMC taconite processing facility for its process plant from Cliffs Erie LLC (Cliffs Erie) along with additional leases, licenses, easement rights, and rights-of-way for the Transportation and Utility Corridors (TUC) connecting the Mine Site and the Plant Site, and the Colby Lake Pipeline Corridor.

As of February 2023, following a conversion and name change under Minnesota Statutes §§ 302A.682-.692, Poly Met Mining, Inc. became NewRange. PolyMet US (a subsidiary of PolyMet Mining Corporation, which is a subsidiary of Glencore AG) and Teck American Inc. (a subsidiary of Teck Resources Limited) formed a joint venture in February 2023, with each entity owning 50% of NewRange. NewRange has obtained ownership or rights to use additional lands south of the processing plant for use as the tailings storage facility (TSF); collectively, the processing plant and the TSF are referred to as the Plant Site.

2 Applicant Information

The Applicant for the 2026 Section 404 Permit Application is NewRange. The information for the Applicant is found in Sections 5, 6, and 7 of the USACE Application for Department of the Army Permit (Engineering Form 4345 (FINAL October 2024); Appendix A).

2.1 Tribal Engagement

Although the NorthMet Project is not located on reservation land, it lies entirely within the territory ceded under the 1854 Treaty of La Pointe (1854 Treaty). The 1854 Treaty reserves certain rights for those Chippewa (Ojibwe) signatories, including Bois Forte, Fond du Lac, and Grand Portage. Among other reserved rights, the 1854 Treaty guarantees these bands off-reservation hunting, fishing, and gathering rights.

NewRange respects Tribal sovereignty and is committed to building relationships with Bois Forte, Fond du Lac, and Grand Portage. NewRange is committed to actively listening to Tribal perspectives and engaging with Tribal leadership at every stage of project planning, development, operations, and closure. NewRange strives to work collaboratively with Tribal communities and believes that open dialogue is a necessary feature of any relationship.

Since its inception, NewRange has made intentional efforts to build trust with Minnesota's Chippewa (Ojibwe) Tribes. These efforts have included leadership meetings, participation in field activities and ongoing information sharing intended to support informed Tribal input including:

- Tribal Relations Policy: This first-of-its-kind company policy was adopted in 2024 and is intended to foster trust and collaboration with Tribal communities in northern Minnesota. It emphasizes Tribal engagement, transparency, and training for employees and contractors to ensure mutual respect and informed decision-making throughout project operations. Regular updates and Tribal input aim to strengthen partnerships and encourage open dialogue.

- Cross-Culture Communication: To help facilitate effective Tribal engagement and coordination, NewRange employees, members of the Board of Managers, and committee members participate in training designed to deepen their understanding of the history of Chippewa (Ojibwe) culture. Past training has taken place on- and off-reservation and has included participation by Tribal leadership and staff. Future training opportunities will be made available for new employees, new members of the Board of Managers, and new committee members, as well as on-site consultants and contractors.

- Tribal Engagement: It is a priority for NewRange to hold in-person and videoconference meetings with Bois Forte, Fond du Lac, and Grand Portage to share information and updates on the NorthMet Project. When such meetings are not possible, NewRange sends information and materials regarding the NorthMet Project and commits to making leadership available for any questions that might arise. To date, schedules have permitted multiple in-person and videoconference meetings where NewRange has been able to address the following topics with Tribal leadership and technical staff:

    - NewRange studies in support of the NorthMet Project regarding tailings storage, water science, efficient production, biodiversity management, and carbon reduction

  - Cultural resources access for Tribal members on NewRange property within the ceded territory
  - NorthMet Project permitting and other updates

- Tribal Observers: NewRange has partnered with Bois Forte to establish a Tribal observation program, whereby Tribal members engage in field monitoring activities. Starting in April 2025, Tribal observers have joined NewRange employees and contractors at the NorthMet Project site for various field activities.

It is NewRange's goal that, through these and other efforts, Tribal leadership and staff are informed of NorthMet Project changes described in this 2026 Section 404 Permit Application.

3 NorthMet Project Location

The NorthMet Project is located in St. Louis County on the eastern end of the Mesabi Iron Range, about 60 miles north of Duluth, 6 miles south of Babbitt, and 6 miles north of Hoyt Lakes, Minnesota. The NorthMet Project location is shown on Large Figure 1, and the NorthMet Project areas, including the Mine Site, Plant Site, TUC, and Colby Lake Pipeline Corridor, are shown on Large Figure 2. The NorthMet Project areas include approximately 7,799 acres.

The NorthMet deposit (Mine Site) is near the western end of a belt of copper-nickel deposits on the northwestern contact of the Duluth Complex. The NorthMet deposit is in relative proximity to a number of existing mines, including Northshore Mining Company's Peter Mitchell open pit taconite mine, which is located approximately 1.5 miles north of the Mine Site. The Plant Site, which includes the former LTVSMC taconite processing plant and former LTVSMC mining areas, is located approximately eight miles west of the deposit. The Mine Site and Plant Site are connected by the existing Dunka Road and the proposed conveyor corridor, which make up the TUC. The Colby Lake Pipeline Corridor consists of the former LTVSMC water intake pipeline and access road from Colby Lake to the processing plant water reservoir.

Directions to the NorthMet Project area (Large Figure 5): From Hoyt Lakes, Minnesota, travel north on Kensington Drive approximately five miles to the administration building and security gate. The centerpoint of the NorthMet Project is approximately 47.57932237 latitude and -92.07832148 longitude. The majority of the NorthMet Project Plant Site Impact Area is located within the City of Hoyt Lakes municipal boundary, the TUC is located within both the City of Hoyt Lakes and the City of Babbit municipal boundaries, and the Mine Site is located in the City of Babbitt municipal boundary. The state tax parcel IDs are provided in Large Table 1.

The NorthMet Project is located in Sections 5 and 6, Township 58 North, Range 14 West; Sections 1, 2, 3, 4, 8, 9, 10, 11, 12, 15, 16, 17, and 18, Township 59 North, Range 13 West; Sections 8, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27, 28, 29, and 32, Township 59 North, Range 14 West; and Sections 13, 14, 15, 22, 23, 24, Township 59 North, Range 15 West, in St. Louis County, Minnesota.

The NorthMet Project is located near the headwaters of the Partridge River (Large Figure 3) with a small portion within the Embarrass River watershed. Both the Partridge River and the Embarrass River are tributaries to the St. Louis River, which is located within the Lake Superior Basin. The NorthMet Project is located within the major watershed – St. Louis River Watershed (#3); the minor watersheds include Wynne Lake-St. Louis River (#3153), Second Creek (#3150), Wyman Creek (#3148), and Partridge River (#3146, 3149, and 3155). Watercourses in the NorthMet Project area include Second Creek, Wyman Creek and an unnamed tributary, Longnose Creek, Wetlegs Creek, and Unnamed (West Pit Outlet) Creek (Large Figure 3). Additional details on the NorthMet Project area hydrology and hydrogeology are found in Section 10.1.

4 Project Information

4.1 NorthMet Project Purpose and Need

The NorthMet Project purpose is to exercise valid mineral rights to extract and process polymetallic ore, including copper, nickel, cobalt, gold, and platinum group elements, from the NorthMet deposit through the development of mining facilities and utilization of the existing LTVSMC processing plant. Using this approach, the NorthMet Project will bring regional economic activity and minimize new environmental disturbance while enabling the production of critical minerals essential to national security, clean energy, and advanced manufacturing. Environmental objectives are central to the NorthMet Project, which has been designed to avoid, minimize, and mitigate environmental impacts by reusing previous mining facilities and constructing state of the art environmental controls in a safe, environmentally responsible, energy-efficient, and economically feasible manner while minimizing impacts to wetlands and protecting water quality.

The NorthMet Project is needed for many reasons. Copper, nickel, cobalt, platinum, and palladium, NorthMet Project's key minerals, are considered strategic and critical minerals and included in the U.S. Geological Survey's (USGS) 2024 Critical Minerals List and their 2025 list. The U.S. is a major importer of the metals that NewRange plans to extract from the NorthMet deposit. According to numbers from the USGS National Minerals Information Center, the U.S. imports approximately 30% to 40% of its copper (comparable to the percentage of oil imported) – the annual numbers vary because there is an efficient copper recycling business in place. There is currently only one operating nickel mine in the U.S. (Eagle Mine in Michigan), with small volumes of nickel and cobalt produced at Stillwater Mine in Montana (primary metals are palladium and platinum), but no other operating cobalt mine in the U.S., although recycled metal represents a significant supply source. The Eagle Mine is currently projected to be depleted of ore in 2029. The U.S. also imports 75% to 95% of its platinum group elements – there is only one platinum group element mining operation in the U.S. despite the critical need for platinum group elements in strategic technological applications, national security uses, environmental control technologies, and other applications. Platinum group elements are regarded as strategic metals because of their specialized applications in the automotive, defense, agriculture, chemical, petroleum, electrical, electronic, dental, medical, and aerospace industries. They also have important uses in environmentally related technologies, such as catalytic converters and fuel cells.

On an annual basis, NewRange expects to produce approximately:

- Copper: 43,000 tons of copper will be produced in concentrates. Copper is an extremely good conductor of electricity and heat. Its major use is in power generation and transmission (including renewable energy), and in residential, commercial, industrial, and automotive electrical systems.
- Nickel: 8,300 tons of nickel will be produced in concentrates. Nickel is used in production of stainless steel, high quality corrosion resistant steel alloys, rechargeable batteries, and in high-tech engineering applications such as aerospace.
- Cobalt: 375 tons of cobalt will be produced in concentrates. Cobalt is a hardening agent in steel alloys and is used in super alloys, aircraft engines, rechargeable batteries, and common hand tools.
- Platinum Group Elements: 125,000 troy ounces of platinum group elements will be produced in concentrates. The primary use of platinum group elements is in catalytic converters, which clean up car exhaust emissions. The platinum group elements are also used in electronics, medical devices, fuel cells, and jewelry.

- Gold and Silver: 13,000 troy ounces of gold and 293,000 troy ounces of silver will be produced in concentrates. Gold and silver are primarily used for jewelry, investment, and electronics.

The NorthMet Project will provide substantial economic benefits to the local and state economy, providing hundreds of jobs, millions of dollars of indirect economic activity, and tens of millions of dollars in taxes. The construction phase is estimated to peak at 800 skilled construction workers over an approximately three-and-a-half-year period. While some skilled workers will be involved only temporarily and could be drawn from outside the region, many NorthMet Project-related construction jobs are expected to be filled by those currently residing in the northern Minnesota region. Based on data collected and baseline studies of the demographics of the region, the Mesabi Iron Range in northern Minnesota can provide much of the labor and services required for the NorthMet Project. The region has demonstrated the capacity to execute several major construction projects simultaneously while relying on the labor resources, contractors, and accommodation available in the northern Minnesota region.

Over approximately 16 years of planned operations, the NorthMet Project will create approximately 445 full-time jobs. In addition to the direct economic benefits, a 2011 study by the University of Minnesota-Duluth Labovitz School of Business and Economics (Reference (9)) estimates that more than 600 indirect jobs will be created in St. Louis County alone, generating annual economic benefits of about $515 million including products and services. Furthermore, the NorthMet Project is expected to generate tens of millions of dollars annually in federal, state, and local taxes.

A socioeconomic study is now underway to update these indirect benefits to the northern Minnesota region based on the current NorthMet Project economics. The region has deep roots in mining and strong community ties to resource development. The region includes communities such as Babbitt, Hoyt Lakes, and Aurora, towns that have historically relied on mining as a primary economic driver, with LTVSMC shutting its doors in 2001 due to bankruptcy. The local population has remained relatively stable in recent years; however, it is generally older, less diverse, and has a higher proportion of male residents compared to state averages. Key indicators point to elevated socioeconomic vulnerability, including higher rates of poverty, disability, and reliance on retirement income.

Society's continuing need for copper, nickel, cobalt, gold, and platinum group elements, combined with use of proven mining techniques and processing methods, reuse of previous mining facilities, and installation of extensive environmental controls, make the NorthMet Project economically feasible and environmentally responsible. The NorthMet Project is designed to generate sufficient income to cover operating cost (which includes but is not limited to the cost of mining, processing, transportation, water treatment, and waste management), capital cost (needed to build and sustain facilities), reclamation and closure costs, an adequate return on investment, and taxes. The open pit mining plan applies best engineering practices based on the size, shape, geometry, grade, location, and geotechnical characteristics of the NorthMet deposit and the site such that the highest degree of operational certainty is achieved. Ore processing and tailings storage will make use of areas that were historically mined for taconite by LTVSMC and other companies, therefore minimizing impacts to undisturbed land. Extensive environmental controls will be installed for the NorthMet Project, focused on avoiding, minimizing, and mitigating water impacts, including wetland impacts.

4.2 NorthMet Project Schedule

Table 4-1 provides a summary of the NorthMet Project schedule. Timing of the NorthMet Project depends on the completion of environmental review and permitting, with a planned start of operations in 2031, and end of operations in 2047, followed by reclamation and closure.

Table 4-1 Summary of NorthMet Project Schedule

Time period	Description of Activities
Construction Phase (38-45 month period prior to Mine Year 1)	Mine Site land clearing and overburden removal, Plant Site renovation and construction, construction of infrastructure associated with the TSF, preload of the lined tailings storage facility (LTSF), LTSF construction, Mine Site construction, construction and renovation along the TUC, and renovation and upgrades, as necessary, to the Colby Lake Pipeline and Pumphouse
Mine Year 1	Production begins
Mine Years 1	Gradual ramp-up of ore output for 6-12 months
Mine Years 1-16	Mining of waste rock and ore
Mine Years 1-8	Build out Mine Site as necessary - remove additional overburden from the pit areas and other areas on-site as necessary for foundation construction, construct extensions to the liners and containment systems for rock storage facilities (RSF), construct additional water management features (dikes, ditches, ponds), build out additional haul roads, build out TSF dams
Mine Years 1-5, 14-16	Mining in the East Pit
Mine Years 1-15	Mining in the West Pit
Mine Years 1-16	Mine water pumped to the Plant Site for reuse
Mine Years 1-4	Deposition of tailings in TSF Pit A
Mine Years 5-16	Construction of TSF dams using coarse tailings, deposit tailings within TSF pits and within dams
Mine Years 17-20	Temporarily stockpiled material in the temporary rock storage facility (TRSF) moved to the mine pits for long-term subaqueous disposal, cover system will be incrementally added to the permanent rock storage facility (PRSF)

4.3 NorthMet Project Description

This section describes NorthMet Project features that will potentially result in discharge of dredge or fill material (Section 404 regulated activities) into wetlands. Additional NorthMet Project features that have no potential for these regulated activities are also listed in this section.

The NorthMet Project includes four areas (Large Figure 2):

- Mine Site
- Plant Site
- TUC
- Colby Lake Pipeline Corridor

For each of these NorthMet Project areas, specific features are described that will potentially result in the discharge of dredge or fill material (Section 404 regulated activities) into wetlands or WOTUS.

4.3.1 Mine Site

The NorthMet Project will use open pit mining methods, similar to methods used at nearby taconite mines. The location and dimensions of Mine Site features are shown on Large Figure 6. The NorthMet Project features at the Mine Site will include:

- Supporting infrastructure (such as roads, electrical supply, fueling facilities, and maintenance facilities)
- An overburden storage and laydown area (OSLA) providing space to sort and store peat and unsaturated mineral overburden used for construction and reclamation
- Ore handling facilities including a crusher, overland conveyor, and an ore surge pile (OSP)
- Rock storage facilities (RSF) with engineered systems managing potential water resource impacts (such as liners, covers, and a seepage management system)
- Mine water collection systems collecting water from the mine pits, the RSFs, the ore handling facilities, and the haul roads, and sending it to the Plant Site for reuse in the process prior to treatment and discharge offsite.
- An equalization basin storing mine water collected at the Mine Site before it is pumped to the Plant Site for reuse or treatment
- A pit-to-plant pipeline transporting water between the Mine Site and the Plant Site
- Stormwater management systems

4.3.1.1 Overburden Removal

Vegetation will be cleared and the overburden removed from the footprints of the mine pits, the OSP, and the RSFs, as necessary.

Overburden will be stripped incrementally as needed for mine development in order to minimize the amount of bedrock exposed at any one time. After removal of overburden from the initial mining area, additional overburden stripping could take place concurrently with the mining of ore and waste rock.

The OSLA will be constructed to temporarily store peat and unsaturated mineral overburden while it is screened and sorted prior to being used for construction, wetland restoration, or reclamation.

4.3.1.2 Open Pit Mining

The NorthMet Project will use open pit mining methods broadly similar to methods currently in use at ferrous metallic mining operations on the Mesabi Iron Range, but using modern equipment and site control practices. The mine will consist of two separate open pits known as the East Pit and West Pit, as shown on Large Figure 6.

At maximum size, each pit is projected to have the approximate maximum area and depth as shown in Table 4-2.

Table 4-2 Maximum Pit Dimensions – Approximate

Mine Pit	Area (acres)	Maximum Depth (feet below ground surface)
West	318	1,000
East	220	800

4.3.1.3 Ore Surge Pile (OSP)

The OSP will be constructed near the crusher and overland conveyor to store ore temporarily and manage truck queue time at the crusher (Large Figure 6). Use of the OSP will allow for continuous delivery of ore to the crusher and avoid truck idle time at the crusher.

The OSP will be constructed with an engineered foundation system comprised of, from the bottom up, a foundation underdrain system, an impermeable composite liner barrier, and an overliner drainage layer. Drainage from the OSP will be collected on the liner and routed to a sump for pumping to the equalization basin. The OSP will be removed at the completion of mining activities.

4.3.1.4 Overburden Management

Three types of overburden are present at the Mine Site: unsaturated mineral overburden, saturated mineral overburden, and peat. Each type of overburden will be managed according to its characteristics.

Unsaturated mineral overburden is the mineral material located above the natural water table surface. Waste characterization studies have demonstrated that unsaturated mineral overburden has been weathered long enough for geochemical reactions to be relatively complete, so it will be usable for general on-site construction material. Excess unsaturated mineral overburden that is not needed for immediate construction and reclamation needs will be stored in unlined overburden stockpiles in the OSLA.

Saturated mineral overburden is the mineral material located below the natural water table surface. It has not been exposed to air and is therefore not weathered, so it will only be usable for specific on-site construction applications as approved by the Minnesota Department of Natural Resources (MDNR) and Minnesota Pollution Control Agency (MPCA), as appropriate. Saturated mineral overburden not used for construction will be combined with waste rock in the membrane-lined TRSF.

Peat, which is an organic soil, will be used for restoration and reclamation activities at the Mine Site. Peat will also be mixed with unsaturated mineral overburden to increase the organic content for restoration soil material across the Mine Site, including as part of the cover for the PRSF. Peat that is not needed for immediate construction and reclamation needs will be stored in unlined overburden stockpiles in the OSLA.

4.3.1.5 Waste Rock Management

Waste rock will be managed according to its geochemical properties as determined using a sampling and analysis program approved by the MDNR. Waste rock has been grouped into four categories defined according to the geochemical and associated acid-producing and metals-leaching properties of the waste rock, in ascending order of reactivity. These waste rock categories are summarized in Table 4-3.

Table 4-3 Summary of Waste Rock Properties

Waste Rock Categorization	Sulfur Content (%S)(1)	Approximate % of Waste Rock Mass	Application(2)
Category 1	%S ≤ 0.20	76%	Construction and Pit Backfill
Category 2	0.20 ≤ %S ≤ 0.31	10%	Pit Backfill
Category 3	0.31 < %S ≤ 0.6	7%	Pit Backfill
Category 4(3)	%S > 0.6	7%	Pit Backfill

(1) In general, the higher the sulfur content of the rock, the higher its potential for generating acid rock drainage or leaching heavy metals. Potential does not necessarily result in generation or discharge, depending on material management.
(2) Applications include uses of the material other than storage in RSFs.
(3) Includes all Virginia Formation rock.

The Category 1 PRSF will be the only permanent RSF for the NorthMet Project. When at its maximum size, each RSF is projected to have the approximate area, height, and elevation shown in Table 4-4.

Table 4-4 Maximum Rock Storage Facility (RSF) Dimensions – Approximate

Rock Storage Facility	Mine Year of Maximum Footprint	Max Footprint (acres)	Max Elevation (feet above sea level)	Material
Permanent Rock Storage Facility (PRSF)	15	449	1,920	Category 1 waste rock
Temporary Rock Storage Facility (TRSF)	6	334	1,940	Category 2, 3, 4 waste rock, saturated mineral overburden, ore
Temporary Ore Surge Pile (OSP)	N/A(1)	17	1,700	Ore

(1) The OSP will have ore moving in and out as needed to meet crusher queue.

At the end of the mine life, the material from the TRSF will be relocated to the mine pits or the Plant Site. By placing Category 2, 3, and 4 waste rock back in the pit, it will be stored in a subaqueous environment to minimize further oxidation and dissolution of sulfide minerals. Ultimately, approximately 24% of the total waste rock mined will be backfilled to the pits (waste rock that is not Category 1).

The RSFs will be engineered to manage water resource impacts. The OSP and TRSF, the material within which has the potential to generate acid rock drainage (which in turn mobilizes trace metals), will have liner systems to capture water passing through the RSF. The PRSF, the material within which does not have the potential to generate acid rock drainage, will be constructed with a seepage management system to collect drainage from the RSF. A cover system will be constructed incrementally on the PRSF to reduce the volume of RSF drainage.

4.3.1.6 Water Management

The NorthMet Project will manage water to maximize water recycling and minimize discharges to the environment. Water management at the Mine Site will include pit dewatering, haul road drainage ditches and ponds, stormwater dikes, ditches and ponds, RSF liners, PRSF cover, a seepage management system, the equalization basin, and the pit-to-plant pipeline. During operations, mine water from the RSFs, haul

roads, and mine pits will be pumped from the equalization basin to the Plant Site for reuse in the beneficiation process or treatment. Reuse of mine water at the Plant Site will minimize the need for treatment and discharge to surface waters during operations.

Mine Site water will be managed in accordance with future Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) permits, which will include construction and industrial Stormwater Pollution Prevention Plans (SWPPPs). The SWPPPs will identify and describe Best Management Practices (BMPs) for the Mine Site to minimize the discharge of potential pollutants in stormwater runoff.

4.3.2 Plant Site

The Plant Site was previously used as a taconite processing facility by LTVSMC. The NorthMet Project will upgrade the existing concentrator building with new modern equipment designed for the processing of NorthMet ore. Additional existing facilities will be upgraded and reused, and new buildings and infrastructure will be constructed within the Plant Site. The locations of Plant Site features are shown on Large Figure 7. Plant Site features are grouped into three areas including the processing plant, the lined tailings storage facility (LTSF), and the TSF.

4.3.2.1 Processing Plant

The processing plant will include supporting infrastructure (e.g., roads, utilities, electrical supply, rail connections), the beneficiation plant which will use existing buildings for concentration operations, flotation, warehousing, and other supporting services, and new buildings for coarse ore storage and concentrate dewatering and loadout.

4.3.2.2 Lined Tailings Storage Facility (LTSF)

The LTSF will be constructed to manage high sulfur tailings generated in the beneficiation process. The LTSF will consist of one lined cell located adjacent to the southwest corner of the existing LTVSMC tailings basin, at the site of the emergency basin used in the former LTVSMC operations, utilizing the location and design of the hydrometallurgical residue facility (2015 FEIS HRF) that was part of the NorthMet Project during the Prior Regulatory Process (Large Figure 7). In the Prior Regulatory Process, the high sulfur tailings was blended into the concentrate and sent offsite as part of the product. Changes in the market may not allow all this material to be blended into the concentrate or sold offsite as a stand-alone product. The 2015 FEIS HRF is no longer planned for the NorthMet Project, so the HRF design will be utilized to store surplus volume of this material that cannot be sent offsite.

The emergency basin is located in a topographic low area. The original purpose of the emergency basin was to contain taconite tailings discharge from the main LTVSMC tailings thickeners in the event of a power failure. Accidental overflows, spillage, and floor drainage from the former LTVSMC concentrator building also reached the emergency basin. These materials were deposited hydraulically through an underground emergency tunnel terminating at the southeast side of the emergency basin. Overflow from sumps in LTVSMC booster pump house was also directed into the emergency basin. Material in the emergency basin consists of taconite slimes, fine tailings, and coarse tailings (Section 3.1 of Reference (10)).

Utilizing the design of the 2015 FEIS HRF, the LTSF will be double lined to control and prevent release of water that has contacted the high sulfur tailings. The composite liner system will consist of a geomembrane liner above a geosynthetic clay liner with a second geomembrane/geosynthetic clay liner placed above the

first, separated by a leakage collection system, this system will substantially remove the hydraulic head from the lower liner; therefore, virtually eliminating leakage from the LTSF.

The LTSF will be filled by pumping the high sulfur tailings as slurry from the beneficiation plant. A pond will be maintained within the LTSF to keep the high sulfur tailings fully submerged underwater to minimize oxidation of the material. Process water will be recovered by a pump system and returned to the plant for reuse, as needed to keep the material fully submerged.

4.3.2.3 Tailings Storage Facility (TSF)

The revised TSF design, which utilizes in-pit tailings disposal, will be constructed to manage the remaining, low sulfur tailings generated in the beneficiation process. The TSF will include filling four former mine pits with tailings and will result in a TSF with a raised embankment utilizing centerline dam construction to contain tailings over former minelands and a former railroad embankment. This design was selected to minimize impacts to surrounding aquatic resources, including minimizing seepage to and from the surrounding aquatic resources, maximize reuse and reclamation of former minelands, optimize storage capacity, maintain geotechnical stability, and facilitate a safe closure condition. The construction sequencing to achieve these goals includes:

- Dewater Pits A, B, C, and D (see Large Figure 3) prior to tailings deposition in each pit. A water management system, including ditching and ponds, will be constructed to limit the water inflows into the pits from surrounding aquatic resources during dewatering, as necessary.
- Deposit whole tailings into Pit A until capacity is reached. A seepage management system will be developed around the perimeter of the pit to limit water outflows to the surrounding groundwater.
- Deposit fine tailings into Pits B, C, and D, while constructing centerline embankments using coarse tailings east of Pit A. Coarse tailings will be produced by cycloning the tailings to separate the fine and coarse tailings for use in dam construction.
- Development of seepage management systems around the ultimate embankment east of Pit A.
- Closure of the TSF to include a coarse tailings cap to promote surface water runoff and dry closure conditions.
- Reclamation and closure of the TSF and Pit 3 will result in the reclamation of a former minelands that have not be reclaimed since mining ceased in this area in 2001 (Reference (4)).

4.3.2.4 Water Management

The NorthMet Project will manage water to maximize water recycling and minimize discharges to the environment. Water management at the Plant Site will include the TSF, LTSF, stormwater dikes and ditches, TSF seepage management systems, and wastewater treatment plant (WWTP). The Plant Site water management features will be mostly located on previously disturbed areas.

Water recovered from the TSF by the seepage management systems and from the TSF ponds will be returned to the beneficiation plant for reuse in mineral processing, sent to Pit 3 for intermediate storage, or routed to the WWTP for treatment and discharge. The WWTP will treat water to meet applicable discharge limits, then discharged offsite.

The Plant Site water will be managed in accordance with future MPCA NPDES/SDS permits, which will include construction and industrial SWPPPs. The SWPPPs will identify and describe BMPs at the Plant Site to minimize the discharge of potential pollutants in stormwater runoff.

4.3.3 Transportation and Utility Corridors

The TUC includes Dunka Road and the conveyor corridor (Large Figure 8).

4.3.3.1 Dunka Road

Dunka Road is an existing, compacted-gravel, private road that extends from near the existing LTVSMC processing plant to the Mine Site, then continues roughly northeast toward Babbitt, Minnesota. This road was used by LTVSMC to move personnel and equipment, including major mining equipment, between the LTVSMC processing plant to Dunka Mine near Babbitt. The portion of Dunka Road that connects the NorthMet Project Plant Site to the Mine Site will be re-established to its original width from when LTVSMC was operating. Dunka Road will be utilized to transport mine personnel and equipment between the Mine Site and the Plant Site (Large Figure 2).

4.3.3.2 Conveyor Corridor

A new 8-mile-long overland conveyor will be constructed to enhance ore transport efficiency between the Mine Site and Plant Site. This conveyor corridor will run from the new crusher at the Mine Site, across Dunka Road, and then following an established transport corridor. This corridor entails utilizing approximately 3.5 miles of the existing LTVSMC railroad corridor before running adjacent to Dunka Road and generally following the Dunka Road corridor and former LTVSMC railroads to the Plant Site. The overland conveyor will terminate at the new coarse ore stockpile building at the Plant Site.

When the overland conveyor is not adjacent to Dunka Road, a maintenance road will be constructed adjacent to the overland conveyor to provide direct access for construction, servicing, and maintenance vehicles and equipment. This road ensures that routine inspections, repairs, and emergency interventions can be conducted efficiently without disrupting conveyor operations or requiring additional access or disturbance. Within this maintenance road, a new pit-to-plant pipeline will be installed below grade to transport contact water from the equalization basin in the West Pit to the Plant Reservoir and TSF.

4.3.4 Colby Lake Pipeline Corridor

The mine water collected from the Mine Site, TSF, and Pit 3 will supply the water needed for the beneficiation process. Make-up water for the beneficiation plant will be drawn from the Plant Reservoir, which will be supplied from the TSF, the Mine Site, and Pit 3, with contingency make-up water drawn from Colby Lake using an existing pump station and pipeline. The Colby Lake Pipeline will be evaluated and repaired if necessary before it is recommissioned (Large Figure 9). The Colby Lake Pipeline Corridor includes the former LTVSMC water intake pipeline and access road from Colby Lake to the Plant Reservoir.

4.4 Impact Area

Construction and development of the features and supporting infrastructure described in Section 4.3 for the Mine Site, Plant Site, and TUC will require ground disturbing activities. There will be no ground disturbance or activities in the Colby Lake Pipeline Corridor. The area of ground disturbance for the Mine Site, Plant Site, and TUC is shown as the Impact Area on Large Figure 10.

5 NorthMet Project Alternatives: Avoidance and Minimization

Regulations implementing Section 404 require that impacts to wetlands be avoided and minimized to the extent practicable. Avoiding and minimizing wetland impacts accordingly was one of the objectives of NorthMet Project during the Prior Regulatory Process and the revised design.

This section analyzes the alternatives considered during the Prior Regulatory Process that affect the NorthMet Project's direct wetland impacts. For a comprehensive analysis of the full range of alternatives explored and evaluated during the Prior Regulatory Process, see Section 3.0 in the 2015 FEIS (Reference (4)).

This section first outlines the sequencing of steps taken to modify the NorthMet Project to avoid adverse impacts and incorporate measures to minimize adverse impacts. Next, this section discusses how alternatives were developed and evaluated. Finally, this section describes the alternatives, including the No Action Alternative, and minimization alternatives at the Mine Site, the Plant Site, and along the TUC, and Colby Lake Pipeline Corridor.

5.1 Avoidance

The NorthMet Project is not a water dependent project; however, it is not possible to avoid all WOTUS, including wetlands, in mining the NorthMet deposit. The NorthMet Project has been modified to avoid wetlands and watercourses to the extent practicable.

Geology dictates the location and dimension of the mine pits. The polymetallic ore bodies of the NorthMet deposit can be developed only where the mineral resource exists in economically minable quantities. Extensive exploration programs have been conducted to define the resource, which has allowed a refinement of the mine pit locations. These studies indicate that the ore reserves identified as the East Pit and West Pit are the areas where polymetallic ore quality and the distribution and amount of waste rock make mining economically feasible. Mining in other areas of the NorthMet deposit cannot currently be supported based on these studies.

5.1.1 Tailings Storage Facility

Minimization alternatives evaluated for the TSF include options for alternative locations, alternative designs, alternative sources for dam construction materials, and alternative environmental controls.

Two alternative locations were considered for the TSF in the Prior Regulatory Process: a greenfield (previously undeveloped) site to the west of the existing LTVSMC tailings basin and vertical expansion atop the existing LTVSMC tailings basin. The alternative of constructing the TSF on a greenfield site to the west of the existing LTVSMC tailings basin was eliminated early in the process because of the additional environmental and wetland impacts associated with it.

The Proposed Action in the Prior Regulatory Process included constructing the TSF atop the existing LTVSMC tailings basin by building the basin vertically as tailings were produced. Use of the former tailings basin site for the TSF, referred to as the Flotation Tailings Basin (2015 FEIS FTB) in the Prior Regulatory Process, significantly reduced the acreage of direct wetland impacts compared to the greenfield site. The development of alternative layouts for the 2015 FEIS FTB, as evaluated in the 2015 FEIS, is illustrated on Large Figure 11. Vertical expansion would have required expansion of the active tailings basin footprint for

additional buttressing to reinforce the tailings basin dams, as required by the MDNR to address dam stability requirements, and construction of seepage capture systems around the perimeter of the 2015 FEIS FTB and existing tailings basin, which would have resulted in additional wetland impacts. The expanded footprint of the 2015 FEIS FTB layout is shown on Large Figure 11. Concerns were raised about the design of the 2015 FEIS FTB during the Section 401(a)(2) process.

An alternative design was evaluated by NewRange to include centerline-constructed embankments for the tailings basin constructed vertically on the existing LTVSMC tailings basin (2025 Centerline Dam). This design increases dam stability by utilizing centerline dams rather than modified upstream dams as were proposed for the 2015 FEIS FTB. The 2025 Centerline Dam design would also incorporate the use of NorthMet coarse tailings for dam construction material to minimize haulage of materials from the LTVSMC tailings or LTVSMC stockpiles; however, this design resulted in larger dams, more wetland impacts, and higher costs than the proposed TSF design. The 2025 Centerline Dam alternative layout and the proposed TSF design are shown on Large Figure 11.

Construction material for the TSF design eliminates the need to procure additional borrow materials by utilizing the coarse tailings fraction from the tailings that are developed by the NorthMet Project; thereby reducing additional fugitive emissions from extraneous haulage of separate materials, as was required by the 2015 FEIS FTB design, which required extracting LTVSMC tailings and LTVSMC waste rock from area borrow sources.

