

Reclamation Plan (Revised 10/14/2020) BAC

Tri Lakes Road 80- acre (non-metallic mining) Pit

5857 E. Tri Lakes Rd

Town of Oakland

Douglas County

1. **Site Information**

A. **Maps**

General Location: enclosed is an excerpt from page 21 of Douglas County Plat Book showing the property.

Property Boundary: the property is contained on two contiguous 40-acre parcels described as the SW ¼ of section 9, Town 46 North, Range 13 West, **and Parcel number OA-022-00145-00**; and the SE ¼ of the SE ¼ of section 9, Town 46 North 13 West, **Parcel Number OA-022-00146-00**. Enclosed is a copy of an Aerial photograph provided by the Douglas County Land Records Office. **The owner of record is the Town of Oakland.**

Arial Extent: is shown on the attached drawing (base map provided by Thatcher Engineering). Current extent of mining consists of nominal deposit removals as necessary to construct the approximately 2,800 lineal feet of access road as shown on the base map which encompasses approximately **1.9 acres**. Ultimate extent of mining expected to include an additional **28.8 acres**, for a total future mined area of approximately **30.7 acres** of the combined 80-acre site. An additional **6.8 acres** of the site is Town road right-of-way (Tri-Lakes Road, Najt Road, and the unnamed intersection connector) and remnant portions to the south of Tri- Lakes Road and in the Tri-Lakes/ Najt Road intersection, leaving approximately **42.5 acres** of internal perimeter ultimately unmined.

Geological Composition: Soil maps from Wisconsin Department of Transportation District 8 were obtained and copies are attached. These were prepared by DOT from historical published data on the region and have been refined over the years by the addition of regional field data. The area soils are defined as consisting primarily of Gogebic, Iron River, Cloquet and Cable loams and Vilas sand, all glacially deposited and providing the basis for the rolling terrain. Depth of deposit is expected to vary across the site down to the elevation of the regional ground water table at roughly elevation 1200. Boring performed on the 80-acre site under supervision of Thatcher Engineering in 2001 (49 borings drilled – copies not attached) confirm deposit depths to the depth of their borings....down to approximate elevation 1213 without encountering the regional ground water. Thatcher described the soils on the property as consisting of “a random mix of sandy loam, silty loam and sometimes clayey loam”. As the depth of the excavation in the currently mined areas of the Towns adjacent 40-acre non-metallic pit to the west of this site approaches elevation 1252, with little change in material expected

down to the ground water elevation of 1200, depth of sand/gravel/loam on the site is expected to be up to 70 feet thick.

Distribution, Thickness and Type of Topsoil: the existing topsoil is generally a sandy loam or silt loam, occasionally with gravel present and is rarely more than 2" to 3" thick across the site. Little of the site has been opened from past mining activities, as previous activities involved across road construction for logging operations and no topsoil was salvaged/stockpiled from those operations. Those portions of the site that are still tree-covered retain their shallow topsoil but as most of the topsoil is bound to the root mass of tree stumps, very little topsoil salvage will be possible.

Thatcher described the topsoil and its relationship to the site wetlands in their 2001 summary report on their investigation of the property. "A thin veneer of loess was found in several places on the site, which is likely the result of wind sorting and depositing of fine silts and clays on the former erosional surface of the moraine. A general preference for deposition in topographical depressions laid the foundation for many of the small basins to have lower soil conductivity than the surrounding uplands, promoting water retention. Detritus from hydrophytic vegetation likely decreased the soil permeability, eventually resulting in formation of wetlands. The hilltops, in contrast, typically had much of the fines stripped by the pre-succession erosion and tend to be the sandier surface."

Thatcher delineated the wetlands of the site and these are shown as wetland #1 through wetland #12 on the Aerial exhibit.

Wetland #1 is forested, needle -leaved wet soil, palustrine at nearly 20-acres in size and will not be impacted by this project.

The Town of Oakland will inform the Wisconsin DNR of any wetland impacts prior to disturbance and shall forward all documentation of any permits required to Douglas County.

