WESTSHORE
ENGINEERING & SURVEYING
ENVIRONMENTAL

2534 Black Creek Road · Muskegon, MI 49444
Ph: (231) 777-3447 · Fx: (231) 773-3453

September 3, 2019 ***Via Email & Hardcopy***

Mr. Stafford Dusenbury
Department of Environment, Great Lakes & Energy
Oil, Gas & Minerals Division
Permitting & Technical Services Section
P.O. Box 30256
Lansing, MI 48909-7756

Re: Sherman Boulevard Site, Jackson-Merkey Contractors, Inc., Muskegon, Michigan – Renewal of Sand Mining Permit No. JMC-SBS-112

Dear Mr. Dusenbury:

Westshore Consulting (Westshore) has prepared this correspondence on behalf of Jackson-Merkey Contractors, Inc. (JMC) to request a modification of their existing Act 637 sand mining permit that would result in a reconfiguration of the location and size of their three mining cells at the Sherman Boulevard Site. A Sand Dune Mining Permit was initially issued to JMC on November 10, 1992 and was last renewed in 2014. Included is all the information necessary to process this modification including a revised Environmental Impact Statement, Progressive Cell Mining and Reclamation Plan, and a 15-Year Mining Plan.

JMC intends to mine surface sand above the water table only from Cells 1, 2 and 3. All mining operations will occur in areas already disturbed by previous surface mining, and no mining in portions of the JMC site that were not previously disturbed will take place. Given the mining will not extend into the water table; a Part 301 permit would not be required.

Attached to this request to modify the mining cells are figures that indicate the existing and proposed mining cell changes. Please feel free to contact us with any questions or comments.

Sincerely,

WESTSHORE CONSULTING

Robert L. Schulz, CPG
Senior Geologist

Joseph R. Bolin
Project Geologist

RLS/jlg/00491-0007

Permit Application & Attachments

cc: Mr. Steve Jackson, Jackson-Merkey Contractors, Inc.
Mr. Gary Merkey, Jackson-Merkey Contractors, Inc.

EGLE

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Oil, Gas, and Minerals Division

APPLICATION FOR PERMIT TO ENGAGE IN SAND DUNE MINING WITHIN GREAT LAKES SAND DUNE AREAS

Under authority of Part 637, Sand Dune Mining, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA)

1. Date of Application: 08/26/19
2a. [Original] [Renewed] [Amended] (circle one)
2b. Operation is: [Existing] [New] (circle one)

3. Legal Description of property requested for permit: Operating under Permit No. JMC-SBS-112
Legal Description is included on Figure 1 – Site Map

4. Township: Norton Shores
5. County: Muskegon

6. Number of acres requested for permit: 49.78-acres

7. Name of Applicant: (operator) Jackson-Merkey Contractors, Inc.
Address: 3430 Lund Ave, Muskegon, MI 49442 Telephone: (231) 728-9344

8. Owner of Surface Rights: Jackson-Merkey Contractors, Inc.
Address: 3430 Lund Ave, Muskegon, MI 49442 Telephone: (231) 728-9344

9. Send correspondence and permit to: Jackson-Merkey Contractors, Inc.
Address: 3430 Lund Ave, Muskegon, MI 49442 Telephone: (231) 728-9344

10. THE APPLICANT AGREES TO COMPLY WITH THE PROVISIONS AND REQUIREMENTS OF Part 637, Sand Dune Mining, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA) AND ASSERTS THAT THE INFORMATION ON THIS APPLICATION AND ATTACHED THERETO IS TRUE AND CORRECT.

Signature: (Applicant/Authorized Rep.) Steve Jackson
Name: (Typed) Steve Jackson Date: 8/28/19
Title: President – Jackson-Merkey Contractors, Inc.

SEND COMPLETED APPLICATION TO:

Department of Environment, Great Lakes, and Energy
Oil, Gas, and Minerals Division
Permitting and Technical Services Section
P.O. Box 30256
Lansing, Michigan 48909-7756

FOR DEPARTMENT USE ONLY

Date Received:

Application By:

Comments:

Lansing: Field: Applicant:

Environmental Impact Statement
Modification of Act 637 Sand Mining Permit
Jackson-Merkey Contractors, Inc.
Sherman Boulevard Site
Norton Shores, Michigan

Permit No.: JMC-SBS-112

Prepared for:

Jackson-Merkey Contractors, Inc.
3430 Lund Avenue ▪ Muskegon, MI 49442

Prepared by:

Westshore Consulting
2534 Black Creek Road ▪ Muskegon, MI 49444
Phone: (231) 777-3447 ▪ Fax: (231) 773-3453
Service@WestshoreConsulting.com
WestshoreConsulting.com

00491-0007

August 26, 2019

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1.0 Introduction

Jackson-Merkey Contractors, Inc. (JMC) wishes to renew their existing Act 637 sand mining permit, Permit No. JMC-SBS-112 that would include modification of the location and size of their mining cells at their site. The property is located on Sherman Boulevard in Section 3 of the City of Norton Shores, Michigan (Figure 1). The site is an active surface sand mine, and has been historically operated by CWC Castings. The property is presently owned by JMC and has been referred to as the "Sherman Boulevard Site" by the Michigan Department of Environment, Great Lakes and Energy (EGLE). A Sand Dune Mining Permit was issued to JMC on November 10, 1992 and was last renewed in 2014. Between 2011 and 2016 portions of the JMC property were leased to Nugent Sand Company, Inc. (Nugent) for expansion of the existing lake (North Lake) onto the JMC property. Nugent has ceased mining activities and the lease agreement is no longer in place. Proposed future mining will include the reconfiguration of the mining cells, and consequently JMC is requesting an amendment to the existing permit to allow this modification.

CWC Castings had owned the site for many years prior to this and had extracted sand from the property for most of that time (i.e., prior to 1977). JMC continued to mine sand after they purchased the property, and surface mining is being conducted at the site to the present time. Three mining cells currently exist at the site, and much of the site has been previously mined. Only a small portion on the southern edge of the property (Cell 1) and the western end of the site (Cells 2 and 3) have not been surface mined (Figure 2). With this document, JMC requests a modification to their existing permit to reconfigure the shape and size of their three mining cells (Figure 3).

