

2022 Annual Report and 2023 Operating Plan
Northshore Mining Company
January 2023

2022 Annual Report Contents

1. Documents:

- a. Preceding year financial and income statements for parent company(ies) or a location where these documents can be viewed or downloaded

- i. The 2022 financial statement has not been published as of now. Annual financial reports are typically published at the end of February of every year. To obtain the .pdf copy once published, please visit:

<https://www.clevelandcliffs.com/investors/sec-filings/annual-reports>

- b. Any changes in organizational structure (hierarchy) or relationships among or within companies involved in the mining operation (i.e., parent companies, owners, principal stockholders, partners, joint ventures, or managing agents)

- i. [Paul Carlson – General Manager of Northshore Mining Company](#)

- 1. [Cory Wills – Manager Mine – Babbitt](#)
 - 2. [Andrea Hayden - Manager Environmental](#)

- c. Updated contact information, including contact person and mailing addresses, for annual PTM fees

- i. Permit to Mine fees should be sent to:

[Attn: Andrea Hayden](#)
[Northshore Mining Company](#)
[10 Outer Drive](#)
[Silver Bay, MN 55614](#)

- d. Updated Certificate of Insurance or indicate if self-insured

- i. [See Document CERTIFICATE OF LIABILITY INSURANCE](#)

2. An account of actual mining activities, including:

- a. The actual rate (production amount) of mining in 2022 (tons of product)

- i. [4,596,873 long tons of crude taconite were mined and 2,424,182 long tons of stripping were moved at Northshore Mining Company \(NSM\). This resulted in the production 81,118 dry long tons of standard pellets and 1,034,642 dry long tons DR pellets. Total production from the Silver Bay plant was 1,115,760 dry long tons of pellets.](#)

- b. Types, amounts (tons), source, stockpile location, sequence, and schedule of ore body mining in table format; distinguishing between the following:

i. Ore

Pit	Tons
East Pit	28,745
Main Pit	1,429,975
West Pit	3,138,153
	4,596,873

ii. Waste Rock

Stockpile	Tons
101 STOCKPILE	122,608
170 STOCKPILE	194
175 STOCKPILE	582
90 STOCKPILE	1,899,260
93 SURFACE STK	21,534
MAINPIT VFII	1,552
RAMPS AND ROADS	203,312
	2,249,042

iii. Surface Overburden

Area	93 SURFACE STK	RAMPS AND ROADS
2022 SURFACE	146,860	28,280

- c. Physical and chemical characteristics of mined waste

- i. During 2022, Northshore mined taconite waste rock that was similar in nature to ore, being typically durable and tabular fragments of varying size composed of iron oxide minerals interlayered with quartz or chert and lesser amounts of carbonate or iron silicate minerals, but with concentrations of iron oxides that were not economically recoverable. Overburden was composed of glacial till varying in texture from clay-rich to sandy or gravel, frequently containing cobbles or boulders of granitic source rocks. In addition, the mining of Virginia Formation Type II material is reported in the “Virginia formation Annual Update 2022” and is managed according to the approved stockpiling plan.

- d. The ore beneficiating process, including types and amounts of any added chemicals

- i. Northshore’s mining and ore beneficiating processes and approved chemical addition rates are described in two permits: 1) NPDES MN0046981 – Peter Mitchell Mine and 2) NPDES MN0055301 – E.W. Davis Works and Mile Post 7 Tailings Basin Area. A copy of both have been attached as references.
- ii.

e. Tailings disposal:

- i. In accordance with the updates required in the MilePost 7 5-Year Operating Plan:
 - a. The 2022 operations at Milepost 7 Tailings Basin followed the Five Year Operations Plan – Years 2019 to 2023 prepared by Barr Engineering Company and dated January 2019. The mine and plant were idled starting in April through the end of the year, which affected the work at the basin.
 - b. Spigotting was completed off the south side of the splitter dike and the south corner of the reclaim dike.
 - c. Aggregate was placed on Dam 2.
 - d. Dam 2 was raised to 1250' and extended at the west end to tie into the hillside at 1250'.
 - e. A 10' lift was completed on the Dam 2 clay cutoff to an elevation of 1250'.
 - f. 1,159,120 long tons of plant aggregate were hauled to the tailings basin for dam and railroad grade construction.
 - g. 570 rail cars or approximately 45,600 long tons of plant aggregate were hauled to the mine for permitted use.
 - h. 2,453,232 long tons of fine tailings were spigotted into the basin area.
 - i. The attached map delineates plant aggregate and fine tailings placement.
 - j. The water treatment plant averaged 3,358 gallons per minute during the 8,350 hours it operated for a total of 1,750 million gallons discharged.

f. Watershed modifications (i.e., surface water diversions, groundwater level alteration)

There were no watershed modifications in Babbitt or Silver Bay.

g. PTM amendments, assignments, and/or other PTM adjustments approved in 2022

- i. There were no PTM amendments or variances approved in 2022.

