Nonmetallic Mining Permit Application

Rooney Property

Town of Eagle Point, Wisconsin

SEH No. HECON 132289

January 6, 2016

SEH

Building a Better World for All of Us®

January 6, 2016

RE: Rooney Property
Nonmetallic Mining Permit Application
Town of Eagle Point, Wisconsin
SEH No. HECON 132289

Mr. Dan Masterpole, Dept. Director/County Conservationist
Chippewa County Land Conservation and Forest Management
711 N Bridge Street
Chippewa Falls, WI 54729

Dear Mr. Masterpole:

On behalf of Heartland Contractors Inc., Short Elliott Hendrickson Inc. (SEH®) is submitting the enclosed document titled "Nonmetallic Mining Permit Application" that includes the Reclamation Plan and updates. This application applies to an approximate 8.5-acre proposed nonmetallic mine project located in Sections 3 and 10 in Township 30 North, Range 8 West, in the Town of Eagle Point, Chippewa County, Wisconsin.

This Application contains updates to address the comments received on December 30, 2015 from the Chippewa County Land Conservation and Forest Management department. This document has been prepared in accordance with Wisconsin Statute Chapter 295, Wisconsin Administrative Code Chapter NR 135, and Chippewa County Ordinance Chapter 70. If you have any questions pertaining to the contents of the attached Application, please contact me at 715.720.6200 or via email at dhedrington@sehinc.com.

Sincerely,

Daniel Hedrington

Daniel N. Hedrington
Principal/Sr. Project Manager

KJJ/DRR/ch

Building a Better World for All of Us®

July 7, 2015

RE: Rooney Property
Nonmetallic Mining Permit Application
Town of Eagle Point, Wisconsin
SEH No. HECON 132289

Mr. Dan Masterpole, Dept. Director/County Conservationist
Chippewa County Land Conservation and Forest Management
711 N Bridge Street
Chippewa Falls, WI 54729

Dear Mr. Masterpole:

On behalf of Heartland Contractors Inc., Short Elliott Hendrickson Inc. (SEH®) is submitting the enclosed document titled "Nonmetallic Mining Permit Application" that includes the Reclamation Plan. This application applies to an approximate 8.5-acre proposed nonmetallic mine project located in Sections 3 and 10 in Township 30 North, Range 8 West, in the Town of Eagle Point, Chippewa County, Wisconsin.

This Application has been prepared in accordance with Wisconsin Statute Chapter 295, Wisconsin Administrative Code Chapter NR 135, and Chippewa County Ordinance Chapter 70. If you have any questions pertaining to the contents of the attached Application, please contact me at 715.720.6200 or via email at dhedrington@sehinc.com.

Sincerely,

Daniel N. Hedrington
Principal/Sr. Project Manager

KJJ/DRR/ch
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Nonmetallic Mining Permit Application

Rooney Property
Town of Eagle Point, Wisconsin

Prepared for:
Heartland Contractors Inc.
Chippewa Falls, Wisconsin

Prepared by:
Short Elliott Hendrickson Inc.
10 North Bridge Street
Chippewa Falls, WI 54729-2550
715.720.6200

Certification Page

I hereby certify that this reclamation plan was prepared by me, or under my direct supervision, in accordance with Wisconsin Statute Chapter 295, Wisconsin Administrative Code Chapter NR 135, and Chippewa County Ordinance Chapter 70.

Daniel N. Hedrington
Principal/Sr. Project Manager

July 7, 2015
Date

Certification of Reclamation Plan

I, as a representative of the operator of the property described herein, do hereby certify that I have reviewed the Reclamation Plan, concur with its provisions, agree to permit its implementation, and certify that reclamation will be carried out in accordance with this Reclamation Plan.

Jim Rooney, Owner/Operator
Heartland Contractors Inc.