Sand dune mining is regulated by Part 637, Sand Dune Mining, of the Natural Resources and Environmental Protection Act, 1994 P.A. 451, as amended. Section 63705 of Part 637 requires that an Environmental Impact Statement be prepared as part of the mining application process. The Environmental Impact Statement follows in Section 3.0.

2.0 Proposed Action

JMC wishes to continue sand mining operations on their property. The majority of sand that will be mined during the new permit interval will be a large stockpile of material situated on the southern portion of Cell 1. The stockpile is referred to as the "Fines Pile" by Nugent and JMC, and was derived during the expansion of North Lake. The Fines Pile is sand that had been processed through the Nugent Wash Plant, and the grain size of the sand particles was too small for their intended use by Nugent. JMC will first excavate and sell sand from the Fines Pile, and once that material is no longer available, will start mining in other portions of the JMC site. Westshore surveyed the volume of sand in the Fines Pile and determined, based upon the previous five years sales of sand by JMC, that approximately five years of sand is present. The proposed JMC sand mining activities will be accomplished and the site restored as discussed in the *Progressive Cell Unit Mining and Reclamation Plan* (Appendix A).

JMC intends to prepare the property for future residential development. JMC will complete grading in areas of their property to allow the placement of roads, utilities and residential structures. JMC wishes to retain as much of the existing topography and vegetation as possible, but in any areas where movement of sand is accomplished, will restore the site utilizing the reclamation plan contained in this permit application.

Cells will be reclaimed once all sand has been removed from an area. Based upon the location of the mined sand, reclamation of areas will occur prior to the cessation of the entire mining activity at the JMC site. Reclamation goals include protection of adjacent properties from blowing sand, the reestablishment of permanent vegetation, and restoration of affected areas to an acceptable aesthetic level. The mined property will be reclaimed through final grading, vegetation planting or other steps necessary to leave the area compatible with the existing and proposed future development, so as to protect the natural environment and minimize negative impacts on surrounding land and development.

The final grade of the reclamation area will be sloped to prevent accelerated erosion, and to a degree sufficient to maintain vegetation. When mining is completed in an area, the final grading will immediately be completed, and vegetation will follow. Vegetation will consist of dune grass, hydro-seeded MDOT road grass mix, and/or trees to stabilize the sloped areas. There will be no impact to adjacent properties from the mining operations.

3.0 Environmental Impact

3.1 Existing Environment

The western edge of the JMC property is situated about 300 feet east of Lake Michigan, and the area nearest to Lake Michigan that will be disturbed by the mining process will be approximately 500 feet from Lake Michigan. The western portion of the JMC site is comprised of sand dunes, and a barrier dune system is present adjacent to the Lake Michigan shoreline. The barrier dune is the first landward and dune formation along the shoreline of a Great Lake. The inland boundary of the barrier dune is that landward boundary line at the base of the first dune assemblage which displays the greatest relative relief within two miles of the shoreline. The JMC property lies within the barrier dune designated area, and a permit that allows the mining of sand from the property has been formerly issued by the State of Michigan. The topography at the JMC property varies from very hilly terrain situated in the southern and western portion of the site where surface mining has not occurred to flat sections in the eastern section where surface mining has been completed. Mining of surface sand has been occurring at the site for many years, and material in all three cells have been excavated and removed from the site.

3.2 Physical

According to the Muskegon County Soil Survey (1968) the majority of soils covering the property consist of Grayling-Rubicon sands with 25 to 45 percent slopes. Generally, these soils are found on short, steep slopes of sandy uplands of Muskegon County. The surface soil layer is thin and less distinct than typical Grayling and Rubicon soils found in areas with less steep slopes. Both the Grayling and Rubicon series consist of well-drained sandy soils that exhibit very rapid permeability. The natural fertility and available moisture capacity are low. The upper soil profile for both of these series is similar, but the Rubicon has redder subsoil than the Grayling. The Rubicon soils range from very strongly acidic to moderately acidic (pH values of 4.5 to 7.0 in the upper 28 inches of the soil horizon, and pH values of 6.0 to 6.5 below 28 inches to a depth of 66 inches). These soils are subject to water and wind erosion.

Soils discovered during drilling and mining activities are similar across most of the site. Generally, in areas where trees and vegetation exist and no sand mining has occurred, a thin layer (approximately 1 to 3 inches thick) of sandy topsoil is present. The topsoil ranges from dark brown to black, and contains some organic material. Below the surficial topsoil, reddish-brown, fine-grained sand that is characteristic of the Rubicon series exists to a depth of approximately three feet below ground surface (bgs). A tan fine to very fine-grained sand exists below the subsoil horizon.

Topographic elevations in the excavated areas range from approximately 605 to 625 feet USGS, and the top of the water table is located between 20 to 30 feet bgs at an elevation of 590-595 feet USGS. The dune areas that have not been mined have surface elevations ranging from 640 to 670 feet USGS.

Land use adjacent to the mining area is as follows:

- **North:** The entire north side of the site is bounded by Sherman Boulevard and north of Sherman Boulevard is the Muskegon Country Club. Residential homes are present to the west and east of the Muskegon Country Club property.
- **West:** The west side of the site includes a 15-acre parcel owned by Nugent. The other areas adjacent to the west are the eastern portion of Bronson Park, property owned by the

City of Muskegon. Traversing in a general north-south direction is Idlewild Road that connects Sherman Boulevard to the Idlewild Subdivision. Idlewild Subdivision is located southwest of the JMC property and includes 13 residences. Further west from the Idlewild Subdivision and Bronson Park is Lake Michigan.

- **South:** Nugent is situated along the southern boundary of the JMC property. A surface water body, named North Lake, is present that extends onto the JMC property.
- **East:** The east side is bordered by a trailer park, a private residence, and a property used for industrial purposes.

