NON-METALLIC MINING RECLAMATION PLAN
"UNION PIT" 2018 EXPANSION

Operator: Chippewa County Highway Department

Owner: Chippewa County

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Summary

This reclamation plan has been developed to provide information about the existing site of the proposed mine, the proposed site operations, and how the mine will be reclaimed to the proposed post mining land use.

This reclamation plan is for a mine located on the east side of 140th Street, 0.5 miles north of State Highway 64. Approximately 125 acres of land at the Union Pit is an active permitted mine hereafter referred to as "existing mine". In 2015 Chippewa County purchased an additional 13.8 acres of land just to the north of the active mine hereafter referred to as "new parcel". This reclamation plan incorporates the new parcel into the reclamation plan for the combined 138.8 acre site, hereafter referred to as "proposed mine".

The operator will mine sand and gravel that is located on stream sediment of the Copper Falls Formation. A majority of the site is currently being mined below the water table and being reclaimed as a wildlife pond. The remainder of the site will be reclaimed to grassland/prairie.

A. Site Information

1. Landowner

Landowner:	Chippewa County
Address:	711 N. Bridge St.
City, State, ZIP:	Chippewa Falls, WI 54729

Applicant:	Chippewa County Highway Department
Address:	801 East Grand Avenue
City, State, ZIP:	Chippewa Falls, WI 54729

Mine Address: 19501 140th Street
Bloomer, WI 54724
Town of Bloomer

2. Lease:
There is no lease. Operator and landowner are the same.

3. Legal Description
Tax Parcel Numbers & Legal Descriptions as follows:

23108-3141-01000000: NE ¼ OF SE ¼ OF SECTION 31, T31N, R08W LYING EAST OF MARSHMILLER LAKE DR (140TH ST)

23108-3232-00000000: NW ¼ OF SW ¼ OF SECTION 32, T31N, R08W

23108-3231-00000000: NE ¼ OF SW ¼ OF SECTION 32, T31N, R08W

23108-3242-00000000: NW ¼ OF SE ¼ OF SECTION 32, T31N, R08W

23108-3224-05000000: Commencing at the West 1/4 Corner of said Section 32; thence, N.89°25'29"E. along the East-West 1/4 Line of said Section 32, 1205.22 feet to the POINT OF BEGINNING; thence, continuing along said East-West 1/4 Line N.89°25'29"E., 925.00 feet; thence, N.00°00'00"W., 650.00 feet; thence, S.89°25'29"W., 925.00 feet; thence, S.00°00'00"E., 650.00 feet to the POINT OF BEGINNING. Being Subject To any easements of record. Said parcel contains 601,220 sq. ft. or 13.80 acres.

4. Property Owners Within 660 Feet of Project Site

Daniel F & Linda Turner	Harms Farms, Inc.	Donald J & Lynn M Lunemann
Kaltenberg Trust	Ronald & Deanna Vahlenkamp & Schindler	Janice Turner
Bush Prairie Cemetery	Jerome & Debra Gillette	WTTC Land Mgt Co. LLC
Russell L & Amy C Henneman	Loren J & Judith A Schmidt	

5. Soil Information
Soil Survey of Chippewa County shows the soils at the mine site are mapped as follows.
- Approximately 97.5 acres of the mine site are mapped as Pits, gravel (Pc).
- Approximately 16.6 acres of the mine site are mapped as Chetek sandy loam, 6 to 12 percent slopes, eroded (CkC2).
- Approximately 10.6 acres of the mine site are mapped as Chetek sandy loam, 2 to 6 percent slopes (CkB).
- Approximately 7.9 acres of the mine site are mapped as Greenwood peat, 0 to 1 percent

slopes (Gr).
- Approximately 2.3 acres of the mine site are mapped as Lupton muck, 0 to 1 percent slopes (Lp)
- Approximately 2.3 acres of the mine site are mapped as Rosholt sandy loam, 2 to 6 percent slopes (RoB).
- Approximately 0.6 acres of the mine site are mapped as Magnor silt loam, 0 to 4 percent slopes (MdB).

The following soils are less than 0.3 acres each and makeup the remainder of the mine site:
- Arland sandy loam, 6 to 12 percent slopes, eroded (ApC2)
- Chetek-Mahtomedi complex, 12 to 25 percent slopes, eroded (CkD2)
- Fairchild-Elmlake complex, 0 to 3 percent slopes (Eo)
- Freeon silt loam, 2 to 6 percent slopes (FnB)
- Halder loam, 0 to 2 percent slopes (Ha)
- Humbird sandy loam, 2 to 6 percent slopes (HuB)
- Rosholt sandy loam, 0 to 2 percent slopes (RoA)

Almost all of the topsoil has already been removed from the existing mine in past mining activities. A single topsoil stockpile remains on site for use in reclamation and county road projects. The new parcel was formerly used as farmland and has topsoil that will be stockpiled for future reclamation use.