7-8-15
Date

Distribution List

No. of Copies	Sent to
2	Mr. Dan Masterpole, Dept. Director/County Conservationist Chippewa County 711 N. Bridge Street Chippewa Falls, WI 54729
1	Mr. Jim Rooney, Owner/Operator Heartland Contractors Inc. 13167 County Hwy OO Chippewa Falls, WI 54729
1	Mr. Daniel N. Hedrington, Principal/Sr. Project Manager SEH 10 North Bridge Street Chippewa Falls, WI 54729

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Nonmetallic Mining Permit Application

Rooney Property

Prepared for Heartland Contractors Inc.

1.0 Introduction

This Nonmetallic Mining Reclamation Permit Application has been prepared for the proposed Rooney Property nonmetallic mine located in the Town of Eagle Point, Chippewa County, Wisconsin. This application has been prepared by Short Elliott Hendrickson Inc. (SEH®) on behalf of Heartland Contractors Inc. in accordance with Wisconsin Statute Chapter 295, Wisconsin Administrative Code Chapter NR 135, and Chippewa County Ordinance Chapter 70. The NR 135 Reclamation Plan Checklist and Code Citations document is included as **Appendix A-1**. The completed Nonmetallic Mining Reclamation Ordinance application for Chippewa County is included as **Appendix A-2**.

2.0 Site Information

2.1 Project Description

The owner and operator, Heartland Contractors Inc., proposes to extract sand and gravel at the proposed Rooney Property for use in construction projects beginning in the spring of 2016. The typical excavation operation sequence will begin with the removal and stockpiling of topsoil, which will be systematically stripped as the site development progresses. Topsoil will be stored on site in berms. The remaining overburden soil above the sand and gravel deposit will be removed using, but not limited to, bulldozers, backhoes, haul trucks, and scrapers. Sand and gravel will be removed and processed as needed. Processing activities that may occur on site include screening and/or crushing of material. Flocculants and chemicals will not be utilized. No high capacity water wells are proposed for this operation.

Sand and gravel will be removed as needed and normally will be trucked directly to a job site, but in some instances sand and gravel may be stockpiled at the mine site. Stockpile and parking locations will depend on where active mining is occurring, but will be located within the mine boundary. End-loaders will be used to load the stockpiled material into the trucks. All trucks will be weighed before leaving the site.

A private, existing access road will be used by the trucks entering and exiting the site. This unpaved road will be maintained as needed by bringing in base course material to smooth over potholes or ruts that have formed.

Sand and gravel above the ground water table will be excavated first and trucked offsite to an active job site or stockpiled on site. Sand and gravel may also be excavated from below the ground water table and this will be accomplished using a clambucket or similar excavation equipment. All material mined below the ground water table will be stockpiled and allowed to

decant on site, with all water draining internally. This method is anticipated to have no effect on lake or wetland water levels or the quality of groundwater. No pumps will be used to dewater the pits.

Noise, dust, air contaminants, and vibrations will be controlled by the large amount of forested land surrounding the mine property. A berm is not proposed to be installed around the perimeter of the mining property, as 600 feet or more of forested barrier blocks site lines from nearby homes and roads. Berms will be utilized on this project, but only for stormwater management purposes. Hours of operation will be between the hours of 6 a.m. and 9 p.m., Monday through Friday, and 6 a.m. to 3 p.m. on Saturday. No work outside of these hours will be conducted without consent of the appropriate authorities.

The proposed project site is located in the NW 1/4 of Section 10 of Township 30 North, Range 8 West, in the Town of Eagle Point, Chippewa County, Wisconsin (**Figure 1**). The proposed mining area consists of approximately 8.5 acres of forested land.

2.2 Site Description

Appendix B-1 contains a map showing mine and property owners within 660 feet of the mine boundary. The Parcel ID numbers and owner information can be found in **Appendix B-2**.

2.2.1 Owner and Operator Information

The proposed mine at the Rooney Property will be owned and operated by Heartland Contractors Inc.. Information on the current property owner is listed below.