The mining activity is not within 500 feet of a commercial development or 2,000 feet of a school. Residences that are within 1,000 feet of the area that will be part of the mining operation include: the Idlewild Subdivision; the residential homes that are located to the west and east of the Muskegon Country Club; the Bel Air Park trailer park; and the Workman residence on Lincoln Street.

3.3 Groundwater

Groundwater at the property is present in an unconfined aquifer. Dependent upon the elevation of the ground surface, the top of the aquifer was located at 21 to 52 feet bgs (an elevation of 590 to 595 feet USGS). Groundwater migrates in a westerly direction, towards Lake Michigan. Groundwater sampling and analyses have been completed at the JMC property to determine background data, prior to development of North Lake onto the JMC site. The samples were analyzed for a variety of constituents including volatile organic compounds (VOCs), metals, polynuclear aromatic hydrocarbons (PNAs), fatty acids, and other general chemistry parameters. The analytical results showed that both manganese and iron are present in the aquifer in concentrations that exceed the Michigan Part 201 Generic Residential Cleanup Criteria (GRCC) for drinking water uses. None of the remaining constituents existed in concentrations above any Michigan Part 201 GRCC or action levels.

Potable water well records available within a one-quarter mile radius of the property show that shallow irrigation wells exist at residential properties to the north and east of the site. Figure 4 shows the location of those wells. No irrigation or potable wells were discovered to the south of the property. Southwest of the site is the Idlewild Subdivision in which approximately 13 homes presently obtain water from the Norton Shores municipal water supply system.

3.4 Terrestrial

The soil of the dunes is chiefly quartz which has characteristics that strongly effect vegetation. As a rule, sandy soils are poor in plant nutrients and do not develop a rich humus soil because of the rapid oxidation of organic matter. Topography accounts for many differences in rates of organic matter deposition, and subsequently the distribution of plant and animal species. Two distinctly diverse topographic features exist at the site. First is the hilly, unmined area where topsoil still exists and trees have not been removed. The second area is defined by surface mining, with much of the topsoil and vegetation removed. In the wooded area, a one to three-inch layer of organic material has developed, providing for a wider variety of plant species.

The wooded dunes contain large trees such as Red and Black Oak, Maple, and White Pine with understory plants such as sassafras and groundcovers like ferns. A transition area exists between the open dune and the wooded dune areas. This area is characterized by small plants such as wild mint and understory trees and shrubs. The open dune area consists mainly of dune grasses,

scrub oak and sand cherry. Several large areas and slopes are void of vegetation. Tables A, B and C provide a comprehensive list of the plants present at the property.

Animals and signs of animals include opossum, skunk, raccoon, both black and fox squirrels, chipmunks, red fox, and cottontail rabbit. There are signs of a fairly large population of whitetail deer in the area, evidenced by tracks, trails through the woods, bedding areas, and rubs off the bark of the trees. Among birds sighted in the area are turkeys, red-tailed hawk, robin, blue jay, killdeer, great horned owl, woodpecker, chickadee, white-breasted nuthatch, cardinal, and blackbirds. Numerous small holes in the side of one sand dune indicated the possible presence of bank swallows. No amphibians or reptiles were observed at the site, but likely include the American toad, tree frog, box turtle, garter snake, eastern hognose snake, black rat snake, salamander, and newt.

There is no natural surface water present at the site, hence, no aquatic communities exist.

3.5 Social

The population of Muskegon County has experienced growth, which is expected to continue into the future. Muskegon County is one of the most populated counties along Lake Michigan. The JMC property is undeveloped, has no residential use, and is fenced as private land. The existing use of the site is solely for surface sand mining. Aesthetically, the site has a combination of dune land that has not been developed adjacent to areas that have been mined and display little topographic relief. Economically, the site provides some employment opportunity for individuals who mine and transport the mined sand material.

4.0 Potential Impacts

4.1 Physical

In assessing any project proposing land change, it is necessary to consider the potential impact the project will have to the existing environment. In order to remove the sand from the site, the vegetation and topsoil will be stripped with the use of scrapers or bulldozers. The topsoil will be stockpiled as berms along the outside edge of the disturbed area. Trees that are of sufficient size and quality will be harvested and sold for lumber or pulp. Some of the smaller stock or brush material would provide an excellent source of organic material for use as mulch during the revegetation phase of the reclamation plan. The soil and vegetation stockpiles would be located as close as possible to the areas that would require restoration to facilitate the re-spreading of topsoil during the reclamation process.

4.2 Groundwater

As no mining beneath the water table will occur, there is no potential for impact to the groundwater in the vicinity of the project.

4.3 Terrestrial

Most of the biotic communities within the area to be mined will be eliminated during the mining process. The vegetation and soil layer will be removed to accommodate mining. The animal life that is dependent upon the vegetation will move to nearby undisturbed areas. No aquatic life exists in North Lake and the feeding and roosting activities of migrating birds will not be impacted. Mitigation measures will greatly influence the extent of impact as well as the time required to return the area to conditions similar to pre-mining operations.

4.4 Social

No social impacts will occur during the mining operation. The present number of employees used to mine the sand will not change. No changes in health, income, safety, housing, education, recreation, or other quality of life dimensions will be affected during the period that mining will take place. Land use will continue to be surface mining, and since the site is privately owned and access is limited, this use will not become a potential impact. The operation of soil moving equipment will occur, but these equipment noises have been ongoing at the JMC property for many years, and the nearest residential properties are not located near the operation.

5.0 Mitigation

Reclamation is the key to mitigating many aspects of mining. Angle of slope and stabilization of the dune are key elements in restoring the landform. Specific details regarding reclamation are contained in the *Progressive Cell Unit Mining and Reclamation Plan* (Appendix A).

5.1 Physical

Upon the completion of excavated soil materials, reclamation will begin immediately. Stabilization will be accomplished through grading, planting and mulching. If necessary, snow-fencing will temporarily be placed leeward of disturbed areas. Dune grass and trees will be planted once an area has been final graded, and eventually, a new soil horizon will be formed.

5.2 Groundwater

The surface sand mining operation by JMC will not impact or alter the groundwater aquifer since the depth of mining will not be advanced to the depth of the groundwater aquifer or water bearing zone.