Environmental controls proposed for the TSF minimize additional wetland impacts through the construction of seepage management systems. Seepage management systems will consist of a series of ditches and ponds that will cut off water flowing into the pits and dams, and cutoff trenches to cutoff water flowing out of the TSF to groundwater.

An alternative containment system design, using groundwater extraction wells instead of the cutoff wall that was proposed around the 2015 FEIS FTB, was evaluated in the 2015 FEIS, but this alternative was eliminated because the well pumping tests indicated the number of wells needed to collect the volume of seepage necessary to limit water quality impacts was infeasible, and there was a potential for indirect wetland impacts by drawing down water levels in adjacent wetlands. This alternative was not considered for the TSF.

5.1.2 Alternative Development and Evaluation (On-site Alternatives)

Alternatives were developed and evaluated in four stages during the Prior Regulatory Process; the scoping stage, the 2009 DEIS stage, the 2013 SDEIS stage, and the 2015 FEIS stage. Aspects of the proposed action that were considered included alternate locations, alternate configurations of NorthMet Project features, and alternate mitigation measures. The alternatives are discussed in the 2015 FEIS (Reference (4)). Some alternatives would have less adverse impacts to WOTUS, including wetlands, and some would have greater adverse impacts. Alternatives with smaller and larger areal coverage, as well as alternatives sited in different locations were considered. The Prior Regulatory Process evaluated the potential environmental impacts of the alternatives, including wetland impacts, during each stage of alternative development.

The practicability of the alternatives, including cost, technical factors, and logistical factors were evaluated. Practicable alternatives and mitigation measures that were identified to offer substantial environmental benefits, including reduced impacts to wetlands and other aquatic resources, and to meet the NorthMet Project purpose and need, were incorporated into the revised design.

Alternatives were eliminated if they failed to meet one of the following criteria:

- NorthMet Project purpose and need
- Technical feasibility
- Economic feasibility
- Availability of resources (e.g., surface rights, mineral rights, technologies)
- Significant environmental or socioeconomic benefits compared to other alternatives

The first stage of alternative development and screening took place during project scoping in 2004. The second stage of alternative development and evaluation took place with the 2009 DEIS (Reference (1)). Alternatives considered during project scoping and DEIS development are summarized in the 2009 DEIS; for each alternative that was eliminated, the rationale was described (Table 3.2-4 of Reference (1)). In June 2010, the Co-Lead Agencies decided that a SDEIS would need to be completed for the NorthMet Project in order to build upon the alternatives and issues identified in the 2009 DEIS, to address subsequent public comments, and to incorporate new information.

The third stage of alternative development and evaluation was completed for the 2013 SDEIS (Reference (3)). As an initial step in developing the 2013 SDEIS, the Co-Lead Agencies developed and approved a process to identify, analyze, and assist PolyMet in developing revisions to its proposed NorthMet Project that responded to the concerns raised during development of the 2009 DEIS. The objective of this process was to have a revised draft alternative that would minimize potential environmental impacts to the extent practicable. An additional goal of the draft alternative development was to support federal and state permitting decision making, including the USACE's need to identify a Least Environmentally Damaging Practicable Alternative (LEDPA) for the Section 404 permit ROD and their Section 7 Endangered Species Act consultation with the U.S. Fish and Wildlife Service (USFWS).

The process for evaluating the draft alternatives was included in the 2013 SDEIS and involved topic-focused workgroups which discussed key issues that needed to be closely examined. These workgroups included representatives from the Co-Lead Agencies, cooperating agencies including the Bois Forte, Grand Portage, and the Fond du Lac (collectively, the Bands), other regulating agencies, and PolyMet. These workgroups participated in the impact assessment planning process, which led to the development of work plans for data packages and management plans. The workgroups discussed evaluation criteria, methodologies for analysis, potential effects, and possible mitigation measures.

A workgroup was also established to discuss issues related to the NorthMet Project modifications, alternatives (primarily the Mine Site and Tailings Basin Alternatives addressed in the 2009 DEIS), the wild rice standard, and various potential mitigation measures identified by the topic-focused workgroups. The NorthMet Project was modified in response to workgroup discussions, comments on the 2009 DEIS, and evolving MPCA water quality guidance, resulting in the development of a draft NorthMet Project alternative that the Co-Lead Agencies felt was appropriate for the 2013 SDEIS. Throughout 2011, the Co-Lead Agencies sought input from the cooperating agencies including the Bands, other involved agencies, and PolyMet and its consultants.

Impact analysis was performed for the draft alternative in the 2013 SDEIS using probabilistic modeling programs, GIS and special data analysis and other impact assessment calculations. These estimated effects are described in Section 5 in the 2015 FEIS (Reference (4)).

Alternatives considered during the development of the NorthMet Project are summarized in the 2013 SDEIS (Reference (3)). For each alternative that was eliminated, Table 3.2-17 of Reference (3) indicates the rationale for why it was eliminated from further consideration. This alternatives evaluation included both evaluation of new alternatives developed subsequent to the 2009 DEIS, and re-evaluation of several alternatives that had been eliminated. After the 2013 SDEIS, the NorthMet Project was further refined, as described in Section 3.2.3.3.4 in the 2015 FEIS (Reference (4)). Large Figure 11 and Large Figure 12 show a summary of the refinements to the NorthMet Project that occurred based on the alternatives considered, evaluated, and incorporated into the draft alternative. For each refinement, the associated reduced environmental impact is noted. Additional information is provided in Chapter 3 in the 2015 FEIS (Reference (4)).

Since the 2015 FEIS, NewRange considered the alternative 2025 Centerline Dam design with centerline-constructed embankments, as described in Section 5.1.1; however, the selected design represents the least environmentally damaging practicable alternative over the 2025 Centerline Dam design while also achieving the NorthMet Project purpose. No substantially new circumstances or information for the NorthMet Project have been identified regarding the alternatives reviewed in the Prior Regulatory Process.

5.1.3 Off-Site Alternative

NewRange evaluated an alternative that would transport the ore out of the state of Minnesota, where there are potentially fewer wetlands to be impacted in development of a tailings storage facility and to eliminate the potential impacts to wild rice waters, which was a major concern during the Section 401(a)(2) process. This alternative would not meet the purpose and need of the NorthMet Project, because re-use of the existing LTVSMC processing plant infrastructure could not be implemented, and there would be much fewer jobs, services, and benefits to offer to the local communities than the proposed NorthMet Project. This alternative would also not meet the need to be economically feasible, due to the adding costs associated with another processing plant, additional lands for tailings storage, and long-term costs of rail transport of the materials. The cost of rail transport, for example, is $80 per ton based on current pricing. With a 40,000 tons per day production rate, rail haulage would be approximately $1.2 billion per year in rail costs alone, which significantly exceeds the projected gross annual revenue before any other operational costs are included. Additionally, this would require over 400 rail cars per day to transport the ore out of the state based on the planned production rate, resulting in a significant increase in diesel consumption and associated emissions and potential dust emissions from the open rail cars traveling across the state, potentially resulting in water quality impacts to water resources across the state.

5.1.4 No Action Alternative

The No Action Alternative was evaluated during the Prior Regulatory Process. The 2015 FEIS addressed the No Action Alternative and described the consequences to the applicant and to the public of not implementing the NorthMet Project (Reference (4)). Under the No Action Alternative, NewRange would be required to reclaim surface disturbances at the Mine Site associated with exploratory and development drilling. At the Plant Site, NewRange would be required to complete closure and reclamation activities. NewRange did not and does not prefer the No Action Alternative as it would not fulfill the purpose and need of the NorthMet Project.

5.2 Minimization

Avoidance of impacts to WOTUS is not possible consistent with the purpose and need of the NorthMet Project; therefore, the NorthMet Project will employ numerous methods to minimize impacts from Section 404 regulated activities on aquatic resources.

Alternatives to minimize wetland impacts at the Mine Site, Plant Site, TUC, and Colby Lake Pipeline Corridor are described in the following sections. Minimization alternatives use these general strategies:

- Minimize the footprint and optimize the placement of mining features at the Mine Site
- Minimize impacts at the TSF by avoiding Second Creek and Wyman Creek
- Maintain a smaller disturbance footprint by re-using existing infrastructure and former mining disturbance areas, mainly at the Plant Site, TUC, and Colby Lake Pipeline Corridor
- Utilize existing facilities and structures, to the extent practicable, to support ongoing activities, mainly at the Plant Site, TUC, and Colby Lake Pipeline Corridor
- Utilize tailings disposal in a single area on a former mine site utilizing storage capacity of former mine pits to the extent possible
- Once the rim-level capacity of the former mine pits are exhausted, expand the proposed tailings disposal site upward, to the extent geotechnically practicable, therefore disturbing less surface area while allowing more material to be placed in the same footprint
- Divert runoff upgradient of facilities into undisturbed drainages
- Install culverts to facilitate flow across wetland areas where practicable
- Maintain SWPPPs by using BMPs to prevent site erosion and subsequent downstream sedimentation
- Collect, reuse to the extent practicable, and treat runoff and other contact water from mining areas
- Implement interim, concurrent (as practicable), and permanent reclamation at the site

5.2.1 Mine Site

The Mine Site will be developed at a greenfield site that has previous disturbance from logging and mining exploration activities. Alternatives for avoiding and minimizing wetland impacts at the Mine Site use various strategies to minimize the footprints and optimize the placement of mining features such as the mine pits, rock storage facilities, overburden stockpiles, haul roads, water management systems, and supporting infrastructure.

5.2.1.1 Mining Method Alternatives

The alternative of conducting underground mining, rather than open pit mining, was considered during the Prior Regulatory Process within the 2009 DEIS, the 2013 SDEIS, and 2015 FEIS, as it could have minimized wetland impacts at the Mine Site. However, as part of the Prior Regulatory Process, the Co-Lead Agencies eliminated the underground mining alternative, finding that, among other things, it would not be economically viable, and would not meet the purpose and need for the NorthMet Project (Appendix B in the 2015 FEIS (Reference (4)). The same information supports the conclusion that underground mining is not a practicable alternative under the Section 404 regulations. This justification remains valid with the revised designs. Therefore, there are no further practicable or feasible alternatives for avoiding or minimizing the impacts to wetlands that occur within the limits of the economically minable polymetallic ore reserves.

5.2.1.2 Alternative Mine Site Layouts

Given that underground mining was found not to be a practicable alternative, the Prior Regulatory Process evaluated numerous alternatives for open pit mining with the objective of avoiding and minimizing wetland impacts. Through the Prior Regulatory Process, the mine site minimization alternatives were configured into four alternative Mine Site layouts, which vary in the extent to which they incorporate the minimization strategies described in Section 5.2.1.3. Large Figure 12 illustrates the four alternative Mine Site layouts.

- Scoping Environmental Assessment Worksheet (2004 Scoping EAW) Mine Site Layout: One large open pit with three permanent stockpiles occupying most of the site surface area east and west of the pit. Another stockpile placed southeast of the pit.
- 2009 DEIS Mine Site Layout: Three distinct pit areas. Six smaller, permanent stockpiles, with waste rock segregated by type. Southeast stockpile eliminated. Haul roads planned to connect mine pits and stockpiles were more localized on the Mine Site.
- 2013 SDEIS and 2015 FEIS Mine Site Layout: Three pit areas including the East Pit, Central Pit, and West Pit. One permanent stockpile (Category 1 Waste Rock Stockpile). Three temporary stockpiles: Category 4 Waste Rock Stockpile is sited on the area that will become the Central Pit; and Category 2 and Category 3 waste rock are combined in one temporary stockpile that will later be relocated to the mined out Central and East Pits. After Mine Year 13, the Category 1, 2, 3, and 4 materials mined from the West Pit would be directly placed into the Central and East Pits as backfill. With this more compact layout, the haul roads are located within a smaller area so avoid wetland impacts.
- Current 2026 Proposed Layout: Two pit areas including the East Pit and West Pit. One PRSF (Category 1 waste rock). Two temporary stockpiles, the TRSF, where the material will be sent to the Plant Site for processing at the end of the mine life or relocated to the mined-out pits in closure, and one OSP for storing material for the conveyor. With this even more compact layout, the mining infrastructure is moved away from the Partridge River and consolidated into a smaller area to further minimize potential water quality impacts.

5.2.1.3 Minimization Strategies for Mine Pits and Supporting Infrastructure

Mining will necessitate construction of new haul roads and ore handling facilities. As the NorthMet Project modifications have progressed since the 2004 Scoping EAW, the road and facility layouts have been altered as shown on Large Figure 12 to reduce wetland impacts. Mine water management systems along the haul roads and at the ore handling facilities will capture runoff and transport it to the equalization basin, which has now been moved from an area south of Dunka Road to within the West Pit to further reduce wetland impacts. Overall, NewRange has located Mine Site infrastructure in order to extract the ore efficiently and minimize wetland impacts to the extent possible.

NewRange will rely on the advantages obtained by operating large-scale mining equipment. Utilizing large-scale mining equipment minimizes costs but also requires that adequately sized working areas be maintained for loading faces, haul roads, and RSF sites. In most cases, the operation of large-scale mining equipment makes it necessary to use contiguous tracts of land. This reduces wetland impact by consolidating the operations in select areas rather than throughout the Mine Site, as was the case with the 2004 Scoping EAW Mine Site layout and 2013 DEIS Mine Site layout as shown on Large Figure 12.

5.2.1.4 Minimization Strategies for Stockpiles

Mining economics dictate that surface overburden, ore, and waste rock materials be removed and stockpiled in the proper sequence to allow efficient access to the underlying polymetallic ores. In order to minimize haulage costs and maintain operating efficiencies, surface overburden, ore, and waste rock stockpiles must be located in or adjacent to the mining area.

Because previously it has not been economically feasible to make use of the polymetallic ore resource within the NorthMet Project area, there are no existing stockpiles in the vicinity of the area. Alternatives for stockpiling within the mine pits, stockpiling on disturbed areas, and alternative stockpile designs are addressed in the sections that follow.

In-Pit Stockpiling

Stockpiling ore, waste rock, and possibly surface overburden in mined-out pits has benefits in that it involves short haul distances and minimizes impacts to undeveloped lands and wetlands. This method is also favorable with respect to the requirements of the Clean Water Act, the Minnesota Wetland Conservation Act, and portions of the MDNR reclamation rules.

The NorthMet Project in the 2004 Scoping EAW did not include in-pit stockpiling. The NorthMet Project evaluated in the 2009 DEIS included in-pit stockpiling, proposing that Category 1 and 2 waste rock generated after Mine Year 11 would be backfilled directly to the East Pit. Other overburden and waste rock was to be placed in three permanent, lined/covered stockpiles as shown on Large Figure 12.

For the 2015 FEIS Project, in-pit stockpiling was considerably expanded from the NorthMet Project evaluated in the 2009 DEIS. The Category 2, 3, and 4 waste rock, along with some Category 1 waste rock and saturated mineral overburden, would be placed in the East Pit for subaqueous storage. Two temporary stockpiles would be created, however one of them would be placed in a location that would subsequently be mined as the Central Pit (Category 4 Waste Rock Stockpile). This alternative in-pit stockpiling plan increased the volume of waste rock placed in mine pits and reduced direct wetland impacts. It had been identified as a reasonable and practical alternative to the original plan and was incorporated in the NorthMet Project as shown on Large Figure 12.

For the 2015 FEIS Project, another in-pit stockpiling alternative was evaluated during the Prior Regulatory Process that called for placing Category 1 waste rock in a temporary stockpile, then relocating it to the West Pit during reclamation. This approach would not have reduced direct wetland impacts, although it would have offered the opportunity to restore wetlands during reclamation. This alternative was eliminated by the Co-Lead Agencies because, among other things, it would encumber deeper mineral resources in violation of NewRange's mineral leases (page 8-10 and 8-11 in the 2015 FEIS (Reference (4))).

For the currently proposed NorthMet Project, NewRange is continuing with the 2015 FEIS philosophy of only having one PRSF (Category 1 waste rock) with three temporary storage areas (TRSF, OSP, and OSLA). The materials from the TRSF and OSP will be sent to the Mine Site mine pits for permanent subaqueous disposal or to the Plant Site for processing. The materials in the temporary stockpiles in the OSLA will be used in reclamation across the Mine Site or disposed of in the pits at the Mine Site if there is an excess at closure. The current layout is shown on Large Figure 12.

Stockpiling on Disturbed Areas

Disturbed areas are favorable for stockpiling activities because impacts to previously undeveloped lands will be minimized, including wetlands; however, existing stockpiles and tailings disposal areas are not present at

the Mine Site. Mine development will result in some disturbance to lands outside of the actual mine pit areas for construction of haul roads and other infrastructure as well as RSF. The Prior Regulatory Process evaluated the alternative of using some saturated mineral overburden and Category 1 waste rock during Mine Site construction, as approved by the MDNR. This alternative minimizes wetland impacts because it reduces the volume of material to be stockpiled on undeveloped areas, and it had been incorporated in the NorthMet Project. These materials will be used as construction materials in the proposed NorthMet Project.

In the 2015 FEIS, the NorthMet Project also developed an alternative location for the Category 4 Waste Rock Stockpile. In the 2013 DEIS, it was proposed as a permanent stockpile located on an undeveloped area located south of the East Pit (Large Figure 12). An alternative approach was identified, which temporarily stockpiled the Category 4 waste rock in the area that would subsequently be mined as the Central Pit (Large Figure 12). This alternative eliminated one stockpile from undeveloped areas and had been incorporated into the project for the 2015 FEIS.

For the currently proposed NorthMet Project, NewRange has consolidated the Category 2/3, Category 4, and a portion of the OSP into one larger stockpile, the TRSF, which results in a more compact Mine Site footprint. These changes allow for moving the stockpiles further away from the Partridge River to the east. The current layout is shown on Large Figure 12.

Dewatering

The mine pits will need to be dewatered during operation to remove groundwater and runoff and maintain safe access to the ore. Therefore, no alternatives to the mine pit dewatering were proposed during the Prior Regulatory Process. Dewatering has been identified as a factor that may potentially indirectly impact wetlands. Wetland hydrology will be monitored to document any potential indirect wetland impacts from dewatering activities; see Section 10.1.5 for more details on potential indirect wetland impacts.

Water generated by dewatering will be sent to the Plant Site for reuse in mineral processing. This alternative, which reuses groundwater that must be extracted to facilitate mining, is environmentally beneficial because it minimizes the amount of water that would need to be appropriated from other waters of the state for use in mineral processing.

5.2.2 Plant Site

The Plant Site will use the existing LTVSMC facility which is located on a former mine site. Reuse of an existing plant site and infrastructure reduces environmental impacts. An alternative processing plant site would not have environmental benefits over the existing processing plant area. An evaluation of alternative plant sites was not proposed by the USACE and MDNR during the Prior Regulatory Process. No new information has emerged that would suggest there are viable alternative plant sites, so no alternatives are proposed at this time.

Plant Site minimization alternatives generally involve balancing direct wetland impacts with indirect wetland impacts and overall impacts on the environment. Minimization alternatives at the Plant Site substantially decreased direct wetland impacts and offer substantial overall environmental benefits.

5.2.2.1 Lined Tailings Storage Facility (LTSF)

An LTSF was not previously part of the NorthMet Project; however, utilizing the design and footprint of the 2015 FEIS HRF that was part of the NorthMet Project during the Prior Regulatory Process minimizes new impacts for this new infrastructure. Minimization alternatives evaluated for the 2015 FEIS HRF include options for alternative locations. The originally proposed location of the 2015 FEIS HRF was atop the

existing LTVSMC tailings basin (Large Figure 11). This alternative of siting the 2015 FEIS HRF on the existing tailings basin was eliminated during the Prior Regulatory Process due to concerns over constructability and 2015 FEIS HRF liner issues.

The 2015 FEIS HRF location was identified in the existing emergency basin southwest of the existing LTVSMC tailings basin (Large Figure 11). This area was used during LTVSMC operations as an emergency process material storage basin for the Plant Site. The sediments in this basin consist of slimes, fine tailings, coarse tailings, and concentrate (Section 3.1 of Reference (10)). Because this area was used to contain taconite tailings discharge from the main LTVSMC Tailings Thickeners and to contain accidental overflows, spillage, and floor drainage from the former LTVSMC Concentrator Building, this area is not classified as wetland. It was already permitted for LTVSMC as part of the former LTVSMC Permit to Mine Ultimate Tailings Basin Limit. Utilizing the 2015 FEIS HRF design and footprint for the LTSF minimizes direct wetland impacts, as well as avoiding additional impacts to undeveloped areas.

5.2.3 Transportation and Utility Corridors

Minimization alternatives evaluated for the TUC include options for alternative locations. Two corridors are needed to connect the Mine Site and the Plant Site including the Dunka Road and the conveyor corridor. The existing Dunka Road will provide a roadway for general traffic, and the conveyor corridor will transport ore from the Mine Site to the Plant Site. The current proposed configuration of the TUC has reduced wetland impacts compared to the 2015 FEIS.

5.2.3.1 Dunka Road

The NorthMet Project will use the existing Dunka Road, which was constructed by LTVSMC to haul ore from Dunka Mine to the processing plant. Under the 2015 FEIS layout, Dunka Road was planned to be upgraded, including widening the driving surface to 40-foot width, increasing to 60-foot-wide for passing bays, and constructing 6-foot-tall safety berms to accommodate major mining equipment. The mine-to-plant pipeline and power line were planned to be installed along the north side of Dunka Road. The layout of the mine-to-plant pipeline was refined from the 2009 DEIS to the 2015 FEIS, which reduced the direct wetland impacts from 10.2 acres to 6.76 acres. The 2015 FEIS alternative for the mine-to-plant pipeline reused previously disturbed areas and minimized impacts to wetlands while providing access necessary for mining operations.

The currently proposed NorthMet Project re-establishes the existing 40-foot top width for use as the main travel corridor by clearing the vegetation and constructing 3-foot-tall safety berms along the road edges between the Plant Site and Mine Site. This design eliminates the need to expand the footprint of Dunka Road beyond its existing width, minimizing wetland impacts. Additionally, the pit-to-plant pipeline will be installed below the maintenance road along the conveyance corridor, instead of adjacent to Dunka Road; thereby reducing wetland impacts along the edge of Dunka Road.

5.2.3.2 Ore Conveyance

To transport ore from the Mine Site to the Plant Site, in the Prior Regulatory Process, the existing Cliffs Erie (former LTVSMC) railroad was planned for use. Trains would run on a new spur developed on the Mine Site to the existing railroad. There would be a new approximately 5,750-foot track to connect existing tracks to access the processing plant. Reuse of the existing railroad minimized direct wetland impacts. The configurations for the new spur and the connector track were selected in the Prior Regulatory Process to avoid sensitive wetland areas, and while the layout was modified from the 2009 DEIS to the 2015 FEIS, the direct wetland impact was similar (0.3 acres and 0.44 acres, respectively). The alternative of ore transport by truck to the Plant Site was evaluated during NorthMet Project scoping, but eliminated by the Co-Lead

Agencies in the Final Scoping Decision (Reference (11)) because it would not likely provide significant environmental benefit over rail transport.

The currently proposed NorthMet Project will utilize a conveyor corridor, as described in Section 4.3.3.2. Siting the conveyor along the existing railroad, on the edge of Dunka Road, and along other former mine lands minimizes impacts to wetlands to the extent possible. Installing the pit-to-plant pipeline below the maintenance road further minimizes the width of disturbance for this corridor. Throughout the current design process, NewRange has reduced wetland impacts in the Impact Area along the TUC by 1.43 acres. Other benefits of a conveyor over a railroad include:

- Lower dust emissions and potential ore spillage along the tracks (open, old railcars compared to covered conveyor), resulting in less potential for water quality impacts to water resources
- Lower diesel consumption and associated emissions
- Reduced carbon emissions intensity
- Viewed favorably by stakeholders and rightsholders based on initial discussions

5.2.4 Colby Lake Pipeline Corridor

The Colby Lake Pipeline Corridor includes the use of an existing pipeline, pumphouse, and access road. These infrastructure will only be used as needed for contingency make-up water. This infrastructure is already in place, so there are no planned wetland impacts associated with the use of these existing infrastructure.

6 Adjoining Property Owners

Ten (10) property owners are adjacent to the Impact Area for the NorthMet Project. Large Table 1 provides the complete mailing addresses of the adjoining property owners.

7 Portion of Work Completed

No work has been completed for the NorthMet Project that is part of the Section 404 regulated activities being applied for in the 2026 Section 404 Permit Application.

NewRange initiated a program of salvage and recycle work in 2023, including removing equipment and materials from the processing plant buildings at the Plant Site. The Administration Building at the Plant Site has been refurbished for continued use as NewRange's headquarters. NorthMet Project construction activities, such as installation of footings, foundations, or placement of equipment, will be initiated when appropriate approvals and permits have been obtained for the various work scopes.

Large Table 2 identifies the permits that are currently active for the NorthMet Project. Work under these permits could proceed without the Section 404 permit, assuming the appropriate regulatory approvals are obtained and there are no Section 404 regulated activities associated with the work.

8 Status of Other Approvals

Other permits, reviews, and approvals related to the NorthMet Project are provided in Large Table 2.

9 Placeholder Corresponding to Signature Block

The signed signature block is in Section 27 of the USACE Application for Department of the Army Permit (Engineering Form 4345 (FINAL October 2024); Appendix A).

10 Wetlands and Aquatic Resources

10.1 Wetland Delineation and Impact Summary

This section provides a description of the overall environmental setting, including hydrogeology, vegetation, and soils for the NorthMet Project. The methods used to delineate, classify, and assess the wetlands are documented in Section 10.1.2. The 2025 Wetland Delineation is attached as Appendix B1 and other wetland delineations used to characterize the wetlands within the NorthMet Project areas are cited throughout this Section. Wetlands that are intersected by or within the Impact Area are identified in Appendix C. Direct impacts to potentially jurisdictional wetlands are described in Section 10.1.4. Potential indirect wetland impacts will be assessed as described in Section 10.1.5. Mitigation for impacts is discussed in Section 11.

10.1.1 General Environmental Setting

The NorthMet Project is located at the foot of the Laurentian Divide, within the Nashwauk Uplands and Laurentian Uplands subsections of the Northern Superior Uplands section in the Laurentian Mixed Forest Province, as described in the Ecological Classification System (ECS) developed by the MDNR and USFS (Reference (12)). Landforms in both subsections are characterized by till and outwash plains and moraines, with peatlands also common in the Laurentian Uplands subsection.

Historically, the Nashwauk Uplands subsection consisted of forested communities dominated by red and white pine, balsam fir, white spruce, and aspen and birch. The Laurentian Uplands subsection historically consisted of forests dominated by aspen and birch, jack pine, red pine, and white pine in the uplands, and coniferous bogs and swamps in the lowlands. At present, aspen is the most dominant tree species in both the Laurentian Uplands and Nashwauk Uplands subsections (Reference (12)). Elevations within the NorthMet Project range from approximately 1,440 feet to 1,834 feet above mean sea level.

10.1.1.1 Hydrology and Hydrogeology

The NorthMet Project is located in the Partridge River and Embarrass River watersheds as defined by the USGS Hydrologic Unit Code (HUC10) scale used to classify and map watersheds. The Partridge River and the Embarrass River are tributaries to the St. Louis River, which is located within the Lake Superior Basin. The Mine Site, Colby Lake Pipeline Corridor and portions of the TUC and Plant Site are located within the Partridge River Watershed. A portion of the TUC and the Plant Site, including the processing plant area and LTSF, are located in the Embarrass River watershed (Large Figure 3).

Partridge River Watershed

The Partridge River watershed covers approximately 103 square miles, including portions of the Peter Mitchell Mine. In addition to USGS's HUC10 watersheds, the MDNR has independently developed watershed mapping which includes Level 7 Watersheds, also known as Minor Watersheds, which are the smallest administrative watershed units in Minnesota's hydrologic classification system. These Level 7 Watersheds are shown on Large Figure 3 and describe the minor watersheds within the larger HUC10 watersheds. The Partridge River, upstream of the St. Louis River, flows through Colby Lake and Whitewater Reservoir. Minor watersheds crossed by the NorthMet Project upstream of Colby Lake include the Upper Partridge River and Wyman Creek. Minor watersheds crossed by the NorthMet Project downstream of Colby Lake include Second Creek and the Lower Partridge River.

Tributaries to the Partridge River upstream of Colby Lake include Wyman Creek and an unnamed tributary, Longnose Creek, Wetlegs Creek, Colvin Creek, the South Branch of the Partridge River, Unnamed (West

Pit Outlet) Creek, Stubble Creek, and Yelp Creek (Large Figure 3). Second Creek drains to the Partridge River downstream of Colby Lake, approximately three miles upstream of the confluence with the St. Louis River (Large Figure 3).

The Mine Site is located in the Upper Partridge River watershed, approximately 17 miles upstream of Colby Lake. Under existing conditions, runoff from the northernmost area of the Mine Site generally drains north into wetlands associated with Yelp Creek and the Partridge River. These wetlands form the headwaters of the Partridge River, which meanders around the east end of the Mine Site before turning southwest. Runoff from the majority of the Mine Site naturally drains to the south through culverts under Dunka Road and the adjacent railroad embankment, into the Partridge River. The Partridge River hydrology is affected by the periodic and variable dewatering of the NorthShore Mining Co. Peter Mitchell Mine near the headwaters of the Partridge River, upstream of the Mine Site. Sections of the TUC will cross Second Creek, Wyman Creek, Longnose Creek, Wetlegs Creek, and Unnamed (West Pit Outlet) Creek.

The hydrogeologic setting of the Partridge River watershed consists of a thin veneer of heterogeneous unconsolidated deposits (glacial till) underlain by bedrock. Near-surface bedrock (on the order of tens of feet of the uppermost bedrock) may exhibit fracturing such as bedding-plane discontinuities, joints and faults. As depth increases, both the frequency of these features and the associated hydraulic conductivity reduces. In the Mine Site area, saturated conditions typically exist within the unconsolidated deposits but are also found within bedrock when bedrock is elevated and unconsolidated deposits are thin. Depth to groundwater is typically less than 10 feet below ground surface. The surficial water table within the unconsolidated deposits is generally a subdued replica of the land surface, with groundwater divides in the area expected to roughly coincide with surface water divides that are largely the result of the bedrock surface. As is the case at the Mine Site, wetlands are present in the Plant Site, TUC, and Colby Lake Pipeline Corridor, and saturated conditions generally exist less than 10 feet below the ground surface.

The hydraulic conductivity of the bedrock and surficial deposits range over several orders of magnitude and have been estimated at the Mine Site by a variety of methods, including conducting pumping tests and using grain-size distribution data from soil borings. Bedrock units at the Mine Site have hydraulic conductivities that are generally two orders of magnitude less than the unconsolidated deposits. Data collected during a 30-day pumping test at the Mine Site showed a small amount of drawdown in the deep wetland piezometer closest to the pumping well, but no drawdown was observed at other water table or deep wetland piezometers, which indicated that the hydraulic connection between saturated bedrock, unconsolidated deposits, and wetlands is weak.

Because of the weak hydraulic connectivity between the groundwater within bedrock, unconsolidated deposits, and wetlands at the Mine Site, changes in head levels within bedrock will not necessarily propagate upward and affect shallow groundwater and wetland hydrology. Additionally, water movement in peat wetlands generally occurs horizontally in the upper layers of peat since the deeper, more decomposed and compacted peat soils have significantly lower hydraulic conductivities which limits both horizontal and vertical seepage. As a result, the wetland hydrology of the peat becomes more hydraulically isolated from groundwater as organic materials continue to accumulate, decay, and compact.

As at the Mine Site, the degree of hydraulic connection between the wetland areas and adjacent unconsolidated deposits and bedrock at the Plant Site is expected to be variable, depending on the characteristics of the wetlands and the localized hydraulic conductivity and degree of bedrock fracturing. Given the very low hydraulic conductivity of the underlying bedrock, there is minimal potential for hydraulic connection between bedrock and wetlands.

Embarrass River Watershed

The Embarrass River watershed covers approximately 171 square miles. Small portions of the Plant Site and TUC are located within the Embarrass River watershed, upstream of the Embarrass River chain of lakes (Large Figure 3). The NorthMet Project intersects two minor watersheds associated with the Embarrass River, which include Unnamed Creek and Trimble Creek.

The hydrogeologic setting of the Embarrass River watershed is broadly similar to the Partridge River watershed, although the unconsolidated deposits are generally thicker and more continuous north of the Plant Site area along the Embarrass River valley. The area under the portion of the Plant Site within the Embarrass River watershed is underlain primarily by granitic rocks of the Giants Range batholith. Although these rocks may have minor shallow fracturing, they have lower hydraulic conductivities than the bedrock units within the Mine Site and portions of the Plant Site that are located within the Partridge River watershed. Given the low hydraulic conductivity of the underlying bedrock, there is minimal potential for hydraulic connection between bedrock and wetlands.

10.1.1.2 Vegetation

Vegetation communities in much of the NorthMet Project area have been altered by previous mining and logging activities. In addition, beaver activities have led to the transition of some forested wetlands to open, emergent marshes and wet meadows. Aside from areas disturbed from mining and logging activities, the NorthMet Project vicinity is currently a mosaic of upland and wetland native vegetation community types, which is typical of northeastern Minnesota.

While the Mine Site is located in an area that has not been directly disturbed by previous mining activities, extensive logging has occurred throughout the area. The USFS previously owned the surface rights at the Mine Site and managed the area for timber production. Logging activities have changed the vegetative character across the Mine Site, with shrublands and/or early and mid-successional forest replacing mature upland forest. These logged areas are currently in varying stages of regeneration and consist mostly of young aspen stands. Aside from logging and associated roads, the Mine Site is largely undeveloped, with a variety of natural vegetation communities present. These communities include coniferous and deciduous forests in the uplands and wetlands such as shrub swamps, marshes, forested swamps, and bogs in the lowlands. The more mature upland forested areas at the Mine Site are dominated by quaking aspen, jack pine, balsam fir, black spruce, and white spruce with lesser amounts of paper birch, red pine, and white pine.

The Plant Site was previously used as a taconite processing facility and mining area by LTVSMC and is largely devoid of natural vegetation. The area is highly disturbed by mining infrastructure and consists of existing buildings, pits, stockpiles, haul roads, surface roads, and railroads with some natural/vegetated low-lying areas. The mining-disturbed areas include deepwater pit lakes (pits), vertical rock faces around some pits, a ground surface with bare rock that has little or no soil development, reclaimed mine areas over which glacial till has been deposited after mining operations ceased, and constructed ditches.

