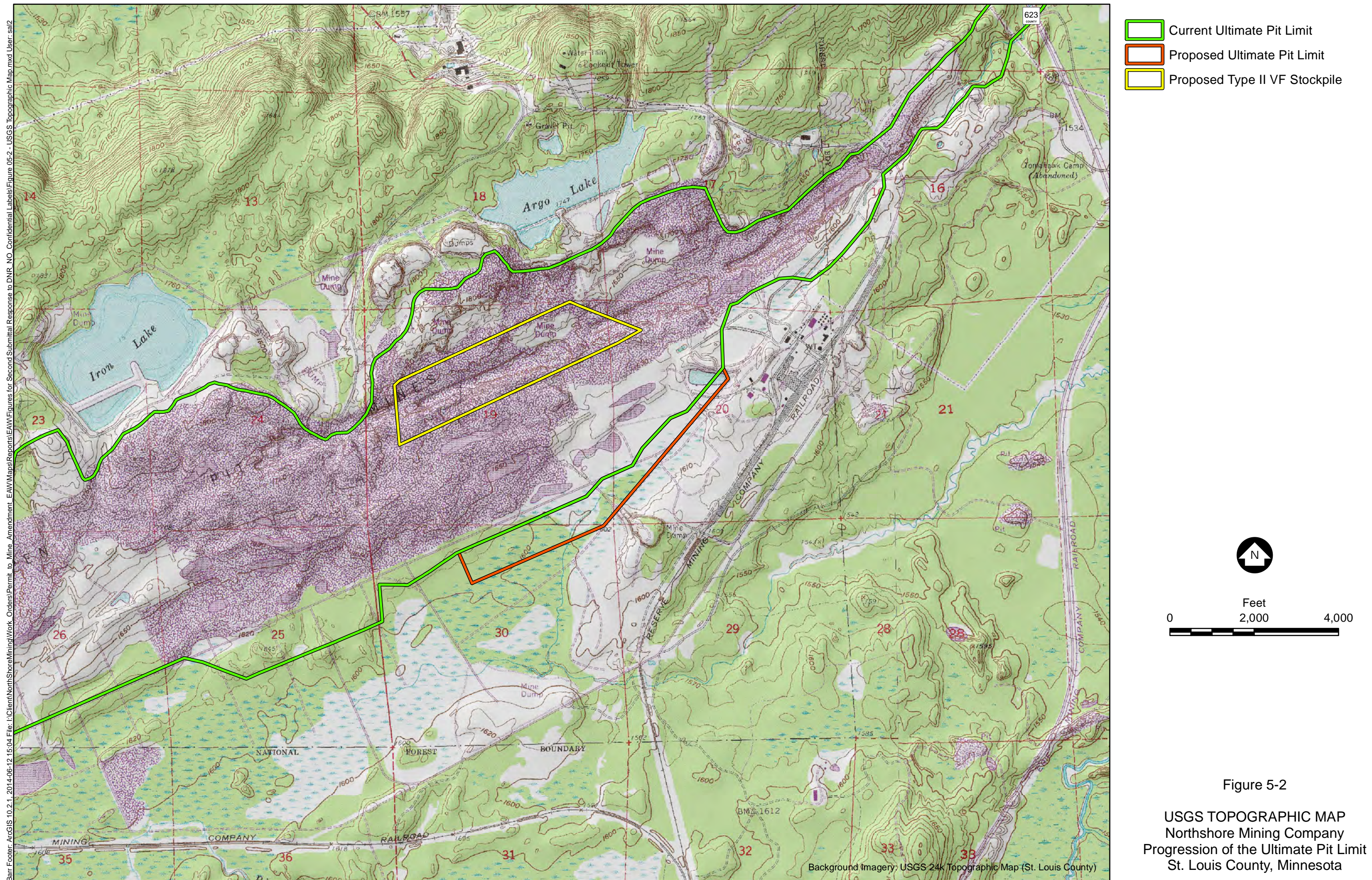
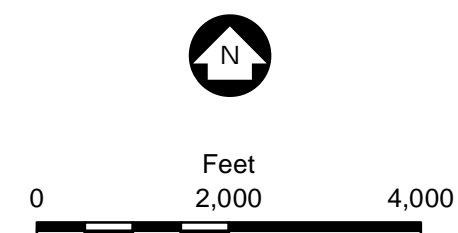


ENVIRONMENTAL ASSESSMENT WORKSHEET
LIST OF FIGURES

Northshore Mining Company Progression of the Ultimate Pit Limit Project
St. Louis County, Minnesota

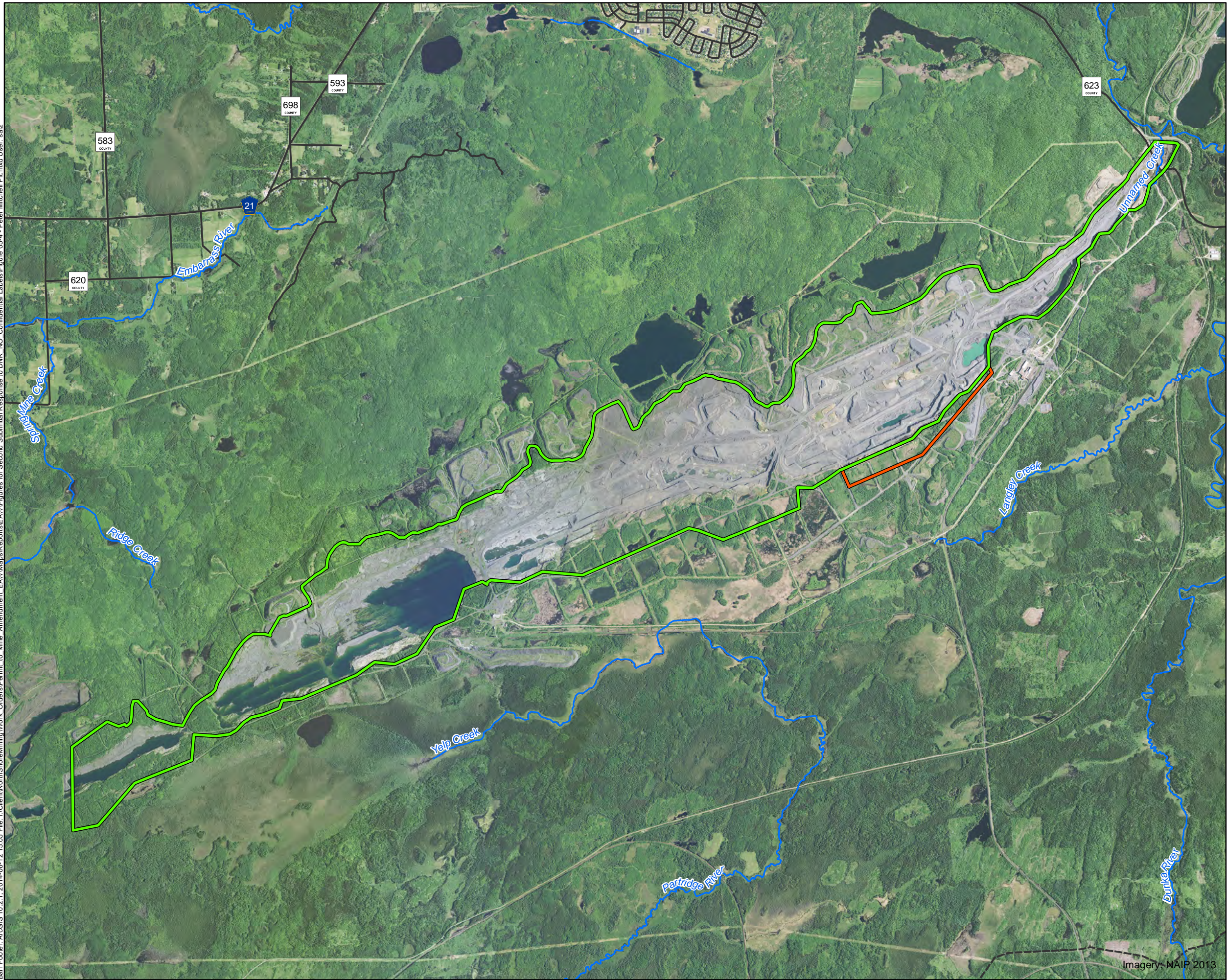
Figure 5-1	Project Location Map
Figure 5-2	USGS Topographic Map
Figure 5-3	Site Plan
Figure 5-4	Northshore Mining Company, Peter Mitchell Pit
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Figure 6-2	Mine Plan with Haul Routes
Figure 6-3	Proposed Stockpile Plan View
Figure 6-4	Conceptual Model - Operations, Type II Virginia Formation Stockpile Plan (Golder 2013, Figure 3-2)
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Figure 6-8	Estimated Post-Closure, Watershed Limits
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Figure 7-1	Land Cover Types
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Figure 10-3	Soil Map Unit Name
Figure 11-1	Surface Water Resources
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Figure 13-1	USFWS Canada Lynx Designated Critical Habitat
Figure 19-1	NPDES Outfall Locations
Figure 19-2	Other Projects in Area





SITE PLAN
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Bar Footer ArcGIS 10.2.1, 2014-06-12 15:05 File I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 05-4 - Peter Mitchell Pit.mxd User: sa2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Streams