5.3 Terrestrial

JMC will complete stabilization to reduce the disturbances caused by the removal of vegetation during the mining operation. Effective stabilization will include the planting of dune grasses and trees. Once reclamation efforts have commenced, many of the animal species will immediately move back to the previously disturbed area. In a few years, the site will return to its former land use. The impact to flora, fauna and wildlife will be negligible once restoration has been accomplished.

5.4 Social

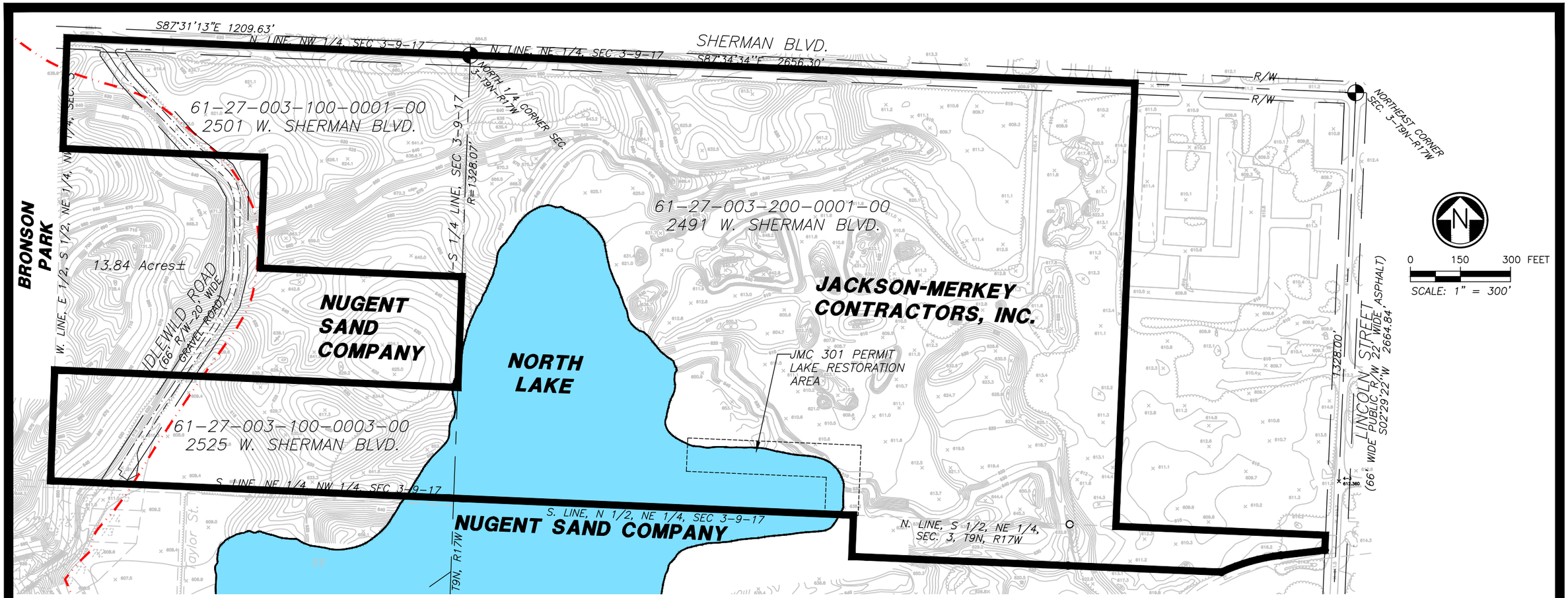
Surface sand mining has occurred at the site for many years. The removal of sand has been accomplished with the use of front-end loaders and dump trucks to obtain the sand that is transported offsite. The noise associated with this type of operation has not disturbed neighboring properties.

Nugent formed two lakes south of the JMC site by the extraction of sand from beneath the water table, North Lake and South Lake. North Lake, a body of water located partially on JMC property, has been mined and is being restored following Michigan EGLE guidance. South Lake, a body of water located south of Winnetaska Drive, has been mined and fully restored following Michigan EGLE guidance. The area surrounding North Lake and South Lake will most likely be developed as a residential community.

No alternatives to the location of the proposed mining activity exist.

Sand dune mining will provide a positive economic impact for various construction projects (i.e., roads, site work for residential, commercial and industrial projects). Allowing mining to continue will provide local employment for workers at JMC. Following restoration of the site, future development will likely include the use of the property for residential purposes. Construction of housing and infrastructure will increase employment in the area. The increase in municipal taxes for residential land use will be a great benefit to the community.

Figures



PART OF THE NORTHEAST QUARTER AND ALSO PART OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION3, TOWN 9 NORTH, RANGE 17 WEST, CITY OF NORTON SHORES, MUSKEGON COUNTY MICHIGAN, DESCRIBED AS FOLLOWS;

COMMENCE AT THE EAST QUARTER CORNER OF SAID SECTION 3; THENCE NORTH 02 DEGREES 29 MINUTES 22 SECONDS EAST ALONG THE EAST LINE OF SAID SECTION, A DISTANCE OF 1,336.84 FEET; THENCE NORTH 87 DEGREES 34 MINUTES 33 SECONDS WEST ALONG THE NORTH LINE OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SAID SECTION, A DISTANCE OF 33.00 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF LINCOLN STREET AND THE POINT OF BEGINNING;