3. An account of actual reclamation activities, including discussion of:

a. Reclamation construction methods

- i. Babbitt – Reclamation that occurred in Babbitt was to the Virginia Formation Stockpile. Please refer to the attached report “Virginia formation Annual Update 2022”.
- ii. Tailing Basin / Silver Bay
 - a. Beaches: Fine tailings beaches were mulched to control fugitive dust from wind erosion. 137 acres of beach were mulched with grass hay at 2 tons per acre.
 - b. Dams: Vegetation growth continues on Dam 1 and Dam 2 final slopes. 21 acres on the downstream slope of Dam 5 were seeded and mulched. The seed mix consisted of:
 - c. 13% birdsfoot trefoil
 - d. 24% vernal alfalfa
 - e. 2% redtop
 - f. 18% intermediate wheatgrass
 - g. 11% reed canary grass
 - h. 11% orchardgrass
 - i. 21% Kentucky 31 fescue
- iii. Delta Area Silver Bay: Approximately 3.5 acres of dredge spoils were seeded and mulched on the delta.

- b. Vegetation methods, including amounts, locations, and types of:
 - i. Babbitt –Please refer to the attached report “Virginia Formation Annual Update 2022”.
- c. Number of acres planted at specific locations of completed reclamation

2022 Completed Reclamation Activities 3c

Location of Completed Reclamation	Number of Acres Completed Reclamation
Virginia Formation Type II Stockpile	9.2 Acres
Dam 5	21 Acres

- d. Sequence and schedule/dates when reclamation completed
 - i. Virginia Formation Type II Stockpile reclamation completed on August 11-15, 2022, see “Virginia Formation Annual Update 2022” for details.
 - ii. Dam 5 reclamation completed on September 9, 2022.
 - e. Completed or continued reclamation research
 - i. Test Plots in Babbitt for Engineered Stockpile (Virginia Formation Annual Update 2022, section Test Plot Program)
 - ii. Virginia Formation Type II Stockpile – Northshore completed 39.67 acres of reclamation. Of those acres, 5 acres did not receive soil amendments. See the Virginia Formation Annual Update for more detail.
4. A description of dust control activities
- a. Tailings Basin:
 - i. For fugitive sources at the basin, activities as described by Northshore’s Title V Air Permit # 07500003-010, Appendix B – *Fugitive Dust Control Actions Required for Mile Post & Area* were initiated as needed.
 - ii. Beaches - Fine tailings beaches were mulched to control fugitive dust from wind erosion. Approximately 137 acres of beach were mulched with grass hay at 2 tons per acre.
 - iii. Basin roads and ramps were watered during dry conditions.
 - b. Mine:
 - i. Point Sources – For point sources at the mine, control equipment as described by Northshore’s Title V Air Permit # 13700032-001 were in operation while the emission source(s) were operating.
 - ii. Roads/fugitive sources - operates water trucks and applies chloride as pit dust conditions require.
 - c. Plant/Delta:
 - i. Point Sources - For point sources at the plant, control equipment as described by Northshore’s Title V Air Permit # 07500003-101 were in operation while the emission source(s) were operating.
 - ii. Roads/fugitive sources - within the plantsite, water and Coherex are applied by water trucks for dust control.