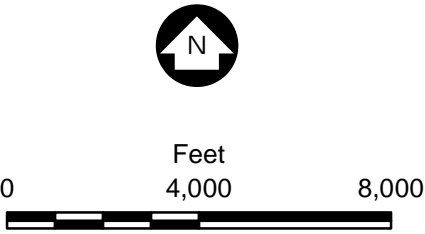
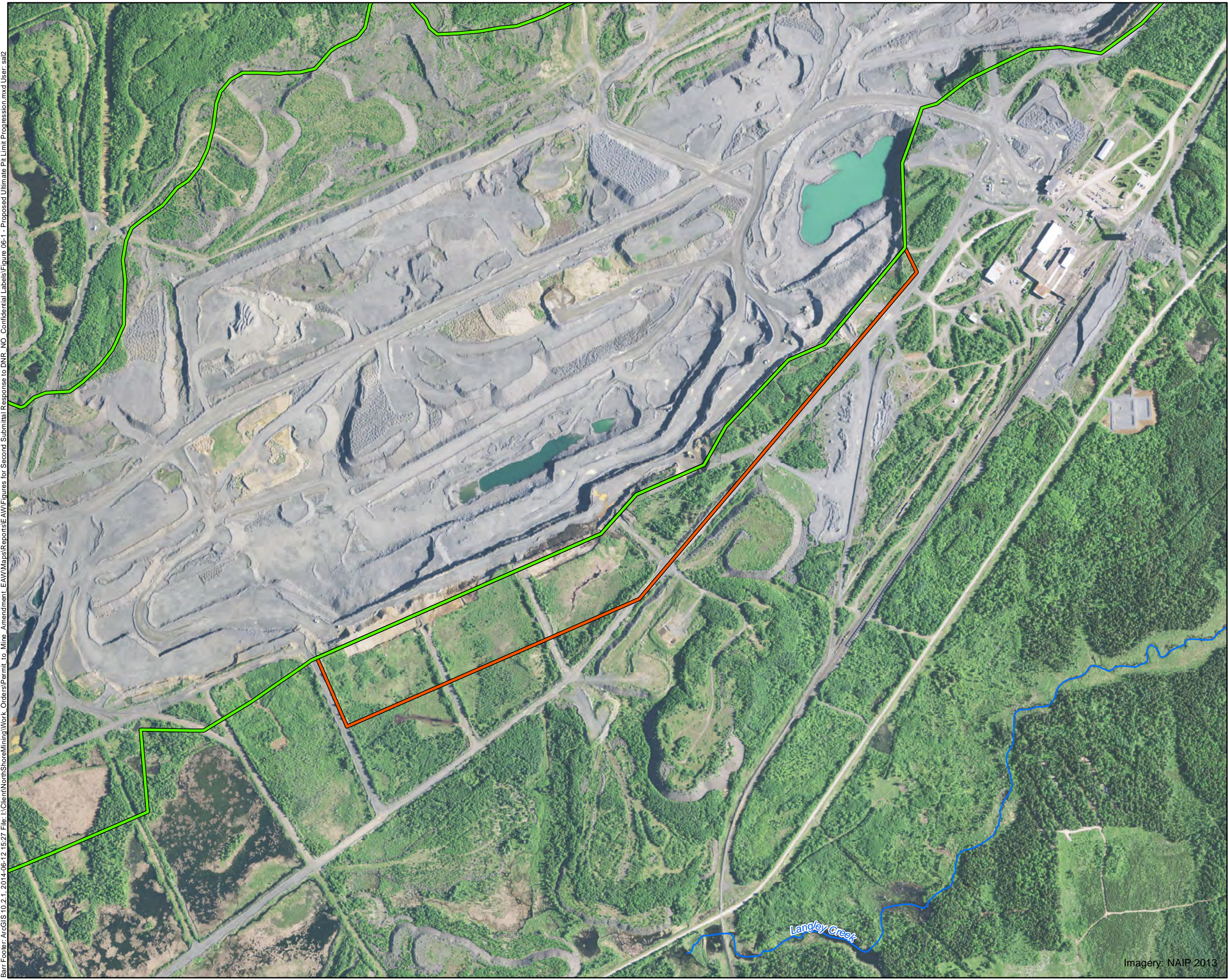





Figure 5-4

NORTHSHORE MINING COMPANY
PETER MITCHELL PIT
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Bar Footer ArcGIS 10.2.1, 2014-06-12 15:27 File I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 06-1 - Proposed Ultimate Pit Limit Progression.mxd User: sa2



-  Current Ultimate Pit Limit
-  Proposed Ultimate Pit Limit
-  Streams

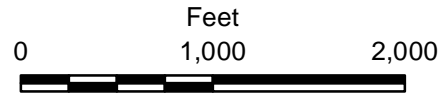


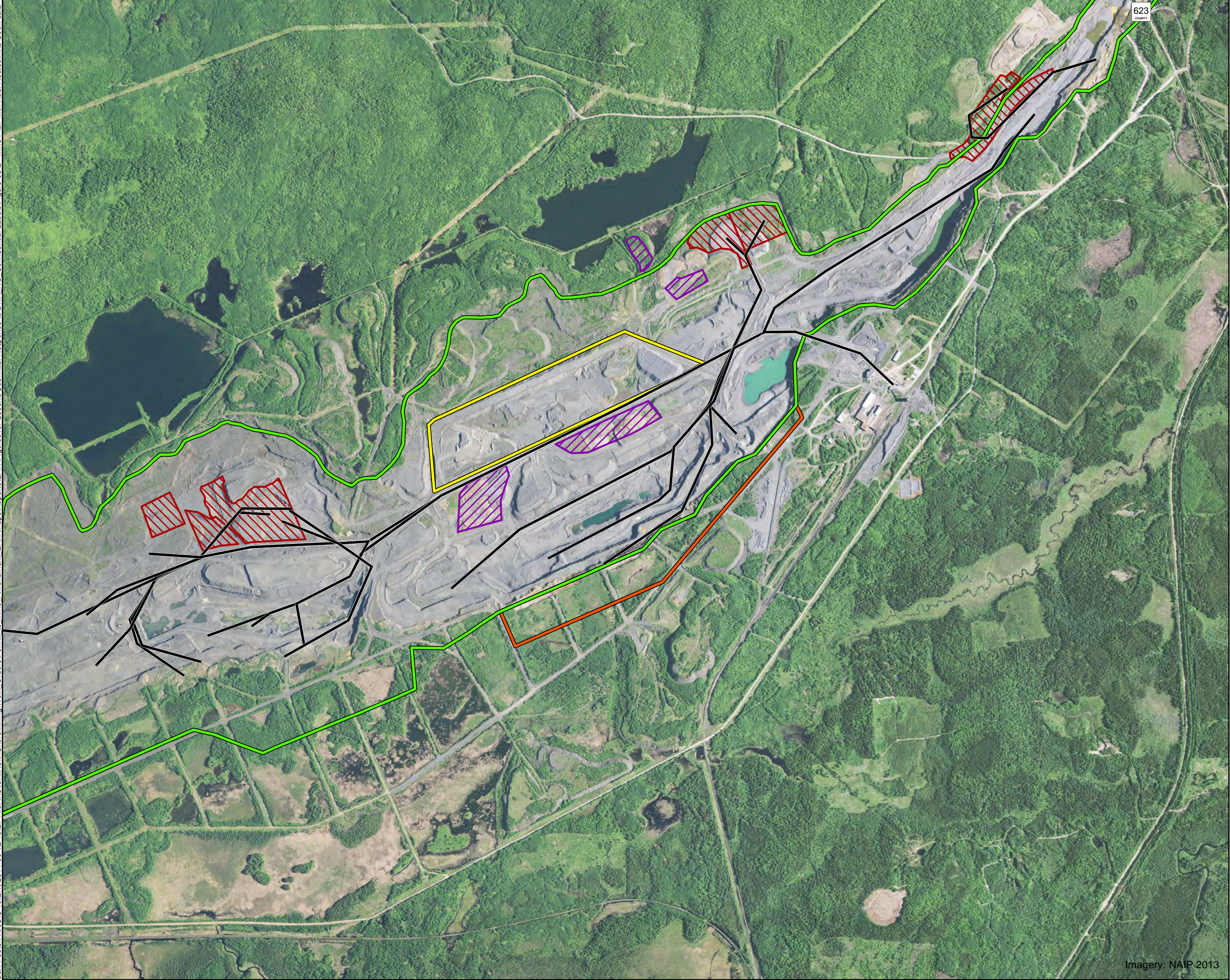
Figure 6-1

**PROPOSED ULTIMATE PIT
LIMIT PROGRESSION**

Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013

Bar Footer: ArcGIS 10.2.1, 2014-06-12 15:27 File: I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 06-2 - Mine Plan with Haul Routes.mxd User: ssi2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Rock Stockpile
- Surface Material Stockpile
- Expected Haul Route

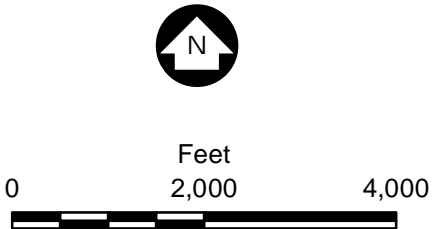





Figure 6-2

MINE PLAN WITH HAUL ROUTES
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013



-  Current Ultimate Pit Limit
-  Proposed Type II VF Stockpile
-  Streams

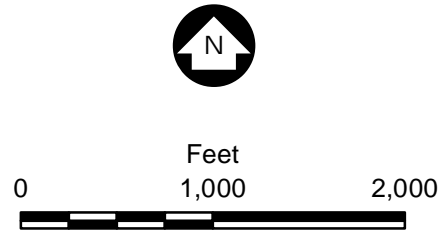


Figure 6-3
PROPOSED STOCKPILE PLAN VIEW
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NADP 2013