During site investigations the operator documented the following soils horizon thicknesses in the area to be mined.

Existing Mine

A horizon – 0 inches of topsoil

B horizon – Pits, gravel (Pc)

New Parcel

A horizon – 13 inches of topsoil

B horizon – 7 inches of subsoil

B. Site Operations

1. Description of Materials to be Extracted

Sand and gravel products will be extracted and processed at the proposed mine.

2. Extraction and Processing to be Conducted at the Site

A driveway is already installed along the northern boundary of the existing mine, off of 140th Street. This driveway will serve the proposed mine. Sand & gravel will be mined, crushed, washed, and removed from the site. A portable crushing & washing plant will be used to process the material and stockpile it on site. Materials within the mine will be excavated and transported using bulldozers, excavators, draglines, dump trucks, front end loaders and conveyors.

Sand and gravel will be excavated from the mine above the water table. Areas in the floor of the mine will be excavated below the water table to create one large pond. No flocculants or other chemicals will be used to support sand and gravel processing.

Operations will begin at the first cell by mining below the water table creating a temporary

small pond. As mining of the new parcel begins the topsoil will be stripped and stockpiled along the north and west boundary to create a berm. The new parcel will first be mined above the existing pit floor and then eventually below the water table creating a temporary small pond. Mining will then continue between the two large existing ponds at the base of the existing slope that extends along the south side of the existing mine. This will create the one large pond. Mining will then continue at the existing west pond to be mined along its north edge below the water table moving up towards the road and processing facilities. The remaining slopes on the west, east and south boundaries of the existing mine have 3:1 side slopes that will not be mined further. Finally, mining will continue in the final cell. Processing facilities, roads, and buildings will be removed as the mining continues westward mining below the pit floor to create one large pond when connected with the two small temporary ponds.

The existing mine is lined on the west, south, east, and part of the north boundary by berms and a good growth of trees that create a vegetative screen. The new parcel is bordered to the east by a good growth of trees that also create a vegetative screen.

Good, un-contaminated, topsoil may be brought on-site and stockpiled for the purpose of on-site reclamation or for use on off-site Chippewa County Highway Department roadway projects. Additionally, the Highway Department may store typical highway construction materials (such as guardrail, culvert pipe, un-contaminated clay fill material, rock and gravel, etc…) onsite for future use and production of sand and gravel products. The stockpile location for highway construction materials is shown on the Operation Plan. No solid waste, other than the products referenced in the Chippewa County Ordinance Section 30-77, will be stockpiled in the mine. Specifically, no additional animal carcasses or animal waste of any kind shall be buried or stockpiled on site.

3. Volumes of Materials

A sequence of mine Cells are planned to systematically mine and reclaim the site. The anticipated area of disturbance and estimated volume of raw materials to be removed during the life of the mine is as follows.

Cell	Area (acre)	During 1st two years (cubic yards)	During Full Life of Operation (cubic yards)
1	2.37	115,918	115,918
2	5.60	0	273,886
3	5.46	0	267,079
4	13.42	0	657,051
5	22.95	0	1,123,223
6	14.11	0	690,826
Total	63.91	115,918	3,127,983

4. **Site Dewatering and Effluent Discharge**
   This will be an internally drained site. No site dewatering or effluent discharge will take place. It is anticipated that sand and gravel will be mined below the water table in Cells 1 through 6.

5. **Stormwater Permits/Management**
   The operator will obtain a Wisconsin DNR Nonmetallic Mining stormwater permit and manage stormwater in accordance with the standards established in the permit. At a minimum stormwater will be contained within the mine boundaries for all rainfall events up to the 25 year, 24-hour event (4.87 inches) to comply with WPDES General Discharge Permit.

   Existing slopes around the east, west and south perimeter of the existing mine were created during the initial topsoil stripping and have been stabilized and are used to contain and direct stormwater runoff towards the excavated floor of the mine where it will infiltrate. The new parcel will be mined such that stormwater runoff is towards the excavated floor of the mine where it will infiltrate as well. A notice of intent will be sent to the DNR.

6. **Erosion Control & Permits**
   All topsoil and subsoil stockpiles will be graded to a slope of 3:1 or flatter and stabilized as soon as conditions allow to conserve soil and limit erosion. Berms will be stabilized using best management practices including seeding, mulching, erosion control mat, hydro-seeding, etc. Erosion and sediment control best management practices will be installed as determined by the current Wisconsin Erosion Control Product Acceptability List (PAL) found on the WisDOT website and the Channel and Slope Erosion Control Matrices (Appendix D).