The conveyor corridor primarily follows either the Dunka Road corridor or existing railroad corridors; the western portion crosses an extensive mining landscape, while the eastern half is characterized by a more natural setting with flatter, low-lying areas adjacent to Dunka Road and the railroad (Appendix B1).

The Colby Lake Pipeline Corridor Area includes an existing plant water supply pipeline within an existing easement from the existing LTVSMC processing plant to the Canadian National Railway (CN) railroad tracks just north of Colby Lake. The existing pipeline is adjacent to an unnamed road or Kensington Road

for its entire length and consists of open disturbed areas that were likely seeded with a reclamation mix, some forested areas, and various wetland types (Reference (13)).

10.1.1.3 Soil Resources

Soil information for the 2025 Delineation Area was obtained from the Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database (Reference (14)). Large Table 3 and Large Figure 13 identify the soil map units found in the Project Area.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Reference (15)). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Soils are classified using the following rating:

- Hydric (100%)
- Predominantly hydric (67%-99%)
- Partially hydric (>33%-<67%)
- Predominantly non-hydric (>0%-<34%)
- Non-hydric (0%)

Mine Site

One hundred percent (100%) of the soil map units in the Impact Area at the Mine Site are mapped as native soils. Logging and mining exploration activities have occurred at the Mine Site.

Forty percent (40%) of the soil map units in the Impact Area at the Mine Site are classified as hydric, 10% of the soil map units are partially hydric, 20% of the soil map units are predominantly non-hydric, and 30% of the soil map units are non-hydric.

Plant Site

Eighteen percent (18%) of the soil map units in the Impact Area at the Plant Site are mapped as native soils. Eighty-two percent (82%) of the soil map units in the Impact Area at the Plant Site consist of soils that have been altered by development or mining activities (i.e., iron mine dumps and pits, tailings basin, udorthents, and water areas).

Twenty-three percent (23%) of the soil map units in the Impact Area at the Plant Site are classified as hydric, 6% of the soil map units are partially hydric, 18% of the soil map units are predominantly non-hydric, and 53% of the soil map units are non-hydric.

Transportation and Utility Corridors (TUC)

Sixty-two percent (62%) of the soil map units in the Impact Area at the TUC are mapped as native soils. Thirty-eight percent (38%) of the soil map units in the Impact Area at the Plant Site consist of soils that have been altered by development or mining activities (i.e., roads, railroads, iron mine dumps, and pits).

Thirty-one percent (31%) of the soil map units in the Impact Area at the Plant Site are classified as hydric, 8% of the soil map units are partially hydric, 15% of the soil map units are predominantly non-hydric, and 46% of the soil map units are non-hydric.

Colby Lake Pipeline Corridor

The Colby Lake Pipeline Corridor is not located within the Impact Area.

10.1.2 Wetland Delineation and Classification Methods

Delineation and functional assessment of wetlands were conducted within the Impact Areas for the Mine Site, Plant Site, TUC, and Colby Lake Pipeline Corridor (Large Figure 4).

Wetlands were delineated across the NorthMet Project areas between 2004 and 2025; the following references summarize wetland delineations conducted throughout this time period (Reference (16), Reference (17), Reference (18), Reference (19), Reference (20), Reference (21), Reference (22), Reference (23), Reference (5)). Additional wetland delineations were conducted in 2025 in the Plant Site and TUC (Appendix B1).

The 2004-2025 wetland delineations were performed according to the Routine On-Site Determination Method specified in the USACE Wetlands Delineation Manual (1987 Edition) (Reference (26)), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Reference (25)), and the requirements of the Minnesota Wetland Conservation Act (WCA) of 1991 (Reference (26), Reference (25)). The 2004-2019 wetland delineations were discussed with the Wetland Impact Assessment Planning (IAP) Workgroup, and the delineation was approved by the Co-Lead Agencies as part of the Wetland IAP Workgroup (Reference (27)). A site visit was conducted by the USACE on June 22-23, 2026 (June 2026) at the Mine Site. As a result of this site visit, revisions were made to four wetland boundaries (Appendix B2). The 2025 wetland delineation (Appendix B1) is being submitted concurrently with this permit application and is anticipated to be reviewed by a technical evaluation panel (TEP) in 2026. Except for the 2025 delineations in the Plant Site and TUC and the June 2026 USACE site visit, the wetland delineations remain unchanged from those approved in 2019.

The wetland delineations were conducted according to the Routine On-Site Determination Method as specified in the USACE Wetlands Delineation Manual (Reference (26)). Prior to conducting the various field delineations, numerous sources of existing information were gathered and reviewed to assist in developing a strategy for evaluating wetlands within the NorthMet Project areas, some of which included:

- USGS 7.5-minute (1:24,000 scale) quadrangle map
- USGS 7.5-minute (1:100,000 scale) quadrangle map
- 1991 USGS digital orthoquadrangle (DOQ) map
- 1998 Mesabi Range Imagery
- 2009 color-infrared Regional Arrowhead (Minnesota GeoSpatial Commons (MnGeo) Web Map Service (WMS))
- 2023 Pictometry Image Service imagery

- 2021, 2019, 2017, 2015, 2013, 2010, 2009, and 2008 Farm Services Agency (FSA) color aerial imagery
- 2019, 2017, 2015, and 2013 FSA color-infrared (CIR) aerial imagery
- U.S. Department of Agriculture (USDA)-NRCS Soil Survey of St. Louis County
- MDNR Minnesota National Wetland Inventory (NWI) data
- 2-foot Light Detection and Ranging (LiDAR) contours
- USGS watershed boundaries
- NorthMet Wetland Data Package, v11 (Reference (28))
- Previous wetland delineations and desktop analysis conducted in the area
- Wetland information provided for the USACE 2019 ROD (Reference (5))

Topographic contours and NWI maps were overlaid on true color and CIR FSA aerial photographs along with previously completed off-site preliminary wetland mapping. Attempts were made to field evaluate the areas mapped as wetlands by the NWI or by preliminary off-site mapping. Depressional areas and areas with relatively flat slopes were also evaluated to determine if wetlands were present.

Soil borings were placed in most of the wetlands to a depth of 6 to 24 inches below the ground surface. Representative soil samples from each boring were examined for hydric soil indicators. Soil colors (e.g., 10YR 4/2, etc.) were determined with the aid of a Munsell soil color chart and noted on the Wetland Data Forms. In addition, vegetation data were collected within each wetland and adjacent upland.

Wetland boundaries were mapped in the field in one of two methods:

- From 2004 through 2019, wetlands were mapped on large-scale (1 inch = 600 feet) FSA true color and CIR aerial photographs. Data points were collected with a Global Positioning System (GPS), where possible, to verify wetland delineation locations, particularly in areas where aerial photo signatures were not distinct. The wetland boundaries were later digitized using ArcView Geographic Information System (GIS) software.
- In 2025 and 2026, the wetland boundaries were mapped in the field using a Leica FLX GPS Unit, capable of recording positions with sub-foot horizontal accuracy. Wetland boundaries were later digitized in ArcGIS Pro software.

Beginning with the wetland delineation fieldwork in 2025, sample point information was recorded electronically with BioApp software. BioApp (Bioapp Incorporated, 2021) is an application designed to aid wetland delineators in collecting, analyzing, and organizing field data. Information including Land Resource Regions/Major Land Resource Area (LRR/MLRA), NRCS soil data, NWI data, wetland indicator status, and vegetation calculations are automatically generated once the data is entered into the application. Additionally, the application provides suggested hydric soil and hydrology indicators which are reviewed for applicability. The auto-populated, suggested, and manually entered data within the application is then exported to a wetland determination data form for the NorthMet Project. Once the data is exported from BioApp, the data forms are reviewed to check the accuracy of the information presented within each form.

Plant species at each sample point were identified, and percent areal cover as estimated for each species. Dominant species were determined using the 50/20 rule, and the corresponding wetland indicator status of each plant species was recorded using the current National Wetland Plant List (Reference (29)). The delineated wetlands were classified using the Eggers and Reed Plant Community Classification System (Reference (30)), the U.S. Fish and Wildlife Service (USFWS) Circular 39 Classification System (Reference (31)), and the USFWS Cowardin Classification System (Reference (32)). A comparison of the wetland classification systems is provided in Table 4 of Appendix B1. In addition, the delineated wetlands were classified using the hydrogeomorphic (HGM) classification (Reference (33)). The Eggers and Reed (Reference (30)) plant community types are primarily used to describe wetlands in this application. A comparison of the Eggers and Reed, USFWS Circular 39, and USFWS Cowardin classification systems is provided in Table 10-1; this table has been compiled from Table 1 of Eggers and Reed (Reference (30)) and a poster created by the Minnesota Board of Soil and Water Resources titled “Wetlands in Minnesota” (Reference (34)).

Table 10-1 Comparison of Wetland Community Classification Systems

Wetland Plant Community Types[1]	Circular 39[2]	Classification of Wetlands and Deep Water Habitats of the United States[3]
Shallow, Open Water	Type 5: Inland open fresh water	Palustrine or lacustrine, littoral; aquatic bed; submergent, floating, and floating-leaved (PAB; 2, 4, 5; G, H; and L2EM; 2; G, H; and L2AB; 2, 4, 5; G, H)
Deep Marsh	Type 4: Inland deep fresh marsh	Palustrine or lacustrine, littoral; aquatic bed; submergent, floating-leaved; and emergent; persistent and nonpersistent (PEM; 1, 2; F, G, H; and PAB; 2, 4, 5; F, G; and PUB; F, G; and L2EM; 2; F, G; and L2AB; 2, 4, 5; F, G)
Shallow Marsh	Type 3: Inland shallow fresh marsh	Palustrine; emergent; persistent and nonpersistent (PEM; 1, 2; C)
Sedge Meadow	Type 2: Inland fresh meadow	Palustrine; emergent; narrow leaved persistent (PEM1B)
Fresh (Wet) Meadow	Type 1: Seasonally flooded basin of flat; Type 2: Inland fresh meadow	Palustrine; emergent; broad and narrow-leaved persistent (PEM1B)
Wet to Wet-Mesic Prairie	Type 1: Seasonally flooded basin of flat; Type 2: Inland fresh meadow	Palustrine; emergent; broad- and narrow leaved persistent (PEM1; A, B)
Calcareous Fen	Type 2: Inland fresh meadow	Palustrine; emergent; narrow-leaved persistent; and scrub (PEM; 1; B)
Open Bog	Type 8: Bog	Palustrine; moss/lichen; and scrub/shrub; broad-leaved evergreen (PSS; 2, 3, 4, 7; B)
Coniferous Bog	Type 8: Bog	Palustrine; forested: needle-leaved evergreen and deciduous (PFO; 2, 4, 6, 7; B)
Shrub-Carr	Type 6: Shrub swamp	Palustrine; scrub/shrub; broad leaved deciduous (PSS; 1, 6; B, C)
Alder Thicket	Type 6: Shrub swamp	Palustrine; scrub/shrub; broad-leaved deciduous (PSS; 1, 6; B, C)
Hardwood Swamp	Type 7: Wooded swamp	Palustrine; forested; broad-leaved deciduous (PFO; 1, 6; A, B, C)
Coniferous Swamp	Type 7: Wooded swamp	Palustrine; forested; needle-leaved deciduous and evergreen (PFO; 2 4, 6, 7; B, C)
Floodplain Forest	Type 1: Seasonally flooded basin or flat	Palustrine; forested; broad-leaved deciduous (PFO; 1, 6; A)
Seasonally Flooded Basin	Type 1: Seasonally flooded basin or flat	Palustrine; flat; emergent; persistent and non-persistent (PEMA)

1 Reference (30)
2 Reference (31)
3 Reference (32)

10.1.3 Potentially Jurisdictional Wetlands

10.1.3.1 USACE Guidance

During the Prior Regulatory Process, federal and state jurisdiction over wetlands in the NorthMet Project Area were generally considered to be co-extensive. The legal and regulatory framework governing federal jurisdiction over wetlands has become more important since the U.S. Supreme Court's decision in *Sackett v. EPA* (598 U.S. 651 (2023)), which clarifies exactly when wetlands qualify as jurisdictional WOTUS under the Clean Water Act, and as applied to the NorthMet Project, creates more divergence between state wetlands and federal wetlands. Until recently, however, guidance concerning how to implement *Sackett* had been scattered. The EPA and the USACE updated their WOTUS rule after *Sackett*, in September 2023, and offered more guidance in March 2025 and April 2025 (Reference (35)).

NewRange updated its potential jurisdictional status of wetlands across the NorthMet Project based on its understanding of *Sackett* and these new guidance documents. Then, based on consultation with USACE, NewRange learned that the St. Paul District does not interpret these guidance documents the same way NewRange did. Based on the April 2025 guidance, USACE St. Paul District guidance is that while isolated wetlands and certain ditches are no longer jurisdictional, as long as a wetland abuts or touches a WOTUS, the entire wetland complex is then jurisdictional (herein referred to as USACE Guidance).

Large Figure 14 identifies wetlands within the Impact Area that NewRange has evaluated for their potentially jurisdictional status under USACE's interpretation of these current guidance (USACE Guidance).

10.1.3.2 Legal and Regulatory Framework: Proposed Rule

In November 2025, EPA and the USACE published a proposed rule that would "implement" the Supreme Court's holdings in *Sackett*, increasing "predictability and consistency by clarifying the definition of 'waters of the United States'" (*See Updated Definition of "Waters of the United States,"* (90 Fed. Reg. 52498 (November 20, 2025))). Even before the agencies' proposed rule is finalized, the U.S. Supreme Court's *Sackett* decision is the law. As the 2023 rule explains, agencies must "continue to interpret the remainder of the definition of 'waters of the United States' … consistent with the *Sackett* decision" (88 Fed. Reg. 61964, 61966 (September 8, 2023)). The March 2025 guidance says the same thing (Mem. To the Field at 1 (March 12, 2025)). NewRange's updated assessment of wetland jurisdiction for the NorthMet Project rests on the Supreme Court's holdings in *Sackett*. But the assessment is also consistent with the agencies' November 2025 proposed rule.

10.1.3.3 Wetland Jurisdiction: Proposed Rule

USACE's Clean Water Act jurisdiction turns on the meaning of the statutory phrase "waters of the United States," which the Clean Water Act uses to delimit the USACE's jurisdiction over "navigable waters" (*See* 33 U.S.C. § 1344(a) (granting the Corps jurisdiction over discharges into "navigable waters"); *id.* § 1362(7) (defining "navigable waters" as "the waters of the United States, including the territorial seas")). If a wetland qualifies as "waters of the United States," the USACE has jurisdiction over that wetland. If a wetland is not "waters of the United States," the USACE lacks jurisdiction. That is why the phrase "waters of the United States" has been central to every debate over federal wetland jurisdiction.

In *Sackett*, the U.S. Supreme Court interpreted this key statutory phrase. That interpretation started from the premise that the phrase "waters of the United States" could not be divorced from the word "waters." "Waters," the U.S. Supreme Court has explained, is not the same things as generic "water." Rather, "waters" as used in the Clean Water Act, refers to "relatively permanent standing or flowing bodies of water"

(*Rapanos v. United States*, 547 U.S. 715, 732 (2006)). So, when the Clean Water Act uses the word "waters" in the phrase "*waters* of the United States," it means that federal jurisdiction extends to "only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes" (*Sackett*, 598 U.S. at 671 (cleaned up); *See also* 90 Fed. Reg. at 52517 (explaining that the proposed rule defines "relatively permanent" as "standing or continuously flowing bodies of surface water that are standing or continuously flowing at least during the wet season")).

From this premise, the U.S. Supreme Court reasoned that "the ordinary meaning" of the term "waters" would "exclude all wetlands" (*Id.* at 674). After all, "lands, wet or otherwise," are not normally thought of as "waters" (*Id.* at 672 (cleaned up)). But, looking at other parts of the Clean Water Act—especially the phrase "adjacent wetlands" in 33 U.S.C. § 1344(g)—the U.S. Supreme Court concluded that "*some* wetlands" must still "qualify as 'waters of the United States'" (*Id.* at 675 (emphasis added)). In short, the Court held that even though wetlands are generally lands, not waters, there are "some" exceptions.

To identify the exceptions and thus define which wetlands qualify as jurisdictional "waters of the United States," the U.S. Supreme Court in *Sackett* explained that "adjacent wetlands" are "included within the waters of the United States" only if they "qualify as waters of the United States in their own right" (*Id.* at 676 (cleaned up)). That is, a wetland cannot be jurisdictional unless it can also meet the definition of "waters." A jurisdictional wetland therefore "must be indistinguishably part of a body of water that itself constitutes 'waters' under the CWA" (*Id.*). In contrast, as discussed further below, a wetland that is distinguishable from such a body of water cannot be jurisdictional.

At the end of its discussion, the U.S. Supreme Court emphasized again that federal jurisdiction "extends to only those wetlands that are as a practical matter indistinguishable from waters of the United States" (*Id.* at 678). To ensure that jurisdictional qualification is met, the U.S. Supreme Court offers a two-part test. "The party asserting jurisdiction over adjacent wetlands"—in this case, the USACE—must "establish, first, that the adjacent body of water constitutes waters of the U.S. (i.e., a relatively permanent body of water connected to traditional interstate navigable waters); and second, that the wetland has a continuous surface connection with that water, making it difficult to determine where the 'water' ends and the 'wetland' begins" (*Id.* at 678–79 (cleaned up)).

The existing rules define the term "adjacent" as "having a continuous surface connection" (33 C.F.R. § 328.3(c)(2); 40 C.F.R. § 120.2(c)(2)). The USACE Guidance has been understood as interpreting this definition as including any kind of "surface connection" between wetlands suffices to extend federal jurisdiction. Only when a wetland is surrounded by uplands, or when a berm or other non-jurisdictional feature separates a wetland from a relatively permanent water, is jurisdiction lacking (April 2025 Guidance). But that interpretation ignores a key clause in the U.S. Supreme Court's *Sackett* holding. *Sackett*'s second requirement is that a "wetland has a continuous surface connection with that [relatively permanent] water, *making it* difficult to determine where the 'water' ends and the 'wetland' begins" (*Sackett*, 598 U.S. at 678–79 (emphasis added) (cleaned up)). In the second half of this sentence, the U.S. Supreme Court explains what it means by "continuous surface connection": a "continuous surface connection" is a connection between a wetland and a water that "mak[es] it" hard to distinguish between the two. In other words, the wetland and the water must be practically "indistinguishable" (*Id.* at 678). NewRange based its updated wetland assessment on that holding, defining as potentially non-jurisdictional all wetlands that lacked surface water, and were thus easily distinguishable from the nearest relatively permanent water.

The April 2025 Guidance does not exclude NewRange's interpretation of *Sackett*. It simply does not address this situation, where a surface-water wetland is jurisdictional because it touches a relatively permanent water, and a non-surface-water wetland touches the surface-water wetland but does not touch the relatively

permanent water (April 2025 Guidance). As NewRange reads *Sackett*, the non-surface-water wetland is not "indistinguishable" from the relatively permanent water and is thus not jurisdictional. Nothing in the April 2025 Guidance demands the opposite conclusion.

The agencies' new proposed rule interprets *Sackett* the same way NewRange does. It applies *Sackett* to define "continuous surface connection" as "having surface water at least during the wet season and abutting (*i.e.*, touching) a jurisdictional water" (90 Fed. Reg. at 52527 (emphasis added)). The proposed rule explains that this definition is meant to limit jurisdiction to "wetlands that have at least semipermanent surface hydrology," thus excluding from USACE jurisdiction "wetlands without semipermanent surface hydrology, including wetlands with only saturated soil conditions supported by groundwater" (*Id.*). Equally important, the proposed rule explains that jurisdiction extends to "only the portion of an abutting wetland which demonstrates surface water at least during the wet season," and that jurisdiction ends where "the wetland transitions" to a non-surface water wetland (*Id.*). Because "[a] wetland that lacks surface water" will "often look like dry land and can be easily distinguishable from the surface waters to which it abuts," the proposed rule's new definition "implements the 'indistinguishable' concept" in *Sackett* (*Id.* at 52528).

10.1.3.4 Application of the Proposed Rule to the NorthMet Project

Because *Sackett* clarified the scope of federal jurisdiction over wetlands, it must also change how jurisdictional wetlands are identified. Before *Sackett*, nearly all wetlands in a place like northeastern Minnesota were considered jurisdictional. So, a wetland delineator's first job was to draw lines between wetlands and non-wetlands. After *Sackett*, by contrast, jurisdiction turns on the distinction between "waters" and "lands." Where a wetland can be distinguished from a jurisdictional water, that wetland is not jurisdictional under *Sackett* (*See Sackett*, 598 U.S. at 678–79). As the agencies' new proposed rule puts it, *Sackett*, "for the first time, requires an assessment of whether an adjacent wetland has surface water at least during the wet season" (90 Fed. Reg. at 52531).

To apply *Sackett*'s test here, NewRange identified relatively permanent waters within the Impact Area that are connected to traditionally navigable waters. Then, NewRange identified as jurisdictional any surface water wetland that abuts those relatively permanent bodies of water. This procedure makes sense under *Sackett* because only a wetland with surface water can be "as a practical matter indistinguishable from waters of the United States" (*Sackett*, 598 U.S. at 678). The wetland's surface water forms the "continuous surface connection" that makes it "difficult to determine where the water ends and the wetland begins" (*Id.* at 678–79).

NewRange's identification process is also consistent with the agencies' new proposed rule. There, the agencies endorse using "a variety of visual observations and remote tools" to identify "features that potentially sever the continuous surface connection between the wetland and a jurisdictional water …." (90 Fed. Reg. at 52531). The new proposed rule also explains that "[t]he agencies are using a modified version of the 'semipermanently flooded' definition used by NWI to inform implementation of the surface water requirement" necessary for wetland jurisdiction (*Id.).* Again, NewRange is doing the same thing here. The wetlands that NewRange identifies as non-surface water wetlands do not meet the NWI definition of "semipermanently flooded".

Watercourses that cross the Impact Area with intermittent or perennial flow include Second Creek, Wyman Creek, Unnamed Tributary to Wyman Creek, Longnose Creek, Wetlegs Creek, and Unnamed (West Pit Outlet) Creek. Yelp Creek does not cross the Impact Area but rather flows east-west through wetlands on the north side of the Impact Area. Each of these creeks flows into the Partridge River, which flows into the St. Louis River, which ultimately discharges into Lake Superior. The St. Louis River is identified in Minnesota as a traditionally navigable water starting at the mouth of the Embarrass River. Because Second

Creek, Wyman Creek, Longnose Creek, Wetlegs Creek, Unnamed (West Pit Outlet) Creek, and Yelp Creek are relatively permanent waters that ultimately flow into the navigable part of the St. Louis River, and then into Lake Superior, they qualify as WOTUS. These watercourses are discussed further in Section 10.2.

Drawing lines between wetlands and waters is easier here because the wetlands within the Impact Area are already identified by wetland type using the Eggers and Reed community methodology (Reference (30)). Consequently, it is already known which wetlands are surface water wetlands and which are not, and thus which wetlands may have "a continuous surface connection with [a relatively permanent] water, making it difficult to determine where the 'water' ends and the 'wetland' begins" (*Sackett*, 598 U.S. at 678–79). Specifically:

- Wetlands typically having surface water during most of the growing season would provide this continuous surface connection. They include deep marsh, shallow marsh, shallow open water, shrub swamp, and hardwood swamps.
- Wetlands that would not provide this connection are typically without surface water during most of the growing season and include seasonally flooded basin, floodplain forest, wet/sedge meadow, coniferous swamp, coniferous bog, and open bog.
- For this evaluation, ditches were identified as wetlands. If they were surface water wetlands and were connected to a WOTUS or one or multiple surface water wetlands connected to a WOTUS, they were considered to provide a potential surface water connection.
- In addition, for this evaluation, culverts were considered to provide a potential surface water connection; culverts were identified during fieldwork or using aerial imagery.

The agencies' new proposed rule endorses this approach by emphasizing that "[d]irect observation and various remote tools can help assess if a wetland has surface water at least during the wet season" (90 Fed. Reg. at 52532). The proposed rule further notes that "[l]andowners" like NewRange "may have extensive experience with, and knowledge about, the seasonal timing and extent of surface waters in wetlands" (*Id.*). NewRange is drawing on this direct field experience and robust data set, and the resulting delineations that the USACE has already approved, in making the judgments in this application.

NewRange evaluated wetlands within the Impact Area determine if they were connected (directly, through other wetlands, and/or via culverts) to a WOTUS. For this evaluation, wetlands were identified within the Impact Area as potentially jurisdictional, isolated (therefore non-jurisdictional), or potentially non-jurisdictional.

- A wetland was considered potentially jurisdictional if it is a surface water wetland that was adjacent to a WOTUS or if it is a surface water wetland adjacent to a surface water wetlands that are adjacent to a WOTUS, therefore maintaining a continuous surface water connection and making it difficult to distinguish between the wetlands and the relatively permanent waters.
- A wetland was considered isolated if it is surrounded by upland and it has no observed inlet or outlet that provides a surface flow to a WOTUS. Since these wetlands are not adjacent to a WOTUS, they are non-jurisdictional.
- A wetland was considered potentially non-jurisdictional if it is not adjacent to a WOTUS, or it is not a surface water wetland, even if it is adjacent to a WOTUS. In addition, a surface water wetland was considered potentially non-jurisdictional if the presence of a non-surface water wetland severed the connection to a jurisdictional surface water wetland or a relatively permanent water.

Appendix D and Large Figure 15 identify wetlands within the Impact Area that NewRange have evaluated for their potentially jurisdictional status under Section 404. These wetlands are adjacent to either Wyman Creek, Unnamed Tributary to Wyman Creek, Longnose Creek, Wetlegs Creek, Unnamed (West Pit Outlet) Creek, or Yelp Creek, which are each identified as WOTUS. The remainder of the wetlands are identified as potentially non-jurisdictional either because they are isolated, have a non-surface water wetland breaking the connection to the waters of the United States, or because they were not a surface water wetland and were therefore distinguishable from any abutting waters of the United States. Additional information is provided in Appendix D for the potentially jurisdictional wetlands and in Appendix E for the isolated wetlands (*See* 90 Fed. Reg. at 52532 ("Under the proposed rule, if a wetland has surface water at least during the wet season at the point at which it touches a jurisdictional water but transitions in water regime to having less than surface water at least during the wet season as the wetland extends farther away from the jurisdictional water (*e.g.*, to seasonally saturated), only the portion of the wetland that demonstrates surface water at least during the wet season would be 'adjacent'")).

10.1.3.5 Rules and Guidance

The available rules and guidance support NewRange's jurisdictional conclusions here.

First, as noted above, the 2023 revised rule and the 2025 guidance are both explicitly meant to apply the U.S. Supreme Court's holdings in *Sackett* (*See* 88 Fed. Reg. at 61966; Mem. to the Field at 1). And while those authorities do not focus on the issues at stake here, they do contain some relevant language. For example, the 2023 rule recognizes *Sackett*'s holding that "wetlands are part of the waters of the United States" when they "have a continuous surface connection to bodies that are waters of the United States in their own right, so that there is no clear demarcation between waters and wetlands" (88 Fed. Reg. at 61966 (internal quotation marks omitted)). So, when the 2023 rule modified the definition of "adjacent" to include only wetlands with a "continuous surface connection," it was explicitly drawing on this part of *Sackett* (*See id.*). Similarly, the 2025 guidance says that a jurisdictional wetland "must have a continuous surface connection to a requisite covered water making it difficult to determine where the water ends and wetland begins" (Mem. to the Field at 5).

But the wetlands at the NorthMet Project Mine Site differ from wetlands that have been clearly addressed in past rules and guidance because most of the Mine Site wetlands are part of a much larger "wetland complex." For example, wetlands 107B and 107C, which are potentially jurisdictional surface water wetlands (alder thickets) that abut a relatively permanent water, and border wetlands (20 – sedge meadow, 32 – coniferous bog, 107 – coniferous bog) with no surface water. Because wetlands 20, 32, and 107 lack surface water, there is a "clear demarcation between waters and wetlands" (88 Fed. Reg. at 61966). Thus, those wetlands also lack a "continuous surface connection" to a relatively permanent water. By contrast, the surface water on wetlands 107B and 107C makes them indistinguishable from the abutting relatively permanent water, and thus jurisdictional under *Sackett*.

As discussed above, the agencies' new proposed rule confirms this interpretation of *Sackett*. The proposed rule's new definition of "continuous surface connection" limits federal jurisdiction to wetlands that both abut a jurisdictional water and that have "surface water at least during the wet season" (90 Fed. Reg. at 52527). Granted, this new definition is part of a proposed rule, not a final one. But the agencies emphasize that it "reflects the agencies' best efforts to interpret" the key U.S. Supreme Court decisions, especially *Sackett* (*Id.*). In particular, the agencies' proposed definition of "continuous surface connection" "implements the 'indistinguishable' concept" in *Sackett* (*Id.* at 52528). Because the proposed rule rests on the agencies' interpretation of the U.S. Supreme Court's decisions, it is the best available agency guidance to wetland delineation and should be followed here. Minor adjustments can easily be made, if necessary, when the proposed rule is finalized.

NewRange's reading of the agencies' new proposed rule and the 2025 Memorandum to the Field fits with the guidance that has long governed wetland delineation in the St. Paul District. For example, the District's March 4, 2015 Guidance for Submittal of Delineation Reports includes a Wetland Delineation Review Checklist for Minnesota that instructs applicants to document "Circular 39 wetland types and Eggers and Reed plant community types identified for each wetland." NewRange has done this, and in so doing, it has shown that the wetlands delineated at the Mine Site are different wetlands. While not all these wetlands are jurisdictional under *Sackett*, the Eggers and Reed categorization still helps to decide where to draw jurisdictional lines.

10.1.3.6 State Jurisdiction

Finally, NewRange recognizes that the absence of federal wetland jurisdiction does not preclude state jurisdiction over wetlands. Indeed, the U.S. Supreme Court in *Sackett* emphasized that the Clean Water Act contains an "express policy to 'preserve' the States' 'primary' authority over land and water use" (598 U.S. at 680 (quoting 33 U.S.C. § 1251(b))). And because the MDNR has primary permitting authority under WCA for the NorthMet Project, it also has primary authority over the wetlands at the site, regardless of whether they are federally jurisdictional (*See* Minn. R. 8420.0930). For that reason, NewRange will also be engaging with the MDNR under the state's WCA, which requires an approved wetland replacement plan for wetlands in the Impact Area under those regulations.

10.1.4 Direct Wetland Impacts: Wetland Descriptions and Functional Assessment

10.1.4.1 Direct Wetland Impacts under USACE Guidance

Under Section 404, direct wetland impacts are defined as activities that result in discharge of dredge or fill material into waters of the United States. Wetlands located within the Impact Area are identified in Appendix C. Table C1 within Appendix C identifies the wetlands by their identification number (ID), wetland type, total area of each wetland (acres), area of each wetland within the Impact Area, wetland quality, if it is a ditch and/or isolated, and the potential jurisdictional status of each wetland under USACE Guidance.

Approximately 1,145 acres of wetland were identified within the Impact Area for the Mine Site, Plant Site, and TUC: there are no impacts planned along the Colby Lake Pipeline Corridor (Table C1 in Appendix C). However, this includes approximately 161 acres of isolated wetlands within the Impact Area (refer to Table E1 in Appendix E). These isolated wetlands are potentially non-jurisdictional under USACE Guidance. In addition, the approximately 29-acre LTSF is exempt and non-jurisdictional based on the Prior Regulatory Process, as documented in the 2019 ROD Footnote 4 (Reference (7)). Based on USACE Guidance, approximately 950 acres of wetlands (approximately 82%) within the Impact Area are potentially jurisdictional (Table 10-2, Large Figure 14).

Table 10-2 Area of Potentially Jurisdictional Wetlands in the Impact Area under USACE Guidance

Wetland Community Type[1]	Circular 39 Type[2]	Impact Area (total)		Mine Site		Plant Site		TUC	
		acres	%	acres	%	acres	%	acres	%
Fresh (wet) meadow	2	0.129	<1%	0.129	<1%	0	0%	0	0%
Seasonally flooded basin	2	0	0%	0	0%	0	0%	0	0%
Sedge meadow	2	42.316	4%	42.316	5%	0	0%	0	0%

Wetland Community Type[1]	Circular 39 Type[2]	Impact Area (total)		Mine Site		Plant Site		TUC	
		acres	%	acres	%	acres	%	acres	%
Shallow marsh	3	19.263	2%	6.019	<1%	11.526	11%	1.718	55%
Deep marsh	4	0	0%	0	0%	0	0%	0	0%
Shallow, open water	5	0.375	<1%	0.370	<1%	0	0%	0.005	<1%
Alder thicket	6	98.560	10%	98.316	12%	0	0%	0.244	8%
Shrub-carr	6	0.109	<1%	0	0%	0	0%	0.109	3%
Hardwood swamp	7	18.117	2%	14.440	2%	2.632	2%	1.045	33%
Coniferous swamp	7	180.010	19%	86.044	10%	93.950	87%	0.016	<1%
Coniferous bog	8	582.221	61%	582.221	69%	0	0%	0	0%
Open bog	8	9.089	<1%	9.089	1%	0	2%	0	0%
Total Wetland[3]	NA	950.189	100%	838.944	100%	108.108	100%	3.137	100%

(1) Reference (30)
(2) Reference (31)
(3) Totals may not sum to 100% due to rounding.

Table C1 in Appendix C identifies the quality of the potentially jurisdictional wetlands in the Impact Area. The functional assessment provides ratings for overall quality as well as select functions; the ratings include high, moderate, or low (References (37), (38)). High-quality wetlands have low disturbance levels, with high vegetative diversity and integrity. Moderate quality wetlands typically have impounded open water because of beaver dams, blocked downstream culverts under Dunka Road or railroad embankments, or are located upstream of roads or railroads with no culverts. Low-quality wetlands are typically impacted by several factors, including impoundments, invasive species, erosion, historical mining activities, railroads and roadways with minimal access to wildlife and no public access.