5. Number and location of wetland acres impacted by mining activities during 2022
 - a. Progress in complying with the Wetland Conservation Act and include any:
 - i. Wetland Delineations (completed or in progress)
 - a. [There were no wetland delineations completed in 2022.](#)
 - ii. Annual wetland replacement monitoring report(s)
 - a. [2022 Indirect Wetland Impact Monitoring Report, Year 3 – Western Progression](#)
 - b. [2022 Indirect Wetland Impact Monitoring Report, Year 7 – South Pit](#)
 - c. [2022 Indirect Wetland Impact Monitoring Report, Year 3 – West Ridge RR and Tailings Basin Progression](#)
 - iii. An update on wetlands-focused special conditions, if applicable:
 - a. [West Ridge Railroad and Tailings Basin Progression Permit](#)
 - i. [Special Condition #1 – Submit a Wetland Impact Monitoring Plan for Agency approval \(approved on 5/20/22\)](#)
 - ii. [Special Condition #2 – Submit an Engineering Controls Plan for Agency approval \(submitted 10/31/2022 - Pending DNR’s approval\)](#)
 - b. [Western Mine Progression Permit](#)
 - i. [No Special Conditions Apply](#)
 - c. [South Pit Progression \(Virginia Formation Project\)](#)
 - i. [Hydrology and vegetation monitoring continues – Year 7](#)
 - iv. An accounting of wetland credits

Wetland Permit	Total Permitted Impact Acres	2022 Mitigation Acres	Previous Mitigation Acres	Remaining Permitted Impact Acres
NS Dedicated (2005 + 2016)	107.32	0.00	83.72	23.60
NS Dedicated (2010)	26.34	0.00	21.45	4.89
NS Dedicated (2013)	0.74	0.00	0.73	0.01
NS Dedicated (2015 Bear Lake Outlet)	4.54	0.00	4.54	0.00
Western Mine Progression (2021)	43.97	0.00	3.42	40.55

6. Maps:
 - a. A map depicting mining and reclamation activities described above
 - i. Previous permanent reclamation with a distinct contrasting color
 - a. [Included on the “2022 DNR Annual Report and Reclamation Activities” Map](#)
 - ii. Topographical information on all maps
 - a. [Included on the “2022 DNR Annual Report and Reclamation Activities with Contours” Map](#)
 - b. A map depicting wetland impact areas (can be combined with 6a)
 - i. [There were no wetland impacts in 2022 in Babbitt.](#)
 - ii. [There were inadvertent impacts in 2022 at the toe of Dam 2 at the Mile Post 7 Tailings Basin \(delineation is not attached but was submitted to Jennifer Engstrom on 9/12/22 by Andrea Hayden\).](#)

2023 Operating Plan Contents

1. Anticipated changes from 2022 in:
 - a. The amount of minable reserves, including:
 - i. Factors used to determine minable reserves
 - i. [Reference the TRS report CLF-2021 12.31 10-K EX 96.3](#)
 - ii. Factors which would expand or diminish such reserves
 - i. [The remaining economic ore reserves are 817,794,000 long tons as of December 31, 2022.](#)
 - b. Rate of mining pursuant to MN Rules part 6130.4300, subpart 7, item A
 - i. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
 - c. The operating life of the mine
 - i. [Reference the TRS report CLF-2021 12.31 10-K EX 96.3](#)
2. Anticipated mining activities pursuant to MN Rules part 6130.4300, subpart 7, item B, including:
 - b. Types, amounts (tons), source, stockpile location, sequence, and schedule of ore body mining in table format; distinguishing between the following:
 - i. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
 - c. Physical and chemical characteristics of mined waste
 - i. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
 - d. The ore beneficiating process, including a discussion of the type and amount of any chemicals to be added
 - i. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
 - e. Tailings disposal:
 - i. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
3. Anticipated reclamation per MN Rules 6130.4400, subpart C
 - a. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
4. Anticipated wetland impact and replacement activities
 - a. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
5. Maps:
 - a. A map depicting anticipated mining, stockpiling, construction, reclamation, and watershed modifications
 - a. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)
 - b. A map depicting anticipated wetland impact areas (can be combined with 5a)
 - a. [Information can be provided once a public statement has been made on Northshore Mining Company's operating status for 2023.](#)

6. Areas anticipated for deactivation. A Deactivation Plan must be submitted (in duplicate) at least two years before beginning deactivation for any portion of the mining area (MN Rules 6130.4600 and 6130.5400). This plan would represent an amendment per MN Rules 6130.5000 and would replace the operating plan for the portion to be deactivated. Please contact DNR before submitting a Deactivation Request or Deactivation Plan.
 - b. [No portions of the mine or plant are scheduled for deactivation.](#)
7. Anticipated changes in mining or reclamation plans as compared with approved plans. Note that changes may necessitate a permit amendment. Please contact DNR before submitting an amendment application.
 - c. [There will be no changes to the approved plans.](#)

Report and Map Formatting

1. Submit an electronic copy of the text in .pdf and maps in both .pdf and .dxf or ArcGIS shapefile(s).
2. Maps should be at 1" = 800' or 1" = 1000' scale, with location control points (forty lines and section corners; north arrow or compass rose). Include a legend.
3. Show the mining area (i.e., permit limits for pits, stockpiles, tailings basin, etc.) on the maps. Please also show current footprints for features that have not yet reached permit limits.

