Engineers • Consultants • Inspectors

NONMETALLIC MINING SITE RECLAMATION PLAN

For

Proposed Limestone Quarry
Gerke Excavating, Inc.

Town of Wells
Monroe County, Wisconsin

September 2013

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NONMETALLIC MINING RECLAMATION

For
Gerke Excavating
New Quarry Site

Town of Wells
Monroe County, Wisconsin
September 2013

1.0 BACKGROUND AND GENERAL INFORMATION

1.1 Description of Project Activity

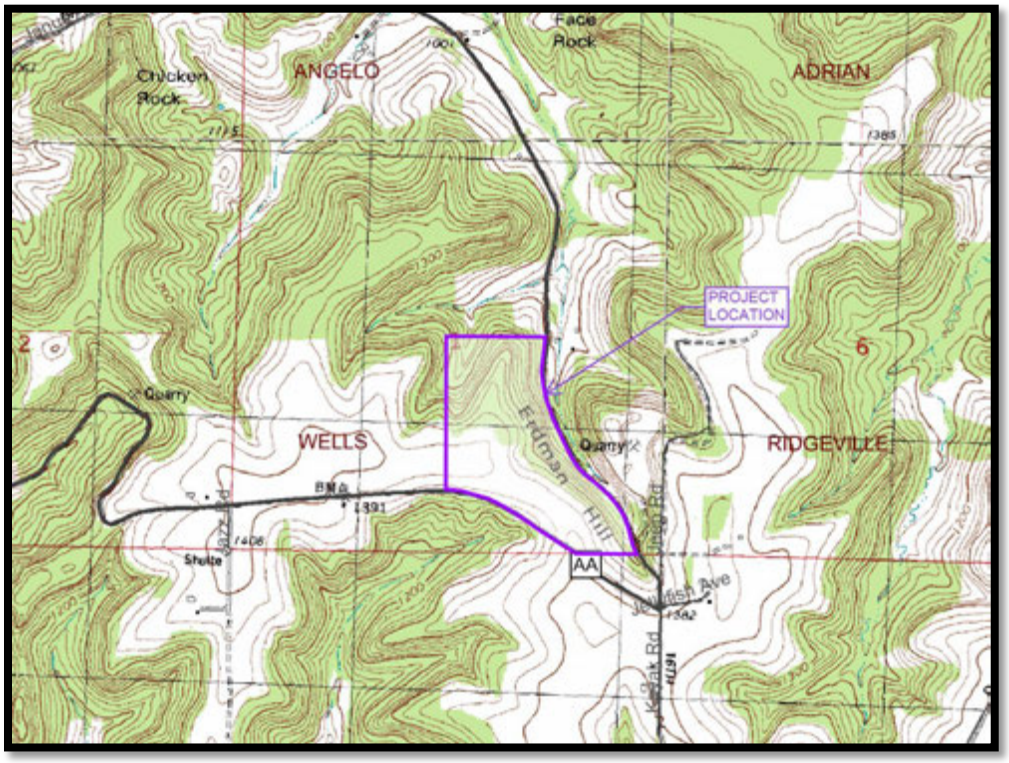
The purpose of this report is to provide a framework for the nonmetallic mining reclamation at the proposed quarry site. The site is located in the Town of Wells, Monroe County, 7 miles southeast of Sparta. The proposed mining quarry includes primarily wooded areas and one metal building on site with gravel.

1.2 Project Location

The project site is located in the SE, SW & NW 1/4s of the SE 1/4 of Section 1, T16N, R3W, Town of Wells, Monroe County, Wisconsin, containing approximately 98.5 acres.

Said property consists primarily of a sloped wooded hill and agricultural field that will be lowered in the mining operation. Figure 1.2-1 is USGS location map of the surrounding area.

Figure 1.2-1



2.0 STATE AND LOCAL REQUIREMENTS

Section 2.1 below lists the state nonmetallic mining reclamation requirements; Section 2.2 below lists the local requirements and Section 2.3 is a listing of persons and/or entities receiving this document.

2.1 Wisconsin DNR Requirements (NR 135)

2.1.1 Surface Water and Wetland Protection

Nonmetallic mining reclamation shall be conducted and completed in a manner that assures compliance with water quality standards for surface waters and wetlands. Necessary measures for diversion and drainage of runoff from the site to prevent pollution of waters of the state shall be installed in accordance with the reclamation plan. Diverted or channelized runoff resulting from reclamation may not adversely affect neighboring properties.

2.1.2 Groundwater Protection

Nonmetallic mining site shall be reclaimed in a manner that does not cause a permanent lowering of the water table that results in adverse effects on surface waters, or a significant reduction in the quantity of groundwater reasonably available for future users of groundwater infiltration.

2.1.3 Topsoil Management

Removal of on-site topsoil material shall be performed prior any mining activity. Once removed, topsoil or topsoil substitute material shall either be used in contemporaneous reclamation or stored in an environmentally acceptable manner. The location of stockpiled topsoil or topsoil substitute material shall be chosen to protect the material from erosion or further disturbance or contamination. Runoff water shall be diverted around all locations in which topsoil or topsoil substitute material is stockpiled.

2.1.4 Final Grading and Slopes

Final grades and slopes shall provide for stable and safe conditions in the post mining land use. Final reclaimed slopes covered by topsoil or topsoil substitute material may not be steeper than a 3:1. When the post−mining land use includes a body of water, the approved final grade at the edge of a body of water shall extend vertically 6 feet below the lowest seasonal water level. A slope no steeper than 3:1 shall be created at a designated location or locations, depending on the size of the water body to allow for a safe exit.

2.1.5 Topsoil Redistribution for Reclamation

Topsoil or topsoil substitute material shall be redistributed in accordance with the approved reclamation plan in a manner which minimizes compaction and prevents erosion. Topsoil or topsoil substitute material shall be uniformly redistributed except where uniform redistribution is undesirable or impractical. Topsoil material redistribution may not be performed during or immediately after a precipitation event until the soils have sufficiently dried.

2.1.6 Revegetation and Site Stabilization

Except for permanent roads or similar surfaces, all surfaces affected by nonmetallic mining shall be reclaimed and stabilized by revegetation or other means. Revegetation and site stabilization shall be performed as soon as practicable after

mining activity has permanently ceased in any part of the mine site.

2.1.7 Assessing Completion of Successful Reclamation

The criteria for assessing when reclamation is complete and, therefore, when the financial assurance may be released shall be specified in the reclamation plan and shall be based on site inspection and report.

2.1.8 Maintenance

During the period of the site reclamation, after the operator has stated that reclamation is complete but prior to release of financial assurance, the operator shall perform any maintenance necessary to prevent erosion, sedimentation or environmental pollution.

2.2 Monroe County Nonmetallic Mining Ordinance

2.3 Submittal List

- Monroe County Land Conservation Department
  c/o Bryce Richardson
  Soil and Water Conservationist
  Monroe County Land Conservation Dept
  820 Industrial Drive Suite 3
  Sparta, WI 54656
  608-269-8976
  Bryce.Richardson@co.monroe.wi.us

Other approving authorities will be copied as needed or requested.

3.0 RECLAMATION PLAN

3.1 Site Information.

The proposed mine will contain a limestone quarry located on 98.5 acres in Monroe County, Wisconsin. The operation will be located approximately 7 miles southeast of city of Sparta, WI. The mine is proposed to operate for 12-20 years allowing 1 to 3 years for reclamation.

Mining of the unconsolidated deposits will occur in three phases. Each separate phase is expected to be about 4-5 years. Reclamation will occur after completion of each of the mining phases as soon as is practical. Reclamation of one phase will be concurrent with mining of the successive phase.

Waste and overburden screens shall be stockpiled to provide a source of backfill material during final reclamation activities.

3.1.1 Legal Description:

Beginning at the SW Corner of the NW ¼ of the SE ¼ of Section 1. T16N, R3W, Town of Wells, Monroe County, WI, whose Northing is 359432.114 and whose Easting is 660779.334;

- thence bearing N 1-15-36.623 E a distance of 1306.451 ;
- thence bearing S 89-36-5.084 E a distance of 1193.900 ;

- thence bearing S 5-23-1.391 W a distance of 84.824 ;
- thence bearing N 89-2-10.656 W a distance of 8.304 ;
- thence along a curve to the LEFT, having a radius of 90.501 a delta angle of 69° 26' 12.02”, and whose long chord bears S 56-14-43.336 W a distance of 103.089 ;
- thence bearing S 21-31-37.329 W a distance of 207.721 ;
- thence along a curve to the LEFT, having a radius of 556.965 a delta angle of 20° 22' 31.63"", and whose long chord bears S 11-20-21.511 W a distance of 197.025 ;
- thence bearing S 1-9-5.694 W a distance of 439.595 ;
- thence along a curve to the RIGHT, having a radius of 203.373 a delta angle of 79° 19' 13.11", and whose long chord bears S 40-48-42.250 W a distance of 259.598 ;
- thence bearing S 80-28-18.806 W a distance of 230.551 ;
- thence bearing N 80-28-18.806 E a distance of 230.551 ;
- thence along a curve to the LEFT, having a radius of 203.373 a delta angle of 79° 19' 13.11", and whose long chord bears N 40-48-42.250 E a distance of 259.598 ;
- thence bearing N 1-9-5.694 E a distance of 439.595 ;
- thence along a curve to the RIGHT, having a radius of 556.965 a delta angle of 20° 22' 31.63", and whose long chord bears N 11-20-21.511 E a distance of 197.025 ;
- thence bearing N 21-31-37.329 E a distance of 207.721 ;
- thence along a curve to the RIGHT, having a radius of 90.501 a delta angle of 69° 26' 12.02", and whose long chord bears N 56-14-43.336 E a distance of 103.089 ;
- thence bearing S 89-2-10.656 E a distance of 8.304 ;
- thence bearing S 5-23-1.391 W a distance of 246.120 ;
- thence along a curve to the LEFT, having a radius of 767.464 a delta angle of 09° 24' 36.44", and whose long chord bears S 4-8-16.747 W a distance of 125.905 ;
- thence along a curve to the LEFT, having a radius of 751.867 a delta angle of 09° 36' 20.30", and whose long chord bears S 6-21-31.423 E a distance of 125.903 ;
- thence bearing S 14-19-21.551 E a distance of 141.409 ;
- thence bearing S 19-23-28.643 E a distance of 307.029 ;
- thence bearing S 1-9-0.064 W a distance of 298.875 ;
- thence bearing S 89-39-47.833 E a distance of 1327.356 ;
- thence bearing S 1-2-22.751 W a distance of 1303.517 ;
- thence bearing N 89-43-29.875 W a distance of 1006.720 ;
- thence bearing N 52-51-50.975 W a distance of 91.970 ;
- thence bearing N 54-15-2.590 W a distance of 91.970 ;
- thence bearing N 59-18-45.790 W a distance of 198.851 ;
- thence bearing N 57-37-49.316 W a distance of 349.404 ;
- thence bearing N 54-45-16.240 W a distance of 226.918 ;
- thence along a curve to the LEFT, having a radius of 1340.164 a delta angle of 04° 33' 29.28", and whose long chord bears N 58-35-50.703 W a distance of 106.588 ;
- thence bearing N 62-8-56.073 W a distance of 53.305 ;
- thence along a curve to the LEFT, having a radius of 2007.364 a delta angle of 16° 28' 50.77", and whose long chord bears N 74-39-38.555 W a distance of 575.417 ;
- thence bearing N 84-57-51.553 W a distance of 144.321 ;
- thence bearing N 1-15-36.788 E a distance of 540.122 to the point of beginning.

3.1.2 Property Boundary

Please see attached Maps A1 & B1.0

3.1.3 Aerial Extent

Map B1.0 illustrates how phasing will occur. Mining occurs in phases to minimize disturbance and erosion on the mining site as well as the amount of exposed soil at one time. Each phase corresponds to a specific excavation period where topsoil is removed and the pit is expanded.

There are three mining phases. Prior any rock extraction, topsoil shall be stripped and relocated to designated stockpile locations. Portions of this topsoil along with waste screens shall be used to reclaim areas excavated during the limestone/gravel excavation. Reclamation efforts shall commence upon completion of each phase as soon as practical. For more information on Phasing see Map B1.0.

3.1.4 Geologic Composition and Depth of Mineral Deposits

The site primarily features a ridge with wooded crest and side slope areas. The bedrock geology for this area is described as dolomite, limestone, sandstone, and shale. The dolomite and limestone are found above the level of the sandstone. The purpose of this quarry is to mine the dolomite and limestone to use as crushed aggregate in construction projects. Some sandstone may be disturbed in the mining process, but it is not the primary focus of this limestone quarry.

3.1.5 Distribution, Thickness and Type of Topsoil

A variety of soils occur in the area of the proposed mining site. A map delineating the soil types has been included in the reclamation plan (Map A9) along with the approximate pre-mining topography (Maps A3-A4). The primary soils encountered on the site are of silt loams nature and include Council silt loam (CnE); Norden, Urne, and Dorerton soils (NuF); Wildale cherty silt loam (WdC2 & WdD2); Wildale silt loam (WdB); and Valton-Wildale Silt Loams (VwE).

3.1.6 Groundwater Information

Wisconsin Geologic and Natural History Survey (WGNHS) provides an overview of the regional groundwater regime. Elevation of groundwater in the area proposed for the quarry is approximately 1070’ or 280’ depth from the existing topography (1350’). Please refer to Map A7for the approximate elevation of groundwater.

The flow direction of groundwater is generally north-northwest towards Angelo. The mining operation will be conducted well above the groundwater table.

3.1.7 Location of Surface Waters

DNR surface water viewer depicts only intermittent streams near the proposed mining area. Reclaimed site topography will maintain the drainage pattern to the ephemeral streams generally draining to both sides of a ridgeline. For more details see Map A5.

3.1.8 Existing Topography

Existing topography has been generally represented on Maps A3 and A4, and more specific and localized on B1.0 and B1.1. Map B1.1 also shows the mining site in plan and profile after the reclamation is complete.

3.1.9 Locations of Manmade Features

Please refer to Map A1 which shows the existing site, and Map B1.0 which shows the mining site with the proposed manmade features. Proposed manmade features include access road, and stockpile locations.

3.2 Post Mining Land Use

Gerke Excavating shall return the site to a combination of post-mining land uses including wildlife habitat and prairie agricultural land or pastures. The proposed reclamation plan provides details and final land uses for the entire mining site. Generally, slopes shall be graded to 3:1 horizontal to vertical ratio or flatter. Rock faces may remain as exposed rock where practical.

Plant materials will be selected for reclamation based on the post-mining land use. Native species will be used to the extent practicable.

3.3 Reclamation Measures

3.3.1 Final Grades and Slopes

Gerke Excavating shall re-grade steep slopes and maintain 3:1 slopes or flatter where practical, to promote natural lines and blending contour lines to the undisturbed site topography. Mine operator shall use overburden screens and other clean material as backfill against vertical slopes. The proposed mining pit line follows existing topography for a majority of the boundary, thus having a more natural appearance.

All grading will be completed and resulting surfaces scarified prior to topsoil redistribution, Grading will be competed in a manner of preventing ponding of water on the reclaimed surfaces. The topsoil and subsoil will be placed and finished to the required lines, grades and slopes as shown on Map B1.1

3.3.2 Topsoil Management

Erosion control measures shall be installed prior any land disturbance activities. Trees, brush and other woody materials removed from the site during grubbing shall be shredded to mulch and stockpiled on site. These materials shall be used later in reclamation activities when possible. Large oversized materials or boulders shall be separated and used to control access to site and the construction of screening berms.