THENCE SOUTH 02 DEGREES 29 MINUTES 16 SECONDS WEST ALONG SAID RIGHT OF WAY LINE, A DISTANCE OF 45.02 FEET; THENCE SOUTH 83 DEGREES 20 MINUTES 53 SECONDS WEST, A DISTANCE OF 132.20 FEET; THENCE WESTERLY, A DISTANCE OF 186.44 FEET ALONG A CURVE TO THE LEFT CURVE DATA BEING (RADIUS = 586.19 FEET, DELTA = 18 DEGREES 13 MINUTES 24 SECONDS, LONG CHORD = 185.66 FEET, LONG CHORD BEARING = SOUTH 74 DEGREES 14 MINUTES 11 SECONDS WEST); THENCE NORTH 87 DEGREES 34 MINUTES 33 SECONDS WEST PARALLEL WITH SAID NORTH LINE OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SAID SECTION, A DISTANCE OF 1,108.82 FEET; THENCE NORTH 02 DEGREES 25 MINUTES 27 SECONDS EAST, A DISTANCE OF 123.83 FEET; THENCE NORTH 87 DEGREES 34 MINUTES 33 SECONDS WEST ALONG THE NORTH LINE OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SAID SECTION, A DISTANCE OF 1,199.57 FEET TO A POINT ON THE NORTH – SOUTH QUARTER LINE OF SAID SECTION; THENCE NORTH 87 DEGREES 31 MINUTES 14 SECONDS WEST ALONG THE SOUTH LINE OF THE NORTHEAST QUARTER OF THE NORTHWEST QUARTER, A DISTANCE OF 1,209.58 FEET; THENCE NORTH 02 DEGREES 08 MINUTES 19 SECONDS EAST ALONG THE WEST LINE OF THE EAST HALF OF THE NORTHWEST QUARTER OF SAID SECTION 3, A DISTANCE OF 332.20 FEET; THENCE SOUTH 87 DEGREES 30 MINUTES 40 SECONDS EAST, A DISTANCE OF 1,209.63 FEET; THENCE NORTH 02 DEGREES 08 MINUTES 50 SECONDS EAST ALONG SAID NORTH – SOUTH QUARTER LINE, A DISTANCE OF 332.00 FEET; THENCE NORTH 87 DEGREES 31 MINUTES 14 SECONDS WEST, A DISTANCE OF 604.82 FEET; THENCE NORTH 02 DEGREES 08 MINUTES 50 SECONDS EAST, A DISTANCE OF 332.00 FEET; THENCE NORTH 87 DEGREES 31 MINUTES 14 SECONDS WEST, A DISTANCE OF 604.81 FEET; THENCE NORTH 02 DEGREES 08 MINUTES 50 SECONDS EAST ALONG SAID WEST LINE OF THE WEST HALF OF THE NORTHWEST QUARTER, A DISTANCE OF 332.01 FEET; THENCE SOUTH 87 DEGREES 31 MINUTES 14 SECONDS EAST ALONG THE NORTH LINE OF SAID SECTION 3, A DISTANCE OF 1,209.63 FEET TO A NORTH QUARTER CORNER OF SAID SECTION; THENCE SOUTH 87 DEGREES 34 MINUTES 34 SECONDS EAST CONTINUING ALONG SAID NORTH LINE OF SECTION, A DISTANCE OF 1,994.26 FEET; THENCE SOUTH 02 DEGREES 29 MINUTES 22 SECONDS WEST, A DISTANCE OF 1,327.99 FEET; THENCE SOUTH 87 DEGREES 34 MINUTES 33 SECONDS EAST ALONG SAID NORTH LINE OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SAID SECTION, A DISTANCE OF 629.04 FEET TO THE POINT OF BEGINNING.

SAID PARCEL CONTAINS 87.41 ACRES, MORE OR LESS.

WESTSHORE
ENGINEERING & SURVEYING
ENVIRONMENTAL

www.WestshoreConsulting.com
2534 Black Creek Road
Muskegon, MI 49444
(231) 777-3447

Jackson-Merkey Contractors, Inc. **Sherman Blvd. Site** **City of Norton Shores,** **Muskegon Co., Mi.**	Checked: AWH Date: 07/12/19 Drawn by: BJA Date: 07/12/19 File No.: 00491-0007
SITE MAP	Figure: **1**

LEGEND

JACKSON–MERKEY CELLS

NUGENT SAND CELLS

N

0 150 300 FEET

SCALE: 1" = 300'

S87°31'13"E 1209.63'

N. LINE, NW 1/4, SEC. 3-9-17

N. LINE, NE 1/4, SEC. 3-9-17

S87°34'34"E 2656.30'

SHERMAN BLVD.

NORTH 1/4 CORNER SEC. 3-9-17 T9N-R17W

NORTHEAST CORNER SEC. 3-9-17 T9N-R17W

W. LINE, E 1/2, S 1/2, NE 1/4, NW 1/4, SEC. 3

BRONSON PARK

13.84 Acres±

NUGENT SAND COMPANY

NUG CELL 22A (5 Ac)

J-M CELL 2 (7.49 Ac)

J-M CELL 3 (23.83 Ac)

NUG CELL 26 (4.80 Ac)

NUG CELL 25 (5.21 Ac)

NORTH LAKE

NUG CELL 24 (6.03 Ac)

NUG CELL 23 (3.98 Ac)

J-M CELL 1 (10.00 Ac)

JACKSON-MERKEY CONTRACTORS, INC.

FINES PILE

S. LINE, NE 1/4, NW 1/4, SEC. 3-9-17

S. LINE, N 1/2, NE 1/4, SEC. 3-9-17

N. LINE, S 1/2, NE 1/4, SEC. 3-9-17, R17W

1328.00'

LINCOLN STREET (66' WIDE PUBLIC R/W 22' WIDE ASPHALT)

S02°29'22"W 2664.84

NUGENT SAND COMPANY

NUG CELL 19

NUG CELL 20

CELL 21

NUG CELL 18

SETTLING POND

CELL 17

PLAT OF IDLEWILD RESORT

AMENDED PLAT IDLEWILD RESORT

Taylor St.

N-S 1/4 LINE, SEC. 3-9-17

R=1328.07'

R=1110.63'

S02°08'51"W 2658.71'

E-W 1/4 LINE

R=278.90' CENTER SEC. 3 T9N, R17W

CELL 17

WESTSHORE ENGINEERING & SURVEYING ENVIRONMENTAL

www.WestshoreConsulting.com

2534 Black Creek Road
Muskegon, MI 49444
(231) 777-3447

Jackson-Merkey Contractors, Inc.
Sherman Blvd. Site
City of Norton Shores, Muskegon Co., Mi.