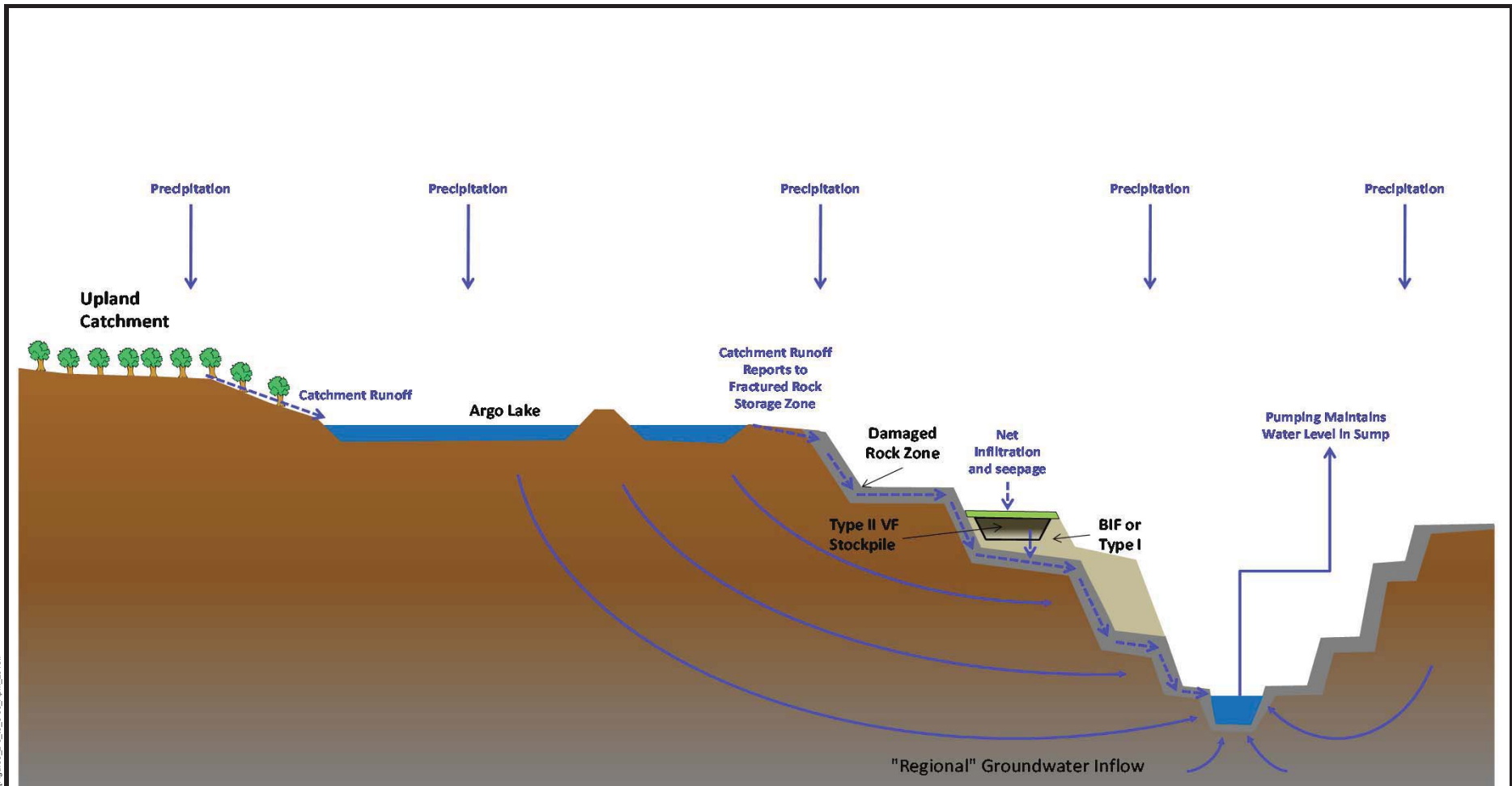



Figure 6-4 (Golder 2013 Figure 3-1)
CONCEPTUAL MODEL - OPERATIONS

Type II Virginia Formation Stockpile Plan
 Northshore Mining, Babbitt, MN

Golder Associates



Denver, Colorado, USA
 083-81505

4/24/2013

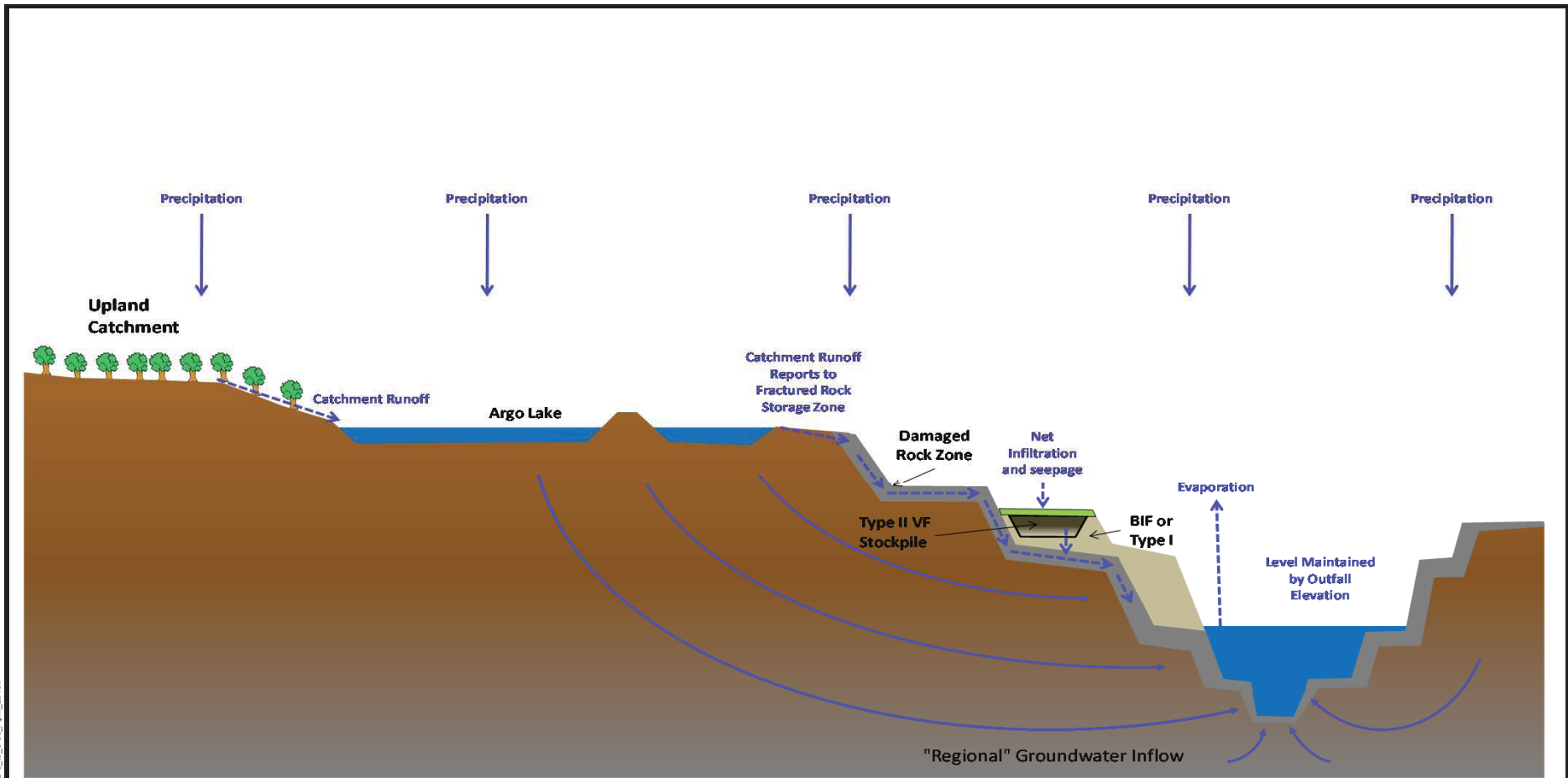


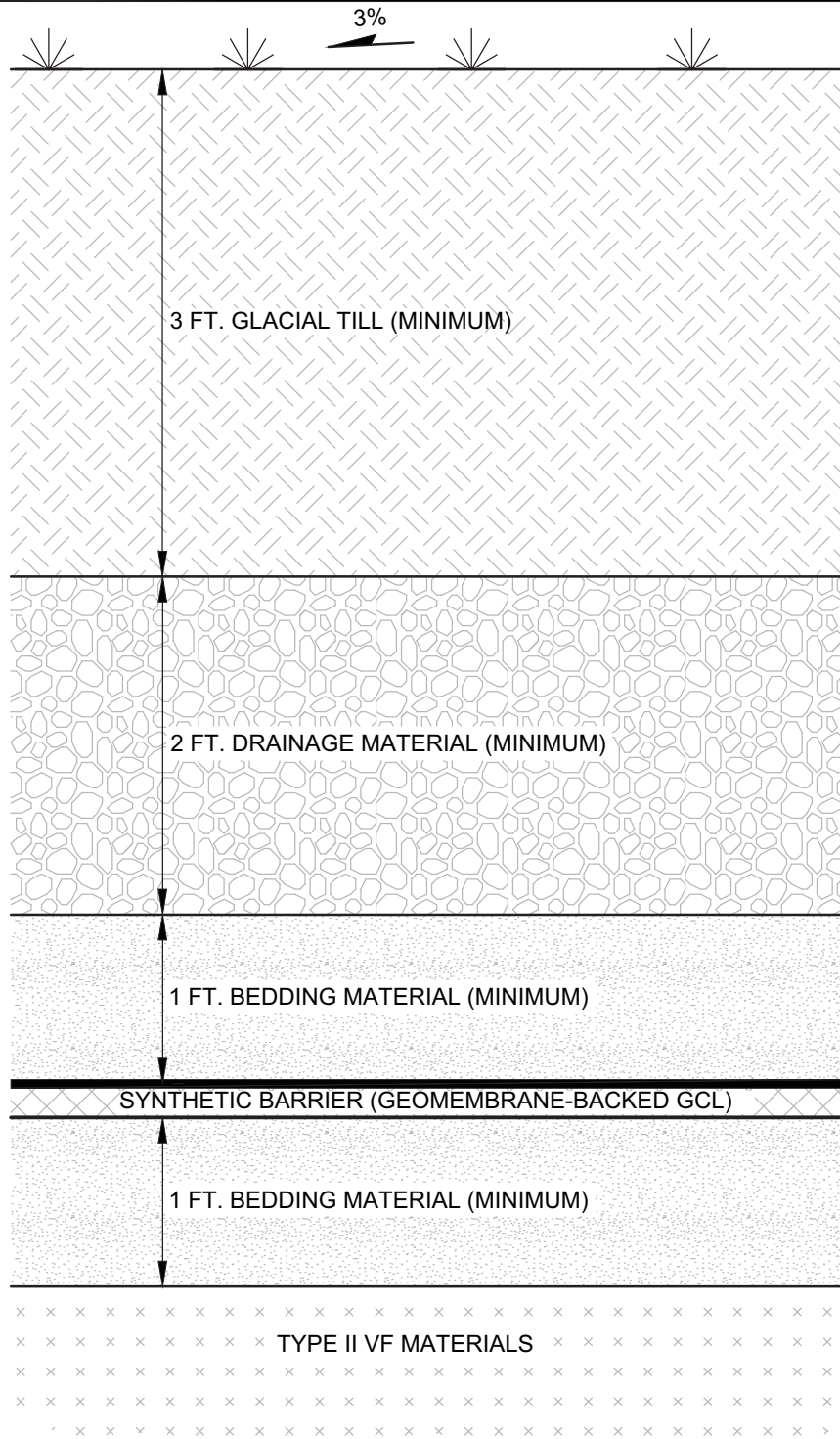
Figure 6-5 (Golder 2013 Figure 3-2)
CONCEPTUAL MODEL - POST CLOSURE
 Type II Virginia Formation Stockpile Plan
 Northshore Mining, Babbitt, MN
 Golder Associates

I:\08116\050300\Northshore-StockpilePlan_Rev_D14-24Apr13\Figures\Figures_2-5_to_3-30_April_2013.x