After completing erosion and sediment control measures and clearing and grubbing the site, but prior to commencing mining activities, the top soil and surficial plant growth material shall be removed. Topsoil horizon is estimated to vary between 3” and 12”. In all cases top stripping shall be to a minimum of 6”. Minor deviations may occur in the field as the site conditions demand.

Topsoil removal shall be accomplished by scrappers or bulldozers and haul trucks. When feasible, soil will be removed in a manner to minimize the surface area exposed to erosion at any given time.

All topsoil removed from the mining site shall be transported to the locations shown on Map B1.0. Topsoil from each phase shall be stockpiled at the eastern edge of the phase

boundary. This topsoil stockpile will be shaped into an elongated profile and shall be protected in a timely fashion from erosion through revegetation using the specified seed mix in Appendix B, page B2.0 or through use of mulch or other protective measures. Utilizing the specified seed mix will minimize completion with undesirable and aggressive weedy species. The elongated stockpile shall serve as a berm to aid in stormwater management.

Topsoil redistribution and site preparation shall be performed to achieve the final topography and drainage patterns as practicable once mining has ceased on a particular phase. All grading will be completed and the resulting surfaces scarified prior topsoil redistribution. This will promote good adherence and bonding between the subsoil and the topsoil and improve infiltration and drainage. Grading will be accomplished so to prevent ponding of water on the reclaimed surface. Topsoil shall be placed back to a depth of minimum 6 inches.

When compaction of soil is found to be too dense (access roads) to allow for suitable bond, the mining operator shall employ measures to rectify this condition such as disking, chisel plowing, ripping and or scarification. These measures will promote good bonding between the topsoil and underlying materials and will ensure suitable substrate for plant growth and the development of plant root system.

All topsoil shall be redistributed into a prepared site. Topsoil redistribution will be performed under dry conditions using appropriate equipment as to minimize compaction. Any clods or lumps present after the topsoil redistribution shall be broken down by the use of harrows, discs or other appropriate equipment in order to provide uniform textured soil.

3.3.3 Structures

Please refer to Map B1.0 for the locations of the access roads and stockpile locations. Any drainage and sediment control structures within the mining area shall be removed once the vegetative cover is sufficiently established to provide equivalent protection.

3.3.4 Revegetation Plan

The revegetation plan includes all activities in support of selecting, obtaining, handling and applying seed or otherwise installing plant materials to fulfill the reclamation plan. Seed and plant materials will be obtained from a licensed nursery that normally works with native prairie and/or wetland plant materials. Seed shall be free of contamination by weedy species.

Seed selection shall be based on the reclamation land use (See Appendix B, Page B2.0):
Mix-2 Wildlife/Grazing

Reclaimed areas shall be seeded only after soils have been properly prepared as specified above. Seeding shall be done at any time during the growing season when soil conditions are suitable except between July 1 and August 15, unless permitted by the county representative. Seeding activities will not be carried out immediately following rain, when the ground is too dry or during windy periods. Care will be taken to follow the instructions that are provided by the supplier.

General seeding methods include:
Broadcast Seeding Using Agricultural Equipment applicable for agricultural land use and wildlife/passive recreation. Seeding activities will be carried out using specified equipment

and in a manner to avoid soil compaction. The area seeded will not exceed the area that can be mulched on the same day. Seed will be uniformly sown by means of equipment adapted to the purpose. Then the site will be lightly raked or dragged to cover the seed with approximately one-fourth inch of soil. After seeding is complete, the areas will be lightly rolled or compacted by means of suitable equipment to improve seed to soil contact and germination.

Following seeding, mulch will be applied uniformly at a rate of between 1 and 1.5 tons per acre. Mulch will be wheat straw, marsh hay or equivalent weed-free mulch. Mulching operations will begin at the top of the slope and proceed downward. The mulch cover will be applied so as to be loose enough to allow some sunlight to penetrate yet thick enough to provide shade and protection from desiccation and raindrop impact and erosion. After spreading on reseeded surfaces mulch will be crimped into the soil by passing over the reclaimed surface with a dull, weighted disk or similar implement. On steep slopes straw or hay mulch will be securely pegged or stapled in place. In lieu of such anchorage, the mulch may be secured by means of heavy biodegradable twine fastened with pegs or staples to form a grid. Also, at the discretion of the project manager erosion blanket, jute netting or a tactifier may be used in addition to or in lieu of the crimping process.

3.3.5 Revegetation Standards

The purpose of establishing clear revegetation surface criteria is necessary to provide a reference point to evaluate the success of the reclamation operation in an objective manner. Suggested revegetation standards are listed below:

Post mining Land Use and Success criteria Table

Post Mining Land Use	Seed Mix	Stage Phase	Success Criteria	Years to Show
Wildlife	#2	Final Reclamation	70% cover	2

Percent cover shall be determined by estimating the percentage of an area covered by vegetation and a predictor of site stability. A typical standard for percent cover is 70% cover (primarily leaf and stem area) averaged over the site at 90 percent statistical confidence level. Count may be physical and photos shall be provided. The measurement of cover should be timed to correspond with the period of peak vegetative growth, generally in early-mid August.

Upon completion of reclamation activities, whether this includes a portion of the site or the entire mining site, the Monroe County Land Conservation Specialist or other relevant regulatory authority shall inspect the site in order to verify success of reclamation.

3.3.6 Erosion Control

The main purpose of a general erosion control plan is to minimize erosion and limit the potential for sediment run-off into surface waters. Erosion control measures will be established prior to any site development activities including topsoil removal and stockpiling. Erosion control measures will be also established prior to initiating reclamation such as contemporaneous reclamation, backfilling or grading. Typical erosion control measures are shown on Map B1.2 and B1.3. Due to the nature of mining, a vast amount of the water will pond and infiltrate within the boundaries of the site. However, perimeter

controls to combat the potential for erosion will be employed throughout the duration of the mining and reclamation activities.

3.3.7 Site Maintenance

Mining operator shall inspect the sediment and erosion control systems on a regular basis and immediately after severe storms. Periodic follow-up inspections of all reclaimed or otherwise stabilized surfaces shall be performed to ensure they are in a condition stable enough to control erosion and sedimentation. When damage caused by traffic, wind, water or other cause is detected the mining operator will promptly perform all necessary maintenance and repair work to the erosion control system. Likewise, other work necessary to ensure long term success of the vegetation including follow-up fertilization, necessary soil amendments or any weed or pest control will be accomplished.

As part of maintenance of the reclaimed site, Gerke Excavating will perform any necessary weed control or pest control and maintenance both to facilitate the establishment and survival of vegetation. Exotic species that occur on the site or are accidentally added though contaminants in the seed mixes or through the use of hay or other mulch products that are not weed free will be promptly controlled through fire, mechanical means or with herbicides. This is especially true when the species appears on the list of state noxious weeds. This will continue until the Monroe County Land Conservation Office issues the certificate of completion (COC).

3.4 Criteria for Successful Reclamation

Gerke Excavating shall demonstrate compliance with the revegetation success standards (performance standards) for each post-mining land use contained in the reclamation plan. The techniques employed are as follows: percent cover will be determined as total cover (expressed as a percentage) as measured by coverage of the canopy (vertical projection of plant parts) and will be recorded by species. Cover will be measured over the entire re-vegetated site at no less than 20 randomly placed 10 square feet quadrats for each 10 acre area. Success criteria will vary with the post-mining land use. In addition, both presence (a species list) and frequency (number of quadrats the species occurs in) will be included.

3.5 Certification of the Reclamation Plan

Certification is included within the Monroe County Application for Reclamation Permit for New or Reopened Nonmetallic Mining Sites. Please see Appendix C

3.6 Final Site Actions

The final removal of mining-related structures, drainage structures and sediment control structures will be accomplished once the vegetative cover is robust enough to provide equivalent protection. At such time and in accordance with the approved reclamation plan those structures will be removed and the soils in such areas will be reclaimed. At this time Gerke Excavating shall request the Monroe County Land Conservation Department to perform the necessary inspection and evaluation work to certify the reclamation as complete (COC) and to release the financial assurance.

3.7 Certification of the Reclamation Plan

I hereby certify, as a duly authorized representative or agent, that Gerke Excavating, Inc., shall comply with the provisions of this reclamation plan as well as the statewide nonmetallic mining reclamation standards established in ss. NR 135.05 through NR 135.15, Wis. Adm. Code.

Signature of Applicant or Duly Authorized Agent Date Signed

_____ _____

Owner and/or Lessee: Gerke Excavating, Inc. (Same as above)

3.8 Financial Assurance

The objective of financial assurance is to ensure that the Monroe County Land Conservation Department has access to funds necessary to implement site reclamation in the event that the operator does not perform the agreed upon duties. The funds shall accurately reflect the cost for the regulatory authority to hire outside help to perform reclamation. The main purpose of financial assurance is to ensure that the operator will faithfully execute the requirements of the approved reclamation plan, the applicable reclamation ordinance and Ch. NR 135.

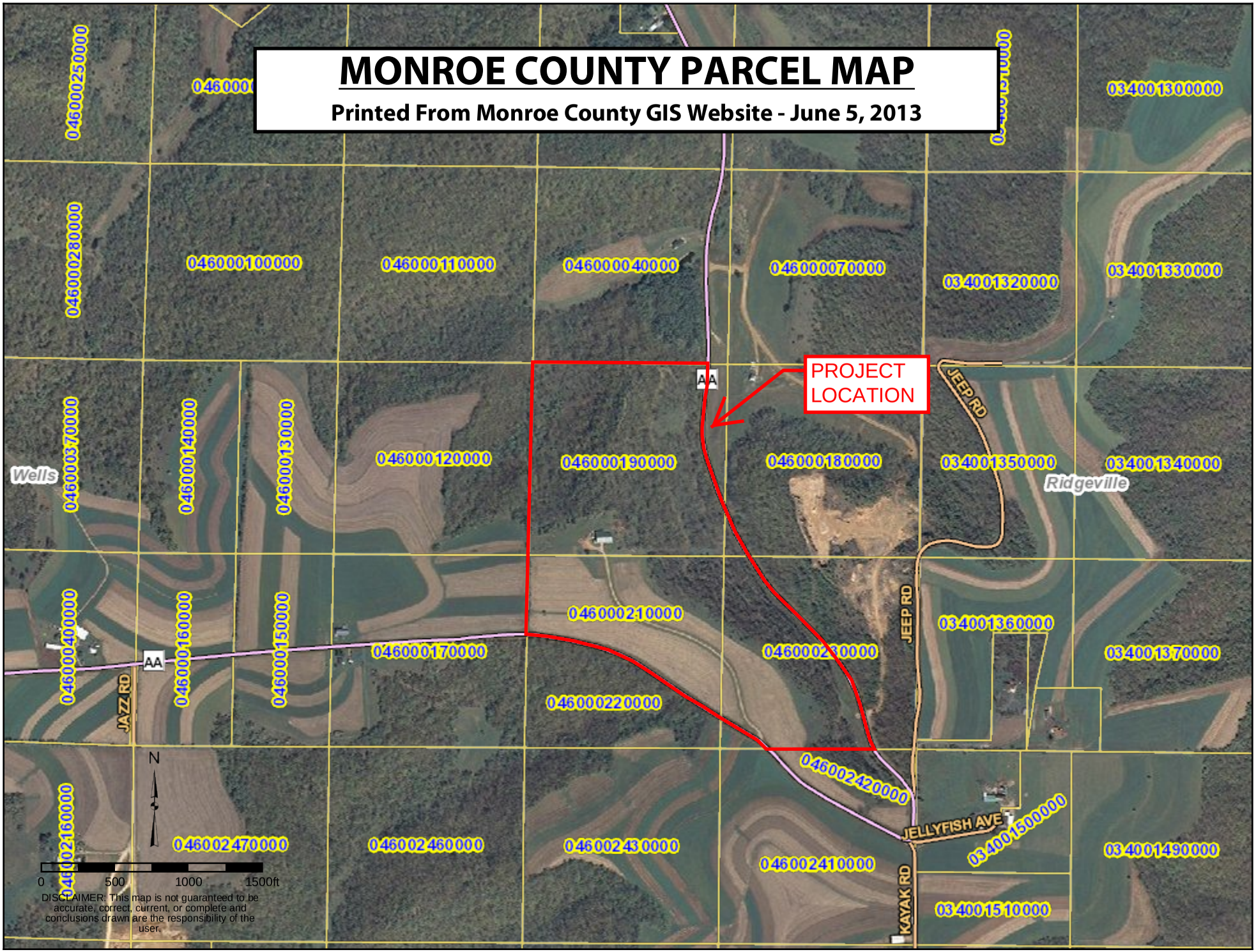
- Gerke Excavating, is estimating **$2,500.00 per acre** for reclamation purposes.
- The total amount of financial assurance shall be based on the actual disturbed acreages of land and not on the overall mining area.
- The length of the financial assurance is dictated by the period of time required to establish the post mining land use specified in the mine reclamation plan.
- Any interest from the financial assurance shall be paid to the operator per NR 135.40(4)
- The amount of financial assurance is reviewed periodically by the Monroe County Land Conservation Department to assure it equals outstanding reclamation costs.
- Upon approval the proposed amount, the mining operator shall establish a bond, net worth test, escrow account or an alternate option to cover the financial assurance.

APPENDIX A

General Maps and Additional Information

MONROE COUNTY PARCEL MAP

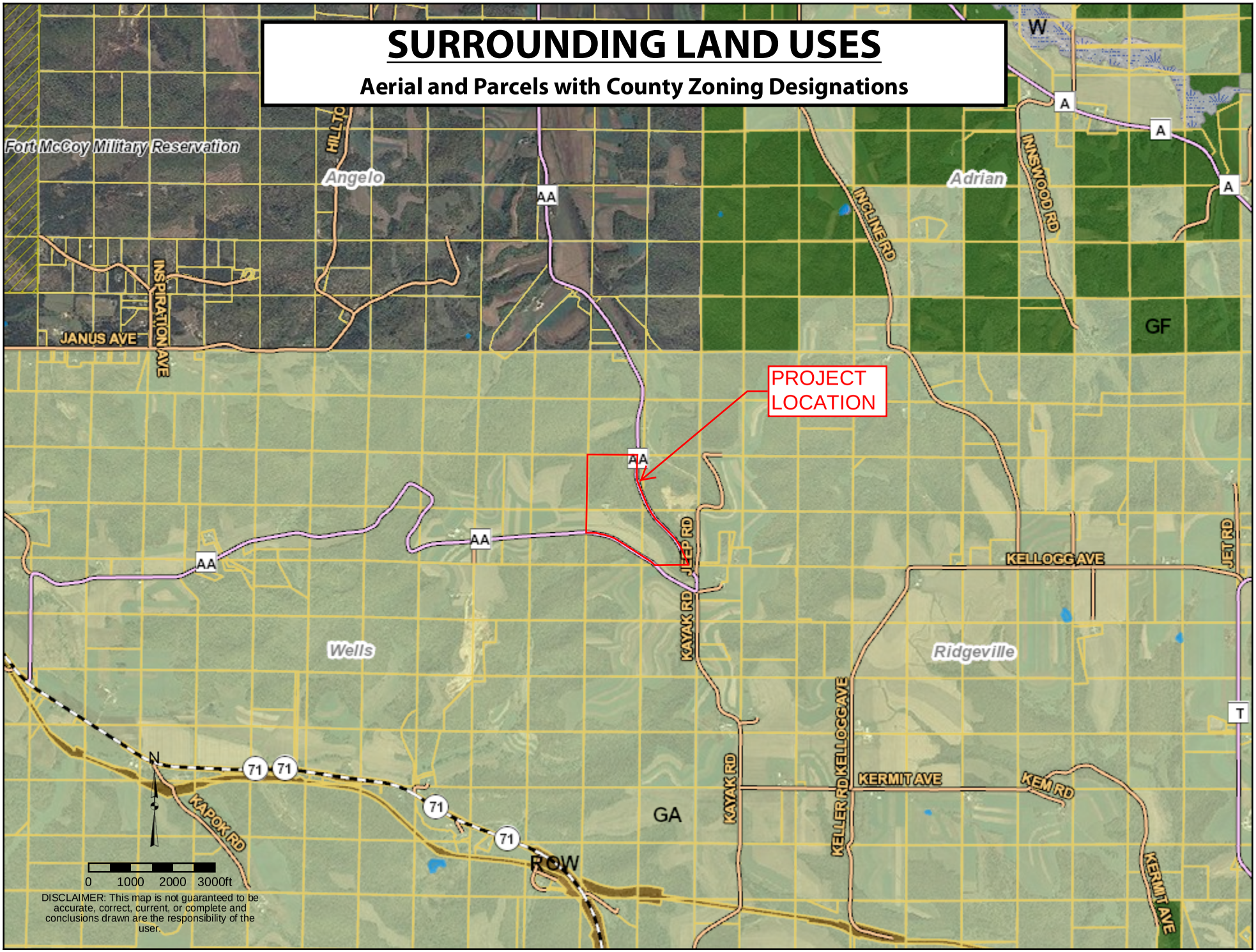
Printed From Monroe County GIS Website - June 5, 2013