Wetland #2 is an isolated wet meadow that will be excavated through mining operations.

Wetland # 3 and #4 are isolated wet meadows, seasonally dry, and will not be impacted by this project.

Wetland #5 is an isolated circular shallow marsh that will be excavated through mining operations.

Wetland #6 is a circular isolated wet meadow that will be excavated through mining operations.

Wetland #7 is an isolated elongate shallow marsh that will be excavated through mining operations.

Wetland #8 is an isolated shallow marsh that will be excavated through mining operations.

Wetland #9 is an isolated shallow marsh that will be excavated through mining operations

Wetland #10 is an oblong isolated wet meadow that will be excavated through mining operations.

Wetland # 11 is an isolated wet meadow that will be excavated through mining operations.

Wetland # 12 is an isolated wet meadow that will be excavated through mining operations.

Approximate elevation of ground water: area well records reviewed by Thatcher Engineering in their investigation of the site (copy of summary attached) established the regional ground water elevation at an elevation of 1180 to 1200 feet, at least 40 feet below the planned depth of the excavation site.

Location of Surface Water: refer to attached excerpts from 7.5 minute quadrangle map (Lyman Lake, WI.). No surface water on the site in the form of lakes, ponds or streams (and all excavations are dry as soil is porous) but wetland #1 seems to retain moisture year-round. Nearby area lakes addressed in the Thatcher Engineering ground water summary are: Long Lake, Round Lake, Lyman Lake and Amnicon Lake. Wetlands #2 - #12 on site are seasonally dry and other wetlands #1, #3 and #4 are within the limits of future excavations....see Areal Extent exhibit and discussed under topsoil.

Existing Drainage Patterns: refer to attached excerpts from 7.5-minute quadrangle map (Lyman Lake, WI) Because the site will be an excavation creating a depression on the immediate landscape, rainwater or snow melts will be generally trapped on site and sink into the soil where it will eventually reach the ground water table. As no water is expected to leave the site (except vertically or through wetland #1 that discharges to the northeast from the site) nominal erosional controls are necessary until reclamation efforts involving top soiling/seeding are undertaken.

Wetlands #3 and #4 are situated up slope from the planned excavation so not require erosion control protection from the excavation operations. Wetland #1 however is down slope from the planned excavation, therefore a berm of stumps and brush from the site's "topsoil layer" will be bulldozed along the perimeter of this wetland to ensure erosion from the excavation does not adversely impact this wetland. This berm may be supplemented with other erosion control measures if the stump/topsoil berm is inadequate to the task.

Existing Topography: refer to attached excerpts from 7.5-minute quadrangle map (Lyman , WI.).

Location of Manmade Features: refer to attached Aerial photo provided by Douglas County Land Records Office and excerpt from Douglas County Plat Map. The Aurora Outdoor Club has a storage building, garage, shed and shooting range facilities on the property west of this property (SW ¼ of SW ¼ of Sec 9, T46N, R13W). Town roads are shown on the map as well. There are currently no improvements on site or immediately nearby.

Previously Mined Areas: are minimal, linear in nature and are located along the limits of the access roads shown on the enclosed location diagram (again based on the Thatcher Engineering base map) and were addressed above. Previously mined areas from a small part of the area disturbed in constructing the 2,800 lineal feet of access roads themselves which total approximately 1.9 acres of the site.

B. Biological Information:

The site consists of previously logged northern hardwoods (maples and aspen) in the uplands and in wetland #1 needle-leaved deciduous trees (tamaracks). Native birds such as black-capped chick-a-dees, blue jays and crows are at times seen on the site. Tracks of white-tailed deer are occasionally seen.