4/24/2013

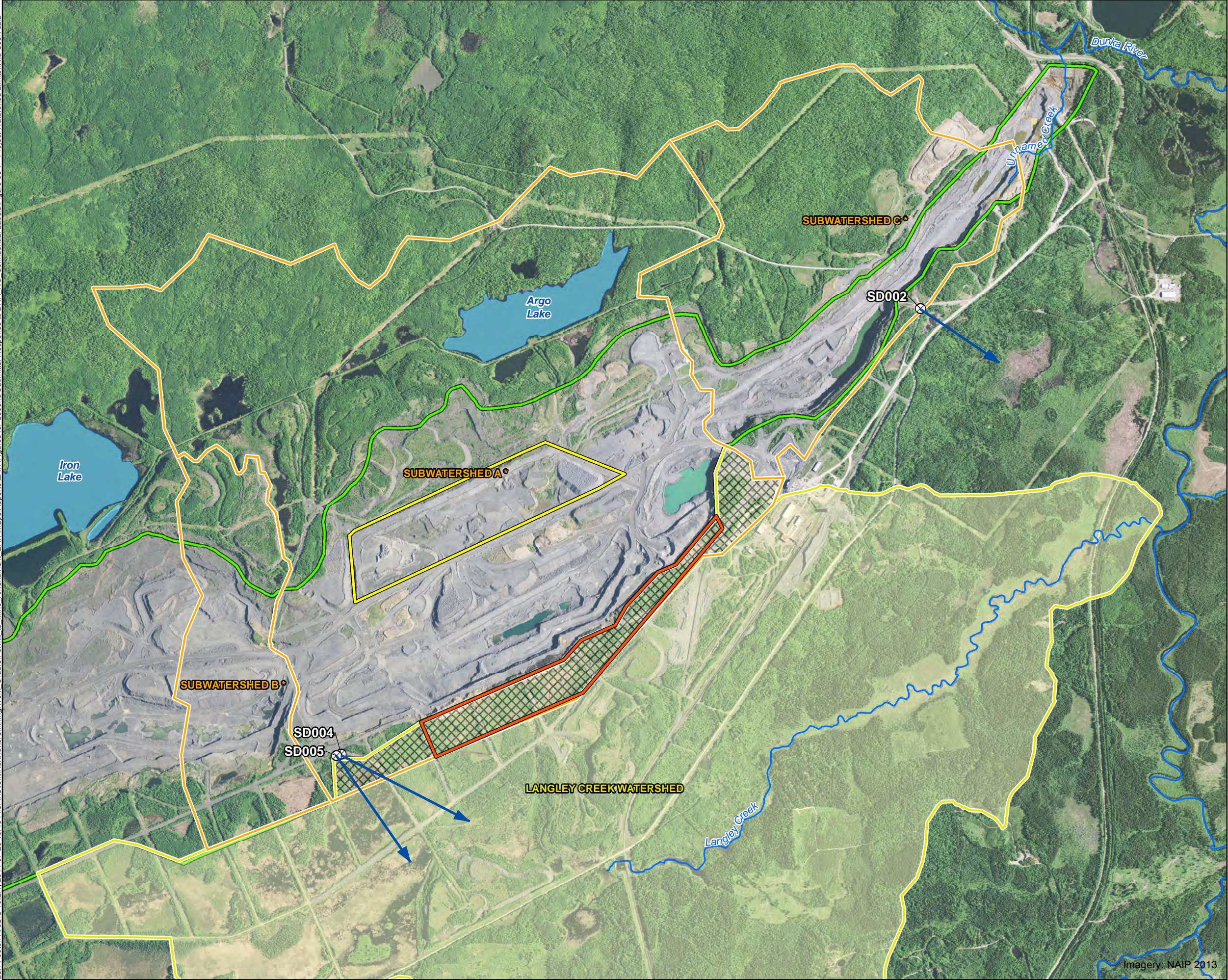
Denver, Colorado, USA
 083-81505



NOT TO SCALE

△	04/19/13	CCS	REVISED ISSUED FOR TYPE II VF STOCKPILE PLAN			CCS	JEO	BRB
△	09/23/10	JSW	ISSUED FOR TYPE II VF STOCKPILE PLAN			MTM	JEO	MPW
△	06/25/10	JSW	ISSUED FOR CLIENT REVIEW			MTM	JSW	BRB
REV	DATE	DES	REVISION DESCRIPTION			CADD	CHK	RW
PROJECT								
NORTHSHORE MINING TYPE II VIRGINIA FORMATION STOCKPILE PLAN								
TITLE								
Figure 6-6 (Golder 2013 Figure 2-4) VFII Stockpile Cross Section								
 DENVER, COLORADO			PROJECT No. 083-81505			FILE No. 08381505C004		
			DESIGN	JSW	06/25/10	SCALE	N.T.S.	REV. C
			CADD	MTM	06/25/10			
			CHECK	JSW	06/25/10			
			REVIEW	BRB	06/25/10			

Bar Footer: ArcGIS 10.2.1, 2014-07-25 10:43 File: I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 06-7 - Project Watershed Limits.mxd User: sal2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Project Area Pit Subwatersheds *
- Langley Creek Watershed**
- Remaining after Project
- Removed by Project
- NPDES Discharge Location
- Lakes
- Streams
- Direction of Discharge

* Subwatersheds A, B, and C drain to the pit and are dewatered via SD004, SD005, and SD002. SD004 and SD005 discharge to Langley Creek. SD002 discharges to Unnamed Creek.

Areas to the northeast and southwest of the UPL Progression that are shown as "Removed by Project" from the Langley Creek watershed would not be excavated as part of the proposed Project. However, because the UPL Progression would affect local surface drainage patterns, those areas would drain into the pit, rather than to Langley Creek, once the UPL Progression is complete.

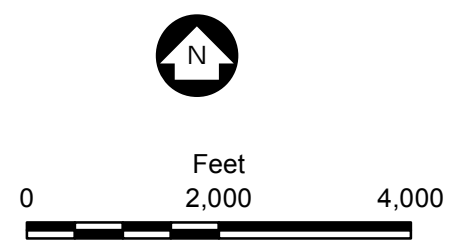


Figure 6-7
PROJECT WATERSHED LIMITS:
DRAINAGE TO PIT
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013

I:\Client\NorthShoreMining\Work_Orders\Permit_to_Mine_Amendment_EAW\Maps\Reports\EA\W\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 06-8 - Estimated Post Closure Watershed Limits.mxd User: sal2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Major Watersheds (Post-Closure)
- Minor Watersheds (Post-Closure)
- Lakes
- Streams

* The Project area is located entirely within the Unnamed Creek Watershed upon final pit closure (see 2008 Long Range Hydrology Study).

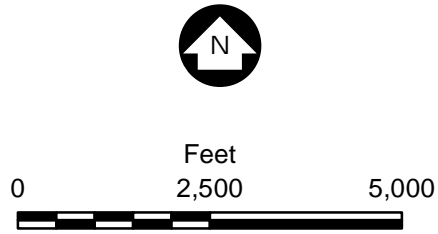
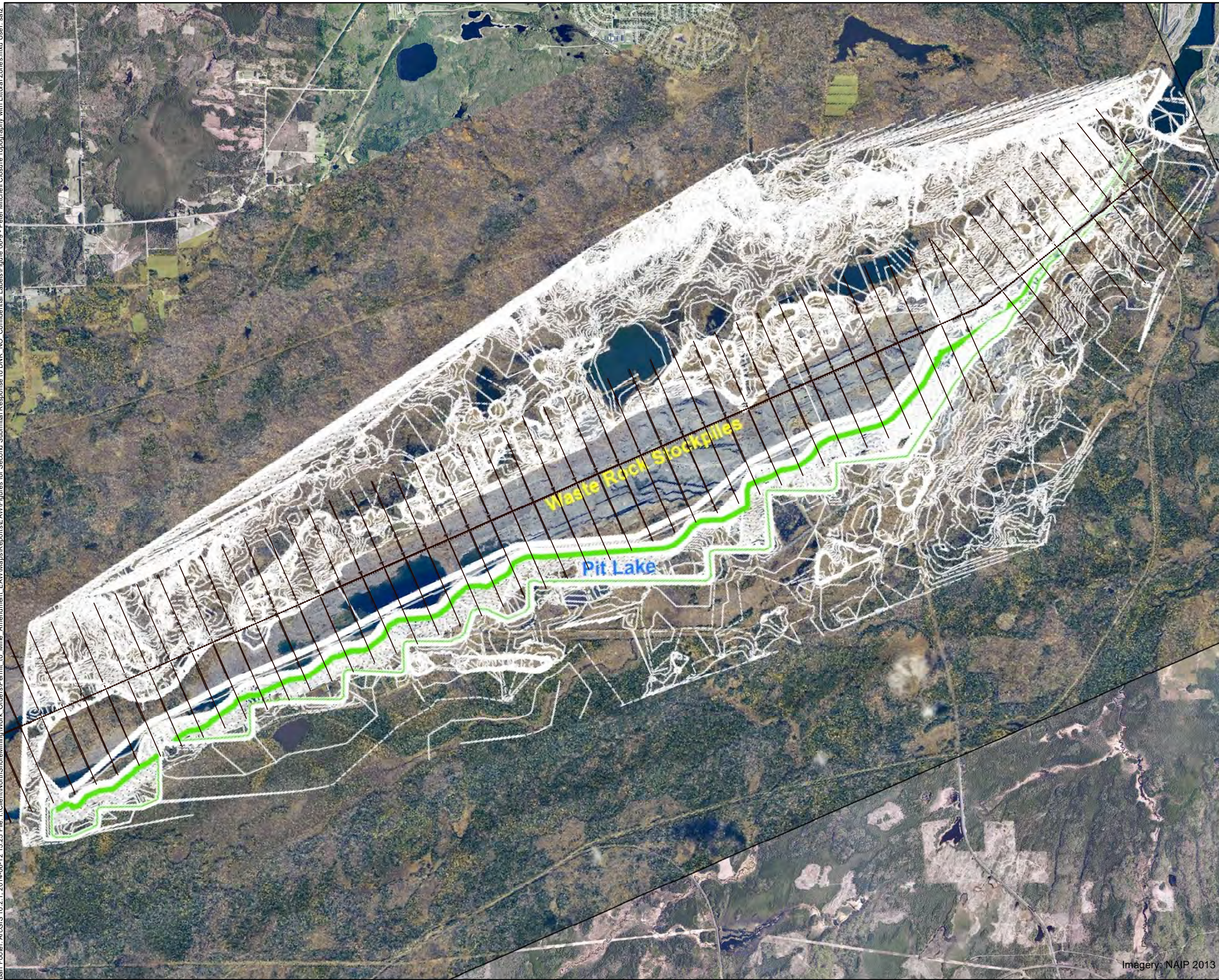


Figure 6-8

ESTIMATED POST-CLOSURE
WATERSHED LIMITS
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 06-9 - Peter Mitchell Closure Topography with Littoral Zones.mxd User: sal2



 Littoral Zone

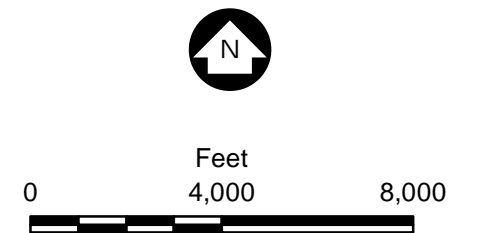
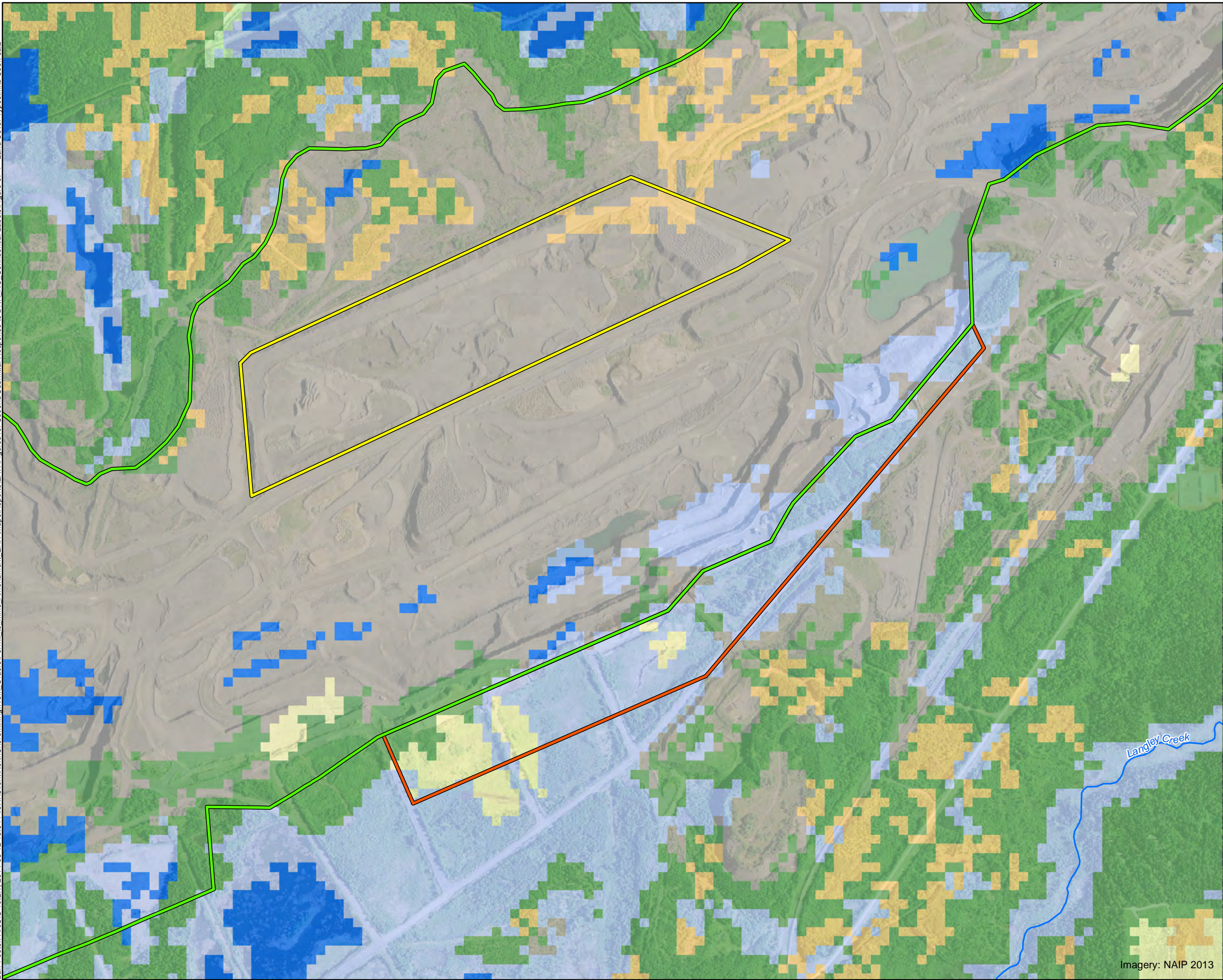


