Operator: Haas Sons, Inc.

Owner: David Peterson

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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 30 acre field located north of county Rd X, and ¼ mile east of 330th avenue in the town of Delmar. The land is currently used and managed for agricultural row crop production.

The operator will mine sand and gravel deposit that is located on glacial outwash which is characterized as meltwater stream sediment from the Chippewa Lobe. Most of the site will be mined below the water table and reclaimed as a wildlife pond. Shore land areas surrounding the pond that are mined above the water table will be seeded to native grasses.

2. **Soil Information**

   A horizon – 4"-6" of topsoil

   B horizon – 24"-60" clay subsoil

   Source of information: We dug test holes with a backhoe to determine the soil horizons. Also, the USDA soil survey indicates that there is approximately 6" of topsoil and 30" of subsoil at the site. See attached soils map.

   There are no known utilities at this site.

1. **Description of Materials to be Extracted**

   Sand and gravel will be extracted and processed at the site.

crushing and 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, loaders and conveyers.

Sand and gravel will be excavated from the mine above the water table in one lift approx. 10-15 feet deep. An area in the floor of the mine will be excavated below the water table to create wash ponds. Water for sand gravel washing process will be pumped from these ponds. No high capacity wells will be installed or used to support sand and gravel processing.

No flocculants or other chemicals will be used to support sand and gravel processing. No waste materials that are generated off-site will be hauled to the mine, stockpiled or used in site reclamation.

3. **Volumes of Materials**
Sequences 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.

(Estimated Cubic Yards of Raw Material)

pit	Area (acre), includes berms, roads, etc.	During 1st two years	During Full Life of Operation
Total	31.2 Acres	200,000 cubic yards	998,400cubic yards

4. **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 according to the 10 year 24 hour frequency storm (4.1 inches).

Soil berms created during topsoil and subsoil stripping will be stabilized and used to contain and direct stormwater runoff towards the excavated floor of the mine where it will infiltrate. Stormwater will be managed this way over the entire life of the mine. A notice of intent will be sent to the DNR.

5. **Erosion Control & Permits**
Silt fence will be installed around topsoil pile and berms during site operation. All topsoil and subsoil piles will be graded to a slope of 3:1 or flatter and seeded to further control erosion during site operation.

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 Wisconsin Erosion Control Product Acceptability List (PAL) Channel and Slope Erosion Control Matrices .

been extracted and processed using the planned sequence.

North boundaries will be partially restored as mining continues south. As will northern east and west boundaries.

At the beginning of the mining operations all of the topsoil (estimated 6 inches) will be stripped and stockpiled in berms. Following topsoil stripping operations all of the subsoil (estimated 20 inches) will be stripped and mostly stockpiled in the stripping area. Some subsoil may be piled in berms along with the topsoil. After subsoil is piled, leveled, and sloped, in the stripping area, some topsoil will be applied and area will be seeded. All berms will be shaped to a 3:1 slope or flatter and seeded with DOT Seed Mix 20. Mining operations will then excavate, process, and remove sand and gravel from the site.

Final grading of the bottom will occur as sand and gravel is mined.

When excavation of sand and gravel is completed rough grading work will be performed to create slopes around the perimeter of the mine that are 3:1 or flatter and extend below the surface of the water. Subsoil will then be place over the slopes (this includes a minimum of 2 feet vertically below the water line) and flat lying areas of mine to a depth of 10 inches or more.

Topsoil will then be placed over the subsoil to a depth of 6 inches or more

The site will then be seeded. Areas with slopes steeper than 3:1 will have straw mulch applied. Areas flatter than 3:1 will not receive mulch, unless it is determined that mulch is needed for stabilization.

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.

7. **Timetable/Sequence of Operations**

Location	Activity
	Start mining at the south end of the site operations map. We will mine north through the pit evenly, at an elevation above groundwater (approx. 1055) to the north boundary. After mining above water table is complete, we will dig a pond approx. 10-20ft deep starting in the NW corner and moving east, and then south until the entire pit becomes a pond.

8. **Timetable**

Estimated period of operation/extraction:

pit	20 years

1. **Disposition of Structures and Roads**

A gravel driveway will come north off of county hwy X. will be approximately 50 ft long. The driveway will provide access to the wildlife pond.

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

2. **Soil Reapplication**

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 Wisconsin Erosion Control Product Acceptability List (PAL) Channel and Slope Erosion Control Matrices (attached).

Subsoil material will then be removed from the berms with excavators or loaders and transported in dump trucks to the area in the mine to be reclaimed. Trucks will be routed to limit traffic over areas where subsoil has already been applied. Trucks will dump subsoil and bulldozers will spread the material to be 24 inches thick on the slopes and floor of the mine. The use of tracked equipment while spreading subsoil will limit soil compaction.

Topsoil material will then be removed from the berms with excavators or loaders and transported in dump trucks to the area 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 6 inches thick on the slopes and floor 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 subsoil and 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 Wildlife habitat will have 3:1 slopes.

designated area. Areas that will be reclaimed to wildlife habitat will be seeded to native grasses. Seed will be broadcast seeded and rolled to improve seed – soil contact. DNR Seed Mix 2 will be used in these areas and applied at the rates listed (see attached). 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 establish a post mining land use as wildlife pond habitat below the water table, native grass prairie above the water table, as shown on the Final Site Map.

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 a mine soil profile with a minimum of 6 inches of topsoil and 24 inches of subsoil.
b. The establishment of full plant rooting depth.
c. The establishment of target soil chemistry and fertility to achieve and sustain the post mining land use.
d. The establishment of the shore land seeding so that:
   i. All species in the seeding are present.
   ii. No more that 50% of the total vegetation is one species from the seed mix.
   iii. Biomass shall be a minimum of one ton per acre per year.
e. The establishment of irregular shorelines that vary in shape and slope.
f. 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.
g. The establishment of a minimum of 6 inches of topsoil placed along the shoreline and on the slope a minimum of two feet vertically below the water line to encourage vegetative growth.

Site monitoring will be conducted to assess the success of vegetation establishment and monitor the site for invasive or noxious plan species. Areas poor vegetation establishment shall be examined to determine the cause. Invasive or noxious species will be spot treated with herbicide according to the product label or hand removal and disposed of properly.

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