Table 10-3 Overall Quality of Potentially Jurisdictional Wetlands in the Impact Area under USACE Guidance

Overall Wetland Quality[1], [2]	Impact Area (total)		Mine Site		Plant Site		TUC	
	acres	%	acres	%	acres	%	acres	%
High	935.125	98%	829.378	99%	105.503	98%	0.244	8%
Moderate	12.125	1%	7.262	<1%	2.605	2%	2.258	72%
Low	0.635	<1%	0	0%	0	0%	0.635	20%
NA[3]	2.304	<1%	2.304	<1%	0	0%	0	0%
Total Wetland	950.189	100%	838.944	100%	108.108	100%	3.137	100%

(1) Reference (37)
(2) Reference (38)
(3) No wetland quality was available.

Mine Site

Wetlands will be directly impacted within the Impact Area at the Mine Site (Appendix C). The activities within this area will include construction of the features and supporting infrastructure as described in Section 4.3.1. The Mine Site features are shown in Large Figure 6.

Approximately 840 acres of potentially jurisdictional wetlands were identified within the Impact Area for the Mine Site (Table C1 in Appendix C). The majority of the jurisdictional wetlands within the Impact Area at the Mine Site are coniferous bogs (Table 10-2). Other wetland types include alder thicket, coniferous swamp, shallow marsh, sedge meadow, fresh (wet) meadow, hardwood swamp, open bog, and shallow, open water (Appendix C). The overall quality of these potentially jurisdictional wetlands was moderate or high (Table 10-3).

Plant Site

Wetlands will be directly impacted within the Impact Area at the Plant Site (Appendix C). The activities within this area will include construction of the features and supporting infrastructure as described in Section 4.3.2. The Plant Site includes the processing plant, the TSF, and the LTSF (Large Figure 7). Nearly the entire Plant Site has been disturbed by past mining activities.

Approximately 108 acres of potentially jurisdictional wetlands were identified within the Impact Area for the Plant Site (Table C1 in Appendix C). The majority of the potentially jurisdictional wetlands in this Impact Area are coniferous swamp (Table 10-2). Other wetland types included shallow marsh and hardwood swamp. The overall quality of these potentially jurisdictional wetlands was moderate or high (Table 10-3).

Transportation and Utility Corridors (TUC)

Wetlands will be directly impacted within the Impact Area at the TUC (Appendix C). The activities within this area will include construction of the features and supporting infrastructure as described in Section 4.3.3. The TUC includes Dunka Road and the conveyor corridor (Large Figure 8).

Approximately 3 acres of potentially jurisdictional wetlands were identified within the Impact Area for the TUC (Table C1 in Appendix C). These wetlands are either located adjacent to Dunka Road or the railroad embankment within a previously disturbed corridor. The majority of the potentially jurisdictional wetlands in this Impact Area are shallow marshes (Table 10-2). Other wetland types include hardwood swamp, alder thicket, shrub-carr, coniferous swamp, and shallow, open water. The overall quality of these potentially jurisdictional wetlands was low, moderate, or high (Table 10-3).

10.1.4.2 Direct Wetland Impacts under the Proposed Rule

Under Section 404, direct wetland impacts are defined as activities that result in discharge of dredge or fill material into waters of the United States. Only wetlands identified as potentially jurisdictional under the Proposed Rule's interpretation of *Sackett* and located within the Impact Area are included in this evaluation (Large Table 4; Large Figure 15). Appendix D identifies the potentially jurisdictional wetlands under the Proposed Rule. Appendix E identifies isolated wetlands that are potentially non-jurisdictional.

Approximately 50 acres of direct impact were identified for potentially jurisdictional wetlands within the Impact Area for the Mine Site, Plant Site, and TUC (Large Table 4, Large Figure 15). There are no impacts planned along the Colby Lake Pipeline Corridor. Table 10-2 identifies the acreage of each Eggers and Reed (Reference (30)) wetland community type and the percentage (based on acreage) of Eggers and Reed wetland community types identified in the Impact Area for the potentially jurisdictional wetlands.

Table 10-4 Area of Potentially Jurisdictional Wetlands in the Impact Area under the Proposed Rule

Wetland Community Type[1]	Circular 39 Type[2]	Surface Water Status	Impact Area (total)		Mine Site		Plant Site		TUC	
			acres	%	acres	%	acres	%	acres	%
Fresh (wet) meadow	2	Non-Surface Water	0	0%	0	0%	0	0%	0	0%
Sedge meadow	2	Non-Surface Water	0	0%	0	0%	0	0%	0	0%
Shallow marsh	3	Surface Water	19.263	38%	6.019	17%	11.526	100%	1.718	61%
Deep marsh	4	Surface Water	0	0%	0	0%	0	0%	0	0%
Shallow, open water	5	Surface Water	0.375	<1%	0.370	1%	0	0%	0.005	<1%
Alder thicket	6	Surface Water	29.613	59%	29.613	82%	0	0%	0	0%
Shrub-carr	6	Surface Water	0.071	<1%	0	0%	0	0%	0.071	3%
Hardwood swamp	7	Surface Water	1.045	2%	0	0%	0	0%	1.045	37%
Coniferous swamp	7	Non-Surface Water	0	0%	0	0%	0	0%	0	0%
Coniferous bog	8	Non-Surface Water	0	0%	0	0%	0	0%	0	0%
Open bog	8	Non-Surface Water	0	0%	0	0%	0	0%	0	0%
Total Wetland[3]			50.367	100%	36.002	100%	11.526	100%	2.839	100%

(1) Reference (30)
(2) Reference (31)
(3) Totals may not sum to 100% due to rounding.

Table 10-5 and Large Table 4 identify the quality of the potentially jurisdictional wetlands in the Impact Area. The functional assessment provides ratings for overall quality as well as select functions; the ratings include high, moderate, or low (References (37), (38)). High-quality wetlands have low disturbance levels, with high vegetative diversity and integrity. Moderate-quality wetlands typically have impounded open water because of beaver dams, blocked downstream culverts under Dunka Road or railroad embankments, or are located upstream of roads or railroads with no culverts. Low-quality wetlands are typically impacted by several factors, including impoundments, invasive species, erosion, historical mining activities, railroads and roadways with minimal access to wildlife and limited public access.

Table 10-5 Overall Quality of Potentially Jurisdictional Wetlands in the Impact Area under the Proposed Rule

Overall Wetland Quality[1], [2]	Impact Area (total)		Mine Site		Plant Site		TUC	
	acres	%	acres	%	acres	%	acres	%
High	46.749	93%	35.223	98%	11.526	100%	0	0%
Moderate	3.021	6%	0.779	2%	0	0%	2.242	79%

Overall Wetland Quality[1], [2]	Impact Area (total)		Mine Site		Plant Site		TUC	
	acres	%	acres	%	acres	%	acres	%
Low	0.597	1%	0	0%	0	0%	0.597	21%
Total Wetland	50.367	100%	36.002	100%	11.526	100%	2.839	100%

(1) Reference (37)
(2) Reference (38)

Mine Site

Wetlands will be directly impacted within the Impact Area at the Mine Site (Large Table 4, Large Figure 16). The activities within this area will include construction of the features and supporting infrastructure as described in Section 4.3.1. The Mine Site features are shown on Large Figure 6.

Approximately 36 acres of potentially jurisdictional wetlands were identified within the Impact Area for the Mine Site (Appendix D). The majority of the jurisdictional wetlands within the Impact Area at the Mine Site are alder thickets (Table 10-4), with moderate to high overall quality (Table 10-5). Shallow marshes and shallow, open water wetlands are also present near Dunka Road and watercourses, such as Yelp Creek and Unnamed (West Pit Outlet) Creek (Table 10-4 and Appendix D).

Plant Site

Wetlands will be directly impacted within the Impact Area at the Plant Site (Large Table 4, Large Figure 17). The activities within this area will include construction of the features and supporting infrastructure as described in Section 4.3.2. The Plant Site includes the processing plant, the TSF, and the LTSF (Large Figure 7). Nearly the entire Plant Site has been disturbed by past mining activities.

Approximately 11.5 acres of potentially jurisdictional wetlands were identified within the Impact Area for the Plant Site (Large Table 4, Large Figure 15). The majority of the potentially jurisdictional wetlands in this Impact Area are shallow marshes; a small area of alder thicket wetland associated with Second Creek is also in the Impact Area (Table 10-4). The overall quality of these potentially jurisdictional wetlands was neither moderate or high quality (Table 10-5) since the wetlands are located within areas not previously disturbed by historical mining activities, railroads, and roads.

Transportation and Utility Corridors

Wetlands will be directly impacted within the Impact Area at the TUC (Large Table 4, Large Figure 18). The activities within this area will include construction of the features and supporting infrastructure as described in Section 4.3.3. The TUC includes Dunka Road and the conveyor corridor (Large Figure 8).

Approximately 2.9 acres of potentially jurisdictional wetlands were identified within the Impact Area for the TUC (Large Table 4, Large Figure 15). These wetlands are either located adjacent to Dunka Road or the railroad embankment ballast within a previously disturbed corridor. The majority of the potentially jurisdictional wetlands in this Impact Area are shallow marshes or shrub-carrs (Table 10-4), with moderate or low overall quality (Table 10-5). Hardwood swamps and alder thickets are also present (Table 10-4), also with moderate overall quality (Table 10-5). A shallow, open water wetland is present (Table 10-4) with low overall quality (Table 10-5). The overall quality was affected by logging or previously disturbed by mining activities in the former LTVSMC operations.

10.1.5 Potential Indirect Wetland Impacts

Potential indirect wetland impacts are summarized in this section; additional information is provided in Appendix F and in the 2015 FEIS (Reference (4)). A revised analysis will be conducted to establish an estimate of potential indirect wetland impacts based on the following six factors:

- Changes in wetland watershed areas (during operation and post-closure)
- Groundwater drawdown resulting from open pit mine dewatering
- Groundwater drawdown resulting from operation being conducted at the stockpiles (e.g., TRSF or PRSF) and TSF including seepage management systems
- Changes in stream flow near the Mine Site and TSF and associated impacts to wetlands adjacent to streams (during operation and post-closure)
- Wetland fragmentation from NorthMet Project elements such as open pits, RSFs, haul roads, etc.
- Potential change in wetland water quality

The potential indirect wetland impact analysis will be completed for the wetlands within and adjacent to the Impact Area. This analysis will note which indirectly impacted wetlands are potentially jurisdictional and which are potentially non-jurisdictional at the state and federal level. Directly impacted wetlands will be excluded from this analysis. The methods proposed for the potential indirect wetland impact analysis are described in Appendix F.

Each wetland will be assessed to determine whether it could potentially be affected by any of the six factors listed above. A wetland could potentially be indirectly impacted by none of the factors, or up to a maximum of six factors. A potential indirect impact rating will be developed based on the number of factors that may potentially affect a wetland – from No Impact (0 factors) to 6 (these six factors potentially indirectly impacting the wetland).

As described in Section 1, many of the concerns raised in the 401(1)(2) process were associated with potential indirect wetland impacts (e.g., altering hydrology of wetlands associated with construction and operations including drawdown from mine pit dewatering). The work plan attached in Appendix F is intended to provide a framework for assessing these potential impacts. Because these issues were associated with concerns raised during the 401(a)(2) process, this new study will be completed as part of the Section 404 permit application process (work plan attached in Appendix F), in coordination with the USACE, EPA, and Bands. The results of this potential indirect wetland impact study would then be incorporated into the revised water quality modeling assessment of the project, to document compliance with the applicable water quality standards. The revised water quality assessment, once completed, will be submitted to the Minnesota Pollution Control Agency as part of the CWA Section 401 water quality certification process.

The analysis on potential indirect wetland impact modeling will also be conducted in order to help identify wetlands that would be the focus of monitoring for potential indirect impacts. Therefore, wetlands selected for inclusion in the monitoring plan for the NorthMet Project will be reassessed after this analysis.

10.1.5.1 Wetland Hydrology Monitoring

Potential indirect wetland impacts

The potential indirect wetland impact analysis will be conducted in order to help identify wetlands that would be the focus of monitoring for potential indirect impacts. Therefore, wetlands selected for inclusion in the revised monitoring plan for the NorthMet Project will reflect the results of the potential indirect wetland impact analysis, as described in Appendix F.

Wetland hydrology monitoring

Pre-NorthMet Project hydrology monitoring of wetlands and groundwater within and surrounding the proposed mine was conducted from 2005 to 2020 and in 2025 at well locations approved by the USACE and MDNR. Hydrology data collected from 2005-2020 were provided in reports submitted to the USACE and the MDNR (Reference (39), Reference (40), Reference (41), Reference (42), Reference (43), Reference (44), Reference (45), and Reference (46). Data has also been collected since 2024 and is ongoing for the NorthMet Project. Currently, there are 61 locations monitored for hydrology (Appendix G) and baseline vegetation pre-project monitoring in the wetland at each location was completed in 2015. The hydrology monitoring and vegetation monitoring protocols are described in Appendix G.

10.2 Other Waters

10.2.1 Watercourses

Partridge River Watershed

Second Creek, Wyman Creek, the Unnamed Tributary to Wyman Creek, Longnose Creek, Wetlegs Creek, and Unnamed (West Pit Outlet) Creek flow across the Impact Area (Large Figure 16, Large Figure 17, and Large Figure 18). Partridge River and Yelp Creek do not flow through the Impact Area (Large Figure 16). Ordinary high water mark (OHWM) data was collected for Second Creek, Wyman Creek, Unnamed Tributary to Wyman Creek, Longnose Creek, Wetlegs Creek, and Unnamed (West Pit Outlet) Creek (Large Figure 3); watercourse feature data and photographs are provided in Appendix B1.

Embarrass River Watershed

No OHWM data was collected for streams or creeks in the Embarrass River watershed north of the existing LTVSMC tailings basin, as identified in Section 10.1.1.1 (Large Figure 3).

10.2.2 Deepwater Pit Lakes

Deepwater pit lakes identified in the TSF are shown on Large Figure 3. There were smaller areas also characterized as deepwater pit lakes that were likely previously part of the larger features depending on the water level fluctuation (Large Figure 4 and Appendix B1). Waterbody feature data and photographs are provided in Appendix B1.

10.2.3 Other Areas

Other areas in the TSF were evaluated during the field review and did not meet wetland criteria. These other areas include puddle-like features with no visible vegetation or hydric soil in the mining areas. Photographs of these other areas are provided in Appendix B1

10.2.4 Unnamed Tributary to Wyman Creek

During wetland delineation fieldwork in early September 2025, an Unnamed Tributary to Wyman Creek was identified within the Impact Area (Large Figure 17). Additional fieldwork was conducted in late September 2025 to characterize the Unnamed Tributary to Wyman Creek. During this fieldwork, 11 stream reaches were identified within 2,839 linear feet of stream channel and reach breaks were determined using the Minnesota and Wisconsin Stream Quantification Tool (MNWI SQT) reach break criteria (Reference (47)).

Data were collected within the 11 reaches using the MNWI SQT procedures for the hydraulics, hydrology, and geomorphology functional categories; this data is currently under review. Additional data are being collected in 2026 for the MNWI SQT physicochemical and biological functional categories.

Based on the initial assessment, using data collected in 2025, a range of approximately 1,444 to 2,188 functional feet were identified for the Unnamed Tributary to Wyman Creek. The amount of functional feet will be determined pending discussions with USACE regarding lentic assessments and incorporating the 2026 field data. A stream characterization work plan identifies the fieldwork that was completed in 2025, as well as the fieldwork underway for 2026 (Appendix H). The stream characterization work plan (Appendix H) will be replaced with the final report detailing the data collection and results, once available.

10.2.5 Unnamed (West Pit Outlet) Creek

During a site visit in June 2026, the Unnamed (West Pit Outlet) Creek was identified as potentially extending within the Impact Area (Large Figure 16). Additional fieldwork conducted in mid-July 2026 confirmed the MNWI SQT-assessable extent of the Unnamed (West Pit Outlet) Creek does extend within the Impact Area and therefore requires assessment under the MNWI SQT framework. During the July 2026 fieldwork, one stream reach was identified and no reach breaks were established per the MNWI SQT reach break criteria (Reference (47)). Data were collected using the MNWI SQT procedures for the hydraulics, hydrology, and geomorphology functional categories; this data is currently under review. Additional data will be collected in summer 2026 and/or 2027 for the MNWI SQT physiochemical and biological functional categories, following the same methodology laid out in the stream characterization work plan (Appendix H). A report detailing the data collection and results will be amended to this permit application, once available.

11 Compensatory Mitigation

11.1 Section 404 Wetland Compensatory Mitigation

Wetlands that are directly impacted will be replaced and mitigated by credit purchase from an off-site wetland bank. During the evaluation process for the NorthMet Project, the Lake Superior Wetland Mitigation Bank was approved by the Corps to sell wetland credits to offset authorized losses of waters (Reference (5)). NewRange purchased 1,440 wetland bank credits and has options on 529 additional wetland credits from Ecosystem Investment Partners (EIP) in the Lake Superior Wetland Mitigation Bank in Bank Service Area (BSA) #1, in the St. Louis River watershed (major watershed #4), St. Louis County, Minnesota, which is the BSA where the NorthMet Project wetland impacts would occur.

The wetland banks that were approved by the USACE are summarized in Table 11-1. The wetland bank documentation is provided in Appendix I.

Table 11-1 Wetland Bank Information

Wetland Bank Account Number	Minor Watersheds (ID Number)	Major Watershed (ID Number)	County	Bank Service Area (BSA) Number	Number of Credits (ac)
1660	Stone Creek (3089) Paleface River (3070) Whiteface River (3071) Whiteface River (3072)	St. Louis River (4)	St. Louis	1	1,440
1609	Stone Creek (3089) Paleface River (3070) Whiteface River (3071) Whiteface River (3072)	St. Louis River (4)	St. Louis	1	529

The USACE St. Paul District policy for wetland compensatory mitigation in Minnesota (USACE mitigation policy; Reference (48)) identifies the areas of Minnesota with more than 80% of its pre-European settlement wetland acreage remaining (greater than 80% area; Reference (48)). For the greater than 80% area, the USACE mitigation policy identifies the compensatory mitigation base ratio as 1.5:1. The USACE mitigation guidance (Reference (48)) incorporates three factors to reduce the compensatory mitigation ratio to a minimum of 1:1 including in-advance, in-place, and in-kind:

- In-advance is defined as using USACE-approved bank credits, which can reduce the ratio by 0.25 credits. Table 11-1 identifies the wetland banks for the NorthMet Project, both of which are USACE-approved banks.
- In-place is defined as using wetland bank credits within the same USACE-bank service area as the impacted wetlands, which can reduce the ratio by 0.25 credits. Table 11-1 identifies that the purchased bank credits are in BSA 1, which is also the BSA where the potentially jurisdictional wetland impacts are located for the NorthMet Project.
- In-kind is defined as the wetland bank credits include the same wetland plant community(ies) as the impacted wetlands. Large Table 4 summarizes the potentially jurisdictional wetland community types impacted by the NorthMet Project, which include alder thicket, hardwood swamp, shrub-carr,

shallow marsh, and shallow, open water. The wetland community type for the wetland bank credits in Table 11-1 is primarily bog.

For the NorthMet Project, the base compensatory ratio of 1.5:1 would be reduced by 0.5 (0.25 in-advance and 0.25 in-place) to the base ratio of 1:1, which is the minimum compensation ratio available under the USACE mitigation guidance (Reference (48)).

11.1.1 Compensatory Mitigation under USACE Guidance

At a 1:1 compensation ratio, 950.189 acres of direct potentially jurisdictional wetland impacts for the NorthMet Project (Appendix C) under USACE Guidance would require 950.189 wetland bank credits for compensatory mitigation.

11.1.2 Compensatory Mitigation under the Proposed Rule

At a 1:1 compensation ratio, 50.367 acres of direct potentially jurisdictional wetland impacts for the NorthMet Project (Large Table 4 and Appendix D) under the Proposed Rule would require 50.367 wetland bank credits for compensatory mitigation.

11.2 Section 404 Stream Compensatory Mitigation

As stated previously, Section 404 of the Clean Water Act regulates the discharge of fill material in the waters of the United States and provides the impetus to conduct stream mitigation for the proposed impacts to the Unnamed Tributary to Wyman Creek and the Unnamed (West Pit Outlet) Creek. Based on the USACE St. Paul District policy for wetland mitigation, the base ratio for compensation of stream impacts is 1:1 (Reference (48)). For the purposes of stream mitigation, use of the MNWI SQT (Reference (49)) is required to quantify stream losses (debits) and restoration gains (credits).

The MNWI SQT is an application of the Stream Functions Pyramid Framework and uses function-based parameters and metrics to assess five functional categories: hydrology, hydraulics, geomorphology, physicochemical, and biology (Reference (50)). The MNWI SQT integrates multiple indicators from these functional categories into a reach-based condition score that is used to calculate the change in condition (measured as “functional feet”) before and after impact or mitigation activities are implemented. The MNWI SQT has been developed to characterize stream ecosystem functions by evaluating a suite of indicators that represent structural or compositional attributes of a stream and its underlying processes. Indicators in the MNWI SQT represent parameters that are often impacted by authorized projects or affected (e.g., enhanced or restored) by mitigation actions undertaken for stream restoration activities.

The metrics calculated from field values produce reach-based condition scores for each functional category which are combined into a total condition score; with an unaltered stream scoring 1.0 and the complete removal of a stream scoring 0, as defined by the MNWI SQT guidance manual (Reference (47)). This total condition score is multiplied by the length of the reach to calculate functional feet for the reach. The functional feet for each of these reaches are summed to calculate a functional feet total for the stream. The loss of functional feet within a stream caused by project activities is used to calculate the debit requiring mitigation while the increase in functional feet within a stream reach due to mitigation activities is used to determine the credit to offset the debits of the project. As described above, functional feet are valued on a 1:1 basis, i.e., for every functional foot lost due to project impacts (debit), one functional foot must be gained through compensatory mitigation (credit).

11.2.1 Unnamed Tributary to Wyman Creek

During wetland delineation fieldwork in early September 2025, an Unnamed Tributary to Wyman Creek was identified within the Impact Area for the TSF (Large Figure 17). Additional fieldwork was conducted in late September 2025 to begin characterization of the Unnamed Tributary to Wyman Creek. During this fieldwork, 11 reaches were identified and reach breaks were determined using the MNWI SQT reach break criteria (Reference (47)). Data were collected in 2025 within the 11 reaches using the MNWI SQT procedures for the hydraulics, hydrology, and geomorphology functional categories; this data is currently under review. Preliminary riparian vegetation data was collected during 2025 fieldwork and will be verified during the summer months of 2026. Physicochemical and biology data for the MNWI SQT physicochemical and biological functional categories are being collected in 2026 to complete the existing conditions assessment of the Unnamed Tributary to Wyman Creek to determine the need for and develop the required stream mitigation.

11.2.2 Unnamed (West Pit Outlet) Creek

During a site visit in June 2026, the Unnamed (West Pit Outlet) Creek was identified as potentially extending within the Impact Area (Large Figure 16). Additional fieldwork conducted in mid-July 2026 confirmed the MNWI SQT-assessable extent of the Unnamed (West Pit Outlet) Creek does extend within the Impact Area and therefore requires assessment under the MNWI SQT framework. During the July 2026 fieldwork, one stream reach was identified and no reach breaks were established per the MNWI SQT reach break criteria (Reference (47)). Data were collected using the MNWI SQT procedures for the hydraulics, hydrology, and geomorphology functional categories; this data is currently under review. Additional data will be collected in summer 2026 and/or 2027 for the MNWI SQT physiochemical and biological functional categories, following the same methodology laid out in the stream characterization work plan (Appendix H). A report detailing the data collection and results will be amended to this permit application, once available.

The field work and data collection associated with the Unnamed (West Pit Outlet) Creek were conducted after the wetland data in Section 10.1.4 was compiled. The wetland and stream acreages will be re-calculated, and the updated total wetland acreage, wetland impact acreage, and stream impacts in the Impact Area will be provided as an addendum, when available.

12 Federally Listed Species

12.1 Introduction

NewRange used the USFWS Information for Planning and Consultation (IPaC) online tool and field surveys to evaluate the presence (or potential presence) of federally listed wildlife and plant species in the vicinity of the NorthMet Project, with a focus on the areas where proposed Section 404 activities would occur. The results from the IPaC review and field surveys conducted for the NorthMet Project are further described in the following sections. Additional information on the field surveys conducted and the federal species documented during the surveys was summarized in Reference (51) and Reference (4) as well as the individual references for each survey, as noted below.

12.2 Federally Listed Species Potentially Present in the Vicinity of the NorthMet Project

The USFWS IPaC online tool was queried on August 13, 2025 for a list of federally endangered and threatened species, proposed species, candidate species, and designated critical habitat that could be present within the NorthMet Project area. The federal species identified in the IPaC query are summarized in Table 12-1 and include one endangered species, two threatened species, and two proposed endangered or threatened species. The IPaC query also noted that the NorthMet Project intersects designated critical habitat for Canada lynx (*Lynx canadensis*) and gray wolf (*Canis lupus*) (Large Figure 19).

Table 12-1 Federal Species Identified in IPaC Query

Scientific Name	Common Name	Federal Status	Habitat
Myotis septentrionalis	Northern long-eared bat	Endangered	Forested habitat in active season; caves and mines during inactive season.
Lynx canadensis	Canada lynx	Threatened	Boreal and mixed coniferous and deciduous forests, where snowshoe hare, their preferred prey, are present.
Canis lupus	Gray wolf	Threatened	Occupy a diversity of habitats, including forests, prairies, and swamps. They are habitat generalists that depend on distribution of their prey rather than the type, age, or structure of vegetation.
Bombus suckleyi	Suckley's cuckoo bumble bee	Proposed endangered	Prairies, grasslands, meadows, woodlands, and agricultural and urban areas.
Danaus plexippus	Monarch butterfly	Proposed threatened	Areas with a high number of flowering plants. Presence of milkweed (*Asclepias* spp.) to complete the caterpillar life stage.

The Biological Assessment (Reference (51)) and Biological Opinion (Reference (52)) evaluated the northern long-eared bat, Canada lynx, and gray wolf. Suckley's cuckoo bumble bee and the monarch butterfly were not part of the Biological Assessment and Biological Opinion because these species were not listed by the USFWS as proposed species until December 2024.

Suitable habitat for Suckley's cuckoo bumble bees and monarch butterflies is potentially present in the NorthMet Project area. Federally proposed endangered or threatened species are species the USFWS has determined are in danger of extinction throughout all or a significant portion of their range and has proposed a draft rule to list them as endangered or threatened under the federal Endangered Species Act (ESA). Until formally listed, proposed species are not legally protected under the ESA.

12.3 Field Surveys

Wildlife and plant surveys have been conducted across the NorthMet Project area to document whether federally listed species are present. Federally listed species may involve permitting consideration if the NorthMet Project has a direct impact on individuals or populations of these species.

12.3.1 Wildlife Field Surveys

Wildlife surveys have been conducted across the NorthMet Project area over the last two decades. Surveys consisted of general wildlife surveys and species-specific surveys. Surveys that had more of a general focus are summarized below; species specific surveys are summarized below under their relevant subheadings. Section 12.3.1.4 summarizes studies that were conducted to gain an understanding of how the NorthMet Project may cumulatively affect wildlife, in the context of other past and future developments across the Mesabi Iron Range.

General wildlife surveys were conducted in the winter of 2000 to determine general wildlife use and habitat in the NorthMet Project area and whether federally listed wildlife species were present (Reference (53)). Methods included field and aerial wildlife and wildlife habitat assessments and bait and calling station assessments for gray wolf and Canada lynx. Assessments were also conducted for the dominant prey of these species. The results indicated the presence of several common mammal and bird tracks throughout the Mine Site; however, no areas were identified with dense concentrations of tracks. Gray wolf tracks were observed during the survey, while Canada lynx tracks were not.

General wildlife surveys were conducted in the summer of 2004 on the Mine Site, north of Dunka Road, to determine general wildlife use of the NorthMet Project area and whether federally listed wildlife species were present (Reference (54)). Methods included transect surveys, calling surveys for gray wolves, and wildlife habitat assessments. Wolf calling surveys determined the presence of several gray wolves, which were likely located south of the Mine Site.

On-site bird surveys were conducted for the Breeding Bird Atlas between 2011 and 2019. During that time, one observation was made of Sprague's pipit (Endangered – candidate) (Reference (55)).

Numerous additional species-specific surveys have been completed in the NorthMet Project area between 2000 and 2025 as described in sections below.

12.3.1.1 Northern Long-eared Bat

The USFS (SNF staff conducted surveys for the northern long-eared bat at three general locations in the NorthMet Project area in July and August 2014 (Reference (56)). The three NorthMet Project areas included the Mine Site, the Plant Site, and the TUC. Survey methods utilized passive sonic (Anabat) detectors on the Mine Site and TUC. At the Plant Site, the methods were primarily direct observation of bat species, supplemented by passive sonic detectors when feasible. The surveys found northern long-eared bats present at the Mine Site, Plant Site, and the TUC.

The 2014 survey data confirmed that northern long-eared bats utilize the Mine Site, and the TUC for foraging and travel to and from foraging and roost sites. The Mine Site may also contain roost sites; however, the 2014 surveys found no conclusive evidence of roost sites. The direct observations and passive sonic survey data suggested that northern long-eared bats used the Plant Site buildings for foraging, and that the Coarse Crusher and Concentrator Buildings “have potential for limited roost sites” (Reference (56)). No conclusive evidence of roost sites was found in the Plant Site buildings.

In addition, the 2014 surveys and examination of the Mine Site, Plant Site buildings, the TUC found no evidence of northern long-eared bat hibernacula, or conditions suitable for hibernacula (Reference (56)). No instances of live or dead northern long-eared bats have been observed during the ongoing salvage and recycle work at the Plant Site during 2024 and 2025.

12.3.1.2 Canada Lynx Field Surveys

Surveys for federally-threatened Canada lynx were conducted in the NorthMet Project area and a larger overall study area from January through March 2006 by consultants for the NorthMet Project (Reference (57)) and from 2015-2025 by the USFS (Appendix J). The USFS conducts annual winter tracking surveys to monitor the Canada lynx population and collect scat for DNA analysis (Reference (58)). In addition, the USFS maintains a DNA database and population monitoring (Reference (59)). The MDNR also collects information of reported Canada lynx observations in Minnesota and enters the data into the Natural Heritage Information System (NHIS; Reference (58)).

The 2006 field surveys were conducted within a 250 square mile overall study area around the NorthMet Project area (Reference (57)). As shown on Large Figure 19, a portion of the NorthMet Project intersects designated critical habitat for Canada lynx. Large Figure 20 shows the Canada lynx sightings within the vicinity of the NorthMet Project area between 2000 and 2006, based on data from the Minnesota Canada Lynx Database (Reference (60) and Appendix J). The 2006 field survey collected baseline data on the abundance, movement, and habitat usage of Canada lynx in the vicinity of the NorthMet Project.

During the 2006 field survey, no Canada lynx or sign of Canada lynx were observed within the NorthMet Project area. The survey collected data about three female Canada lynx within the overall study area and one female Canada lynx adjacent to the overall study area. Habitat for Canada lynx and their primary prey (snowshoe hare) was identified throughout the overall study area, except where lands had been disturbed by historic or ongoing mining activity.

Additional field surveys have been conducted by the USFS from 2015-2025 and compared with the 2006 data from the overall study area (Appendix J). Canada lynx monitoring within and near the NorthMet Project is required as part of the Biological Opinion (Reference (52)). Through an agreement between NewRange and the USFS, NewRange provided funding for Canada lynx monitoring in the NorthMet Project area and throughout the rest of the SNF. Monitoring related to this agreement will continue until 2029. In 2015-2019, the USFS incidentally surveyed some of the same areas that were surveyed in the 2006 field survey (Reference (61)).

Starting in 2019, a more concerted effort was made by the USFS to survey within the same townships surveyed in the 2006 field survey to prepare for the more intensive surveys required as part of the Biological Opinion (Reference (52)). As part of the NorthMet Project, the USFS has compiled a Canada lynx monitoring report each year between 2020 through 2025, which are included in the NorthMet Project Biological Opinion annual reports in Appendix K (Reference (62), (63), (64), (65), (68), (66), (67)). Appendix J summarizes the results of Canada lynx snow tracking and DNA analysis between 2015 and 2025, and compares the results to the 2006 survey.

In 2006, Canada lynx track intercepts were found at 22 locations of the approximately 539 miles of transect surveyed in the overall study area, and 77 miles surveyed adjacent to the overall study area (Reference (57)). From 2015 through 2025, the miles surveyed within the overall study area ranged from 96 to 280 miles per year and SNF-wide Canada lynx occupancy survey ranged from 1,970 to 5,527 miles per year (Reference (68)). Track intercepts per year within the overall study area ranged from 0 to 26 between 2015 and 2025. The winter of 2023/2024 had very little snow which limited surveys.

In 2006, using the results of the Canada lynx DNA analysis, three unique females were identified from five scat collection sites within the overall study area (Large Figure 20; Reference (57)). From 2015 through 2025, 0 to 16 scats per year were collected within the overall study area (Reference (68)). A total of 29 unique Canda lynx were identified from the 60 total scats collected from 2015-2025 in the study area.

One of the conditions of the 2015 Biological Opinion is that NewRange is required to report sightings of Canada lynx to the USFS (Appendix K). In 2024, three Canada lynx sightings were reported in the NorthMet Project area by NewRange to the USFS; the three Canada lynx were sighted in relatively the same location along the Dunka Road, near a location known as the “Dunka Junction” (Reference (65)). In 2025, no Canada lynx were sighted in the NorthMet Project area (Reference (68)).

12.3.1.3 Gray Wolf

As noted in Section 12.3.1, gray wolf tracks were observed in the NorthMet Project area during the 2000 winter wildlife surveys (Reference (53)) and wolf calling surveys during the 2004 summer wildlife surveys determined the presence of several gray wolves south of the Mine Site (Reference (54)). NewRange has not conducted additional surveys that are specific to the gray wolf in the NorthMet Project area, but as described in the 2015 FEIS, there have been numerous additional surveys by the MDNR and USFS in the area.