A1

SURROUNDING LAND USES

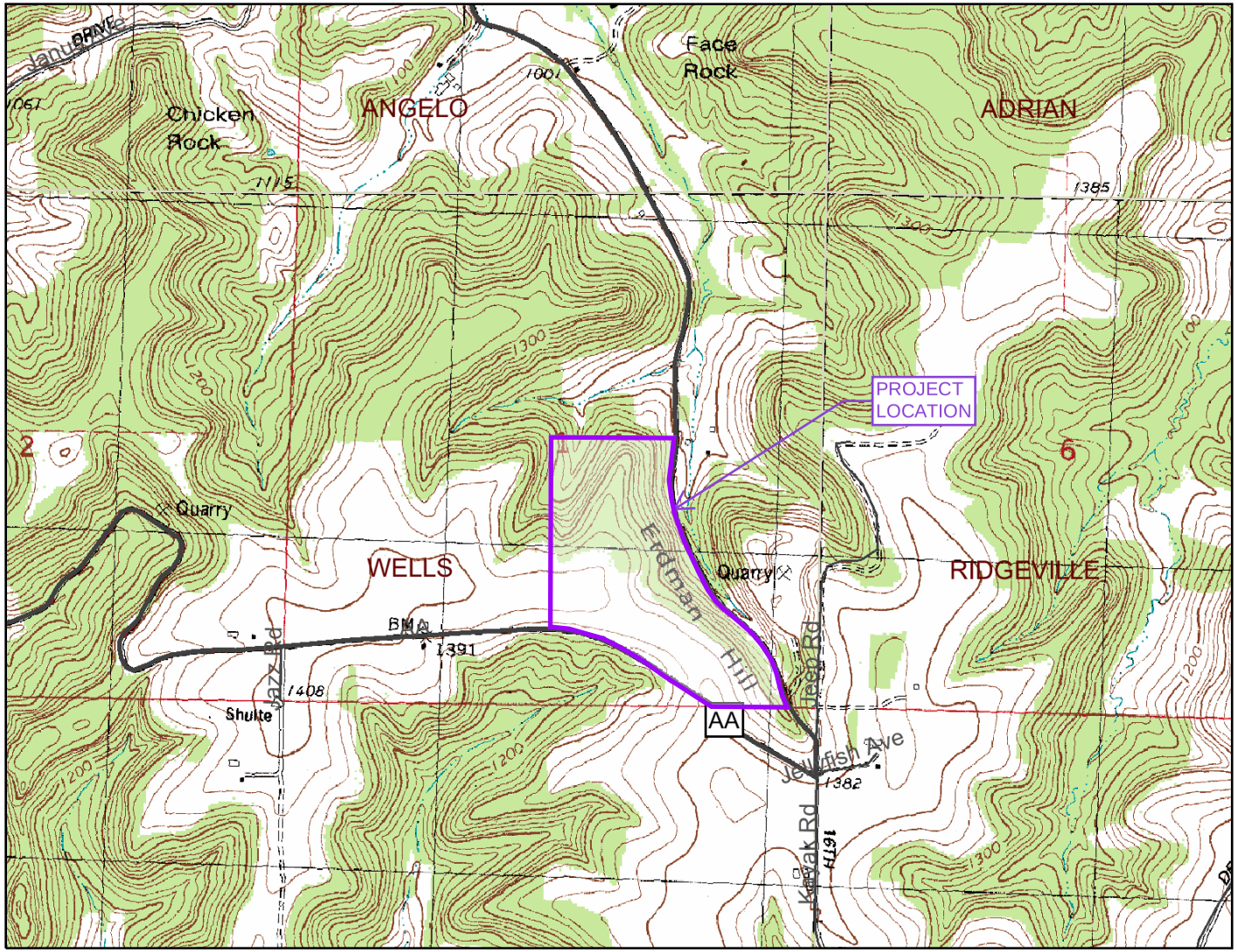
Aerial and Parcels with County Zoning Designations



DISCLAIMER: This map is not guaranteed to be accurate, correct, current, or complete and conclusions drawn are the responsibility of the user.

A2

USGS Topographic Map



Legend

Major Highways

- Interstate
- State Highway
- U.S. Highways
- County Roads
- Local Roads

Civil Towns

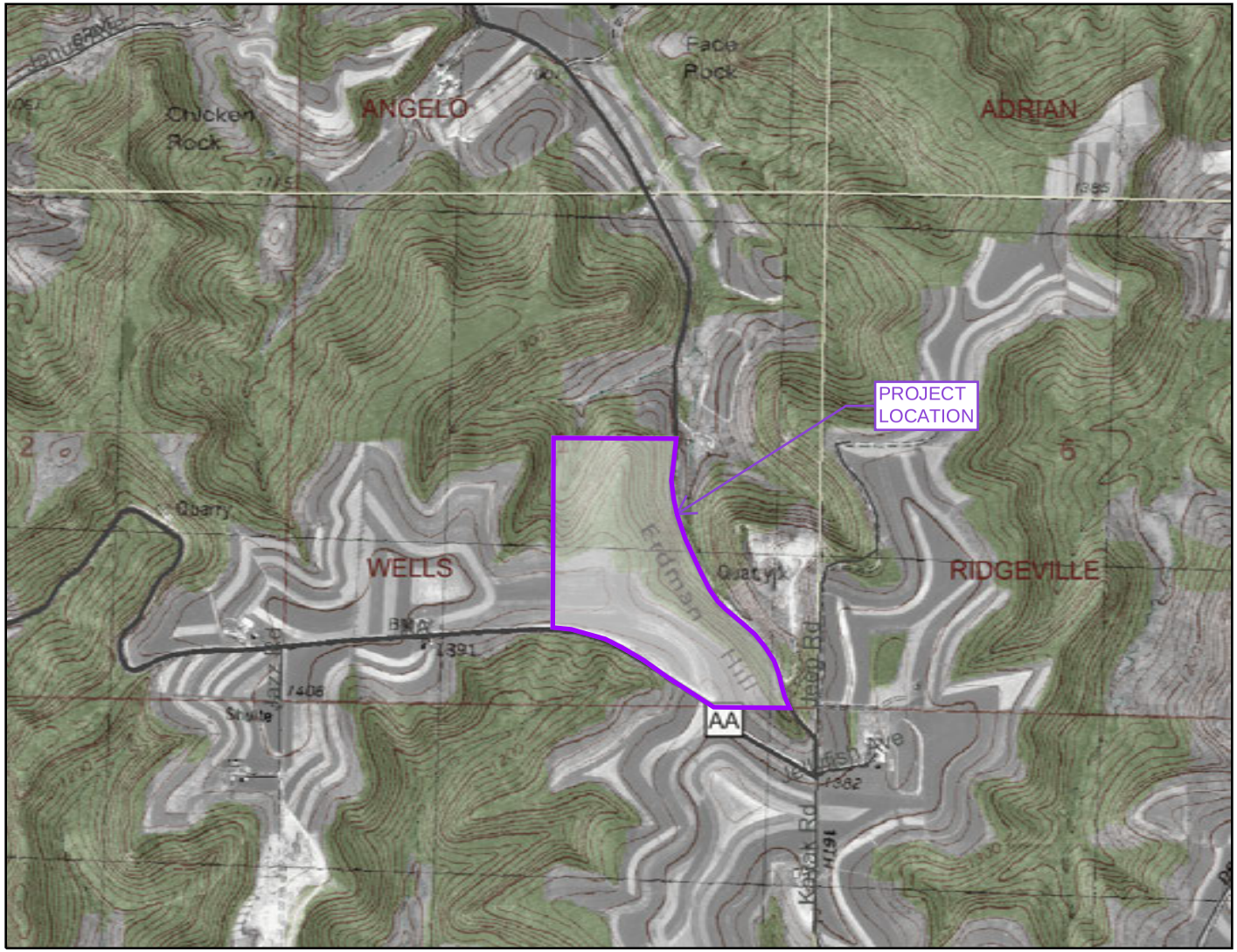
- Civil Town

0 2000 4000 6000 ft.

Scale: 1:20,000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

USGS Topographic Map With Aerial



0 2000 4000 6000 ft.

Legend

Major Highways

- Interstate
- State Highway
- U.S. Highways
- County Roads
- Local Roads

Civil Towns

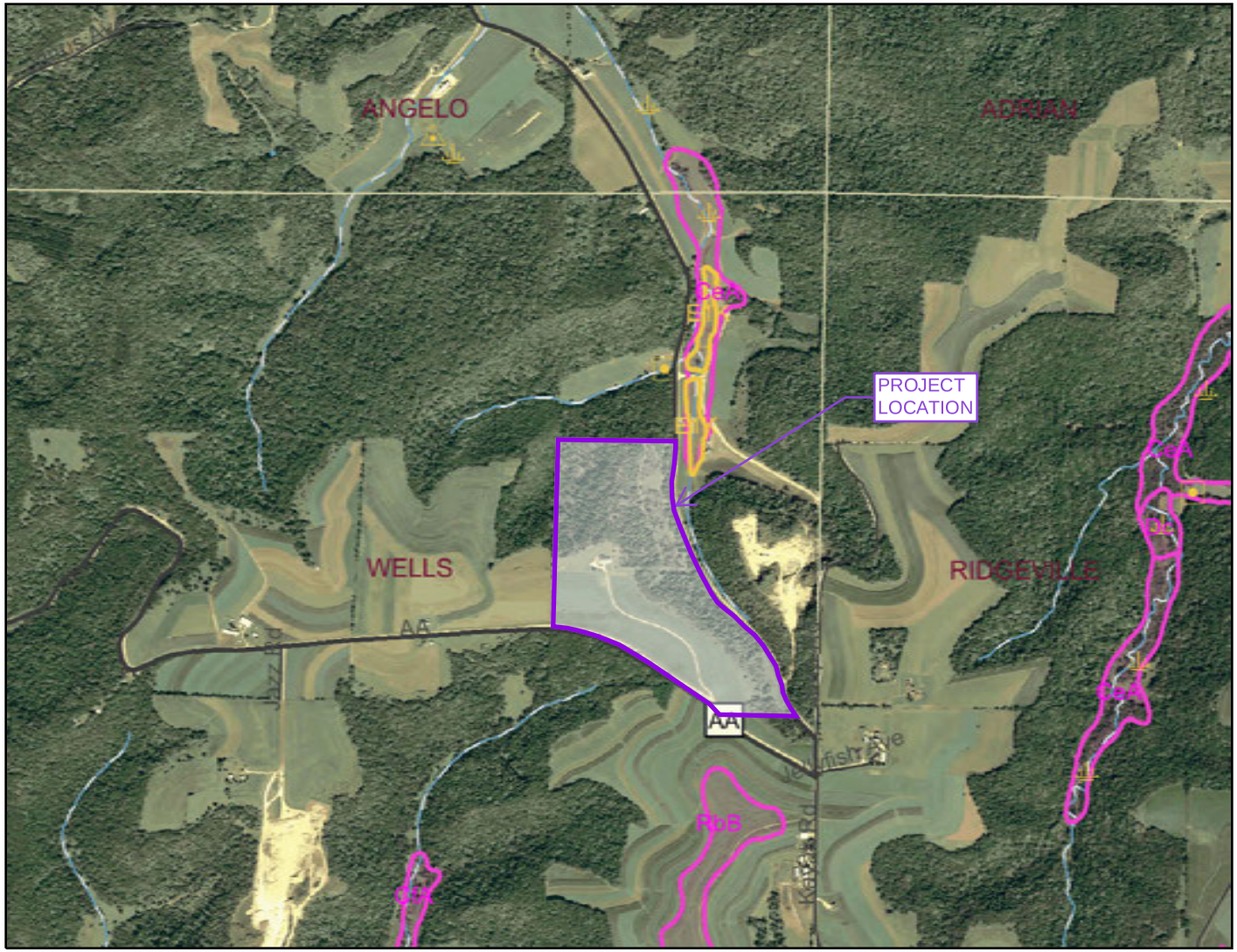
- Civil Town

N

Scale: 1:20,000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Surface Waters, Wetlands, and Floodplains



Legend

Major Highways

- Interstate
- State Highway
- U.S. Highways

County Roads

Local Roads

Civil Towns

- Civil Town

Digital Flood Boundaries

- 100 Year Floodplain
- 500 Year Floodplain
- Floodway

USDA Wetspots

DNR Wetland Points

- Excavated Pond
- Dammed Pond
- Wetland Too Small to Delineate
- Filled Excavated Pond
- Filled Dammed Pond
- Filled Wetland Too Small to Delineate
- Filled or Drained Wetland

DNR Wetland Areas

- Upland
- Wetland
- Filled or Drained Wetland

Wetland Indicator Soils

24K Open Water

24K Rivers and Shorelines

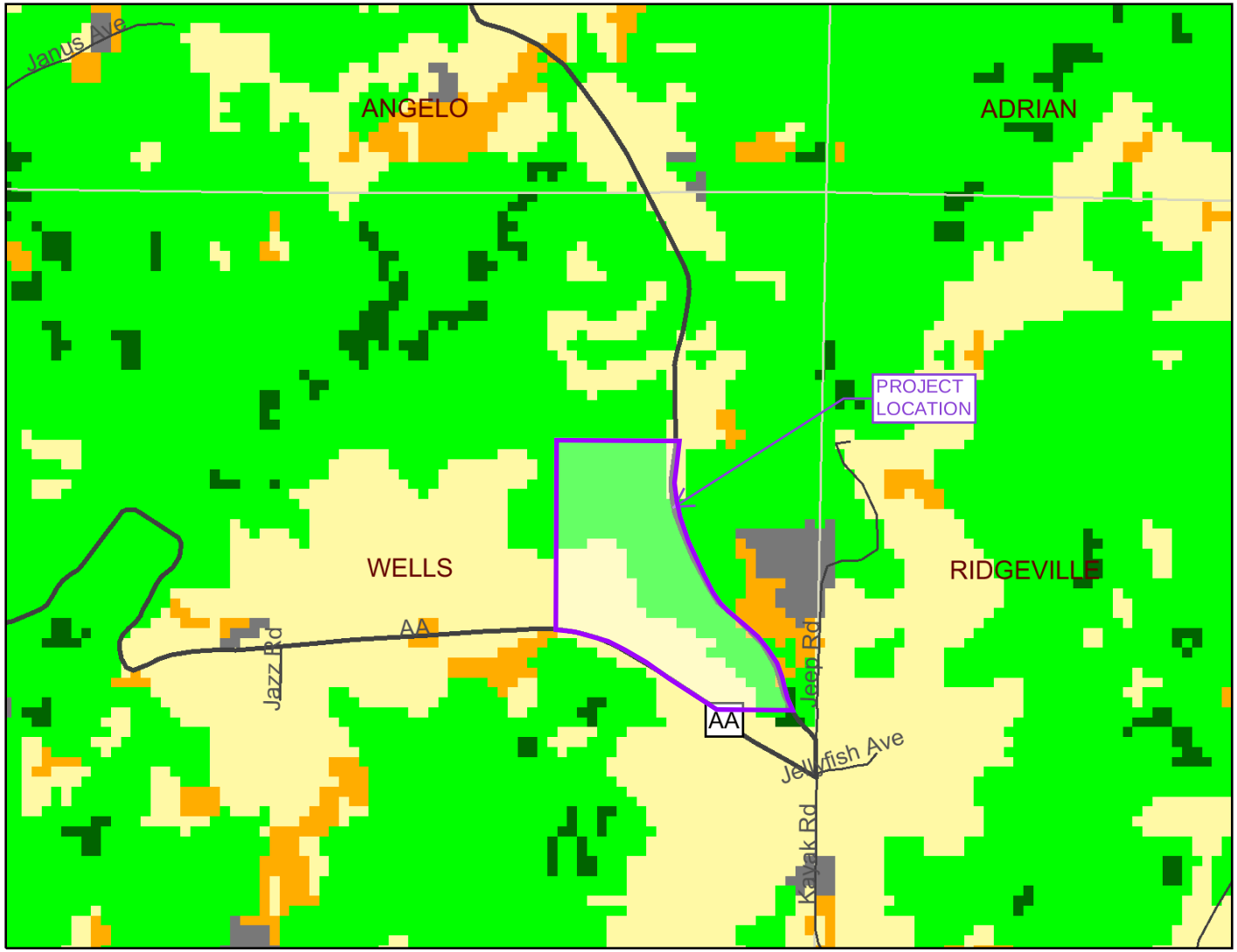
- Intermittent
- Fluctuating
- Perennial

N

Scale: 1:20,000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

WISC Land Cover



0 2000 4000 6000 ft.