7. **Reclamation Activities During Operations**
   A process of contemporaneous reclamation will be used to systematically mine and reclaim the site. Under this process the site will be reclaimed as soon as possible after materials have been extracted and processed using the planned Cell sequence.

   Cell 1 will be restored as Cell 2 is being mined. Cell 2 will be restored as Cell 3 is being mined. Cell 3 will be restored as Cell 4 is being mined. Cell 4 will be restored as Cell 5 is being mined. Cell 5 will be restored as Cell 6 is being mined. Cell 6 will be restored at the completion of mining operations.

   At the beginning of the mining operations for each Cell any of the remaining topsoil will be stripped and stockpiled in berms. Mining operations will then excavate, process, and remove sand and gravel from the site.

   The site will then be seeded. Areas with slopes steeper than 10:1 will have straw mulch applied. Areas flatter than 10:1 will not receive mulch.

   Reclamation test plots will be established within the first two years of mining. Test plots will be established for each post mining land use. These test plots will be monitored and used to help determine success in future areas of mine reclamation.

8. Timetable/Sequence of Operations

The following periods of operation/extraction are estimated and may increase or decrease based on Highway Department projects and planning.

Location	Activity
Cell 1	Plant and stockpiles will remain in the current location in Cell 6. Operator will start mining on the east boundary of Cell 1 and continue towards the west until the end of Cell 1 is reached. This will take approximately 1 year.
Cell 2	Plant and stockpiles will remain in the current location in Cell 6. The operator will mine Cell 2 from north to south. This will take approximately 5 years. Cell 1 will be restored during this time.
Cell 3	Plant and stockpiles will remain in the current location in Cell 6. The operator will mine Cell 3 from north to south. This will take approximately 5 years. The north and east boundary of Cell 2 will be restored during this time.
Cell 4	Plant and stockpiles will remain in the current location in Cell 6. The operator will mine Cell 4 from south to north. This will take approximately 10 years. The north and west boundary of Cell 3 as well as the east and south boundary of Cell 4 will be restored during this time.
Cell 5	Plant and stockpiles will remain in the current location in Cell 6. The operator will mine Cell 5 from south to north. This will take approximately 10 years. The west boundary of Cell 5 will be restored during this time.
Cell 6	Plant and stockpiles will remain in the current location in Cell 6 until mining operations require their removal from the site. The operator will mine Cell 6 east to west. This will take approximately 10 years. The north and east boundary of Cell 6 will be restored during this time as mining progresses to the west.
Final	Upon completion of Cell 6 mining, the operator will restore any remaining areas on the north boundary of Cell 6 as well as any other remaining areas that need restoration.

9. Timetable

Estimated period of operation/extraction for each cell:

Cell 1	1 year
Cell 2	5 years
Cell 3	5 years
Cell 4	10 years

Cell 5	10 years
Cell 6	10 years
Total	**41 years**

These periods of operation/extraction are estimated and may increase or decrease based on Highway Department projects and planning.

10. Wisconsin DNR Wetland Exemption Determination

An artificial wetland exemption request was submitted to the Wisconsin Department of Natural Resources for two areas identified within the existing mine boundaries as DNR wetlands. The DNR made a site visit to the mine and determined that the two areas depicted on the Operation Plan are exempt from state wetland and waterway regulations. A copy of the wetland exemption determination can be found on file at the Chippewa County Highway Department.

D. Final Site

1. Disposition of Structures and Roads

An asphalt paved driveway approximately 400 feet long will remain in place at the location of the mine access road connection to 140th Street. The driveway will provide access to a parking area for the wildlife pond and grassland/prairie.

Structures such as the scale house and scale will be removed prior to final reclamation. The pond will remain in place as shown on the Final Site Maps. There will be no areas of concentrated flow entering, leaving, or within the reclaimed mine site.

2. Soil Reapplication & Reconditioning

Overburden piles will be leveled off or used on slopes. This work will be done with scrapers or bulldozers. Slopes will be stabilized using best management practices including seeding, mulching, erosion control mat, hydro-seeding, etc. Erosion and sediment control best management practices will be installed as determined by the current Wisconsin Erosion Control Product Acceptability List (PAL) found on the WisDOT website and the Channel and Slope Erosion Control Matrices (Appendix D).

Any available topsoil material will then be removed from the berms with excavators or loaders and transported in dump trucks to the sloped areas in the mine to be reclaimed. Trucks will be routed to limit traffic over areas where subsoil or topsoil has already been applied. Trucks will dump topsoil and bulldozers will spread the material to be up to 6 inches thick on the slopes of the mine. The use of tracked equipment while spreading topsoil will limit soil compaction.

In the event that rubber tire equipment cannot be routed to prevent topsoil compaction deep tillage equipment will be used to alleviate compaction in the upper 12 to 14 inches of the soil profile.