EXISTING MINING CELLS

Checked:	AWH
Date:	07/12/19
Drawn by:	BJA
Date:	07/12/19
File No.:	00491-0007
Figure:	2

LEGEND

JACKSON–MERKEY CELLS (2019)

NUGENT SAND CELLS

N

0 150 300 FEET

SCALE: 1" = 300'

S87°31'13"E 1209.63'

N. LINE, NW 1/4, SEC 3–9–17

N. LINE, NE 1/4, SEC 3–9–17

SHERMAN BLVD.

S87°34'34"E 2656.30'

R/W

R/W

NORTHEAST CORNER SEC. 3–19N–R17W

NORTH 1/4 CORNER SEC. 3–19N–R17W

S. 1/4 LINE, SEC 3–9–17

R= 1328.07'

BRONSON PARK

W. LINE, E 1/2, S 1/2, NE 1/4, NW 1/4, SEC 3

13.84 Acres±

IDLEWILD ROAD (66' R/W–20' WIDE GRAVEL ROAD)

J-M CELL #3 (16.67 Ac)

NUG CELL 22A (5 Ac)

NUGENT SAND COMPANY

J-M CELL #2 (6.59 Ac)

NUG CELL 26 (4.80 Ac)

NUG CELL 25 (5.21 Ac)

NORTH LAKE

NUG CELL 24 (6.03 Ac)

NUG CELL 23 (3.96 Ac)

J-M CELL #1 (25.95 Ac)

JACKSON-MERKEY CONTRACTORS, INC.

JMC 301 PERMIT LAKE RESTORATION AREA

FINES PILE

LINCOLN STREET (66' WIDE PUBLIC R/W – 22' WIDE ASPHALT)

S02°29'22"W 2664.84'

1328.00'

S. LINE, N 1/2, NE 1/4, SEC 3–9–17

NUGENT SAND COMPANY

N. LINE, S 1/2, NE 1/4, SEC 3–9–17, T9N, R17W

CELL 21

NUG CELL 19

NUG CELL 20

NUG CELL 18

N–S 1/4 LINE, SEC 3, T9N, R17W

S02°08'51"W 2658.71'

R=1110.63'

SETTLING POND

CELL 17

PLAT OF IDLEWILD RESORT

AMENDED PLAT OF IDLEWILD RESORT

Taylor St.

REV: 9–23–19 ADJUST ACREAGE–CELL #1

WESTSHORE ENGINEERING & SURVEYING ENVIRONMENTAL

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Muskegon, MI 49444
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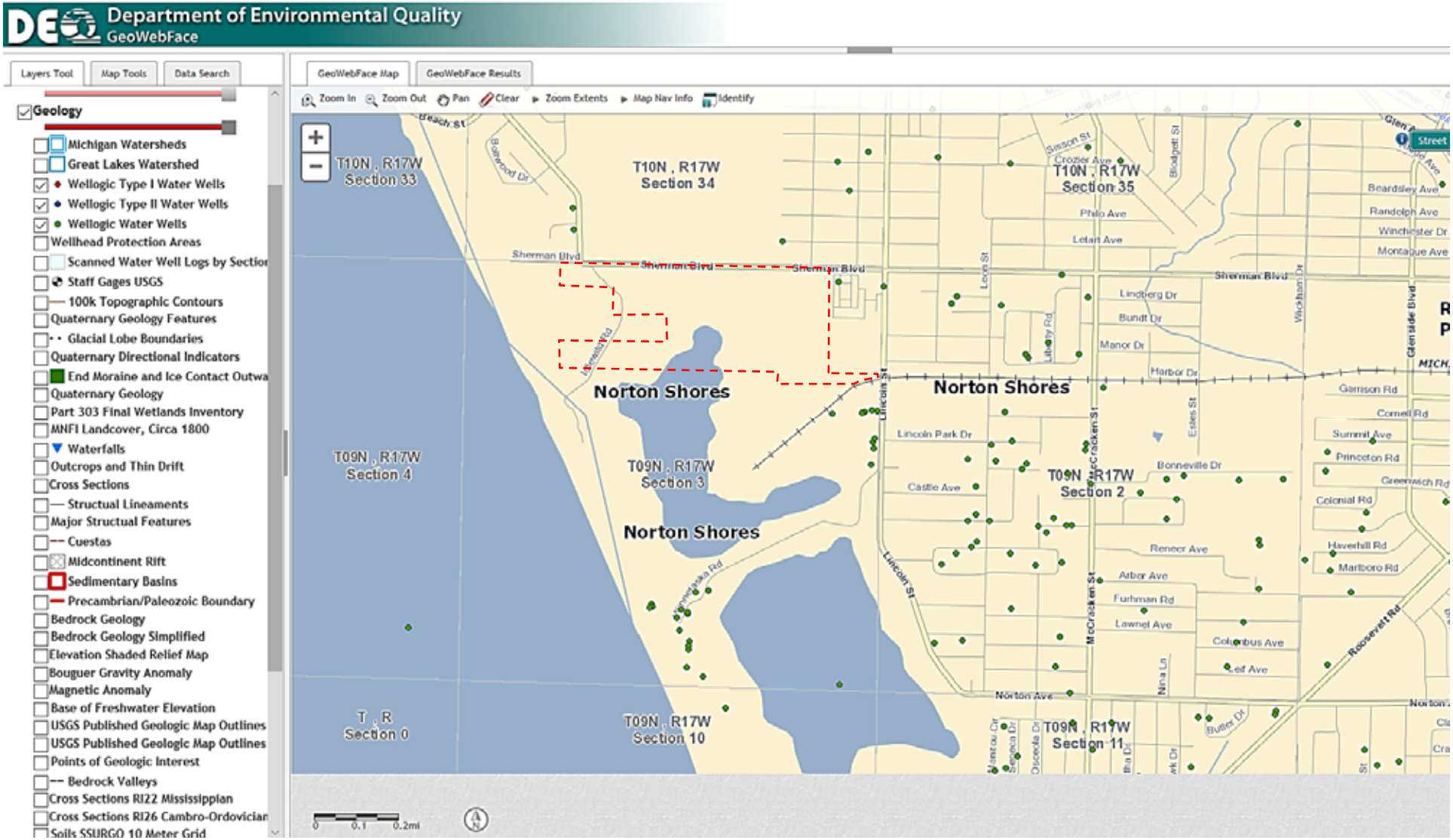
Jackson-Merkey Contractors, Inc.
Sherman Blvd. Site
City of Norton Shores, Muskegon Co., Mi.