Legend

Major Highways

- Interstate
- State Highway
- U.S. Highways

County Roads

Local Roads

Civil Towns

- Civil Town

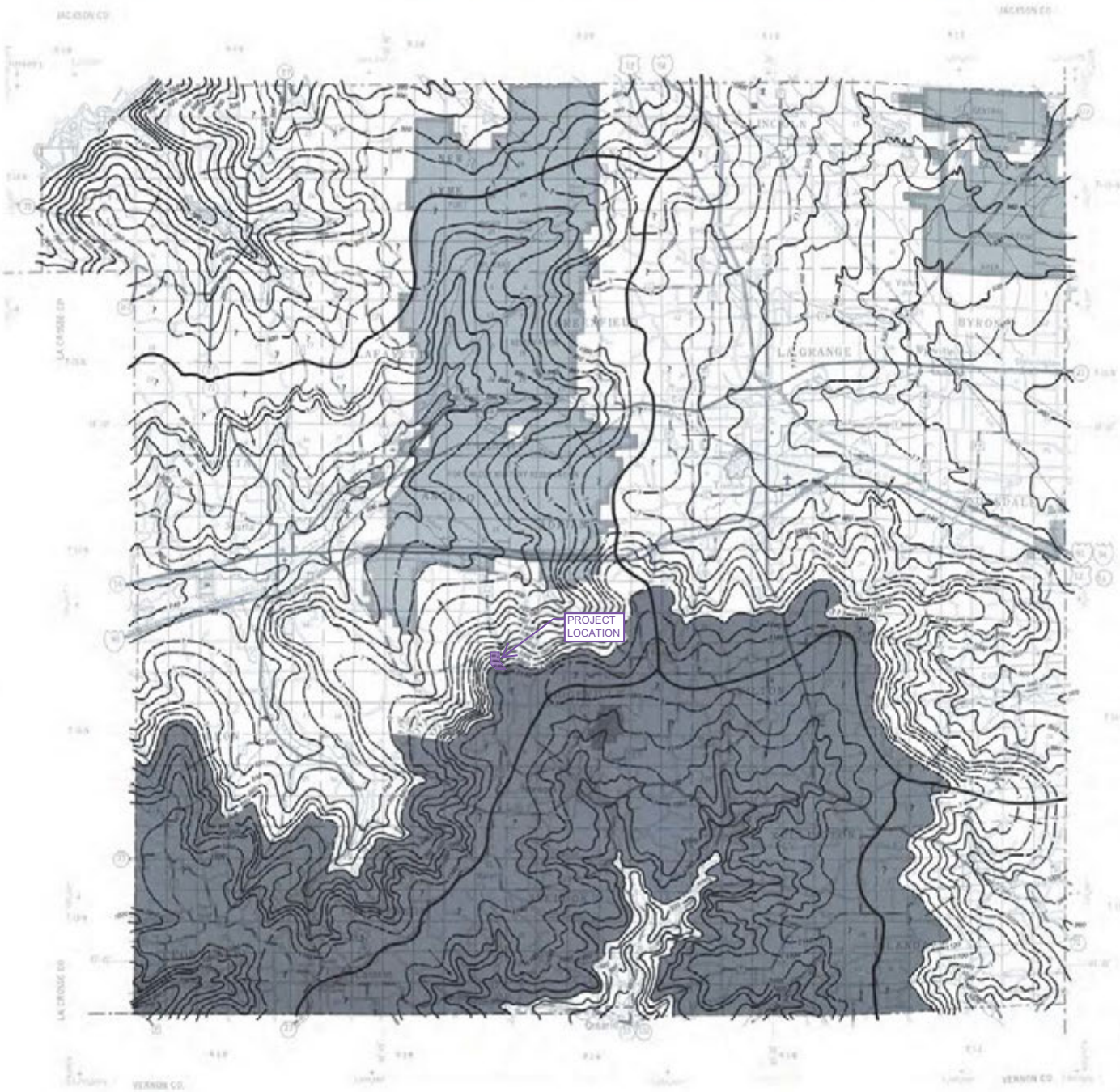
WISCLAND Landcover

- High Intensity Urban
- Low Intensity Urban
- Golf Course
- General Agriculture
- Cranberry Bog
- Grassland
- Coniferous Forest
- Broad-leaved Deciduous Forest
- Mixed Deciduous-Coniferous Forest
- Open Water
- Emergent-Wet Meadow Wetland
- Lowland Shrub Wetland
- Forested Wetland
- Barren
- Shrubland
- Cloud Cover
- Other

N

Scale: 1:20,000

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.



WATER TABLE ELEVATION

IRRIGABLE LANDS INVENTORY

PHASE I – GROUND WATER AND RELATED INFORMATION

By:
I.D. LIPPELT

Prepared by:
WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

Sponsored by:
GOLDEN SANDS RESOURCE CONSERVATION AND DEVELOPMENT AREA

Funded by:
UPPER GREAT LAKES REGIONAL PLANNING COMMISSION

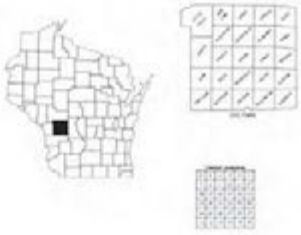
SEPTEMBER 1981

EXPLANATION

- Elevation of water table, 20 ft. interval. Datum is mean sea level
- Areas with 40 ft. interval
- Probable location of water table
- Inferred location of water table
- ? Location of water table unknown, insufficient data
- Half interval, 10 ft.
- Direction of ground-water movement
- Ground-water divide, approximate location
- Probable ground-water divide
- Federal/state lands

Data have not been field checked.

SOURCES:
(a) Well Constructor's Reports (1936-1979) – Wisconsin Department of Natural Resources
(b) Published and unpublished Geologic Logs (1896-present) – Wisconsin Geological & Natural History Survey
(c) USGS Topographic Maps
(d) Water level observation wells from the Ground Water Level Monitoring Network operated and maintained by Wisconsin Geological and Natural History Survey and USGS.
(e) Monroe County Land Atlas and Plat Book, 1980, Rockford Map Publishers, Inc.



MONROE CO.
DEPARTMENT OF TRANSPORTATION

BEDROCK GEOLOGY OF WISCONSIN

UNIVERSITY OF WISCONSIN–EXTENSION

Geological and Natural History Survey

APRIL 1981
REVISED 2005

EXPLANATION

DEVONIAN

- D — dolomite and shale

SILURIAN

- Sd — dolomite

ORDOVICIAN

- Om — Maquoketa Formation—shale and dolomite
- Os — Sinnipee Group—dolomite with some limestone and shale
- Osp — St. Peter Formation—sandstone with some limestone shale and conglomerate
- Opc — Prairie du Chien Group—dolomite with some sandstone and shale

CAMBRIAN

- € — sandstone with some dolomite and shale

MIDDLE PROTEROZOIC

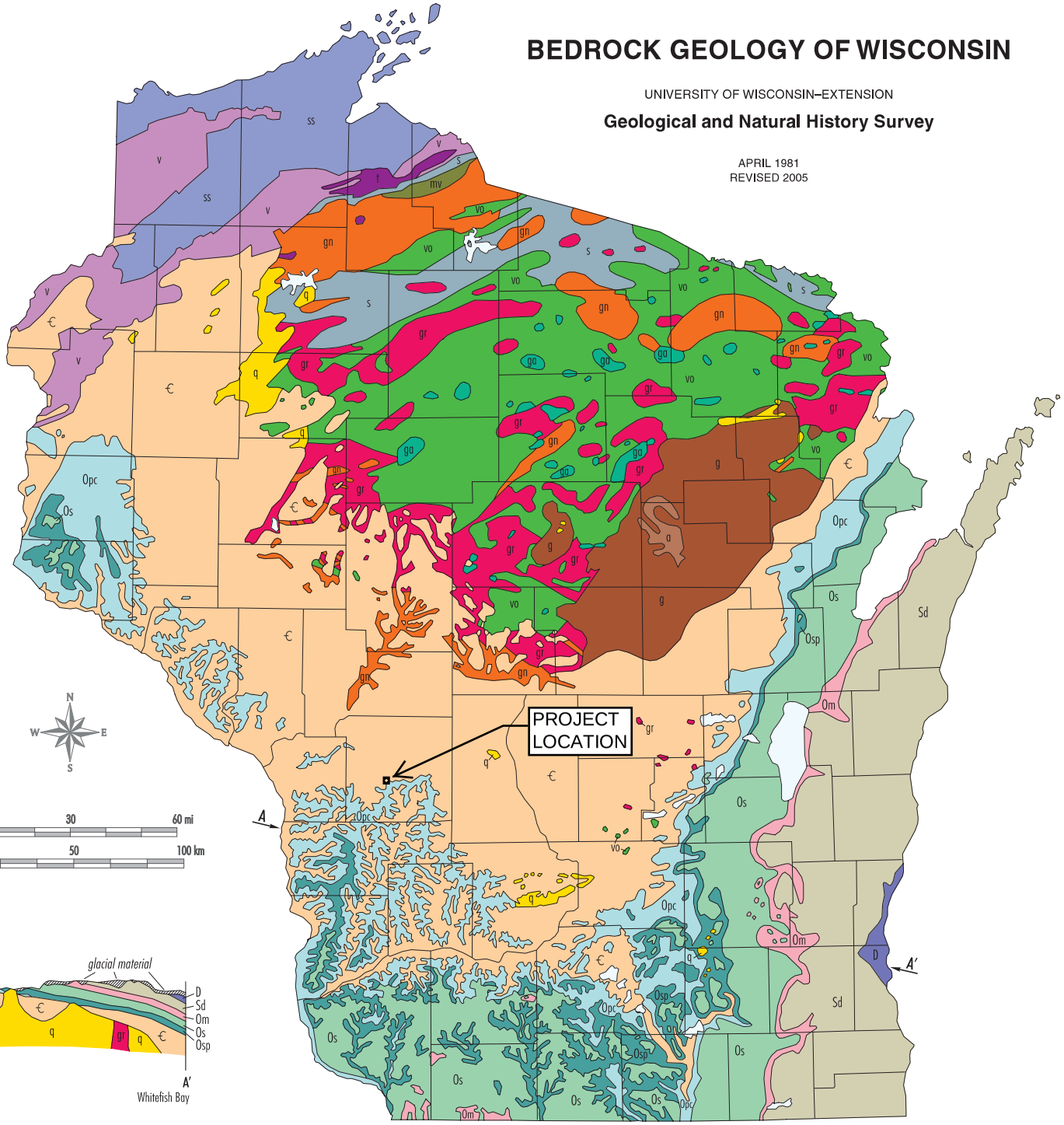
- ss, v, t — Keweenawan rock—
  - ss, sandstone
  - v, basaltic to rhyolitic lava flows
  - t, gabbroic, anorthositic and granitic rock
- g, a — Wolf River rock—
  - g, rapakivi granite, granite, and syenite
  - a, anorthosite and gabbro

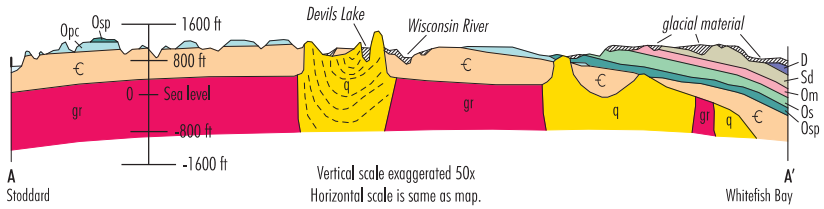
LOWER PROTEROZOIC

- q — quartzite
- gr — granite, diorite, and gneiss
- s, vo, ga —
  - s, metasedimentary rock, argillite, siltstone, quartzite, greywacke, and iron formation
  - vo, basaltic to rhyolitic metavolcanic rock with some metasedimentary rock
  - ga, meta-gabbro and hornblende diorite