Special Conditions Information

1. Information related to VFII Special Conditions is being addressed under separate cover. No responses or input required here.

Additional Information

1. A map was submitted on Friday, May 11, 2022, by Andrea Hayden via email containing surface and mineral ownership. Please indicate if there have been any changes to surface or mineral ownership or lease (MN Rules 6130.4500, Item E with reference to 6130.4300, subpart 6). The goal is to clearly identify control in the form of surface and/or mineral ownership/leases and confirm that companies can fulfill the purpose and policy (MN Rules 6130.0200) and the definition of "operator" (MN Rules 6130.0100, subpart 12).
 - a. Indication of any changes since May 11, 2022, and clearly identify changes on the map
 - i. [Reference the TRS report CLF-2021 12.31 10-K EX 96.3](#)
 - b. Confirmation of appropriate control for all surface and mineral parcels required for the operation.
 - i. [Reference the TRS report CLF-2021 12.31 10-K EX 96.3](#)
2. The Block 3 water treatment ponds reported in the 2013 Annual Report are part of the mining area; inclusion will need a PTM Amendment. Provide an estimated timeline for Amendment proposal submission.
 - a. [Further discussion with DNR would be beneficial on this requested amendment application.](#)
3. Provide update on the Peter Mitchell Pit Concept Development Plan. Note that the 2019-2020 AROP indicated that the E30 Surface Stockpile was sloped in 2019. Please provide an update if any further reclamation activities were performed on the E30 Surface Stockpile in 2022.
 - a. [When Northshore obtained an additional ore lease in the vicinity of the E30 Surface Stockpile we made the decision to wait to reclaim the stockpile until the additional ore has been proven economically profitable to mine. If the ore become planned to be mined the surface in that lease will be added to that stockpile.](#)
4. Regarding the western mine progression, if and when Stockpile S223 Surface was utilized, report material movement and any reclamation activities in the 2022-2023 AROP.
 - a. [It will be reported in future DNR Operating Plans when Northshore plans to stockpile in the S223 Surface Stockpile.](#)

5. Please respond to any pending or non-resolved items from the 2021-2022 AROP requests and comments.
 - a. See Attached document “2021 AR - 2022 OP Northshore Comments and Requests”
6. Due to non-availability of some taxa, VFII Stockpile seed mix components changed during July 2022 – non-available taxa were substituted with appropriate and available taxa. Specify areas seeded with adjusted seed mix(es) on the appropriate map.
 - a. See Table 1 in appendix H and M-4 map in the “Virginia Formation Annual Update 2022”
7. Re: the East Pit trespass area – this area will need to be included in the Mine Area. A map and Memo of Lease were submitted on May 11, 2022 (mentioned above), indicating surface and mineral ownership / lease. Questions to answer:
 - a. Who is responsible for disturbance?
 - i. Northshore Mining is responsible for the disturbance
 - b. Who is responsible for reclamation?
 - i. Northshore Mining will be responsible to reclaim the stockpile upon closure
8. Include details of any developments regarding long-range planning of in-pit stockpiling for aquatic enhancement.
 - a. When developing the stockpile plans we are planning the dump elevation to be 1398’ so that it will be a couple feet under the pit lake final water level. This is included in the map as Littoral Zone.
9. Provide details about an estimated-timeline specific to resuming following idle / shut-down.
 - a. Based on currently publicly available information; Northshore plans to remain idle until at least April 2023.

If you have any questions or need additional information, please feel free to contact DNR Reclamation Staff.