2. Post Mining Land Use.

For the immediate future, the site will remain as potential intended sand and gravel pit for the Town. Once this new pit is opened it will likely function for at least the next 50 or more years, since the towns current /adjacent sand/gravel pit is still presently in use. The Town will open this pit and obtain sand or gravel materials from the pit as needed for Town purposes, likely after the 40-acre adjacent pit (SE ¼ of SW ¼ Sec 9) has been exhausted. In the said 40-acre adjacent pit, we have had success with crushing operations bringing in a supply of crushed rock (from their own separate sources). This is mixed with

materials extracted from the pit (and crushed) to create the final crushed gravel mixture we then stockpile and use. We have not had to do that for a couple of years but will do so again when the need arises. The northern half of the said 40-acre existing pit area is the area the crushing operations are generally set up in, and where a small stockpile of crushed rock is still to be found. It is possible that crushing operations could be continued in the 40-acre existing pit area after its material sources have been exhausted, as this affords a crushing site for materials brought in from the nearby 80-acre pit when that is opened in the future. This would eliminate the need to fill in part of the wetland #1 for use as a crushing site. When the material in the 80-acre pit is exhausted, we plan to seed the entire mined area and turn it into grassland.

3. Reclamation Measures:

A. Earthwork: Site Grading.

Final slope angles will not exceed the maximum 3:1 slope requirement. Excavation operations will anticipate these slopes and leave slope material intact, providing the final 3:1 slope from the top of the excavation down to the base elevation of the floor. Areas outside the excavation area and forming the perimeter of the site will be left top soiled and covered with natural vegetation to ensure stability of the slopes.

High Wall Reduction is not applicable, as no high walls are anticipated. Beyond the limits of excavation, wooded buffers will remain as shown on the exhibits.

Benching is not applicable, as side slopes will not exceed 3:1.

Terracing is not applicable, as side slopes will not exceed 3:1.

B. Topsoil

Topsoil on the site is very thin and is bound to the root mass of tree stumps, making salvage of it generally impractical. As the site is ultimately developed and made ready for reclamation, either in whole or in part, ditching materials hauled from nearby town road improvement projects will be trucked in to the site and spread/compacted by mechanical means over all areas that are to receive "salvaged topsoil." It is not expected that ditching materials from nearby road projects will be stockpiled long term, however should such salvaged topsoil stockpiles be constructed on site, these may receive temporary seeding if necessary to stabilize the salvaged topsoil stockpiles, as determined by the Town Board. The Wisconsin Department of Transportation's "Standard Specifications for Road and Bridge Construction" contain detailed specifications for all phases of finishing work related to highway appurtenances and borrow pits. These will be appropriately applied to the intended reclamation efforts for this site. The specifications involved are:

Section 625: Topsoil and salvaged topsoil

Section 626: Peat Humus

Section 627: Mulching

Section 628: Erosion Control

Section 629: Fertilization

Section 630: Seeding

Section 631: Sodding

Section 632: Furnishing and Planting Plant Materials

These sections of the specifications will be followed as appropriate and made available to Town employees or landscapers involved in the reclamation efforts. They are incorporated into this plan by reference.

C. Topography

Final topography will be determined upon completion of non-metallic mining operations at the site. Final contours will reflect the 3:1 maximum slope criterion. No wetlands or artificial water bodies are expected to be created at this site. A diagram of final anticipated site contours is included, again based upon Thatcher Engineering base map.

D. Structures

Existing town roads (Tri-Lakes Road, Najt Road and the unnamed intersection connector and the driveway entrance to the site) will remain in use after the site has been reclaimed. No permanent structures are currently being planned for this site.

E. Cost

The cost to reclaim the site is estimated at approximately \$ 66,136. Please see attached Table.

F. Re-vegetation plan

Dormant seeding requirements: dormant seeding is typically involved after November 1st. No dormant seeding is expected to be required.

Temporary Seeding Requirements: temporary seeding is involved when permanent seeding is delayed and is generally installed between September 15th and October 1st. It usually consists of winter wheat or rye applied at a rate of 2 bushels of seed per acre. A seeding of annual oats may occur at a rate of 3 pounds per 1,000 square feet between June 15th and September 15th should the need arise. It is not expected that temporary seeding will be required.