LOWER PROTEROZOIC OR UPPER ARCHEAN

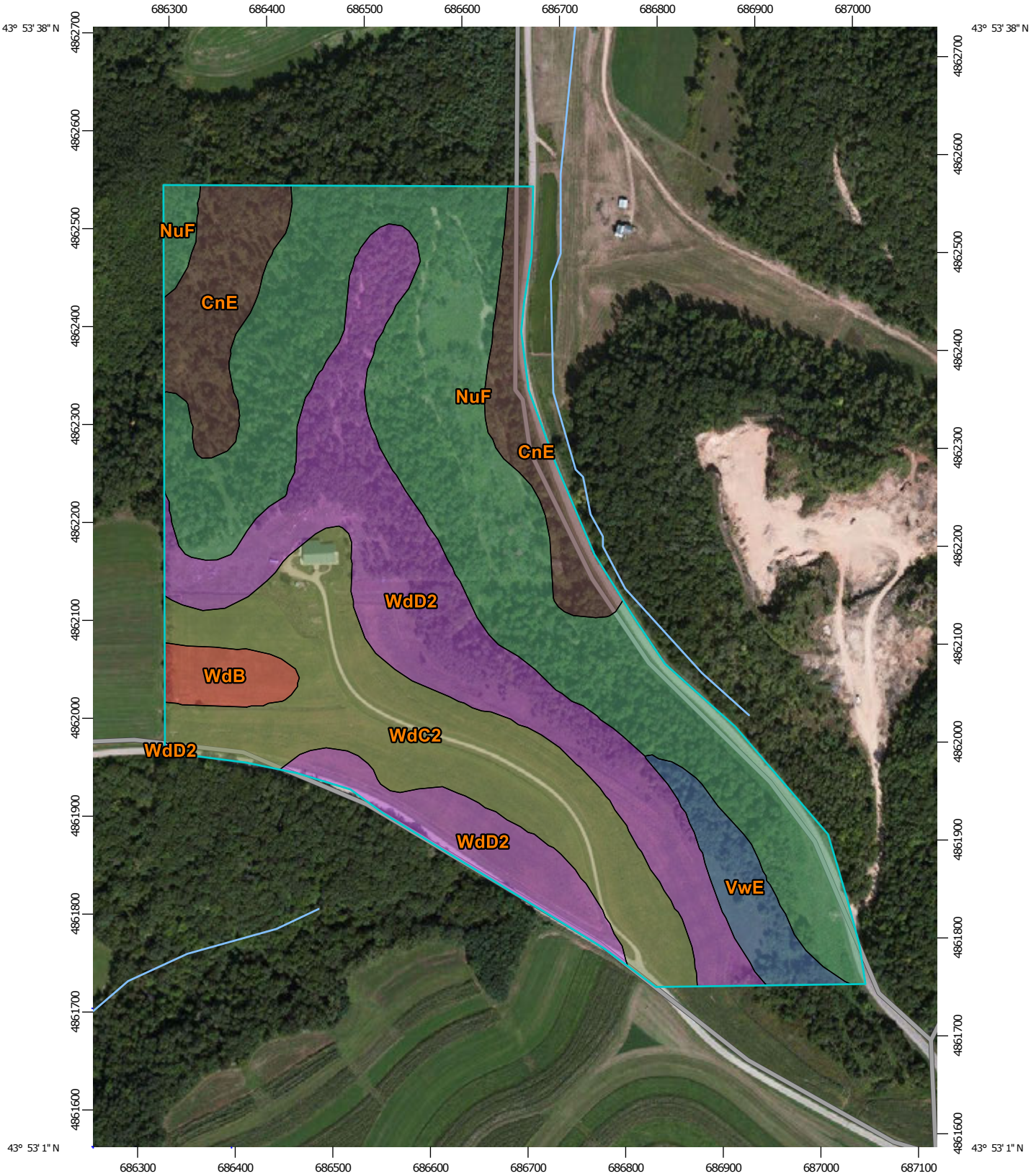
- mv, gn —
  - mv, metavolcanic rock
  - gn, granite, gneiss, and amphibolite





A8

Map Unit Name—Monroe County, Wisconsin
(Gerke Excavating Limestone Quarry)



Map Scale: 1:5,570 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Council silt loam, 20 to 30 percent slopes
- Norden, Urne, and Dorerton soils, 20 to 45 percent slopes
- Valton-Wildale silt loams, 20 to 45 percent slopes
- Wildale cherty silt loam, 12 to 20 percent slopes, eroded
- Wildale cherty silt loam, 6 to 12 percent slopes, eroded
- Wildale silt loam, 2 to 6 percent slopes
- Not rated or not available

Soil Rating Lines

- Council silt loam, 20 to 30 percent slopes
- Norden, Urne, and Dorerton soils, 20 to 45 percent slopes
- Valton-Wildale silt loams, 20 to 45 percent slopes
- Wildale cherty silt loam, 12 to 20 percent slopes, eroded
- Wildale cherty silt loam, 6 to 12 percent slopes, eroded
- Wildale silt loam, 2 to 6 percent slopes
- Not rated or not available

Soil Rating Points

- Council silt loam, 20 to 30 percent slopes
- Norden, Urne, and Dorerton soils, 20 to 45 percent slopes
- Valton-Wildale silt loams, 20 to 45 percent slopes
- Wildale cherty silt loam, 12 to 20 percent slopes, eroded
- Wildale cherty silt loam, 6 to 12 percent slopes, eroded
- Wildale silt loam, 2 to 6 percent slopes
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Monroe County, Wisconsin
Survey Area Data: Version 7, May 13, 2009

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 25, 2011—Oct 2, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Name

Map Unit Name— Summary by Map Unit — Monroe County, Wisconsin (WI081)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
CnE	Council silt loam, 20 to 30 percent slopes	Council silt loam, 20 to 30 percent slopes	9.4	11.2%
NuF	Norden, Urne, and Dorerton soils, 20 to 45 percent slopes	Norden, Urne, and Dorerton soils, 20 to 45 percent slopes	31.2	37.2%
VwE	Valton-Wildale silt loams, 20 to 45 percent slopes	Valton-Wildale silt loams, 20 to 45 percent slopes	3.1	3.7%
WdB	Wildale silt loam, 2 to 6 percent slopes	Wildale silt loam, 2 to 6 percent slopes	1.8	2.2%
WdC2	Wildale cherty silt loam, 6 to 12 percent slopes, eroded	Wildale cherty silt loam, 6 to 12 percent slopes, eroded	16.4	19.6%
WdD2	Wildale cherty silt loam, 12 to 20 percent slopes, eroded	Wildale cherty silt loam, 12 to 20 percent slopes, eroded	21.9	26.1%
Totals for Area of Interest			**83.9**	**100.0%**

Description

A soil map unit is a collection of soil areas or nonsoil areas (miscellaneous areas) delineated in a soil survey. Each map unit is given a name that uniquely identifies the unit in a particular soil survey area.

Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description

Monroe County, Wisconsin

CnE—Council silt loam, 20 to 30 percent slopes

Map Unit Setting

Elevation: 700 to 1,400 feet
Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Council and similar soils: 100 percent

Description of Council

Setting

Landform: Hills
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and/or loamy colluvium

Properties and qualities

Slope: 20 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 11.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B

Typical profile

0 to 8 inches: Silt loam
8 to 52 inches: Loam
52 to 60 inches: Loam

NuF—Norden, Urne, and Dorerton soils, 20 to 45 percent slopes

Map Unit Setting

Elevation: 800 to 1,400 feet
Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Norden and similar soils: 40 percent
Urne and similar soils: 30 percent
Dorerton and similar soils: 15 percent

Description of Norden

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, shoulder, summit
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Loess over loamy residuum weathered from glauconitic sandstone

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B

Typical profile

0 to 3 inches: Loam
3 to 10 inches: Loam
10 to 29 inches: Loam
29 to 60 inches: Unweathered bedrock

Description of Urne

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, summit, shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from glauconitic sandstone

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B

Typical profile

0 to 2 inches: Fine sandy loam
2 to 32 inches: Very fine sandy loam
32 to 38 inches: Very fine sandy loam

38 to 60 inches: Weathered bedrock

Description of Dorerton

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over loamy residuum

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: 45 to 70 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.9 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: B

Typical profile

0 to 4 inches: Silt loam
4 to 21 inches: Loam
21 to 56 inches: Channery loam
56 to 60 inches: Very channery loamy sand

VwE—Valton-Wildale silt loams, 20 to 45 percent slopes

Map Unit Setting

Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Valton and similar soils: 50 percent
Wildale and similar soils: 30 percent

Description of Valton

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over clayey residuum weathered from dolomite

Properties and qualities

Slope: 20 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 7.0 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 6e
Hydrologic Soil Group: B

Typical profile

0 to 9 inches: Silt loam
9 to 22 inches: Silt loam
22 to 60 inches: Silty clay

Description of Wildale

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, shoulder
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over clayey residuum weathered from dolomite

Properties and qualities

Slope: 20 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 7e
Hydrologic Soil Group: C

Typical profile

0 to 9 inches: Silt loam
9 to 15 inches: Silty clay loam
15 to 60 inches: Clay

WdB—Wildale silt loam, 2 to 6 percent slopes

Map Unit Setting

Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Wildale and similar soils: 100 percent

Description of Wildale

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over clayey residuum weathered from dolomite

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability (nonirrigated): 2e
Hydrologic Soil Group: C

Typical profile

0 to 9 inches: Silt loam
9 to 15 inches: Silty clay loam
15 to 60 inches: Clay

WdC2—Wildale cherty silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting

Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Wildale and similar soils: 100 percent

Description of Wildale

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over clayey residuum weathered from dolomite

Properties and qualities

Slope: 6 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability (nonirrigated): 3e
Hydrologic Soil Group: C

Typical profile

0 to 9 inches: Silt loam
9 to 15 inches: Silty clay loam
15 to 60 inches: Clay

WdD2—Wildale cherty silt loam, 12 to 20 percent slopes, eroded

Map Unit Setting

Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 160 days

Map Unit Composition

Wildale and similar soils: 100 percent

Description of Wildale

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, summit
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over clayey residuum weathered from dolomite

Properties and qualities

Slope: 12 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Farmland classification: Not prime farmland
Land capability (nonirrigated): 4e
Hydrologic Soil Group: C

Typical profile

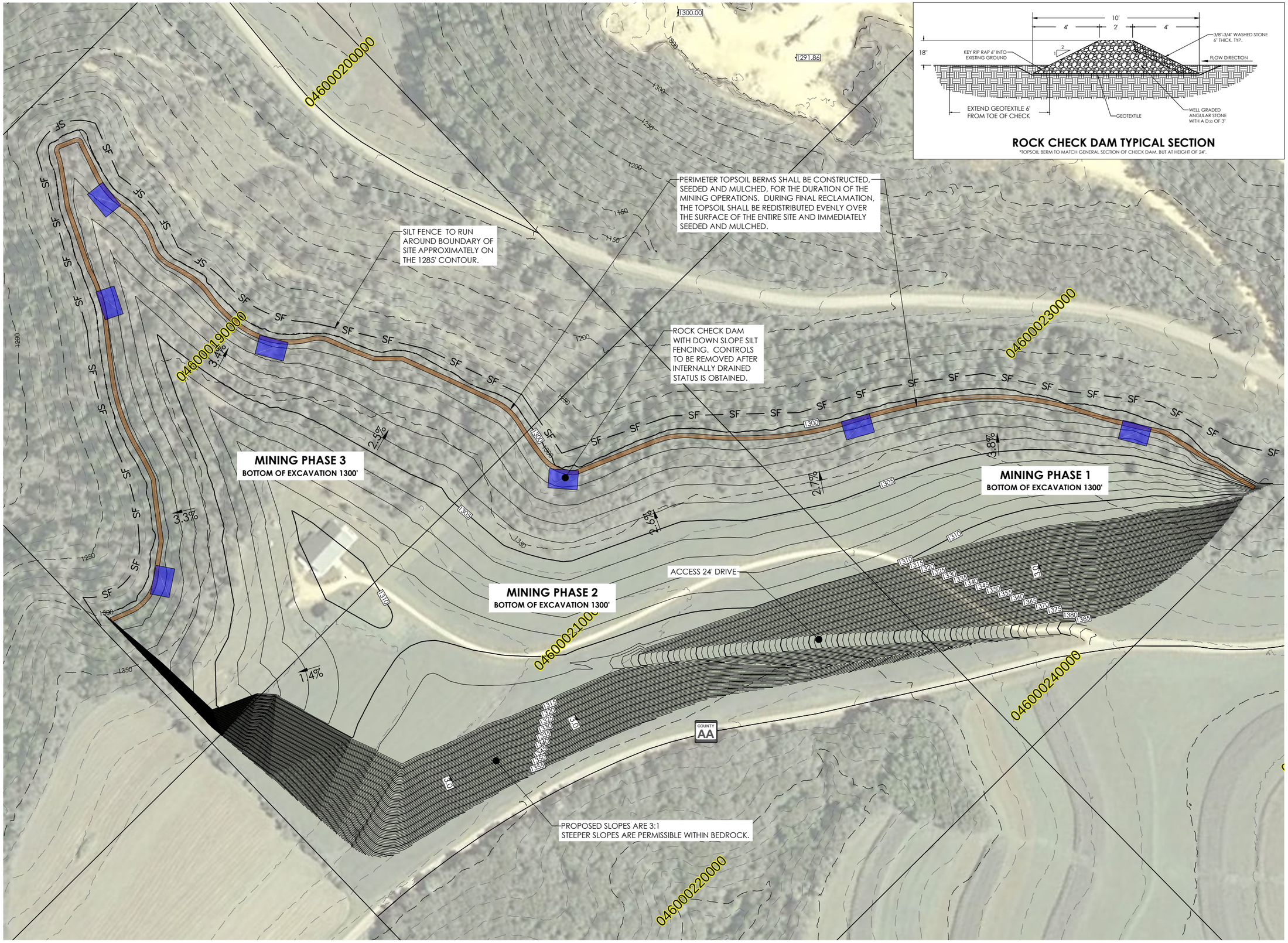
0 to 9 inches: Silt loam
9 to 15 inches: Silty clay loam
15 to 60 inches: Clay

Data Source Information

Soil Survey Area: Monroe County, Wisconsin
Survey Area Data: Version 7, May 13, 2009

APPENDIX B

Site Specific Maps and Information



GERKE Excavating Inc.

GEC

General Engineering Company

P.O. Box 340 • 916 Silver Lake Dr. • Portage, WI 53901
608-742-2169 (Office) • 608-742-2592 (Fax)
www.generalengineering.net

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PROPOSED QUARRY
Gerke Excavating, Inc.