Figure 6-9

PETER MITCHELL CLOSURE
TOPOGRAPHY WITH
LITTORAL ZONES
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013

Bar Footer: ArcGIS 10.2.1, 2014-06-12 15:34 File: I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EA\W\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 07-1 - Land Cover Types.mxd User: srs2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Land Cover (NLCD, 2006)
 - Barren Land (Rock/Sand/Clay)
 - Wooded / Forest
 - Developed Open Space
 - Wetlands
 - Grassland/Herbaceous
 - Open Water
 - Shrub/Scrub
- Streams

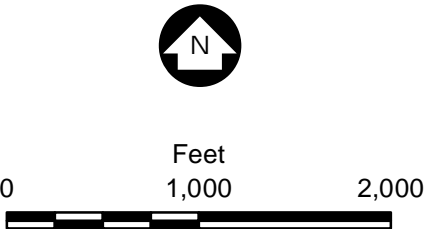
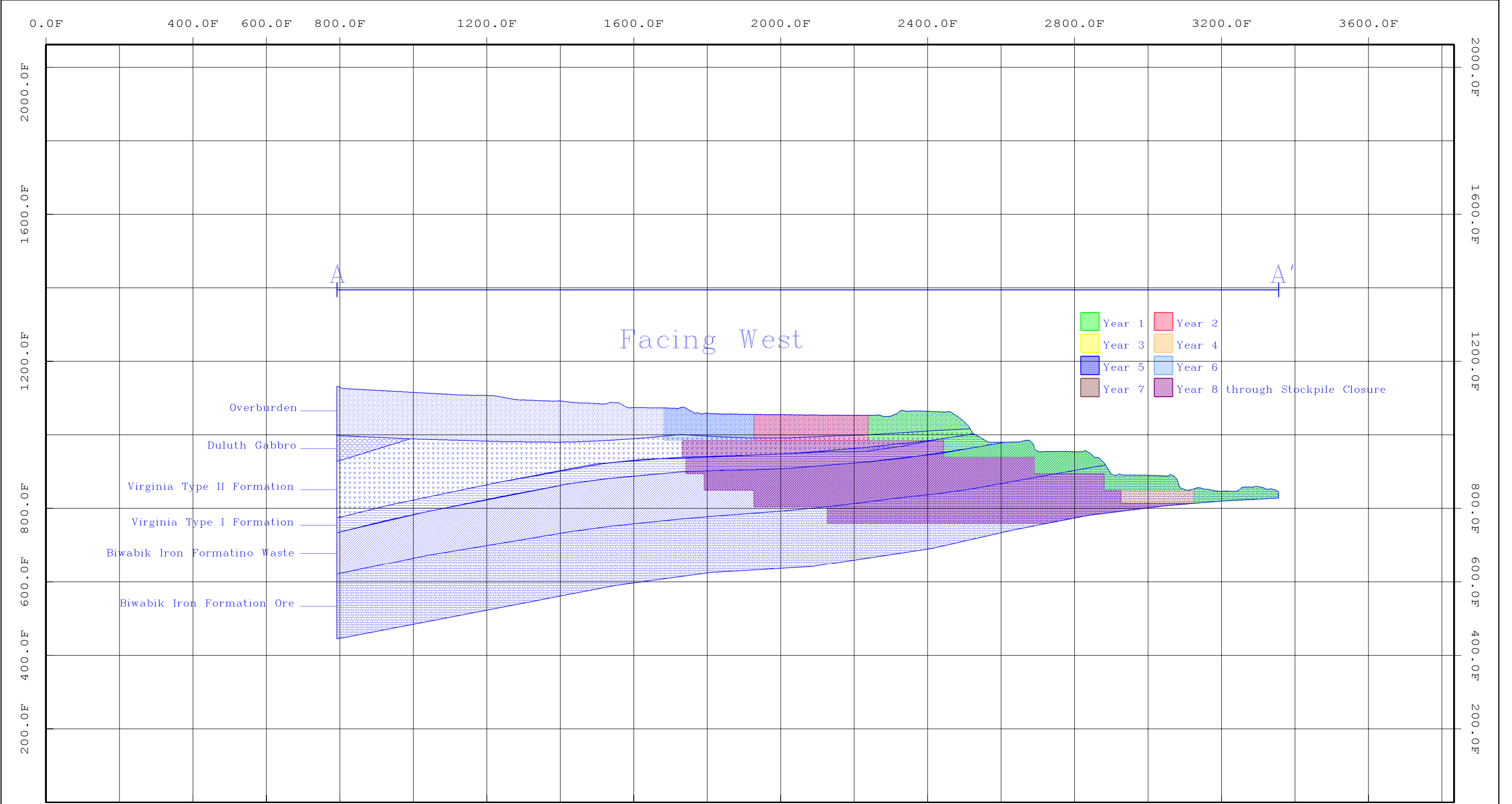


Figure 7-1
LAND COVER TYPES
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013



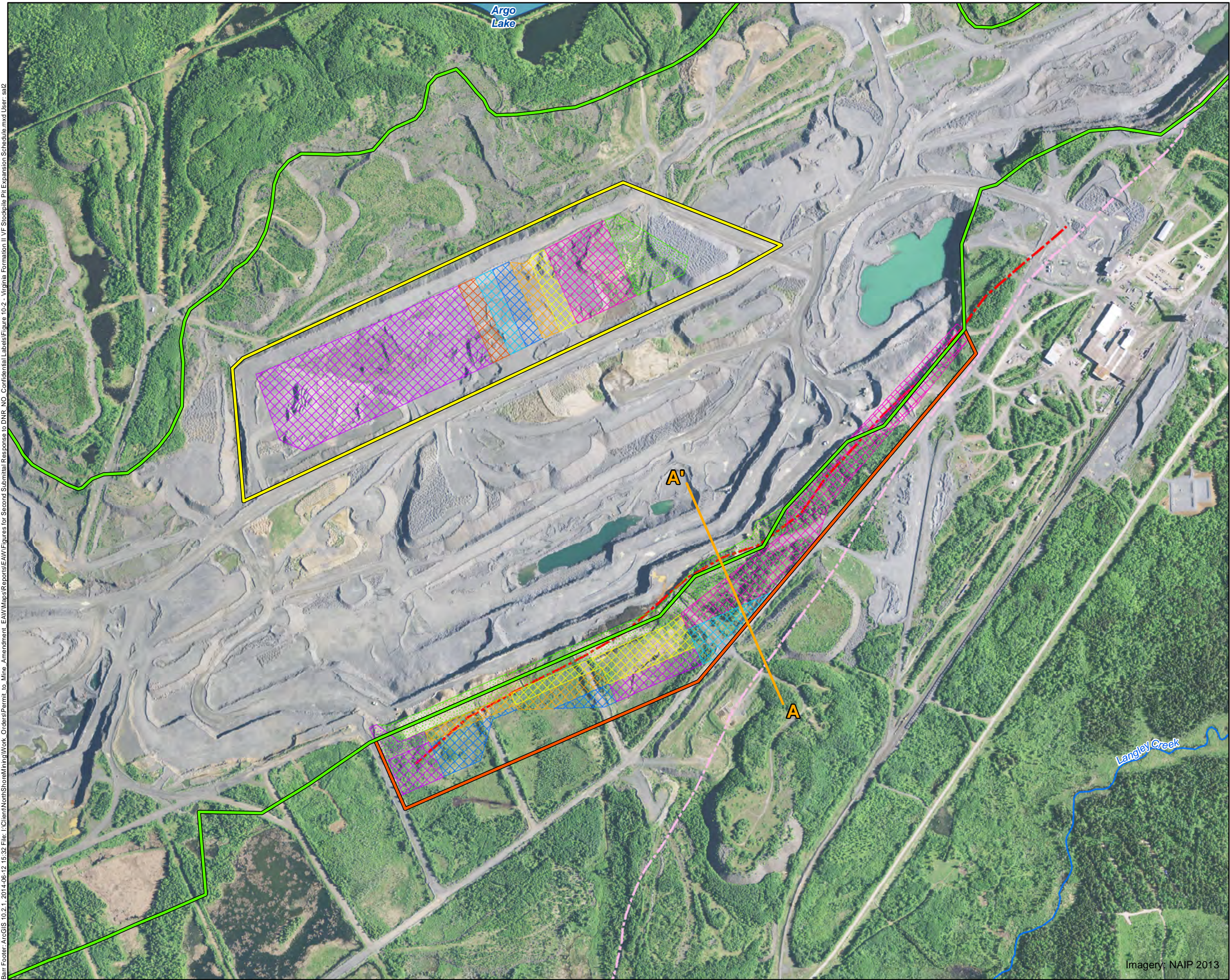
0.0F 400.0F 600.0F 800.0F 1200.0F 1600.0F 2000.0F 2400.0F 2800.0F 3200.0F 3600.0F

Northshore Mining Virginia Formation Permit Main Pit Cross Section	Date	02-Jun-2014
	Block Line	8.4
	Scale:	1:3000



Figure 10-1.

Barr Footer: ArcGIS 10.2.1, 2014-06-12 15:32 File: I:\Client\NorthShore\Mining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EA\W\Figures for Second Submittal\Figure 10-2 - Virginia Formation II VF Stockpile Pit Expansion Schedule.mxd User: sst2



- Current Ultimate Pit Limit
 - Proposed Ultimate Pit Limit
 - Proposed Type II VF Stockpile
 - Cross Section A-A'
 - VFII Stockpile Pit Progression**
 - Year 1, Type I VF & BIF patterns
 - Year 2, Type II VF patterns
 - Year 3, Type II VF patterns
 - Year 4, Type II VF patterns
 - Year 5, Type II VF patterns
 - Year 6, Type II VF patterns
 - Year 7, Type II VF patterns *
 - Years 7 through Closure, Type I VF & BIF patterns
 - Years 7 through Closure, Type II VF patterns
 - Virginia Formation Metasediments
 - Duluth Gabbro
 - Lakes
 - Streams
- * In year 7 the pit progresses down instead of out.