Operator Contact:
Jim Rooney
Heartland Contractors Inc.
13167 County Hwy OO
Chippewa Falls, WI 54729
Phone: 715.830.7830
Email:
jim.rooney@indianheadpipeline.com

2.2.2 Location of Man-Made Features

The mine property is currently a private wooded property. 180th Avenue approaches the mine site from the east and transitions into a private drive with private access to Hartnan Lake. A different access drive leads to a cabin. The cabin, private drives, and 180th Avenue can all be seen on **Figure 2**. The only other roads onsite include recreational access trails through the wooded areas.

A cultural and historical resource assessment was performed, which found no impacts within the section the mine is located in, nor any of the surrounding sections.

3.0 Geologic Composition and Depth of Mineral Deposit

The property lies along the terminal moraine of the late Pleistocene age, Chippewa Lobe, of the last Pleistocene-age glacial advance. Terminal moraines are typically composed of sands with gravel and boulder admixtures with low clay content. A test pit was performed in the mine area (TP-1) with another located nearby (TP-2) at the locations shown on **Figure 2**.

Test Pit 1 (TP-1) was located in an open field area on the mine property. Sandy to silty soils extended from ground surface to a depth of approximately 6 feet. Red brown, cobble-rich sand and gravel was encountered from 6 to 12-foot depths. Little clay and silt was visually observed in the sand and gravel unit.

Nearby Test Pit 2 (TP-2) was located on an elevated ridge and wooded area northeast of TP- 1. Sand-rich soils with some cobbles extended from ground surface to a depth of approximately 5 feet. The TP-2 upper unit was more sand-prone when compared with the TP-1 upper unit. Brown, cobble-rich sand and gravel was encountered from 5 to 12-foot depths, and appeared to be similar in composition when compared to the TP-1 sand and gravel unit. Little clay and silt was visually observed in the sand and gravel unit.

The sand and gravel unit at both test pit locations appeared to be of excellent quality.

The prospective glacial sand and gravel deposit thickness is at least of 6 feet based on the test pit investigation and is likely up to tens of feet in thickness on the property. Nearby sand and gravel operations likely mine to depths of at least 100 feet. The Wisconsin Geological and Natural History Survey (WGNHS) map, “Depth to Bedrock of Chippewa County, Wisconsin” (Lippelt 1988) suggests the depth to bedrock may be up to 150 feet below ground surface in this area of Chippewa County. The first bedrock unit lying beneath glacial deposits at the site is likely the Cambrian-age, Mt. Simon Formation (Mudrey, et. al).

3.1 Distribution, Thickness, and Type of Topsoil

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey data for Chippewa County shows the proposed project boundaries to include 1 soil series with 6 to 12 percent slopes. The topsoil thickness is 2 inches and the B-horizon thickness is 30 inches. The NRCS Custom Soil Resource Report used to estimate the topsoil and B-horizon thickness is included in **Appendix C**.

3.2 Groundwater Information

The property topography is a key factor to the in groundwater flow direction of the water table aquifer. An unconfined aquifer system is likely developed in sand and gravel deposits at the site. Pothole lakes and wetlands occur in the area and are likely local groundwater discharge sites. Groundwater was not encountered in the two test pits performed on the property. The WGNHS map, “Water Table Elevation –Chippewa County” (Lippelt, 1988) was used for assessing depth to groundwater and flow direction at the property. Groundwater elevations near the property are approximately 1000 feet MSL according to the WGNHS map. Local groundwater flow direction at the property is interpreted to be towards the pothole lakes and wetlands, but is likely westerly towards O’Neill Creek in a regional setting.

4.0 Surface Waters and Site Drainage

4.1 Location of Surface Waters

The project site property is located in the McCann Creek and Fisher River watershed, which is part of the Lower Chippewa Wisconsin Department of Natural Resources (WDNR) Geographic Management Unit. The watershed is encompassed within the Upper Mississippi River Basin.

Hartnan Lake is bordered by the property to the north, east, and south. A 100 foot setback from the shoreline and field mapped wetlands has been used.

It is anticipated that proposed project work will avoid all waterways and waterbodies.

Wetlands were preliminarily identified in the areas directly surrounding the mining area and are discussed in more detail in **Section 5.1** below.