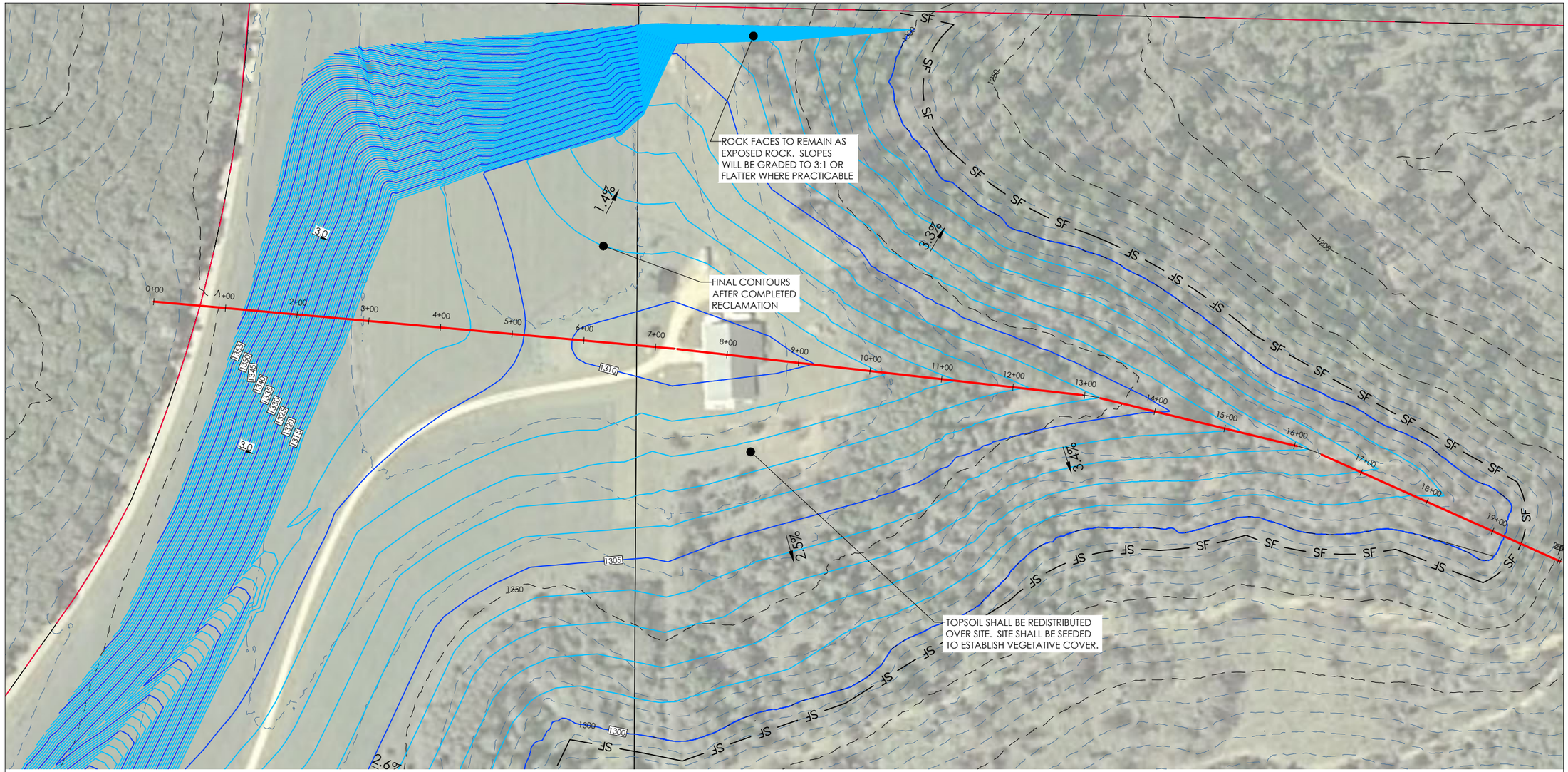
Town of Wells
Monroe County, WI

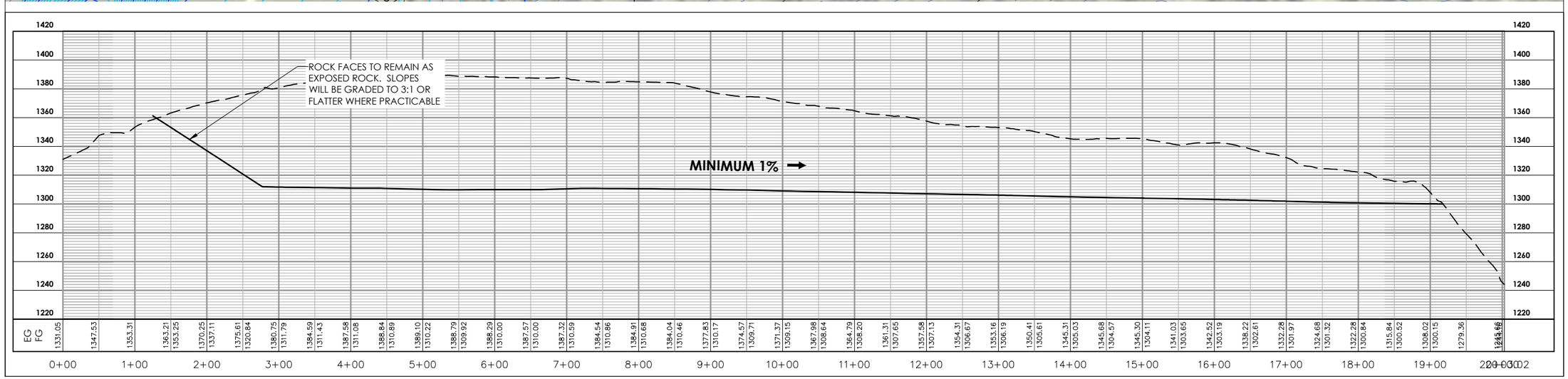
REVISIONS	NO.	BY	DATE

N E S W

0 100' 200'
SCALE

DRAWN BY	EDB
DATE	Sept 2013
GEC FILE NO.	2-0113-46H
SHEET NO.	B1.0





GERKE Excavating Inc.

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General Engineering Company

P.O. Box 340 • 916 Silver Lake Dr. • Portage, WI 53901
608-742-2169 (Office) • 608-742-2592 (Fax)
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RECLAIMED QUARRY

Gerke Excavating, Inc.

Town of Wells
Monroe County, WI

REVISIONS	NO.	BY	DATE

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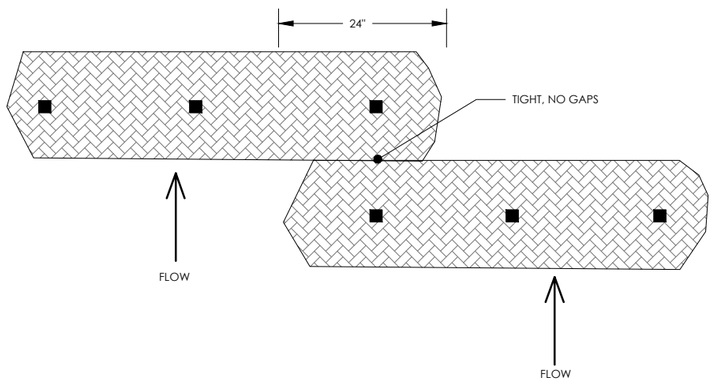
SCALE

DRAWN BY	EDB
DATE	Sept 2013
GEC FILE NO.	2-0113-46H
SHEET NO.	B1.1



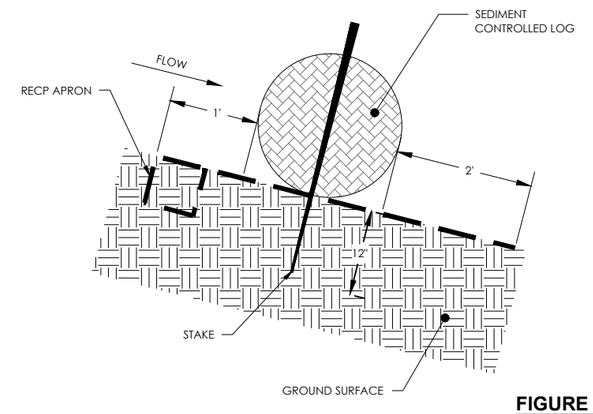
PLAN VIEW, OVERLAP

OVERLAP INSTALLATION

TEMPORARY DITCH CHECKS

PURPOSE & OPERATION

PRODUCTS IN THIS CATEGORY ARE INTENDED FOR USE AT THE BOTTOM OF FILL SLOPES AND IN CHANNELS TO INTERCEPT AND POND SEDIMENT-LADEN RUNOFF. PONDING THE WATER REDUCES THE VELOCITY OF THE INCOMING FLOW AND ALLOWS MOST OF THE SEDIMENTS TO SETTLE OUT. WATER EXITS THE CHECK BY EITHER FILTERING THROUGH OR FLOWING OVER THE TOP.



OR

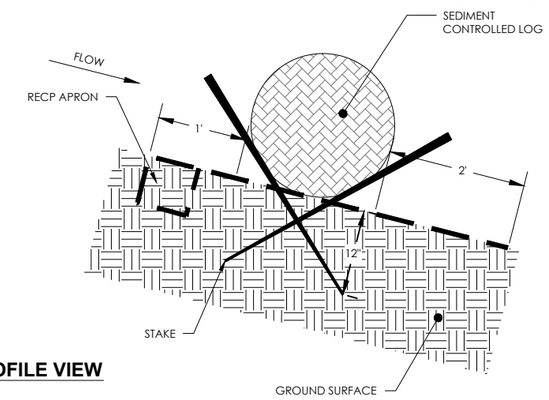


FIGURE A - PROFILE VIEW

SLOPE/CHANNEL INSTALLATION

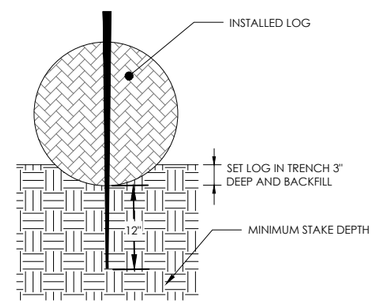
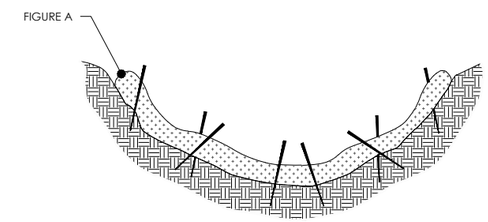


FIGURE B - PROFILE VIEW

FLAT GROUND INSTALLATION

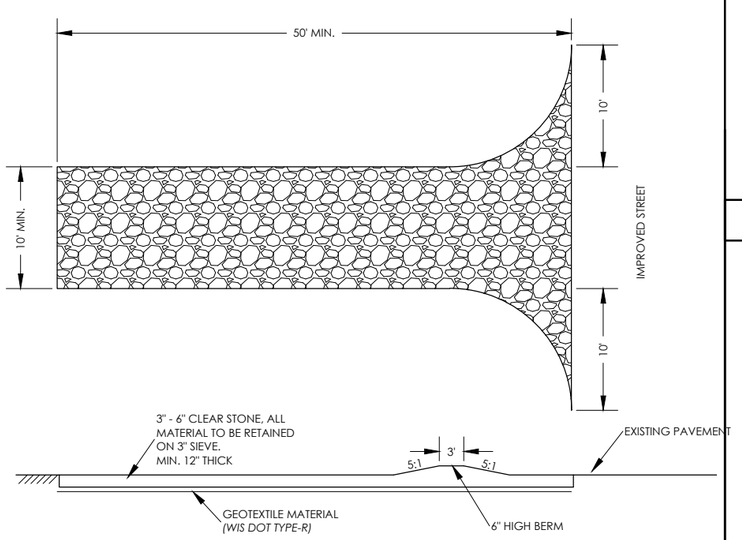


MINIMUM STAKE IN GROUND, 12"

DO NOT ALLOW FLOW TO OVERTOP INSTALLATION.

FIGURE C - CROSS-SECTION VIEW

CHANNEL INSTALLATION

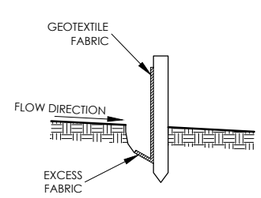


NOTE: MAINTAIN THE ROCK ENTRANCE TO PREVENT TRACKING ONTO PAVEMENT

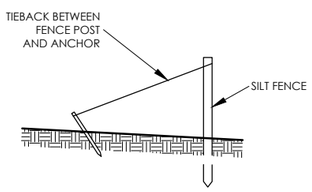
ROCK ENTRANCE

NOTES:

1. HORIZONTAL BRACE WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POST AS DIRECTED BY THE ENGINEER.
2. TRENCH SHALL BE A MINIMUM OF 4" WIDE BY 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC, FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH AND COMPACT WITH EXCAVATED SOIL.
3. WOOD POST SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.

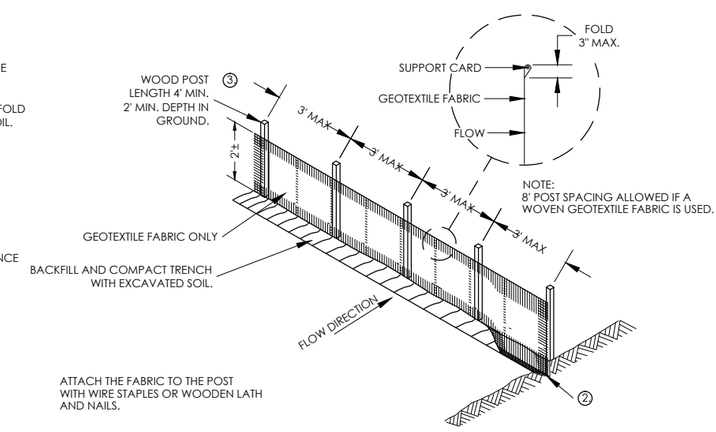


TRENCH DETAIL



SILT FENCE TIE BACK

WHEN REQUIRED BY ENGINEER



ATTACH THE FABRIC TO THE POST WITH WIRE STAPLES OR WOODEN LATH AND NAILS.

SILT FENCE

GERKE Excavating Inc.

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EROSION CONTROL DETAILS

Gerke Excavating, Inc.

Town of Wells
Monroe County, WI

NO.	BY	DATE

REVISIONS

N W E S

0 N/A

SCALE

DRAWN BY	EDB
DATE	June 2013
GEC FILE NO.	2-0113-46H
SHEET NO.	B1.2

CONSTRUCTION SITE EROSION CONTROL

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. FURNISHING, INSTALLING, MAINTAINING, AND REMOVING EROSION AND SEDIMENT CONTROL FACILITIES AND MEASURES.

B. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL EROSION CONTROL FACILITIES AND MEASURES NECESSARY TO CONTROL EROSION AND SEDIMENTATION AT THE WORK SITE. THESE FACILITIES AND MEASURES MAY OR MAY NOT BE SHOWN ON THE DRAWINGS AND THEIR ABSENCE ON THE DRAWINGS DOES NOT ALLEVIATE THE CONTRACTOR FROM PROVIDING THEM. ANY MEASURES AND FACILITIES SHOWN ON THE DRAWINGS ARE THE MINIMUM ACTIONS REQUIRED.

1.02 REFERENCES

A. WDNR TECHNICAL STANDARDS - SEE DNR WEBSITE @ *http://dnr.state.wi.us/org/water/wm/nps/stormwater/techstds.htm*

B. WISCONSIN DEPARTMENT OF TRANSPORTATION, EROSION CONTROL, PRODUCT ACCEPTABILITY LISTS FOR MULTI-MODAL APPLICATIONS PAL, CURRENT EDITION.

1.03 GENERAL

A. REQUIREMENTS OF WDNR TECHNICAL STANDARDS SHALL BE FOLLOWED AT ALL TIMES.

B. USE SURFACE WATER AND EROSION CONTROL FACILITIES AND MEASURES THROUGHOUT THE DURATION OF THE CONSTRUCTION ACTIVITY TO CONTROL THE MOVEMENT OF SURFACE WATER AND TO REDUCE THE POTENTIAL FOR EROSION. MAINTAIN THE FACILITIES AND MEASURES UNTIL PERMANENT VEGETATION IS ESTABLISHED.

C. ERODED SOIL MATERIAL SHALL NOT BE ALLOWED TO LEAVE THE CONSTRUCTION SITE OR TO ENTER A WATERWAY, LAKE, OR WETLAND.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING THE EROSION CONTROL FACILITIES, AND IN GENERAL, SHALL USE CONSTRUCTION PRACTICES THAT MINIMIZE EROSION.

E. ERODED MATERIAL THAT HAS LEFT THE CONSTRUCTION SITE SHALL BE COLLECTED AND RETURNED TO THE SITE BY THE CONTRACTOR.

F. PREVENT CONSTRUCTION SITE TRACKING WITH GRAVELED ROADS, ACCESS DRIVES, AND PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ONTO PUBLIC AND PRIVATE ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED BY STREET CLEANING (NOT FLUSHING) BEFORE THE END OF EACH WORKDAY.

1.04 SEQUENCING AND SCHEDULING

A. CONSTRUCT AND STABILIZE EROSION CONTROL MEASURES FOR DIVERSIONS OR OUTLETS PRIOR TO ANY GRADING OR DISTURBANCE OF THE CONSTRUCTION SITE.

B. INSTALL FILTER FABRIC AND STRAW BALE FENCES AND BARRIERS PRIOR TO DISTURBING THE AREA.

C. TURF AREAS THAT HAVE BEEN COMPLETED TO FINISH GRADE SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN SEVEN DAYS. TURF AREAS WHERE ACTIVITY HAS CEASED AND THAT WILL REMAIN EXPOSED FOR MORE THAN 20 DAYS BEFORE ACTIVITY RESUMES AND SOIL STOCKPILES SHALL BE STABILIZED WITH TEMPORARY SEEDING OR SOIL STABILIZER.