Soils testing will be performed following procedures established in the Wisconsin Nutrient Management Standard 590 to determine the organic matter, phosphorus, potassium and pH. Soil amendments (including lime and fertilizer) will be applied based on the soil test results to meet the fertility requirements needed to achieve the intended post mining land use.

3. Safety Assurances

Given the slopes on the reclaimed mine site and the post mining land uses there are very limited safety concerns. The pond will have a 3:1 slope that extends 6 feet below the water line. Areas reclaimed as grassland/prairie will have 3:1 slopes. The existing reclaimed slopes will not be modified from their current condition. These slopes are as follows: 1) the south and west sides of the existing large southwest pond, and 2) all sides of the existing large east pond that are not being disturbed as part of the new mining operations.

4. Seeding Plan

Seeding will be selected to achieve the post mining land use that is planned for each designated area. Areas that will be reclaimed to grassland/prairie will be seeded to native grasses. Seed will be broadcast seeded and rolled to improve seed – soil contact. DNR Seed Mix 3 (attached) or similar will be used in these areas. The wildlife pond area will be allowed to vegetate below the water line using natural seed distribution without seeding by the operator.

5. Future Use

The mine site will be reclaimed to the following post mining land uses:
Public Institutional – Grassland/Prairie
Public Institutional – Shallow/Deep Pond

A one acre pad will be constructed on the west end of the pond for future use as a possible parking area. Upon the cessation of mining and certification of completed reclamation, the entire property will be available as a public conservation area and pond. The proposed reclaimed site is depicted on the Final Site Map.

<u>Upland Grassland/Prairie Post Mining Land Use</u>

Steep slopes around the perimeter of the mine will be reclaimed to an Upland Grassland/Prairie Habitat.

The proposed performance measures used to determine reclamation success are:

a. The establishment of a mine soil profile with a minimum pH of 6 to 8 and organic matter greater than 1 percent.
b. The establishment of target soil chemistry and fertility to achieve and sustain the post mining land use.
c. 75% or more of select plant species are present, 25% or less are weeds, and 2% or less are invasive weeds as measured following standardized methods during and at the end of the established performance period.
d. A minimum of 70% ground cover during the growing season.
e. No visible erosion (rills, gullies, sluffing, etc.).
f. Attainment of “tolerable (sustainable) levels” of select noxious weeds and invasive species as measured following standardized methods during and at the end of the growing season.

Wildlife Pond Habitat Post Mining Land Use

Areas of the mine that are below the water table will be reclaimed as a Wildlife Pond.

The proposed performance measures used to determine reclamation success are:

a. The establishment of irregular shorelines that vary in shape and slope.
b. The establishment of shoreline slopes that vary from 3:1 to 10:1 and extend a minimum of 6 feet vertically below the water line.
c. The establishment of a minimum of 6 inches of topsoil, or topsoil substitute material, placed along the shoreline and on the slope a minimum of two feet vertically below the water line to encourage vegetative growth.
d. The presence of aquatic vegetation along the shoreline.
e. No visible erosion (rills, gullies, sluffing, etc.).
f. Attainment of "tolerable (sustainable) levels" of select noxious weeds and invasive species as measured following standardized methods during and at the end of the growing season.

The approach that will be used to manage and monitor the disturbed areas will be defined in a Soil Rehabilitation and Vegetative Management Plan. At a minimum the Soil Rehabilitation & Vegetative Management Plan shall describe the management practices methods and techniques that will be used to:

- Recondition the disturbed "mine soil" to assure the success of the vegetative planting and the sustainability of selected plant communities and associated wildlife habitat.
- Monitor and control noxious weeds and invasive species to target levels.
- Limit or otherwise actively manage the reclaimed area for anticipated plant species that will occur through natural succession.

The criteria that will be used by the County to measure reclamation success include species diversity, plant density, biomass, soil chemistry and fertility, and soil organic matter.

In order to achieve the prescribed post-mining land use the operator will implement a reclamation program to reclaim, manage, and monitor the reclaimed areas for a prescribed performance period.

Upon reclaiming any portion of the site the post-mining land use specified in the reclamation plan shall be maintained while the mine site is under the permit.

In evaluating whether areas subject to reclamation meet the evaluation criteria and performance measures the County may consider the results of onsite test plots established at the site; or the extent of site restoration and ecological development achieved as compared to existing upland grassland/prairie habitat monitoring sites or reclamation research test plots that have been previously established for this purpose in the surrounding area.

Attachments
- Site Maps
- Location Map with DNR Wetlands…….Appendix A
- Parcel Map……Appendix B
- Soils Map…….Appendix C
- Erosion Control Matrices…… Appendix D
- DNR Seed Mix 3……. Appendix E