4.2 Existing Topography and Drainage Patterns

Existing site topography and drainage patterns are shown on **Figure 3.1**. The property likely drains to nearby wetlands and Hartnan Lake. Groundwater elevations and drainage patterns are shown on **Figure 3.2**.

5.0 Biological Information

The proposed project area is in the North Central Forest Ecological Landscape, which is characterized by vast northern hardwood forests lying on top of end and ground moraines left by the glaciers. There are typically many large wetlands, small creeks, rivers, and small kettle lakes in this type of ecological landscape. Aspen and birch dominate younger forests; older forests are typically composed of sugar maple, basswood, red maple, and other hardwoods (WDNR 2012).

The Project Site includes wooded habitat, forested and meadow wetlands. The wooded habitat is primarily a mixture of mature deciduous tree species.

The WDNR has listed several species according to their probability of occurring in the North Central Forest Ecological Landscapes. The list is included as **Appendix D**. The list indicates what species may be present; however, a wildlife survey was not performed at the proposed project location.

The WDNR Natural Heritage Inventory (NHI) database was reviewed to identify known rare, special concern, threatened, or endangered species in the project area. Review of this data indicates there are four state-listed special concern, fully protected species and communities within the township of the project site.

Sioux (Sand) Snaketail (*Ophiogomphus smithi*, Dragonfly), Torrey's Bulrush (*Schoenoplectus torreyi*, Plant), and Ellipse (*Venustaconcha ellipsiformis*, Mussel) are the three species of concern that may be present at the mine site. All of these species are typically found in or near waters or wetlands. The project is not anticipated to have detrimental effects on these species as the wetland habitat and Hartnan Lake are not proposed to be disturbed by the mining operations.

The mine site may also contain the listed native plant community (Northern Wet-mesic Forest) because many of the identified site wetlands are forested. North Wet-mesic Forest communities are typically associated with wetlands, and since wetlands are being avoided, project activities are not expected to have an effect on this community.

5.1 Wetlands

A preliminary mapped wetland assessment has been completed for the proposed Project Site. Wetland basins were preliminarily identified in the areas directly surrounding the mining area, as shown in **Figure 4**. Wetlands mapped by the National Wetland Inventory are also shown on **Figure 4** and generally match what was preliminarily mapped by SEH. Setbacks of 100-feet are proposed from the mapped wetland areas and mining will not encroach upon that setback. Wetlands will be formally delineated.

6.0 Areal Extent and Phasing of Operations

The aerial extent of the project is shown in **Figure 5**. Mining of the proposed project will proceed in four (4) phases. **Table 1** shows the estimated volume of topsoil, B-Horizon, overburden, product waste, and final product amount for each phase and the total mine extents. The amount of material and duration of each phase is difficult to predict as the quantity of material removed is tied to business operations. If no gravel, sand, or fill material is needed during a given year, little to no material will be extracted. Likewise, if a large project is expected, material volumes will be extracted accordingly for that year as compared to the previous. The operator, based on current demand, is estimating approximately 12 truckloads (15CY each) of material to leave the site per day, each weighing 21 tons. Based on current market demand, it is estimated that 50,000 ton/year will be extracted from the mine site. Based on this estimate Phase 1 will be productive for 3 years, Phase 2 will be productive for 2.5 years, Phase 3 will be productive for 3.3 years and Phase 4 will be productive for 2.9 years. Based on the assumptions above the overall mine life will be approximately 11.7 years. Due to the topography of the mine, changes in material quality, overburden depths, quantity of reject material and the actual quantity mined each year, there will be some variation in the quantity of product obtained from each phase and, therefore, the actual duration of each phase may vary.

The sand and gravel will be trucked offsite on the route shown on **Figure 6**.

Table 1
Estimated Reclamation and Product Volumes

Phase	Phase Area (Acres)	Topsoil Volume	B-Horizon Volume	Overburden Volume	Product Waste Volume Available for Reclamation	Product Amount (Tons)
1	2.28	626	9,199	8,573	5,755	153,100
2	1.63	448	6,586	6,138	4,643	123,500
3	2.79	765	11,246	10,481	6,193	164,700
4	1.69	463	6,811	6,348	5,350	142,300
Total	8.39	2,301	33,842	31,541	19,741	525,200
Notes: Volumes are in cubic yards.						