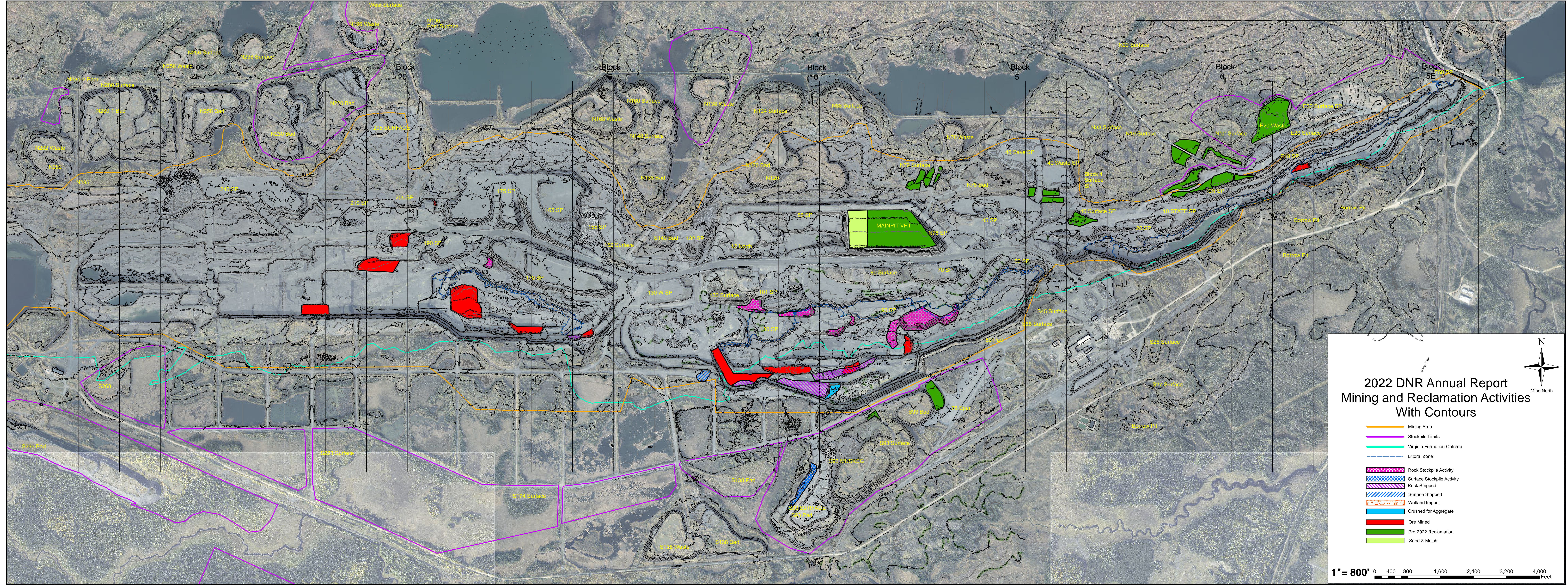
Signature:

I certify the information contained in these documents is true, accurate and complete.