PROPOSED MINING CELL RECONFIGURATION

Checked:	AWH
Date:	07/12/19
Drawn by:	BJA
Date:	07/12/19
File No.:	00491–0007
Figure:	3

Jackson-Merkey Contractors, Inc. – N 1/2, Section 3, T09N, R17W, City of Norton Shores, Muskegon County



Obtained online on 07/10/2019 at http://www.deq.state.mi.us/GeoWebFace/#

Potable Water Well Map – Figure 4, page 1 of 2

Jackson-Merkey Contractors, Inc.
Potable Water Wells in Section 3, T09N, R17W, City of Norton Shores, Muskegon County

Search Results - 24 Records Returned

	Type	Well ID	County	Well Address	WSSN	Source ID / Well No.	Township	Section	Well Depth	Static Water Level	Date Constructed	Entered By
☐	WW	61000000950	Muskegon	2875 LINCOLN			Norton	3	63.00	10.00	4/15/1986	Local Health Department
☐	WW	61000000954	Muskegon	2875 LINCOLN			Norton	3	28.00	9.00	10/2/1968	Local Health Department
☐	WW	61000000955	Muskegon	2875 LINCOLN ST			Norton	3	36.00	12.00	10/4/1967	Local Health Department
☐	WW	61000000956	Muskegon	2925 LINCOLN			Norton	3	52.00	12.00	4/14/1987	Local Health Department
☐	WW	61000000957	Muskegon	2925 LINCOLN			Norton	3	59.00	11.00	8/22/1986	Local Health Department
☐	WW	61000000958	Muskegon	2925 LINCOLN			Norton	3	56.00	8.00	7/31/1986	Local Health Department
☐	WW	61000000959	Muskegon	2965 LINCOLN			Norton	3	42.00	6.00	3/20/1985	Local Health Department
☐	WW	61000000960	Muskegon	3223 WINNITASKA			Norton	3	63.00	43.00	6/4/1987	Local Health Department
☐	WW	61000000961	Muskegon	3245 WINNETASKA RD			Norton	3	72.00	54.00	7/9/1986	Local Health Department
☐	WW	61000007135	Muskegon	2875 LINCOLN			Norton	3	45.00	16.00	5/28/2002	Contractor
☐	WW	61000008955	Muskegon	2925 Lincoln			Norton	3	35.00	18.00	8/20/2003	Contractor
☐	WW	61000009286	Muskegon	3455 WINNETASKA			Norton	3	47.00	25.00	10/2/2003	State of Michigan
☐	WW	61000010698	Muskegon	3467 WINNETASKA RD			Norton	3	75.00	49.00	10/8/2001	State of Michigan
☐	WW	61000011658	Muskegon	3367 WINETASKA			Norton	3	40.00	28.00	5/24/2006	Contractor
☐	WW	61000012028	Muskegon	3340 Winnetaska			Norton	3	93.00	19.60	9/23/2006	Contractor
☐	WW	61000012049	Muskegon	3340 Winnetaska			Norton	3	268.00	26.00	11/20/2006	Contractor
☐	WW	61000012128	Muskegon	3340 Winnetaska			Norton	3	70.50	18.50	12/28/2006	Contractor
☐	WW	61000012665	Muskegon	3253 WINNETASKA			Norton	3	56.00	47.00	4/29/2008	Contractor
☐	WW	61000013587	Muskegon	3501 Winnetaska			Norton	3	45.00	25.00	8/27/2010	Contractor
☐	WW	61000013654	Muskegon	3503 Winnetaska			Norton	3	37.00	16.80	9/11/2010	Contractor
☐	WW	61000014847	Muskegon	3245 Winnetaska			Norton	3	73.00	54.00	6/25/2014	Contractor
☐	WW	61000014984	Muskegon	3229 WINNETASKA			Norton	3	62.00	47.00	10/29/2014	Contractor
☐	WW	61000015597	Muskegon	3411 Winnetaska			Norton	3	79.00	54.00	10/5/2016	Contractor
☐	WW	61000016109	Muskegon	3312 Winnetaska			Norton	3	45.00	18.50	12/6/2017	Contractor

Tables

Table A – Open Dune Vegetation	
Common Name	**Botanical Name**
Raspberry and bramble vine	Rubus spp.
Sumac	Rhus spp.
Choke Cherry	Prunus spp.
False heather	Hudsonia tomentosa
Mugwort, Wormwood	Artemisia spp.
Fescue grass	Festuca spp.
Goldenrod	Solidago
Roughstalk bluegrass	Poa trivialis
Perennial Ryegrass	Lolium perenne
Beach (Dune) grass, Marram grass	Ammophila breviligulata
Little Blue Stem	Schizachyrium scoparium
Poison Ivy	Toxicodendron radicans
Spotted knapweed	Centaurea maculosa
Mullein	Verbascum thapsus
Milkweed	Asclepias syriaca
Red Sorrel	Rumex acetosella

Table B – Transitioning from the Sand Dunes to the Wooded Dunes	
Common Name	**Botanical Name**
Indian grass	Sorghastrum nutans
Dandelion	Taraxacum officinale
Sassafras	Sassafras spp.
Witch hazel	Hamamelis spp.
Sweet gale	Myrica gale
Common Juniper	Juniperus communis
Wild Mint	Mentha arvensis
Bull Thistle	Cirsium vulgare