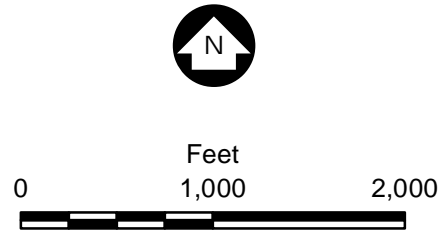
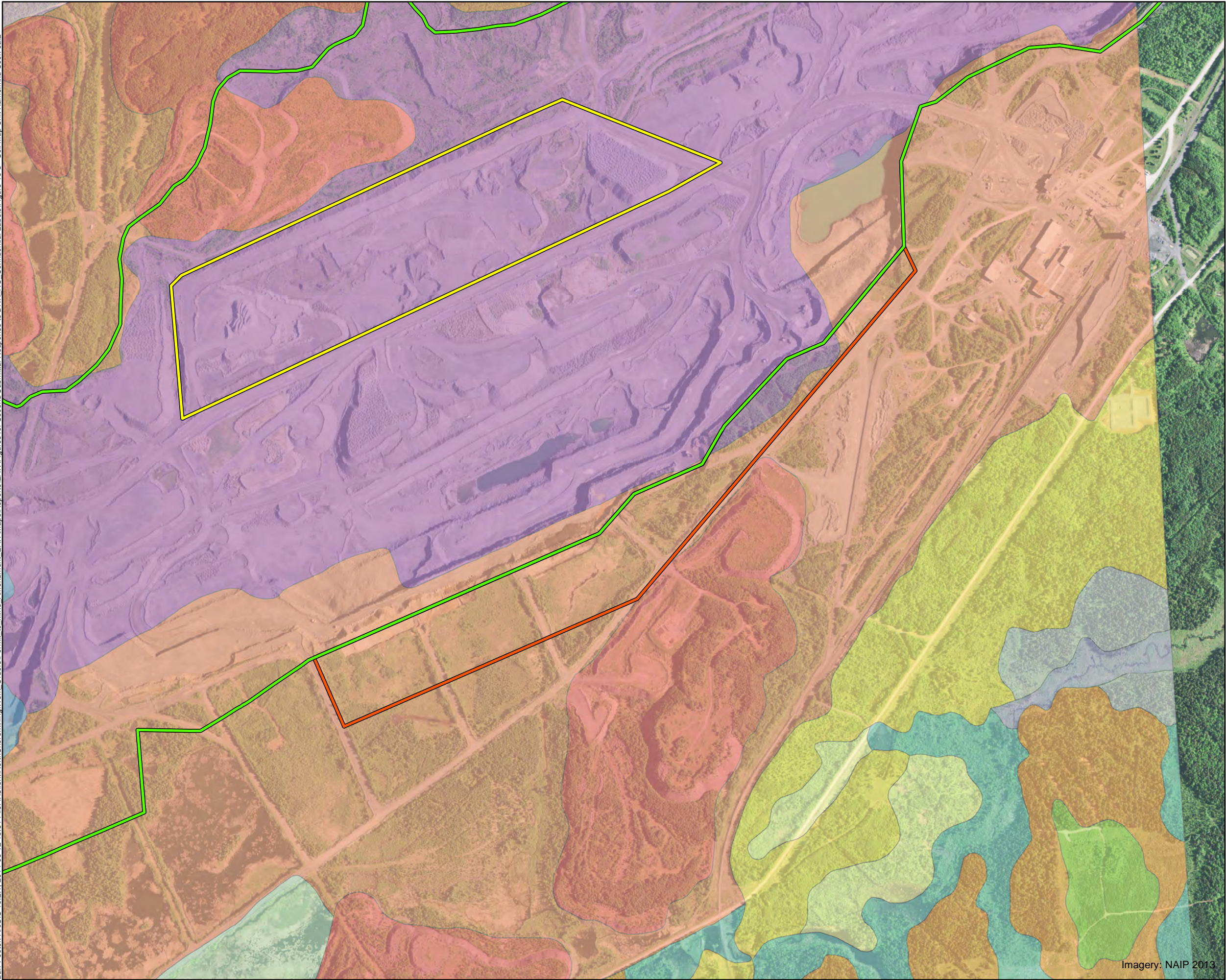


Figure 10-2

VIRGINIA FORMATION
TYPE II VF STOCKPILE
PIT EXPANSION SCHEDULE
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013

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- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Soil Map Unit Name
- F166A

Aquepts, rubbly-Tacoosh-Rifle complex, 0 to 2 percent slopes
- F13A

Babbitt, bouldery-Aquepts, rubbly, complex, 0 to 3 percent slopes
- 1020A

Bowstring and Fluvaquents, loamy, 0 to 2 percent slopes, frequently flooded
- 1048

Stockpiles, iron mine
- F12B

Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery
- F2B

Eaglesnest-Wahlsten complex, 2 to 8 percent slopes, bouldery
- F3D

Eveleth-Eaglesnest-Conic complex, 6 to 18 percent slopes, bouldery
- F174B

Keenan-Vasso complex, 0 to 4 percent slopes
- 1049

Pits, iron mine
- 1021A

Rifle soils, 0 to 1 percent slopes
- F6B

Soudan-Eaglesnest-Babbitt complex, 1 to 8 percent slopes, bouldery
- 1003B

Udorthents, loamy (cut and fill land)
- M-W

Water, miscellaneous
- USFS

U.S. Forest Service mapping

Soil Data: NRCS gSSURGO

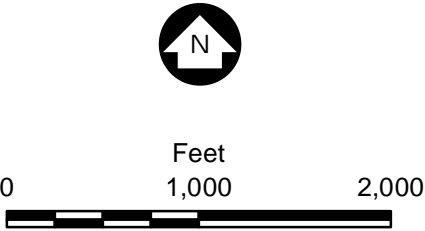


Figure 10-3

SOIL MAP UNIT NAME

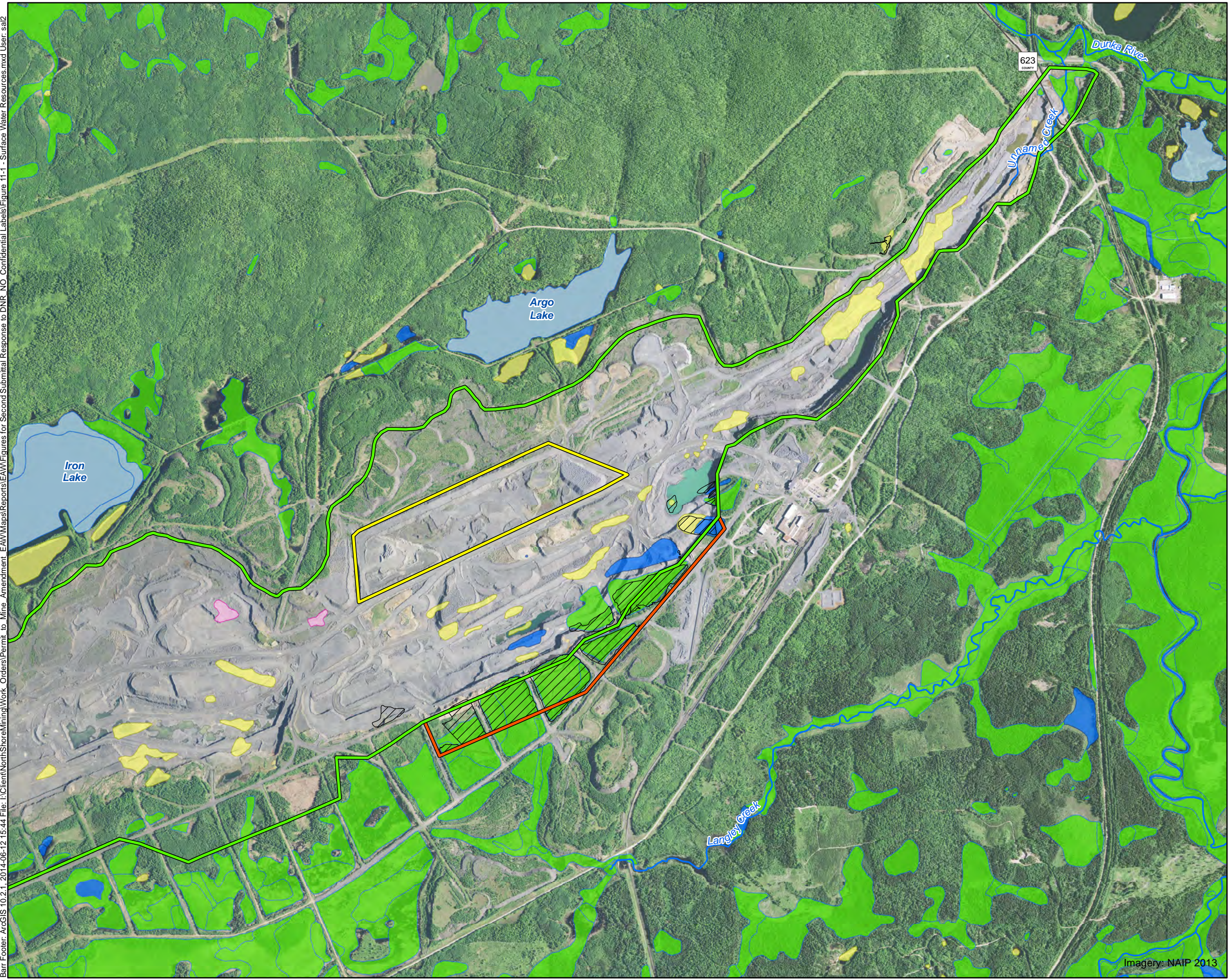
Northshore Mining Company

Progression of the Ultimate Pit Limit

St. Louis County, Minnesota

Imagery: NAIP 2013

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- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Streams
- Delineated Wetlands (Barr)
- Wetlands (National Wetlands Inventory)**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Industrial Ponds