Name (signed)  _____

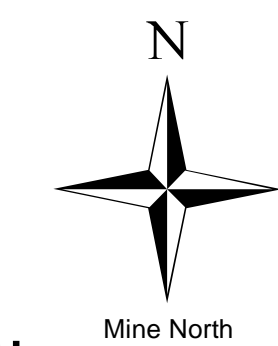
Name (typed) Paul A. Carlson _____

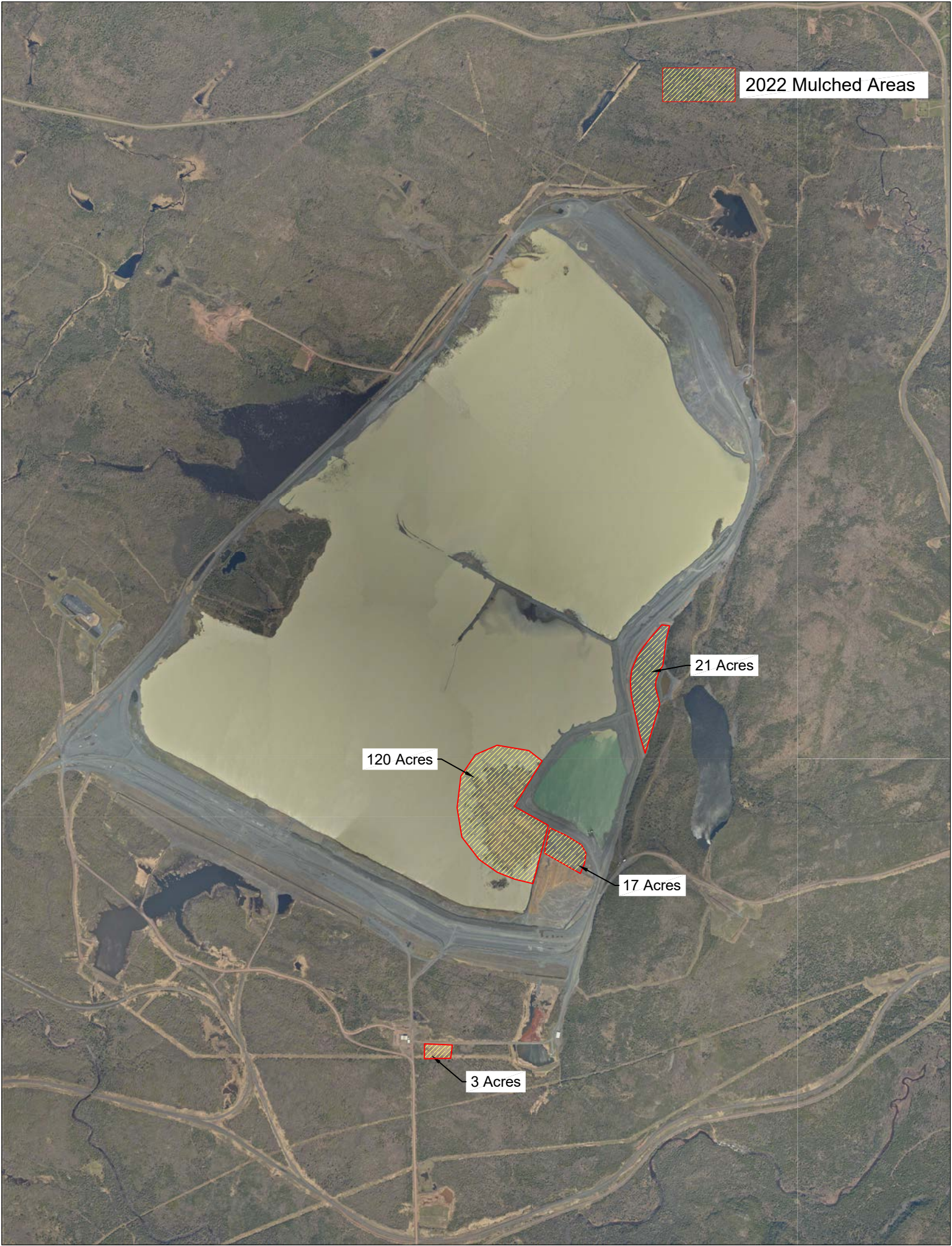
Date: 01/26/2023 _____



2022 DNR Annual Report Mining and Reclamation Activities With Contours

- Mining Area
- Stockpile Limits
- Virginia Formation Outcrop
- Littoral Zone
- Rock Stockpile Activity
- Surface Stockpile Activity
- Rock Stripped
- Surface Stripped
- Wetland Impact
- Crushed for Aggregate
- Ore Mined
- Pre-2022 Reclamation
- Seed & Mulch