12.3.1.4 Wildlife Corridor Cumulative Effects Analysis

In 2006, Emmons & Olivier Resources (Reference (69)) completed an assessment of the impacts to 13 wildlife habitats and travel corridors from past, present, and reasonably foreseeable projects in the vicinity of ongoing and proposed projects in northeastern Minnesota. In order to conduct this assessment, the study established appropriate spatial and temporal scales and significance thresholds for examining impacts to habitat and travel corridors. Wildlife habitat impacts were evaluated at the scale of the Arrowhead Region. Travel corridor impacts were evaluated at the scale of the Mesabi Iron Range mineral deposit formation. The temporal scale of the analysis encompassed both past and future actions that have impacted habitat or travel corridors. The impacts to travel corridors and habitats were tabulated based on human footprint data for mining, forestry, and regional development, including the 2004 mine features, tax-incentive job development zones, potential four-lane highway corridors, proposed state forestry harvest scenarios, and proposed mining actions. The analysis of wildlife habitats indicated significant impact to habitats used by mammals as a result of proposed future urban development, mining, and forestry. For the entire Arrowhead Region, future losses of wildlife habitat were estimated at 8,727 acres, with 913 acres impacted by mining, 498 acres impacted by economic development, and 7,315 acres impacted by forestry.

This analysis of wildlife travel corridors indicated impacts were projected as a result of proposed future urban development, mining and increased highway traffic. Future activities were estimated to impact 11 of the 13 remaining wildlife corridors. Analysis of the cumulative impacts of future projects indicates that about three-quarters of those impacts will occur in areas that are developed or in aspen/birch and upland shrub cover. Future habitat losses attributable to mining projects will largely avoid upland and lowland forested habitats. Additional information on this assessment is available in Reference (69).

In 2009, Barr Engineering Co. (Barr) completed a cumulative effects analysis of wildlife habitat and federally threatened and endangered wildlife species that expanded upon the 2006 Emmons & Olivier Resources analysis (Reference (70)). This analysis determined that the 2006 analysis conservatively estimated the number and size of wildlife travel corridors because it treated historic mining features as lost habitat and did not take into account the ameliorating effects of human re-vegetation efforts, natural succession, and the size and topography of mining impacts. The 2009 Barr report identified 18 existing wildlife corridors across the Mesabi Iron Range; three corridors cross the Impact Area. With regard to federally listed species, the cumulative effects of mining and other industrial projects are not expected to negatively impact the regional gray wolf, Canada lynx, or bald eagle populations. Additional information on this assessment is available in the 2009 Barr report (Reference (70)).

12.3.2 Plant Field Surveys

NewRange conducted several plant surveys in the vicinity of the NorthMet Project to establish baseline conditions and determine whether any federally listed plant species are present; these surveys are summarized below.

- Foth & Van Dyke and Associates, Inc. conducted a rare plant survey within the Mine Site in 1999 and no federally endangered or threatened plant species were documented (Reference (71)).
- Professional botanist Cindy Johnson-Groh conducted a rare plant survey within and adjacent to the Mine Site in July 2004 and no federally endangered or threatened plant species were documented (Reference (72)).
- Deborah Pomroy conducted a rare plant survey of the NorthMet Project area in spring 2004, focusing on the majority of Sections 3, 4, 9, and 10 of Township 59N and Range 13W; no federally endangered or threatened plant species were documented (Reference (73)).
- Gary Walton conducted a rare plant survey in the vicinity of the Mine Site in 2004; no federally endangered or threatened plant species were documented (Reference (74)).
- Barr conducted a rare plant survey at the Mine Site in 2007; no federally endangered or threatened plant species were documented (Reference (75)).
- Barr also conducted a rare plant survey in June and July 2008 along segments of Dunka Road and the proposed conveyor corridor from the west end of the Mine Site to the Plant Site; no federally endangered or threatened plant species were documented (Reference (75)).
- Midwest Natural Resources Inc. (MNRI) conducted rare plant surveys of the area north of the Mine Site in 2008; no federally endangered or threatened plant species were documented (Reference (76)).
- In 2011, Barr prepared a memorandum summarizing the results of the 2008 MNRI survey and a rare plant species survey completed by ENSR International (ENSR) in 1999; no federally endangered or threatened plant species were documented (Reference (76)).
- MNRI conducted rare plant surveys in May, June, and September 2025 within the Plant Site and along the conveyor corridor; no federally endangered or threatened plant species were documented (Reference (77)).
- MNRI are conducting additional rare plant surveys in summer and fall of 2026 within the Plant Site.

12.4 Impacts and Mitigation

12.4.1 Wildlife Species

The Biological Assessment (Reference (51)) concluded the following determinations of effect for federally listed wildlife species:

- Northern long-eared bats – the NorthMet Project is likely to adversely affect northern long-eared bats within the area the proposed Section 404 activities would occur.
- Canada lynx – the NorthMet Project is likely to adversely affect Canada lynx and Canada lynx critical habitat within the area the proposed Section 404 activities would occur.
- Gray wolf – the NorthMet Project is likely to adversely affect gray wolves and gray wolf critical habitat within the area the proposed Section 404 activities would occur.

12.4.1.1 Biological Assessment - Conservation Measures

The Biological Assessment (Reference (51)) was prepared in accordance with the ESA and analyzes potential effects to federally listed threatened and endangered species, and species proposed for listing, and their designated critical habitats, as a result of the NorthMet Project. The Biological Assessment recommended the following seven conservation measures in order to reduce potential impacts to the northern long-eared bat, Canada lynx, and gray wolf, which were affirmed and documented in the Biological Opinion (Appendix K and Reference (52)):

- Reclaim NorthMet Project Area, including woody vegetation growth to expedite forest regeneration
- Maintain Vegetated Buffers, including around the perimeter of the Mine Site, Dunka Road and railroad corridors, and Plant Site to reduce light and noise effects on lynx, northern long-eared bat, and wolf
- Limit Public Access to NorthMet Project Area, maintaining active security patrol to discourage unauthorized access
- Minimize Road Construction and Reclaim Unused Roads, restricting new pavement and other upgrades (e.g., straightening of curves, widening of roadways) through lynx and wolf habitat where feasible
- Educate Employees and Public, including employee and contractor training, enforcing restricted speed limits on-site, restricting access to the property, and informing the public of the possible presence of lynx and wolves within the area
- Canada lynx Monitoring, in cooperation with the USFS
- Preserve and Protect Habitat, including managing undisturbed habitat for lynx, northern long-eared bat, wolf, and other wildlife to include:
    - periodic harvesting of upland and wetland forestlands to provide early successional habitat
    - clearing trees outside the northern long-eared bat's pup season (June 1 through July 31) to the extent practicable or in coordination with the USFWS if trees need to be cleared during that time

- not removing any known occupied mature roost trees or other trees within 150 feet of a known occupied roost tree during pup season

These seven conservation measures are summarized in more detail in the Biological Opinion (Appendix K). The analysis of effects and conclusions in the Biological Opinion were based on an assumption that activities associated with these seven conservation measures would be implemented (Reference (52)).

The Biological Opinion (Reference (52)) concluded the following:

> *"After reviewing the current status of Canada lynx, gray wolf, and northern long-eared bat, the environmental baseline for the action area, the effects of the proposed PolyMet mine and land exchange parcels in St. Louis, Lake, and Cook counties, Wetland Mitigation Sites, and the cumulative effects, it is the Service's opinion that the action, as proposed, is not likely to jeopardize the continued existence of Canada lynx, gray wolf, or northern long-eared bat. It is also not likely to adversely modify critical habitat for lynx or wolf."*

Although not covered in the Biological Assessment, potential impacts to Suckley's cuckoo bumble bee and monarch butterfly could occur as a result of disturbance to potential habitat. Should the Suckley's cuckoo bumble bee and the monarch butterfly become formally listed as endangered or threatened under the federal ESA prior to construction of the NorthMet Project, it is anticipated that the USFWS would request reinitiation of consultation to assess impacts and mitigation measures.

12.4.1.2 Biological Opinion - Reasonable and Prudent Measures

The Biological Opinion (Reference (52)) outlines the following reasonable and prudent measures (RPM) that are necessary and appropriate to minimize take of Canada lynx, gray wolf, and northern long-eared bats:

- RPM 1 – Implement proposed action Conservation Measures to reduce the likelihood of vehicle collisions with lynx and wolf.
- RPM2 – Implement measures to reduce the likelihood of injuring or killing any northern long-eared bats during vegetation removal, other mining-related activities, and forest management.

In order to be exempt from incidental take, the Biological Opinion notes that NewRange must comply with terms and conditions outlined in the Biological Opinion, which implement the RPMs described above. These terms and conditions are non-discretionary. The Biological Opinion summarizes conservation recommendations that should be implemented for the NorthMet Project. NewRange has compiled an annual report each year since 2018; these reports summarize the NorthMet Project related information regarding implementation of the seven conservation measures, RPMs, and terms and conditions. See annual reports in Appendix K for more information.

12.4.1.3 Wildlife Crossings

The eight-mile-long overland conveyor could present a physical barrier for large wildlife which was not previously part of the NorthMet Project. To mitigate for this potential barrier, NewRange has added four wildlife crossings along the conveyor corridor to allow passage over or under the conveyor corridor (Large Figure 8). These wildlife crossings have been designed in accordance with the US Department of Transportation, Federal Highway Administration's Wildlife Crossing Structure Handbook for moose, deer, lynx, black bear, and wolves. There would be additional crossing opportunities at road overpasses and underpasses along the conveyor.

12.4.2 Plant Species

No federally listed plant species are known to occur in the NorthMet Project area; as such impacts to federally listed plant species are not anticipated and no mitigation measures are proposed.

13 Archaeological, Historical, and Cultural Resources

The NorthMet Project, as a federal undertaking, is subject to Section 106 of the National Historic Preservation Act (Section 106). Federal agencies are responsible for following the Section 106 process, as outlined in 36 CFR 800, to identify and address potential effects to historic properties that result from their undertakings. The process begins by defining the undertaking's area of potential effects (APE) and then identifying cultural resources within the APE through background research, consultation with the Minnesota State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers (THPOs), and field investigations as appropriate. If identified, the significance and eligibility of each cultural resource is evaluated for National Register of Historic Places (NRHP) eligibility. For the NorthMet Project, the APE took into account a much larger area than the areas with the proposed Section 404 activities.

Any cultural resources that are determined to be significant (i.e., NRHP-listed or eligible) represent "historic properties" under Section 106. If historic properties are present, the undertaking is assessed for effects, and findings of no historic properties affected, no adverse effect, or adverse effect are documented. In cases of adverse effect, consultation is undertaken with the SHPO/THPO, consulting parties, and the lead federal agency to develop and implement measures to avoid, minimize, or mitigate impacts, which are then formalized in a Memorandum of Agreement (MOA).

Section 106 was initiated for the NorthMet Project in 2007 and concluded in 2016; on December 27, 2016 the federal Co-Lead Agencies executed an MOA with NewRange, Minnesota SHPO, and Advisory Council on Historic Preservation (ACHP) to resolve adverse effects to historic properties (Reference (5)). Section 106 was carried out by the federal Co-Lead Agencies in consultation with the Minnesota SHPO, ACHP, THPO's of Bois Forte, Fond du Lac, and Grand Portage, and NewRange.

13.1 Cultural Resource Investigations

Cultural resource investigations for the NorthMet Project were conducted between 2005 and 2015. More detailed information regarding the previous investigations can be found in the 2015 FEIS (Reference (4)). These included:

- Phase I and II archaeological surveys conducted in 2005 and 2007
- Architectural history surveys conducted in 2004, 2007, and 2014
- Cultural landscape assessments and tribal consultation conducted from 2010–2012
- Historic aerial photography and desktop review conducted in 2015

As a result of these investigations, 35 cultural resources were identified within the APE, including archaeological sites, architectural properties, cultural landscapes, and traditional cultural properties (TCPs). None of these cultural resources are within or adjacent to proposed Section 404 activities. Of these identified resources, nine resources were determined eligible for listing on the NRHP (Table 13-1).

Table 13-1 Identified Cultural Resources

SHPO Inventory Number	Historic Name	Resource Type	NRHP Eligibility
SL-HLC-00040	Erie Mining Company Coarse Crusher	Architectural Property	Not Eligible
SL-HLC-00041	Erie Mining Company Fine Crusher	Architectural Property	Not Eligible

SHPO Inventory Number	Historic Name	Resource Type	NRHP Eligibility
SL-HLC-00042	Erie Mining Company Conveyor and Drive House	Architectural Property	Not Eligible
SL-HLC-00043	Erie Mining Company General Shops	Architectural Property	Not Eligible
SL-HLC-00044	Erie Mining Company Reservoir	Architectural Property	Not Eligible
SL-HLC-00045	Erie Mining Company Water Tower	Architectural Property	Not Eligible
SL-HLC-00046	Erie Mining Company Concentrator Building	Architectural Property	Eligible
SL-HLC-00047	Erie Mining Company Tailings Thickener Tank	Architectural Property	Not Eligible
SL-HLC-00048	Erie Mining Company Pelletizing Building (razed)	Architectural Property	Not Eligible
SL-HLC-00049	Erie Mining Company Central Heating Plant	Architectural Property	Not Eligible
SL-HLC-00050	Erie Mining Company Fuel Oil Tanks	Architectural Property	Not Eligible
SL-HLC-00051	Erie Mining Company Pellet Stockpile and Stacker	Architectural Property	Not Eligible
SL-HLC-00052	Erie Mining Company Mine Area No 2 Shops	Architectural Property	Not Eligible
SL-HLC-00053	Erie Mining Company Railroad Mine and Plant Track, Main Line Segment, and Dunka Railroad Segment	Architectural Property	Eligible
XX-RRD-00045	Erie Mining Company Railroad Corridor Historic District	Architectural Property	Eligible
SL-HLC-00054	Erie Mining Company Tailings Basin	Architectural Property	Not Eligible
SL-HLC-00055	Erie Mining Company Mine Area No 1 Shops	Architectural Property	Not Eligible
SL-HLC-00056	Erie Mining Company Concentration Plant Complex	Architectural Property	Not Eligible
XX-RRD-00046	Duluth, Missabe, and Iron Range (DM&IR) Railroad Segment	Architectural Property	Eligible
SL-XXX-00007	Erie Mining Company Colby Lake Pumping Station and Pipeline	Architectural Property	Not Eligible
SL-HLC-00169	Erie Mining Company Administration Building	Architectural Property	Eligible
SL-HLC-unknown	Spring Mine and Stockpiles	Architectural Property	Not Eligible
SL-HLC-00004	Erie Mining Company Mine Area No 2	Architectural Property	Not Eligible
SL-HLC-00182	Erie Mining Company Mine Area No 3	Architectural Property	Not Eligible
SL-XXX-00009	Erie Mining Company Mine Area No 5	Architectural Property	Not Eligible
SL-ROD-00004	Erie Mining Company Dunka Road Segment	Architectural Property	Not Eligible
XX-TML-00001	Erie Mining Company High Voltage Transmission Line Segment	Architectural Property	Not Eligible
SL-HLC-00156	Reserve Crusher No 2 (Northshore Mining)	Architectural Property	Not Eligible
SLC-HLC-pending	Erie Mining Company Dunka	Architectural Property	Not Eligible

SHPO Inventory Number	Historic Name	Resource Type	NRHP Eligibility
XX-HDT-00004 (formerly XX-DST-004)	Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District	Historic District	Eligible
SL-HLC-00065	Mesabe Widjiu (Laurentian Divide)	Cultural Landscape	Eligible
CK-UOG-00071	Mesabe Widjiu Overlook	Natural Feature	Not Individually Eligible (part of Mesabe Widjiu)
XX-LAD-00001	Partridge River Segment of the Mesabe Widjiu/Laurentian Divide	TCP	Eligible
SL-HLC-00069	Beaver Bay to Lake Vermilion (BBLV) Trail Segment 1	TCP	Eligible
SL-HLC-00017, 21SL1263	Spring Mine Lake Sugarbush	TCP	Eligible
21SL1276	NorthMet Archaeological Site	Archaeological Site	Not Eligible
21SLmn	Knot Logging Camp (Alpha Site)	Archaeological Site	Not Eligible

The Erie Mining Landscape Historic District (SHPO Inventory Number XX-HDT-0004) is NRHP eligible (Table 13-1). This historic district has multiple features associated with it that have been identified as a result of subsequent investigations discussed in Section 13.2.1.

13.2 Identified Historic Properties

The archaeological, historical, TCPs, and cultural landscapes identified within the APE were evaluated to determine their eligibility for inclusion in the NRHP. Identified historic properties (i.e., those properties determined eligible for the NRHP) include mining infrastructure, traditional cultural properties, and a cultural landscape (Large Figure 21), which are summarized below. Additional details on the archaeological, historical, and cultural resources within the APE are presented in Sections 4.2.9 and 5.2.9 of the 2015 FEIS in the NorthMet Project (Reference (4)). Following consultation with the SHPO and Tribal Cooperating Agencies (Bois Forte, Fond du Lac, and Grand Portage), the federal Co-Lead Agencies determined that the NorthMet Project would have an adverse effect on the following historic properties:

- Erie Mining Company Hoyt Lakes Operation Mining Landscape Historic District, including the Erie Mining Company Concentrator Building
- Spring Mine Lake Sugarbush
- Partridge River Section of Mesabe Widjiu
- Partridge River Segment of the BBLV Trail

The ACHP was notified and chose to participate in consultation for resolution of adverse effects. The Section 106 process for the NorthMet Project concluded with the execution of the MOA on December 27, 2016, prior to issuance of federal approvals for the NorthMet Project (Reference (5)). NewRange continues to comply with the stipulations outlined in the MOA. A portion of the NorthMet Project outlined in this 2026 Section 404 Permit Application now resides outside of the previously established APE; therefore,

NewRange will be working with the USACE, Minnesota SHPO, ACHP, and the Bands to make sure the NorthMet Project remains in compliance with Section 106 for the areas with proposed Section 404 activities.

To resolve adverse effects to historic properties, the Co-Lead Agencies developed a MOA that was executed on December 27, 2016 (Appendix L). The stipulations in the MOA developed for each historic property and their implementation to date are summarized below.

13.2.1 MOA Stipulation I.A-D. Erie Mining Company Mining Landscape Historic District

NewRange must complete a Phase II intensive-level survey of the Historic District properties within the APE, including the Concentrator Building which is a contributing and individually eligible resource within the Erie Mining Company Mining Landscape Historic District. This will be followed by a Historic Property Documentation Plan to include detailed photographic and narrative documentation of contributing resources, development of a historic context, and archival recordation. A Phase I reconnaissance survey must also be conducted of the Historic District properties outside the APE, including Hoyt Lakes, Taconite Harbor, and transportation and utility infrastructure properties associated with the Erie Mining Company that dates to the designated Period of Significance. Interim remediation activities, including within the Concentrator Building, are permitted under strict conditions, with phased documentation required for any work affecting contributing features. The status of the stipulation to-date includes:

- NewRange provided a draft report and inventory forms to the Co-Lead Agencies who provided the information to SHPO on December 19, 2019. The final report and inventory forms were provided to SHPO on January 8, 2021. MOA Stipulation I.A. Phase II Intensive Survey and Report for Historic District is complete. This effort lead to the identification of additional individual properties related to the Erie Mining Company Landscape Historic District that are either contributing or non-contributing to the District's overall NRHP eligibility (Table 13-2).

- NewRange provided a draft historic property documentation plan to the Co-Lead Agencies who provided the information to SHPO on January 8, 2021. Final documentation was submitted to the Co-Lead Agencies and SHPO on January 3, 2022. MOA Stipulation I.B. Historic Documentation Plan is complete.

- NewRange initiated the Phase I reconnaissance of the historic district outside of the APE in April 2023. The draft research design was submitted on July 26, 2023. Field reconnaissance started in the 3rd quarter of 2023 and continued into 2024. A draft version of the final report was submitted to the USFS and USACE on September 22, 2025. MOA Stipulation I.C. Phase I Reconnaissance of the Historic District Outside the APE is still underway.

- NewRange initiated remediation and safety modification activities in 2018 as allowed under MOA Stipulation I.D with documentation of the activities in annual reports. Final Phase II inventory forms for the interim treatment of historic properties were provided by the federal Co-Lead Agencies to SHPO on September 10, 2019 (MOA Stipulation 1.D.2) with final Level 1 Minnesota Historic Property Records provided by Co-Lead Agencies to SHPO on June 9, 2020. MOA Stipulation I.D. Interim Treatment of Historic Properties is complete.

Table 13-2 Phase II Intensive Survey Identified Properties

SHPO Inventory Number	Historic Name	Contributing / Non-Contributing to Associated Historic District XX-HDT-0004
SL-HLC-040	Coarse Crusher (Building 701) and Conveyor #1A/#1B Tunnel	Contributing
SL-HLC-041	Fine Crusher (Building 703)	Contributing
SL-HLC-042	Drive House No. 1 (Building 702) and Conveyor #2A/#2B Gallery	Contributing
SL-HLC-046	Concentrator (Building 705)	Contributing
SL-HLC-075	Service Tunnels	Contributing
SL-HLC-131	Tower, Gallery G-2, Tunnel S-12, and Gallery G-0	Contributing
SL-HLC-138	Drive House No. 2 (Building 704) and Conveyor #4A/#4B Tunnel & Gallery	Contributing
SL-HLC-143	Gallery G-4, Tunnel S-13, and Galleries G-5 and G-6	Contributing
SL-HLC-144	Electrical Tunnels	Contributing
SL-HLC-169	Administration Building	Contributing
SL-HLC-004	Mine Area 2	Contributing
SL-HLC-016	Tailings Basin 1	Contributing
SL-HLC-022	Electrical Substation	Contributing
SL-HLC-044	Reservoir	Contributing
SL-HLC-047	Tailings Thickener Tanks	Contributing
SL-HLC-049	Heating and Compressor Plant (Building 606) and Additive Plant (Building 351)	Contributing
SL-HLC-070	Hose House	Contributing
SL-HLC-071	Movable Bridge	Contributing
SL-HLC-072	Escape Hatches	Contributing
SL-HLC-074	Radio Transmitter (Building 611)	Contributing
SL-HLC-076	Water Tower	Contributing
SL-HLC-077	Pipe Support Frames	Contributing
SL-HLC-078	Head Tank	Contributing
SL-HLC-079	Chlorine Detention Tank	Contributing
SL-HLC-080	Outdoor Transformer Station	Contributing
SL-HLC-081	Outdoor Transformer Station	Contributing
SL-HLC-082	Contractors Office (Building 968)	Contributing
SL-HLC-083	Contractors Office (Building 969)	Contributing
SL-HLC-084	Contractors Office (Building 955)	Contributing
SL-HLC-085	Weather Station Tower	Contributing
SL-HLC-086	Ash Silo	Contributing
SL-HLC-087	Pipe Gallery G-7	Non-contributing

SHPO Inventory Number	Historic Name	Contributing / Non-Contributing to Associated Historic District XX-HDT-0004
SL-HLC-088	Upper Pumping Station Substation	Contributing
SL-HLC-089	Electrical Substation	Contributing
SL-HLC-090	Seal Water Pump Station	Contributing
SL-HLC-093	Dry Suction Pumps	Non-contributing
SL-HLC-094	Radio Transmitter Building (Building 612)	Contributing
SL-HLC-095	Equipment Storage Building (Building 903)	Contributing
SL-HLC-096	Mine and Plant Track Bridge	Contributing
SL-HLC-097	Northern Natural Gas Company Valving and Metering Station	Contributing / Non-contributing
SL-HLC-098	Reporting Building	Contributing
SL-HLC-099	Day Tanks and Storage Tank	Contributing
SL-HLC-100	Pump Shed (Building 209)	Contributing
SL-HLC-101	75,000 Gallon Water Storage Tank	Contributing
SL-HLC-102	Shed	Non-contributing
SL-HLC-103	Return Water Valvehouse (Building 728)	Contributing
SL-HLC-104	DM&IR Crossing Bridge	Contributing
SL-HLC-105	Building	Contributing
SL-HLC-106	Storage Building (Building 230)	Non-contributing
SL-HLC-107	Shed	Contributing
SL-HLC-108	Fuel Oil Unloading Station and Piping	Contributing
SL-HLC-109	Tailings Drop Box and Emergency Drain Tunnel	Contributing
SL-HLC-110	Electrical Substation	Contributing
SL-HLC-111	Parking Lot	Contributing
SL-HLC-112	Truck-Tractor Repair Shop (Building 220)	Contributing
SL-HLC-113	Fuel Oil Pumphouse (Building 224)	Non-contributing
SL-HLC-114	Truck Storage Garage (Building 221)	Contributing
SL-HLC-115	Cold Storage (Building 222)	Non-contributing
SL-HLC-116	Fire Tank Control Building (Building 227)	Contributing
SL-HLC-117	Lubricating Oil Storage (Building 223)	Non-contributing
SL-HLC-118	Fire Pump House (Building 228) & 150,000 Gallon Water Tank	Contributing
SL-HLC-119	Heating Plant (Building 226)	Contributing
SL-HLC-120	Parking Lot	Contributing
SL-HLC-121	Carpenter Shop (Building 603)	Contributing
SL-HLC-122	General Shop Building (Building 601)	Contributing
SL-HLC-123	Garage (Building 602)	Contributing
SL-HLC-124	Shed	Contributing
SL-HLC-125	Acetylene Generator Building (Building 604)	Contributing

SHPO Inventory Number	Historic Name	Contributing / Non-Contributing to Associated Historic District XX-HDT-0004
SL-HLC-126	Electrical Substation	Contributing
SL-HLC-127	Electrical Substation	Contributing
SL-HLC-128	Waste Tank	Contributing
SL-HLC-129	Enclosed Staircase	Contributing
SL-HLC-130	Coarse Crusher Substation	Contributing
SL-HLC-132	Booster Pump Station (Building 706)	Contributing
SL-HLC-133	Warehouse #2 (Building 921)	Contributing
SL-HLC-134	Oxygen & Acetylene Storage (Building 925)	Non-contributing
SL-HLC-135	Warehouse #1 (Building 920)	Contributing
SL-HLC-136	Substation No. 2	Contributing
SL-HLC-137	Parking Area	Contributing
SL-HLC-139	Oil Storage Area	Contributing
SL-HLC-140	Lube Oil and Paint Storage (Building 926)	Contributing
SL-HLC-141	Emergency Diesel Generator and Transformer Oil Plant (Building 605)	Contributing
SL-HLC-142	Substation No. 1	Contributing
SL-HLC-145	Acid Storage (Building 960)	Contributing
SL-HLC-146	Analytical Laboratory (Building 961)	Contributing
SL-HLC-147	Outlet works and Fire Pump Station (Building 710)	Contributing
SL-HLC-148	Water Treatment Plant	Contributing
SL-HLC-149	Reservoir Inlet Building (Building 716)	Contributing
SL-HLC-150	Parking Lot	Contributing
SL-HLC-151	Bentonite Silos	Contributing
SL-HLC-152	Soda Ash Silos	Contributing
SL-HLC-154	Outdoor Substation	Contributing
SL-HLC-155	Fire Protection Tank Pit	Non-contributing
SL-HLC-156	Car Unloading and Crusher Building (Building355), Conveyor H-2 Tunnel/Gallery, Conveyor H-3 Tunnel Gallery, Conveyor H-4 Tunnel, Conveyor H-5 Tunnel/Gallery, Reclaim Hopper Pit, & Coal Storage Yard	Contributing
SL-HLC-157	Warehouse (Building 922)	Non-contributing
SL-HLC-159	Sewage Treatment Plan (Building 607) and Pipelines	Contributing
SL-HLC-160	Fuel Oil Storage Tank No. 2	Contributing
SL-HLC-161	Fuel Oil Storage Tank No. 1	Contributing
SL-HLC-162	Fuel Oil Storage Tank No. 3	Contributing
SL-HLC-167	Pumping Barge (Building 712)	Contributing
SL-HLC-168	Emergency Tailings Basin	Contributing

SHPO Inventory Number	Historic Name	Contributing / Non-Contributing to Associated Historic District XX-HDT-0004
SL-HLC-170	Ambulance Garage (Building 953)	Contributing
SL-HLC-171	Entrance Road Guard House (Building 951)	Contributing
SL-HLC-172	Truck Storage (Building 202)	Contributing
SL-HLC-173	Service Shop (Building 201)	Contributing
SL-HLC-175	Cold Storage (Building 204)	Contributing
SL-HLC-177	Locomotive Service Shop (Building 203)	Contributing
SL-HLC-180	Sample House (Building 208)	Contributing
SL-HLC-182	Mine Area 3	Contributing
SL-HLC-183	Railroad Yard	Non-contributing
SL-HLC-184	Parking Lot	Non-contributing
SL-HLC-185	Propane Gas Handling and Storage Area	Non-contributing
SL-HLC-186	Marshalling Yard	Non-contributing
SL-HLC-187	Construction Substation	Contributing
SL-HLC-188	Heavy Duty Garage (Building 950)	Non-contributing
SL-ROD-004	Dunka Road	Contributing
SL-ROD-005	EMC Road Network	Contributing
SL-RRD-003	EMC Dunka Railroad	Contributing
SL-RRD-004	EMC Mine and Plant Track	Contributing
SL-XXX-005	Booster Pumphouses (Building 750-780)	Contributing
SL-XXX-006	Tailings Basin 2	Contributing
SL-XXX-007	Partridge Lake Pumping Station (Building 709) & Pipe Line to Reservoir	Contributing
XX-RRD-045	EMC Mainline Railroad	Contributing
XX-RRD-046	Duluth & Iron Range Railroad (D&IR)	Contributing
XX-TML-001	High Voltage Transmission Line and Overhead Power Lines	Contributing

13.2.2 MOA Stipulation II.A-E. Spring Mine Lake Sugarbush

A Phase II archaeological survey must be conducted to assess subsurface integrity and document culturally modified trees. Protection measures include access control, employee training, and coordination with Tribal monitors. A Sugar Maple Management Plan must be developed in consultation with the Bands, incorporating Traditional Ecological Knowledge (TEK) and long-term monitoring protocols. NewRange must also prepare NRHP nomination for the site, supported by archaeological, historical, and ethnographic research. The status of the stipulation to-date includes:

- NewRange provided a final research design to the federal Co-Lead Agencies who provided the information to SHPO and Consulting Banks on August 28, 2019. The field survey was completed on October 9-18, 2019 with a Tribal monitor provided by Bois Forte. NewRange provided a draft report to the federal Co-Lead Agencies who provided the report to SHPO and the Consulting Bands on

January 8, 2021. The report was deemed complete and accepted by SHPO on September 8, 2021. A second site form was submitted to the USFS SNF and SHPO for Site 21SL1263/SL-HLC-017 in December 2021. MOA Stipulation II.A. Phase II Intensive Survey & Inventory Form is complete.

- NewRange completed protection measures including development and inclusion of standard training for new employees and contractors on the significance of the historic property and NewRange's commitment to protecting it, along with use of security personnel, and locked gates and signage at the road access points to the historic property. NewRange provided documentation of completion to the Co-Lead Agencies who provided the information to SHPO and the Consulting Bands on July 3, 2019. MOA Stipulation II.B. Protection Measures is complete.

- NewRange will develop a legally binding Access Agreement in coordination with the USACE, USFS, and the Consulting Bands to provide reasonable, seasonal access to the historic site by the Consulting Bands and their members. MOA Stipulation II.C. Band Member Access is in progress.

- NewRange will develop a Sugar Maple Management Plan to conserve the stands of sugar maples associated with the historic site. Coordination for this stipulation started in 2024 and will continue into 2026. MOA Stipulation II.D. Sugar Maple Management Plan is in progress.

- NewRange will work with a qualified, third-party consultant to complete a NRHP nomination form for the historic property. MOA Stipulation II.E. NHRP Nomination is not yet initiated.

13.2.3 MOA Stipulation III.A-C. Beaver Bay to Lake Vermilion Trail (BBLV): Partridge River Segment

NewRange must undertake a Phase III documentation survey to record trail remnants and associated features. A historic context study must be developed to support future management and potential NRHP listing through a Multiple Property Documentation Form (MPDF). The USFS will lead a field survey to identify additional trail features and integrate findings into the MPDF. The status of the stipulation to-date includes:

- NewRange developed a Final Phase III report for the BBLV Trail: Partridge River Segment. The final research design was provided by the federal Co-Lead Agencies to SHPO and the Consulting Bands on February 16, 2018. The field survey was completed on May 17-18, 2018 and included a Tribal monitor as provided by the Bois Forte. The Final Phase III report was provided by the Co-Lead Agencies to SHPO and the Consulting Bands on February 5, 2019. MOA Stipulation III.A. Phase III Recordation Survey & Inventory Form is complete.

- NewRange will develop the historic context for the Beaver Bay to Lake Vermillion Trail: Partridge River Segment to provide information for decision-making regarding identification, evaluation, and management of historic overland trail segments and trail-associated features. MOA Stipulation III.B. Historic Context for BBLV is not yet initiated.

- The USFS SNF will conduct a field survey to locate the BBLV trail features and apply evaluation criteria developed under MOA Stipulation III.B. on a specified area of SNF-managed forest lands. MOA Stipulation III.C. Trail Survey on SNF Lands & MPDF is the USFS SNF responsibility to conduct and report.

13.2.4 MOA Stipulation IV.A-C. Mesabe Widjiu: Partridge River Section

An ethnographic and ethnohistoric study must be conducted to document the cultural significance of the Mesabe Widjiu. This includes field visits, interviews with Tribal members, and development of a Historic Property Management Plan for portions of the land administered by the USFS. The plan will guide future identification, evaluation, and potential NRHP nomination measures. The status of the stipulation to-date includes:

- NewRange coordinated with THPOs representing the Consulting Bands to provide a field visit to the area of the Mesabe Widjiu within the NorthMet Project area that will be affected by the mine. The site visit was conducted on October 1, 2019. MOA Stipulation IV.A. Consulting Bands Site Visit is complete.
- NewRange will complete an ethnographic/ethnohistoric study to document the general extent and historic significance of the Mesabe Widjiu. MOA Stipulation III.B. Ethnographic/Ethnohistoric Study is not yet initiated.
- The USFS SNF will develop a historic management plan and potential NHRP nomination for those portions of the Mesabe Widjiu identified on USFS SNF administered lands within one year after completion of MOA Stipulation III.B. MOA Stipulation III.C. Historic Property Management Plan & NRHP Nomination is not yet initiated.