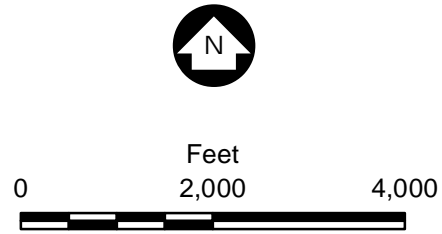
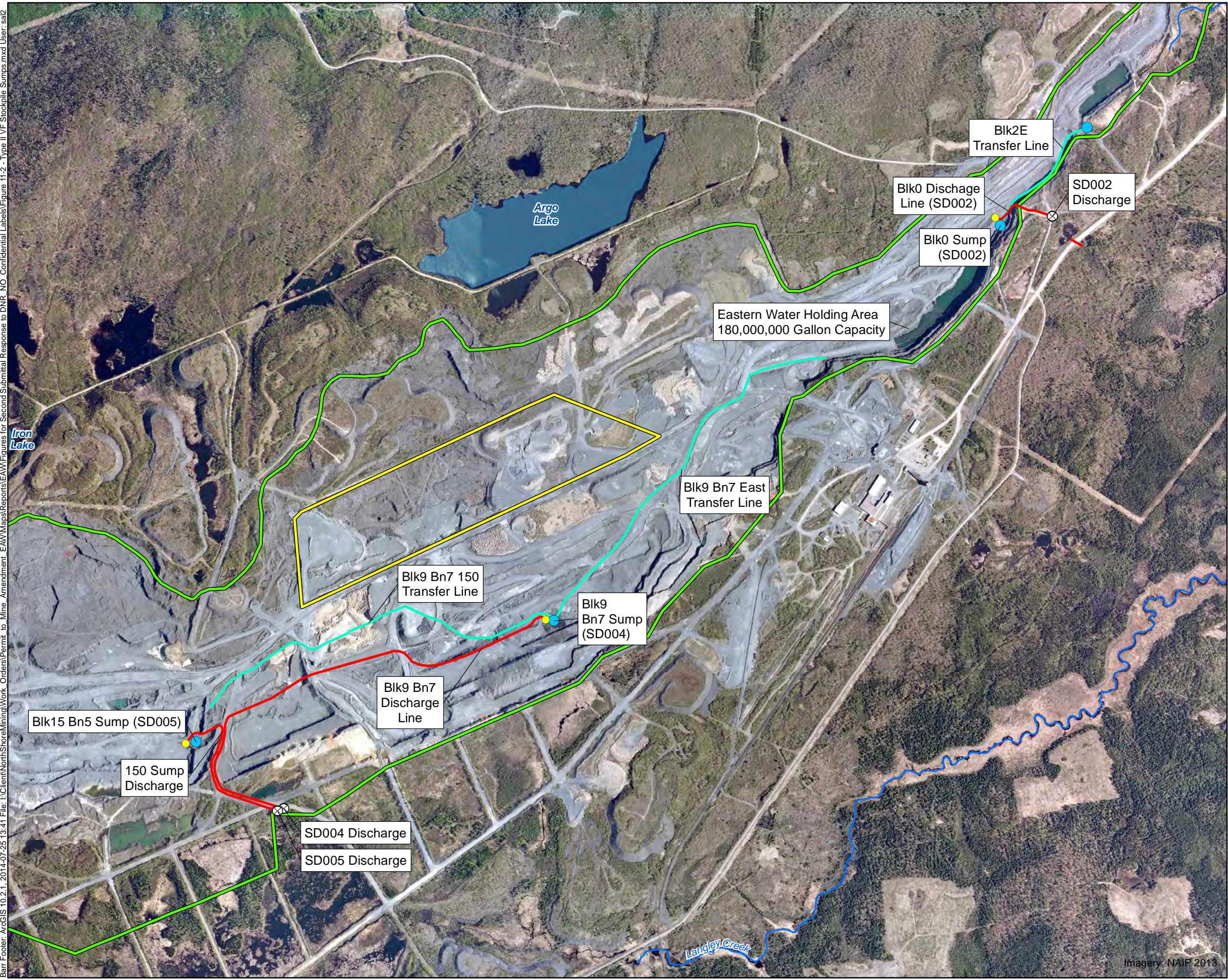


Figure 11-1

SURFACE WATER RESOURCES
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013

Bar Footer: ArcGIS 10.2.1, 2014-07-25 13:41 File: I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 11-2 - Type II VF Stockpile Sumps.mxd User: sal2



- CO2 Bubbler
- Sump
- NPDES Discharge Location
- Discharge Route
- Transfer Route
- Current Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Streams
- Lakes

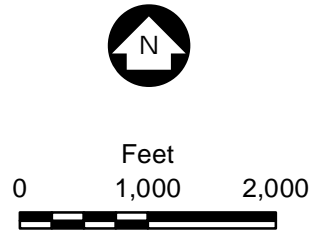
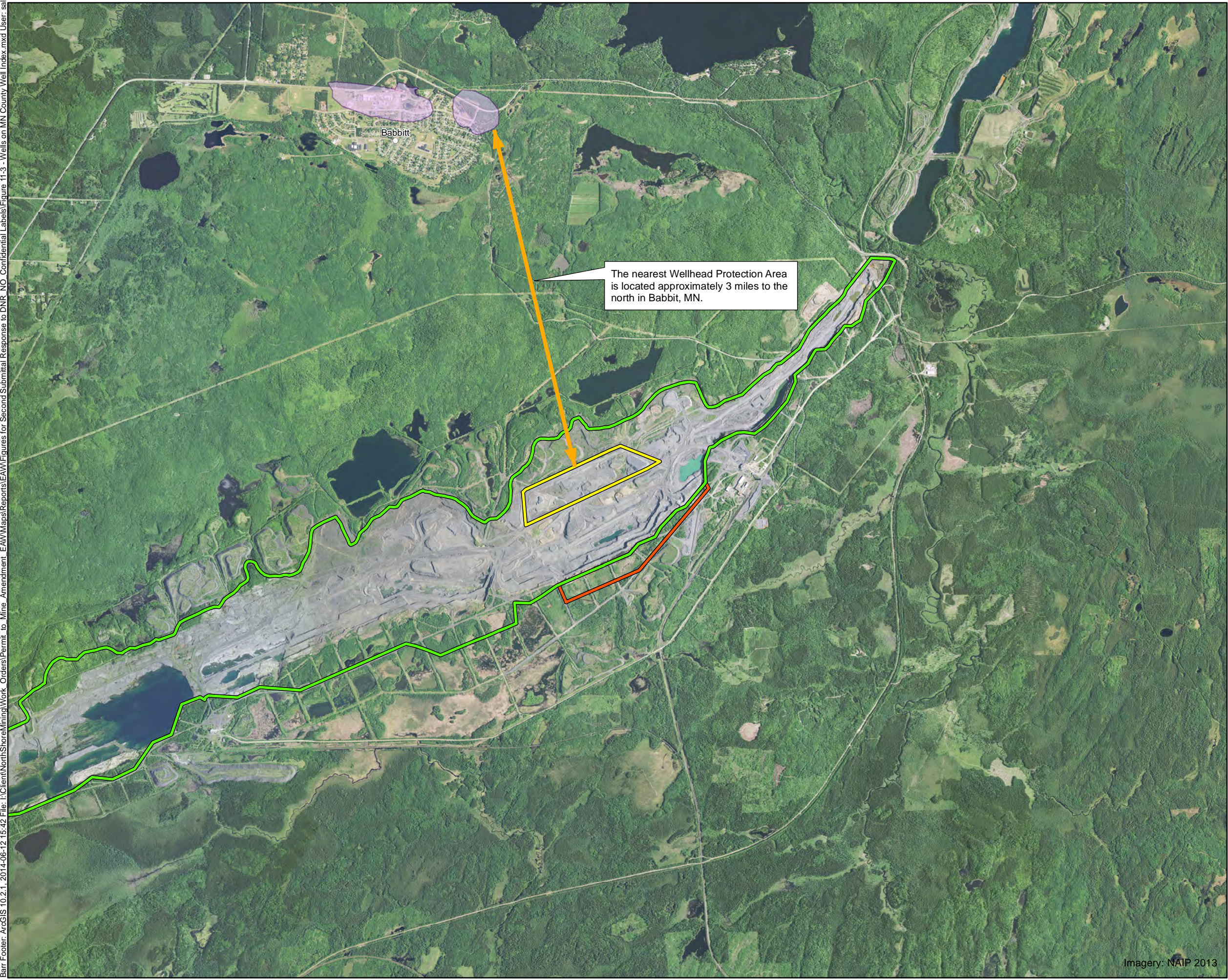


Figure 11-2
TYPE II VF STOCKPILE SUMPS
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013

Barr Footer: ArcGIS 10.2.1, 2014-06-12 15:42 File: I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 11-3 - Wells on MN County Well Index.mxd User: sal2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Wellhead Protection Area

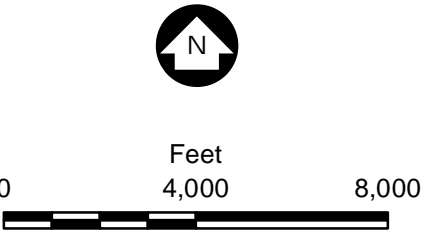
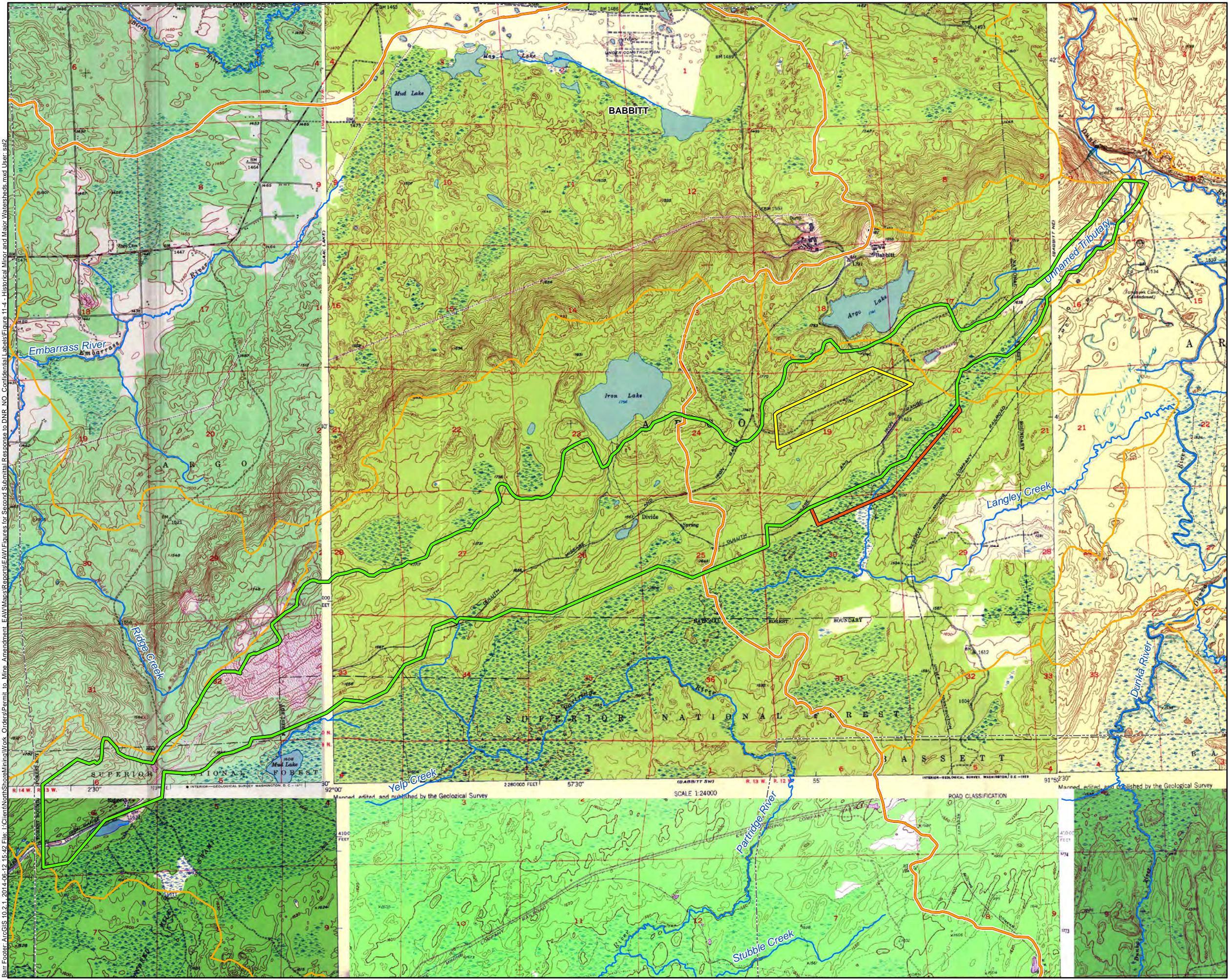


Figure 11-3
WELLS ON MN COUNTY WELL INDEX
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery: NAIP 2013



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Historical (1950) Minor Watersheds
- Historical (1950) Major Watersheds *
- Municipal Boundary
- Streams

* The watershed divide through the pit has been removed. The current location of the sumps and their outfalls approximates the historical divide.