Operation of the proposed Mine will include the removal of topsoil and B-Horizon soil, the removal of overburden, and the extraction of the sand and gravel resource within each phase. The topsoil, B-Horizon, and overburden will be segregated and stockpiled on-site for later use during reclamation.

The topsoil, B-Horizon soil, and excess material not required for the plant grading will be removed from the plant area and placed in berms as shown on **Figure 5.** All berms and permanent stockpiles will be seeded with the temporary stabilization seed mix as discussed in **Section 6.3**. Temporary erosion control measures will be installed prior to start of construction. Additional mine opening and operation erosion control and storm water measures are discussed in **Section 6.1.**

Silt fence will be installed along areas that drain away from mine areas prior to the start of soil excavation. After installation of the silt fence, topsoil and then B-Horizon soils will be removed. The operations shall proceed so that after the removal of the topsoil and B-Horizon soils, the mine floor will always be a minimum of 2 feet lower than the adjacent land to ensure that the mine is internally drained.

Operation of the mine will begin in Phase 1 and will follow the methods described in this section. Mining will progress into additional phases of the mine as the resource is extracted from the mine or as necessary in order to provide a safe mine face. As the mining proceeds, the site will be reclaimed as soon as the resource has been extracted and reclimation is practical and can be safely performed. Stockpiled Overburden, B-Horizon and Topsoil material that is stockpiled on site will be placed as possible to create the final site grading for reclamation.

6.1 Stormwater Management and Erosion Control

The project site is expected to be able to utilize internal drainage by placing topsoil and subsoil stockpiles around the perimeter of the mining area and then excavating the sand and gravel to form a basin that will hold storm water and allow it to infiltrate. Diversion swales and berms will be utilized to direct potential run-on stormwater away from and around actively mined areas and associated equipment. The basin will be able to hold and infiltrate at least the 10-year 24-hour storm event. Therefore, since the existing access drive will also be utilized, post-construction runoff rates will not exceed existing conditions.

Before the basin is excavated, the site will be protected by the installation of appropriate erosion control best management practices (BMPs). All erosion control BMPs will be installed according to the guidelines provided in the WDNR Technical Standards.

Temporary erosion control measures employed at the proposed project site will include (WDNR Technical Standards are in parentheses):

- Silt fence installed at the edges of berms and stockpiles (Silt Fence – 1056).
- Seed and mulch will be applied on berms, permanent stockpiles, and mine areas that are no longer active (Seeding – 1059, Mulch – 1058).
  - Temporary erosion control seeding is discussed in **Section 6.3**.
  - Final reclamation seeding is discussed in **Section 7.4**
- If the existing access road needs additional base course added the operator will employ silt fence as necessary along adjacent wetland areas until the road is stabilized (Silt Fence – 1056)
- Erosion mat will be placed on berms and slopes greater than 4H:1V (Non-channel Erosion Mat – 1052).
- Stone tracking pads will be used at the mine access point during initial construction (Stone Tracking Pad – 1057).
- Other BMPs will be used as necessary.

Erosion control BMPs will be inspected weekly and within 24 hours after rainfall events of 0.5 inches or greater that occurs within a 24-hour period. Inspections will continue until areas have been either temporarily or permanently stabilized or reclaimed, and meets the revegetation standards discussed in **Section 7.5**.

In the event of failed seeding or persistent erosion problems, additional engineered BMPs will be assessed and applied where practicable. Engineered BMPs may include hydroseeding, silt fence, erosion control mats, turf reinforcement mats, slope breaks, and soil stabilizers.

Stormwater on the proposed project site is regulated by the WDNR. Mine operation will be conducted in a manner compliant with applicable water quality and storm water management requirements.