13.2.5 MOA Stipulation VII.A-F. Post-Review Discoveries

NewRange must develop an inadvertent discoveries plan in the event that previously unidentified historic properties, including human remains, are discovered unexpectedly during construction of the NorthMet Project. The status of the stipulation to-date includes:

- NewRange drafted an inadvertent discoveries plan in 2018 and is currently using it to train staff and contractors. MOA Stipulation VII.A-F. Post-Review Discoveries is complete.

13.2.6 MOA General Provisions

The MOA also stipulates that the work must meet the Secretary of the Interior's Standards and be conducted by qualified professionals. NewRange is responsible for annual reporting on MOA implementation and for ensuring compliance by successors or assigns. The MOA includes provisions for post-review discoveries, including treatment of human remains in accordance with Minnesota Statutes and ACHP guidance. It also indicates that the MOA will be in effect for seven years, with stipulations regarding the Spring Mine Lake Sugarbush protection measures, Band member access, and the sugar maple management plan continuing for the life of the mine. The MOA annual summary of NewRange's implementation of the MOA stipulations through 2025 is included in Appendix L.

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65. —. 2024 Canada Lynx Monitoring - New Range Copper Nickel LLC and Surrounding Area. December 5, 2024. Prepared by: Daniel Ryan, Wildlife Biologist, USFS - Superior National Forest; Kendra Fink, Wildlife Technician, USFS - Superior National Forest.

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Large Tables

Large Table 1
Adjoining Property Owners and Tax Identification Information
NorthMet Project: 2026 Section 404 Permit Application
NewRange Copper Nickel LLC

Adjoining Property Owner Name	Mailing Address
Cliffs Erie LLC	PO Box 180 Eveleth MN 55734
Cliffs Mining Services Company	PO Box 180 Eveleth MN 55734
Du Nord Land Company	c/o NewRange Copper Nickel LLC 6500 Kensington Road Hoyt Lakes MN 55750
Erie Mining Company	c/o Cliffs Erie LLC PO Box 180 Eveleth MN 55734
Glacier Park Iron Ore Prop LLC	801 E Howard Street Hibbing MN 55746
Lake Forest Enter Inc.	c/o Cliffs Erie LLC PO Box 180 Eveleth MN 55734
NewRange Copper Nickel LLC	6500 Kensington Road Hoyt Lakes MN 55750
RGGS Land & Minerals Ltd LP	100 Waugh Dr Suite 400 Houston TX 77007
State of MN C278 L35	Tax forfeit
State of Minnesota	445 Minnesota St. #900 St. Paul MN 55101

Tax Identification Information	
Summary of County PINs:	142-0080-03365,142-0080-03375,105-0070-02410,105-0070-02820,105-0070-02835,142-0080-02070,142-0080-02080,142-0080-02100,142-0080-02110,142-0080-02120,142-0080-02210,142-0080-02220,142-0080-02230,142-0080-02250,142-0080-02260,142-0080-02270,142-0080-02280,142-0080-02290,142-0080-02300,142-0080-02340,142-0080-02420,142-0080-02430,142-0080-02460,142-0080-02470,142-0080-02620,142-0080-02630,142-0080-03285,142-0080-03300,142-0080-03320,142-0080-03390,142-0080-03400,142-0080-03410,142-0080-03420,142-0080-03430,142-0080-03450,142-0080-03460,142-0080-03470,142-0080-03480,142-0080-03505,142-0080-03510,142-0080-03535,142-0080-03546,142-0080-03550,142-0080-03560,142-0080-03570,142-0080-03580,142-0080-03590,142-0080-03600,142-0080-03610,142-0080-03620,142-0080-03630,142-0080-03640,142-0080-03650,142-0080-03660,142-0080-03670,142-0080-03700,142-0080-03800,142-0080-03810
Summary of State PINs:	27-137-142-0080-03365,27-137-142-0080-03375,27-137-105-0070-02410,27-137-105-0070-02820,27-137-105-0070-02835,27-137-142-0080-02070,27-137-142-0080-02080,27-137-142-0080-02100,27-137-142-0080-02110,27-137-142-0080-02120,27-137-142-0080-02210,27-137-142-0080-02220,27-137-142-0080-02230,27-137-142-0080-02250,27-137-142-0080-02260,27-137-142-0080-02270,27-137-142-0080-02280,27-137-142-0080-02290,27-137-142-0080-02300,27-137-142-0080-02340,27-137-142-0080-02420,27-137-142-0080-02430,27-137-142-0080-02460,27-137-142-0080-02470,27-137-142-0080-02620,27-137-142-0080-02630,27-137-142-0080-03285,27-137-142-0080-03300,27-137-142-0080-03320,27-137-142-0080-03390,27-137-142-0080-03400,27-137-142-0080-03410,27-137-142-0080-03420,27-137-142-0080-03430,27-137-142-0080-03450,27-137-142-0080-03460,27-137-142-0080-03470,27-137-142-0080-03480,27-137-142-0080-03505,27-137-142-0080-03510,27-137-142-0080-03535,27-137-142-0080-03546,27-137-142-0080-03550,27-137-142-0080-03560,27-137-142-0080-03570,27-137-142-0080-03580,27-137-142-0080-03590,27-137-142-0080-03600,27-137-142-0080-03610,27-137-142-0080-03620,27-137-142-0080-03630,27-137-142-0080-03640,27-137-142-0080-03650,27-137-142-0080-03660,27-137-142-0080-03670,27-137-142-0080-03700,27-137-142-0080-03800,27-137-142-0080-03810

Large Table 2
Status of NorthMet Project Permits and Approvals
NorthMet Project: 2026 Section 404 Permit Application
NewRange Copper Nickel LLC

Agency	Type Approval	Identification Number	Date Applied	Date Approved	Date Denied	Status	Revised Project Action Required	Subject(s) Covered
U.S. Army Corps of Engineers	404 Wetland Permit	MVP-1999-05528-JKA	7/16/2004	3/21/2019	6/6/2023	Revoked	New Permit	Federal wetland impacts and mitigation
U.S. Army Corps of Engineers	FEIS Record of Decision	199-05528	6/10/2005	3/21/2019		Active	SEIS	Final Environmental Impact Statement (EIS) record of decision
U.S. Forest Service	FEIS Record of Decision	Not applicable	2/23/2005	1/9/2017		Active	No further action	Final Environmental Impact Statement (EIS) record of decision
Minnesota Department of Natural Resources (MDNR)	FEIS Adequacy Decision	Not applicable	2/23/2005	3/3/2016		Active	SEIS	Final EIS record of decision
MDNR	Permit to Mine (Non-ferrous)	Not applicable	11/3/2016	11/1/2018		Remanded	Amendment	Construction, operations, and reclamation; financial assurance
MDNR	Wetland Conservation Act Decision	Not applicable	12/13/2017	11/1/2018		Active	Amendment	State wetland impacts and mitigation (linked to permit to mine)
MDNR	Water Appropriations Permit (West Pit)	2016-1365	4/14/2017	11/1/2018		Active	Amendment	Water quantity and use
MDNR	Water Appropriations Permit (Central Pit)	2016-1364	4/14/2017	11/1/2018		Active	Permit not needed	Water quantity and use
MDNR	Water Appropriations Permit (East Pit)	2016-1363	4/14/2017	11/1/2018		Active	Amendment	Water quantity and use
MDNR	Water Appropriations Permit (Mine Site)	2016-1367	4/14/2017	11/1/2018		Active	Amendment	Water quantity and use
MDNR	Water Appropriations Permit (Plant Site)	2016-1369	4/14/2017	11/1/2018		Active	Amendment	Water quantity and use
MDNR	Water Appropriations Permit (Colby Lake)	2017-0260	4/14/2017	11/1/2018		Active	No further action	Water quantity and use
MDNR	Water Appropriations Permit(s) (Tailings Storage Facility)	Future permit(s)					New Permit(s)	Water quantity and use
MDNR	Dam Safety Permit (Tailings Storage Facility)	2016-1380	7/11/2016	11/1/2018		Active	New Permit	Construction, operation, and maintenance of dams
MDNR	Dam Safety Permit (HRF)	2016-1383	7/11/2016	11/1/2018		Active	Amendment	Construction, operation, and maintenance of dams
MDNR	Public Waters Work Permit	2017-2077	5/16/2017	11/1/2018		Active	Amendment	Construction within a public water
MDNR	Takings Permit	23235	9/1/2018	11/1/2018		Active	Amendment	Sensitive plant species impacts and mitigation
Minnesota Pollution Control Agency (MPCA)	NPDES/SDS (Water Discharge) Permit	MN0071013	7/11/2016	12/20/2018		Remanded	Amendment	Treated water and groundwater discharges
MPCA	Air Quality Permit	13700345-101	8/1/2016	12/20/2018		Active	Amendment	Air emissions; sources and limits
MPCA	401 Certification	1999-5528-JKA	8/2/2016	12/20/2018		Inactive	New certification	Water quality certification of 404 permit activities
MPCA	Construction Stormwater Permit (Mine)	C00053253	4/2/2019	6/12/2019		Active	Revised SWPPP	Runoff from land-disturbing construction activities
MPCA	Construction Stormwater Permit (Plant)	C00053251	4/2/2019	5/14/2019		Active	Revised SWPPP	Runoff from land-disturbing construction activities
MPCA	Construction Stormwater Permit (Tailings Basin)	C00053252	4/2/2019	5/14/2019		Active	Revised SWPPP	Runoff from land-disturbing construction activities
MPCA	Construction Stormwater Permit (TUC)	C00053254	4/2/2019	11/24/2020		Active	Revised SWPPP	Runoff from land-disturbing construction activities
MPCA	Industrial Stormwater Permit (Mine)	MNR053DNH	8/24/2018	8/31/2018		Active	Revised SWPPP	Runoff from industrial activities
MPCA	Industrial Stormwater Permit (Plant)	MNR053DNJ	8/24/2018	8/31/2018		Active	Revised SWPPP	Runoff from industrial activities
MPCA	Industrial Stormwater Permit (TUC)	MNR053DMW	8/24/2018	8/31/2018		Active	Revised SWPPP	Runoff from industrial activities

Large Table 3
Summary of Soil Resources
NorthMet Project: 2026 Section 404 Permit Application
NewRange Copper Nickel LLC

Soil Map Unit Name	Map Unit Symbol	Hydric Rating	Acres in Impact Area	Percent of Impact Area[1]
Pits, iron mine	1049	0% (non-hydric)	757	20%
Greenwood soils, 0 to 1 percent slopes	1022A	100% (hydric)	628	17%
Eaglesnest-Wahlsten complex, 2 to 8 percent slopes, bouldery	F2B	0% (non-hydric)	581	15%
Udorthents, loamy (cut and fill land)	1003B	0% (non-hydric)	529	14%
Eveleth, bouldery-Conic, bouldery-Aquepts, rubbly, complex, 0 to 18 percent slopes	F35D	20% (predominantly non-hydric)	411	11%
Rifle soils, 0 to 1 percent slopes	1021A	100% (hydric)	199	5%
Aquepts, rubbly-Tacoosh-Rifle complex, 0 to 2 percent slopes	F166A	100% (hydric)	159	4%
Dumps, iron mine	1048	0% (non-hydric)	143	4%
Babbitt, bouldery-Wahlsten, bouldery-Aquepts, rubbly, complex, 0 to 8 percent slopes, rocky	F5B	15% (predominantly non-hydric)	83	2%
Tailings basin	1050	0% (non-hydric)	53	1%
Eveleth-Eaglesnest complex, 2 to 20 percent slopes, very bouldery	F177C	10% (predominantly non-hydric)	51	1%
Eveleth-Eagelsnest-Conic complex, bouldery, 6 to 18 percent slopes, very rocky	F3D	0% (non-hydric)	46	1%
Eaglesnest stony loam, 2 to 8 percent slopes, bouldery	F11B	5% (predominantly non-hydric)	45	1%
Water, miscellaneous	M-W	0% (non-hydric)	32	1%
Babbitt, bouldery-Aquepts, rubbly, complex, 0 to 3 percent slopes	F13A	50% (partially hydric)	26	1%
Eaglesnest stony loam, 4 to 12 percent slopes, very bouldery	F1C	0% (non-hydric)	9	0%
Conic, very bouldery-Insula, very bouldery-Rock outcrop complex, 20 to 70 percent slopes	F30G	0% (non-hydric)	9	0.2%
Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded	1020A	100% (hydric)	6	0.2%
Tacoosh mucky peat, 0 to 1 percent slopes	F129A	100% (hydric)	5	0.1%
Eveleth stony loam, 8 to 18 percent slopes, bouldery	F14D	0% (non-hydric)	3	0%
Cloquet loam, 2 to 8 percent slopes	F9B	0% (non-hydric)	2	0.1%
Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery	F12B	15% (predominantly non-hydric)	1	0.0%
Merwin peat, 0 to 1 percent slopes	F32A	100% (hydric)	1	0.0%

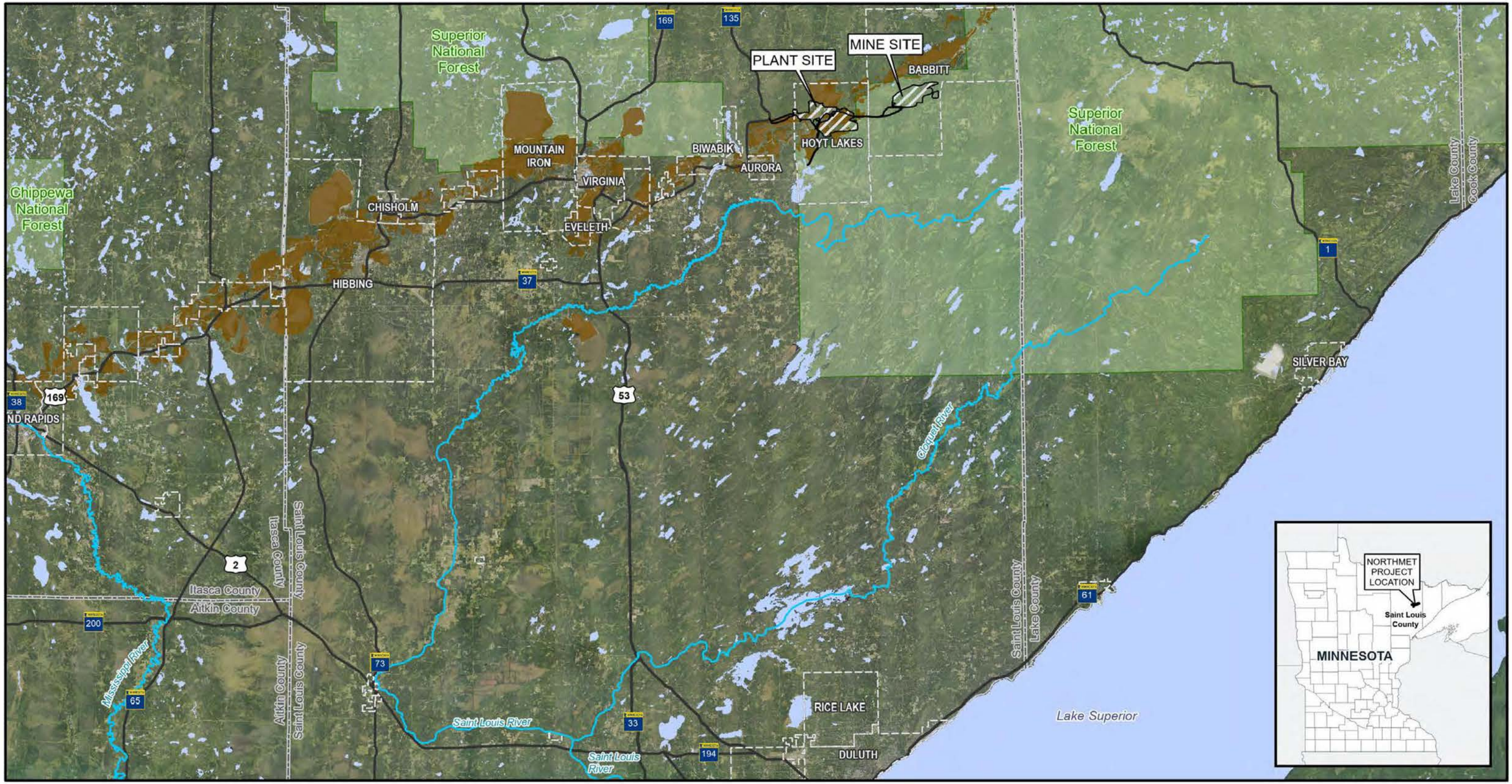
1 Numbers may not total 100 due to rounding.

Large Table 4
Summary of Potentially Jurisdictional Wetlands in the Impact Area
NorthMet Project: 2026 Section 404 Permit Application
NewRange Copper Nickel LLC

Project Area[1,2]	Aquatic Resource Type	Aquatic Resource ID	Dominant Eggers and Reed Community Type[3]	Dominant Circular 39 Type	Overall Wetland Area (acres)	Direct Wetland Impacts (acres)	Overall Wetland Quality	Duration of Impact[4]	County, Major Watershed #, and Bank Service Area # of Impact Area[5]
Mine Site	Wetland	2005	Shallow, open water	5	5.725	0.370	Moderate	P	SLC, 3, 1
Mine Site	Wetland	2007[6]	Alder thicket	6	0.671	0.409	Moderate	P	SLC, 3, 1
Mine Site	Wetland	567	Shallow marsh	3	38.384	2.230	High	P	SLC, 3, 1
Mine Site	Wetland	315	Alder thicket	6	324.502	1.603	High	P	SLC, 3, 1
Mine Site	Wetland	107C	Alder thicket	6	27.601	27.601	High	P	SLC, 3, 1
Mine Site	Wetland	107B	Shallow marsh	3	4.787	3.789	High	P	SLC, 3, 1
Plant Site	Wetland	2120	Shallow marsh	3	28.398	11.526	High	P	SLC, 3, 1
TUC	Wetland	2021	Shallow marsh	3	0.387	0.202	Moderate	P	SLC, 3, 1
TUC	Wetland	2023	Shallow marsh	3	2.030	0.842	Moderate	P	SLC, 3, 1
TUC	Wetland	2024	Shallow marsh	3	0.243	0.082	Moderate	P	SLC, 3, 1
TUC	Wetland	2025	Shallow marsh	3	0.408	0.408	Low	P	SLC, 3, 1
TUC	Wetland	2027	Shallow marsh	3	0.607	0.184	Low	P	SLC, 3, 1
TUC	Wetland	2028	Shrub-carr	6	2.763	0.071	Moderate	P	SLC, 3, 1
TUC	Wetland	2033	Shallow, open water	5	0.323	0.005	Low	P	SLC, 3, 1
TUC	Wetland	2166	Hardwood swamp	7	3.394	1.045	Moderate	P	SLC, 3, 1
TOTAL	NA	NA	NA	NA	440.223	50.367	NA	NA	NA

1 The Project areas include the Mine Site, Plant Site, TUC, and Colby Lake Pipeline Corridor.
2 All wetlands are located in St. Louis County, Major Watershed #3 – St. Louis County, and Bank Service Area (BSA) #1.
3 Information is from the Wetland Plants and Plant Community Types of Minnesota and Wisconsin 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.
4 The duration of the impacts include permanent (P) or temporary (T).
5 The impacts are located in St. Louis County (SLC), Major Watershed #3, Bank Service Area #1.
6 This wetland is located within the Mine Site and the TUC; in this table, the entire acreage of Wetland 2007 was included in the Mine Site.

Large Figures



NEWRANGE COPPER NICKEL

Head Office & NorthMet Project Office
6500 Kensington Dr
Hoyt Lakes, MN USA 55750

Sunrise Project Office
23 Commerce Road
Babbitt, MN USA 55706

Large Figure 1
NorthMet Project Site Location
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

DRAWN BY: Barr Engineering Co., ARM2

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

N

0 7.5 15 Mi

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

MINE SITE

PLANT SITE

TRANSPORTATION AND UTILITY CORRIDORS

COLBY LAKE PIPELINE CORRIDOR

Unnamed Creek
Spring Mine Creek
Partridge River
Yelp Creek
Wyman Creek
Stubble Creek
Dunka Road
Second Creek
Longnose Creek
Wetlegs Creek
South Branch Partridge River
Stephens Creek
First Creek
Kensington Dr
Calvin Creek

794
558
135
380
633
100
130
680

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Large Figure 2
NorthMet Project Areas
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Conveyor Centerline
- Pit to Plant Pipeline
- Colby Lake Pipeline
- Primary Crusher
- Haul Roads
- Overburden Storage
- Stockpiles
- Mine Pits
- Existing Building
- Proposed Building
- LTSF Footprint

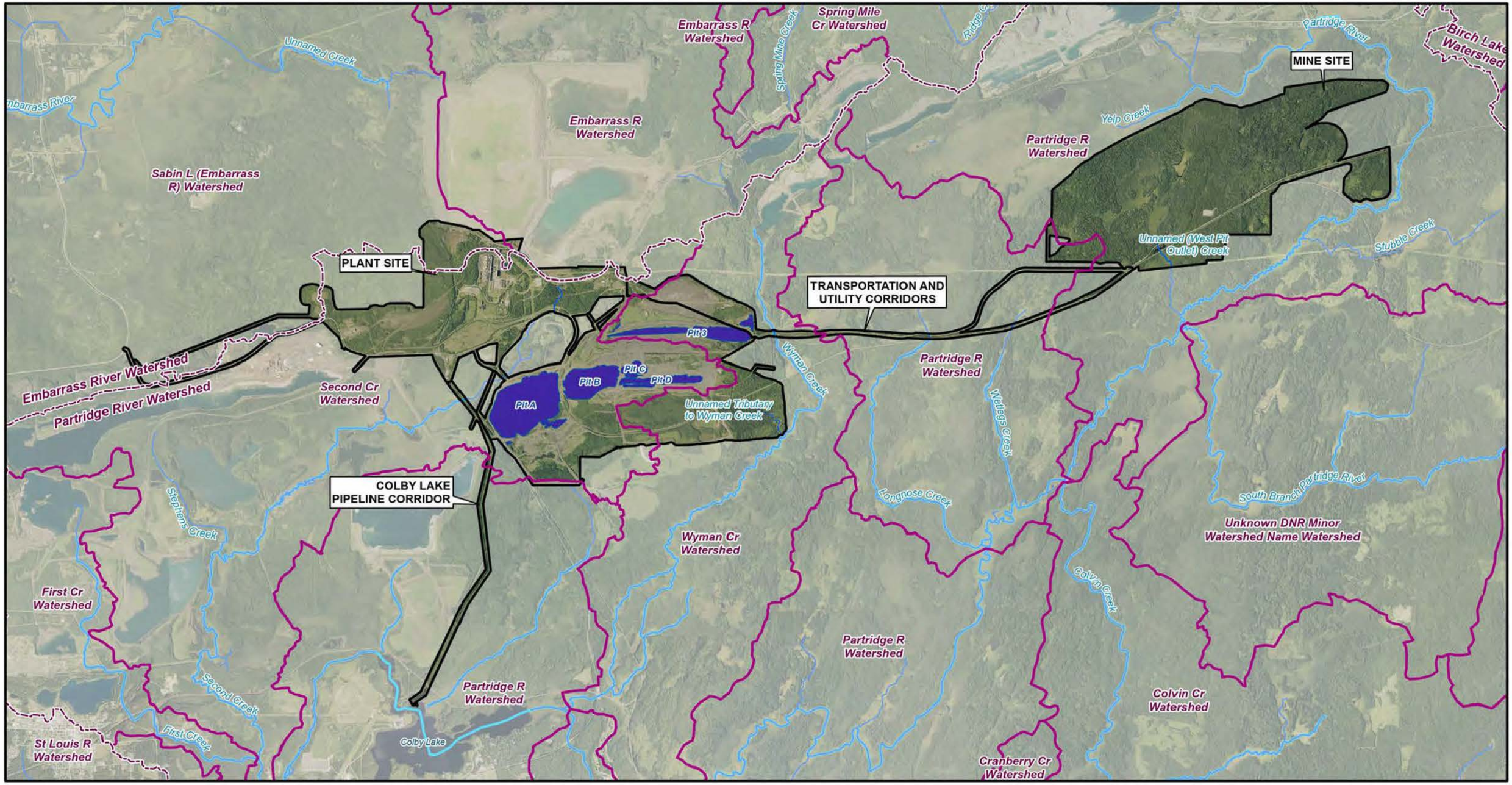
Tailings Storage Facility

- Pond
- Embankment
- Embankment Crest
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 1 2 Mi

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Large Figure 3
Water Resources
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Deepwater Pit Lake
- Public Waters Inventory (PWI) Watercourse
- National Hydrography Dataset (NHD) Flowline
- MDNR Level 7 Minor Watershed Divide
- Major Watershed Divide

N

0 1 2 Mi

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

MINE SITE

PLANT SITE

TRANSPORTATION AND UTILITY CORRIDORS

COLBY LAKE PIPELINE CORRIDOR

Pit 3

Pit C

Pit D

Pit B

Pit A

Unnamed Creek

Spring Mine Creek

Yelp Creek

Wyman Creek

Dunka Road

Partridge River

Stubble Creek

Unnamed Tributary to Wyman Creek

Longnose Creek

Wetlegs Creek

South Branch Partridge River

Stephens Creek

Kensington Dr

Second Creek

First Creek

CoMin Creek

794

558

135

380

633

100

130

680

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Large Figure 4
Aquatic Resources
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams
- Deepwater Pit Lake
- National Wetlands Inventory (NWI)
- Exempt Wetland

Dominant Eggers & Reed (2015) Wetland Community Type

- Alder Thicket
- Coniferous Bog
- Coniferous Swamp
- Deep Marsh
- Hardwood Swamp
- Open Bog
- Seasonally Flooded Basin
- Sedge Meadow, Fresh (Wet) Meadow
- Shallow Marsh
- Shallow, Open Water
- Shrub-Carr

N

0 1 2 Mi

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

PLANT SITE

TRANSPORTATION AND UTILITY CORRIDORS

COLBY LAKE PIPELINE CORRIDOR

FROM HOYT LAKES, DRIVE NORTH ON KENSINGTON DRIVE TO THE PLANT SITE

HOYT LAKES

Wyman Creek

Dunka Road

Unnamed Tributary to Wyman Creek

Wetlegs Creek

Stephens Creek

First Creek

Unnamed Creek

Kensington Dr

Unnamed Creek

Wyman Creek

Longnose Creek

Partridge River

Second Creek

Partridge River

Partridge River

135

380

100

130

633

110

341

565

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Babbitt, MN USA 55706

Large Figure 5

Directions to NorthMet Project Area

2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

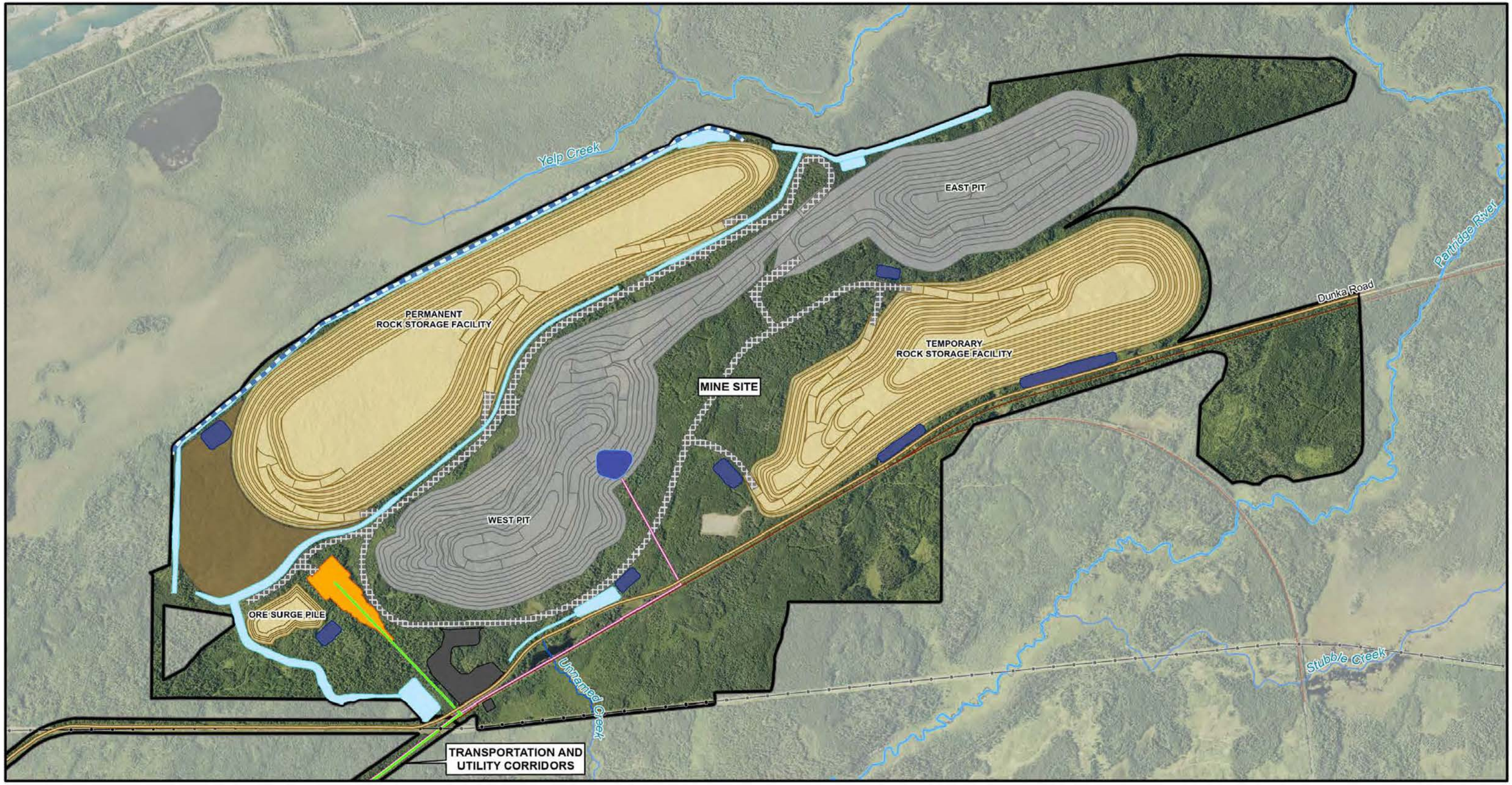
DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 4,000 8,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Sunrise Project Office
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Babbitt, MN USA 55706

Large Figure 6
Mine Site Layout
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

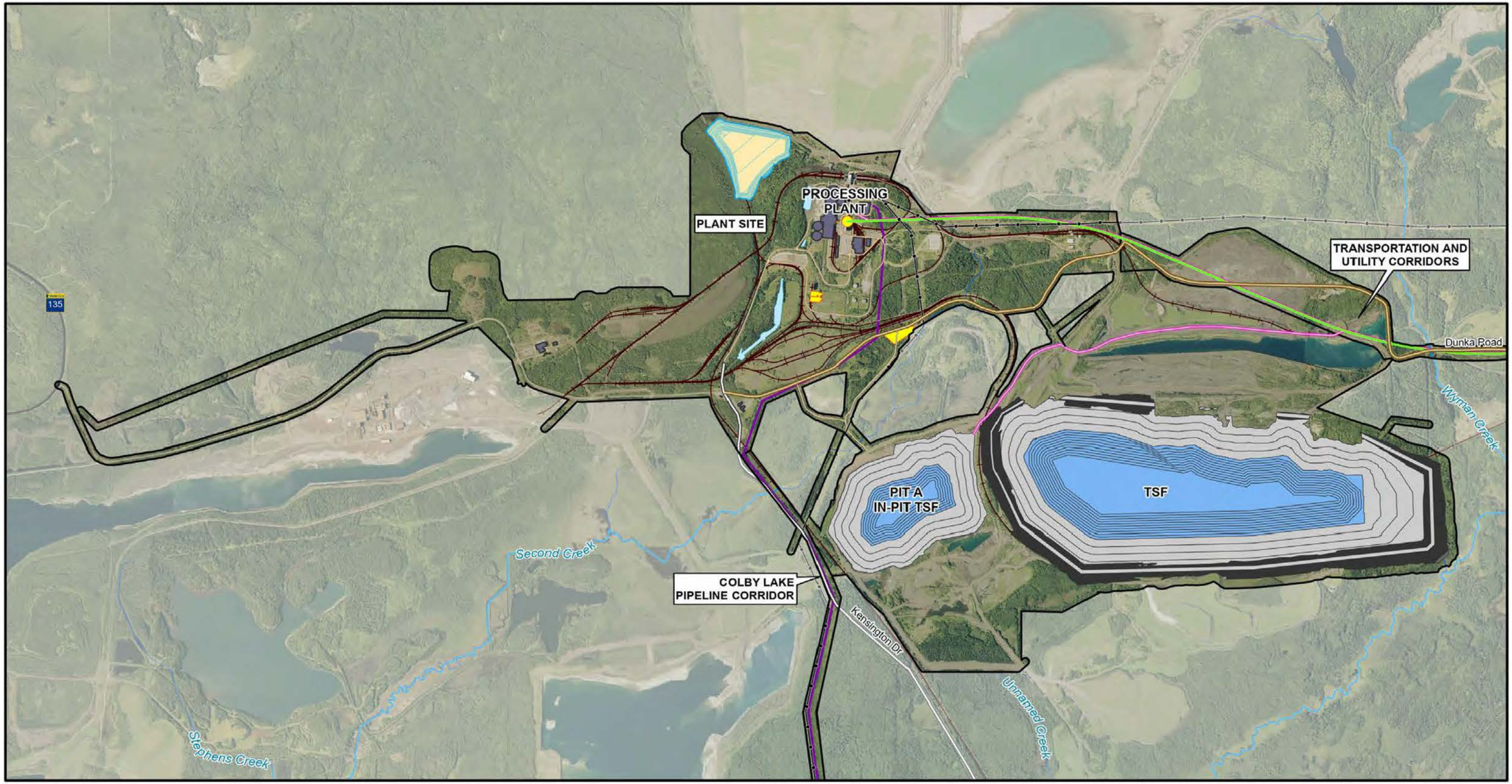
DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Existing Railroads
- Electric Transmission Lines
- Conveyor Centerline
- Pit to Plant Pipeline
- Stormwater Dike
- Stormwater
- Equalization Basin
- Contact Water Ponds
- Primary Crusher
- Haul Roads
- Overburden Storage
- Stockpiles
- Mine Pits
- Auxilary Mine Facilities Area
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 1,500 3,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Hoyt Lakes, MN USA 55750