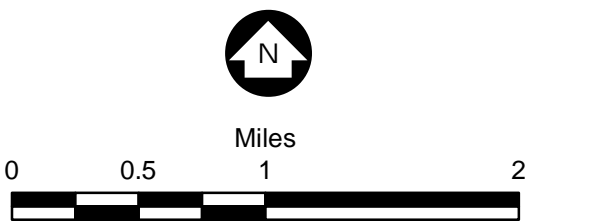
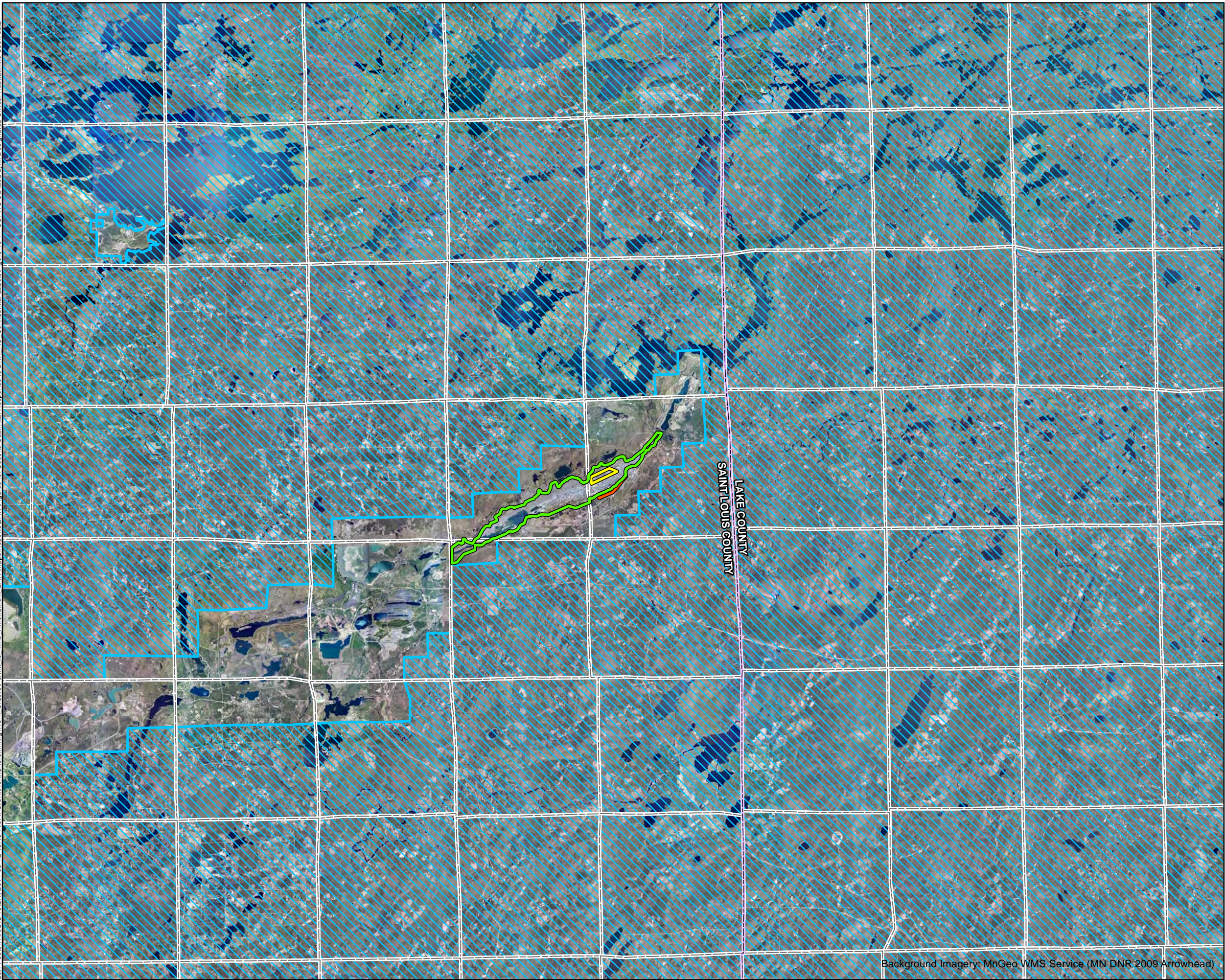


Figure 11-4
PRE-MINING TOPOGRAPHY AND
SURFACE WATER FEATURES
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment EAW\Maps\Reports\EAW\Figures for Second Submittal Response to DNR NO Confidential Labels\Figure 13-1 - USFWS Canada Lynx Designated Critical Habitat.mxd User: ral2



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- USFWS Lynx Critical Habitat
- County Boundary
- Township Boundary

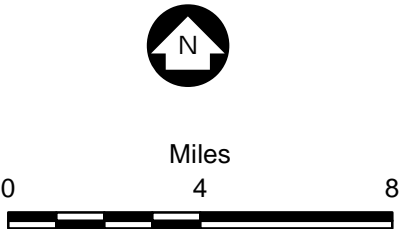


Figure 13-1
USFWS CANADA LYNX DESIGNATED
CRITICAL HABITAT
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Background Imagery: MnGeo WMS Service (MN DNR 2009 Arrowhead)



- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Lakes
- Streams
- NPDES Discharge Location of Interest
- NPDES Discharge Location

Note: SD004 and SD005 are the only discharge points that would potentially carry water from the proposed project.

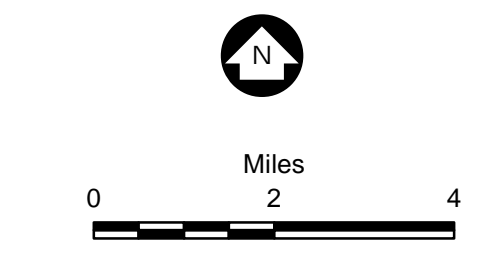
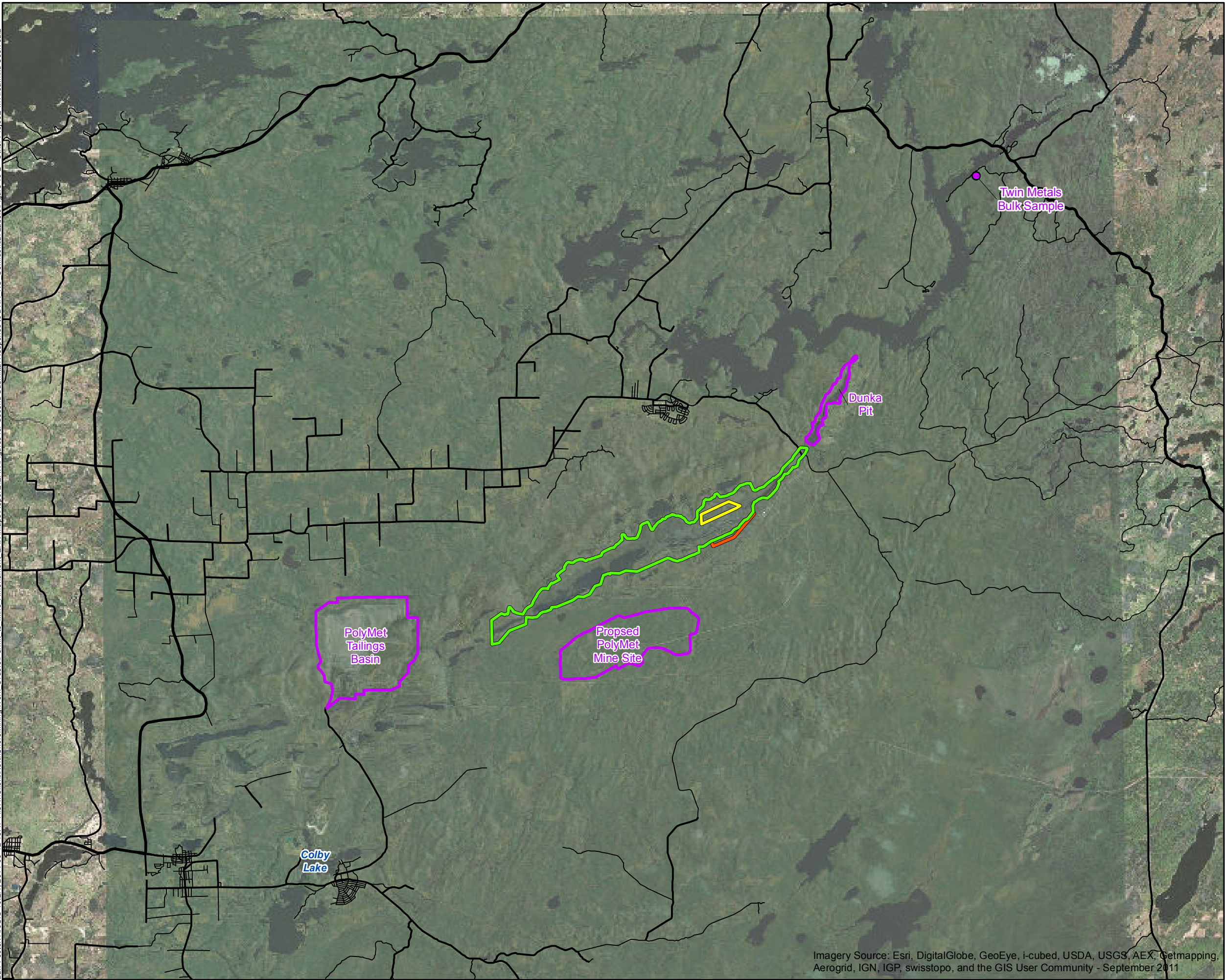


Figure 19-1

NPDES OUTFALL LOCATIONS
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Bar Footer: ArcGIS 10.2.1, 2014-06-12 15:47 File: I:\Client\NorthShoreMining\Work Orders\Permit to Mine Amendment\ EAW\Maps\Reports\EA\W\Figures for Second Submittal\Response to DNR NO Confidential Labels\Figure 19-2 - Other Projects in Area.mxd User: sal2



- Area Projects
- Current Ultimate Pit Limit
- Proposed Ultimate Pit Limit
- Proposed Type II VF Stockpile
- Lakes
- Streams

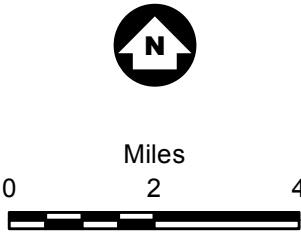


Figure 19-2
OTHER PROJECTS IN AREA
Northshore Mining Company
Progression of the Ultimate Pit Limit
St. Louis County, Minnesota

Imagery Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community - September 2011