6.2 Temporary Erosion Control Vegetation Plan

Where disturbed areas require vegetation and are not at final reclamation grade, a temporary stabilization seed mix will be used to provide vegetation as erosion control. Seeding with the temporary stabilization seed mix will occur during the growing season. A nurse crop may be necessary where seeding must be performed outside of the normal growing season. Annual Ryegrass or Winter Wheat will be used where fall or winter planting is necessary. The following table summarizes the proposed temporary stabilization seed mix, which is Wisconsin Department of Transportation (WisDOT) Seed Mix No. 20. Adjustments to the proposed seed mix may be necessary based on availability and site suitability.

Table 2
Temporary Stabilization Seed Mix (WisDOT Mix No. 20)

Common Name	Scientific Name	Seed Composition
Kentucky Bluegrass	*Poa pratensis*	6%
Hard Fescue	*Festuca brevipila*	24%
Tall Fescue	*Schedonorus phoenix*	40%
Perennial Ryegrass	*Lolium perenne*	30%

A temporary and permanent seed mix will be applied on all exposed soil. Final seeding will occur within seven (7) days of completion of site preparation. Temporary seeding will occur within 48 hours of rough grading in areas that have not been, or will not be, worked by the contractor for ten (10) days. Areas where final grading has occurred during winter months will be dormant seeded and mulched. Areas will be reseeded the next growing season where germination does not achieve 70 percent coverage.

Temporary erosion and sediment control measures will be kept in place until the permanent erosion control measures are installed and functioning properly.

During the first eight (8) weeks following stabilization with seed and/or mulch, these areas shall be watered when more than seven (7) days have passed without precipitation.

Straw, erosion control blankets, or fabric will be used, as needed, to stabilize the soil surface in disturbed areas. Typical areas and specifications where straw or erosion control blankets may be used are:

- Soil storage piles.
- Straw mulch must be anchored immediately after placement to minimize loss by wind and water. A mulch anchoring tool or farm disc set in the straight position will be used to crimp the mulch to a depth of two to three inches.
- Mulch must be free of noxious weeds as defined by the WisDOT.
- Final seeding will be carried out before erosion control blankets are put in place.

- Mulch shall not be placed within 50 feet of any wetland boundary.

6.3 Additional Operation and Reclamation Information

6.3.1 Refuse and Other Solid Wastes

All mining refuse, including overburden and product waste material, shall be reused in accordance with this reclamation plan. All other solid waste shall be disposed of in accordance with applicable WDNR requirements.

6.3.2 Environmental Compliance and Additional Permits

The operation and reclamation of the proposed project will comply with all applicable federal, state, and local laws and regulations, including those related to environmental protection.

7.0 Reclamation Measures

7.1 Final Grading and Slopes

The mining area is to be reclaimed to a Conservation/Ecological land use. No final slopes will be greater than 3H:1V. During reclamation, overburden materials will be applied to all disturbed areas at various depths to reconstruct the slopes as shown in **Figure 7** and **Figure 8**. The overburden will be placed to form the reclaimed slopes in maximum lifts of 2-feet, placed horizontally, as to minimize the potential of a shear slope failure. Compaction will be achieved through machine traffic and spreading during the reapplication process. All slopes will be graded to meet State and County reclamation regulations. All slope reconstruction materials shall consist of overburden, reject material from the processing plant, B-horizon material, and topsoil. Topsoil and B-horizon will be installed according to methods described in **Section 7.2.2**. The Land Cover Type/Plant Community will be Grassland/Prairie and also include a wildlife pond. Seeding and mulching will be performed according to methods described in **Section 7.4**.

7.1.1 Safety

Once graded to final reclamation grade, the site will not pose safety concerns associated with the mining process that took place at the proposed project site. The proposed project site will be reclaimed in a manner that complies with applicable federal, state, and local regulations governing public health, safety, and welfare. Slopes greater than 3H:1V are not proposed to remain in the mine after the final reclamation is complete as shown on **Figure 7** and **Figure 8**.