Permanent Seeding Requirements: areas in the diagram with the ditching materials spread as salvaged topsoil (only ditch materials rich in organic matter will be considered for use as salvaged topsoil) will receive permanent seeding with a native seed mix such as Wis Dot mix 70, 70A or 75 to ensure vegetive cover of all such areas. Areas to be seeded are all active mining areas (The final floor elevation will ultimately be determined by the Town Board.) Area to be seeded is approximately 30.7-acres. Seeding may occur anytime soil conditions are suitable, except between June 15th and October 1st. A nurse crop of oats will be used before June 15th and winter wheat or annual rye grass after October 1st at a rate of .8 pounds per 1,000 square feet. All gardening materials (seed, fertilizer, lime and mulch) shall be on site prior to completion of topsoil operations. All certifications (live seed contents, fertilizer and lime guaranteed analyses, etc.) are to be provided to the Town at the time the gardening materials are delivered. Seed

mixtures will be applied at pure live seed rates and mulch will be placed 48 hours of seeding, and in the manner as defined in the specifications.

G. Re vegetative Standards:

The standards for the re-vegetation of the defined areas of the pit are as follows: proper installation of seed, fertilizer and mulch in accordance with the re-vegetation plan described as above. Re-vegetation will be considered complete when the re-vegetated areas support the planted seeding at a minimum of 70%. Long term, re-vegetation will be considered a success when aspen colonization is apparent on top soiled areas.

H. Erosion Control:

Erosion control during reclamation shall be according to Section 628 (“Erosion Control”) of the Wisconsin Department of Transportation’s “Standard Specifications for Road and Bridge Construction.” This may include but is not limited to silt fence, erosion mat, or bales, rip-rap and seeding. Due to the topography of the site little in the way of erosion control is expected to be required, other than addressing the long-term erosion control needs of wetland #1. As excavation operations anticipated to only open slopes to a maximum steepness of 3:1 they should remain stable throughout operation of the pit.

I. Interim Reclamation:

This is not applicable to the Tri-Lakes Pit. Reclamation will not be undertaken until after all sand/gravel has been mined to the depth of excavation as determined in future by the Town. At that future time, reclamation will proceed as a single individual effort.

J. Criteria for Successful Reclamation:

Reclamation will be complete when the following have been met:

1. Seeded areas support 70% vegetation cover with sufficient native species coverage;
2. Erosion Control measures are no longer necessary and are removed;
3. There is no unnatural erosion occurring at the site;
4. The slopes are stable and meet the 3:1 criterion; and
5. All criteria listed in this plan have been met.

Representatives from Douglas County Zoning will be invited to inspect the site to verify that conditions and requirements of the reclamation plan have been met. County Zoning will issue the final determination that the reclamation plan has been accomplished. (If conditions or objectives change substantially over the intervening years from those anticipated and addressed in this document, an amended plan will be prepared and submitted for approval as necessary to address and incorporate those changes)

SUMMARY OF ESTIMATED RECLAMATION COSTS

Slope preparation prior to gardening	
Small dozer at 16 hours	\$3000
Topsoil hauling (fuel cost only)	
760 truckloads, fuel at \$2 gallon	
15 mile round trip at 6mpg	\$3800
Topsoil spreading, finish grading and compaction	
Small dozer at 64 hours	\$8000
Seed	
936 pounds at approx. 27.85 per pound	\$11,236
Fertilizer	
8400 weight at approx.. 100/cwt	\$8400
Lime	
56 tons at approx. 50/ton	\$2800
Mulch	
1680 bales at approx. \$5 per bale	\$8400
Costs to spread seed, fertilizer, lime and mulch by landscaper (includes watering) 160 hours at \$100/hour	\$16,000
Site maintenance until approval	\$4500
Total reclamation cost	\$66,136

Note: Town employees are anticipated to do most of the work. As they are on salary, no separate costs for labor are included in this estimate. A landscaping contractor will likely be hired to spread the gardening materials. If contractors are employed for other portions of this effort, costs will increase significantly during intervening years, increasing the cost of reclamation.