Table C – Wooded Dune Vegetation	
Common Name	**Botanical Name**
Barberry, 1 crimson and 1 green	Berberis spp.
Coralberry	Symphoricarpos orbiculatus
Smooth Rose	Rosa blanda
Wild Grapes	Vitis spp.
Bearberry	Arctostaphylos uva-ursi
Wintergreen	Gaultheria procumbens
Wild Blueberry	Vaccinium angustifolium
Red Maple	Acer rubrum
White Pine	Pinus strobus
European Beech	Fagus sylvatica
Oak	Quercus
Pin (Bird) Cherry	Prunus pensylvanica
Poplar	Populus spp.
Serviceberry	Amelanchier
Fern	
Pearly Everlasting	Anaphalis margaritacea
Canada Mayflower	Maianthemum canadensis

Appendix A

Progressive Cell Unit Mining and Reclamation Plan

Progressive Cell Unit Mining and Reclamation Plan

Historically, surface sand mining has occurred at the Jackson-Merkey Contractors, Inc. (JMC) site, commonly known as the Sherman Boulevard Site in Norton Shores, Michigan. The adjacent property owner to the south of the JMC site is Nugent Sand Company, Inc. (Nugent). Nugent also owns the parcel of land between the two western parcels (Figure 1). Nugent has recently ceased mining operations which previously included a sand mining processing plant, and a barge-mounted hydraulic dredge to remove sand from beneath the water table. The mining was accomplished by Nugent and the site is being restored in accordance with Nugent's Permit No. NUS-LAS-109. No beneficiation or treatment of the sand will occur at the JMC site.

The surface sand mining operation consists of three components: stripping and stockpiling of overburden material and removal of trees and stumps; surface mining of sand; and reclamation of the mined area. The removal of sand will occur on a cell-by-cell basis, beginning with the reconfigured Cell 1 and then proceeding to one of the two remaining mining cells (Figure 3). The sequence of opening new cells has been chosen to minimize the amount of site disruption. Once the trees and stumps have been removed from the area that is intended to be mined, the surface overburden material (topsoil) will be removed by a bulldozer scraper or front-end loader. This material will be placed outside the edge of the disturbed area perimeter, and will assist in creating a berm to provide a visual and physical barrier in hampering access to the site. No trees will be removed outside the disturbed area, and the existing trees will provide a visual screen. An active area within a cell will then be decided upon, based on anticipated demand. The sand removed from the site will be used as a fill source for various construction projects (i.e., roads, site work for residential, commercial and industrial projects). The development of successive cells will require that gravel access roads be constructed that may be removed and reused.

Access to the site will be limited by utilizing fencing along the eastern, western and northern portions of the property. Access to the JMC site will be limited to employees; no public access will occur. Access will be allowed through a gate that exists on Sherman Boulevard. The gate will only be unlocked when JMC is in operation.

No endangered species were identified during the inspection of the site. If any endangered species are discovered during the mining of the property, plans to protect those species will be formed and enacted, as necessary.

Cells will be reclaimed once all sand has been removed from an area. Based upon the location of the mined sand, reclamation of areas will occur prior to the cessation of the entire mining activity at the JMC site. Reclamation goals include protection of adjacent properties from blowing sand, the reestablishment of permanent vegetation, and restoration of affected areas to an acceptable aesthetic level. The mined property will be reclaimed through final grading, vegetation planting or other steps necessary to leave the area compatible with the existing and proposed future development, so as to protect the natural environment and minimize negative impacts on surrounding land and development.

The final grade of the reclamation area will be sloped to prevent accelerated erosion, and to a degree sufficient to maintain vegetation. When mining is completed in an area, the final grading will immediately be completed, and vegetation will follow. Vegetation will consist of dune grass, hydro-seeded MDOT road grass mix, and/or trees to stabilize the sloped areas. There will be no impact to adjacent properties from the mining operations.

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Reclamation will be completed in three phases:

1. All slopes will be graded and sloped not greater than 1 foot vertically over 3 feet horizontally. Topsoil that is stockpiled during the mining operation will be spread over the graded surface.
2. Initial revegetation will include the planting of dune grass and trees to stabilize the sloped areas.
3. If necessary, a secondary revegetation will occur after the dune grass is established and surface sand movement is reduced. Additional trees and grasses may be planted in areas where the initial revegetation was not successful.

Appendix B

Fifteen-Year Mining Plan

Fifteen-Year Mining Plan

Surface sand mining has occurred at the property for many years, and has operated under Permit No. JMC-SBS-112 that was issued to Jackson-Merkey Contractors, Inc. (JMC). The site is located in the North Half of Section 3 in the City of Norton Shores (T09N, R17W), Muskegon County, Michigan. Three active mining cells totaling 35.6-acres currently exist at the site (Figure 2), and the proposed future mining requests modification of the shape and size of the three mining cells (Figure 3).

Between 2011 and 2016 portions of the JMC property were leased to Nugent Sand Company, Inc. (Nugent) for expansion of the existing lake (North Lake) onto the JMC property. Nugent has ceased mining activities and the lease agreement is no longer in place. The areas mined by Nugent are being restored in accordance with Nugent's Permit No. NUS-LAS-109.

This present application requests permission to remove surface sand from above the water table only. JMC requests under this permit application for mining 49.78-acres in the three reconfigured mining cells (Figure 3).

The majority of sand that will be mined during the new permit interval will be a large stockpile of material situated on the southern portion of Cell 1, referred to as the "Fines Pile." JMC will first excavate and sell sand from the Fines Pile, and once that material is no longer available, will start mining in other portions of the JMC site.

The removal of surface sand will occur on a cell-by-cell basis, beginning with the reconfigured Cell 1 and then proceeding to one of the two remaining mining cells (Figure 3). The sand removed from the site will be used as a fill source for various construction projects (i.e., roads, site work for residential, commercial and industrial projects).

Volume of Sand to be Mined

Historically, JMC has removed surface sand from all three existing cells, although the majority of sand has been excavated from Cells 1 and 3 (Figure 2).

Sand mined from the site has averaged about 43,923 tons per year over the last five years (2014 to 2018). During the last permit interval, JMC has mined a total of 165,864 tons of sand. It is anticipated that on average, 44,000 tons per year will be surface mined from the JMC over the next 15 years for a total of 660,000 tons of sand, but the actual final tonnage will be based upon market demand and sales.