7.2 Topsoil & Storage

7.2.1 Topsoil Removal and Storage

Topsoil and B-horizon material will be removed, segregated, and stockpiled. Management of topsoil will follow methods described in Section 625 of the WisDOT Standard Specifications. Topsoil and B-horizon material will be stockpiled onsite. All stockpiles will be seeded and mulched according to **Section 6.2.**

7.2.2 Topsoil Redistribution and Site Preparation

Topsoil redistribution and site preparation will follow methods described in Section 625 of the WisDOT Standard Specifications. Site preparation prior to application of the topsoil and B-horizon material will use methods to promote optimum adherence between the topsoil/B-horizon and the underlying overburden material. Seeding of all exposed areas will occur as described in **Section 7.4**. Soil compaction will be minimized to the extent practicable by

limiting unnecessary access to traffic and tracked vehicles during and after the placement of the subsoil and topsoil layers. Topsoil redistribution will not be performed during or immediately following a precipitation event.

7.3 Structures

No mine related structures will remain after final reclamation. All waste piles will be removed. Vegetated berms will be removed and the area will be graded to match existing grades shown in **Figure 7** and **8**. The existing access road will also remain in place after final reclamation.

7.4 Reclamation Vegetation Plan

After subsoil and topsoil reapplication, the seedbed will be prepared by discs, harrows or other equipment to obtain an even and loose seedbed. Seeding will occur during the growing season when soil conditions are suitable. Based on a recreational post-mining land use, a standard pasture/hay seed mix will be used for the final reclamation areas. The following table summarizes the proposed seed mix. Adjustments to the proposed seed mix may be necessary based on availability and success.

Table 3
Reclamation Seed Mix

Common Name	Scientific Name	Composition
Grasses		
Agricultural Rye	*Secale cereale*	15%
Timothy	*Phleum pratense*	7%
Tall Fescue	*Festuca arundinaceae*	11%
Switchgrass	*Panicum virgatum*	4%
Big Bluestem	*Andropogon gerardi*	4%
Canada Wild Rye	*Elymus canadensis*	11%
Legumes		
Alsike Clover	*Trifolium hybridum*	15%
Red Clover	*Trifolium pratense*	15%
Alfalfa	*Medicago sativa*	18%
Note: *Legumes must be inoculated according to the seed provider's instructions prior to seeding.		

Seeding will be performed using the best available methods and will follow procedures described in Section 630 of the WisDOT Standard Specifications. After spreading the seed at a rate of approximately 130 pounds per acre, the area will be lightly raked or dragged to cover the seed with approximately ¼-inch of soil. After seeding, areas will be mulched using the best available methods and will follow procedures described in Section 627 of the WisDOT Standard Specifications.

7.5 Revegetation Standards

In order to determine successful revegetation for both temporary and final vegetation cover, reclaimed areas will be assessed for density of the perennial vegetative cover. Reclamation will be considered complete when "final stabilization" has been achieved, as defined in Wisconsin Code NR 216. This standard states that final stabilization is achieved when a "uniform perennial vegetative cover has been established with a density of at least 70 percent of the cover for unpaved areas and areas not covered by permanent structures." Additional

requirements for Chippewa County Land Conservation and Forest Management for final reclamation include:

a. The establishment of a soil profile that matches the existing conditions. All existing topsoil and subsoil will be utilized in the reclamation. No topsoil or subsoil will be removed from the site.

b. Soil pH between 5 and 7.

c. Soil organic matter of at or above 1% (topsoil only).

d. The establishment of the seeding so that no more than 50% of the total vegetation is composed of one species from the seed mix.

e. No more than 2% of the vegetation will be invasive or noxious species.

Site monitoring will be conducted to assess the success of the seeding and monitor the site for invasive or noxious plant species. Invasive or noxious species will be spot treated with herbicide according to the product label or hand removal and disposed of properly. Additional management techniques such as moving or burning may also be conducted to control unwanted vegetation and improve the desired vegetation.

The annual assessment of reclaimed areas will be included in the annual reclamation report. Once reclaimed areas have achieved sufficient vegetative cover, the areas will be considered successfully reclaimed and no further reclamation activities will be considered for that location.