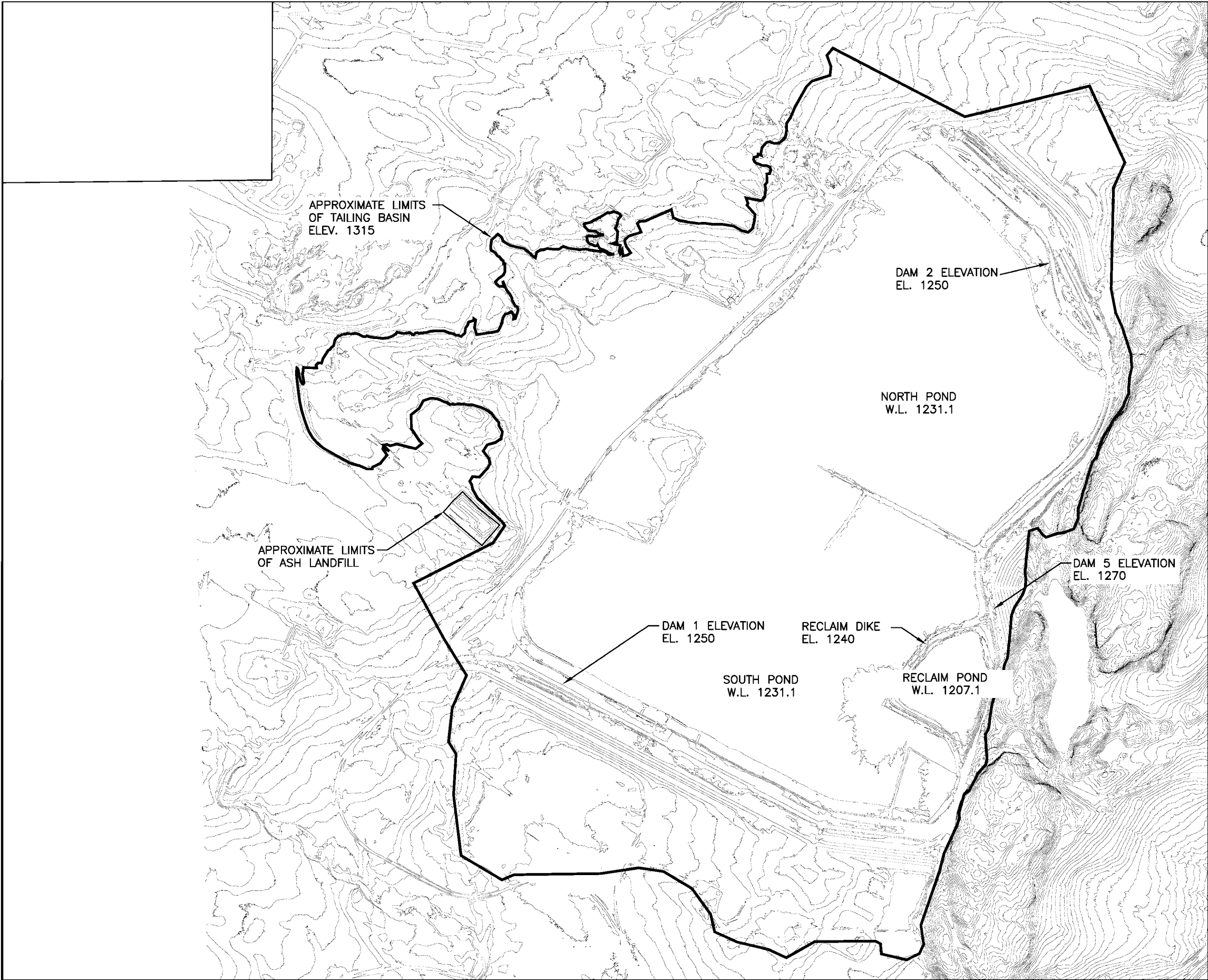
2022 Mulched Areas

120 Acres

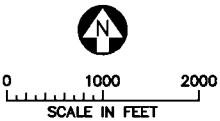
21 Acres

17 Acres

3 Acres



- LAYOUT NOTES:**
- 1. LAYOUT BASED ON CONTOURS DEVELOPED FROM AERIAL SURVEY BY QUANTUM SPATIAL OF LEXINGTON, KENTUCKY. DATE OF PHOTOGRAPHY MAY 24, 2022. MAPPING BASED ON THE FOLLOWING DATUM:
 - VERTICAL DATUM: TWO FOOT CONTOUR INTERVAL BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
 - HORIZONTAL DATUM: MINNESOTA STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD 83/96
 - 2. POND AND DAM ELEVATIONS SHOWN ARE AS PROVIDED BY NORTSHORE MINING COMPANY.
 - 3. ELEVATIONS SHOWN ARE AS REPORTED BY NORTSHORE.



NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION				

CLIENT									
BID									
CONSTRUCTION									
RELEASED TO/FOR	A	B	C	0	1	2	3		
	DATE RELEASED								



CLIFFS

Scale	AS SHOWN
Date	1/3/2023
Drawn	SEH
Checked	SEH
Designed	
Approved	

NORTSHORE MINING COMPANY
SILVER BAY, MINNESOTA

MILEPOST 7 TAILINGS BASIN
SILVER BAY, MINNESOTA
2022 OVERALL SITE PLAN

PROJECT No.	
CLIENT PROJECT No.	
DWG. No.	REV. No.