D. OTHER EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO DISTURBANCE OF THE CONSTRUCTION SITE, AS APPLICABLE.

PART 2 - PRODUCTS

2.01 SILT FENCE

- FABRIC SHALL BE SHALL A WOVEN OR NONWOVEN POLYESTER, POLYPROPYLENE, STABILIZED NYLON, OR POLYETHYLENE GEOTEXTILE WITH THE FOLLOWING MINIMUM PROPERTIES:

PROPERTY	*TEST METHOD*	*REQUIREMENT**
GRAB TENSILE STRENGTH, LBS MIN.	ASTM D 4632	
MACHINE DIRECTION		120
CROSS DIRECTION		100
MAX. APPARENT OPENING SIZE, US SIEVE	ASTM D 4751	NO. 30
PERMITTIVITY, SEC-1, MIN.	ASTM D 4491	0.05
MIN. UV STABILITY AT 500 HRS, %	ASTM D 4355	70%

* MINIMUM OR MAXIMUM AVERAGE ROLL VALUES.

2.02 TEMPORARY SEED

A. AREAS NEEDING PROTECTION DURING PERIODS WHEN PERMANENT SEEDING IS NOT APPLIED SHALL BE SEEDED WITH ANNUAL SPECIES FOR TEMPORARY PROTECTION. PROVIDE SPECIES AS FOLLOWS:

SPECIES	% PURITY
OATS	98
CEREAL RYE	97
WINTER WHEAT	95
ANNUAL RYEGRASS	97

B. PROVIDE OATS FOR SPRING AND SUMMER. PROVIDE CEREAL RYE, WINTER WHEAT, OR ANNUAL RYEGRASS FOR FALL SEEDING.

2.03 EROSION MAT

A. ALL EROSION MAT PRODUCTS SHALL BE OF THE CLASS AND TYPE INDICATED AND SHALL BE CHOSEN FROM THE EROSION CONTROL PRODUCT ACCEPTABILITY LISTS.

B. CLASS I: A SHORT-TERM DURATION (SIX MONTHS OR GREATER), LIGHT DUTY, ORGANIC MAT. NETTING SHALL BE NON-ORGANIC, PHOTODEGRADABLE OR BIODEGRADABLE NETTING. THE WEIGHT OF THE NETTING SHALL NOT EXCEED 15% OF THE TOTAL BLANKET WEIGHT. THE NETTING SHALL BE SUFFICIENTLY BONDED TO THE PARENT MATERIAL TO PREVENT SEPARATION FOR THE LIFE OF THE PRODUCT.
   1. TYPE A: A NETTED PRODUCT FOR USE ON SLOPES 2.5 TO 1 OR FLATTER WITH A MINIMUM PRODUCT PERMISSIBLE SHEAR STRESS OF 50 PA (1.0 LBS/FT2). NOT TO BE USED IN CHANNELS.
   2. TYPE B: A DOUBLE NETTED PRODUCT FOR USE ON SLOPES 2 TO 1 OR FLATTER OR IN CHANNELS WITH A MINIMUM PRODUCT PERMISSIBLE SHEAR STRESS OF 70 PA (1.5 LBS/FT2).

C. CLASS II: A LONG-TERM DURATION (3 YEARS OR GREATER), ORGANIC MAT. THE WEIGHT OF THE NETTING SHALL NOT EXCEED 15% OF THE TOTAL BLANKET WEIGHT. THE NETTING SHALL BE BONDED SUFFICIENTLY TO THE PARENT MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL FOR THE LIFE OF THE PRODUCT.
   1. TYPE A: JUTE FIBER ONLY TO BE USED FOR REINFORCING SOD.
   2. TYPE B: FOR USE ON SLOPES 2:1 OR FLATTER, OR IN CHANNELS WITH A MINIMUM PRODUCT PERMISSIBLE SHEAR STRESS OF 95 PA (2.0 LBS/FT2). NON-ORGANIC, PHOTODEGRADABLE, OR BIODEGRADABLE NETTING ALLOWED.
   3. TYPE C: FOR USE ON SLOPES 2:1 OR FLATTER, OR IN CHANNELS WITH A MINIMUM PRODUCT PERMISSIBLE SHEAR STRESS OF 95 PA (2.0 LBS/FT2). ONLY 100% ORGANIC FIBERS ALLOWED. WOVEN MATS ARE ALLOWED WITH A MAXIMUM OPENING OF ½ INCH. USE IN ENVIRONMENTALLY SENSITIVE AREAS THAT HAVE A HIGH PROBABILITY OF ENTRAPPING ANIMALS IN THE PLASTIC NETTING.

D. STAPLES: U-SHAPED NO. 11 GAUGE OR GREATER WIRE WITH A SPAN WIDTH OF ONE TO TWO INCHES AND A LENGTH OF NOT LESS THAN 6 INCHES FOR FIRM SOIL AND 12 INCHES FOR LOOSE SOIL.

2.04 SOIL STABILIZER

A. SOIL STABILIZER SHALL BE A POLYACRYLAMIDE (PAM) AND CALCIUM SOLUTION INTENDED TO REDUCE THE ERODIBILITY OF BARE SOILS. THE PRODUCT SHALL ACHIEVE AN 80% REDUCTION IN SOIL LOSS INDUCED BY A TWO INCH PER HOUR RAINFALL SIMULATOR.

B. PAM MIXTURES SHALL BE ENVIRONMENTALLY BENIGN, HARMLESS TO FISH, AQUATIC ORGANISMS, WILDLIFE, AND PLANTS. ONLY ANIONIC PAM WILL BE PERMITTED.

C. ANIONIC PAM, IN PURE FORM SHALL HAVE NO MORE THAN 0.05% FREE ACRYLIC MONOMER BY WEIGHT, AS ESTABLISHED BY THE FOOD AND DRUG ADMINISTRATION AND THE ENVIRONMENTAL PROTECTION AGENCY. THE ANIONIC PAM IN PURE FORM SHALL NOT EXCEED 200 POUNDS PER BATCH.

D. THE PRODUCT PROVIDED SHALL BE LISTED IN THE WISDOT PAL FOR TYPE B SOIL STABILIZER.

2.05 INLET PROTECTION

A. TYPE A: USE AROUND FIELD INLETS UNTIL PERMANENT STABILIZATION METHODS HAVE BEEN ESTABLISHED. USE ON PAVEMENT INLETS PRIOR TO INSTALLATION OF CURB AND GUTTER OR PAVEMENT.

B. TYPE B: USE ON INLETS WITHOUT CURB HEAD AFTER CASTING AND GRATE ARE IN PLACE.

C. TYPE C: USE ON STREET INLETS WITH CURB HEAD.

D. TYPE D: USE IN AREAS WHERE OTHER TYPED OF INLET PROTECTION ARE INCOMPATIBLE WITH ROADWAY AND TRAFFIC CONDITIONS CAUSING POSSIBLE SAFETY HAZARDS WHEN PONDING OCCURS AT INLET.

E. GEOTEXTILE: TYPE FF MEETING THE REQUIREMENTS OF THE LATEST EDITION OF WISDOT PAL.

PART 3 - EXECUTION

3.01 INSTALLATION OF DIVERSIONS

A. TEMPORARY DIVERSIONS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH WDNR CONSERVATION PRACTICE STANDARD, CONSTRUCTION SITE DIVERSION (1066).

3.02 INSTALLATION OF SILT FENCE AND STRAW BALE BARRIERS

A. INSTALL STRAW BALE BARRIERS IN ACCORDANCE WITH THE DRAWINGS AND WDNR CONSERVATION PRACTICE STANDARD, SEDIMENT BALE BARRIER (1055).

B. INSTALL SILT FENCE IN ACCORDANCE WITH THE DRAWINGS AND WDNR CONSERVATION PRACTICE STANDARD, SILT FENCE (1056).

C. SILT FENCE AND STRAW BALE BARRIERS SHALL BE PLACED ON THE CONTOUR TO THE EXTENT PRACTICABLE. PLACE FENCES PARALLEL TO THE SLOPE WITH THE ENDS OF THE FENCE TURNED UPSLOPE A DISTANCE OF ONE TO TWO FEET. THE PARALLEL SPACING SHALL NOT EXCEED THE MAXIMUM SLOPE LENGTHS AS INDICATED IN THE FOLLOWING TABLE:

FENCE AND BARRIER SPACING	
SLOPE	SPACING
<2%	100'
2 - 5%	75'
5 - 10%	50'
10 - 33%	25'
>33%	20'

3.03 TEMPORARY SEEDING

A. PROVIDE A SEEDBED OF LOOSE SOIL TO A MINIMUM DEPTH OF 2 INCHES.

B. APPLY SEED EVENLY AT THE RATE SHOWN IN THE FOLLOWING TABLE. RAKE OR DRAG TO COVER THE SEED TO A DEPTH OF 1/4 INCH.

SPECIES	LBS./ACRE
OATS	131
CEREAL RYE	131
WINTER WHEAT	131
ANNUAL RYEGRASS	80

3.04 EROSION MAT INSTALLATION

A. REMOVE STONES, CLODS, STICKS, OR OTHER FOREIGN MATERIAL THAT WOULD DAMAGE THE MAT OR INTERFERE WITH THE MAT BEARING COMPLETELY ON THE SURFACE.

B. INSTALL EROSION MAT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

C. AFTER SEEDING HAS BEEN COMPLETED, ROLL BLANKETS OUT PARALLEL TO THE DIRECTION OF WATER FLOW, WITH THE NETTING ON TOP. SPREAD THE BLANKETS WITHOUT STRETCHING, MAKING SURE THE FIBERS ARE IN CONTACT WITH THE SOIL. OVERLAP ADJACENT STRIPS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. OVERLAP STRIP ENDS A MINIMUM OF 10 INCHES WITH THE UPGRADE STRIP ON TOP. BURY THE UPGRADE END OF EACH STRIP IN A VERTICAL TRENCH AT LEAST 6 INCHES DEEP.

D. STAPLE THE MAT STRIPS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. STAPLE LONGITUDINAL OVERLAPS AND OUTER EDGES AT MAXIMUM INTERVALS OF 3 FEET. STAPLE STRIP ENDS AT MAXIMUM INTERVALS OF 16 INCHES. PLACE STAPLES THROUGHOUT THE MAT AT MAXIMUM 3-FOOT INTERVALS. INSERT STAPLES FLUSH WITH THE GROUND SURFACE.

3.05 SOIL STABILIZER

A. THE MANUFACTURER SHALL PROVIDE DETAILED WRITTEN INSTRUCTIONS ON THE STORAGE, MIXING, AND APPLICATION PROCEDURES.

B. THE SOIL STABILIZER MAY BE APPLIED BY SPRAYING OR BY DRY SPREADING.

C. APPLICATION RATES: APPLY AT THE RATE RECOMMENDED BY THE MANUFACTURER.

D. DO NOT APPLY WITHIN 30 FEET OF BODY OF WATER (I.E. LAKE, RIVER, STORMWATER POND).

3.06 DITCH EROSION CONTROL

A. THE FOLLOWING EROSION CONTROL MEASURES ARE MINIMUM REQUIREMENTS FOR ALL DITCHES. THE DRAWINGS MAY INCLUDE MORE SPECIFIC MEASURES.

DITCH EROSION CONTROL		
SLOPE RANGE	METHOD	BALE CHECKS
0 - 1%	SEED AND MULCH	NONE
1% - 4%	SEED AND MULCH WITH EROSION MAT	1% - 2%; EVERY 200' 2% - 4%; EVERY100'
4% - 6%	STAKED SOD	EVERY 75'
>6%	STAKED SOD AND/OR RIPRAP AS SPECIFIED BY ENGINEER ON DRAWINGS	EVERY 75' FOR SOD

B. STONE DITCH CHECKS: UNLESS OTHERWISE INDICATED ON THE DRAWINGS, INSTALL STONE DITCH CHECKS AT INTERVALS OF ONE DITCH CHECK FOR EVERY TWO FEET OF DROP IN CHANNEL GRADE.

3.07 INSTALLATION OF SOD IN DITCHES

A. LAY SOD SO THAT JOINTS OF ABUTTING ENDS OF STRIPS ARE NOT CONTINUOUS. LAY EACH STRIP SNUGLY AGAINST PREVIOUSLY LAID STRIPS.

B. ROLL OR FIRMLY TAMP SOD TO PRESS THE SOD INTO THE UNDERLYING SOIL.

C. TURN THE UPPER EDGES OF THE STRIPS INTO THE SOIL.

D. STAKE STRIPS ALONG THE LONGITUDINAL AXIS AT 18-INCH INTERVALS AND NEAR THE TOP EDGE OF THE STRIP. PROVIDE WOOD LATH OR SIMILAR STAKES, 12 INCHES LONG. LEAVE TOP OF STAKE APPROXIMATELY 1/2 INCH ABOVE SOD SURFACE.

3.08 INSTALLATION OF OTHER FACILITIES

A. INLET PROTECTION BARRIERS, CHANNEL STABILIZATION, GRASSED WATERWAYS, ROCK LINED WATERWAYS, SEDIMENTS TRAPS, SEDIMENT BASINS, AND OTHER FORMS OF EROSION CONTROL MEASURES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH WDNR *TECHNICAL STANDARDS*.

3.09 MAINTENANCE

A. INSPECT DIVERSIONS WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING PERIODS OF PROLONGED RAINFALL, UNTIL THE VEGETATIVE COVER IS STABILIZED. MAKE NECESSARY REPAIRS IMMEDIATELY.

B. INSPECT FILTER FABRIC FENCES AND BARRIERS WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING PERIODS OF PROLONGED RAINFALL. NECESSARY REPAIRS OR REPLACEMENT SHALL BE MADE IMMEDIATELY. REMOVE SEDIMENT DEPOSITS WHEN DEPOSITS REACH ONE-HALF THE HEIGHT OF THE FENCE. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR REPLACING FABRIC DUE TO WEATHERING.

C. INSPECT STRAW BALE FENCES AND BARRIERS WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING PERIODS OF PROLONGED RAINFALL. NECESSARY REPAIRS OR REPLACEMENT SHALL BE MADE IMMEDIATELY. REMOVE SEDIMENT DEPOSITS WHEN DEPOSITS REACH ONE-THIRD THE HEIGHT OF THE BALES. REPLACE BALES AFTER THREE MONTHS.

D. INSPECT ALL SEEDING, SOD, MULCHES, MATS AND NETS WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING PERIODS OF PROLONGED RAINFALL. ADDITIONAL MULCH, NETTING OR MATTING SHALL BE APPLIED IMMEDIATELY WHEN NECESSARY TO MAINTAIN SUITABLE COVERAGE. MAKE INSPECTIONS UNTIL VEGETATIVE COVER IS ESTABLISHED. WATER SEEDING AND SOD WHEN NECESSARY TO PROMOTE ESTABLISHMENT.

E. ALL OTHER SOIL EROSION CONTROL MEASURES SHOULD BE INSPECTED AND REPAIRED IMMEDIATELY, IF REQUIRED, WITHIN 24 HOURS AFTER STORM EVENT OR DAILY DURING PERIODS OF PROLONGED RAINFALL.

3.10 REMOVAL

A. AFTER FINAL VEGETATION IS ESTABLISHED, REMOVE BALES, SILT FENCES, *DITCH CHECKS, DIVERSIONS,* AND OTHER EROSION CONTROL FACILITIES. RESTORE AREAS DISTURBED BY THE REMOVALS.

3.11 MONITORING FOR WPDES PERMIT

A. UNLESS INDICATED OTHERWISE WITHIN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MONITORING REQUIREMENTS OF THE WPDES PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES.

B. EROSION AND SEDIMENT CONTROLS SHALL BE ROUTINELY INSPECTED AT LEAST EVERY SEVEN DAYS, AND WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OF 0.5 INCHES OR GREATER. WEEKLY WRITTEN REPORTS OF ALL INSPECTIONS SHALL BE MAINTAINED AND SUBMITTED TO THE ENGINEER. THE REPORTS SHALL CONTAIN THE FOLLOWING INFORMATION:
   1. DATE, TIME, AND EXACT PLACE OF INSPECTION.
   2. NAME(S) OF INDIVIDUAL(S) PERFORMING INSPECTION.
   3. AN ASSESSMENT OF THE CONDITION OF EROSION AND SEDIMENT CONTROLS.
   4. A DESCRIPTION OF ANY EROSION AND SEDIMENT CONTROL IMPLEMENTATION AND MAINTENANCE PERFORMED.
   5. A DESCRIPTION OF THE SITES PRESENT PHASE OF CONSTRUCTION.

C. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH THE APPROPRIATE DNR FORM TO USE FOR THE INSPECTIONS.

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EROSION CONTROL SPECS
Gerke Excavating, Inc.

Town of Wells
Monroe County, WI

REVISIONS	NO.	BY	DATE

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SCALE

DRAWN BY	EDB
DATE	June 2013
GEC FILE NO.	2-0113-46H
SHEET NO.	B1.3

NONMETALLIC MINING RECLAMATION
Town of Wells
Monroe County, Wisconsin

SEED MIX SPECIFICATION

MIX 2 – STABILIZATION WILDLIFE / GRAZING MIX

Grasses, sedges and similar plants

Common Name	Scientific Name	pounds per acre
Agricultural Rye	*Secale cereale*	4
Timothy	*Phleum pratense*	2
Tall Fescue	*Festuca arundinaceae*	3
Switchgrass	*Panicum virgatum*	1
Big Bluestem	*Andropogon gerardi*	1
Canada Wild Rye	*Elymus Canadensis*	3
Alsike Clover	*Trifolium hybridum*	4
Red Clover	*Trifolium repens*	4
Alfalfa	*Medicago sativa*	5
		Total: 27 pounds per acre

APPENDIX C

Monroe County Nonmetallic
Mining Permit Application

Monroe County
Land Conservation Department
820 Industrial Drive, Suite 3
Sparta WI 54656
(608) 269-8976

APPLICATION FOR RECLAMATION PERMIT FOR NEW OR REOPENED NONMETALLIC MINING SITES
Form NM-02 Date - 1/13

PLEASE COMPLETE ALL INFORMATION ON THIS APPLICATION. PRINT OR TYPE. Use of this form is required for any nonmetallic mining reclamation permit application filed pursuant to Chapter NR 135, Wis. Adm. Code. Monroe County will not consider your application unless you complete and submit all information required by this application form.

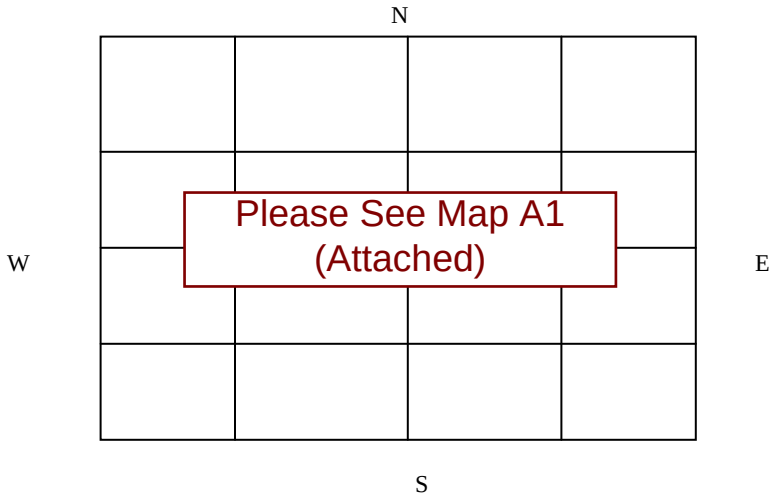
1. **Applicant/Operator**
Gerke Excavating, Inc.
Address
15341 State Highway 131
City, State, Zip Code
Tomah, WI 54660
Telephone No. (Include area code)
(608) 372-4203

2. **Property Owners/Lessors (if different from Applicant/Operator)**
SAME
Address
City, State, Zip Code
Telephone No. (Include area code)
(Additional owner/lessor information can be submitted on separate sheet)

3. **Property Description: Provide the complete legal description of the property on which the mine is located (example: N ½ , NE ¼, Section 3, T29N, R6E)**

SE, SW, & NW 1/4 of SE 1/4, SEC 1, T16N, R3W
Town, City, Village of Wells, County of MONROE
Tax Parcel Number 046000190000, 046000210000, 046000230000(W of CTH AA)
Total Site Acreage Parcels = 98.5 acres, Mining area = ~43 acres

4. **General Location Map - draw the location of the site on the section map below. Include roads and any other pertinent information and label ¼ ¼ section points. Alternatively, attach a plat map, topographic map or other map of sufficient detail to enable access to the site by public roads**



5. **Project Information: Please provide a brief description of the general location (including surrounding land use) and the nature of the nonmetallic mine (type of deposit, proposed frequency and expected duration of mining activity).**

General Location is as noted above, 300-500 ft NW of intersection of CTH AA, Jeep Road, Kayak Road, and Jellyfish Avenue, west of CTH AA for approximately 3,000 ft N-S. Surrounding uses are Agricultural in nature, with another quarry located ~1300 ft to the east (See County Zoning on Map A2 for surrounding area). The mine will be primarily used as a quarry for extraction of limestone and other rock material useful for construction base course materials. The quarry will operate daily, and is expected to remain open for 12-20 years.

6. Reclamation Plan: A reclamation plan conforming to s. NR 135.19, Wis. Adm. Code must be submitted with this permit application, including any previous regulatory approvals so long as they meet the reclamation standards of subch. II of NR 135 as allowed under ss. NR 135.21(1)(d) and (e), Wis. Adm. Code.

I hereby certify, as a duly authorized representative or agent, that the operator, Gerke Excavating, Inc. (name of operator), will provide, as a condition of the reclamation permit, financial assurance as required by s. NR 135.40, Wis. Adm. Code, upon granting of the reclamation permit and before mining begins.

I also certify that, if applicable, the land owner or lessor has been provided with a copy of the reclamation plan as required by s. NR 135.19(6)(b), Wis. Adm. Code and a signed certification from the landowner indicating their concurrence with the reclamation is attached to this application.

Signature of Applicant or Duly Authorized Agent _____ Date Signed _____

7. Fees:

Acres currently undisturbed that will be activated January 1, 2013 through December 31, 2013 4.0 **acres**

Total fee for 2013 (includes DNR fee) (see table below) = **$** 185.00

I hereby certify that the information contained herein is true and accurate. I also certify that I am entitled to apply for a permit, or that I am the duly authorized representative or agent of an applicant who is entitled to apply for a permit.

Signature of Applicant or Duly Authorized Agent _____ **Date Signed** _____

FEE SCHEDULE

Mine Size, Unreclaimed Acres	2012 Monroe Co. Fee	Wisconsin DNR's Annual Fee	Total Annual Fee 2012
1 to 5 acres	$150	$35	$185
6 to 10 acres	$300	$70	$370
11 to 15 acres	$450	$105	$555
16 to 25 acres	$600	$140	$740
26 to 50 acres	$700	$160	$860
51 acres or larger	$750	$175	$925

MAKE CHECKS PAYABLE TO: MONROE COUNTY LAND CONSERVATION DEPT.

LEAVE BLANK - FOR RECEIVING AGENCY USE ONLY

Permit No.	**Date Received** **Date Application Was Complete**
Date Reclamation Plan Received: **Received By:**	**Date Financial Assurance Received:** **Received By:** **Amount**

General Engineering Company
P.O. Box 340
916 Silver Lake Drive
Portage, WI 53901

608-742-2169 (Office)
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gec@generalengineering.net
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Engineers • Consultants • Inspectors

Metes and Bounds Report
Project Name: New Quarry Site, Gerke Excavating
Report Date: 9/10/2013

Client: Gerke Excavating
Prepared by: GEC

Metes and Bounds Description of Parcel

Beginning at the SW Corner of the NW ¼ of the SE ¼ of Section 1. T16N, R3W, Town of Wells, Monroe County, WI, whose Northing is 359432.114 and whose Easting is 660779.334 ;

- thence bearing N 1-15-36.623 E a distance of 1306.451 ;
- thence bearing S 89-36-5.084 E a distance of 1193.900 ;
- thence bearing S 5-23-1.391 W a distance of 84.824 ;
- thence bearing N 89-2-10.656 W a distance of 8.304 ;
- thence along a curve to the LEFT, having a radius of 90.501 a delta angle of 69° 26' 12.02”, and whose long chord bears S 56-14-43.336 W a distance of 103.089 ;
- thence bearing S 21-31-37.329 W a distance of 207.721 ;
- thence along a curve to the LEFT, having a radius of 556.965 a delta angle of 20° 22' 31.63"", and whose long chord bears S 11-20-21.511 W a distance of 197.025 ;
- thence bearing S 1-9-5.694 W a distance of 439.595 ;
- thence along a curve to the RIGHT, having a radius of 203.373 a delta angle of 79° 19' 13.11", and whose long chord bears S 40-48-42.250 W a distance of 259.598 ;
- thence bearing S 80-28-18.806 W a distance of 230.551 ;
- thence bearing N 80-28-18.806 E a distance of 230.551 ;
- thence along a curve to the LEFT, having a radius of 203.373 a delta angle of 79° 19' 13.11", and whose long chord bears N 40-48-42.250 E a distance of 259.598 ;
- thence bearing N 1-9-5.694 E a distance of 439.595 ;
- thence along a curve to the RIGHT, having a radius of 556.965 a delta angle of 20° 22' 31.63", and whose long chord bears N 11-20-21.511 E a distance of 197.025 ;
- thence bearing N 21-31-37.329 E a distance of 207.721 ;
- thence along a curve to the RIGHT, having a radius of 90.501 a delta angle of 69° 26' 12.02", and whose long chord bears N 56-14-43.336 E a distance of 103.089 ;
- thence bearing S 89-2-10.656 E a distance of 8.304 ;
- thence bearing S 5-23-1.391 W a distance of 246.120 ;
- thence along a curve to the LEFT, having a radius of 767.464 a delta angle of 09° 24' 36.44", and whose long chord bears S 4-8-16.747 W a distance of 125.905 ;
- thence along a curve to the LEFT, having a radius of 751.867 a delta angle of 09° 36' 20.30", and whose long chord bears S 6-21-31.423 E a distance of 125.903 ;
- thence bearing S 14-19-21.551 E a distance of 141.409 ;
- thence bearing S 19-23-28.643 E a distance of 307.029 ;
- thence bearing S 1-9-0.064 W a distance of 298.875 ;
- thence bearing S 89-39-47.833 E a distance of 1327.356 ;

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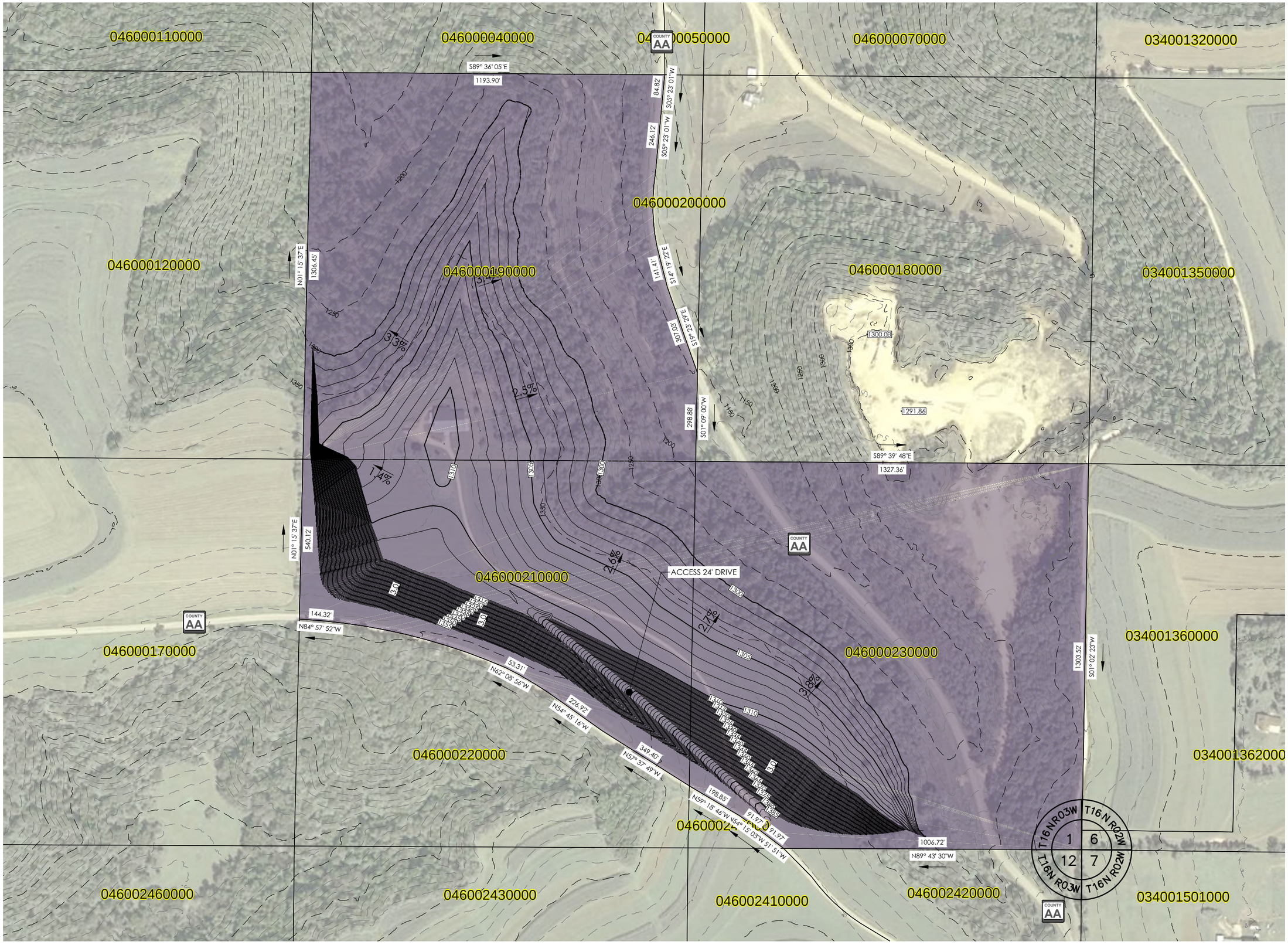
- thence bearing S 1-2-22.751 W a distance of 1303.517 ;
- thence bearing N 89-43-29.875 W a distance of 1006.720 ;
- thence bearing N 52-51-50.975 W a distance of 91.970 ;
- thence bearing N 54-15-2.590 W a distance of 91.970 ;
- thence bearing N 59-18-45.790 W a distance of 198.851 ;
- thence bearing N 57-37-49.316 W a distance of 349.404 ;
- thence bearing N 54-45-16.240 W a distance of 226.918 ;
- thence along a curve to the LEFT, having a radius of 1340.164 a delta angle of 04° 33' 29.28", and whose long chord bears N 58-35-50.703 W a distance of 106.588 ;
- thence bearing N 62-8-56.073 W a distance of 53.305 ;
- thence along a curve to the LEFT, having a radius of 2007.364 a delta angle of 16° 28' 50.77", and whose long chord bears N 74-39-38.555 W a distance of 575.417 ;
- thence bearing N 84-57-51.553 W a distance of 144.321 ;
- thence bearing N 1-15-36.788 E a distance of 540.122 to the point of beginning.



GERKE Excavating Inc.

GEC

General Engineering Company

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PROPOSED QUARRY
Gerke Excavating, Inc.

Town of Wells
Monroe County, WI

DATE	BY	NO.	REVISIONS

N W E S

0 150' 300'
SCALE

DRAWN BY	EDB
DATE	Sept 2013
GEC FILE NO.	2-0113-46H
SHEET NO.	C5.0