7.6 Reclamation Erosion Control

Reclamation grading will proceed according to methods described in **Section 7.1**. Reclamation shall be conducted and completed in a manner to promote compliance with the WDNR water quality standards for surface waters and wetlands (Wis. Admin. Code chs. NR 102 to 105). Erosion control measures will include silt fence installation and the re-establishment of vegetation of disturbed areas. Seeding and mulching will occur according to methods described in **Section 7.4** and topsoil placement will be performed according to methods described in **Section 7.2.2**. Newly reclaimed areas will be inspected weekly and within 24 hours after rainfall events of 0.5 inches or greater that occur in a 24-hour period. Inspections will continue until areas meet the revegetation standards discussed in **Section 7.5**. In the event of slope failures, failed seeding, or persistent erosion problems on reclaimed acreage, engineered BMPs will be assessed and applied where practicable. Engineered BMPs may include hydroseeding, silt fence, erosion control mats, turf reinforcement mats, water diversions, rock-lined chutes, slope breaks, soil stabilizers, and inlet protection.

7.7 Interim Reclamation

The working face for each mine phase will remain open and unreclaimed until mining activities are complete in each phase; however, berms, stockpiles and previous working face areas will be reclaimed prior to final site reclamation to reduce potential erosion during mine operations.

7.8 Follow-up Inspections and Necessary Site Maintenance

During mine operation and reclamation, all erosion control will be inspected and maintained in accordance with Wisconsin Administrative Code NR 216. Annual inspections of the reclaimed areas will occur until each area meets the reclamation measures described in

Section 8.0. Inspection results will be provided to the regulatory authority as part of the annual reclamation report. The operator will perform any maintenance necessary to prevent erosion, sedimentation, or environmental pollution prior to issuance of the Chippewa County Certification of Reclamation and release of financial assurance.

7.9 Annual Operator Report

The mine operator shall complete and submit an annual report in accordance with NR 135.36 and Chippewa County Ordinance Chapter 70. The annual report information required under NR 135.36 is included in **Appendix E**.

8.0 Criteria for Successful Reclamation

Compliance with reclamation measures described in **Sections 7.1** through **7.8** will be determined by on-site inspections by the regulatory authority, Chippewa County, or its agent. Compliance with reclamation measures may also be determined by reports presenting results obtained during reclamation inspections. The reports will include summarized data on revegetation, photo documentation, and other evidence that the reclamation measures described in **Sections 7.1** through **7.8** have been met.

Once reclaimed areas have achieved the reclamation measures described in **Sections 7.1** through **7.8**, the areas will be considered successfully reclaimed and no further reclamation activities will be considered. The operator will notify the County in writing when reclamation has been completed. Reclamation of those areas will be considered complete after the County inspects the area and issues the Certification of Reclamation.

9.0 Financial Assurance

Financial assurance, in accordance with NR 135.36 and Chapter 70 of Chippewa County's Ordinance, will be provided by Heartland Contractors Inc. prior to commencement of mining operations. The cost estimate for the proposed Rooney Property project final reclamation is included in **Appendix F**. The financial assurance will be based on the acres disturbed and reclaimed at the proposed project site. Financial assurance will be available for all unreclaimed areas until the County issues the Certification of Reclamation.

10.0 References

Lippelt, I. D., 1988, "Generalized Water Table Elevation of Chippewa County", Wisconsin Geological and Natural History Survey Miscellaneous Map Series 88-1

Lippelt, I. D., 1988, "Depth to Bedrock of Chippewa County", Wisconsin Geological and Natural History Survey Miscellaneous Map Series 88-3

Mudrey, M. G., Jr., G. L. LaBerge, P. E. Myers, and W. S. Cordua, 1987, "Bedrock Geology of Wisconsin – Northwest Sheet." Wisconsin Geological and Natural History Survey, Regional Map Series 87-11a,

Wisconsin Department of Natural Resources. Ecological Landscapes: North Central Forest Landscape. WDNR website. 23 Jan 2012. http://dnr.wi.gov/topic/Landscapes/index.asp?mode=detail&Landscape=11