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23 Commerce Road
Babbitt, MN USA 55706

Large Figure 7
Plant Site Layout
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Conveyor Centerline
- Pit to Plant Pipeline
- Colby Lake Pipeline
- Stormwater
- Plant Roads
- Existing Building
- Proposed Building
- LTSF Footprint

Tailings Storage Facility
- Pond
- Embankment
- Embankment Crest

- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 2,500 5,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

MINE SITE

PLANT SITE

TRANSPORTATION AND UTILITY CORRIDORS

Dunka Road

Unnamed Tributary to Wyman Creek

Wyman Creek

Longnose Creek

Wetlegs Creek

Partridge River

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Large Figure 8
Transportation and Utility Corridors
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

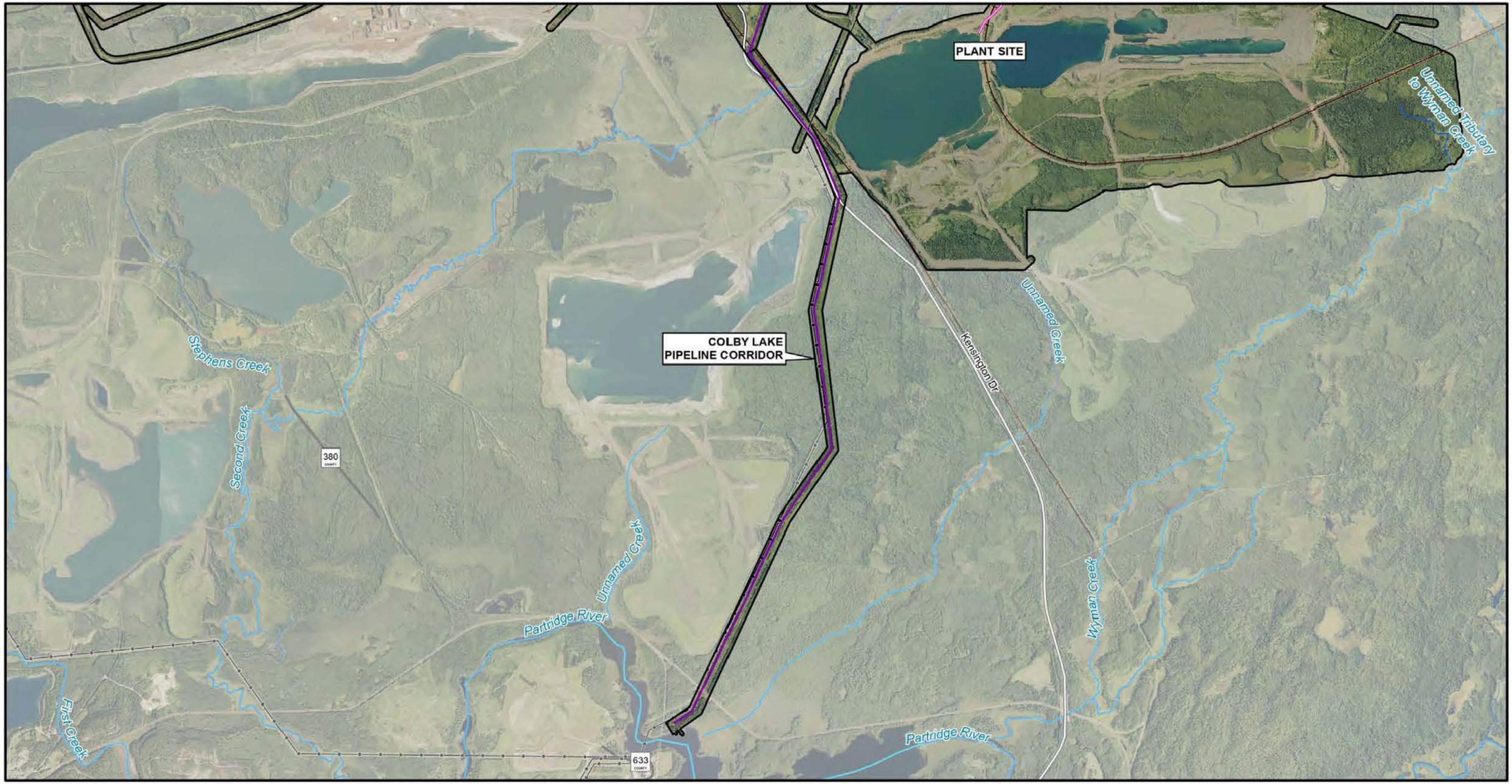
DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Electric Transmission Lines
- Existing Railroads
- Conveyor Centerline
- Pit to Plant Pipeline
- Primary Crusher
- Wildlife Crossing
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 2,000 4,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Large Figure 9
Colby Lake Pipeline Corridor
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

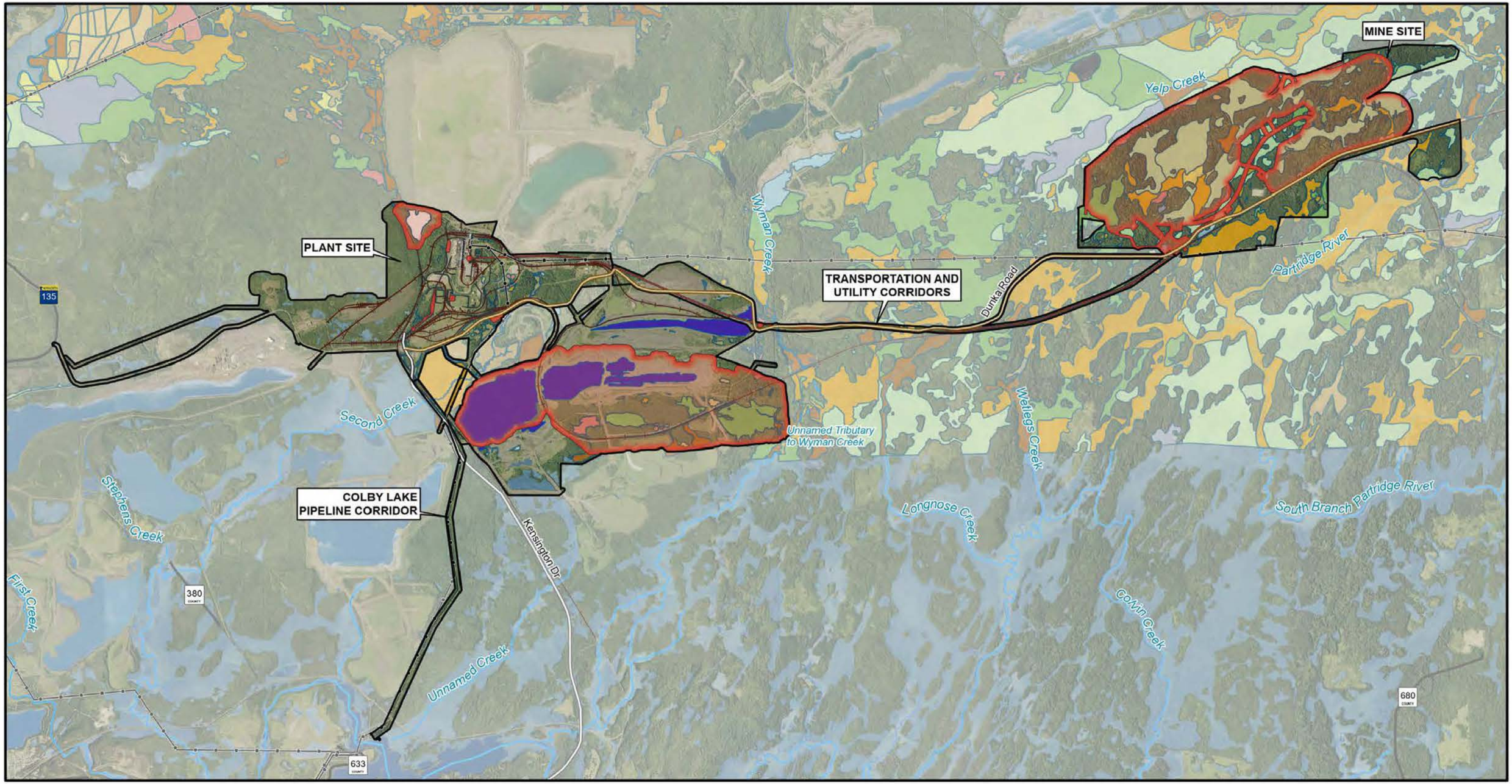
DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Pit to Plant Pipeline
- Colby Lake Pipeline
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 2,500 5,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Large Figure 10
Impact Area
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Impact Area
- Dunka Road
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams
- Deepwater Pit Lake
- National Wetlands Inventory (NWI)
- Exempt Wetland

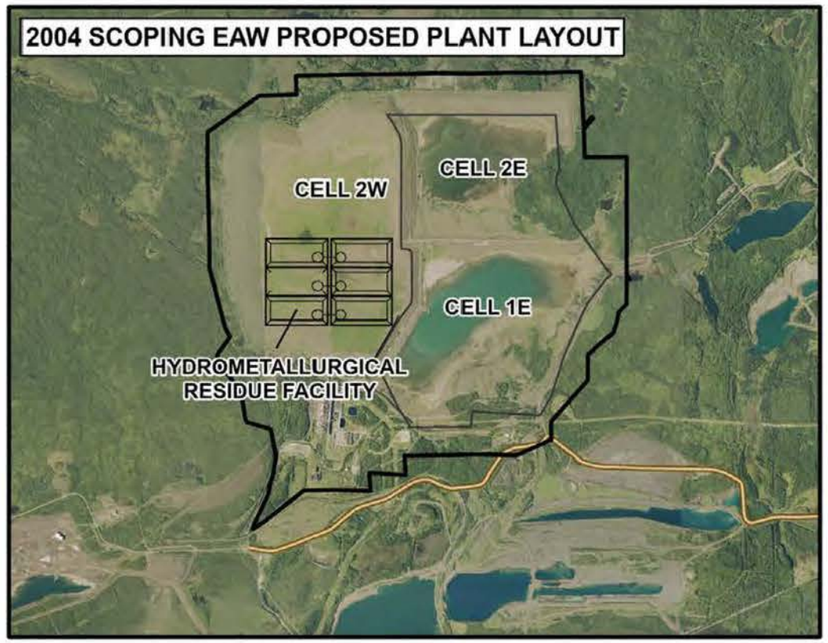
Dominant Eggers & Reed (2015) Wetland Community Type

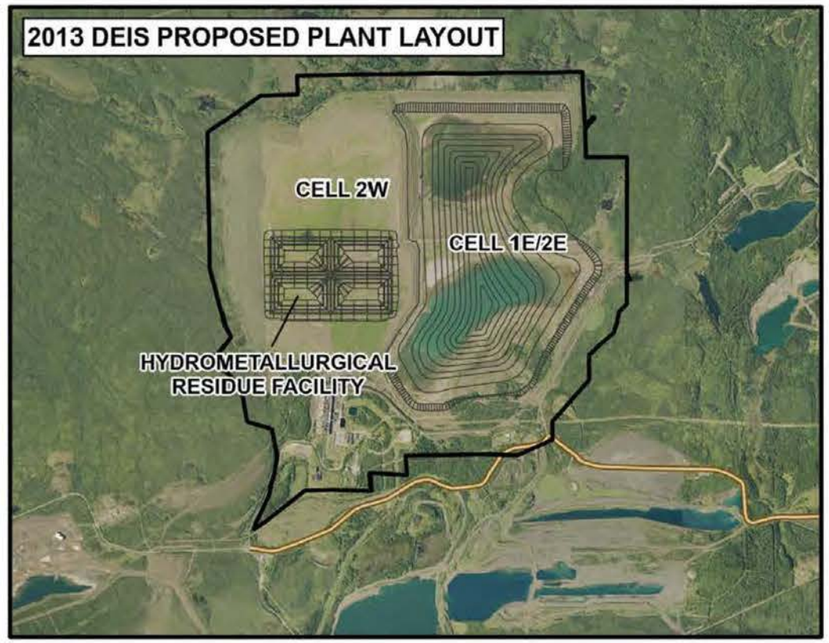
- Alder Thicket
- Coniferous Bog
- Coniferous Swamp
- Deep Marsh
- Hardwood Swamp
- Open Bog
- Seasonally Flooded Basin
- Sedge Meadow, Fresh (Wet) Meadow
- Shallow Marsh
- Shallow, Open Water
- Shrub-Carr

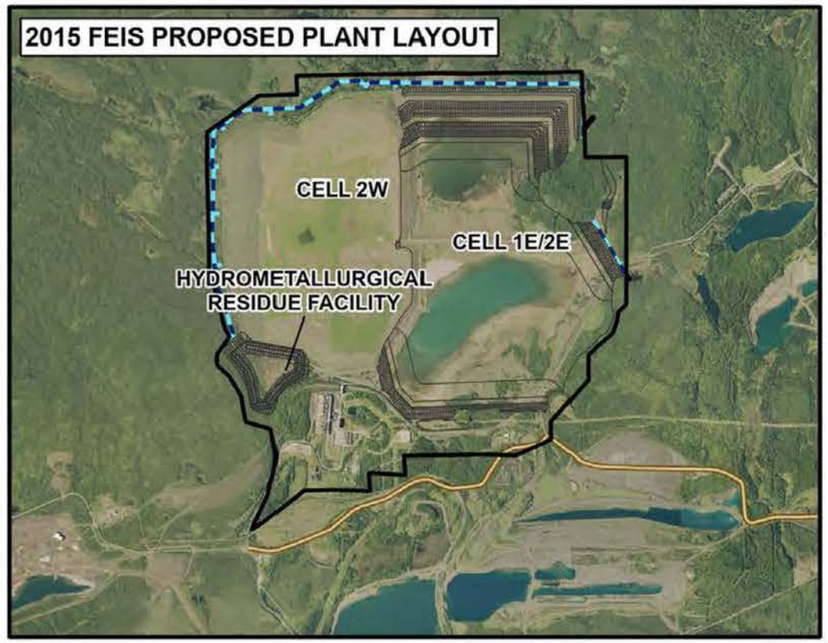
N

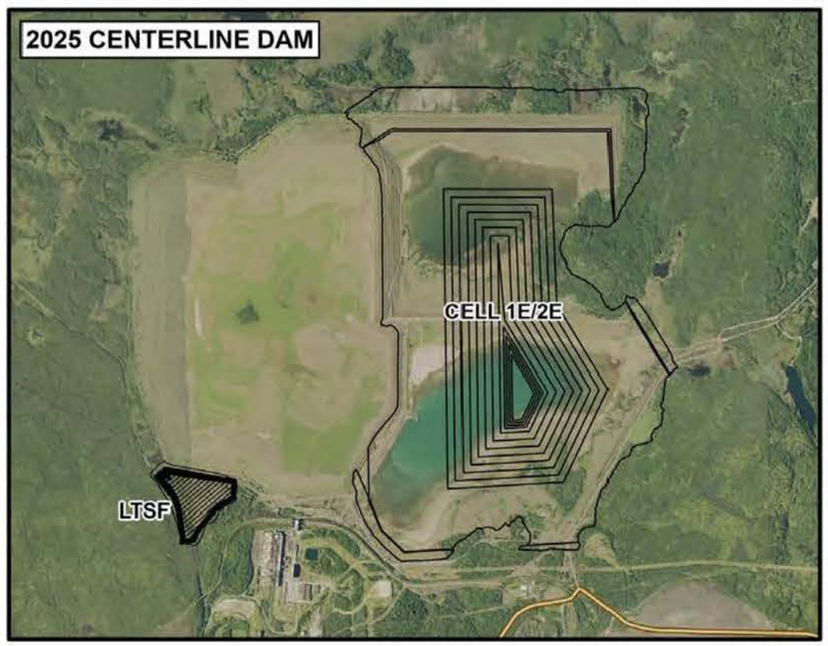
0 0.9 1.8 Mi

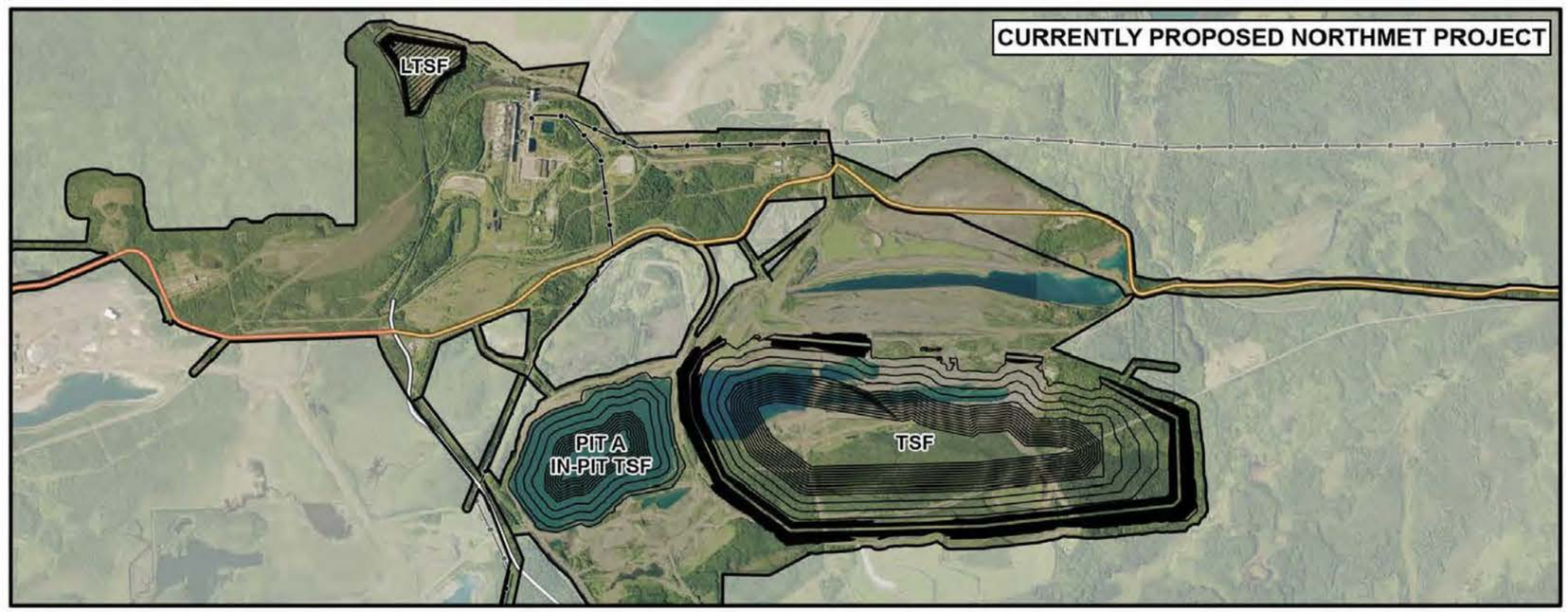
Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.











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Large Figure 11
Plant Site Alternative Layouts
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

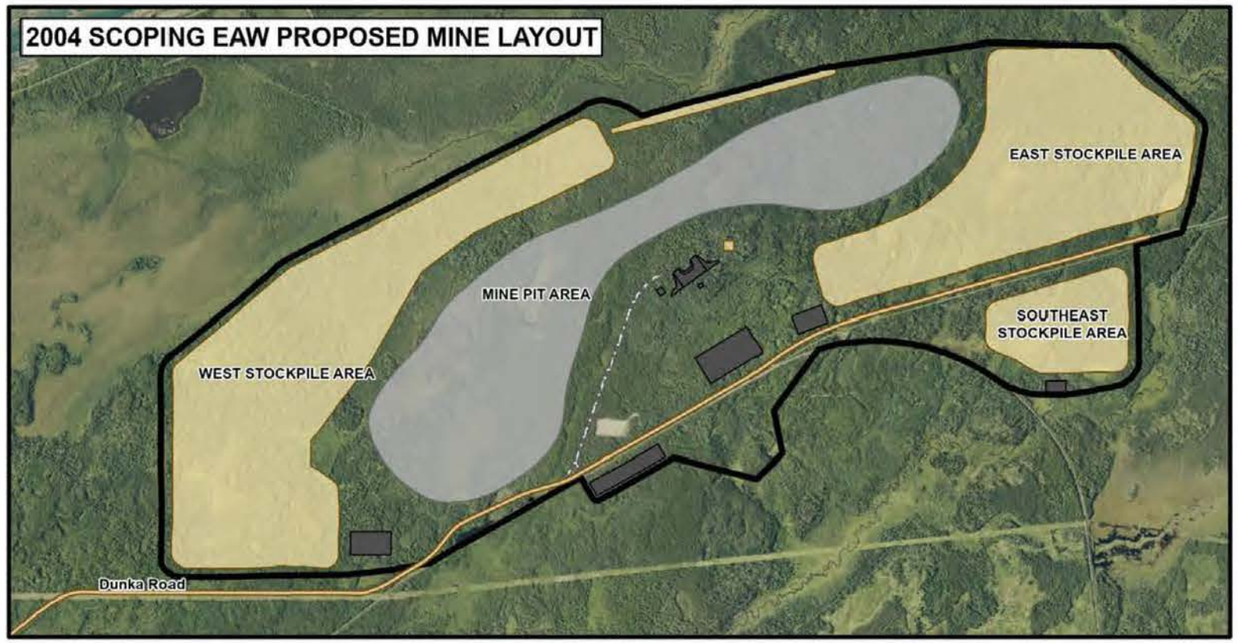
DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

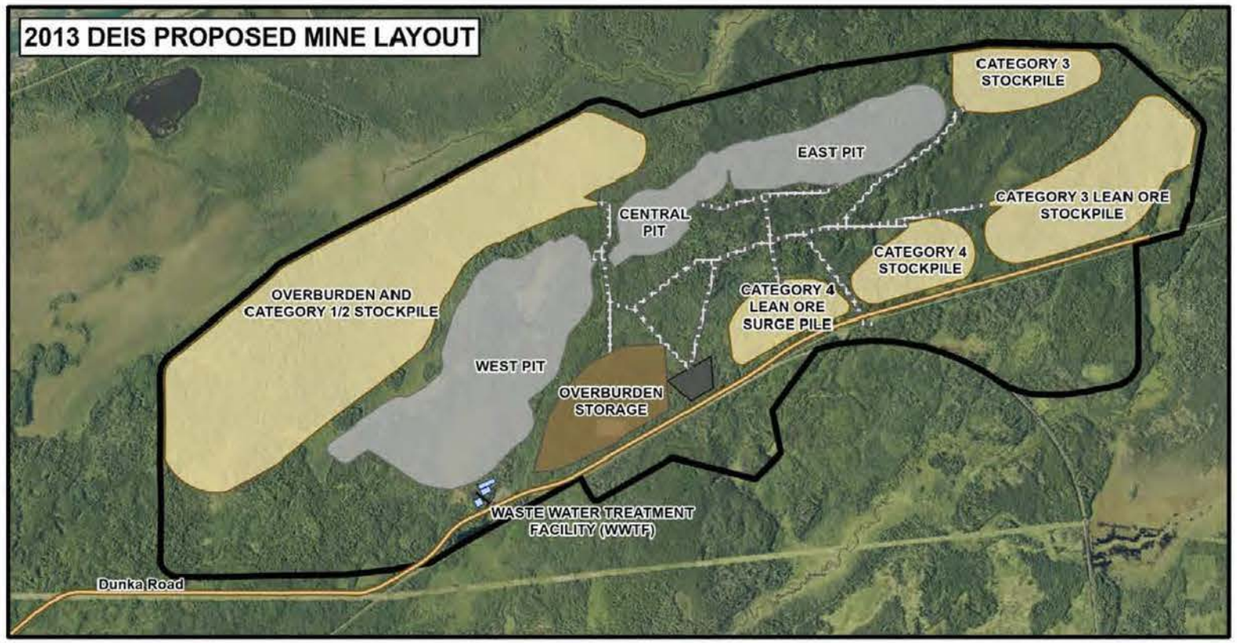
NorthMet Project Areas
Dunka Road
North Road
Kensington Drive
Electric Transmission Lines

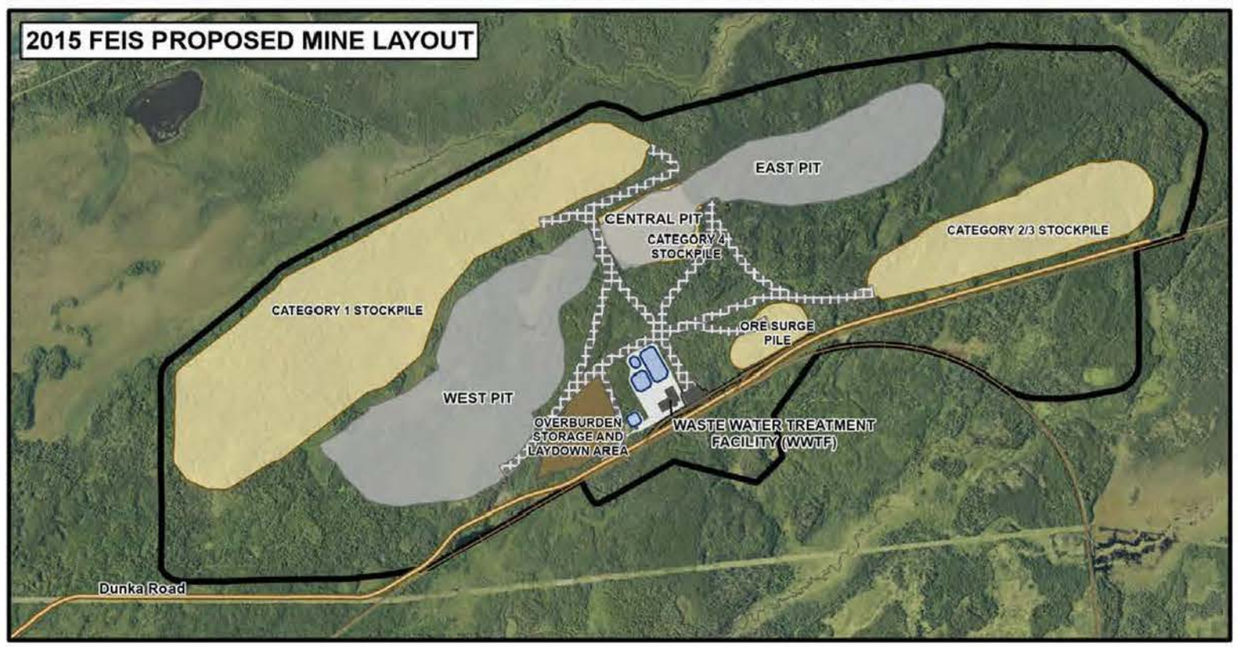
N

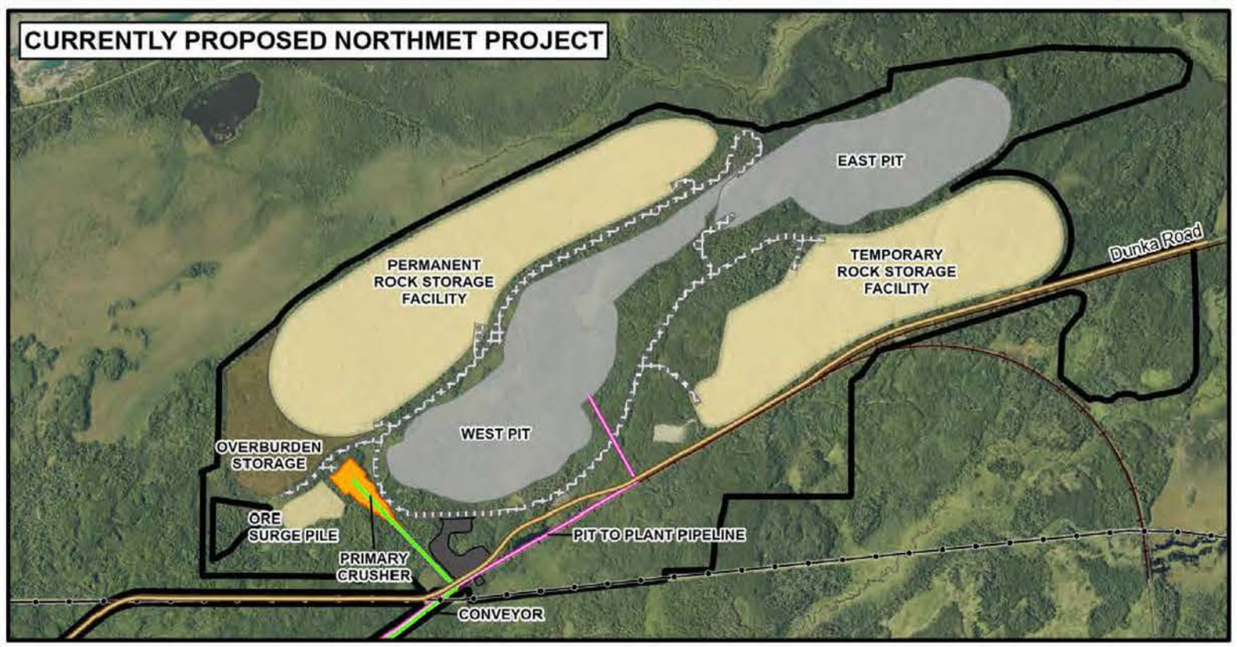
0 3,500 7,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.









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Large Figure 12
Mine Site Alternative Layouts
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

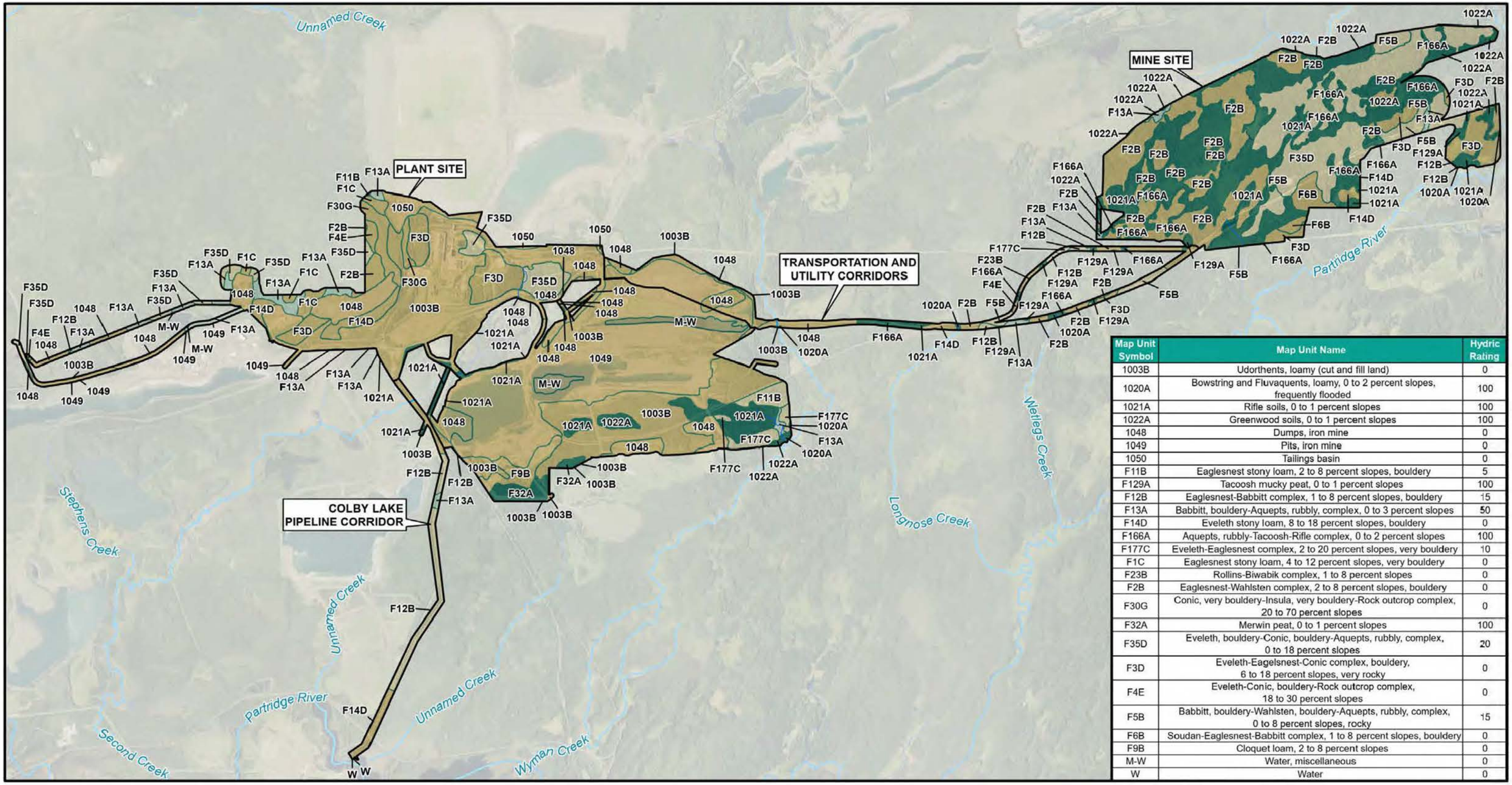
DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Dunka Road
- Existing Railroads
- Electric Transmission Lines
- Haul Roads
- Auxilary Mine Facilities Area

N

0 3,000 6,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



Map Unit Symbol	Map Unit Name	Hydric Rating
1003B	Udorthents, loamy (cut and fill land)	0
1020A	Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded	100
1021A	Rifle soils, 0 to 1 percent slopes	100
1022A	Greenwood soils, 0 to 1 percent slopes	100
1048	Dumps, iron mine	0
1049	Pits, iron mine	0
1050	Tailings basin	0
F11B	Eaglesnest stony loam, 2 to 8 percent slopes, bouldery	5
F129A	Tacoosh mucky peat, 0 to 1 percent slopes	100
F12B	Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery	15
F13A	Babbitt, bouldery-Aquepts, rubbly, complex, 0 to 3 percent slopes	50
F14D	Eveleth stony loam, 8 to 18 percent slopes, bouldery	0
F166A	Aquepts, rubbly-Tacoosh-Rifle complex, 0 to 2 percent slopes	100
F177C	Eveleth-Eaglesnest complex, 2 to 20 percent slopes, very bouldery	10
F1C	Eaglesnest stony loam, 4 to 12 percent slopes, very bouldery	0
F23B	Rollins-Biwabik complex, 1 to 8 percent slopes	0
F2B	Eaglesnest-Wahlsten complex, 2 to 8 percent slopes, bouldery	0
F30G	Conic, very bouldery-Insula, very bouldery-Rock outcrop complex, 20 to 70 percent slopes	0
F32A	Merwin peat, 0 to 1 percent slopes	100
F35D	Eveleth, bouldery-Conic, bouldery-Aquepts, rubbly, complex, 0 to 18 percent slopes	20
F3D	Eveleth-Eagelsnest-Conic complex, bouldery, 6 to 18 percent slopes, very rocky	0
F4E	Eveleth-Conic, bouldery-Rock outcrop complex, 18 to 30 percent slopes	0
F5B	Babbitt, bouldery-Wahlsten, bouldery-Aquepts, rubbly, complex, 0 to 8 percent slopes, rocky	15
F6B	Soudan-Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery	0
F9B	Cloquet loam, 2 to 8 percent slopes	0
M-W	Water, miscellaneous	0
W	Water	0

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Large Figure 13
Soils
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

NorthMet Project Areas
Public Waters Inventory (PWI) Watercourses
National Hydrography Dataset (NHD) Rivers & Streams

Soils Hydric Rating by Map Unit
Not Hydric (0%)
Predominantly non-hydric (<=33%)
Partially hydric (>33 - <=66%)
Predominantly hydric (>66 - 99%)
All Hydric (100%)

N
0 4,500 9,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS. Soils data from USDA NRCS Web Soil Survey.

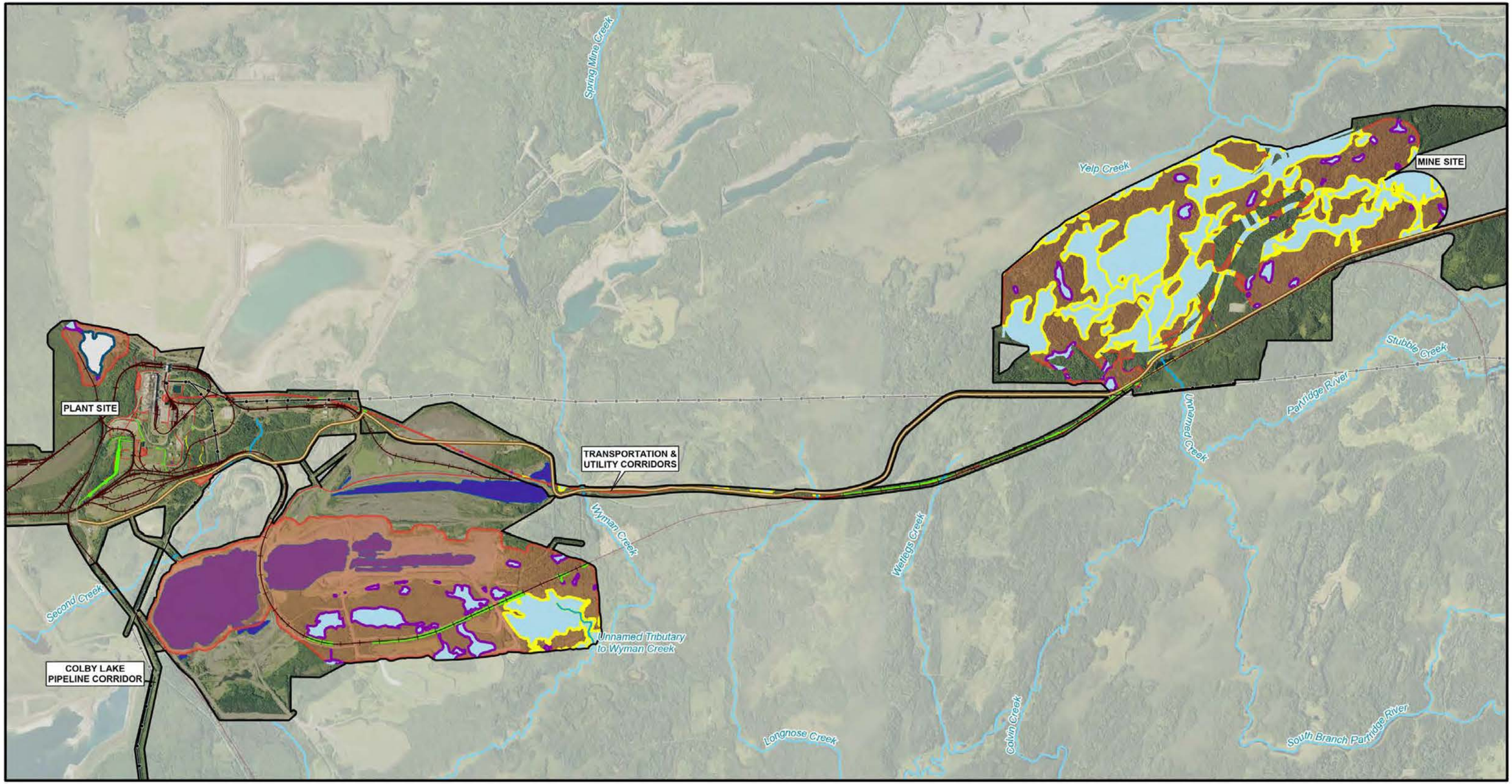

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Figure 14
Potentially Jurisdictional Wetlands Under USACE Guidance
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Impact Area
- Dunka Road
- Existing Railroads
- Electric Transmission Lines
- Waters of the U.S.
- Deepwater Pit Lake
- Exempt Wetland

Wetland Jurisdictional Assessment for Wetlands in Impact Area

- Potentially Jurisdictional
- Potentially Non-jurisdictional, Isolated
- Potentially Non-jurisdictional, Ditch

N

0 3,500 7,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

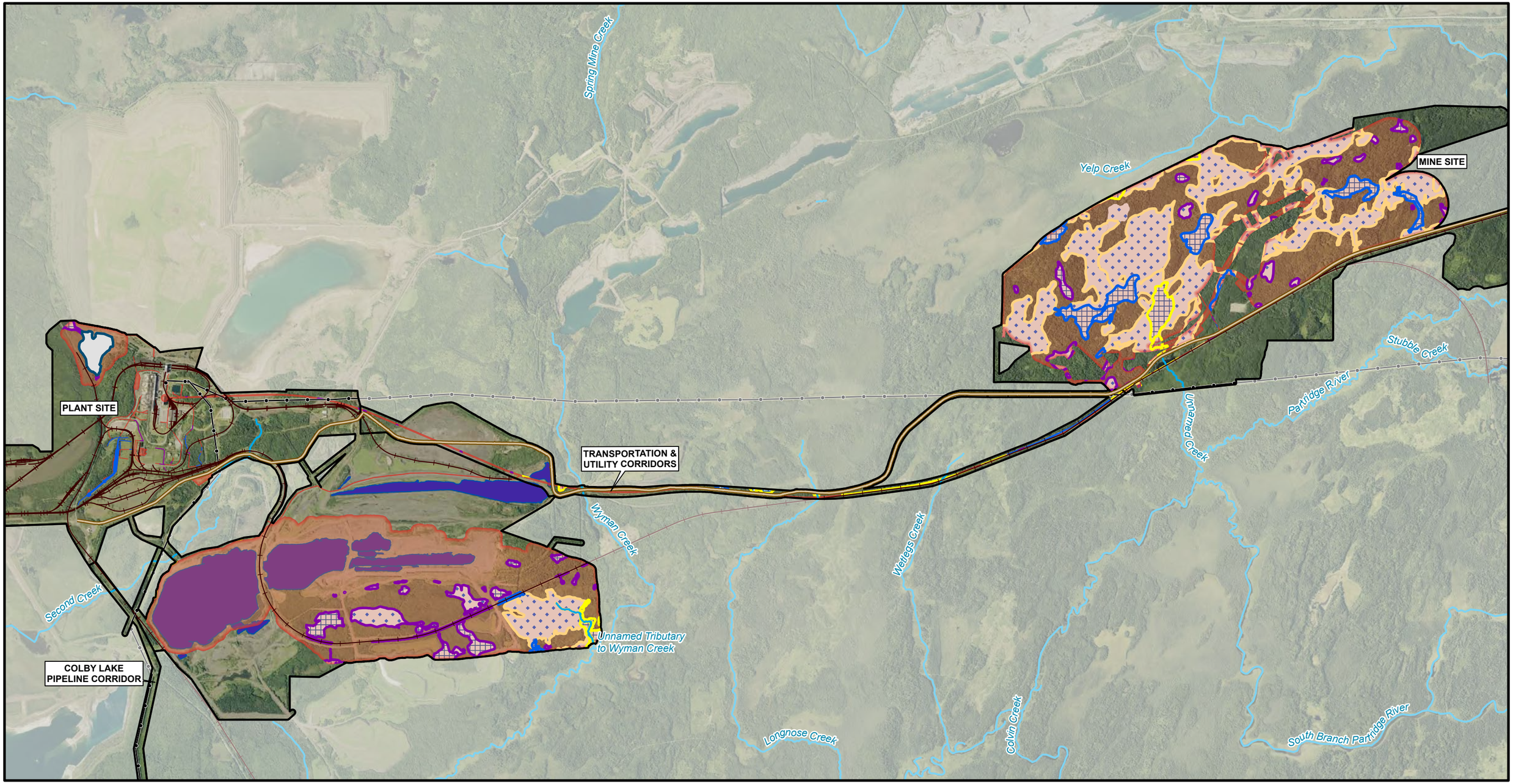

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Figure 15

Potentially Jurisdictional Wetlands Under Proposed Rule

2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Impact Area
- Dunka Road
- Existing Railroads
- Electric Transmission Lines
- Waters of the U.S.
- Deepwater Pit Lake
- Exempt Wetland

Wetlands within the Impact Area

- Surface Water Wetland
- Non-surface Water Wetland

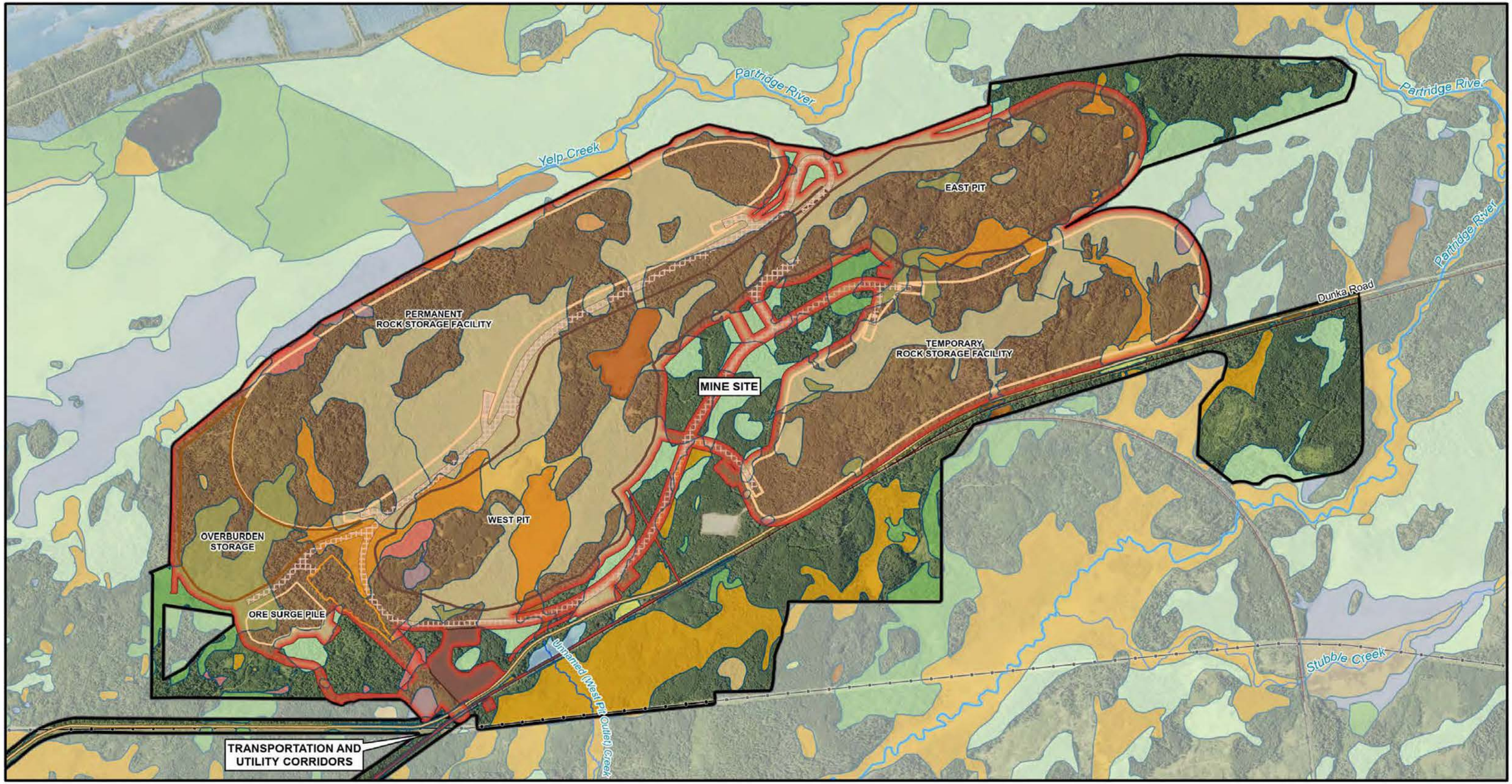
Wetland Jurisdictional Assessment for Wetlands in Impact Area

- Jurisdictional, Surface water wetland with a connection to a waters of the U.S.
- Non-jurisdictional, Surface water wetland without direct connection to a potentially jurisdictional wetland
- Non-jurisdictional, Non-surface water wetland
- Non-jurisdictional, Isolated

N

0 3,500 7,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Large Figure 16
Mine Site Direct Wetland Impacts
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Impact Area
- Dunka Road
- Existing Railroads
- Electric Transmission Lines
- Primary Crusher
- Haul Roads
- Stockpiles
- Mine Pits
- Auxilary Mine Facilities Area
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams
- National Wetlands Inventory (NWI)

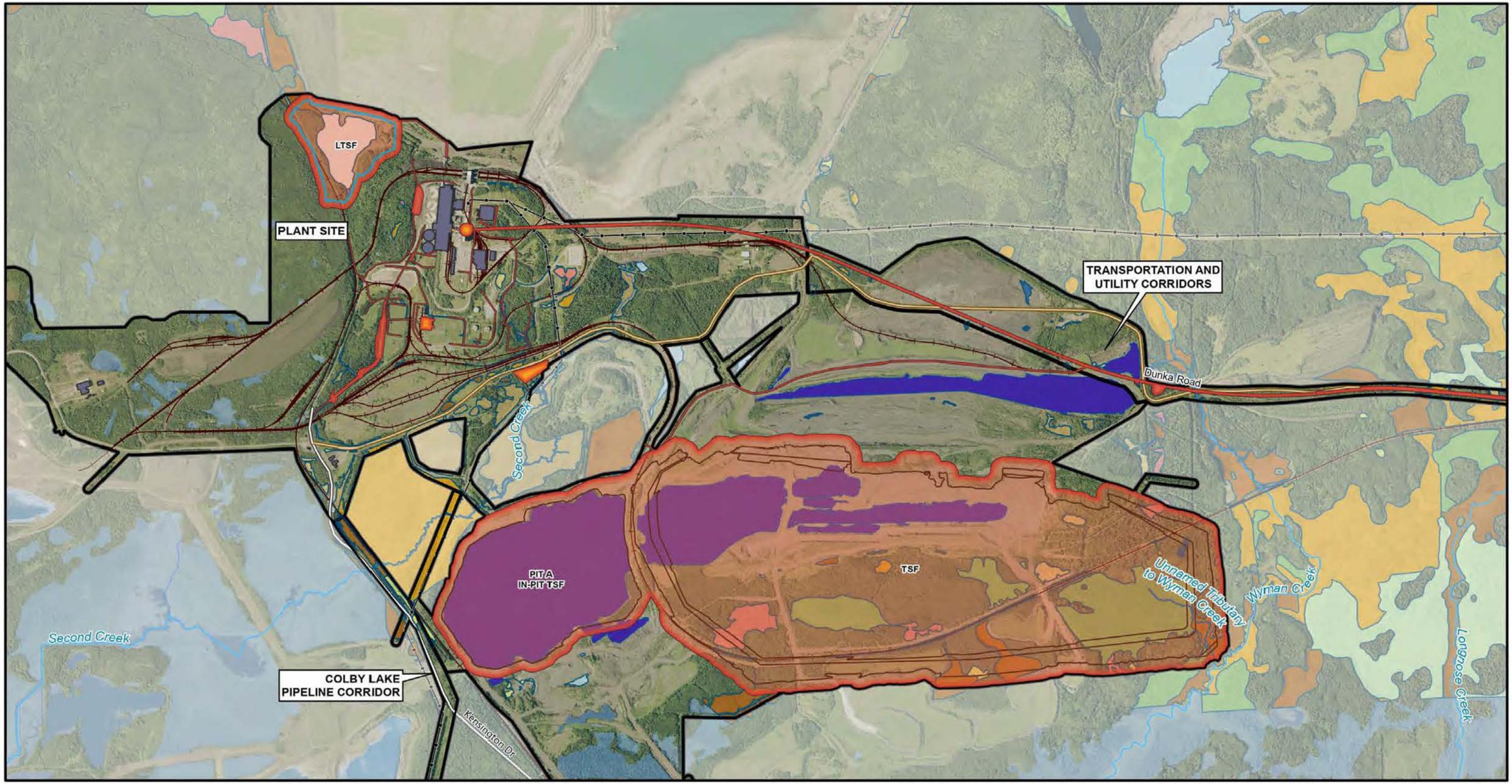
Dominant Eggers & Reed (2015) Wetland Community Type

- Alder Thicket
- Coniferous Bog
- Coniferous Swamp
- Deep Marsh
- Hardwood Swamp
- Open Bog
- Seasonally Flooded Basin
- Sedge Meadow, Fresh (Wet) Meadow
- Shallow Marsh
- Shallow, Open Water
- Shrub-Carr

N

0 1,500 3,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Large Figure 17
Plant Site Direct Wetland Impacts
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Impact Area
- Dunka Road
- Kensington Drive
- Existing Railroads
- Electric Transmission Lines
- Existing Building
- Proposed Building

- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams
- Deepwater Pit Lake
- National Wetlands Inventory (NWI)
- Exempt Wetland

Dominant Eggers & Reed (2015) Wetland Community Type

- Alder Thicket
- Coniferous Bog
- Coniferous Swamp
- Deep Marsh
- Hardwood Swamp
- Open Bog
- Seasonally Flooded Basin
- Sedge Meadow, Fresh (Wet) Meadow
- Shallow Marsh
- Shallow, Open Water
- Shrub-Carr

N

0 2,000 4,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

PERMANENT ROCK STORAGE FACILITY
WEST PIT
OVERBURDEN STORAGE
ORE SURGE PILE
MINE SITE
TRANSPORTATION AND UTILITY CORRIDORS
Dunka Road
PLANT SITE
TSF
Unnamed Tributary to Wyman Creek
Wyman Creek
Longnose Creek
Wetlegs Creek
Partridge River

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Large Figure 18
TUC Direct Wetland Impacts
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026

DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Impact Area
- Dunka Road
- Existing Railroads
- Electric Transmission Lines
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams
- Deepwater Pit Lake
- National Wetlands Inventory (NWI)

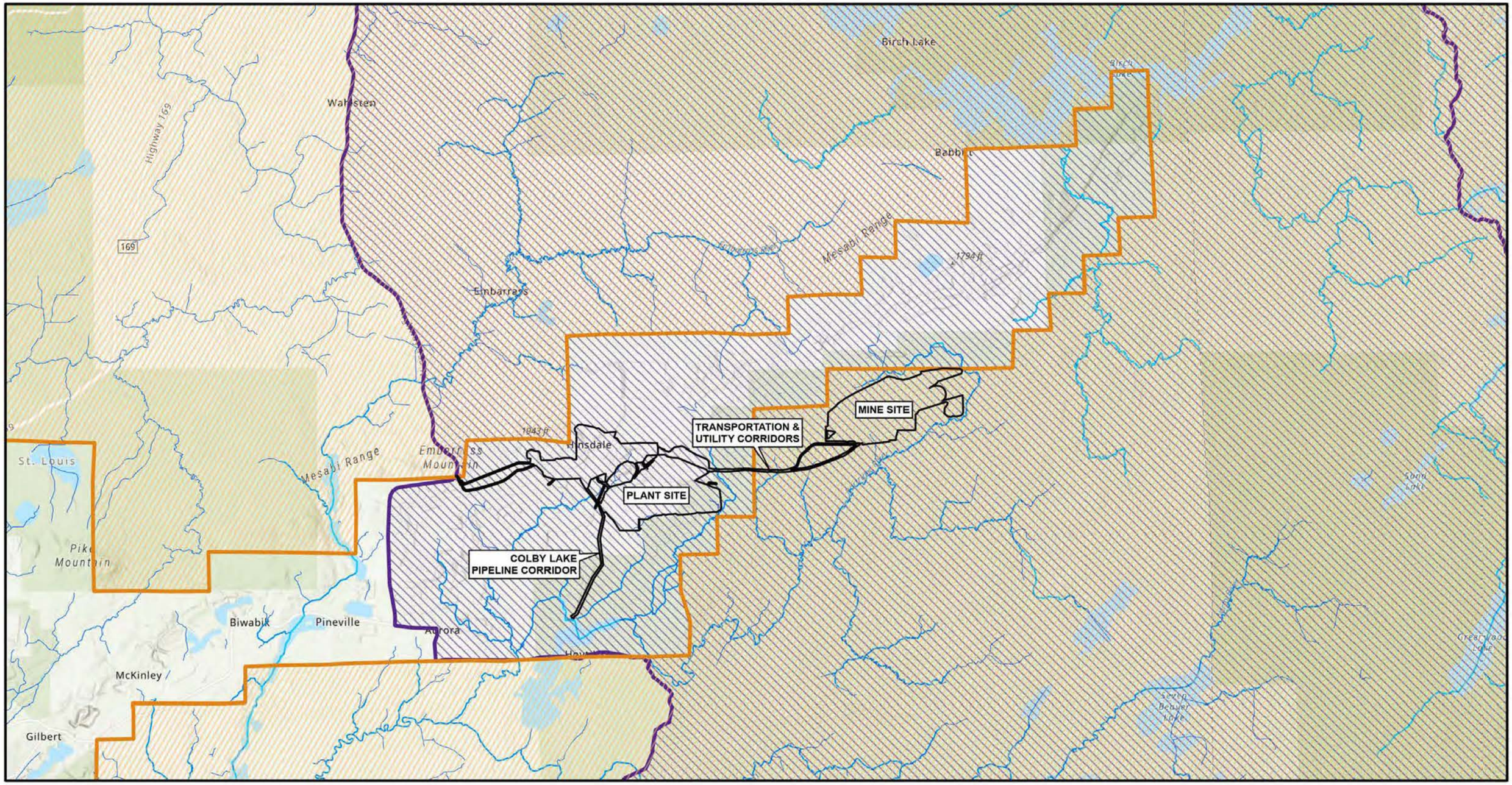
Dominant Eggers & Reed (2015) Wetland Community Type

- Alder Thicket
- Coniferous Bog
- Coniferous Swamp
- Deep Marsh
- Hardwood Swamp
- Open Bog
- Seasonally Flooded Basin
- Sedge Meadow, Fresh (Wet) Meadow
- Shallow Marsh
- Shallow, Open Water
- Shrub-Carr

N

0 2,000 4,000 Feet

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.



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Large Figure 19
Critical Habitat for Canada Lynx and Gray Wolf
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

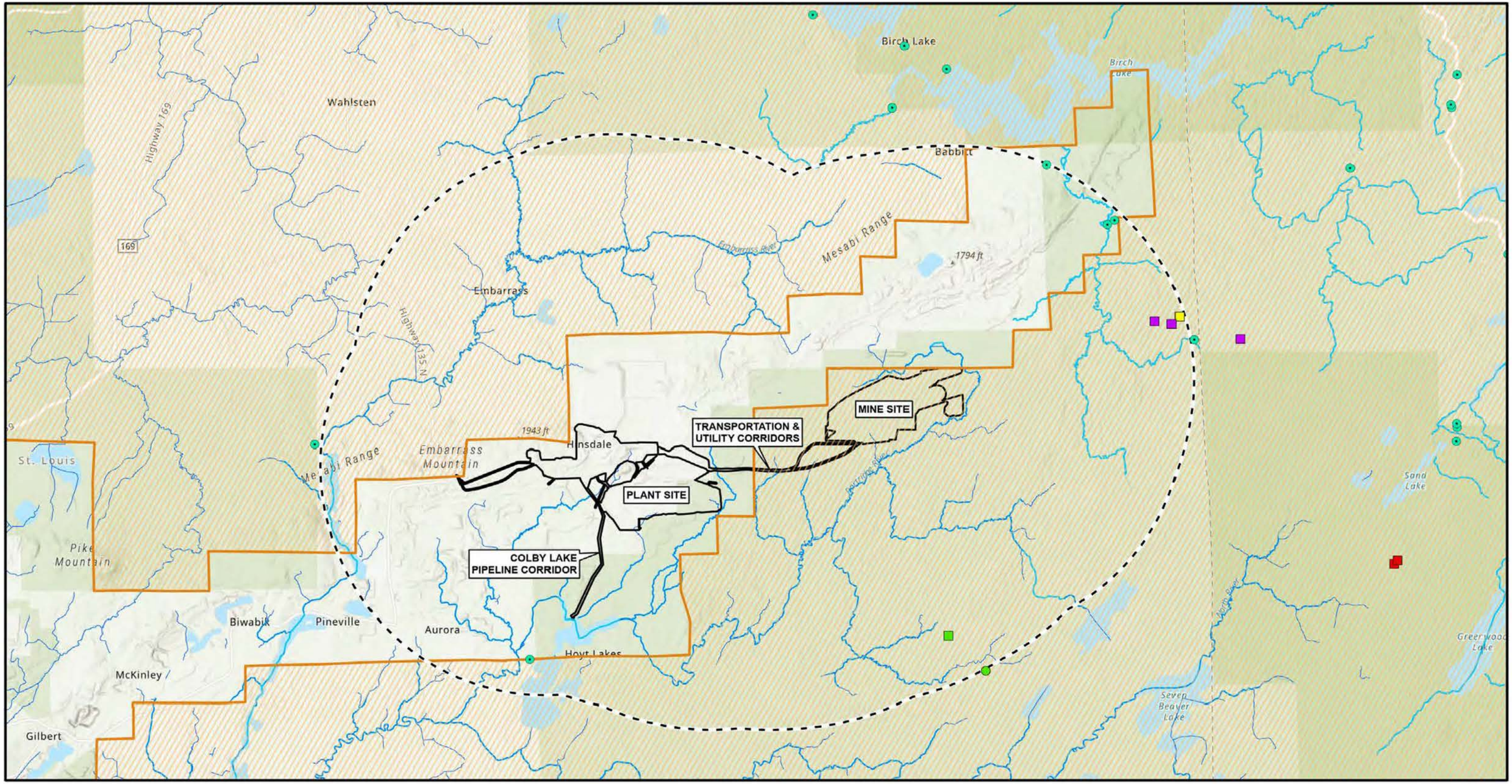
DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Critical Habitat Designation for Canada Lynx
- Critical Habitat Designation for Gray Wolf
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 2.5 5 Mi

Credits: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS. Critical habitat data from USFWS.



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Large Figure 20
2000-2006 Lynx Data
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams
- Study Area
- Critical Habitat Designation for Canada Lynx
- Lynx Sightings (Minnesota Lynx Database)

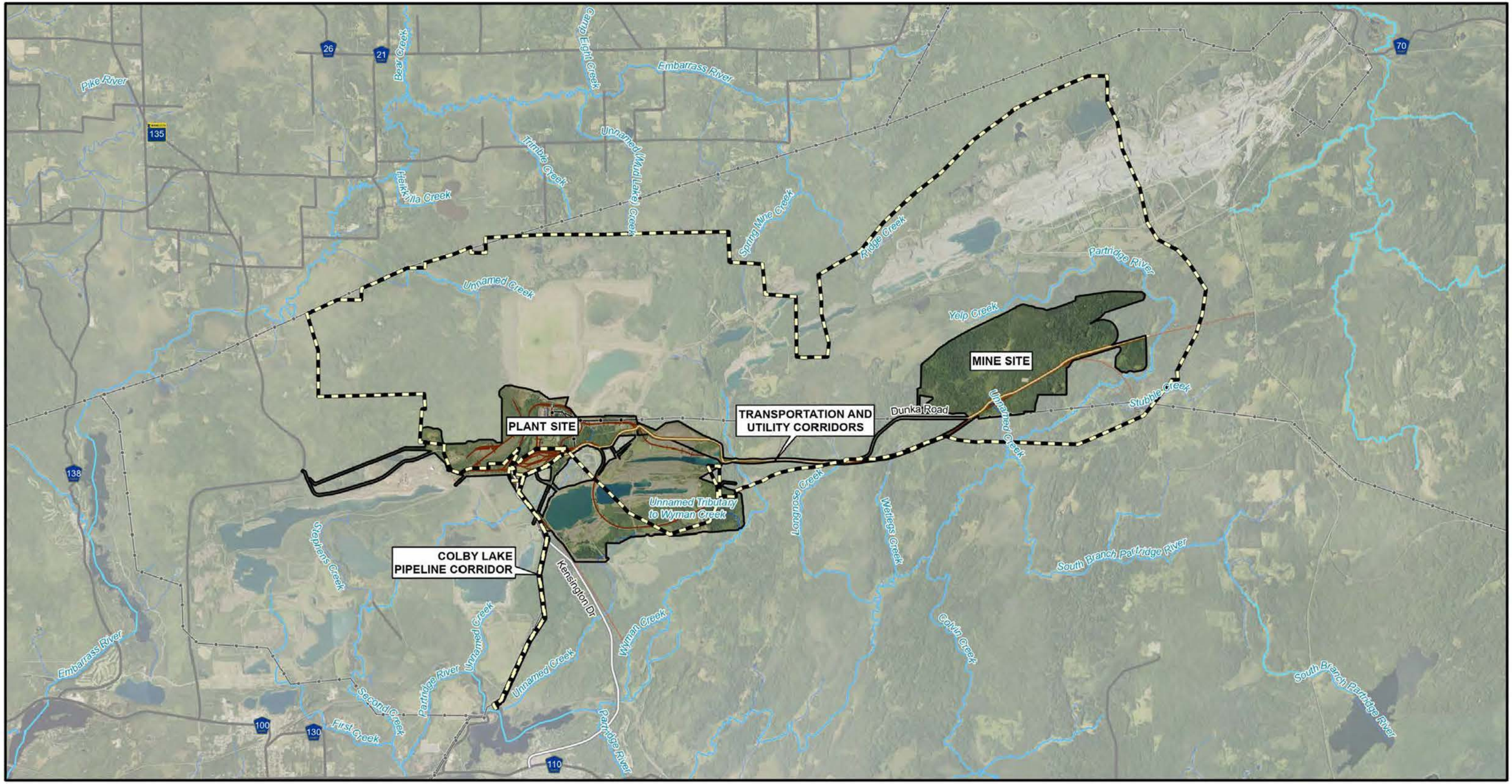
Lynx Scat Samples

- Lynx 1 Scat Collection Site
- Lynx 2 Scat Collection Site
- Lynx 3 Scat Collection Site
- Suspected Lynx 3 Scat Collection Site
- Lynx 4 Scat Collection SIte

N

0 2.5 5 Mi

Credits: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, (c) OpenStreetMap contributors, and the GIS User Community, Esri, NASA, NGA, USGS. Critical habitat data from USFWS.



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Sunrise Project Office
23 Commerce Road
Babbitt, MN USA 55706

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Large Figure 21
2015 FEIS Area of Potential Effect
2026 Section 404 Permit Application

NAD 1983 StatePlane Minnesota North FIPS 2201 Feet

DATE: July 29, 2026 | DRAWN BY: Barr Engineering Co., ARM2

- NorthMet Project Areas
- 2015 FEIS Area of Potential Effect
- Dunka Road
- Kensington Drive
- Roads
- Existing Railroads
- Electric Transmission Lines
- Public Waters Inventory (PWI) Watercourses
- National Hydrography Dataset (NHD) Rivers & Streams

N

0 1.5 3 Mi

Credits: 2024 60cm resolution imagery service from USDA FPAC-BC-GEO NAIP. Administrative, hydrographic, and transportation data from MnDNR, MNDOT, USGS.

Appendices

Appendix A USACE Application for Department of the Army Permit

Appendix B Delineation Reports

Appendix B1 2025 Wetland Delineation Report

Appendix B2 Wetland Delineation Revision Technical Memorandum

Appendix C Wetlands within the Impact Area

Appendix D Potentially Jurisdictional Wetlands

Appendix E Potentially Isolated Wetlands

Appendix F Potential Indirect Wetland Impact Modeling Work Plan

Appendix G Monitoring for Potential Indirect Wetland Impacts

Appendix H Stream Characterization Work Plan

Appendix I NewRange Copper Nickel LLC Wetland Bank Credit Verification

Appendix J USFS 2025 Lynx Monitoring Report

Appendix K NorthMet Project Biological Opinion and Annual Reports

Appendix L NorthMet Project Memorandum of Agreement (for Section 106)